Pentair Water

Fleck 2850s

Service Manual

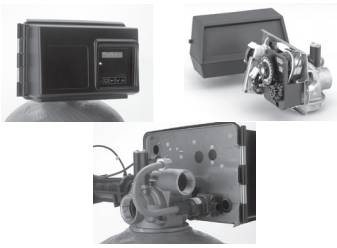


TABLE OF CONTENTS

JOB SPECIFICATION SHEET

Job Number: _____

Model Number: _____

Water Hardness: _____ ppm or gpg

Capacity Per Unit: _____

Mineral Tank Size: _____ Diameter: _____ Height: _____

Salt Setting per Regeneration: _____

1. **Type of Timer:**
   - A. 7 Day or 12 Day
   - B. Meter Initiated
2. **Downflow:** **Upflow** **Upflow Variable**
3. **Meter Size:**
   - A. 3/4" Std Range (125 - 2,100 gallon setting)
   - B. 3/4" Ext Range (625 - 10,625 gallon setting)
   - C. 1" Std Range (310 - 5,270 gallon setting)
   - D. 1" Ext Range (1,150 - 26,350 gallon setting)
   - E. 1-1/2" Std Range (625 - 10,625 gallon setting)
   - F. 1-1/2" Ext Range (3,125 - 53,125 gallon setting)
   - G. 2" Std Range (1,250 - 21,250 gallon setting)
   - H. 2" Ext Range (6,250 - 106,250 gallon setting)
   - I. 3" Std Range (3,750 - 63,750 gallon setting)
   - J. 3" Ext Range (18,750 - 318,750 gallon setting)
   - K. Electronic _____ Pulse Count _____ Meter Size _____
4. **System Type:**
   - A. System #4: 1 Tank, 1 Meter, Immediate, or Delayed Regeneration
   - B. System #4: Time Clock
   - C. System #4: Twin Tank
   - D. System #5: 2-5 Tanks, Interlock Mechanical
     2-4 Tanks, Interlock Electronic
     Meter per unit for Mechanical and Electronic
   - E. System #6: 2-5 Tanks, 1 Meter, Series Regeneration, Mechanical
     2-4 Tanks, 1 Meter, Series Regeneration, Electronic
   - F. System #7: 2-5 Tanks, 1 Meter, Alternating Regeneration, Mechanical
     2 Tanks only, 1 Meter, Alternating Regeneration, Electronic
   - G. System #9: Electronic Only, 2-4 Tanks, Meter per Valve, Alternating
   - H. System #14: Electronic Only, 2-4 Tanks, Meter per Valve. Brings units on and offline based on flow.
5. **Timer Program Settings:**
   - A. Backwash: _____ Minutes
   - B. Brine and Slow Rinse: _____ Minutes
   - C. Rapid Rinse: _____ Minutes
   - D. Brine Tank Refill: _____ Minutes
   - E. Pause Time: _____ Minutes
   - F. Second Backwash: _____ Minutes
6. **Drain Line Flow Control: _____gpm**
7. **Brine Line Flow Controller: _____gpm**
8. **Injector Size#: _____**
9. **Piston Type:**
   - A. Hard Water Bypass
   - B. No Hard Water Bypass

INSTALLATION

Water Pressure

A minimum of 20 pounds (1.4 bar) of water pressure is required for regeneration valve to operate effectively.

Electrical Facilities

An uninterrupted alternating current (A/C) supply is required. Note: Other voltages are available. Please make sure your voltage supply is compatible with your unit before installation.

Existing Plumbing

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

Location Of Softener And Drain

The softener should be located close to a drain to prevent air breaks and back flow.

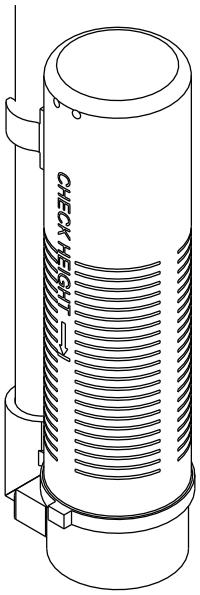
BY-PASS VALVES

Always provide for the installation of a by-pass valve if unit is not equipped with one.

CAUTION **Water pressure is not to exceed 125 psi (8.6 bar), water temperature is not to exceed 110°F (43°C), and the unit cannot be subjected to freezing conditions.**

Installation Instructions

1. Place the softener tank where you want to install the unit making sure the unit is level and on a firm base.
2. During cold weather, the installer should warm the valve to room temperature before operating.
3. All plumbing should be done in accordance with local plumbing codes. The pipe size for residential drain line should be a minimum of 1/2" (13 mm). Backwash flow rates in excess of 7 gpm (26.5 Lpm) or length in excess of 20' (6 m) require 3/4" (19 mm) drain line. Commercial drain lines should be the same size as the drain line flow control.
4. Refer to the dimensional drawing for cutting height of the distributor tube. If there is no dimensional drawing, cut the distributor tube flush with the top of the tank.
5. Lubricate the distributor O-ring seal and tank O-ring seal. Place the main control valve on tank. Note: Only use silicone lubricant.
6. Solder joints near the drain must be done prior to connecting the Drain Line Flow Control fitting (DLFC). Leave at least 6" (15 cm) between the DLFC and solder joints when soldering pipes that are connected on the DLFC. Failure to do this could cause interior damage to the DLFC.
7. Teflon tape is the only sealant to be used on the drain fitting. The drain from twin tank units may be run through a common line.
8. Make sure that the floor is clean beneath the salt storage tank and that it is level.
9. Place approximately 1" (25 mm) of water above the grid plate. If a grid is not utilized, fill to the top of the air check (Figure 1) in the salt tank. Do not add salt to the brine tank at this time.
10. On units with a by-pass, place in by-pass position. Turn on the main water supply. Open a cold soft water tap nearby and let run a few minutes or until the system is free from foreign material (usually solder) that may have resulted from the installation. Once clean, close the water tap.
11. Slowly place the by-pass in service position and let water flow into the mineral tank. When water flow stops, slowly open a cold water tap nearby and let run until the air is purged from the unit.
12. Plug unit into an electrical outlet. Note: All electrical connections must be connected according to local codes. Be certain the outlet is uninterrupted.



60002 Rev E

Figure 1 Residential Air Check Valve

START-UP INSTRUCTIONS

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

1. Turn the manual regeneraton knob slowly in a clockwise direction until the program micro switch lifts on top of the first set of pins. Allow the drive motor to move the piston to the first regeneration step and stop. Each time the program switch position changes, the valve will advance to the next regeneration step. Always allow the motor to stop before moving to the next set of pins or spaces.

   NOTE: For electronic valves, please refer to the manual regeneration part of the timer operation section. If the valve came with a separate electronic timer service manual, refer to the timer operation section of the electronic timer service manual.
2. Position the valve to backwash. Ensure the drain line flow remains steady for 10 minutes or until the water runs clear (see above).
3. Position the valve to the brine / slow rinse position. Ensure the unit is drawing water from the brine tank (this step may need to be repeated).
4. Position the valve to the rapid rinse position. Check the drain line flow, and run for 5 minutes or until the water runs clear.
5. Position the valve to the start of the brine tank fill cycle. Ensure water goes into the brine tank at the desired rate. The brine valve drive cam will hold the valve in this position to fill the brine tank for the first regeneration.
6. Replace control box cover.
7. Put salt in the brine tank.

   NOTE: Do not use granulated or rock salt.

3200 TIMER SETTING PROCEDURE

How To Set Days On Which Water Conditioner Is To Regenerate (Figure 2)

Rotate the skipper wheel until the number “1” is at the red pointer. Set the days 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

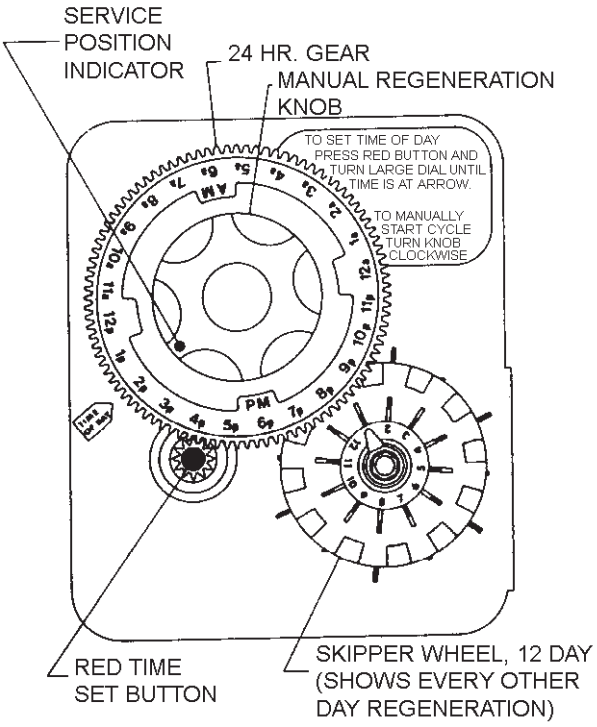
1. Press and hold the red button in to disengage the drive gear.
2. Turn the large gear until the actual time of day is at the time of day pointer.
3. Release the red button to again engage the drive gear.

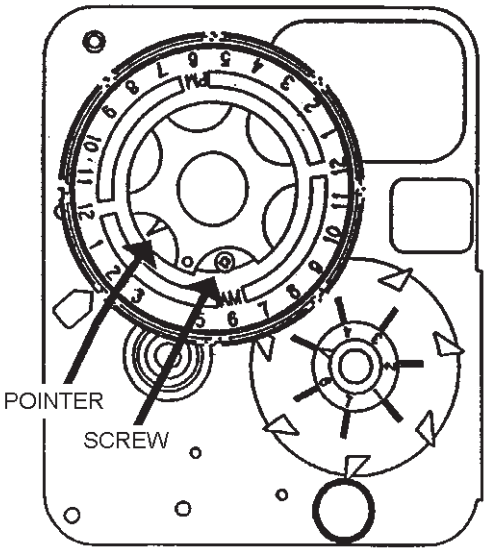
How To Manually Regenerate Your Water Conditioner At Any Time

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

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 cut out.
5. Turn the time plate so the desired regeneration time aligns next to the raised arrow.
6. Push the red button in and rotate the 24 hour dial. Tighten each of 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.





3200 ADJUSTABLE REGENERATION TIMER

IMPORTANT!
SALT LEVEL MUST ALWAYS BE ABOVE WATER LEVEL IN BRINE TANK

61502-3200 Rev A

Figure 2

3210 TIMER SETTING PROCEDURE

Typical Programming Procedure

Calculate the gallon capacity of the system, subtract the necessary reserve requirement and set the gallons available opposite the small white dot on the program wheel gear (Figure 3).

NOTE: Drawing shows 8,750 gallon setting. The capacity (gallons) arrow (15) shows zero gallons remaining. The unit will regenerate tonight at the set regeneration time.

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 of day is opposite 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

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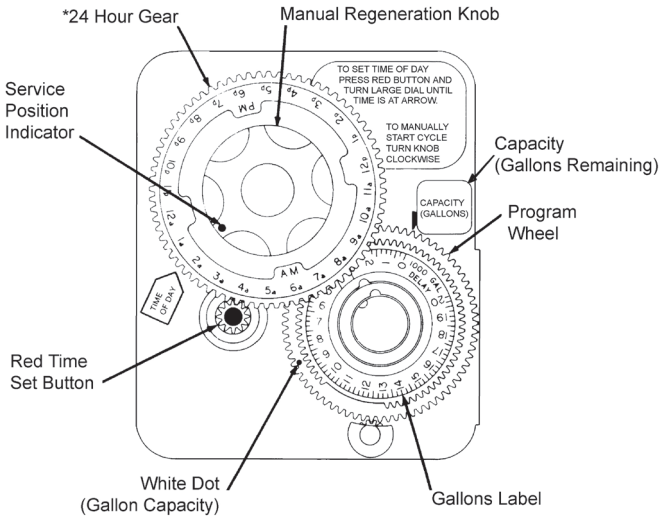
4. Even though it takes three hours for this center knob to complete one revolution, the regeneration cycle of your unit might be set for only one half of this time.
5. In any event, conditioned water may be drawn after rinse water stops flowing from the water conditioner drain line.

Immediate Regeneration Timers

These timers do not have a 24 hour gear. Setting the gallons on the program wheel and manual regeneration procedure are the same as previous instructions. The timer will regenerate as soon as the capacity gallons reaches zero.

NOTE: The program wheel to the left may be different than the program wheel on the product.

NOTE:To set meter capacity rotate manual knob one - 360° revolution to set gallonage.



*Immediate regeneration timers do not have a 24-hour gear. No time of day can be set.

61502-3200 Rev A

Figure 3

3200, 3210, 3220, 3230 REGENERATION CYCLE SETTING PROCEDURE

How To Set The Regeneration Cycle Program

The regeneration cycle program on your water conditioner has been factory preset, however, portions of the cycle or program may be lengthened or shortened in time to suit local conditions.

3200 Series Timers (Figure 4)

1. To expose cycle program wheel, grasp timer in upper left-hand corner and pull, releasing snap retainer and swinging timer to the right.
2. To change the regeneration cycle program, the program wheel must be removed. Grasp program wheel and squeeze protruding lugs toward center, lift program wheel off timer. Switch arms may require movement to facilitate removal.
3. Return timer to closed position engaging snap retainer in back plate. Make certain all electrical wires locate above snap retainer post.

Timer Setting Procedure

How To Change The Length Of The Backwash Time

The program wheel as shown in the drawing is in the service position. As you look at the numbered side of the program wheel, the group of pins starting at zero determines the length of time your unit will backwash.

For example, if there are six pins in this section, the time of backwash will be 12 min. (2 min. per pin). To change the length of backwash time, add or remove pins as required. The number of pins times two equals the backwash time in minutes.

How To Change The Length Of Brine And Rinse Time

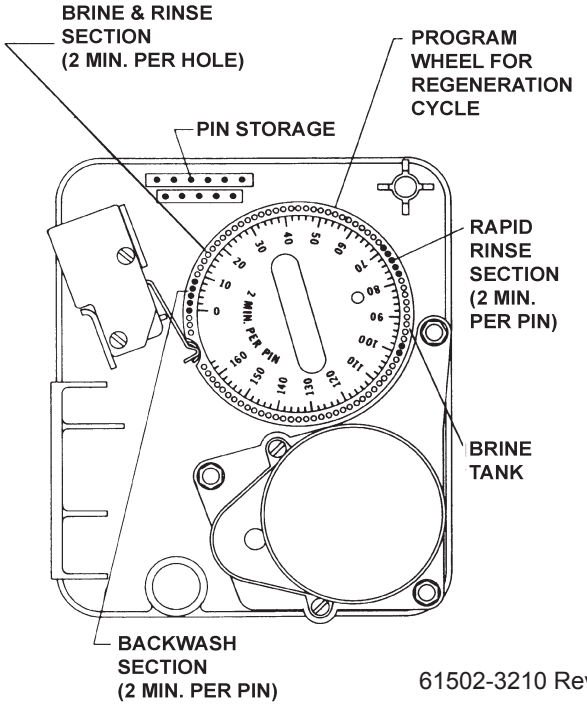
1. The group of holes between the last pin in the backwash section and the second group of pins determines the length of time that your unit will brine and rinse (2 min. per hole).
2. To change the length of brine and rinse time, move the rapid rinse group of pins to give more or fewer holes in the brine and rinse section. Number of holes times two equals brine and rinse time in minutes.

How To Change The Length Of Rapid Rinse

1. The second group of pins on the program wheel determines the length of time that your water conditioner will rapid rinse (2 min. per pin).
2. To change the length of rapid rinse time, add or remove pins at the higher numbered end of this section as required. The number of pins times two equals the rapid rinse time in minutes.

How To Change The Length Of Brine Tank Refill Time

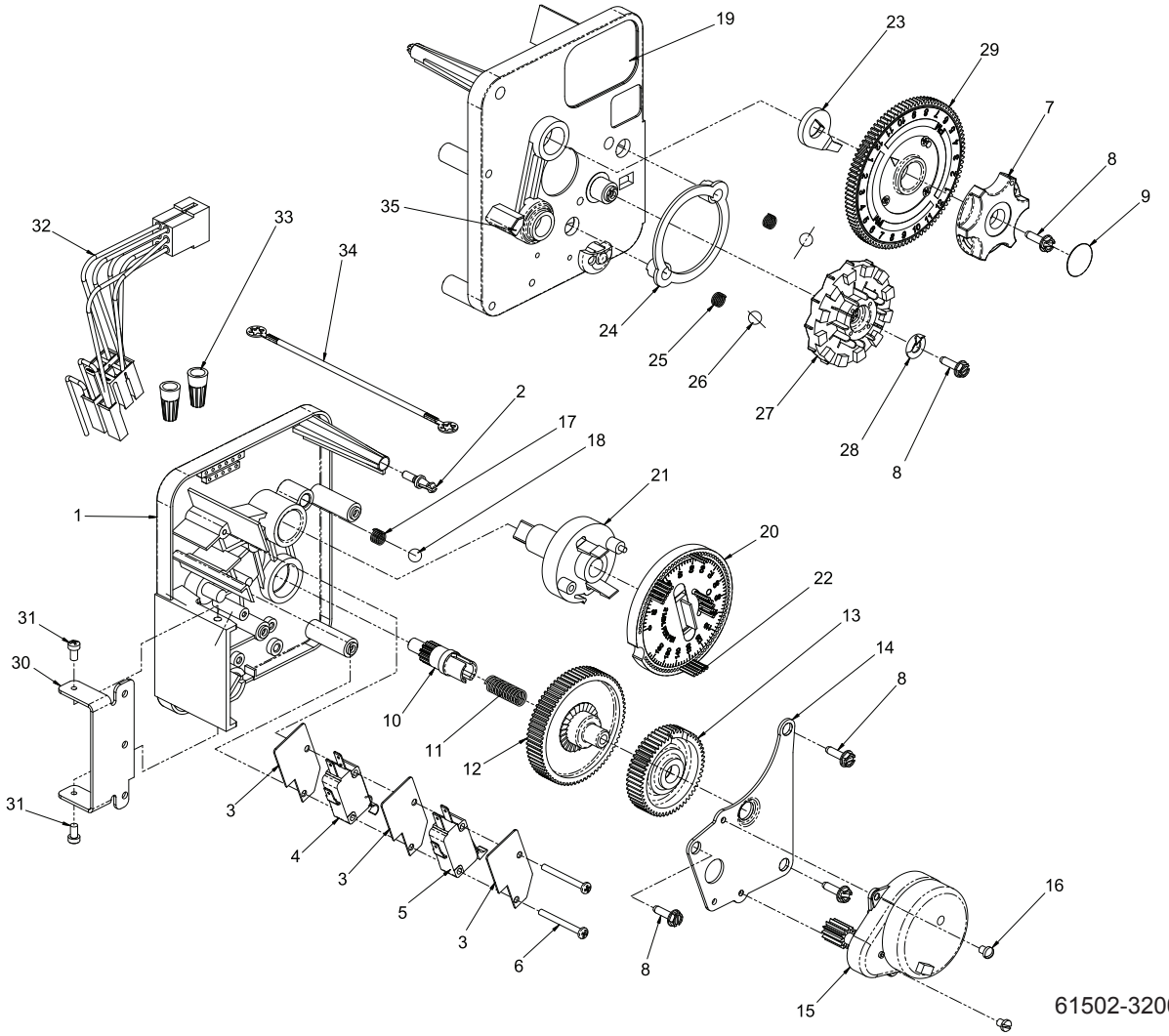
1. The second group of holes in the program wheel determines the length of time that your water conditioner will refill the brine tank (2 min. per hole).
2. To change the length of refill time, move the two pins at the end of the second group of holes as required.
3. The regeneration cycle is complete when the outer microswitch is tripped by the two pin set at end of the brine tank refill section.
4. The program wheel, however, will continue to rotate until the inner micro switch drops into the notch on the program wheel.



