



Pentair Water

Fleck 2900s

Service Manual



TABLE OF CONTENTS

JOB SPECIFICATION SHEET	1
INSTALLATION	2
START-UP INSTRUCTIONS	2
3200 TIMER SETTING PROCEDURE	3
3210 & 3220 TIMER SETTING PROCEDURE	4
3200, 3210, 3220, 3230 REGENERATION CYCLE SETTING PROCEDURE	5
3200 TIME CLOCK TIMER ASSEMBLY	6
3210 METER DELAYED TIMER ASSEMBLY	7
3220 METER IMMEDIATE TIMER ASSEMBLY	8
3230 REMOTE START TIMER ASSEMBLY	9
UPPER ENVIRONMENTAL POWERHEAD ASSEMBLY	10
LOWER ENVIRONMENTAL POWERHEAD ASSEMBLY	11
CONTROL VALVE ASSEMBLY	12
CONTROL VALVE SIDE MOUNT ADAPTER.....	14
1600 SERIES BRINE SYSTEM.....	15
1650 BRINE SYSTEM ASSEMBLY	17
1700 BRINE SYSTEM ASSEMBLY	19
1710 BRINE SYSTEM ASSEMBLY	20
2" BRASS METER ASSEMBLY	21
2" PLASTIC METER ASSEMBLY	22
1600 SERVICE VALVE OPERATOR (NEW STYLE).....	23
2300 SAFETY BRINE VALVE.....	24
2310 SAFETY BRINE VALVE.....	25
2350 SAFETY BRINE VALVE.....	26
GENERAL SERVICE HINTS FOR METER CONTROL	27
TROUBLESHOOTING	28
WATER CONDITIONER FLOW DIAGRAMS - DOWNFLOW	29
WATER CONDITIONER FLOW DIAGRAMS - UPFLOW.....	30
FLOW DATA & INJECTOR DRAW RATES - DOWNFLOW ...	31
ENVIRONMENTAL BACKPLATE DIMENSIONS	32
SYSTEM #4	33
SYSTEM #5 INTERLOCK	33
SYSTEM #6 & #7	34
SYSTEM #4 WIRING	35
SYSTEM #5 WIRING	37
SYSTEM #6 WIRING	38
SYSTEM #7 WIRING	39
1600/1700 SYSTEM NOZZLE & THROAT CHART	41
SERVICE ASSEMBLIES	42

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

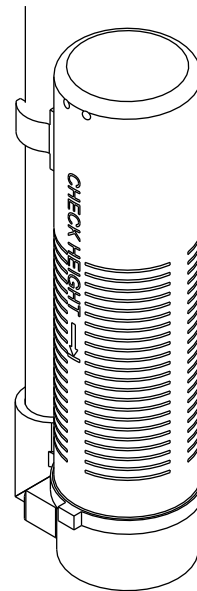
Always provide for the installation of a by-pass valve if unit is not equipped with one.

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 regeneration 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

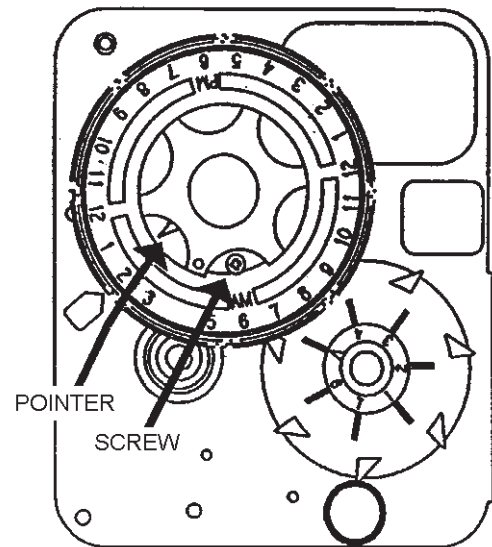
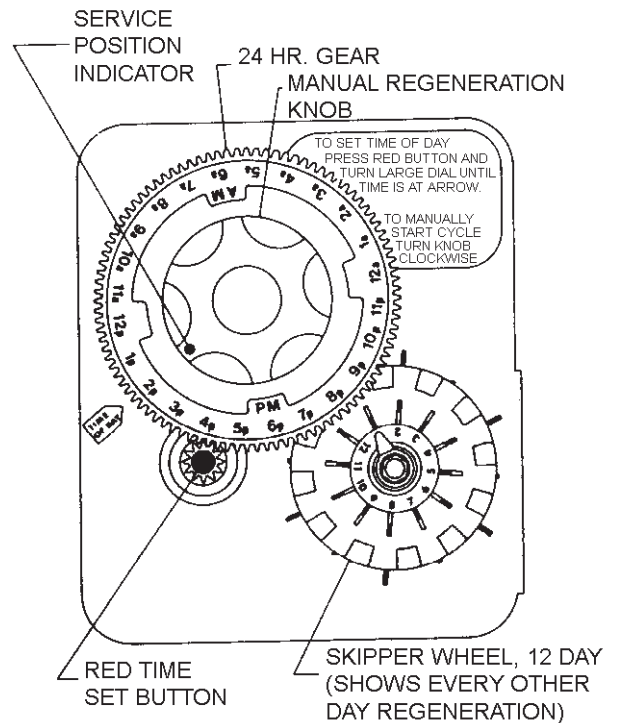
1. Press and hold the red button in to disengage the drive gear.
2. Turn the large gear until the actual time of day is at the time of day pointer.
3. Release the red button to again engage the drive gear.

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 & 3220 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

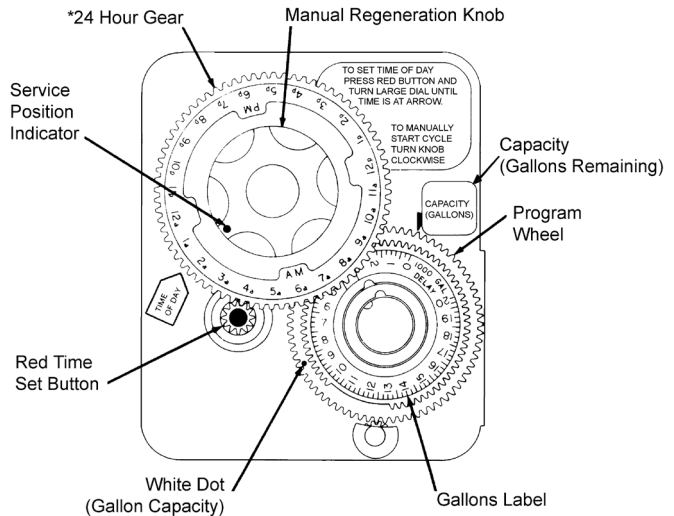
1. Turn the manual regeneration knob clockwise.
2. This slight movement of the manual regeneration knob engages the program wheel and starts the regeneration program.
3. The black center knob will make one revolution in the following approximately three hours and stop in the position shown in the drawing.
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.

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

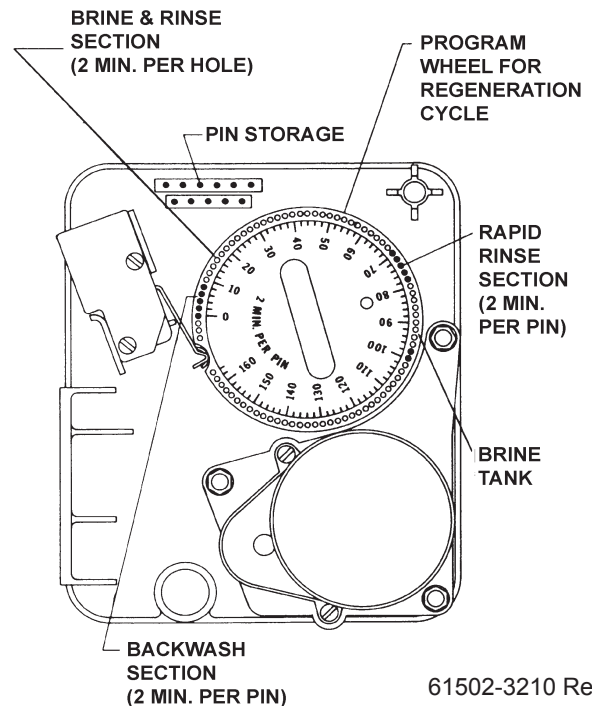
1. The group of holes between the last pin in the backwash section and the second group of pins determines the length of time that your unit will brine and rinse (2 min. per hole).
2. To change the length of brine and rinse time, move the rapid rinse group of pins to give more or fewer holes in the brine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

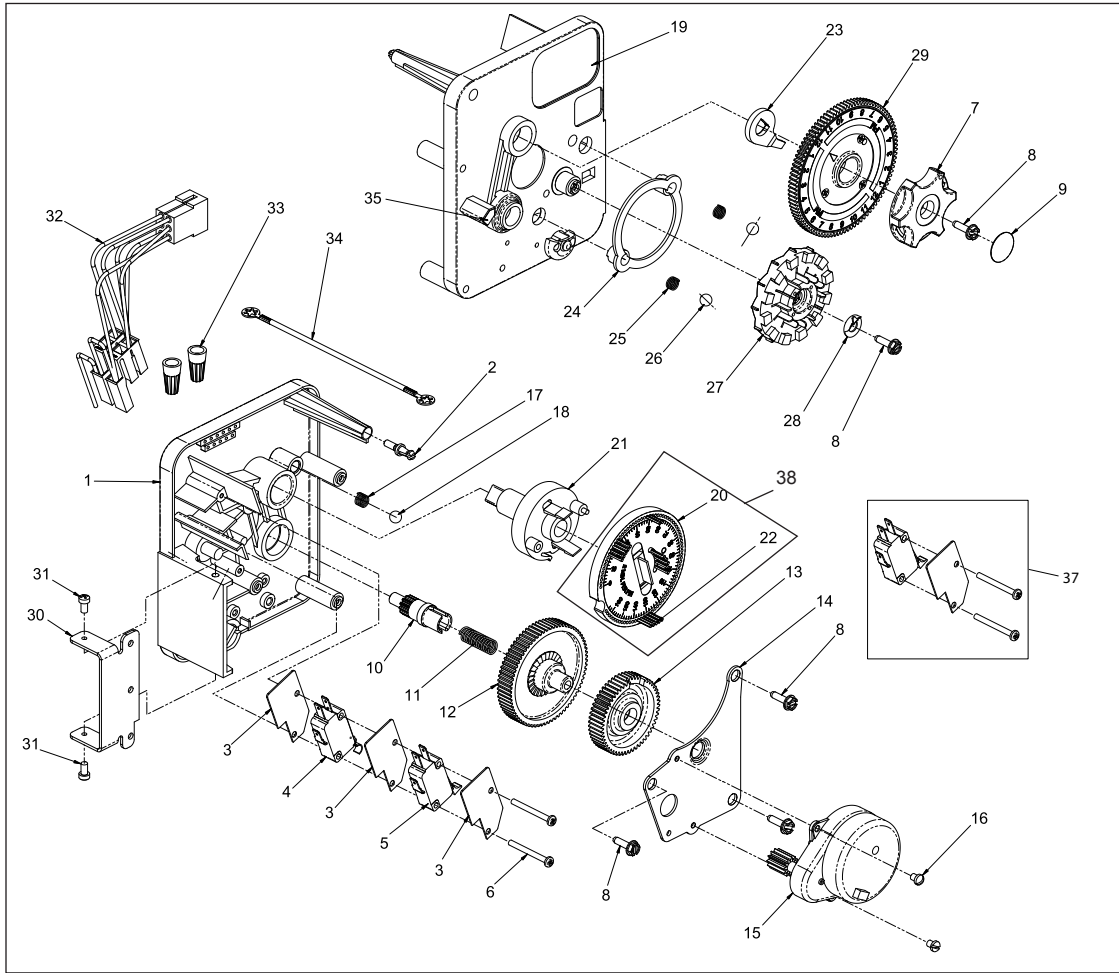
1. The second group of holes in the program wheel determines the length of time that your water conditioner will refill the brine tank (2 min. per hole).
2. To change the length of refill time, move the two pins at the end of the second group of holes as required.
3. The regeneration cycle is complete 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