61502-3210 Rev A

Figure 4

3200 TIME CLOCK TIMER ASSEMBLY

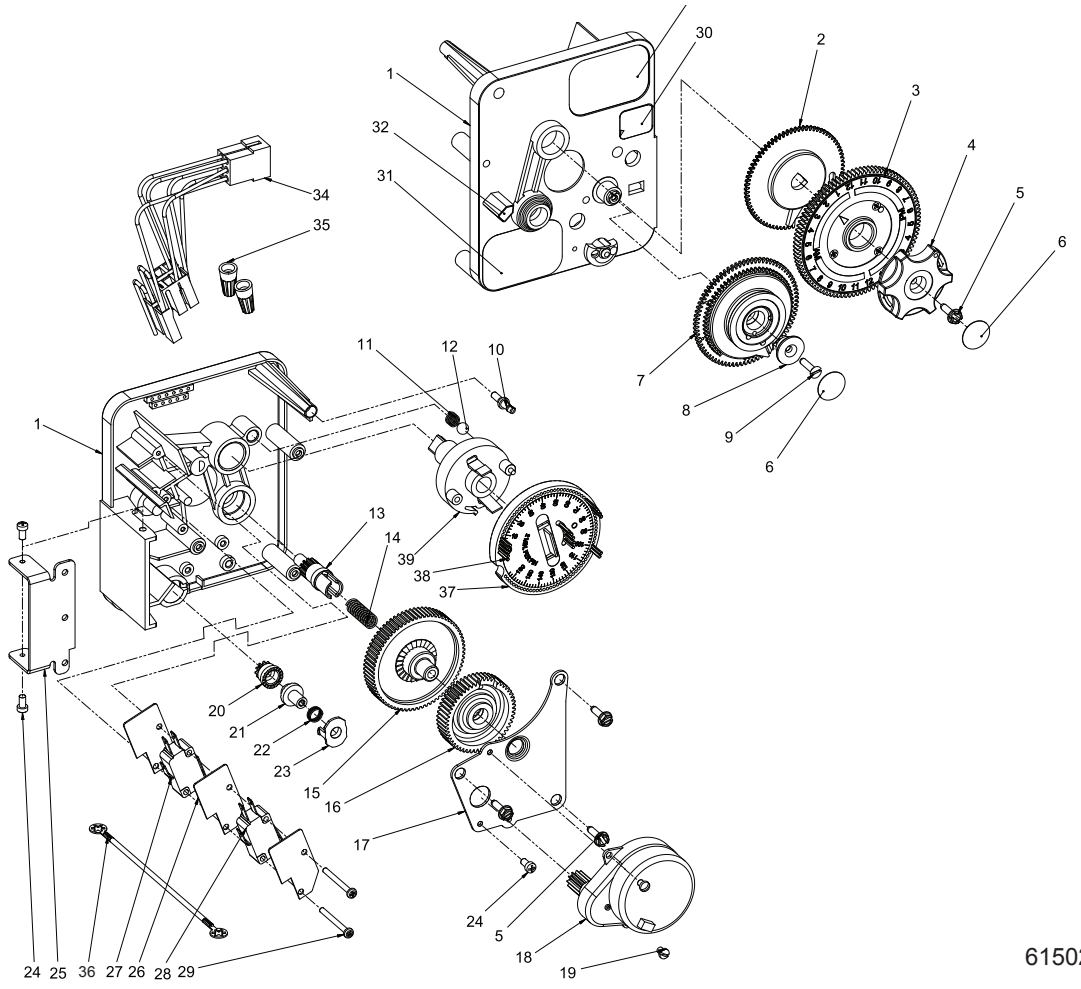


61502-3200 Rev A

Item No.	QTY	Part No.	Description
1	1	13870	Housing, Timer, 3200
2	1	14265	Clip, Sping
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
	1	18752-1	Motor, 100V, 50Hz, 1/30 RPM
	1	18824-1	Motor, 23V, 50Hz, 1/30 RPM
	1	18826-1	Motor, 24V, 50Hz, 1/30 RPM
	1	19659-1	Motor, 24V, 60Hz, 1/30 RPM
	1	19660-1	Motor, 230V, 60Hz, 1/30 RPM
16	2	13278	Screw, Sltd Fillister Hd 6-32 x .156

Item No.	QTY	Part No.	Description
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
	1	14860	Skipper Wheel Assy, 7 Day
28	1	13014	Pointer, Regeneration
29	1	40096-24	Dial, 12 AM Regen Assy, Black
	1	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

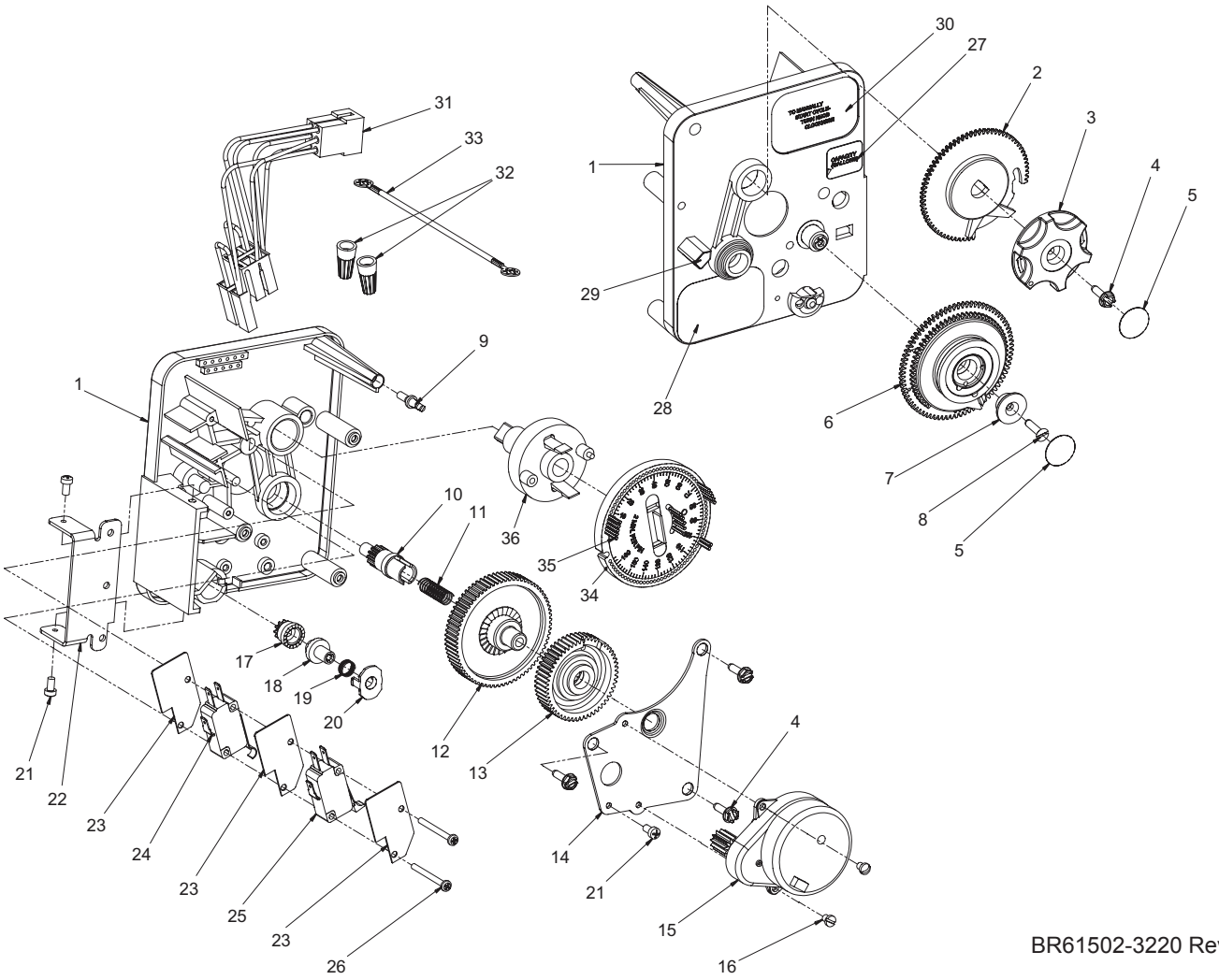
3210 METER DELAYED TIMER ASSEMBLY



61502-3210 Rev A

Item No.	QTY	Part No.	Description
1	1	13870	Housing, Timer, 3200
2	1	13802	Gear, Cycle Actuator
3	1	40096-02	Dial 2 AM Regen Assy, Black
4	1	13886	Knob, 3200
5	4	13296	Screw, Hex Wsh, 6-20 x 1/2
6	2	11999	Label, Button
7	1	60405-20	Program Wheel, w/34" Ext Label, 1-1/2" STD Set @ 100
8	1	13806	Retainer, Program Wheel
9	1	13748	Screw, Flat Head St, 6-20 x 1/2
10	1	14265	Clip, Spring
11	1	15424	Spring, Detent, Timer
12	1	15066	Ball, 1/4" Delrin
13	1	13018	Pinion, Idler
14	1	13312	Spring, Idler Shaft
15	1	13017	Gear, Idler
16	1	13164	Gear, Drive
17	1	13887	Plate, Motor Mounting
18	1	18743-1	Motor, 120V, 60Hz 1/30 RPM
	1	18752-1	Motor, 100V, 50Hz, 1/30 RPM
	1	18824-1	Motor, 23V, 50Hz, 1/30 RPM
	1	18826-1	Motor, 24V, 50Hz, 1/30 RPM
	1	19659-1	Motor, 24V, 60Hz, 1/30 RPM
	1	19660-1	Motor, 230V, 60Hz, 1/30 RPM
19	1	13278	Screw, Fillister Hd, 6-32 x .156
20	1	13830	Pinion, Program Wheel Drive
21	1	13831	Clutch, Drive Pinion
22	1	14276	Spring, Meter, Clutch
23	1	14253	Retainer, Clutch Spring
24	3	11384	Screw, Phil, 6-32 x 1/4
25	1	13881	Bracket, Hinge Timer
26	3	14087	Insulator
27	1	10896	Switch, Micro
28	1	15320	Switch, Micro, Timer
29	2	11413	Screw, Pan Hd Mach, 4-40 x 1 1/8
30	1	14198	Label, Indicator
31	1	15465	Label, Caution
32	1	14007	Label, Time of Day
33	1	14045	Label, Instruction
34	1	13902	Harness, 3200
35	2	40422	Nut, Wire, Tan
36	1	15354-01	Wire, Ground, 4"
37	1	19210	Program Wheel Assy
38	17	41754	Pin, Spring, 1/16 x 5/8 SS, Timer
39	1	13911	Gear, Main Drive, Timer

3220 METER IMMEDIATE TIMER ASSEMBLY

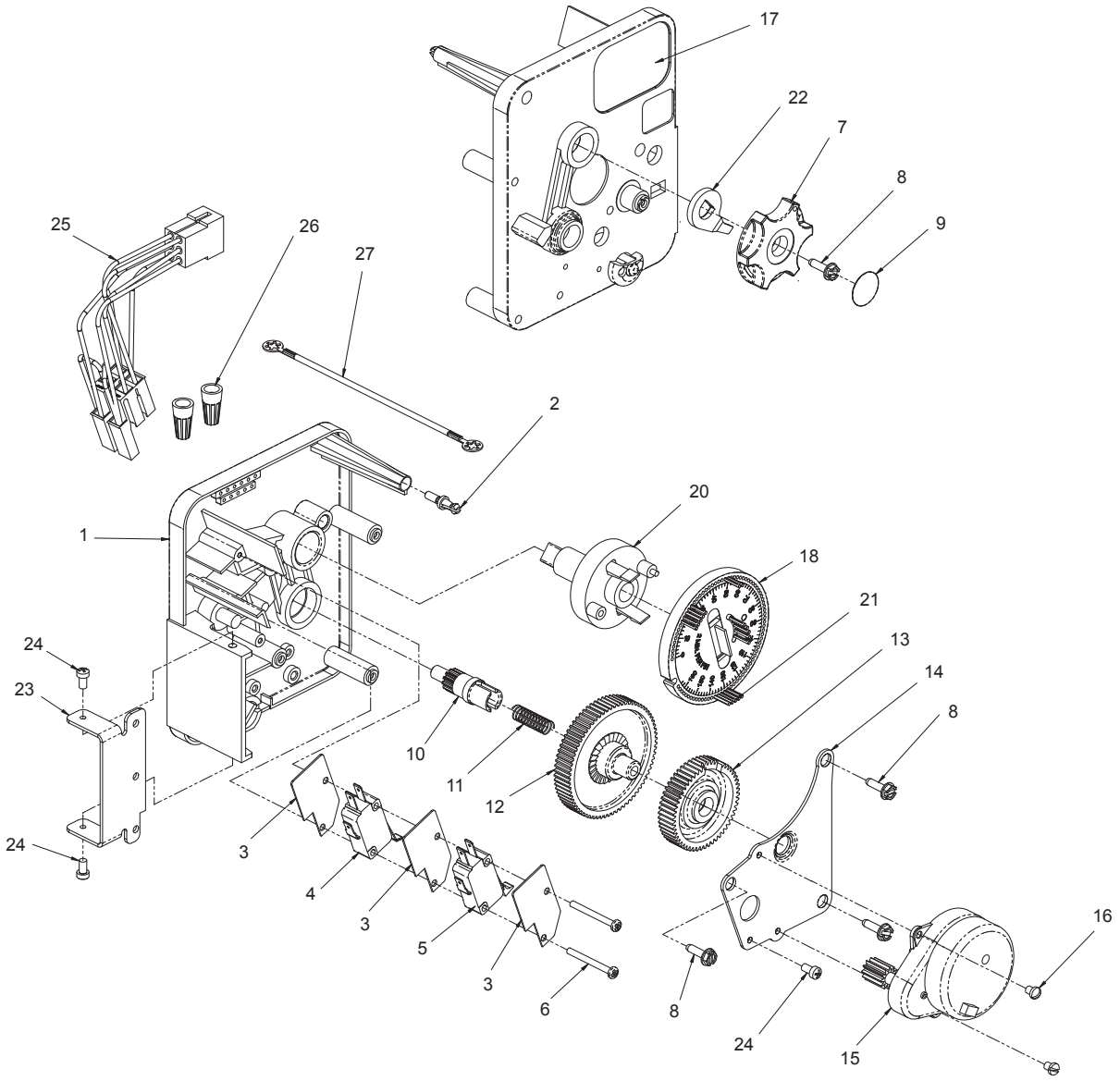


BR61502-3220 Rev B

Item No.	QTY	Part No.	Description
1	1	13870	Housing, Timer
2	1	15431	Gear, Cycle Actuator Sys #5
3	1	13886	Knob, 3200
4	4	13296	Screw, Hex Wsh, 6-20 x 1/2
5	2	11999	Label, Button
6	1	60405-50	Program Wheel, w/2" Std Label
7	1	13806	Retainer, Program Wheel
8	1	13748	Screw, Flt Hd St, 6-20 x 1/2
9	1	14265	Spring Clip
10	1	13018	Pinion, Idler
11	1	18563	Idler Shaft Spring
12	1	13017	Gear, Idler
13	1	13164	Drive Gear
14	1	13887	Plate, Motor Mounting
15	1	18743-1	Motor, 120V, 60 Hz 1/30 RPM
	1	18752-1	Motor, 100V, 50Hz, 1/30 RPM
	1	18824-1	Motor, 23V, 50Hz, 1/30 RPM
	1	18826-1	Motor, 24V, 50Hz, 1/30 RPM
	1	19659-1	Motor, 24V, 60Hz, 1/30 RPM
	1	19660-1	Motor, 230V, 60Hz, 1/30 RPM
16	2	13278	Screw, Sltd Fillister Hd

Item No.	QTY	Part No.	Description
17	1	14502	Pinion, Program Wheel
18	1	14501	Clutch, Drive Pinion
19	1	14276	Meter Clutch Spring
20	1	14253	Retainer, Clutch Spring
21	3	11384	Screw, Phil, 6-32 x 1/4 Zinc
22	1	13881	Bracket, Hinge Timer
23	3	14087	Insulator
24	1	15314-00	Micro Switch
25	1	15320	Switch, Micro, Timer
26	2	11413	Screw, Pan Hd Mach, 4-40 x 1-1/8
27	1	14198	Label, Indicator
28	1	15465	Label, Caution
29	1	14007	Label, Time of Day
30	1	15148	Label, Instruction
31	1	40617	Harness, 3220
32	2	40422	Nut, Wire, Tan
33	1	15354-01	Wire, Ground, 4"
34	1	19210-05	Program Wheel Assy, 9000/3230
35	17	41754	Pin, Spring, 1/16 x 5/8 SS, Timer
36	1	15055	Gear, Main Drive

3230 REMOTE START TIMER ASSEMBLY



61502-3230R REV A

Item No.	QTY	Part No.	Description
1	1	13870	Housing, Timer
2	1	14265	Spring Clip
3	3	14087	Insulator
4	1	15314	Micro Switch
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	4	13296	Screw, Hex Wsh, 6-20 x 1/2
9	1	11999	Label, Button
10	1	13018	Pinion, Idler
11	1	18563	Idler Shaft Spring
12	1	13017	Gear, Idler
13	1	15055	Drive Gear
14	1	13887	Plate, Motor Mounting
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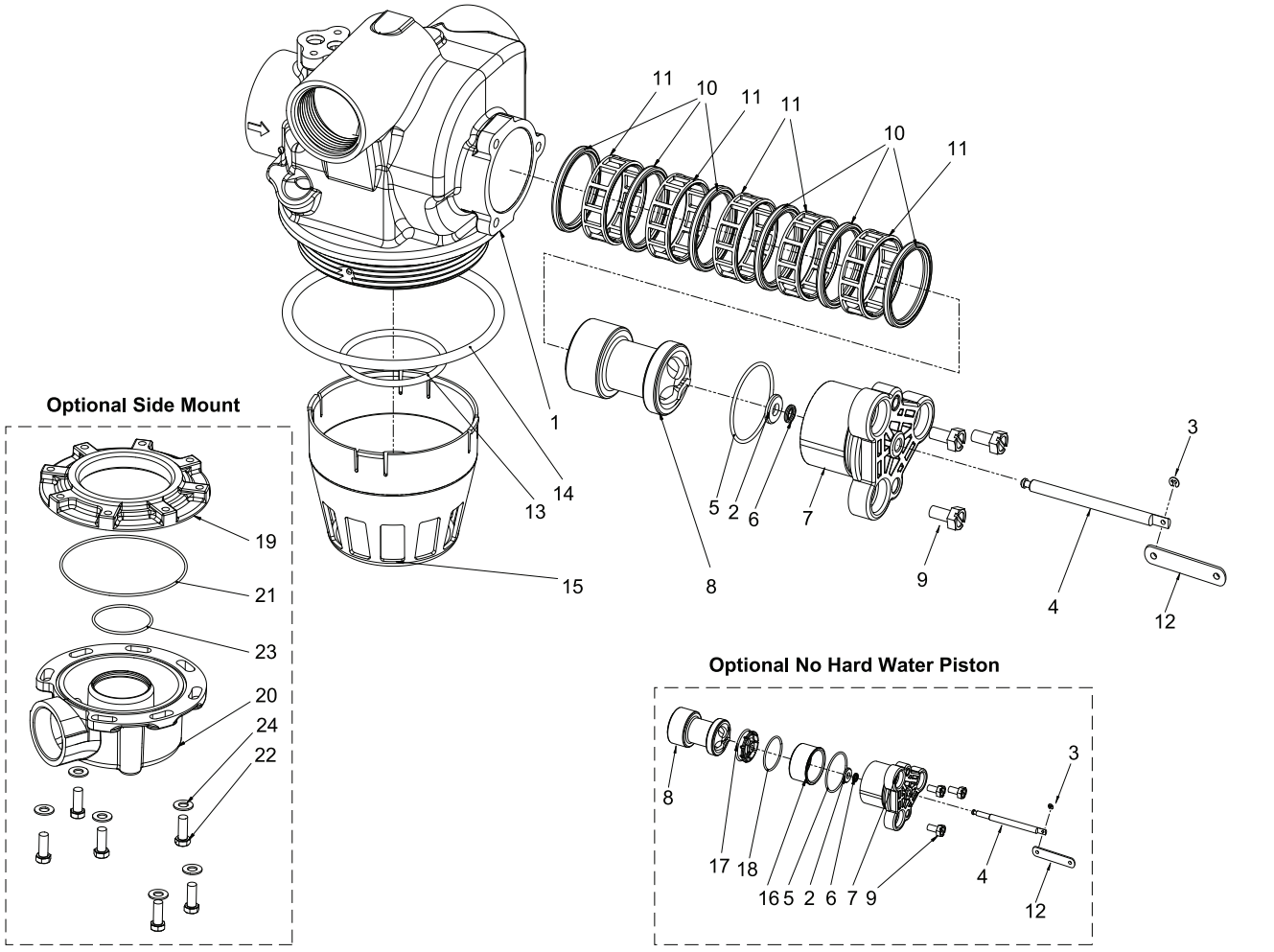
	1	19659-1	Motor, 24V, 60Hz, 1/30 RPM
	1	19660-1	Motor, 230V, 60Hz, 1/30 RPM
16	2	13278	Screw, Sltd Fillister Hd
17	1	15313	Label, Caution
18	1	19210-05	Program Wheel Assembly, 3200
20	1	15055	Main Drive Gear
21	17	41754	Pin, Spring, 1/16 x 5/8 Stainless Steel, Timer
22	1	13011	Cycle Actuator Arm
23	1	13881	Bracket, Hinge Timer
24	3	11384	Screw, Phil, 6-32 x 1/4 Zinc
25	1	16336	Harness, 3230R
26	2	40422	Nut, Wire, Tan
27	1	15354-01	Wire, Ground, 4”

CONTROL VALVE ASSEMBLY

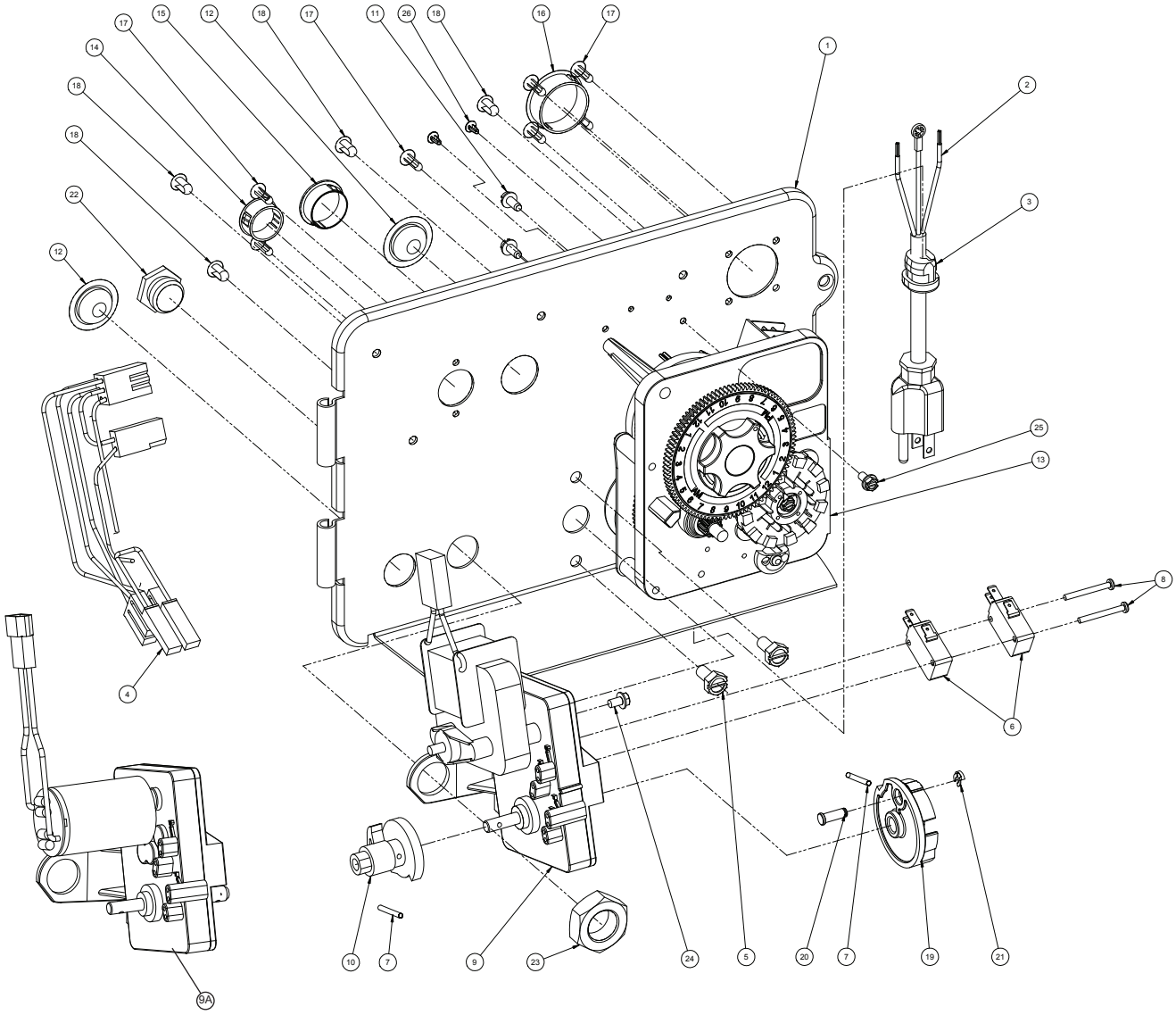


61500-2850s Rev C

Item No.	QTY	Part No.	Description
1	1	42176-01	Valve Body, 2850s, Machd
2	1	13008	Retainer, End Plug Seal
3	1	42302	Ring, Retaining, .074
4	1	42178	Rod, NHWBP
	1	42394	Rod, Piston, 2850s, Std
	1	42394-01	Rod, Manual Valve
5	1	40952	O-ring, -030
6	1	10209	Quad Ring, -010
7	1	42181-02	Plug, End, 2850s, 3 Bolt, White
8	1	42177	Piston, 2850s
9	3	10231	Screw, Slot Hex, 1/4 - 20 x 1/2
10	6	42172	Seal, 2850s, LDF
11	5	42175	Spacer, 2850s, LDF
12	1	42179	Link, Drive, 2850s
*13	1	13577	O-ring, -226
14	1	16455	O-ring, -347
15	1	19608-15	Disperser, Commercial, 1 1/2" 2850/2900/9500
Not Shown Optional Flat Cap/Filter Cap Parts:			
	2	15137	Screw, Hex, Wsh, Mach, 10-24 x 3/8
	1	11893	Cap, Injector, Stainless Steel
	1	14805	Gasket, Injector Body

Item No.	QTY	Part No.	Description
Optional Side Mount:			
19	1	40316	Adapter, Side Mount
20	1	40310	Base, 2850/2900/2930, Rotating
21	1	40368	O-ring, -160, Sidemount, Flange
22	7	19768	Screw, Hex Hd, 3/8 - 16 x 1
23	1	40372	O-ring, -142
24	7	40375	Washer, Flat, 3/8", Type A
*Do not use O-ring if control is side mounted			
Optional No Hard Water Piston:			
2	1	13008	Retainer, End Plug Seal
3	1	42302	Ring, Retainer
4	1	42178	Piston, Rod, NHWBP
5	1	40952	O-ring, -030
6	1	10209	Quad Ring, -010
7	1	42181	Plug, End, 2850s, 3 Bolt, Black
8	1	42177	Piston, 2850s, NHWBP
9	3	10231	Screw, Slotted, Indented Hex Head, 1/4 - 20 x 1/2
12	1	42179	Link, Drive, 2850s
16	1	42174	Piston, 2850s, NHWBP
17	1	42182	Retainer, NHWBP Piston, O-ring, 2850s
18	1	17242	O-ring, -026

POWERHEAD ASSEMBLY



61501-2850s Rev E

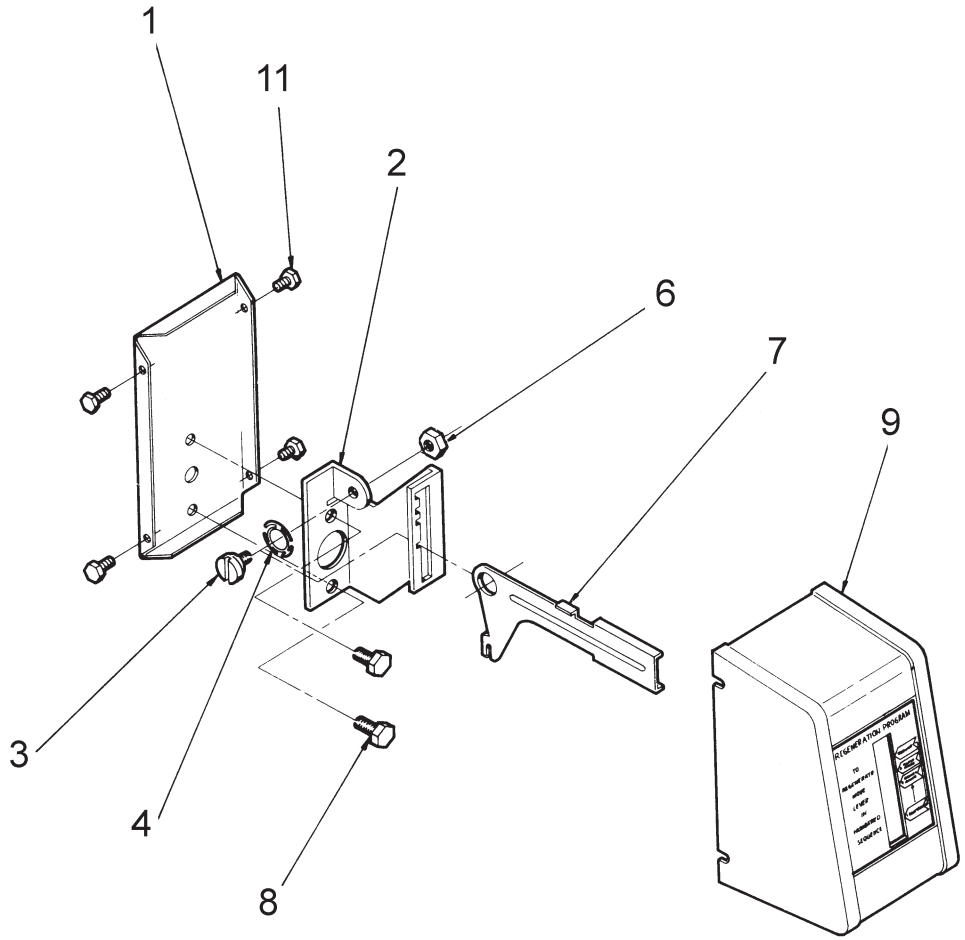
Item No.	QTY	Part No.	Description
1	1	18697-15	Back Plate, Hinged
2	1	11839	Power Cord, 12' US, Flat, 120V
2A		40084-12	Power Cord, 12' Round, 120V
2B		40085-12	Power Cord, 12' Round, 240V
2C		19303	Power Cord, 8' Australian
2D		11545-01	Power Cord, 4', Black, European
3	1	13547	Strain Relief, Flat Cord
3A		13547-02	Strain Relief, Round Cord
4	1	40400	Harness, Drive, Designr/Envirmtl
5	2	10231	Screw, Slot, Hex 1/4 - 20 x 1/2
6	2	10218	Switch, Micro
7	2	10338	Pin, Roll, 3/32 x 7/8
8	2	14923	Screw, Pan Hd, Mach 4-40 x 1
9	1	41543	Motor, Drive, 115V, 50/60 Hz
9A	1	42579	Motor, Drive, 24Vac/Dc, 50/60 Hz
9B	1	41545	Motor, Drive, 230V, 50/60 Hz
10	1	12777	Cam, Shut-off Valve
11	2	10300	Screw, Hex Wash Hd, 8 x 3/8
12	2	19691	Plug, .750 Dia, Hole, Flush

Item No.	QTY	Part No.	Description
13	1		Timer Assy, 3200
14	1	15806	Plug, Hole (Heyco)
15	1	16493	Plug, Hole, (Heyco) .88 Dia
16	1	17421	Plug, 1.20 Hole
17	7	19800	Plug, Hole, .140 Dia
18	4	19801	Plug, .190 Dia
19	1	60160-40	Cam, Drive, 2850s, STF, Gray
20	1	13366	Connecting Rod Bearing
21	1	42761	Ring, Retaining, 2850s, Clip
22	1	10712	Fitting, Brine Valve
23	1	10269	Nut, Jam, 3/4-16
24	1	10872	Screw, Hex Wsh, 8-32 x 17/64
25	1	14202-01	Screw, Hex Wsh, 8-32 x 5/16
26	2	41581	Plug, Hole, .125 Dia, White

Not Shown:

1	60219-02	Cover Assy, Enviromental, Black with Clear Window
1	17741	Meter Cable, 16.50", 1 1/2"
1	17470	Cable Guide Assy, 2850/3150

MANUAL DRIVE ASSEMBLY



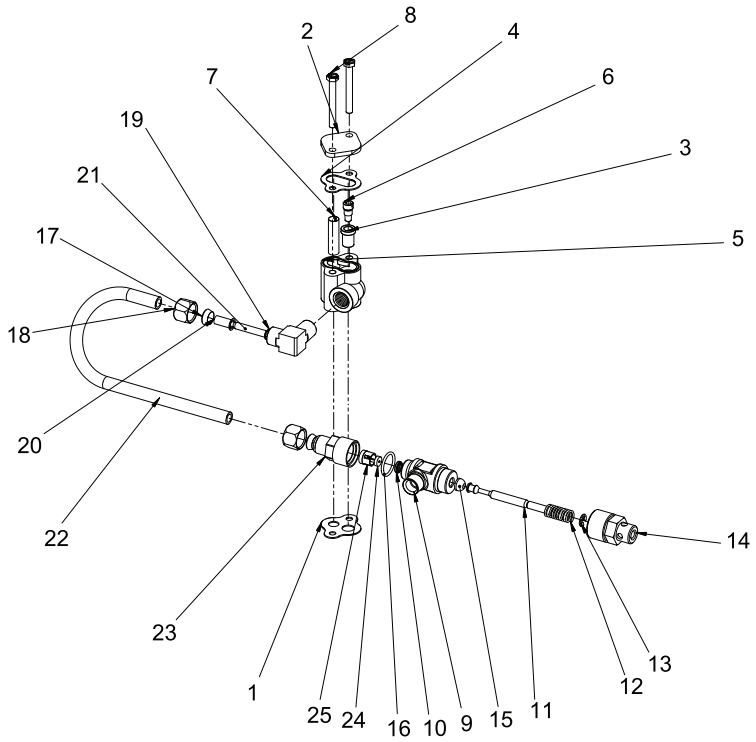
60409 Rev G

Item No.	QTY	Part No.	Description
1	1	12593	Backplate, Manual
2	1	42186	Bracket, 2850s, manual
3	1	12596	Screw, Spec Mach, 1/4 - 20 x 1/2
4	1	12707	Washer, Spring
6	1	11235	Nut, Hex, 1/4 - 20, Mach Screw, Zinc
7	1	42185	Lever, 2850s, Manual
8	2	10231	Screw, Slot Hex, 1/4 - 20 x 1/2 18-8 SS
9	1	60224-32	Cover Assy, Manual, Filter
	1	60224-33	Cover Assy, Manual, Softener
11	4	10300	Screw, Slot Hex Wsh, 8-18 x 3/8 Type “B” RC44-47

Not Shown:

	1	10909	Pin, Link

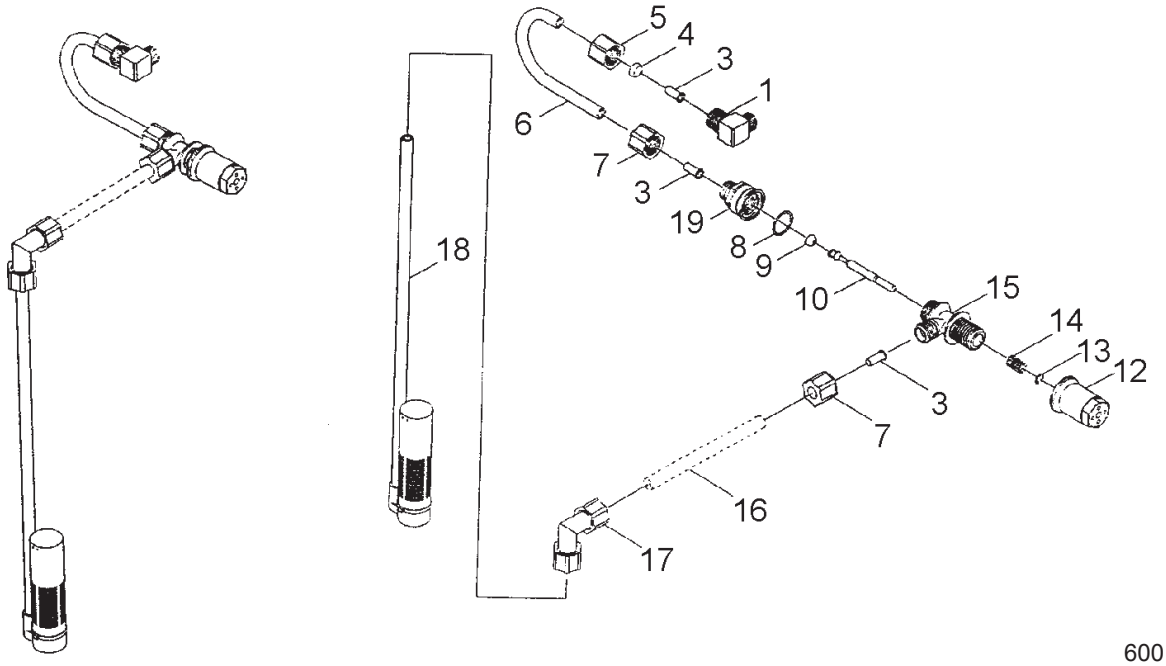
1600 BRINE SYSTEM ASSEMBLY



61500-2850s Rev C

Item No.	QTY	Part No.	Description
1	1	14805	Gasket, Injector Body, 1600/1700
2	1	11893	Cap, Injector, SS
3	1	16221	Disperser, Air
4	1	10229	Gasket, Injector Cap, 1600
5	1	17776	Body, Injector, 1600
6	1	10914	Throat, Injector
7	1	10227	Screen, Injector
8	2	10692	Screw, Slot Hex Hd, 10-24 x 18-8
9	1	12748-01	Brine Valve Body, 1600
10	1	12550	Quad Ring, -009
11	1	12552	Brine Valve Stem, 1600
12	1	10249	Spring, Brine Valve
13	1	10250	Ring, Retaining
14	1	11749	Guide, Brine Valve Stem
15	1	12626	Seat, Brine Valve
16	1	11982	O-ring, -016
17	2	10330	Fitting, Sleeve, 3/8 Celcon
18	2	10329	Fitting, Tube, 3/8 Nut, Brass
19	1	10328	Fitting, Elbow, 90 Deg. 1/4 NPT x 3/8T
20	1	10332	Fitting, Insert, 3/8
21	1	12767	Screen, Brine
22	1	42184	Tube, Brine, 1600, 2850s
23	1	12747	Fitting, Flow Control
24	1	12094	Washer, Flow, .25 GPM
25	1	12098	Retainer, Flow Control

1650 BRINE SYSTEM ASSEMBLY

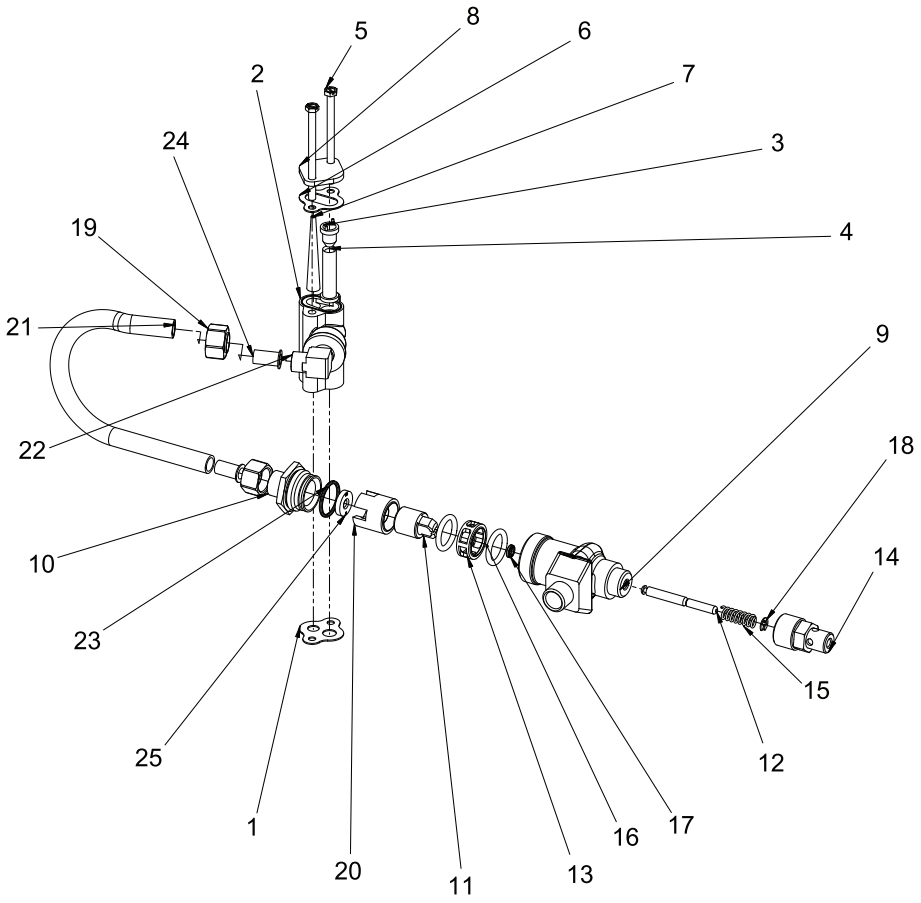


60011 Rev D

Item No.	QTY	Part No.	Description
60011 Brine Valve Assembly, Includes Items 3-15 (Less BLFC 60010-)			
1	1	10328	Elbow, 90 1/4 NPT x 3/8
3	3	10332	Insert, 3/8
4	1	10330	Sleeve, 3/8 Nut Brine
5	1	10329	Tube Fitting, 3/8 Nut Brine
6	1	42184	Tube, Brine Valve, 1600, 2850s
7	2	19625	Assy., GFN Nut
8	1	16924	O-ring
9	1	12626	Seat, Brine Valve
10	1	12552	Brine Valve Stem, 1600
12	1	17906	Guide, Brine Valve Stem
13	1	10250	Retaining Ring
14	1	10249	Spring, Brine Valve
15	1	17884	Brine Valve Body Assy., Plastic
17	1	12794	Elbow, 3/8 Tube Poly, White
18	1	60002	#500 Air Check
19	1	60010-xx	BLFC Assy.