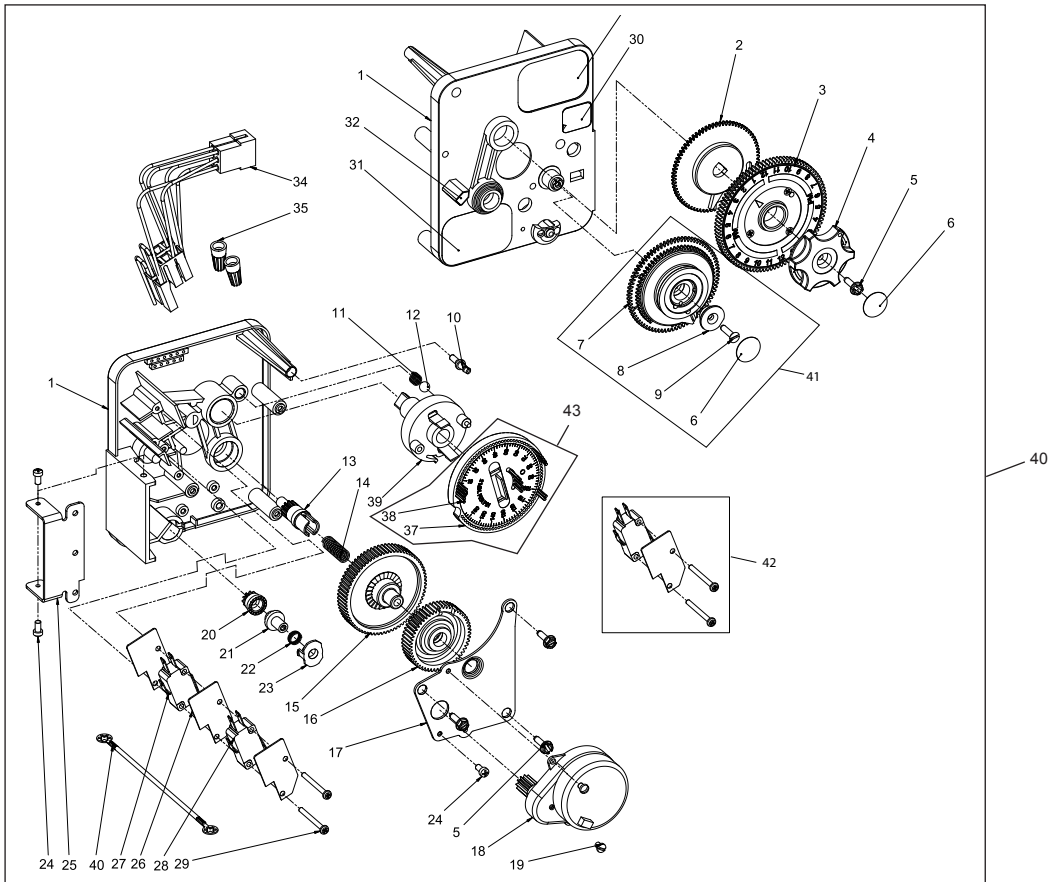
61502-3200 Rev A

Item No.	QTY	Part No.	Description
1	1	13870	Housing, Timer, 3200
2	1	14265	Clip, 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
	1	18752-1	Motor, 100V, 50Hz, 1/30 RPM
	1	18824-1	Motor, 230V, 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, Slt'd Fillister Hd 6-32 x .156
17	1	15424	Spring, Detent, Timer
18	1	15066	Ball, 1/4", Delrin
19	1	15465	Label, Caution

Item No.	QTY	Part No.	Description
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
36	1	*	Complete 3200 Time Clock Timer Assembly
37		60320-02	Switch Kit, 3200/9000 Timer Auxiliary, Optional
38		61420-03	Program Wheel, Gear Assy, Filter 2 Min Per Pin
		61420-04	Program Wheel, Gear Assy, Softener, 2 Min Per Pin

*Call your distributor for Part Number

3210 METER DELAYED TIMER ASSEMBLY

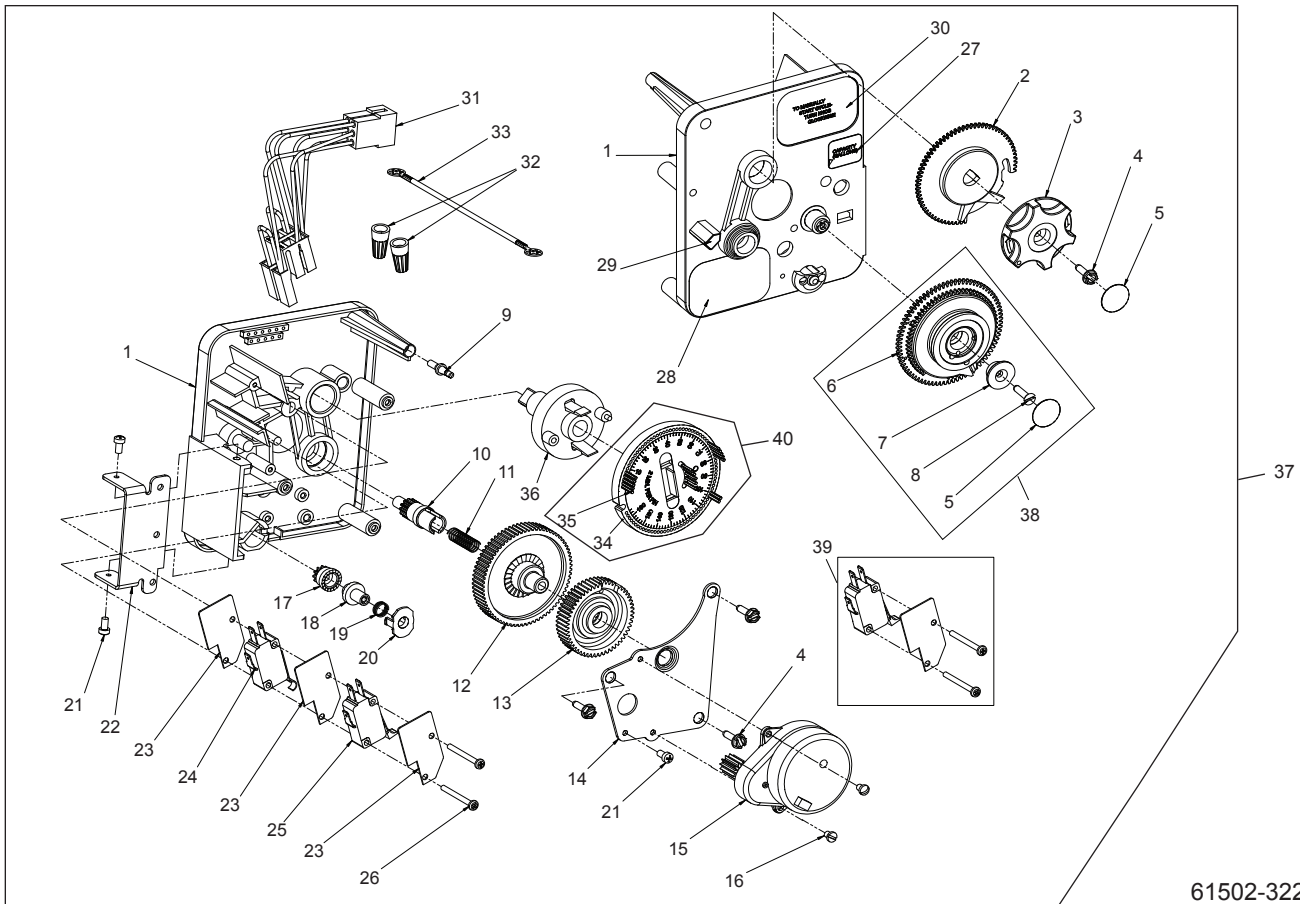


61502-3210 Rev A

Item No.	QTY	Part No.	Description	Item No.	QTY	Part No.	Description
1.....	1	13870.....	Housing, Timer, 3200	26.....	3	14087.....	Insulator
2.....	1	13802.....	Gear, Cycle Actuator	27.....	1	10896.....	Switch, Micro
3.....	1	40096-02.....	Dial 2 AM Regen Assy, Black	28.....	1	15320.....	Switch, Micro, Timer
4.....	1	13886.....	Knob, 3200	29.....	2	11413.....	Screw, Pan Hd Mach, 4-40 x 1 1/8
5.....	4	13296.....	Screw, Hex Wsh, 6-20 x 1/2	30.....	1	14198.....	Label, Indicator
6.....	2	11999.....	Label, Button	31.....	1	15465.....	Label, Caution
7.....	1	13803.....	Gear, Program Drive Wheel	32.....	1	14007.....	Label, Time of Day
8.....	1	13806.....	Retainer, Program Wheel	33.....	1	14045.....	Label, Instruction
9.....	1	13748.....	Screw, Flat Head St, 6-20 x 1/2	34.....	1	13902.....	Harness, 3200
10.....	1	14265.....	Clip, Spring	35.....	2	40422.....	Nut, Wire, Tan
11.....	1	15424.....	Spring, Detent, Timer	36.....	1	15354-01.....	Wire, Ground, 4"
12.....	1	15066.....	Ball, 1/4" Delrin	37.....	1	19210.....	Program Wheel Assy
13.....	1	13018.....	Pinion, Idler	38.....	17	41754.....	Pin, Spring, 1/16 x 5/8 SS, Timer
14.....	1	13312.....	Spring, Idler Shaft	39.....	1	13911.....	Gear, Main Drive, Timer
15.....	1	13017.....	Gear, Idler	40.....	1	*	Complete 3210 Meter Delayed Timer Assembly
16.....	1	13164.....	Gear, Drive	41.....		60405-50.....	Program Wheel, w/2" STD Label 0-21,000 gal
17.....	1	13887.....	Plate, Motor Mounting			60405-60.....	Program Wheel, w/2" EXT Label 0-100,000 gal
18.....	1	18743-1.....	Motor, 120V, 60Hz 1/30 RPM			60405-61.....	Program Wheel, w/2" EXT Range 375 m3
	1	18752-1.....	Motor, 100V, 50Hz, 1/30 RPM	42.....		60320-02.....	Switch Kit, 3200/9000 Timer Auxiliary, Optional
	1	18824-1.....	Motor, 230V, 50Hz, 1/30 RPM	43.....		61420-03.....	Program Wheel, Gear Assy, Filter 2 Min Per Pin
	1	18826-1.....	Motor, 24V, 50Hz, 1/30 RPM			61420-04.....	Program Wheel, Gear Assy, Softener, 2 Min Per Pin
	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				