Item No.	QTY	Part No.	Description
60010-25 BLFC Assy. (Parts)			
	1	17907	Housing
	1	12128	.25 GPM Label
	1	12094	.25 Flow Washer
	1	12098	Retainer
60010-50 BLFC Assy. (Parts)			
	1	17907	Housing
	1	10759	.50 GPM Label
	1	12095	.50 Flow Washer
	1	12098	Retainer
60010-100 BLFC Assy. (Parts)			
	1	17907	Housing
	1	10760	1.0 GPM Label
	1	12097	1.0 Flow Washer
	1	12098	Retainer

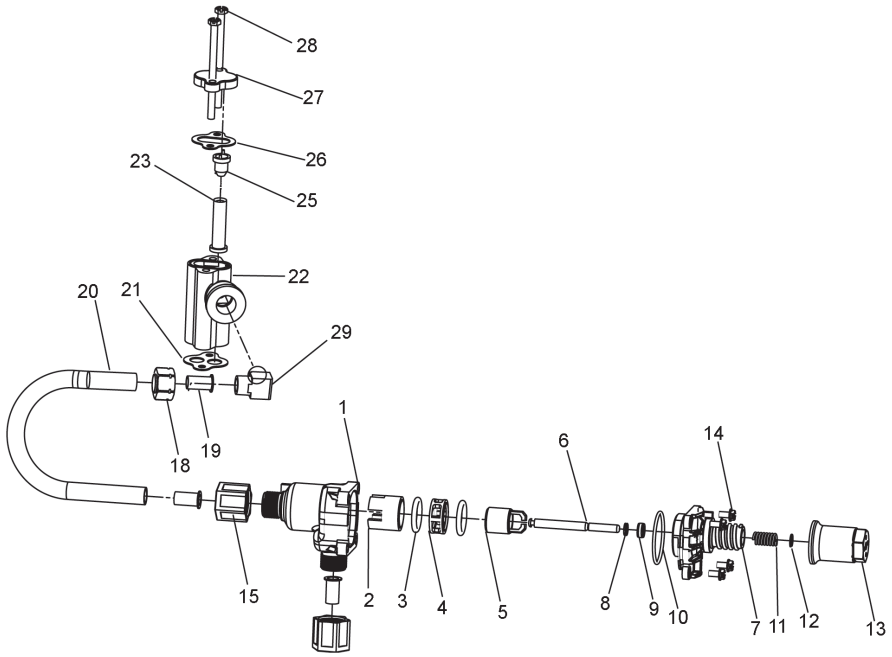
1700 BRINE SYSTEM ASSEMBLY



61500-2850s Rev C

Item No.	QTY	Part No.	Description
1	1	14805	Gasket, Injector Body, 1600/1700
2	1	17777	Body, Injector, 1700
3	1	14801	Nozzle, Injector
4	1	14802	Throat, Injector
5	2	14804	Screw, Hex Hd Mach, 10-24 x 2 3/4
6	1	10229	Gasket, Injector Cap, 1600
7	1	14803	Screen, Injector
8	1	11893	Cap, Injector, Stainless Steel
9	1	14790	Brine Valve Body
10	1	14792	Plug, End, Brine Valve
11	1	14795	Piston, Brine Valve
12	1	14797	Brine Valve Stem
13	1	14798	Spacer, 1700, 1710 Brine
14	1	15517	Guide, Stem
15	1	15310	Spring, Brine Valve
16	2	14811	O-ring, -210, 560CD, Brine
17	1	12550	Quad Ring, -009
18	1	10250	Ring, Retaining
19	2	15414	Nut, 2900, w/Sleeve
20	1	14785-01	Retainer, Flow Control
21	1	42183	Tube, Brine, 1700, 2850s
22	1	15413	Fitting, Elbow, Male, 1/2T x 3/8 NPT
23	1	13201	Quad Ring, -020
24	2	15415	Fitting, Insert, 1/2”, Tube
25	1	12092	Washer, Flow, 5.0 GPM

1710 BRINE SYSTEM ASSEMBLY

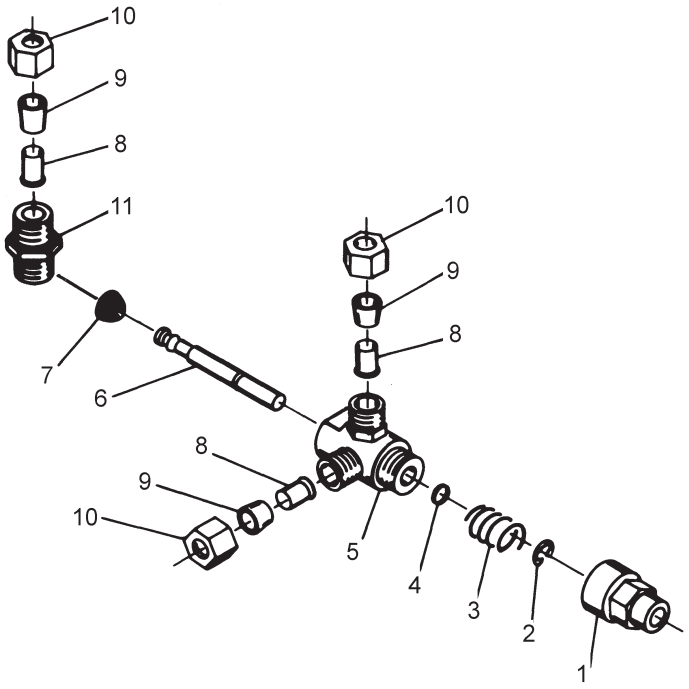


60604 Rev F

Item No.	QTY	Part No.	Description
1	1	41202	Brine Valve, 1700, Plastic, Top
2	1	14785-01	Retainer, Flow Control
3	1	14811	O-Ring, -210, 560CD, Brine
4	1	14798	Spacer, 1700, Brine
5	1	14795	Piston, Brine Valve
6	1	41203	Stem, Brine, 1710, Plastic, 2900
7	1	41201	Brine Valve, 1700, Plastic, Bottom
8	5	17908	Sleeve, Brine Valve Stem
9	1	12550	Quad Ring, -009
10	3	41547	O-Ring, 2mmx35mm
11	2	15310	Spring, Brine Valve
12	2	10250	Ring, Retaining
13	1	17906	Guide, Brine Valve Stem
14	2	14202-01	Screw, Hex Wsh Mach, 8-32 X 5/16 18-8 Stainless Steel
15	2	41056	Nut Assembly, 1/2” Plastic
18	1	15414	Nut, 2900, w/Sleeve
19	1	15415	Fitting, Insert, 1/2”, Tube

Item No.	QTY	Part No.	Description
20	1	16460	Tube, Brine, 2850, 2900s
	1	42183	Tube, Brine, 2850s
	1	15416	Tube, Brine, 2900/2750
	1	41447	Tube, Brine, 2900s U/F
21	1	19925	Gasket, Injector Body, 1700
22	1	17777	Body, Injector, 1700
23	1	14802-xxc	Throat, Injector, -xxc is Injector Size
25	1	14801-xxc	Nozzle, Injector, -xxc is Injector Size
26	1	10229	Gasket, Injector Cap, 1600
27	1	10228	Cap, Injector
28	2	14804	Screw, Hex Head Mach, 10 - 24 x 2-3/4 18-8 Stainless Steel
29	1	15413	Fitting, Elbow, Male, 1/2T X 3/8NPT
Not Shown			
	1	19151	Washer, Flow, 1.0 Gpm

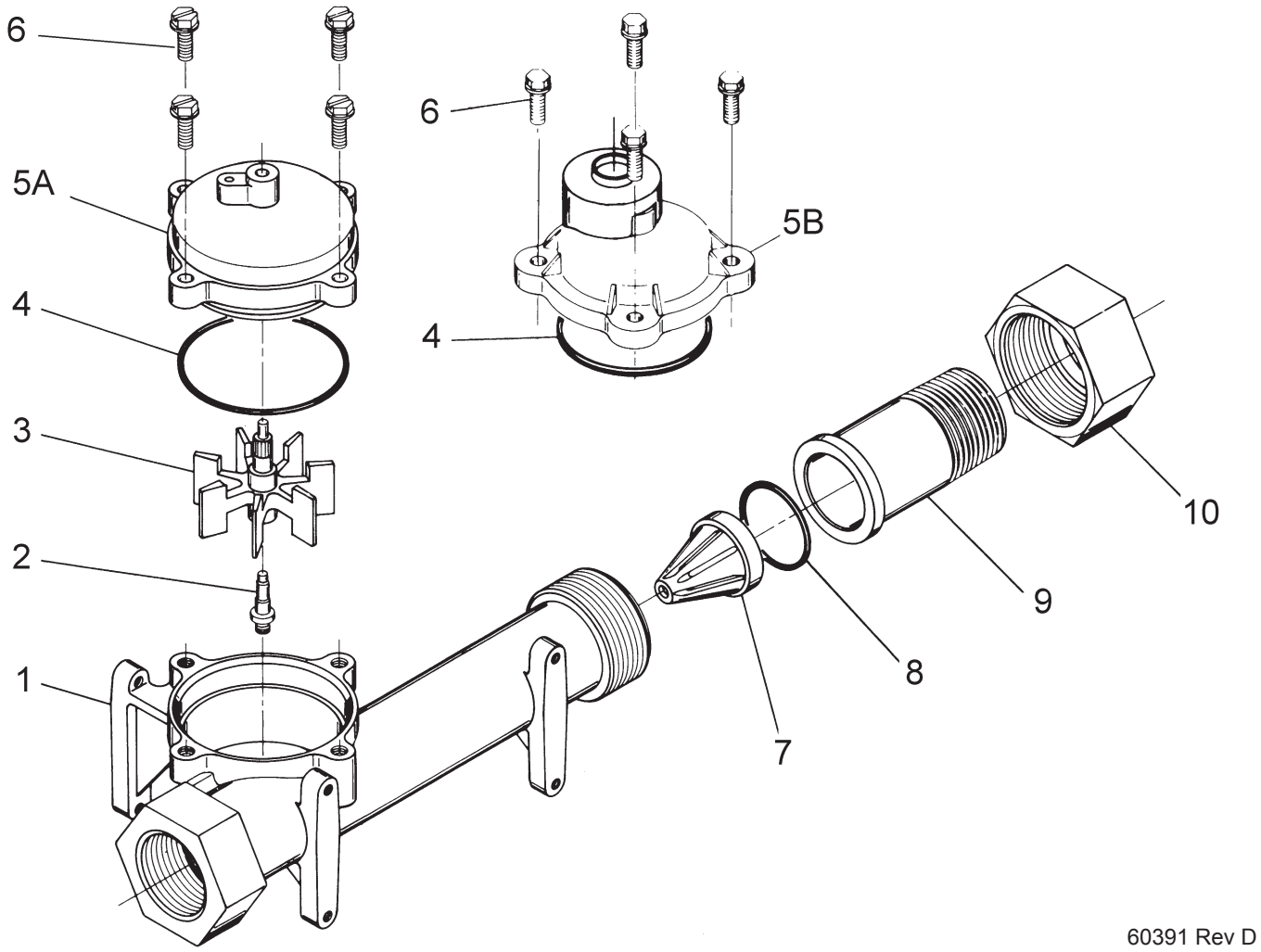
1600 SERVICE VALVE OPERATOR ASSEMBLY



60150 Rev A

Item No.	QTY	Part No.	Description
1	1	11749	Guide, Brine Valve Stem
2	1	10250	Ring, Retaining
3	1	10249	Spring, Brine Valve
4	1	12550	Quad Ring, -009
5	1	10785	SVO Body Assy Brass Valves
6	1	12552	Brine Valve Stem, 1600
7	1	12626	Seat, Brine Valve
8	3	10332	Fitting, Insert, 3/8
9	3	10330	Fitting, Sleeve, 3/8 Celcon
10	3	10329	Fitting, Tube, 3/8 Nut, Brass
11	1	10331	Fitting, Compression, 1/4” x 3/8”

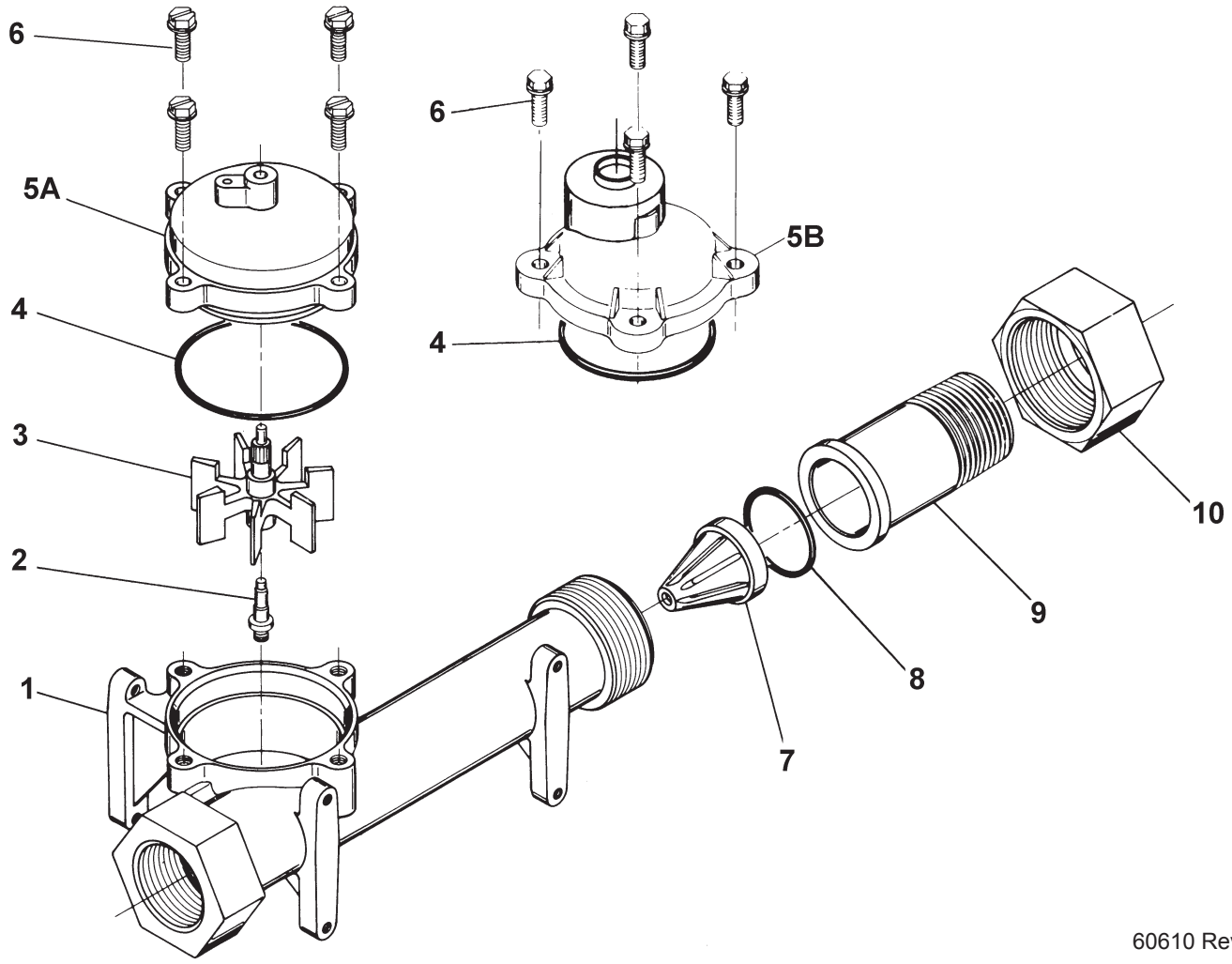
1" METER ASSEMBLY



60391 Rev D

Item No.	QTY	Part No.	Description
1	1	14959	Body, Meter, 2750
2	1	13882	Post, Meter Impeller
3	1	13509	Impeller, Meter
4	1	13847	O-ring, -137, Std/560CD, Meter
5A	1	14038	Meter Cap Assy, STD, Plastic
5B	1	15150	Meter Cap Assy, Ext, Plastic
5C	1	15218	Meter, Cap, Brass, STD, HW
5D	1	15237	Meter, Cap, Brass, Ext, HW
6	4	12112	Screw, Hex Hd Mach, 10-24 x 1/2
7	1	14960	Flow Straightener, 1-Inch
8	1	13287	O-ring, -123
9	1	14961	Fitting, 1-Inch Quick Connector
10	1	14962	Nut, 1-Inch Meter, Q/C
Not Shown			
	1	15308	Fitting, Coupling, 1-Inch, Brass

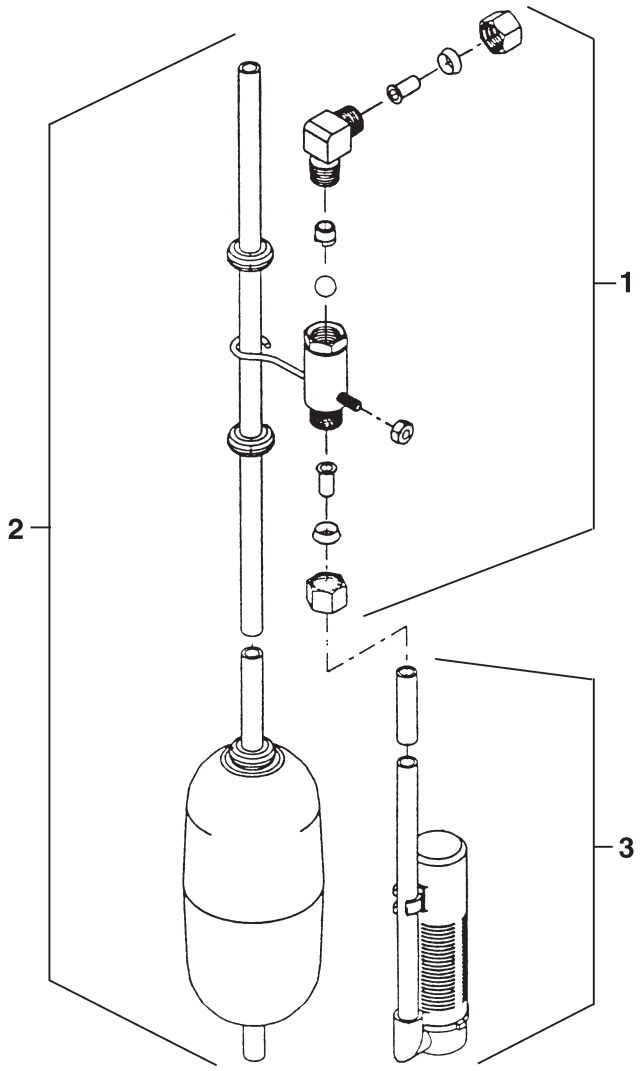
1-1/2" METER ASSEMBLY



60610 Rev C

Item No.	QTY	Part No.	Description
1	1	17569	Body, Meter, 2850/9500
2	1	13882	Post, Meter Impeller
3	1	13509	Impeller, Meter
4	1	13847	O-Ring, -137, Std/560CD, Meter
5A	1	14038	Meter Cap Assy, STD, Plastic
5B	1	15150	Meter Cap Assy, Ext, Plastic
5C	1	15218	Meter, Cap, Brass, STD, HW
5D	1	15237	Meter, Cap, Brass, Ext, HW
6	4	12112	Screw, Hex Hd Mach, 10-24 x 1/2 18-8 Stainless Steel
7	1	17542	Flow Straightener, 1-1/2-Inch
8	1	12733	O-ring, -132
9	1	17544	Fitting, 1-1/2-Inch Quick Connector
10	1	17543	Nut, 1-1/2-Inch, Quick Connector
Not Shown			
	1	17790	Sleeve, Meter, 1-1/2-Inch x 1-Inch

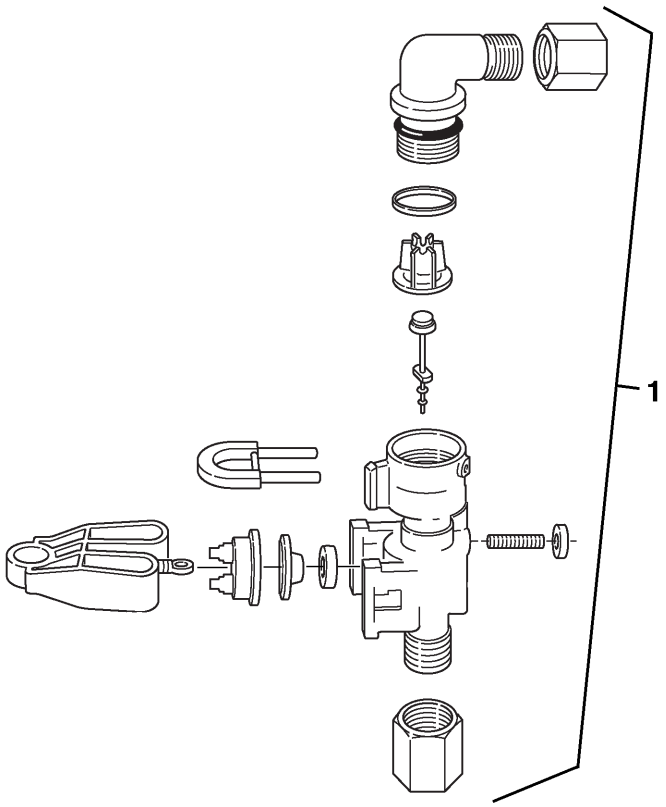
SAFETY BRINE VALVE 2300

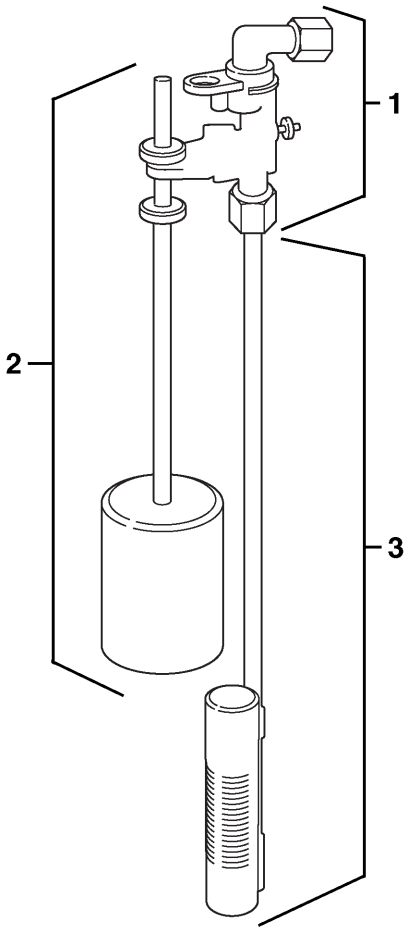


60027 Rev D

Item No.	QTY	Part No.	Description
1	1	60027-FFA	Safety Brine Valve Body, 2300 Fitting Facing Arm
		60027-FFS	Safety Brine Valve Body Fitting Facing Stud
2	1	60028-30	Float Assy, 2300, 30”, Blue/White
		60026-30SAN	Float Assy, 2350, 30”, HW
3	1	60002-34	Air Check, #500, 34” Long
		60003-34	Air Check, #500, HW, 34” Tube

2310 SAFETY BRINE VALVE

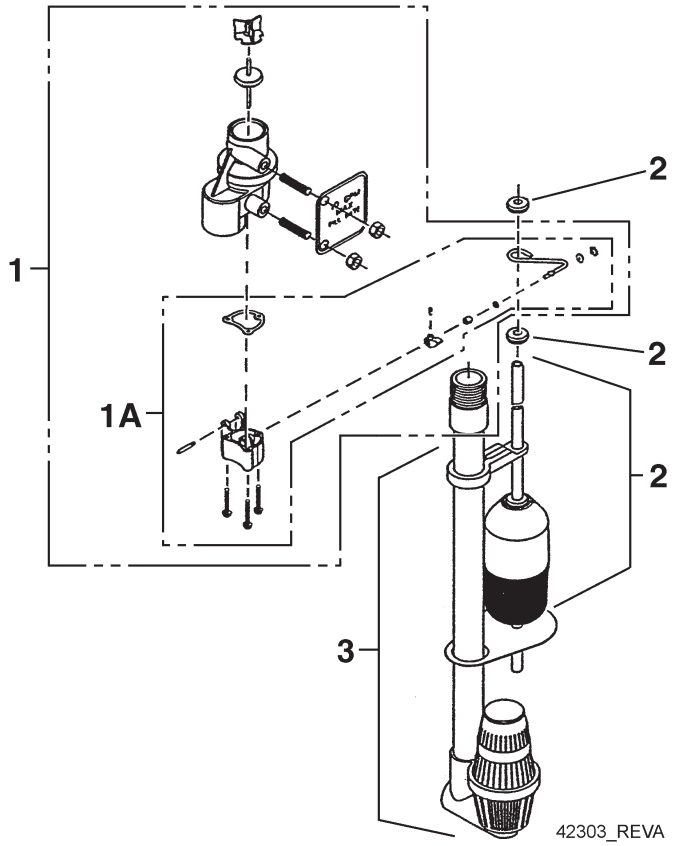




42112 Rev A

Item No.	QTY	Part No.	Description
1	1	60014	Safety Brine Valve Assy, 2310
2	1	60068-30	Float Assy, 2310, w/30-Inch Rod
		60026-30	Float Assy, 2350, 30-Inch Red/ Wht
3	1	60002-34	Air Check, #500, 34-Inch Long

2350 SAFETY BRINE VALVE



Item No.	QTY	Part No.	Description
1	1	60038	Safety Brine Valve, 2350
1A	1	61024	Actuator Assy, 2350 Brine
2	1	60028-30	Float Assy, 2350, 30” Wht
	1	60026-30SAN	Float Assy, 2350, 30” Hot Water
3	1	60009-00	Air Check, #900, Commercial Less Fittings
	1	60009-01	Air Check, #900, Commercial, Hot Water Less Fittings
Not Shown			
	1	18603	Fitting Assy, 900 Air Check 2350
	1	18602	Fitting Assy, 900 Air Check

TROUBLESHOOTING

Problem	Cause	Correction
Water conditioner fails to regenerate.	Electrical service to unit has been interrupted	Assure permanent electrical service (check fuse, plug, pull chain, or switch)
	Timer is defective.	Replace timer.
	Power failure.	Reset time of day.
Hard water.	By-pass valve is open.	Close by-pass valve.
	No salt is in brine tank.	Add salt to brine tank and maintain salt level above water level.
	Injector screen plugged.	Clean injector screen.
	Insufficient water flowing into brine tank.	Check brine tank fill time and clean brine line flow control if plugged.
	Hot water tank hardness.	Repeated flushings of the hot water tank is required.
	Leak at distributor tube.	Make sure distributor tube is not cracked. Check O-ring and tube pilot.
	Internal valve leak.	Replace seals and spacers and/or piston.
Unit used too much salt.	Improper salt setting.	Check salt usage and salt setting.
	Excessive water in brine tank.	See "Excessive water in brine tank".
Loss of water pressure.	Iron buildup in line to water conditioner.	Clean line to water conditioner.
	Iron buildup in water conditioner.	Clean control and add mineral cleaner to mineral bed. Increase frequency of regeneration.
	Inlet of control plugged due to foreign material broken loose from pipes by recent work done on plumbing system.	Remove piston and clean control.
Loss of mineral through drain line.	Air in water system.	Assure that well system has proper air eliminator control. Check for dry well condition.
	Improperly sized drain line flow control.	Check for proper drain rate.
Iron in conditioned water.	Fouled mineral bed.	Check backwash, brine draw, and brine tank fill. Increase frequency of regeneration. Increase backwash time.
Excessive water in brine tank.	Plugged drain line flow control.	Clean flow control.
	Plugged injector system.	Clean injector and screen.
	Timer not cycling.	Replace timer.
	Foreign material in brine valve.	Replace brine valve seat and clean valve.
	Foreign material in brine line flow control.	Clean brine line flow control.
Softener fails to draw brine.	Drain line flow control is plugged.	Clean drain line flow control.
	Injector is plugged.	Clean injector
	Injector screen plugged.	Clean screen.
	Line pressure is too low.	Increase line pressure to 20 psi
	Internal control leak	Change seals, spacers, and piston assembly.
	Service adapter did not cycle.	Check drive motor and switches.
Control cycles continuously.	Misadjusted, broken, or shorted switch.	Determine if switch or timer is faulty and replace it, or replace complete power head.
Drain flows continuously.	Valve is not programming correctly.	Check timer program and positioning of control. Replace power head assembly if not positioning properly.
	Foreign material in control.	Remove power head assembly and inspect bore. Remove foreign material and check control in various regeneration positions.
	Internal control leak.	Replace seals and piston assembly.

GENERAL SERVICE HINTS FOR METER CONTROL

Problem: Softener delivers hard water

Reason: Reserve capacity has been exceeded.

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

Reason: Program wheel is not rotating with meter output.

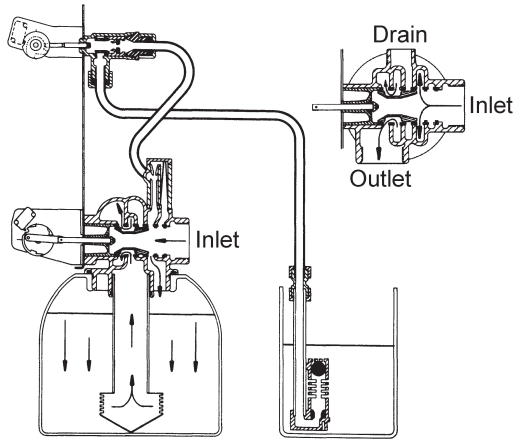
Correction: Pull cable out of meter cover and rotate manually. Program wheel must move without binding and clutch must give positive clicks when program wheel strikes regeneration stop. If it does not, replace timer.

Reason: Meter is not measuring flow.

Correction: Check meter with meter checker.

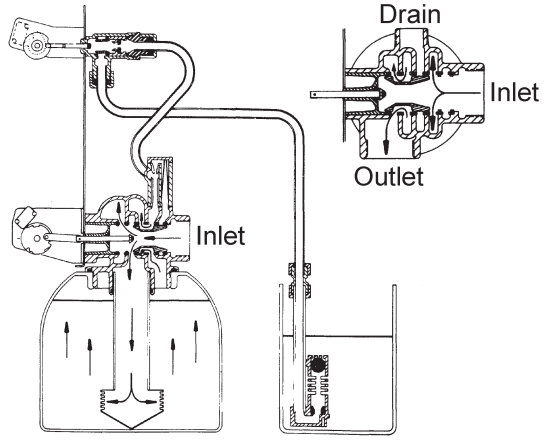
WATER CONDITIONER FLOW DIAGRAMS

1 Service Position



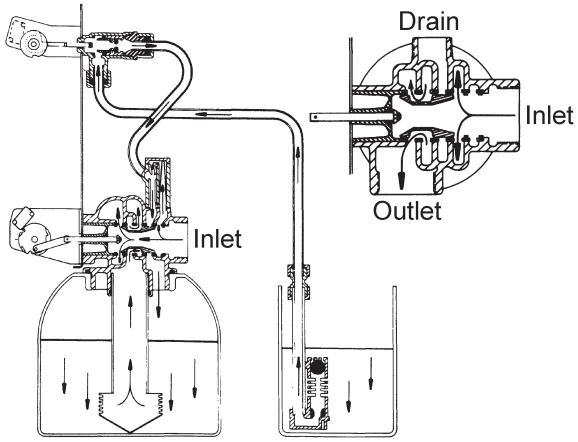
Hard water enters unit at valve inlet and flows down through the mineral in the mineral tank. Conditioned water enters center tube through the bottom distributor, then flows up through the center tube, around the piston, and out the outlet of the valve.

2 Backwash Position



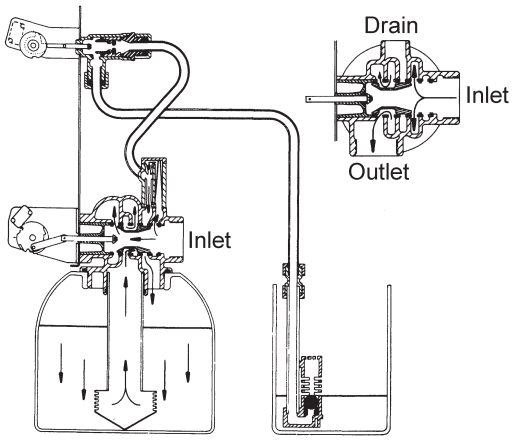
Hard water enters unit at valve inlet, flows through piston, down center tube, through bottom distributor, and up through the mineral, around the piston and out the drain line.

3 Brine Position



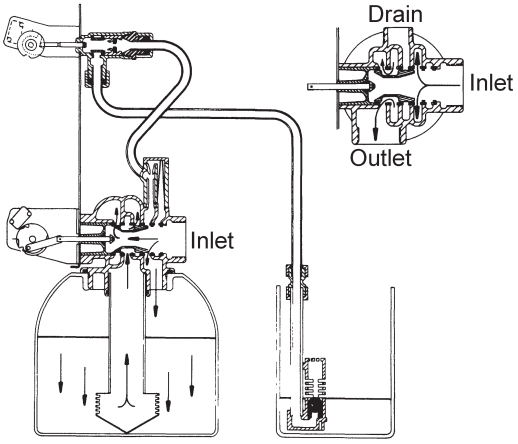
Hard water enters unit at valve inlet, flows up into injector housing and down through nozzle and throat to draw brine from the brine tank, brine flows down through mineral and enters the center tube through bottom distributor and out through the drain line.

4 Slow Rinse Position



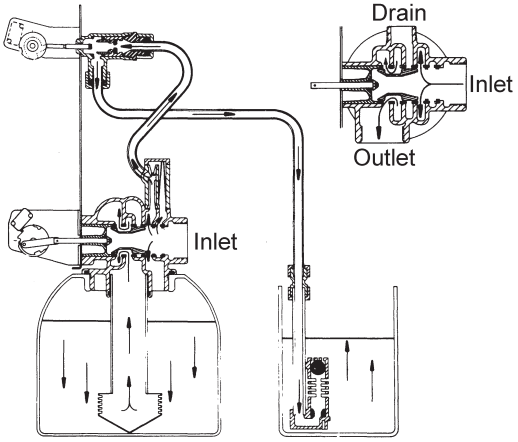
Hard water enters unit at valve inlet, flows up into injector housing and down through nozzle and throat, around the piston, down through mineral, enters center tube through bottom distributor, flows up through center tube, around piston and out through drain line.

5 Rapid Rinse



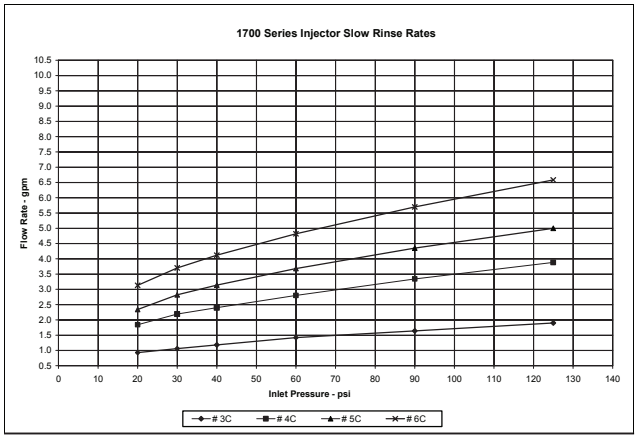
Hard water enters unit at valve inlet, flows directly from inlet down through mineral into center tube bottom distributor and up through center tube, around piston and out through the drain line.

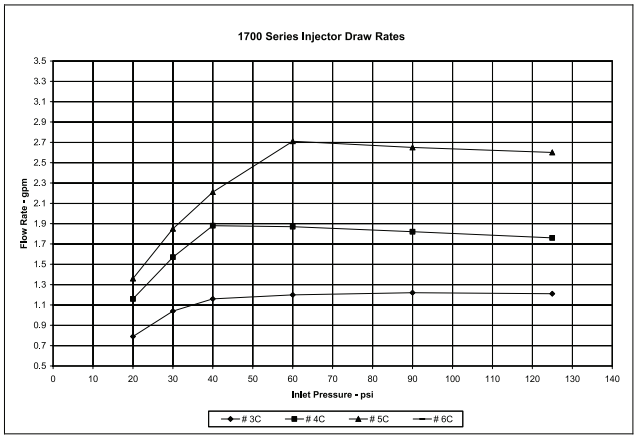
6 Brine Tank Refill Position



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

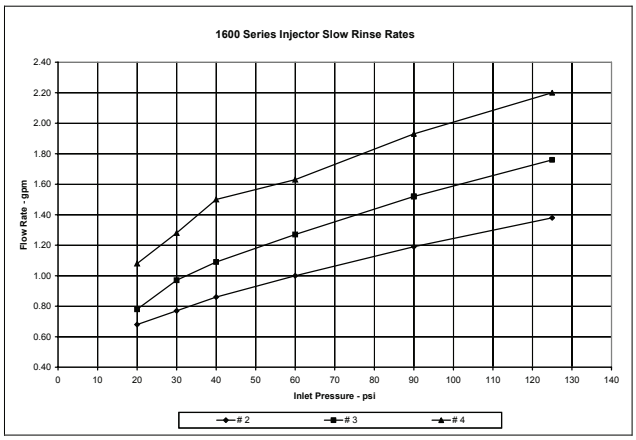
FLOW DATA & INJECTOR DRAW RATES - DOWNFLOW

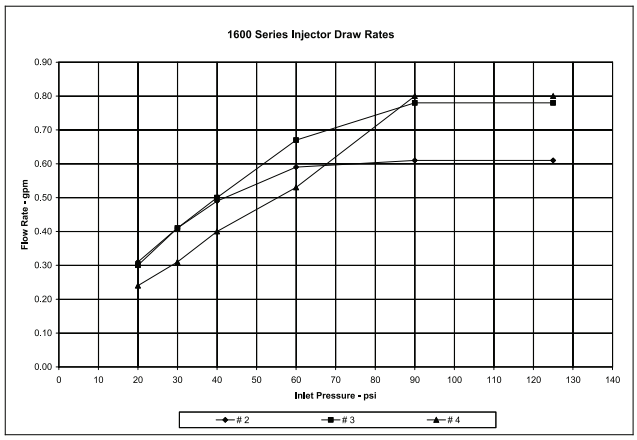




1700 series injectors	Slow Rinse - gpm			
pressure	# 3C	# 4C	# 5C	# 6C
20	0.93	1.84	2.34	3.13
30	1.06	2.19	2.82	3.70
40	1.18	2.40	3.14	4.12
60	1.42	2.80	3.68	4.82
90	1.64	3.34	4.35	5.70
125	1.90	3.88	5.00	6.58
# 3C - steel cap, no o-ring, air disperser # 4C & 5C - steel cap, o-ring, air disperser # 6C & 7C - brass cap, o -ring, no air disperser				

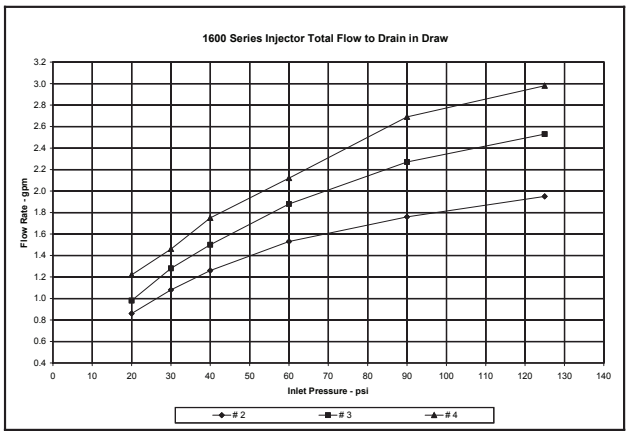
1700 series injectors	Draw Rate - gpm			
pressure	# 3C	# 4C	# 5C	# 6C
20	0.79	1.16	1.36	1.80
30	1.04	1.57	1.85	2.36
40	1.16	1.88	2.21	2.82
60	1.20	1.87	2.71	3.14
90	1.22	1.82	2.65	3.12
125	1.21	1.76	2.60	3.10
# 3C - steel cap, no o-ring, air disperser # 4C & 5C - steel cap, o-ring, air disperser # 6C & 7C - brass cap, o -ring, no air disperser				