*Call your distributor for Part Number

3220 METER IMMEDIATE TIMER ASSEMBLY

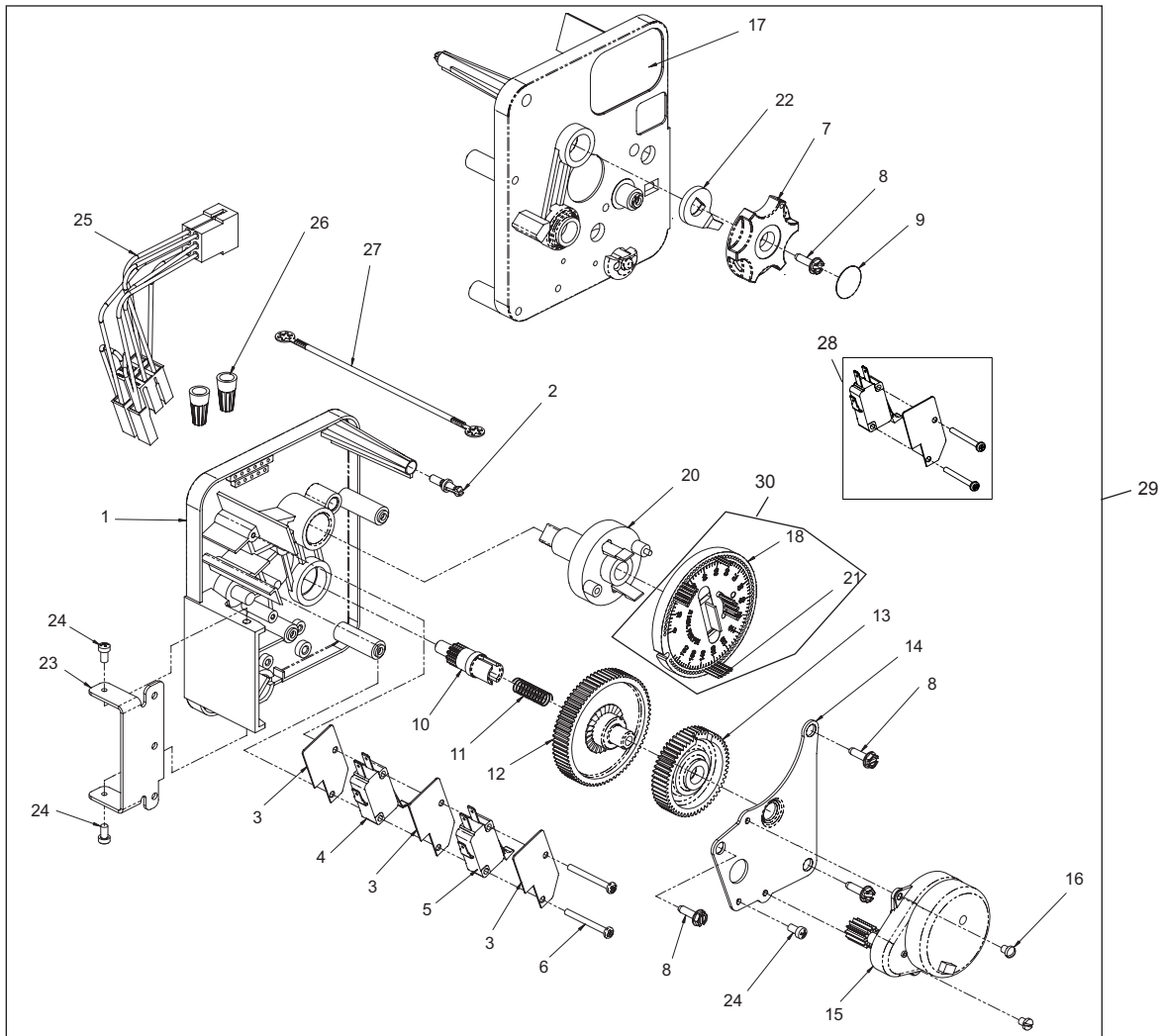


61502-3220 Rev B

Item No.	QTY	Part No.	Description	Item No.	QTY	Part No.	Description
1	1	13870	Housing, Timer	25	1	15320	Switch, Micro, Timer
2	1	15431	Gear, Cycle Actuator, System #5	26	2	11413	Screw, Pan Hd Mach, 4-40 x 1-1/8
3	1	13886	Knob, 3200	27	1	14198	Label, Indicator
4	4	13296	Screw, Hex Wsh, 6-20 x 1/2	28	1	15465	Label, Caution
5	2	11999	Label, Button	29	1	14007	Label, Time of Day
6	1	13807	Gear, Program Drive Wheel	30	1	15148	Label, Instruction
7	1	13806	Retainer, Program Wheel	31	1	40617	Harness, 3220
8	1	13748	Screw, Flt Hd St, 6-20 x 1/2	32	2	40422	Nut, Wire, Tan
9	1	14265	Spring Clip	33	1	15354-01	Wire, Ground, 4"
10	1	13018	Pinion, Idler	34	1	19210-05	Program Wheel Assembly, 9000/3230
11	1	18563	Idler Shaft Spring	35	17	41754	Pin, Spring, 1/16 x 5/8 Stainless Steel, Timer
12	1	13017	Gear, Idler	36	1	15055	Gear, Main Drive
13	1	13164	Drive Gear	37	1	*	Complete 3220 Meter Immediate Timer Assembly
14	1	13887	Plate, Motor Mounting	38		60405-50	Program Wheel, w/2" STD Label 0-21,000 gal
15	1	18743-1	Motor, 120V, 60 Hz, 1/30 RPM			60405-60	Program Wheel, w/2" EXT Label 0-100,000 gal
	1	18752-1	Motor, 100V, 50Hz, 1/30 RPM			60405-61	Program Wheel, w/2" EXT Range 375 m3
	1	18824-1	Motor, 230V, 50Hz, 1/30 RPM	39		60320-02	Switch Kit, 3200/9000 Timer Auxiliary, Optional
	1	18826-1	Motor, 24V, 50Hz, 1/30 RPM	40		61420-06	Program Wheel, Gear Assy, Softener Immediate 2 Min Per Pin
	1	19659-1	Motor, 24V, 60Hz, 1/30 RPM			61420-42	Program Wheel, Gear Assy, Filter Immediate 2 Min Per Pin
	1	19660-1	Motor, 230V, 60Hz, 1/30 RPM				
16	2	13278	Screw, Sltl Fillister Hd				
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	15414-00	Micro Switch				

*Call your distributor for Part Number

3230 REMOTE START TIMER ASSEMBLY

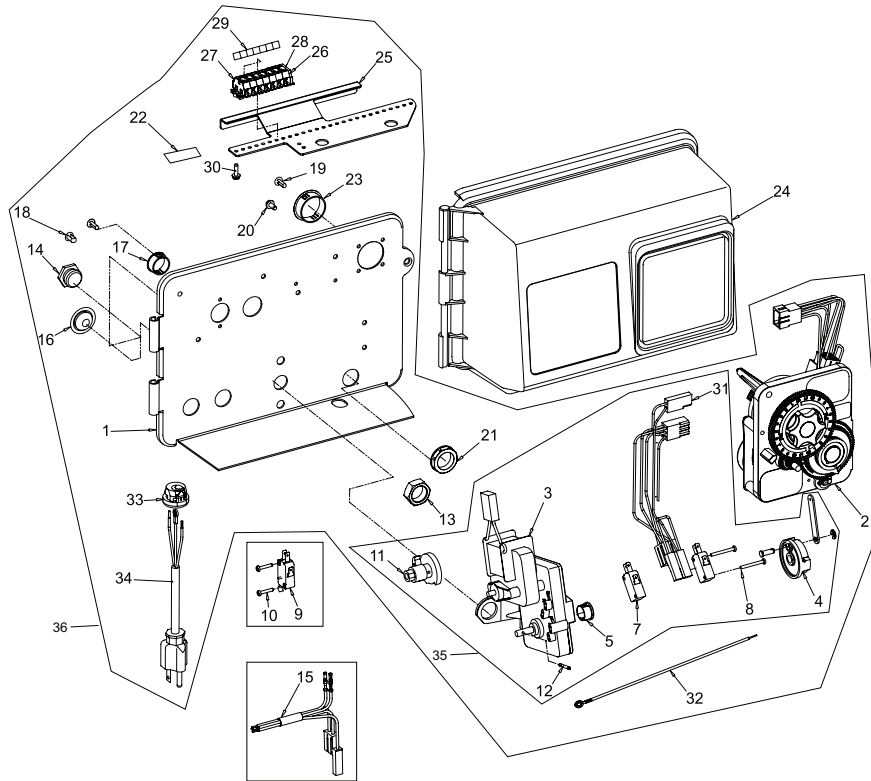


61502-3230R REV A

Item No.	QTY	Part No.	Description	Item No.	QTY	Part No.	Description
1.....	1	13870	Housing, Timer	16.....	2	13278	Screw, Slt'd Fillister Hd
2.....	1	14265	Spring Clip	17.....	1	15313	Label, Caution
3.....	3	14087	Insulator	18.....	1	19210-05	Program Wheel Assembly, 3200
4.....	1	15314	Micro Switch	20.....	1	15055	Main Drive Gear
5.....	1	15320	Switch, Micro, Timer	21.....	17	41754	Pin, Spring, 1/16 x 5/8 Stainless Steel, Timer
6.....	2	11413	Screw, Pan Hd Mach, 4-40 x 1-1/8	22.....	1	13011	Cycle Actuator Arm
7.....	1	13886	Knob, 3200	23.....	1	13881	Bracket, Hinge Timer
8.....	4	13296	Screw, Hex Wsh, 6-20 x 1/2	24.....	3	11384	Screw, Phil, 6-32 x 1/4 Zinc
9.....	1	11999	Label, Button	25.....	1	16336	Harness, 3230R
10.....	1	13018	Pinion, Idler	26.....	2	40422	Nut, Wire, Tan
11.....	1	18563	Idler Shaft Spring	27.....	1	15354-01	Wire, Ground, 4"
12.....	1	13017	Gear, Idler	28.....		60320-02	Switch Kit, 3200/9000 Timer Auxiliary, Optional
13.....	1	15055	Drive Gear	29.....	*		3230 Timer Assy
14.....	1	13887	Plate, Motor Mounting	30.....		61420-06	Program Wheel, Gear Assy, Softener Immediate 2 Min Per Pin
15.....	1	18743-1	Motor, 120V, 60 Hz, 1/30 RPM			61420-42	Program Wheel, Gear Assy, Filter Immediate 2 Min Per Pin
		18752-1	Motor, 100V, 50Hz, 1/30 RPM				
		18824-1	Motor, 23V, 50Hz, 1/30 RPM				
		18826-1	Motor, 24V, 50Hz, 1/30 RPM				
		19659-1	Motor, 24V, 60Hz, 1/30 RPM				
		19660-1	Motor, 230V, 60Hz, 1/30 RPM				

*Call your distributor for Part Number

UPPER ENVIRONMENTAL POWERHEAD ASSEMBLY



61501-2900 Rev G

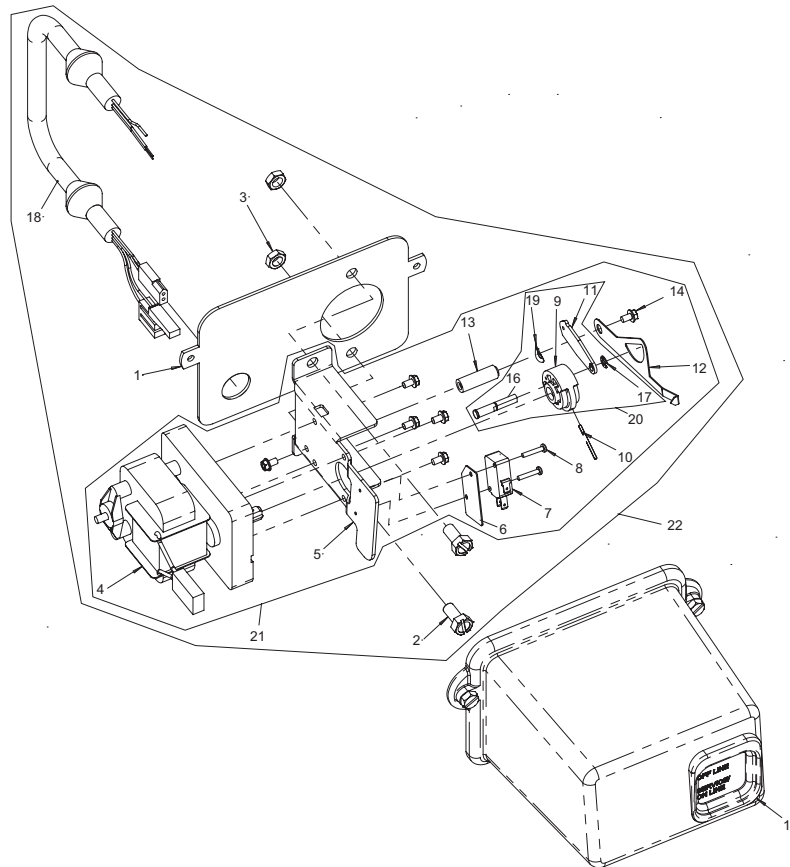
Item No.	QTY	Part No.	Description	Item No.	QTY	Part No.	Description
1	1	18697-15	Backplate, Hinged	24	1	60219-02	Cover Assembly, Environmental, Black w/Clear Window
2	1		3200 Clock Timer Assembly	25	1	19772	Bracket, Terminal Block
	1		3200 Meter Timer Assembly	26	1	40174	Terminal Block, Green/Yellow Commercial, 809-260/141
3	1	41543	Motor, Drive, 115V, 50/60 Hz	27	6	41084	Terminal Block, Segment, Gray
	1	42579	Motor, Drive, 24VAC/DC, 50/60 Hz	28	1	41085	Endplate, Terminal Block, Gray
	1	41545	Motor, Drive, 230V, 50/60 Hz	29	2	15250	Label, Terminal Strip
4	1	60160-15	Drive Cam Assembly, STF, Blue, 2900	30	2	13296	Screw, Hex Wsh, 6-20 6-20 x 1/2 Type 25 Steel Zinc
	1	60160-30*	Drive Cam Assembly, Upflow	31	1	40400	Harness, Drive, Designer/Environmental
	1	60160-31*	Drive Cam Assembly, Upflow, Variable	32	1	40175-01	Wire, Ground, Commercial Valves
5	1	17904	Bushing, Heyco 1/2, Heyco #2073	33	1	13547	Strain Relief, Flat Cord Heyco #30-1
7	2	10218	Switch, Micro		1	13547-01	Strain Relief, Euro Round Cord
8	2	14923	Screw, Pan Hd Mach, 4-40 X 1 MS Steel Zinc		1	13547-02	Strain Relief, U.S. Round
9	1	10896	Switch, Micro	34	1	11545	Powercord, 4' European, Black
10	2	11805	Screw, Rd Hd, 4-40 X 5/8 TYPE 1 Steel Zinc		1	19303	Powercord, 8', Australian
11	1	12472	Cam Assy, Tri-Stack, After RR		1	40084-12	Powercord, 12' US, Round, 120V, Sys 5,6,7&2900/3150/3900
	1	12777	Cam, Shut-Off Valve		1	40085-12	Powercord, 12' US, Round, 240V
	1	15770	Cam Assy, Special Tri-Stack, After Brine Fill	35		60050-23	Drive Assy, 2750, STF, 24V 50/60 Hz, Downflow Less Lower Drive Brine Cam Switch, Item 9 & 10
	1	15805	Cam, SVO			60050-22	Drive Assy, 2750, STF, 220V 50/60 Hz, Downflow Less Lower Drive Brine Cam Switch, Item 9 & 10
	1	19887*	Cam, Brine, 2750 U/F, Std			60052-21	Upper Drive Assy, 2900, STF 120V, Downflow
12	2	10338	Pin, Roll 3/32 x 7/8			60052-217	Upper Drive Assy, 2900, STF 120V, System 7, Downflow
13	1	10269	Nut, Jam, 3/4-16	36	**		Upper Powerhead Assembly
14	1	10712	Fitting, Brine Valve			15216	Meter Cable Assembly, 15.25"
15	1	14822	Harness, 2900			15879	Cable Guide Assembly, 2900
16	2	19691	Plug, .750 Dia Recessed, Black				
17	1	15806	Plug, Hole, Heyco #2693				
18	1	19801	Plug, .190 Dia, White Heyco 0307				
19	7	19800	Plug, .140 Dia, White Heyco 0304				
20	4	10300	Screw, Slot Hex Wsh, 8-18 X 3/8 Type "B" RC 44-47				
21	1	18691-02	Nut, Conduit Fitting 1/2"				
22	1	40038-03	Label, Voltage, 120V, 3200ET				
23	1	17421	Plug, 1.20 Hole Heyco #2733				

Not Shown:

*Upflow Only

**Call your distributor for Part Number

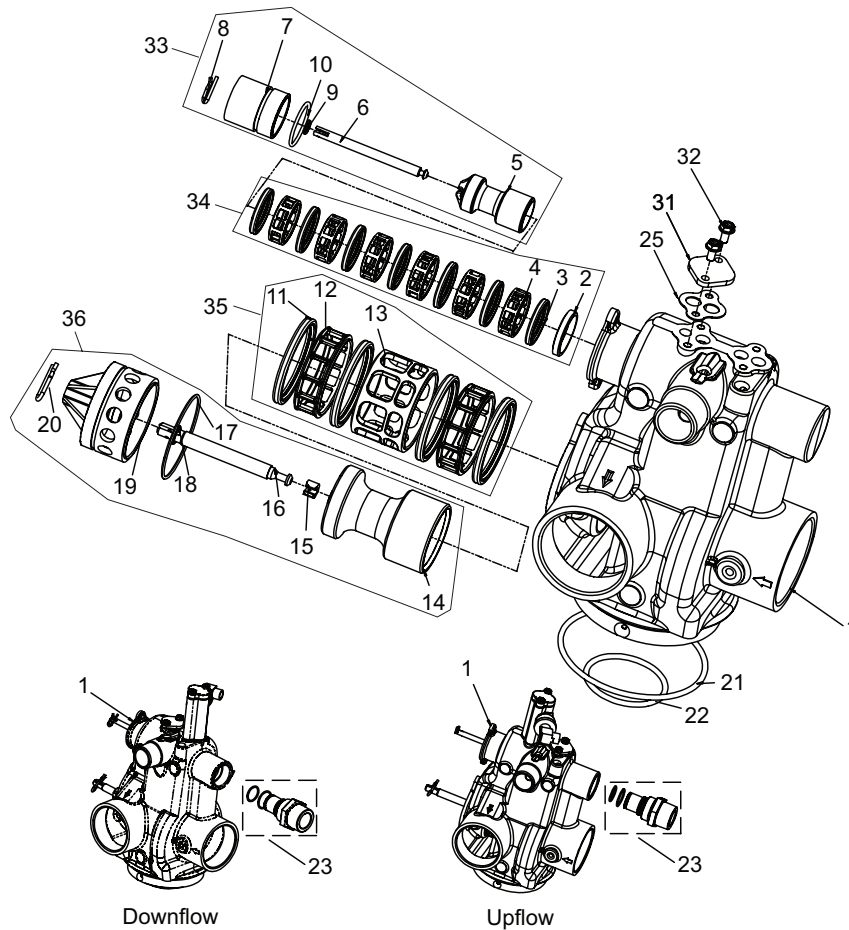
LOWER ENVIRONMENTAL POWERHEAD ASSEMBLY



61501-2900 Rev G

Item No.	QTY	Part No.	Description	Item No.	QTY	Part No.	Description
1.....	1	18709.....	Backplate, Lower	.....	1	18727.....	Washer, Curved Spring, /265 ID
2.....	2	11224.....	Screw, Slotted Hex Head	20.....	1	60160-22.....	Drive Cam Assy, Link, Environmental, 2900 Lower Drive
3.....	2	16346.....	Nut, Hex, Jam, 5/16-18, 18-8-SS (only used for shipping)	21.....	1	60055-53.....	Lower Drive Assy, 2900, 24/60, System #4
4.....	1	40387.....	Motor, Drive, 115V, 60 Hz, SP FAM	.....	1	60055-51.....	Lower Drive Assy, 2900, 120, System #4
.....	1	42580.....	Motor, Drive, 24 Vac/Dc, 50-60 Hz, Fam 2	.....	1	60055-52.....	Lower Drive Assy, 2900, 220, System #4
.....	1	40389.....	Motor, Drive, 220V, 50/60 Hz, SP	.....	1	60255-51.....	Lower Drive Assy, 2900, 120, System #5 and #6, Lead/Lag
5.....	1	14769.....	Bracket, Motor, 2900	.....	1	60056-51.....	Lower Drive Assy, 2900, 120, System #7, Lead
6.....	1	10302.....	Insulator, Limit Switch	.....	1	60056-61.....	Lower Drive Assy, 2900, 120, System #7, Lag
7.....	1	10218.....	Switch, Micro	22.....	*	.....	2900 Lower Powerhead Assembly
8.....	2	19849.....	Screw, Pan HD, 4-40 x 5/8	Not Shown:			
9.....	1	14775.....	Cam, Main Drive, 2900 Lower	1.....	1	14044.....	Tie, Cable, HeyCo VNT # 4-18
10.....	1	41022.....	Pin, Roll 2900 Lower	1.....	1	43062.....	Grease, Lubriplate, 630-2
11.....	1	14759.....	Link, Piston Rod	.....	1	60320-11.....	Switch Kit, 2900 Lower Drive, Adding Second Switch
12.....	1	18725.....	Indicator, Service/Standby	.....	1	60320-08.....	Switch Kit, 2900 Lower Drive, Adding Third Switch
13.....	1	18726.....	Spacer, Indicator	*Call your distributor for Part Number			
14.....	6	10872.....	Screw, Hex WSH, 8-32 x 5/16				
15.....	1	60217-02.....	Cover Assy, 2900, Lower, Black				
16.....	1	42979.....	Bearing, Connecting Rod				
17.....	1	42980.....	Ring, Retaining				
18.....	1	42446.....	Harness, Lower Drive SYS4, ENV				
.....	1	40405.....	Harness, Lower Drive, Sys 4 Remote Start				
.....	1	40406.....	Harness, Lower Drive, Sys 5 & 6, Duplex, Environmental				
.....	1	40405.....	Harness, Lower Drive Syst 5 Multiple, Environmental				
.....	1	40405.....	Harness, Lower Drive Syst 6 Multiple, Lead, Environmental				
.....	1	40406.....	Harness, Lower Drive, Sys 6, Multiple, Middle/Lag, Environmental				
.....	1	40407.....	Harness, Lower Drive, Syst #7, Duplex, Lead, Environmental				
.....	1	40408.....	Harness, Lower Drive, Syst 7, Duplex, Lag, Environmental				
.....	1	40398.....	Harness, Lower Drive, Syst #7, Multiple, Environmental				

CONTROL VALVE ASSEMBLY



61500-2900 Rev F

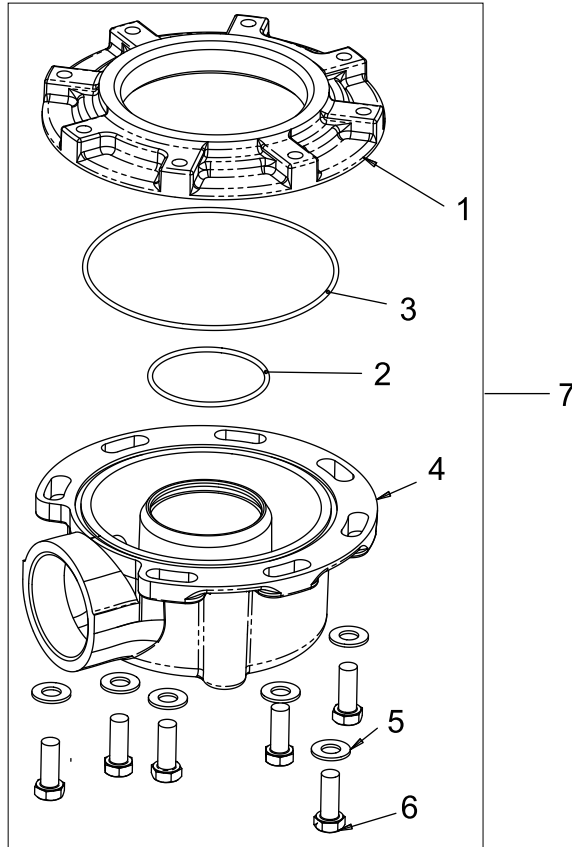
Item No.	QTY	Part No.	Description
1	1	41428-01	Valve Body, 2900s, Machd, NPT U.S. Tap
		41428-09	Valve Body, 2900s, Machined, w/ Soft Water Adapter
		41428-01NP	Valve Body, 2900s, MCHD, NPT, NP, U.S. Tap, Top Coll
		41428-03	Valve Body, 2900s, MACHD, NPT, U.S. Tap, Aux Tap, Top Coll
		41428-03NP	Valve Body, 2900s, MCHD, NPT, NP, U.S. Tap, Aux Tap, Top Coll
		41428-05	Valve Body, 2900s, NPT, U.S. Tap, SVO, Top Coll
		41428-07	Valve Body, 2900s, MACHD, NPT, U.S. Tap, Aux Tap, SVO, Top Coll
		41428-09	Valve Body, 2900s, MACHD, NPT, U.S. Tap, Soft ADAPT, Top Coll
		41428-09NP	Valve Body, 2900s, MCHD, NPT, NP, U.S. Tap, Soft ADAPT, Top Coll
		41428-11	Valve Body, 2900s, NPT, U.S. Tap, Aux Tap, SFT ADPT, Top Coll
		41428-13	Valve Body, 2900s, MACHD, NPT, U.S. Tap, SVO, Soft ADAPT, Top Coll
		41428-15	Valve Body, 2900s, MACHD, NPT, U.S. Tap, SVO, SFT ADPT, AX TP Top
		41428-21	Valve Body, 2900s, MACHD, BSP, Metric Tap, Top Coll
		41428-21NP	Valve Body, 2900s, MCHD, BSP, NP, Metric Tap, Top Coll

Item No.	QTY	Part No.	Description
2	1	10757	Spacer, End
		10757B	Spacer, End, Brass, HW
3	7	10545	Seal, Piston
		10545-01	Seal, Piston, Viton
		10545-02	Seal, Piston, Silicone
4	6	11451	Spacer, 12 Hole
		16589	Spacer, Hot Water
5	1	14451	Piston, 2750
		19454*	Piston, 2750, Upflow
6	1	41424	Rod, Piston, 2900s, Upper
7	1	41131	Plug, End
		10212	Plug, End, 1500/2750, Brass
8	1	10909	Pin, Link
9	1	10209	Quad Ring, -010
10	1	40078	O-ring, 28mm X 2mm
		10234-01	O-ring, -024, Hot Water
11	4	11720	Seal, Piston, 2900/3150
		10545-02	Seal, Piston, Silicone
12	2	10369	Spacer, 2", 2900/3150
		14241-01	Spacer, Hot Water
13	1	14753	Spacer, 2900
		16589	Spacer, Hot Water
14	1	14757	Piston, HWBP
		14752	Piston, 2900, NHWBP
15	1	14818	Ring, Piston Rod, Snap
16	1	14758	Rod, Piston, 2900
17	1	14922	O-ring, -035, Piston
18	1	14926	Quad Ring, -012