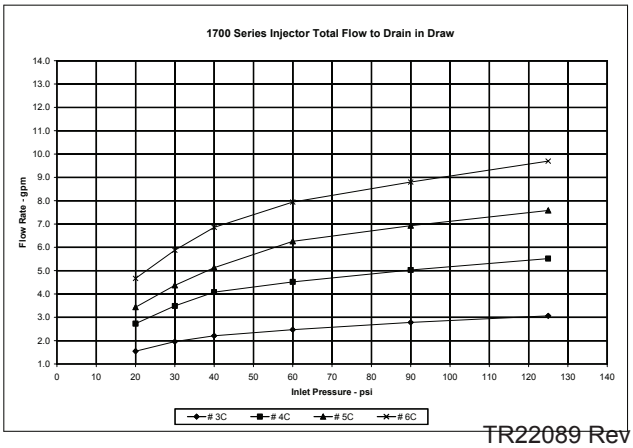




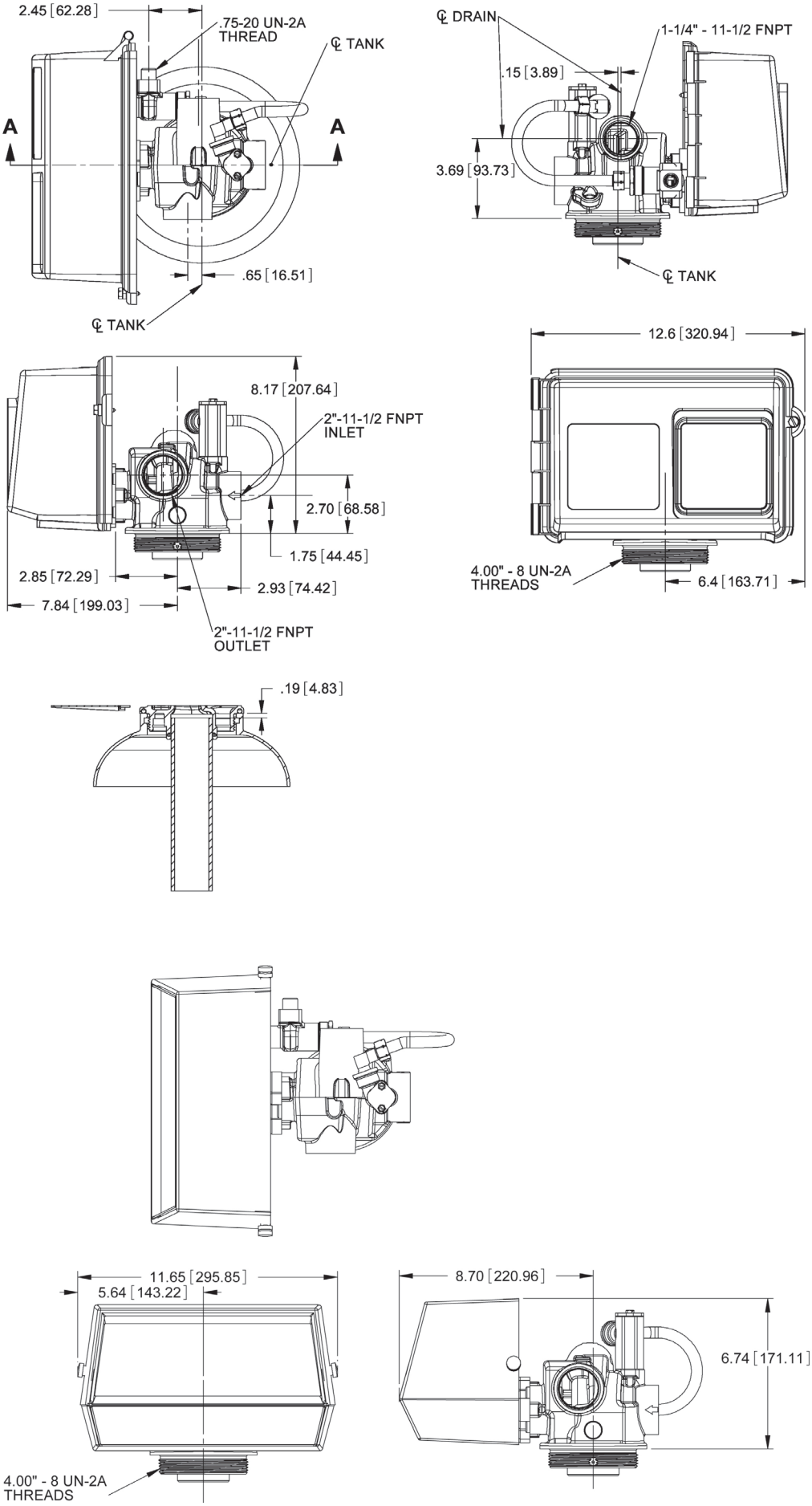
1600 series injectors	Slow Rinse Rates - gpm		
pressure	**# 2**	**# 3**	**# 4**
20	0.68	0.78	1.08
30	0.77	0.97	1.28
40	0.86	1.09	1.50
60	1.00	1.27	1.63
90	1.19	1.52	1.93
125	1.38	1.76	2.20
all injectors used the steel cap and an air disperser			

1600 series injectors	Draw Rate - gpm		
pressure	# 2	# 3	# 4
20	0.31	0.30	0.24
30	0.41	0.41	0.31
40	0.49	0.50	0.40
60	0.59	0.67	0.53
90	0.61	0.78	0.80
125	0.61	0.78	0.80
all injectors used the steel cap and an air disperser			



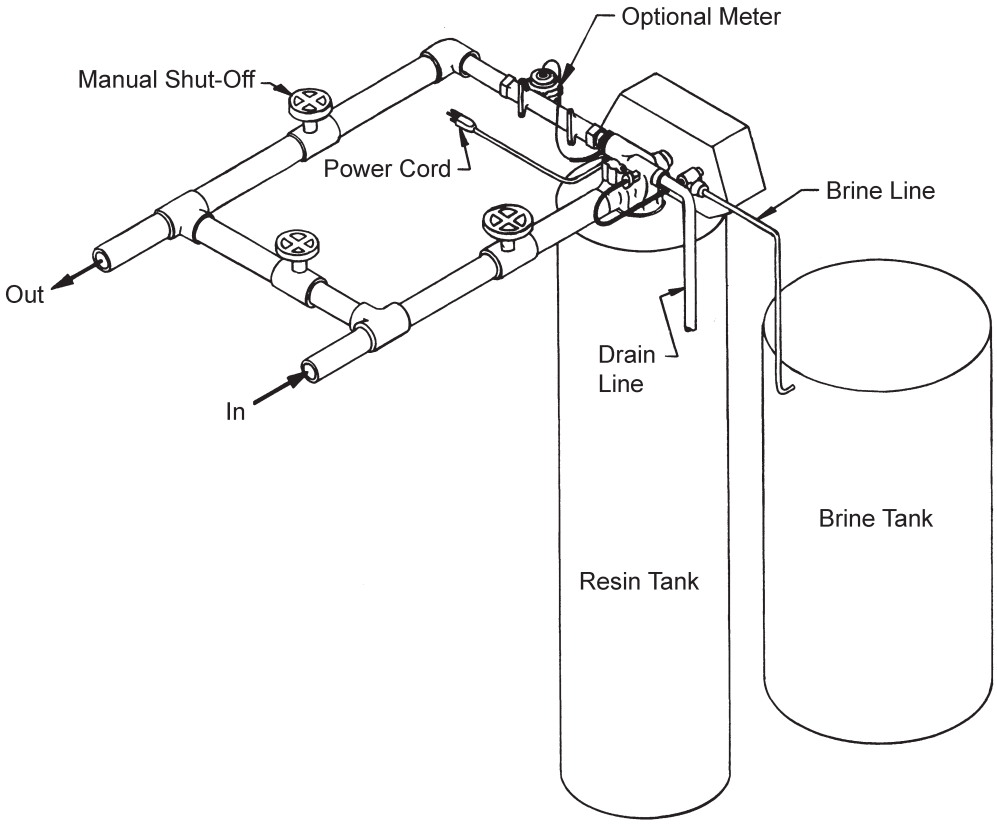


DIMENSIONAL DRAWING



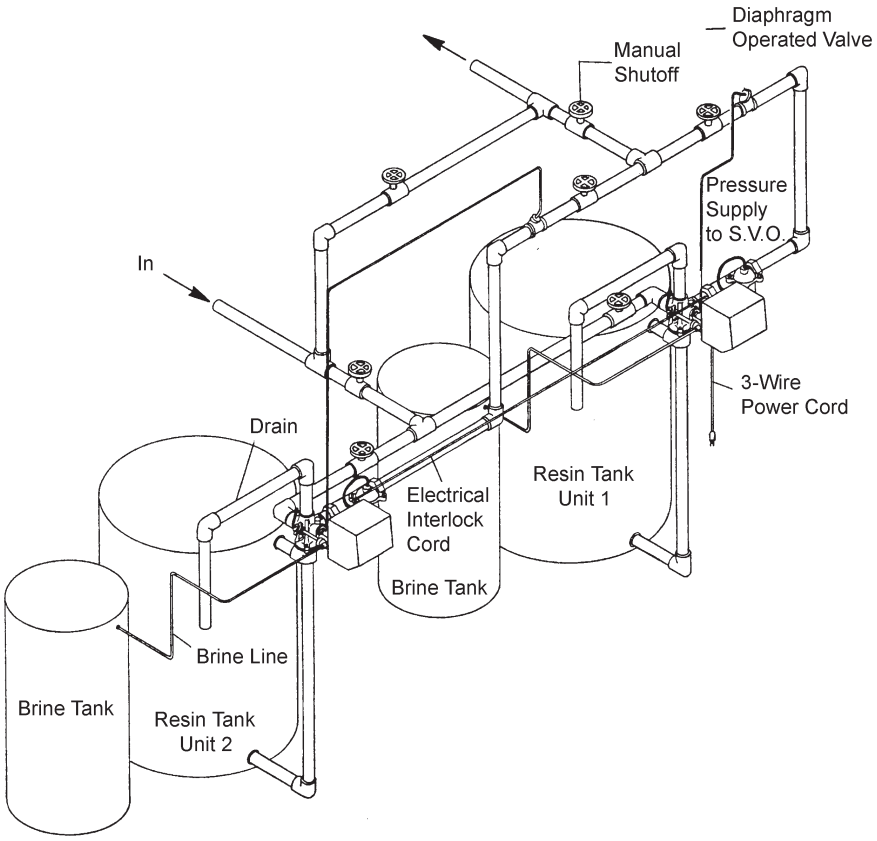
SYSTEM #4

Typical Single Tank Installation with Optional Meter



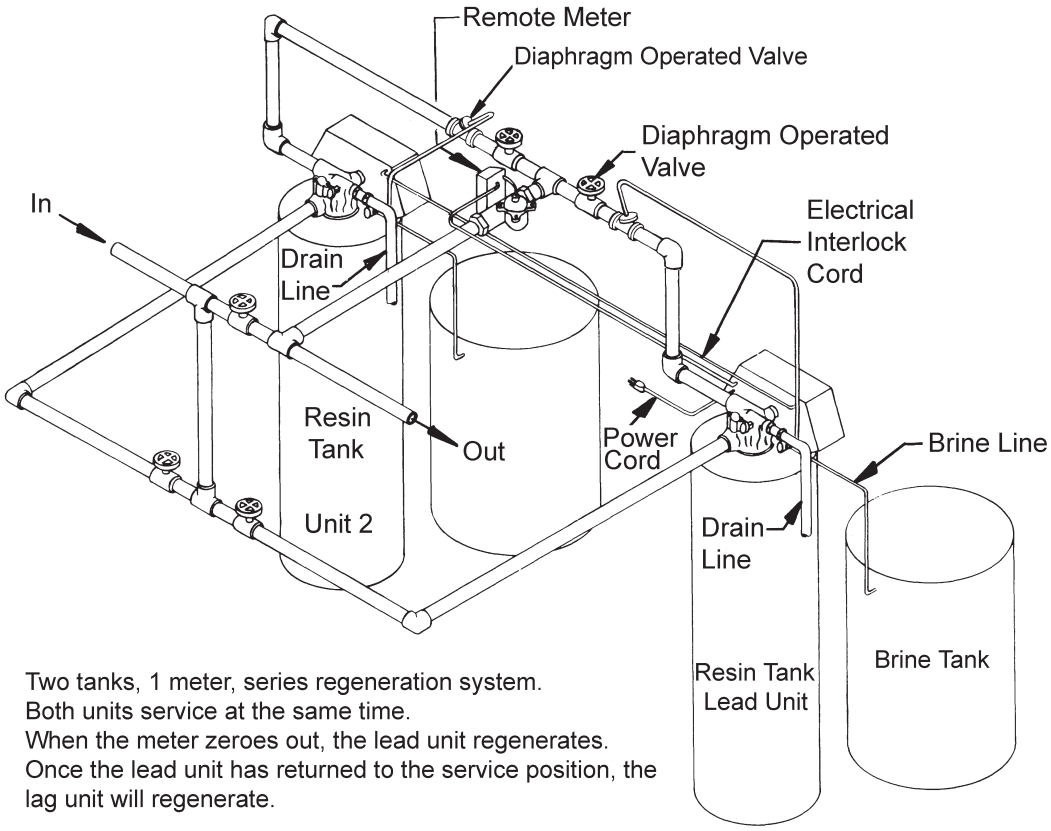
SYSTEM #5 INTERLOCK

Typical Twin Tank Installation with Optional Meter Interlock and No Hard Water Bypass



SYSTEM #6

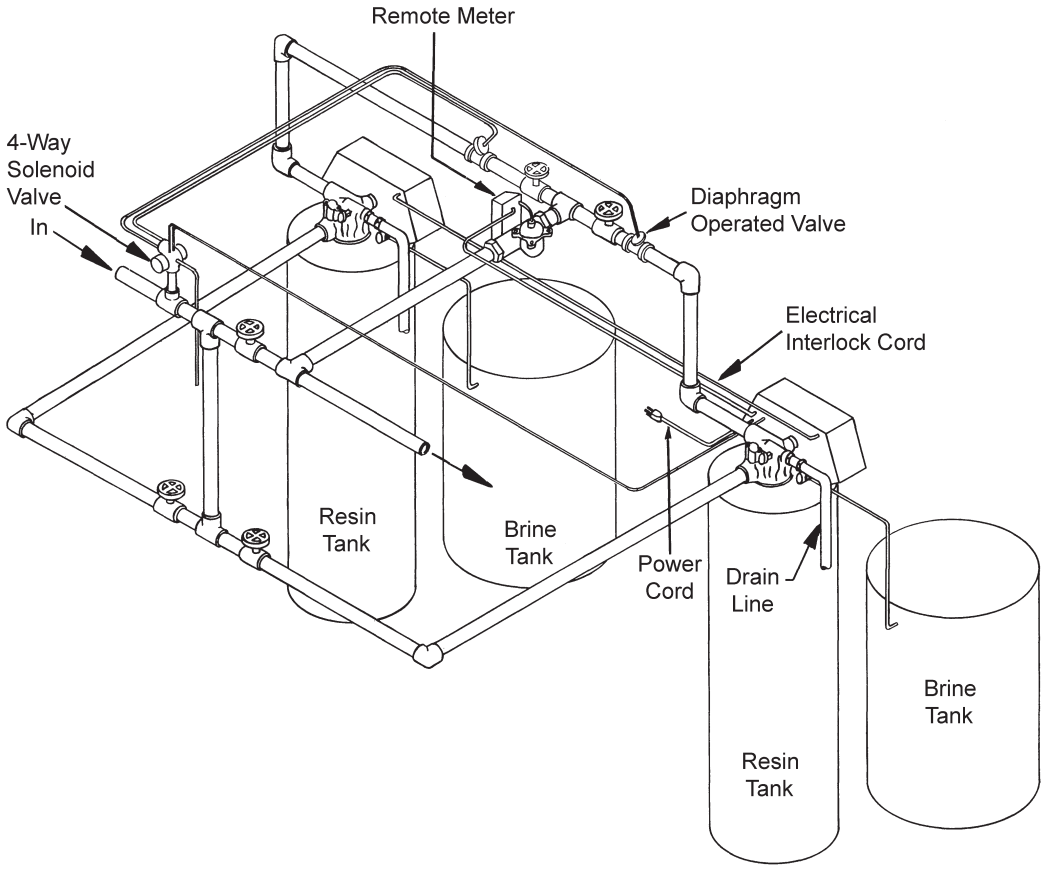
Twin Series Regeneration Installation with a Remote Meter



Two tanks, 1 meter, series regeneration system.
Both units service at the same time.
When the meter zeroes out, the lead unit regenerates.
Once the lead unit has returned to the service position, the lag unit will regenerate.