CONTROL VALVE ASSEMBLY *continued*

Item No.	QTY	Part No.	Description	Item No.	QTY	Part No.	Description
19	1	14754-00	End Plug Assy, 2900	..... 60708-9.0	.....	DLFC, 1"F x 3/4"F, NPT, 9.0 gpm
		14754-01	Plug, End, White, Machined	..... 60708-10	.....	DLFC, 1"F x 3/4"F, NPT, 10.0 gpm
		14754-10	End Plug Assembly, 2900/2930, NHWBP	..... 60708-12	.....	DLFC, 1"F x 3/4"F, NPT, 12.0 gpm
		19276-01	End Plug Assembly, 2900s, Brass, HW	..... 60708-15	.....	DLFC, 1"F x 3/4"F, NPT, 15.0 gpm
		41427-01	Plug, End, 2900s, Lower, White	..... 60708-20	.....	DLFC, 1"F x 3/4"F, NPT, 20.0 gpm
		41427-11	Plug, End, 2900s, Lower, Black	..... 60708-25	.....	DLFC, 1"F x 3/4"F, NPT, 25.0 gpm
20	1	14813	Pin, Spring, Connecting Rod	..... 60721-00	.....	DLFC, 1"F x 1"F, NPT, No Button
21	1	13575	O-ring, -240	..... 60721-06	.....	DLFC, 1"F x 1"F, NPT, 0.06 gpm
		15210	O-ring, -343, Park Tank	..... 60721-08	.....	DLFC, 1"F x 1"F, NPT, 0.08 gpm
22	1	13577	O-ring, -226	..... 60721-10	.....	DLFC, 1"F x 1"F, NPT, 1.0 gpm
23	1	61525	Softwater Adapter Kit, 2900s	..... 60721-12	.....	DLFC, 1"F x 1"F, NPT, 1.2 gpm
25	2	19925	Gasket, Injector Body, 1700	..... 60721-13	.....	DLFC, 1"F x 1"F, NPT, 1.3 gpm
31	1	11893	Cap, Injector, Stainless Steel	..... 60721-15	.....	DLFC, 1"F x 1"F, NPT, 1.5 gpm
32	2	15137	Screw, Hex Wsh Mach, 10 - 24 x 3/8	..... 60721-00	.....	DLFC, 1"F x 1"F, NPTF, No Button
33		61540	Piston Assy, 2900s, Downflow, Upper	..... 60721-17	.....	DLFC, 1"F x 1"F, NPTF, 1.7 gpm
		61540-01	Piston Assy, 2900s, Downflow, Upper, Hot Water	..... 60721-20	.....	DLFC, 1"F x 1"F, NPTF, 2.0 gpm
		61545	Piston Assy, 2900s, Upflow, Upper	..... 60721-24	.....	DLFC, 1"F x 1"F, NPTF, 2.4 gpm
		61545-01	Piston Assy, 2900s, Upflow, Upper, Hot Water	..... 60721-30	.....	DLFC, 1"F x 1"F, NPTF, 3.0 gpm
34		61530	Seal & Spacer Kit, 2900s, Upper	..... 60721-35	.....	DLFC, 1"F x 1"F, NPTF, 3.5 gpm
		61530-01	Seal & Spacer Kit, 2900s, Upper, Hot Water	..... 60721-40	.....	DLFC, 1"F x 1"F, NPTF, 4.0 gpm
		61530-02	Seal & Spacer Kit, 2900s, Upper, VITON, Chemical Resistent	..... 60721-45	.....	DLFC, 1"F x 1"F, NPTF, 4.5 gpm
35		60128	Seal & Spacer Kit, 2900, Lower	..... 60721-50	.....	DLFC, 1"F x 1"F, NPTF, 5.0 gpm
		60128-01	Seal & Spacer Kit, 2900, Lower, Hot Water	..... 60721-60	.....	DLFC, 1"F x 1"F, NPTF, 6.0 gpm
		60128-10	Seal & Spacer Kit, 2900, Lower, Silicone	..... 60721-70	.....	DLFC, 1"F x 1"F, NPTF, 7.0 gpm
36		61550	Piston Assy, 2900s, HWBP, Lower	..... 60702-00	.....	DLFC, 1"M x 1"F, NPT, Brass, No Button
		61550-03	Piston Assy, 2900s, HWBP, Lower, Hot Water	..... 60702-8.0	.....	DLFC, 1"M x 1"F, NPT, 8.0 gpm
		61555	Piston Assy, 2900s, NHWBP, Lower	..... 60702-9.0	.....	DLFC, 1"M x 1"F, NPT, 9.0 gpm
		61555-03	Piston Assy, 2900s, NHWBP, Lower, Hot Water	..... 60702-10	.....	DLFC, 1"M x 1"F, NPT, 10 gpm
				..... 60702-12	.....	DLFC, 1"M x 1"F, NPT, 12 gpm
				..... 60702-15	.....	DLFC, 1"M x 1"F, NPT, 15 gpm
				..... 60702-20	.....	DLFC, 1"M x 1"F, NPT, 20 gpm
				..... 60702-25	.....	DLFC, 1"M x 1"F, NPT, 25 gpm
				..... 13640	.....	Flow Control, Dole, 30 gpm
				..... 60711-35	.....	DLFC, 2" NPT, 35 gpm
Not Shown:							
		60366-00	DLFC, 1"F x 3/4"F, NPT, No Button				*Upflow Only
		60366-06	DLFC, 1"F x 3/4"F, NPT, 0.6 gpm				
		60366-08	DLFC, 1"F x 3/4"F, NPT, 0.8 gpm				
		60366-10	DLFC, 1"F x 3/4"F, NPT, 1.0 gpm				
		60366-12	DLFC, 1"F x 3/4"F, NPT, 1.2 gpm				
		60366-13	DLFC, 1"F x 3/4"F, NPT, 1.3 gpm				
		60366-15	DLFC, 1"F x 3/4"F, NPT, 1.5 gpm				
		60366-17	DLFC, 1"F x 3/4"F, NPT, 1.7 gpm				
		60366-20	DLFC, 1"F x 3/4"F, NPT, 2.0 gpm				
		60366-24	DLFC, 1"F x 3/4"F, NPT, 2.4 gpm				
		60366-30	DLFC, 1"F x 3/4"F, NPT, 3.0 gpm				
		60366-35	DLFC, 1"F x 3/4"F, NPT, 3.5 gpm				
		60366-40	DLFC, 1"F x 3/4"F, NPT, 4.0 gpm				
		60366-45	DLFC, 1"F x 3/4"F, NPT, 4.5 gpm				
		60366-50	DLFC, 1"F x 3/4"F, NPT, 5.0 gpm				
		60366-60	DLFC, 1"F x 3/4"F, NPT, 6.0 gpm				
		60366-70	DLFC, 1"F x 3/4"F, NPT, 7.0 gpm				
		60708-00	DLFC, 1"F x 3/4"F, NPT, No Button				
		60708-8.0	DLFC, 1"F x 3/4"F, NPT, 8.0 gpm				

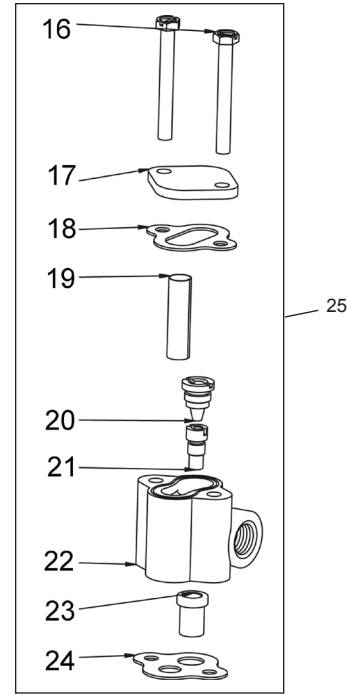
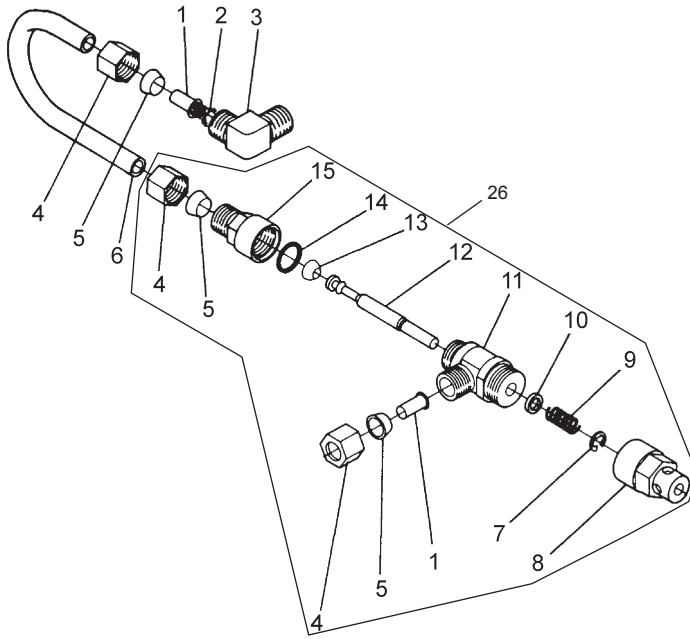
CONTROL VALVE SIDE MOUNT ADAPTER



61415 Rev B

Item No.	QTY	Part No.	Description
1.....	1	40316.....	Adapter, Sidemount
2.....	1	40372.....	O-ring - 142
3.....	1	40368.....	O-ring - 160, Sidemount, Flange
4.....	1	40310.....	Base, 2850/2900/3930, Rotating
5.....	7	40375.....	Washer, Flat, 3/8, Type A, N-SERS
6.....	7	19768.....	Screw, Hex Hd, 3/8 - 16 x 1, Cap 18-8
7.....	1	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

1600 SERIES BRINE SYSTEM



60029 Rev C

Item No.	QTY	Part No.	Description
1	2	10332	Fitting, Insert, 3/8
2	1	12767	Screen, Brine
3	1	10328	Fitting, Elbow, 90 Deg. 1/4 PT x 3/8 Tube
4	3	10329	Fitting, Tube, 3/8 Nut, Brass
5	3	10330	Fitting, Sleeve, 3/8 Celcon
6	1	16508	Tube, Brine, 1600, PVC
	1	16508-01	Tube, Brine Valve, 2850/2900s
	1	12774	Tube, Brine Valve, 1500
	1	40027	Tube, Brine Valve, 2510
	1	15221	Tube, Brine Valve, 2750/2900
	1	42184	Tube, Brine Valve, 2850s
	1	41683*	Tube, Brine Valve, UF, 1600/1650
7	1	10250	Ring, Retaining
8	1	11749	Guide, Brine Valve Stem
9	1	10249	Spring, Brine Valve
10	1	12550	Quad Ring, -009
11	1	12748	Brine Valve Body Assy, 1600 w/ Quad Ring
12	1	12552-02	Brine Valve Stem, 1600, with Seat
13	1	12626	Seat, Brine Valve
14	1	11982	O-ring, -016
15	1	60020-25	BLFC, .25 GPM, 1600
	1	60020-50	BLFC, .50 GPM, 1600
	1	60020-100	BLFC, 1.0 GPM, 1600
16	2	10692	Screw, Slot Hex Hd, 10 - 24X 18-8 Stainless Steel
17	1	11893	Cap, Injector, SS
18	1	10229	Gasket, Injector Cap, 1600
19	1	10227	Screen, Injector

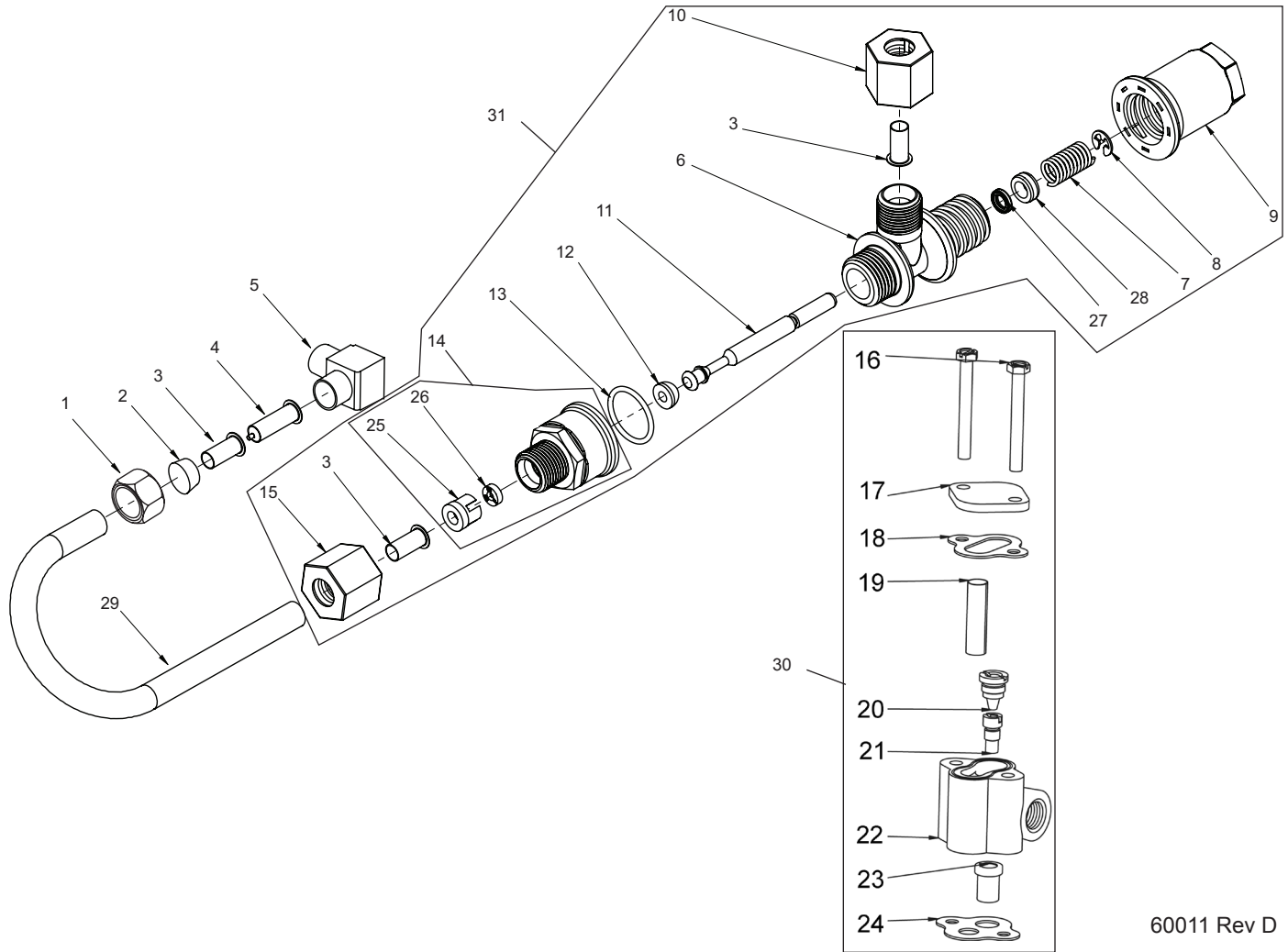
Item No.	QTY	Part No.	Description
20	1	10913-000	Nozzle, Injector #000, Brown
		10913-00	Nozzle, Injector #00, Violet
		10913-0	Nozzle, Injector #0, Red
		10913-1	Nozzle, Injector #1, White
		10913-2	Nozzle, Injector #2, Blue
		10913-3	Nozzle, Injector #3, Yellow
		10913-4	Nozzle, Injector #4, Green
		12973-0	Nozzle, Injector #0, PVC, Grey
		12973-1	Nozzle, Injector #1, PVC, Grey
		12973-2	Nozzle, Injector #2, PVC, Grey
		12973-3	Nozzle, Injector #3, PVC, Grey
		12973-4	Nozzle, Injector #4, PVC, Grey
		10225-0	Nozzle, Injector #0, Stainless Steel
		10225-1	Nozzle, Injector #1, Stainless Steel
		10225-2	Nozzle, Injector #2, Stainless Steel
		10225-3	Nozzle, Injector #3, Stainless Steel
		10225-4	Nozzle, Injector #4, Stainless Steel