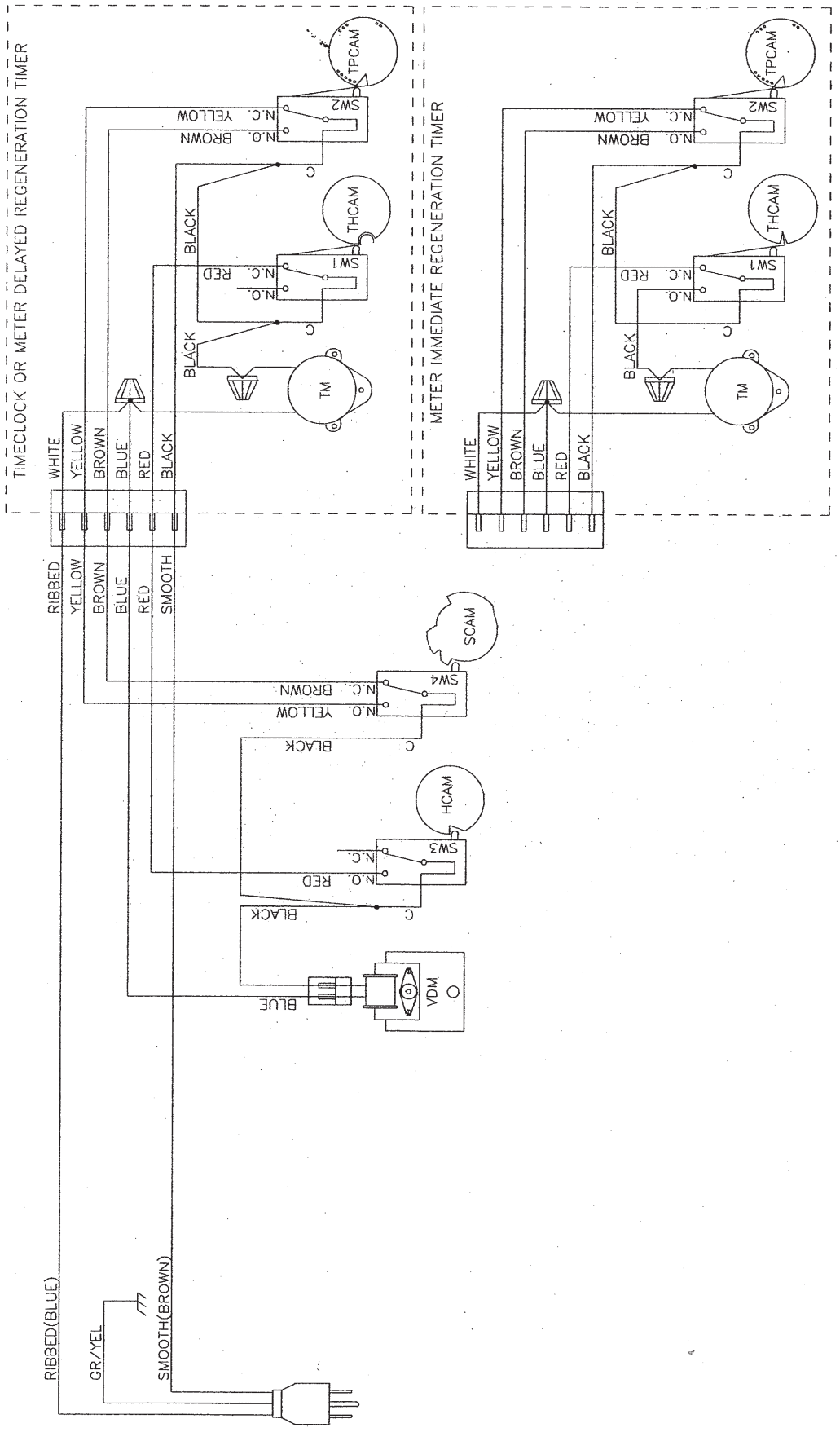
SYSTEM #7

Twin Alternator Installation with a Remote Meter



SYSTEM #4 WIRING

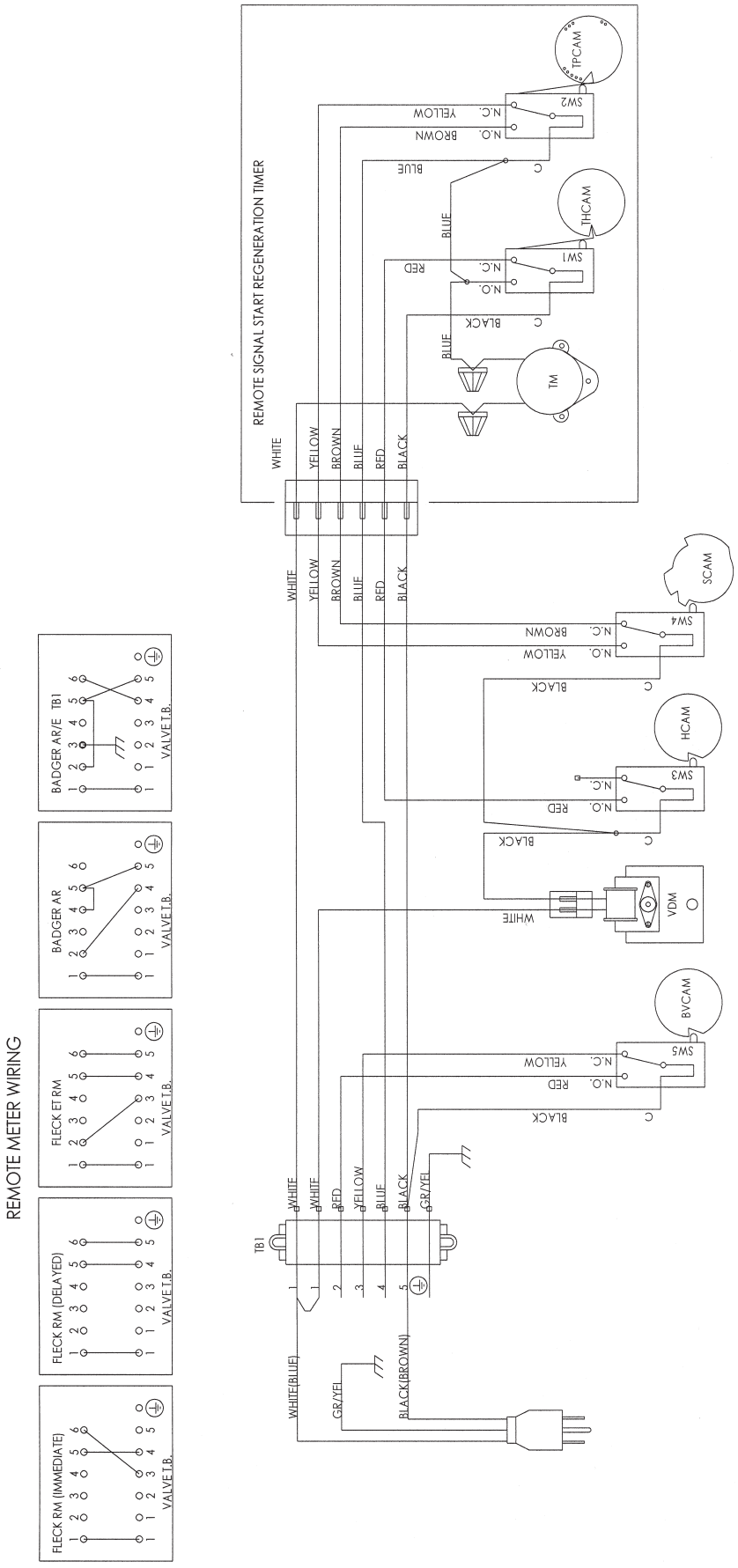
Single Valve Regeneration Immediate and Delayed Valve Wiring



19201 Rev C

SYSTEM #4 WIRING *continued*

With Remote Starter Valve Wiring



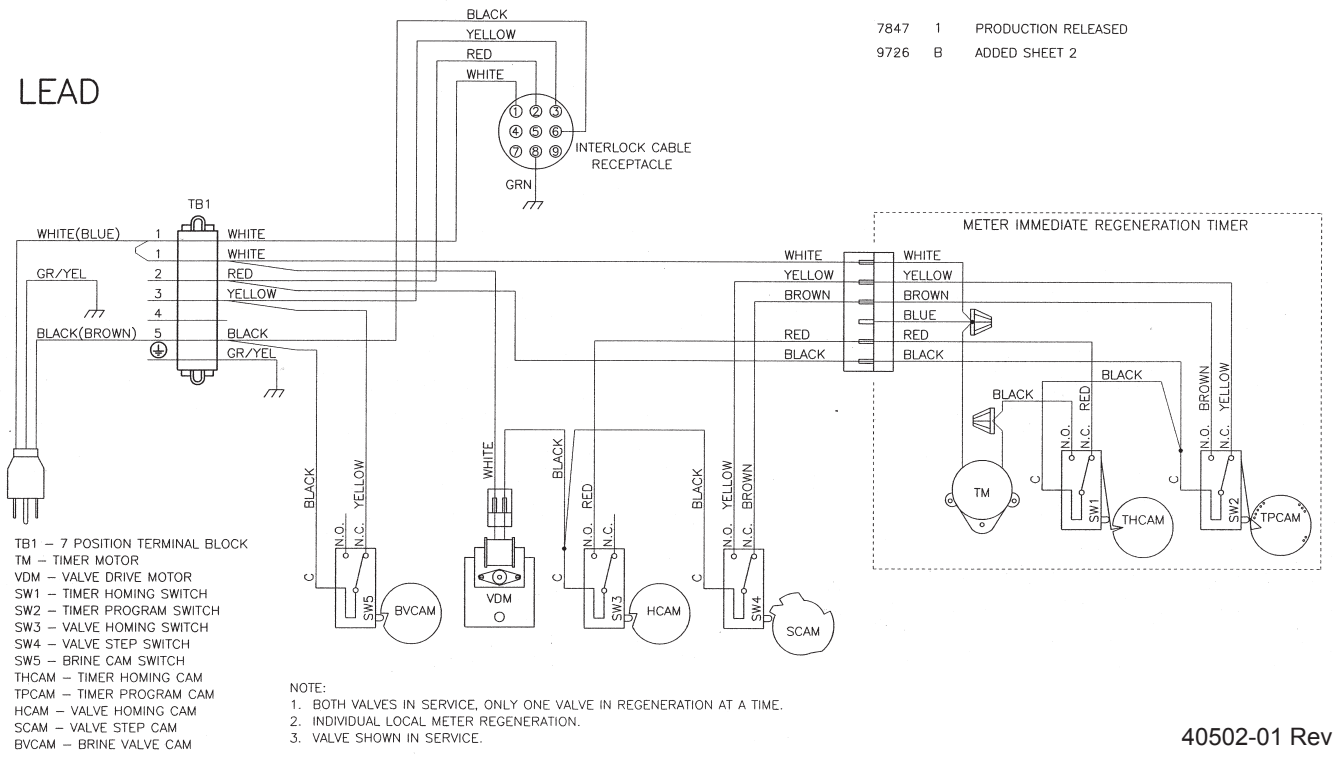
TB1 - 7 POSITION TERMINAL BLOCK
TM - TIMER MOTOR
VDM - VALVE DRIVE MOTOR
SW1 - TIMER HOMING SWITCH
SW2 - TIMER PROGRAM SWITCH
SW3 - VALVE HOMING SWITCH
SW4 - VALVE STEP SWITCH
SW5 - BRINE CAM SWITCH
THCAM - TIMER HOMING CAM
TPCAM - TIMER PROGRAM CAM
HCAM - VALVE HOMING CAM
SCAM - VALVE STEP CAM
BVCAM - BRINE VALVE CAM

NOTE:
1. SINGLE TANK REMOTE METER INITIATED DELAYED, OR IMMEDIATE REGENERATION.
2. WITH 24V VALVES THE POWER CORD IS REPLACED WITH BLUE AND WHITE WIRES (WIRE BLUE TO TB1 #5. WHITE TO TB1 #1).
3. VALVE SHOWN IN SERVICE POSITION.

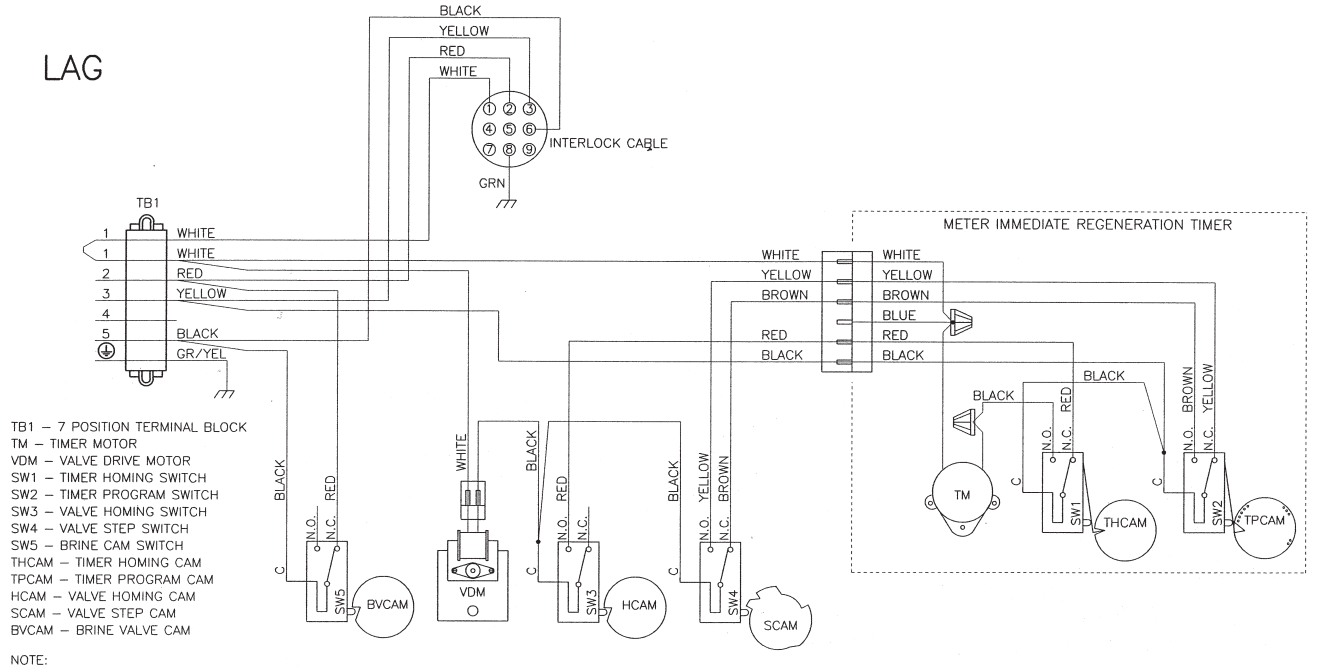
13768 Rev G

SYSTEM #5 WIRING

Interlocked Regeneration Valve Wiring



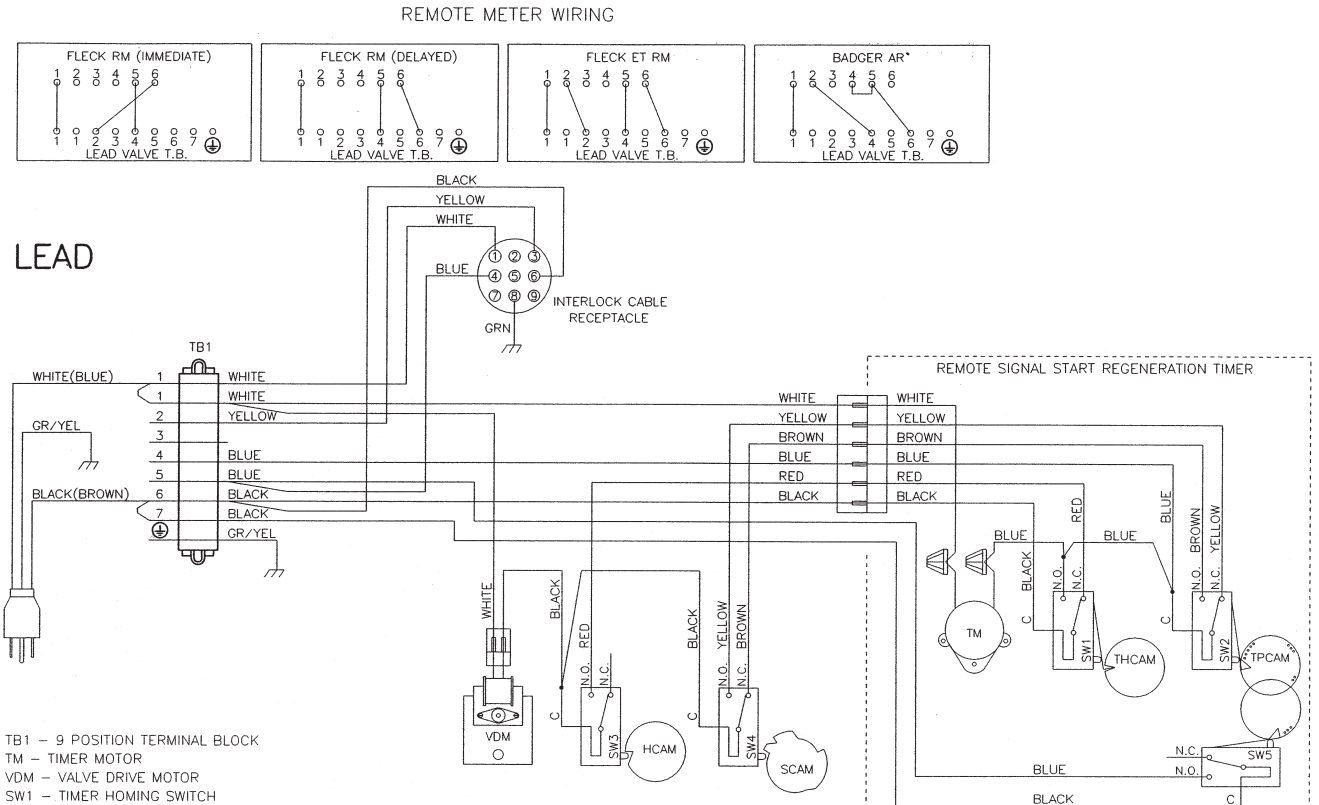
40502-01 Rev C



40502-02 Rev C

SYSTEM #6 WIRING

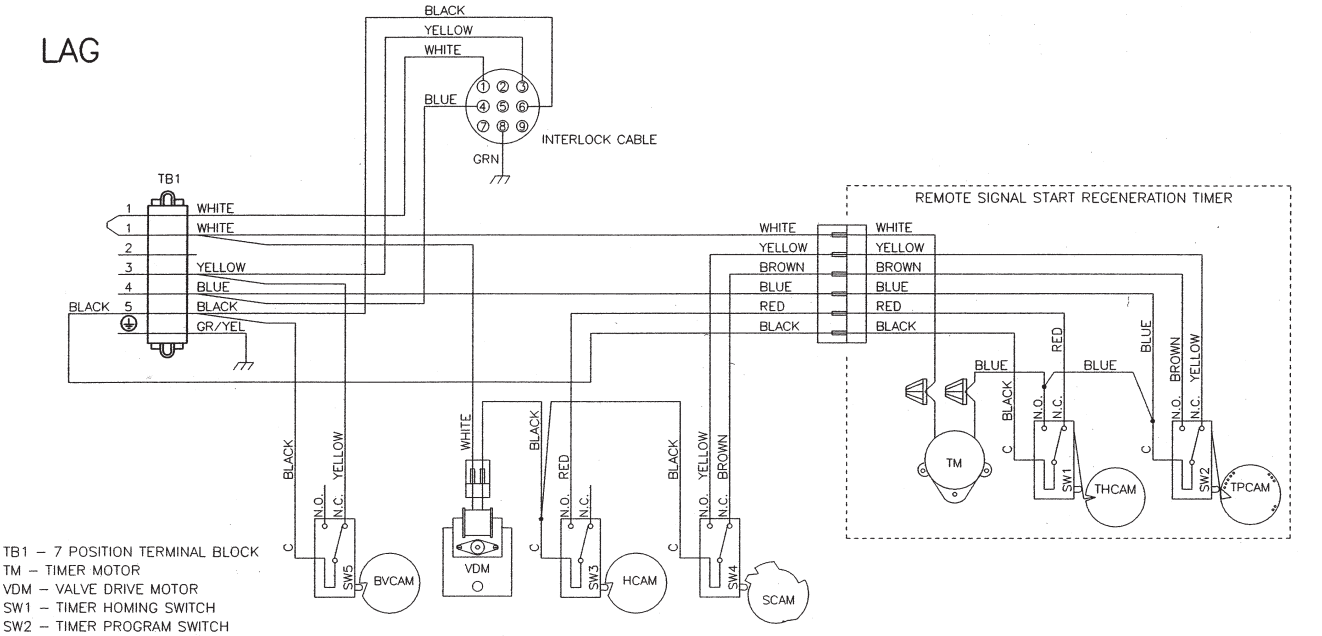
Series Regeneration Valve Wiring



TB1 – 9 POSITION TERMINAL BLOCK
TM – TIMER MOTOR
VDM – VALVE DRIVE MOTOR
SW1 – TIMER HOMING SWITCH
SW2 – TIMER PROGRAM SWITCH
SW3 – VALVE HOMING SWITCH
SW4 – VALVE STEP SWITCH
SW5 – AUXILIARY TIMER SWITCH
THCAM – TIMER HOMING CAM
TPCAM – TIMER PROGRAM CAM
HCAM – VALVE HOMING CAM
SCAM – VALVE STEP CAM

NOTE:
1. TWO TANK INTERLOCKED, SINGLE REMOTE METER, SERIES REGENERATION.
2. BOTH TANKS NORMALLY IN SERVICE.
3. ONLY ONE TANK IN REGENERATION, THE OTHER REMAINS IN SERVICE.
4. LEAD VALVE REGENERATES FIRST, FOLLOWED IMMEDIATELY BY LAG VALVE.
5. WITH 24V VALVES THE POWER CORD IS REPLACED WITH BLUE AND WHITE WIRES (WIRE BLUE TO TB1 #6, WHITE TO TB1 #1).
6. VALVE SHOWN IN SERVICE POSITION.

13632-01 Rev L



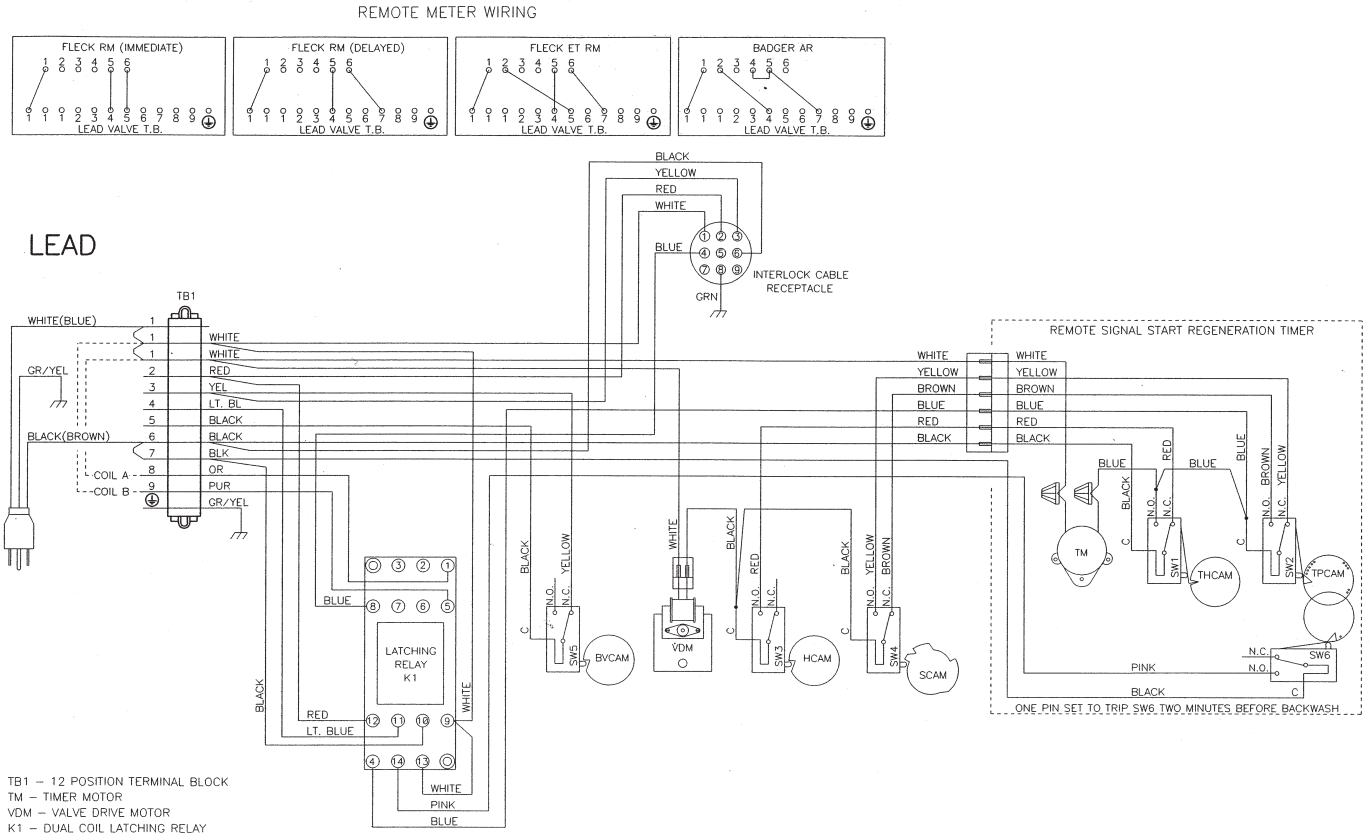
TB1 – 7 POSITION TERMINAL BLOCK
TM – TIMER MOTOR
VDM – VALVE DRIVE MOTOR
SW1 – TIMER HOMING SWITCH
SW2 – TIMER PROGRAM SWITCH
SW3 – VALVE HOMING SWITCH
SW4 – VALVE STEP SWITCH
SW5 – BRINE CAM SWITCH
THCAM – TIMER HOMING CAM
TPCAM – TIMER PROGRAM CAM
HCAM – VALVE HOMING CAM
SCAM – VALVE STEP CAM
BVCAM – BRINE VALVE CAM

NOTE:
1. TWO TANK INTERLOCKED, SINGLE REMOTE METER, SERIES REGENERATION.
2. BOTH TANKS NORMALLY IN SERVICE.
3. ONLY ONE TANK IN REGENERATION, THE OTHER REMAINS IN SERVICE.
4. LEAD VALVE REGENERATES FIRST, FOLLOWED IMMEDIATELY BY LAG VALVE.
5. WITH 24V VALVES, THE POWER CORD IS REPLACED WITH BLUE AND WHITE WIRES (WIRE BLUE TO TB1 #6, WHITE TO TB1 #1).
6. VALVE SHOWN IN SERVICE POSITION.

13632-02 Rev L

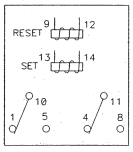
SYSTEM #7 WIRING

Alternating Regeneration 230V / 3-Way Solenoid Output Valve Wiring



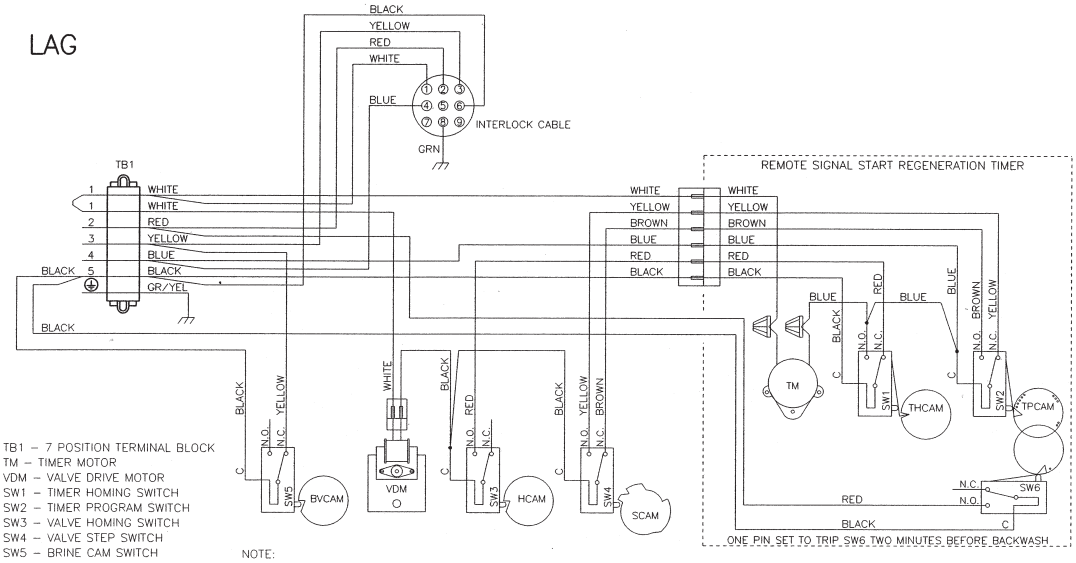
TB1 – 12 POSITION TERMINAL BLOCK
TM – TIMER MOTOR
VDM – VALVE DRIVE MOTOR
K1 – DUAL COIL LATCHING RELAY
– 24V P/N 17018
– 120V P/N 16807
SW1 – TIMER HOMING SWITCH
SW2 – TIMER PROGRAM SWITCH
SW3 – VALVE HOMING SWITCH
SW4 – VALVE STEP SWITCH
SW5 – BRINE CAM SWITCH
SW6 – TIMER AUXILIARY SWITCH
THCAM – TIMER HOMING CAM
TPCAM – TIMER PROGRAM CAM
HCAM – VALVE HOMING CAM
SCAM – VALVE STEP CAM
BVCAM – BRINE VALVE CAM

RELAY TERMINAL BLOCK PINOUT
(SHOWN IN RESET POSITION)



NOTE:
1. TWO TANK SINGLE REMOTE METER ALTERNATING REGENERATION.
ONLY ONE TANK IN SERVICE THE OTHER IN REGENERATION OR STANDBY.
2. SYSTEM WIRED FOR 3–WAY SOLENOID OUTPUT.
COIL A CLOSES THE DIAPHRAGM VALVES OF LAG UNIT.
COIL B CLOSES THE DIAPHRAGM VALVES OF LEAD UNIT.
3. VALVE SHOWN IN SERVICE POSITION.

19138-01 Rev E



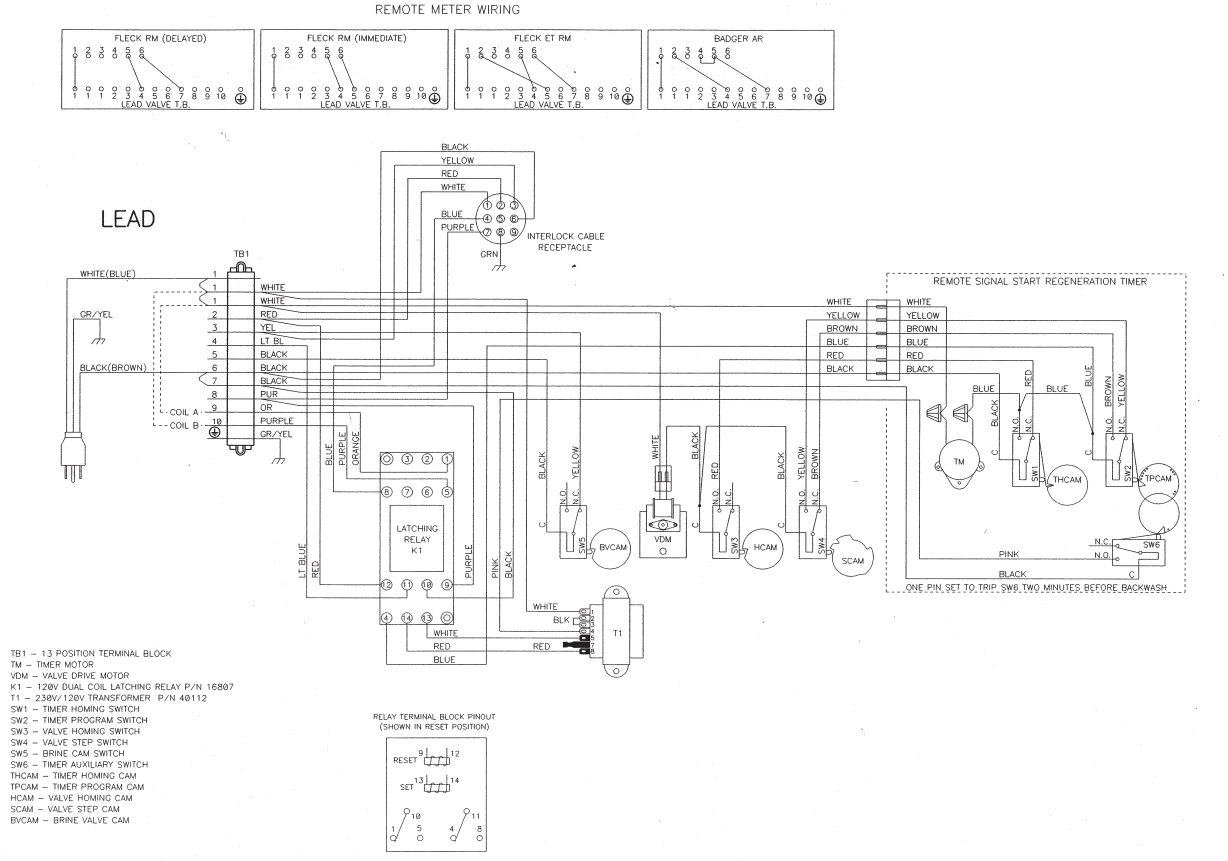
TB1 – 7 POSITION TERMINAL BLOCK
TM – TIMER MOTOR
VDM – VALVE DRIVE MOTOR
SW1 – TIMER HOMING SWITCH
SW2 – TIMER PROGRAM SWITCH
SW3 – VALVE HOMING SWITCH
SW4 – VALVE STEP SWITCH
SW5 – BRINE CAM SWITCH
SW6 – TIMER AUXILIARY SWITCH
THCAM – TIMER HOMING CAM
TPCAM – TIMER PROGRAM CAM
HCAM – VALVE HOMING CAM
SCAM – VALVE STEP CAM
BVCAM – BRINE VALVE CAM

NOTE:
1. TWO TANK SINGLE REMOTE METER ALTERNATING REGENERATION.
ONLY ONE TANK IN SERVICE THE OTHER IN REGENERATION OR STANDBY.
2. SYSTEM WIRED FOR 3–WAY SOLENOID OUTPUT.
COIL A CLOSES THE DIAPHRAGM VALVES OF LAG UNIT.
COIL B CLOSES THE DIAPHRAGM VALVES OF LEAD UNIT.
3. VALVE SHOWN IN SERVICE POSITION.

19138-02 Rev E

SYSTEM #7 WIRING *continued*

Alternating Regeneration 24V / 120V / 3-Way Solenoid Output Valve Wiring

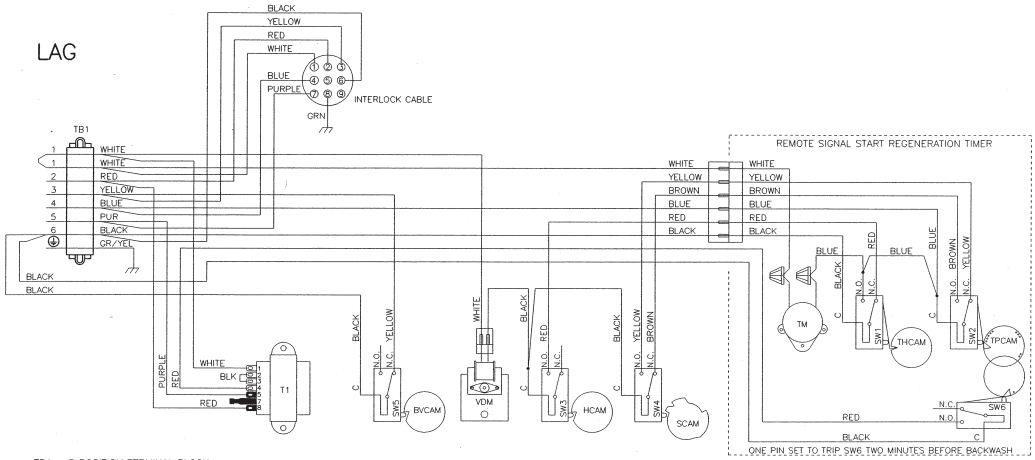


TB1 – 13 POSITION TERMINAL BLOCK
TM – TIMER MOTOR
VDM – VALVE DRIVE MOTOR
K1 – 120V DUAL COIL LATCHING RELAY P/N 16807
T1 – 230V/120V TRANSFORMER P/N 40112
SW1 – TIMER HOMING SWITCH
SW2 – TIMER PROGRAM SWITCH
SW3 – VALVE HOMING SWITCH
SW4 – VALVE STEP SWITCH
SW5 – BRINE CAM SWITCH
SW6 – TIMER AUXILIARY SWITCH
THCAM – TIMER HOMING CAM
TPCAM – TIMER PROGRAM CAM
HCAM – VALVE HOMING CAM
SCAM – VALVE STEP CAM
BVCAM – BRINE VALVE CAM

RELAY TERMINAL BLOCK PINOUT (SHOWN IN RESET POSITION)

NOTE:
1. TWO TANK SINGLE REMOTE METER ALTERNATING REGENERATION. ONLY ONE TANK IN SERVICE THE OTHER IN REGENERATION OR STANDBY.
2. SYSTEM WIRED FOR 3-WAY SOLENOID OUTPUT. COIL A CLOSES THE DIAPHRAGM VALVES OF LAG UNIT. COIL B CLOSES THE DIAPHRAGM VALVES OF LEAD UNIT.
3. VALVE SHOWN IN SERVICE POSITION.

17727-01 Rev E



TB1 – 8 POSITION TERMINAL BLOCK
TM – TIMER MOTOR
T1 – 230V TO 120V TRANSFORMER P/N 40112
VDM – VALVE DRIVE MOTOR
SW1 – TIMER HOMING SWITCH
SW2 – TIMER PROGRAM SWITCH
SW3 – VALVE HOMING SWITCH
SW4 – VALVE STEP SWITCH
SW5 – BRINE CAM SWITCH
SW6 – TIMER AUXILIARY SWITCH
THCAM – TIMER HOMING CAM
TPCAM – TIMER PROGRAM CAM
HCAM – VALVE HOMING CAM
SCAM – VALVE STEP CAM
BVCAM – BRINE VALVE CAM

NOTE:
1. TWO TANK SINGLE REMOTE METER ALTERNATING REGENERATION. ONLY ONE TANK IN SERVICE THE OTHER IN REGENERATION OR STANDBY.
2. SYSTEM WIRED FOR 3-WAY SOLENOID OUTPUT. COIL A CLOSES THE DIAPHRAGM VALVES OF LAG UNIT. COIL B CLOSES THE DIAPHRAGM VALVES OF LEAD UNIT.
3. VALVE SHOWN IN SERVICE POSITION.

17727-02 Rev E

SERVICE ASSEMBLIES

24 Hour Gear Assemblies

19205.....Gear Assy, 24 Hour, Silver, 5600, 12 A.M.
60519-02 .....Gear Assy, 3200 24 Hour 2 Times/Day, w/Silver Label
60519-03 .....Gear Assy, 3200, 24 Hour 3 Times/Day, w/Silver Label
60519-04 .....Gear Assy, 3200, 24 Hour 4 Times/Day, w/Silver Label
60519-06 .....Gear Assy, 3200, 24 Hour (12:00) 6 Times/Day, w/Silver Label

Adapters

61415.....Adapter Assy, Sidemount 2850/2900/2930
61415NP.....Adapter Assy, Sidemount, NP 2850/2900/2930
61415-20 .....Adapter Assy, Sidemount, BSP/MTC 2850/2900/2930
61415-20NP .....Adapter Assy, Sidemount, BSP/NP 2850/2900/2930

Air Checks

60002-34 .....Air Check, #500, 34" Long
60003-34 .....Air Check, #500, HW, 34" Tube
60009-00 .....Air Check, #900, Commercial, Less Fittings
60009-01 .....Air Check, #900, Commercial, HW Less Fittings

Auxiliary Micro Switch

60320-02 .....Switch Kit, 3200/9000 Timer Auxiliary
60320-07 .....Switch Assy, 2850, Aux w/Self Tapping Screws
60320-12 .....Switch Assy, 1500 through 2850

Brine Line Flow Control (BLFC)

60020-25 .....BLFC, .25 GPM, 1600
60020-50 .....BLFC, .50 GPM, 1600
60020-100 .....BLFC, 1.0 GPM, 1600
60011-090.....Brine Valve, 1650, Short Stem
60010-25 .....BLFC, 1650, .25 GPM, Plastic
60010-50 .....BLFC, 1650, .50 GPM, Plastic
60010-100 .....BLFC, 1650, 1.0 GPM, Plastic

Brine Valves

60011.....Brine Valve, 1650, Less BLFC
60029.....Brine Valve, 1600, Short Stem Brass, Std O-rings
60029-010 .....Brine Valve, 1600, Short Stem .25 GPM

60029-020 .....Brine Valve, 1600, Short Stem .50 GPM
60029-020 .....Brine Valve, 1600, Short Stem 1.0 GPM
60029HW.....Brine Valve, 1600, Short Stem Hot Water
60034-xx.....1700 Brine Valve Assy (Specify flow control 1.0 - 5.0)
60604-xx.....Model 1710 Brine Valve Assy (Specify flow control 1.0 - 5.0)

Cam Assemblies

60160-40 .....Drive Cam Assy, Std, 2850s

Covers

60219-xx.....Environmental
60232-xx.....Designer 2 Piece
60232-110.....Cover, Designer, 1 Pc Black

Drain Line Flow Controls

60366-xx.....1" FNPT x 3/4" FNPT (Specify flow control .6 - 7.0)
60701-xx.....1" FNPT x 1" FNPT (Specify flow control 8.0 - 25.0)
60702-xx.....1" FNPT x 1" MNPT (Specify flow control 8.0 - 25.0)
60708-xx.....1" FNPT x 3/4" FNPT (Specify flow control 8.0 - 25.0)
60721-xx.....1" FNPT x 1" FNPT (Specify flow control .6 - 7.0)

Drive Assemblies

60050-25 .....Drive Assy, 2850s, STF, 120V Softener/Filter

Injector Assemblies (Complete)

60080.....1600 Injector Assembly
60381.....1700 Injector Assembly
60480-xx.....1600 - 3/8" Brine (Specify size of injector)
60481-xx.....1600 Brass - 3/8" Brine (Specifysize of injector)
60483-xx.....1700 - 1/2" Brine (Specify size ofInjector)

Meters

60613.....Meter Assy, 2750, Electronic 1"
60610-01 .....Meter, 2850/9500, 1 1/2" Std
60610-02 .....Meter, 2850/9500, 1 1/2" Ext
60391.....Meter Assy, 2750
60392.....Meter Assy, 2750, 1" Ext
60614.....Meter Assy, 2850/9500, Electronic 1 1/2" Meter, Brass
61560-01 .....Meter Assy, In-Line, w/1" NPT Plstc Connector
61560-07 .....Meter Assy, In-Line, w/1" NPT Brass Connector
61560-09 .....Meter Assy, In-Line, w/ 1 1/2" NPT Brass Connector

Piston Assemblies

61630-00 .....Piston Assy., 2850s, HW BP
61630-01HW .....Piston Assy., 2850s, HW BP, Hot Water
61630-02 .....Piston Assy., 2850s, Manual
61631-00 .....Piston Assy, Filter, 2850s Conversion, NHWBP
61631-00HW .....Piston Assy, Filter, 2850s, Conversion, NHWBP, Hot Water

Program Wheel Assemblies

60405-20 .....Program Wheel, w/3/4" Ext Label 1 1/2" Std Set @ 100
60405-30 .....Program Wheel, w/1" Std Label Set @ 50
60405-40 .....Program Wheel, w/1" Ext Label
60405-70 .....Program Wheel, w/1" Ext Label

SERVICE ASSEMBLIES *continued*

Safety Brine Valves

60014.....Safety Brine Valve Assy, 2310
60038.....Safety Brine Valve, 2350
60027-FFA.....Safety Brine Valve Body, 2300 Fitting Facing Arm
60027-FFS.....Safety Brine Valve Body Fitting Facing Stud
60026-30 .....Float Assy, 2350, 30” Red/Wht
60026-30SAN.....60026-30SAN Float Assy, 2350, 30” HW
60028-30 .....Float Assy, 2300, 30”, Blue/White
60068-30 .....Float Assy, 2310, w/30” Rod

Sales and Service Aids

42666.....Literature, 2850s Spec Sheet
42319.....Literature, 2850s S/Manual
40717.....Literature, Catalog Assy, PWT Residential/Commercial

Seal & Spacer Kits

61632.....Seal & Spacer Kit, 2850s
61632-20 .....Seal & Spacer Kit, 2850s, Hot Water
61632-30 .....Seal & Spacer Kit, 2850s, 559 PE, Chemical Resistent Kit

Service Equipment

16174.....Silicone, 2 oz. Tube
16586-8 .....Silicone, Dow #7 8 Lb
42227.....Stuffer Assy, 2850s
42228 .....Puller Tool Assy, 2850s
60460.....Meter Checker Kit, Std
60461.....Meter Checker Kit, Ext

Service Valve Operator Assemblies (SVO)

60150.....SVO Assy, 1600 O/S

Skipper Wheel Assemblies

14860.....Skipper Wheel Assy, 7 Day
14381.....Skipper Wheel Assy, 12 Day