1600 SERIES BRINE SYSTEM *continued*

Item No.	QTY	Part No.	Description
21.....	1	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
		..... 12974-0.....	Throat, Injector #0, PVC, Grey
		..... 12974-1.....	Throat, Injector #1, PVC, Grey
		..... 12974-2.....	Throat, Injector #2, PVC, Grey
		..... 12974-3.....	Throat, Injector #3, PVC, Grey
		..... 12974-4.....	Throat, Injector #4, PVC, Grey
		..... 10226-0.....	Throat, Injector #0, Stainless Steel
		..... 10226-1.....	Throat, Injector #1, Stainless Steel
		..... 10226-2.....	Throat, Injector #2, Stainless Steel
		..... 10226-3.....	Throat, Injector #3, Stainless Steel
		..... 10226-4.....	Throat, Injector #4, Stainless Steel
22.....	1	17776.....	Body, Injector, 1600
	1	17776-02*	Body, Injector, 1600 Upflow
23.....	1	16221.....	Disperser, Air
24.....	1	14805.....	Gasket, Injector Body, 1600/1700
25.....		60480-01.....	Injector Assy, 1600, #1, Plastic
		..... 60480-02.....	Injector Assy, 1600, #2, Plastic
		..... 60480-03.....	Injector Assy, 1600, #3, Plastic
		..... 60480-04.....	Injector Assy, 1600, #4, Plastic
		..... 60481-21.....	Injector Assy, 1600, #1, S.S. Brass
		..... 60481-22.....	Injector Assy, 1600, #2, S.S. Brass
		..... 60481-23.....	Injector Assy, 1600, #3, S.S. Brass
		..... 60080-11.....	Injector Assy, 1600, #1, PVC
		..... 60080-12.....	Injector Assy, 1600, #2, PVC
		..... 60080-14.....	Injector Assy, 1600, #4, PVC
		..... 60485-003.....	Injector Assy, 2900/1600, Upflow, #0, w/Reg Cap, 20 psi
		..... 60485-012.....	Injector Assy, 2900/1600, Upflow, #1, w/Reg Cap, 20 psi
		..... 60485-022.....	Injector Assy, 2900/1600, Upflow, #2, w/Reg Cap, 20 psi
		..... 60485-032.....	Injector Assy, 2900/1600, Upflow, #3, w/Reg Cap, 20 psi
		..... 60485-043.....	Injector Assy, 2900/1600, Upflow, #4, w/Reg Cap, 20 psi
26.....		60029-010.....	Brine Valve, 1600, 0.25 gpm
		..... 60029-020.....	Brine Valve, 1600, 0.50 gpm
		..... 60029-030.....	Brine Valve, 1600, 1.0 gpm

*Upflow Only

1650 BRINE SYSTEM ASSEMBLY



60011 Rev D

Item No.	QTY	Part No.	Description
1.....	1	10329	Fitting, Tube, 3/8 Nut, Brass
2.....	1	10330	Fitting, Sleeve, 3/8 Celcon
3.....	3	10332	Fitting, Insert, 3/8
4.....	1	12767	Screen, Brine
5.....	1	10328	Fitting, Elbow, 90 Deg 1/4 NPT x 3/8T
6.....	1	17884	Brine Valve Body Assy, 1650
7.....	1	10249	Spring, Brine Valve
8.....	1	10250	Ring, Retaining
9.....	1	17906	Guide, Brine Valve Stem
10.....	1	19625	Nut Assy, 3/8", Plastic
11.....	1	12552-02	Brine Valve Stem, 1600
12.....	1	12626	Seat, Brine Valve
13.....	1	16924	O-ring, -018
14.....	1	60010-25	BLFC, 1650, .25 GPM, Plastic (Includes items 25 and 26)
	1	60010-50	BLFC, 1650, .50 GPM, Plastic
	1	60010-100	BLFC, 1650, 1.0 GPM, Plastic
15.....	1	19625	Nut Assy, 3/8", Plastic
16.....	2	10692	Screw, Slot Hex Hd, 10 - 24X 18-8 Stainless Steel
17.....	1	11893	Cap, Injector, Stainless Steel
18.....	1	10229	Gasket, Injector Cap, 1600

Item No.	QTY	Part No.	Description
19.....	1	10227	Screen, Injector
20.....	1	10913-000	Nozzle, Injector #000, Brown
		10913-00	Nozzle, Injector #00, Violet
		10913-0	Nozzle, Injector #0, Red
		10913-1	Nozzle, Injector #1, White
		10913-2	Nozzle, Injector #2, Blue
		10913-3	Nozzle, Injector #3, Yellow
		10913-4	Nozzle, Injector #4, Green
		12973-0	Nozzle, Injector #0, PVC, Grey
		12973-1	Nozzle, Injector #1, PVC, Grey
		12973-2	Nozzle, Injector #2, PVC, Grey
		12973-3	Nozzle, Injector #3, PVC, Grey
		12973-4	Nozzle, Injector #4, PVC, Grey
		10225-0	Nozzle, Injector #0, Stainless Steel
		10225-1	Nozzle, Injector #1, Stainless Steel
		10225-2	Nozzle, Injector #2, Stainless Steel
		10225-3	Nozzle, Injector #3, Stainless Steel
		10225-4	Nozzle, Injector #4, Stainless Steel

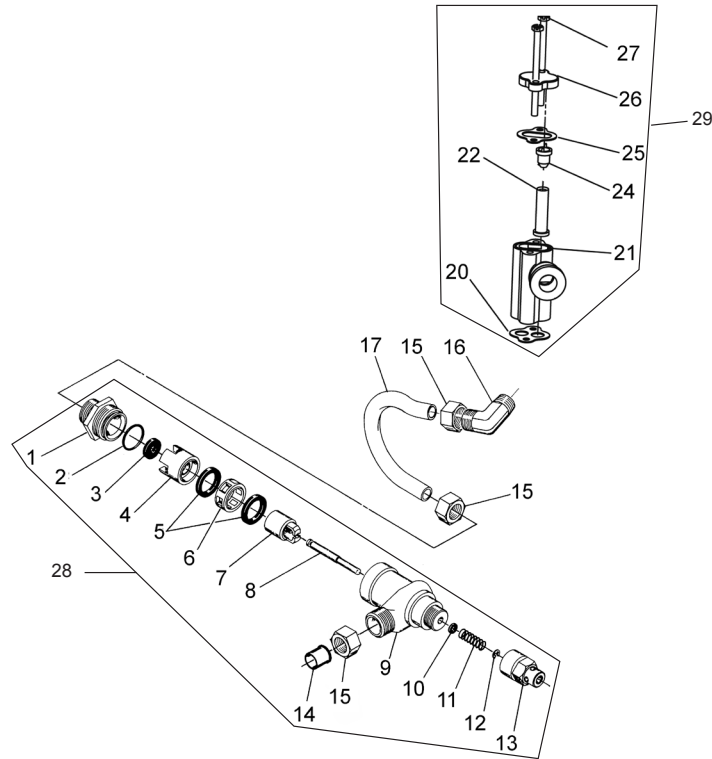
1650 BRINE SYSTEM ASSEMBLY

continued

Item No.	QTY	Part No.	Description
21	1	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
		12974-0	Throat, Injector #0, PVC, Grey
		12974-1	Throat, Injector #1, PVC, Grey
		12974-2	Throat, Injector #2, PVC, Grey
		12974-3	Throat, Injector #3, PVC, Grey
		12974-4	Throat, Injector #4, PVC, Grey
		10226-0	Throat, Injector #0, Stainless Steel
		10226-1	Throat, Injector #1, Stainless Steel
		10226-2	Throat, Injector #2, Stainless Steel
		10226-3	Throat, Injector #3, Stainless Steel
		10226-4	Throat, Injector #4, Stainless Steel
22	1	17776	Body, Injector, 1600
	1	17776-02*	Body, Injector, 1600 Upflow
23	1	16221	Dispenser, Air
24	1	14805	Gasket, Injector Body, 1600/1700
25	1	12098	Retainer, Flow Control
26	1	12095	Washer, Flow Control .50 GPM
	1	12094	Washer, Flow Control .25 GPM
	1	12097	Washer, Flow Control 1.0 GPM
27	1	12550	Quad Ring -009
	1	12550-01	Quad Ring -009 560CD
28	1	17908	Sleeve, Brine Valve Stem
29	1	16508-01	Tube, Brine Valve, 2850/1600
	1	40027	Tube, Brine Valve, 2510
	1	42184	Tube, Brine Valve, 2850s
	1	12774	Tube, Brine Valve, 1500
	1	15221	Tube, Brine Valve, 2750
	1	41683*	Tube, Brine Valve, UF, 1600/1650
30		60480-01	Injector Assy, 1600, #1, Plastic
		60480-02	Injector Assy, 1600, #2, Plastic
		60480-03	Injector Assy, 1600, #3, Plastic
		60480-04	Injector Assy, 1600, #4, Plastic
		60481-21	Injector Assy, 1600, #1, S.S. Brass
		60481-22	Injector Assy, 1600, #2, S.S. Brass
		60481-23	Injector Assy, 1600, #3, S.S. Brass
		60080-11	Injector Assy, 1600, #1, PVC
		60080-12	Injector Assy, 1600, #2, PVC
		60080-14	Injector Assy, 1600, #4, PVC
		60485-003	Injector Assy, 2900/1600, Upflow, #0, w/Reg Cap, 20 psi
		60485-012	Injector Assy, 2900/1600, Upflow, #1, w/Reg Cap, 20 psi
		60485-022	Injector Assy, 2900/1600, Upflow, #2, w/Reg Cap, 20 psi
		60485-032	Injector Assy, 2900/1600, Upflow, #3, w/Reg Cap, 20 psi
		60485-043	Injector Assy, 2900/1600, Upflow, #4, w/Reg Cap, 20 psi
31		60011-010	Brine Valve, 1650, 0.25 gpm
		60011-020	Brine Valve, 1650, 0.50 gpm
		60011-030	Brine Valve, 1650, 1.0 gpm

*Upflow Only

1700 BRINE SYSTEM ASSEMBLY



60034 Rev D

Item No.	QTY	Part No.	Description	Item No.	QTY	Part No.	Description
1.....	1	14792.....	Plug, End, Brine Valve	22.....	1	14802-03c.....	Throat, Injector, #3c, Yellow
2.....	1	13201.....	Quad Ring, -020	.....		14802-04c.....	Throat, Injector, #4c, Green
3.....	1	12085.....	Washer, Flow, 1.2 GPM	.....		14802-05c.....	Throat, Injector, #5c, White
.....	1	12086.....	Washer, Flow, 1.5 GPM	.....		14802-06c.....	Throat, Injector, #6c, Red
.....	1	12087.....	Washer, Flow, 2.0 GPM	24.....		14801-03c.....	Nozzle, Injector, #3c, Yellow
.....	1	12088.....	Washer, Flow, 2.4 GPM	.....		14801-04c.....	Nozzle, Injector, #4c, Green
.....	1	12089.....	Washer, Flow, 3.0 GPM	.....		14801-05c.....	Nozzle, Injector, #5c, White
.....	1	12090.....	Washer, Flow, 3.5 GPM	.....		14801-06c.....	Nozzle, Injector, #6c, Red
.....	1	12091.....	Washer, Flow, 4.0 GPM	25.....	1	10229.....	Gasket, Injector Cap, 1600
.....	1	12092.....	Washer, Flow, 5.0 GPM	26.....	1	11893.....	Cap, Injector, Stainless Steel
4.....	1	14785.....	Retainer, Flow Control	.....	1	10228.....	Cap, Injector
5.....	3	14811.....	O-ring, -210, 560CD, Brine	27.....	2	14804.....	Screw, Hex Hd Mach, 10 - 24 x 2-3/4" 18-8 Stainless Steel
6.....	1	14798.....	Spacer, 1700, Brine	28.....	1	60034-00.....	Brine Valve, 1700, Blank
7.....	1	14795.....	Piston, Brine Valve	.....		60034-10.....	Brine Valve, 1700, 1.0 gpm
8.....	1	14797.....	Brine Valve Stem	.....		60034-12.....	Brine Valve, 1700, 1.2 gpm
9.....	1	14790.....	Brine Valve Body	.....		60034-15.....	Brine Valve, 1700, 1.5 gpm
10.....	1	12550.....	Quad Ring, -009	.....		60034-20.....	Brine Valve, 1700, 2.0 gpm
11.....	1	15310.....	Spring, Brine Valve	.....		60034-24.....	Brine Valve, 1700, 2.4 gpm
12.....	1	10250.....	Retaining Ring	.....		60034-30.....	Brine Valve, 1700, 3.0 gpm
13.....	1	15517.....	Guide, Stem	.....		60034-40.....	Brine Valve, 1700, 4.0 gpm
14.....	1	15415.....	Fitting, Insert, 1/2", Tube	.....		60034-50.....	Brine Valve, 1700, 5.0 gpm
15.....	3	15414.....	Nut, 2900, w/Sleeve	29.....	1	60381-03.....	Injector Assy, 1700, #3c, Complete
16.....	1	15413.....	Fitting, Elbow, Male, 1/2T x 3/8 NPT	.....		60381-04.....	Injector Assy, 1700, #4c, Complete
17.....	1	15416.....	Tube, Brine, 2900/2750	.....		60381-05.....	Injector Assy, 1700, #5c, Complete
.....	1	16460.....	Tube, Brine, 2850/2900s	.....		60381-06.....	Injector Assy, 1700, #6c, Complete
.....	1	41447*.....	Tube, Brine, 2900s, U/F				
.....	1	42183.....	Tube, Brine, 1700, 2850s				
20.....	1	14805.....	Gasket, Injector Body 1600/1700				
21.....	1	17777.....	Body, Injector, 1700				
.....	1	17777-02*.....	Body, Injector, 1700 U/F				

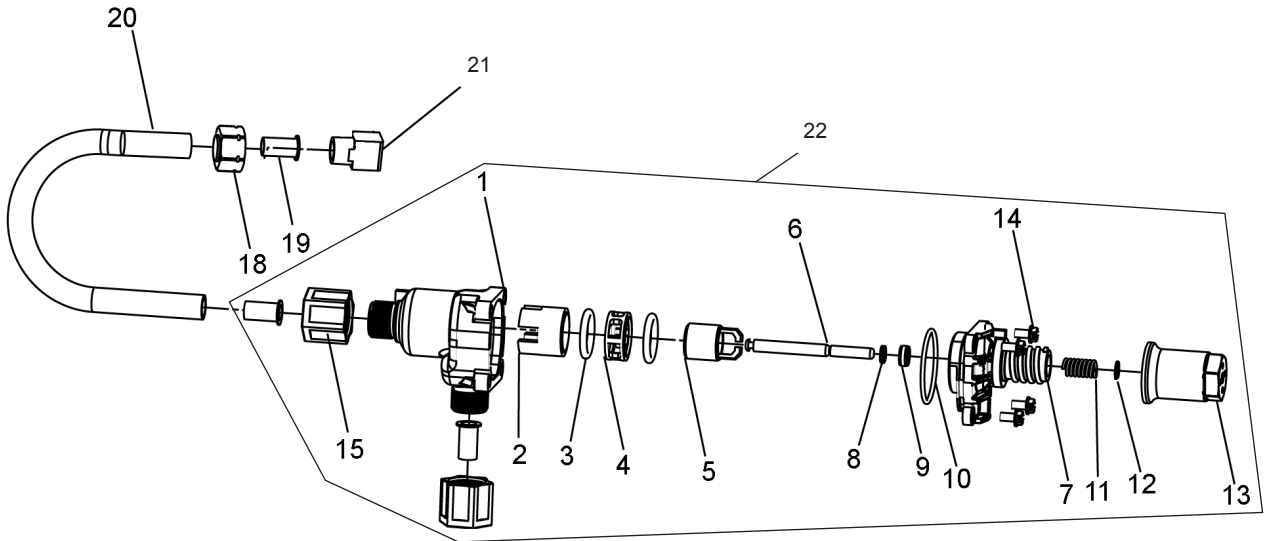
Not Shown:

- 1 16974..... Fitting, Plastic, Female, 3/4 x 3/4 Slip
- 1 17996..... Disperser, Air, Injector

*Upflow Only

NOTE: Item number 26 (11893) is used on injector sizes 2 through 5C. Part number 10228 is used on injector sizes 6C.

1710 BRINE SYSTEM ASSEMBLY



60604 Rev F

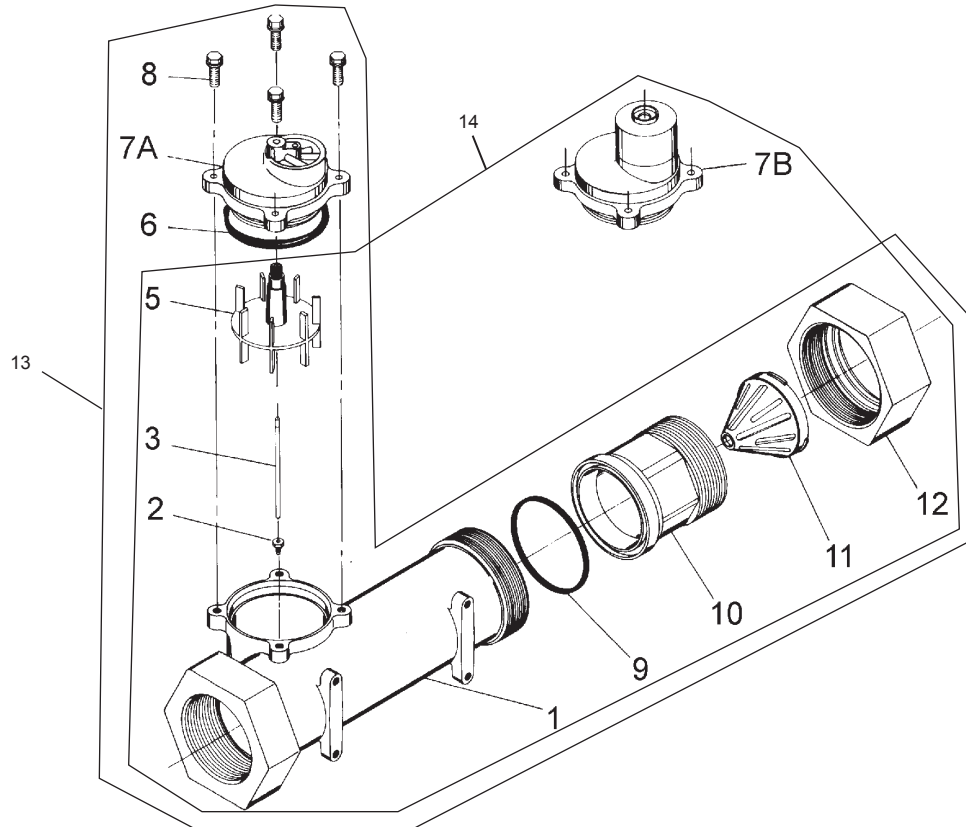
Item No.	QTY	Part No.	Description
1.....	1	41202.....	Brine Valve, 1700, Plastic, Top
2.....	1	14785-01.....	Retainer, Flow Control
3.....	1	14811.....	O-Ring, -210, 560CD, Brine
4.....	1	14798.....	Spacer, 1700, Brine
5.....	1	14795.....	Piston, Brine Valve
6.....	1	41203.....	Stem, Brine, 1710, Plastic, 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
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, 1700/2850s
	1	15416.....	Tube, Brine, 2900/2750
	1	41447*.....	Tube, Brine, 2900s U/F
21.....	1	15413.....	Fitting, Elbow, Male, 1/2T X 3/8NPT
22.....		60605-00.....	Brine Valve, 1710, 2750, Blank
		60605-10.....	Brine Valve, 1710, 2750, 1.0 gpm
		60605-12.....	Brine Valve, 1710, 2750, 1.2 gpm
		60605-15.....	Brine Valve, 1710, 2750, 1.5 gpm
		60605-20.....	Brine Valve, 1710, 2750, 2.0 gpm
		60605-24.....	Brine Valve, 1710, 2750, 2.4 gpm
		60605-30.....	Brine Valve, 1710, 2750, 3.0 gpm
		60605-40.....	Brine Valve, 1710, 2750, 4.0 gpm
		60605-50.....	Brine Valve, 1710, 2750, 5.0 gpm

Not Shown

1	19151	Washer, Flow, 1.0 gpm
1	17996	Disperser, Air, Injector
1	414193-00	Label, Blank, BLFC, 1710

2" BRASS METER ASSEMBLY



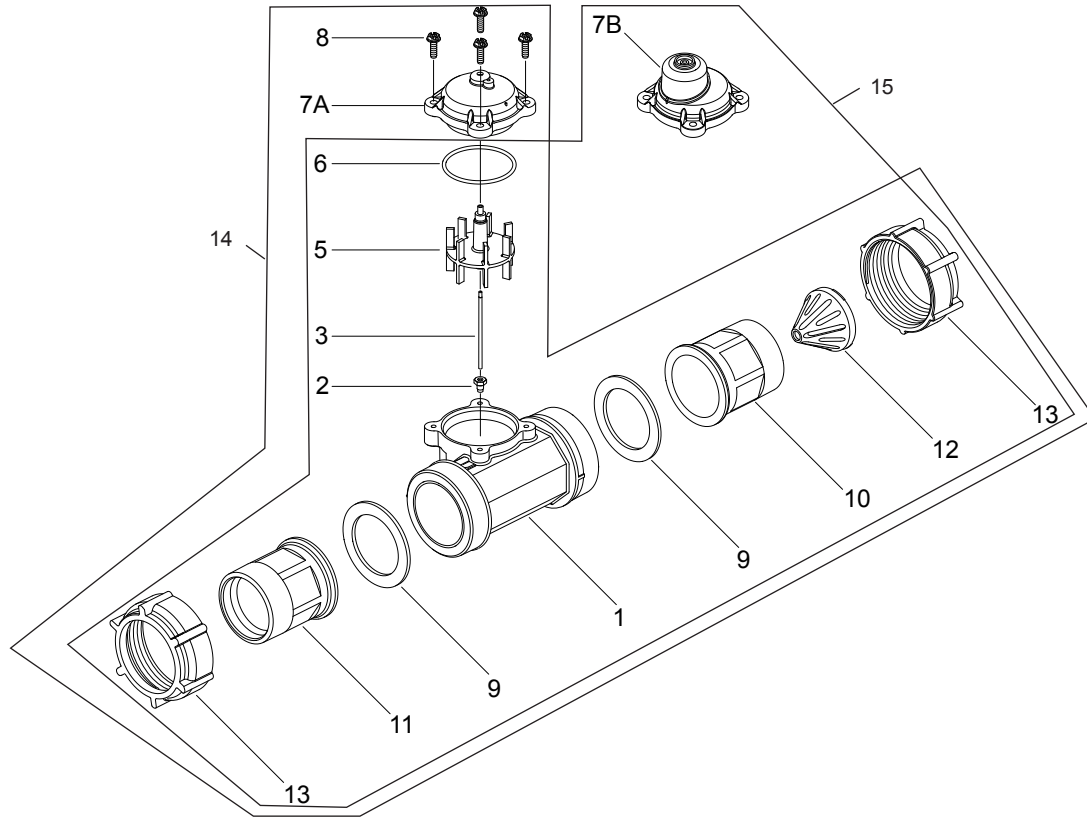
60393 Rev E

Item No.	QTY	Part No.	Description
1	1	14456	Body, Meter, 2"
		14456-20	Body, Meter, 2", BSP, Metric
2	1	15532	Seat, Impeller Shaft, Hex
3	1	15432	Shaft
5	1	15374	Impeller Assy, 2" Meter
6	1	13847	O-ring, -137, Std/560CD, Meter
7A	1	14038	Meter Cap Assembly, Std, Plastic
7B	1	15150	Meter Cap Assembly, 3/4" to 2", Ext Plastic, Pdl
8	4	12112	Screw, Hex Hd Mach, 10-24 x 1/2 18-8 Stainless Steel
		15886	Screw, Hex Hd, M5 x 12 SS, Metric
9	1	14679	O-ring, -227, Meter
10	1	14568	Fitting, Nipple, 2"
		14568-10	Fitting, Nipple, 2" BSP, Brass
11	1	14680	Flow Straightener
12	1	14569	Nut, 2900 Meter
13			Meter Assy, 2" Inline, NPT, STD, Brass, Paddlewheel
			Meter Assy, 2" Inline, BSP, STD, Brass, Paddlewheel
14			Meter Assy, 2" Inline, NPT, EXT, Brass Paddlewheel
			Meter Assy, 2" Inline, BSP, EXT, Brass, Paddlewheel

Not Shown

		61439	Meter Sleeve w/O-rings, 1-1/2"
--	--	-------	--------------------------------

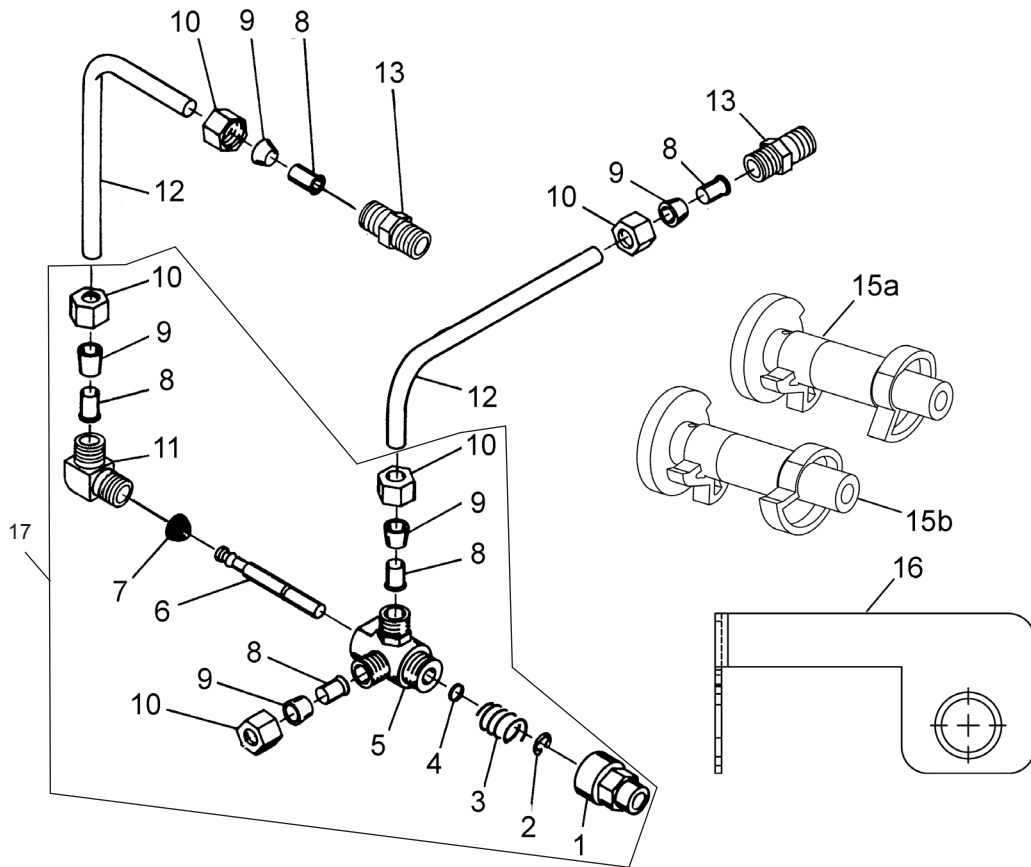
2" PLASTIC METER ASSEMBLY



60621 Rev D

Item No.	QTY	Part No.	Description	Item No.	QTY	Part No.	Description
1	1	17689	Body, Meter, 2" Plastic w/ Impeller Shaft Seat	15	1	60621	Meter Assy, 2", Inline, NPT, EXT, Plastic, w/Plastic Nipples, Paddlewheel
2	1	15532	Seat, Impeller Shaft, Hex			60621-01	Meter Assy, 2", Inline, NPT, EXT, Plastic, w/Brass Nipples, Paddlewheel
3	1	15432	Shaft, Impeller, Stainless Steel			60621-10	Meter Assy, 2" Inline, BSP, EXT, Plastic, Plastic Nipples, Paddlewheel
5	1	15374	Impeller Assy, 2" Meter			60621-11	Meter Assy, 2", Inline, BSP, EXT, Plastic, Brass Nipples, Paddlewheel
6	1	13847	O-ring, -137, Std/560CD, Meter				
7A	1	14038	Meter Cap Assembly				
7B		15150	Meter Cap Assembly, EXT				
8	4	12473	Screw, Hex Wsh, 10-24 x 5/8 18-8 Stainless Steel				
9	2	40666	Seal, Face, 2", Plastic Meter				
10A	1	17987-001	Fitting, Nipple, 2", Plastic, NPT, Machined, Flow Straightener				
10B	1	17987-101	Fitting, Nipple, 2", Plastic, BSP, Machined, Flow Straightener				
11A	1	17987-000	Fitting, Nipple, 2", Plastic, NPT				
11B	1	17987-100	Fitting, Nipple, 2", Plastic, BSP				
12	1	14680	Flow Straightener				
13	2	17988	Nut, 2" Meter				
14		60620	Meter Assy, 2", Inline, NPT, STD, Plastic, w/Plastic Nipples, Paddlewheel				
		60620-01	Meter Assy, 2", Inline, NPT, STD, Plastic, w/Brass Nipples, Paddlewheel				
		60620-10	Meter Assy, 2" Inline, BSP, STD, Plastic, Plastic Nipples, Paddlewheel				
		60620-11	Meter Assy, 2", Inline, BSP, STD, Plastic, Brass Nipples, Paddlewheel				

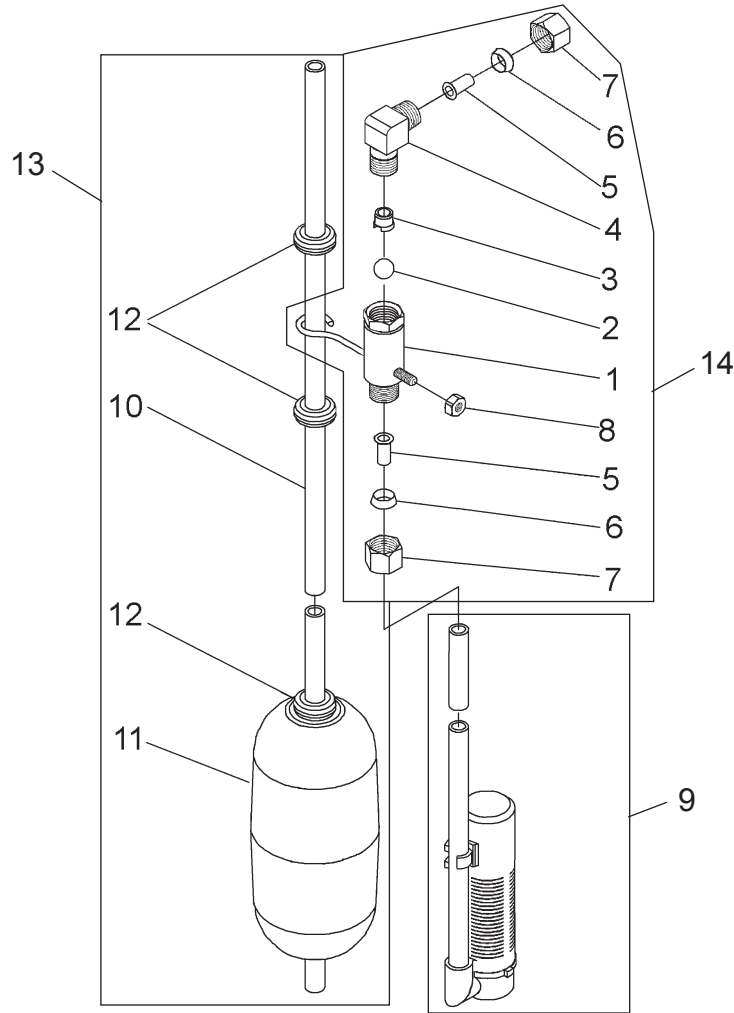
1600 SERVICE VALVE OPERATOR (NEW STYLE)



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	2	10785	SVO Body Assy Brass Valves
6	1	12552	Brine Valve Stem, 1600
7	1	12626	Seat, Brine Valve
8	5	10332	Fitting, Insert, 3/8
9	5	10330	Fitting, Sleeve, 3/8" Celcon
10	5	10329	Fitting, Tube, 3/8 Nut, Brass
11	1	10328	Fitting, Elbow, 90 Deg 1/4 NPT x 3/8 Tube
12	2	12897	Tube, Fitting, 3/8 x 9 3/4
13	1	16730	Fitting, Male, 1/4 x 1
14	2	15415	Fitting, Insert, 1/2" Tube
15a	1	12472	Cam Assembly, Tri-Stack, After RR
15b	1	15770	Cam Assembly, Special Tri-Stack After Brine Fill
16	1	12114	Bracket, Motor Outboard, Coated
17	1	60150-01	Service Valve Operator Assembly, 1600, New Style, Item No's 1-11

2300 SAFETY BRINE VALVE

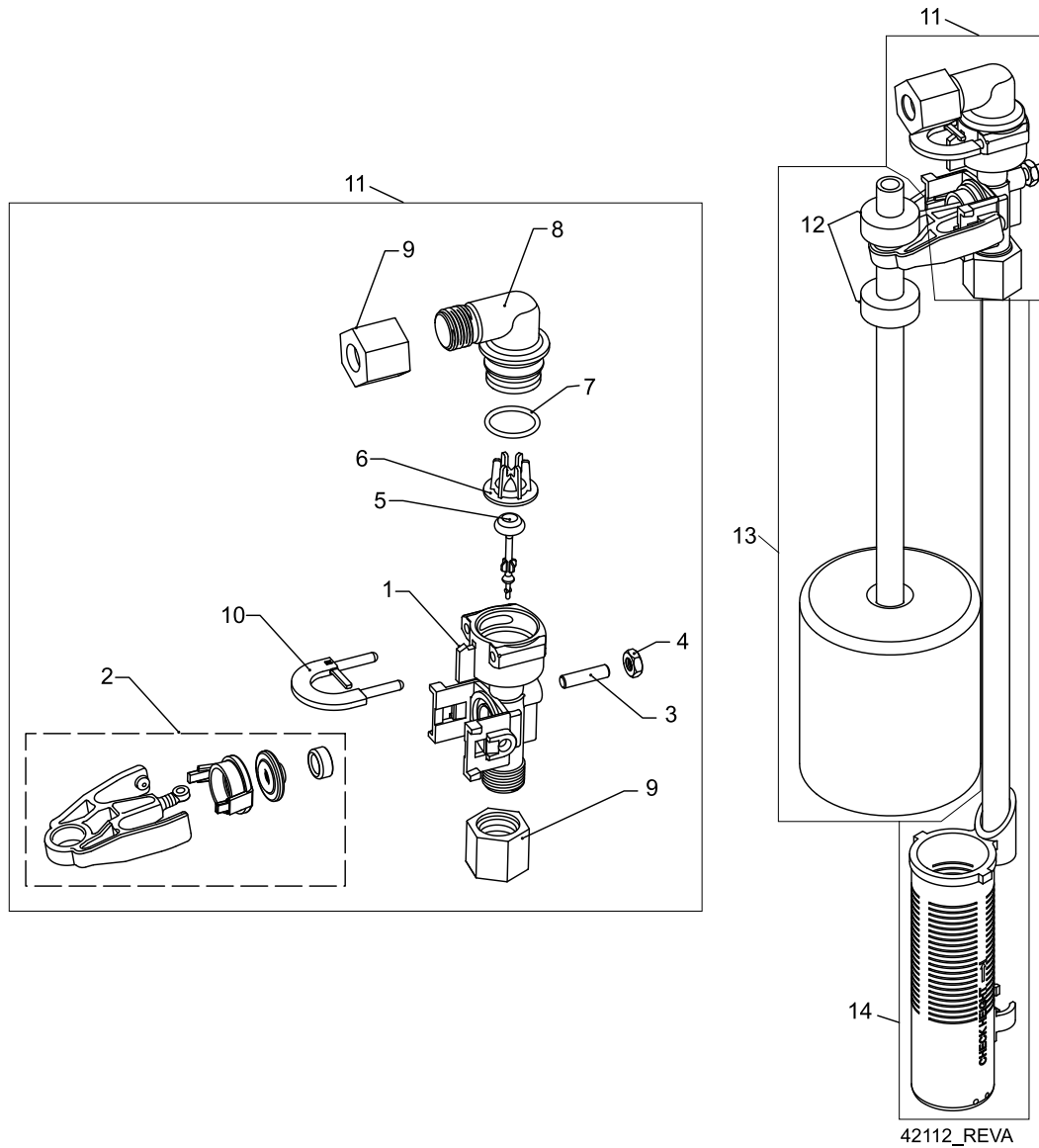


60027 Rev D

Item No.	QTY	Part No.	Description
1	1	60027-00	Safety Brine Valve, 2300, Less Elbow
2	1	10138	Ball, 3/8", Brass
3	1	11566	Ball Stop, Slow Fill
4	1	10328	Fitting, Elbow, 90 Deg. 1/4 NPT x 3/8 Tube
5	1	10332	Fitting, Insert, 3/8
6	1	10330	Fitting, Sleeve, 3/8 Celcon
7	1	10329	Fitting, Tube, 3/8 Nut, Brass
8	1	10186	Nut, Hex, 10-32
9	1	60002-10	Air Check, #500, American Hydro
		60002-11.38	Air Check, #500, 11.38" Long
		60002-24	Air Check, #500, 24" Long
		60002-27	Air Check, #500, 27" Long
		60002-32	Air Check, #500, 32" Long
		60002-34	Air Check, #500, 34" Long
		60002-36	Air Check, #500, 36" Long
		60002-48	Air Check, #500, 48" Long
		60002-26.25	Air Check, #500, 26.25" Long
		60002-33.25	Air Check, #500, 33.25" Long
10	1	10149	Rod, Float, 30"

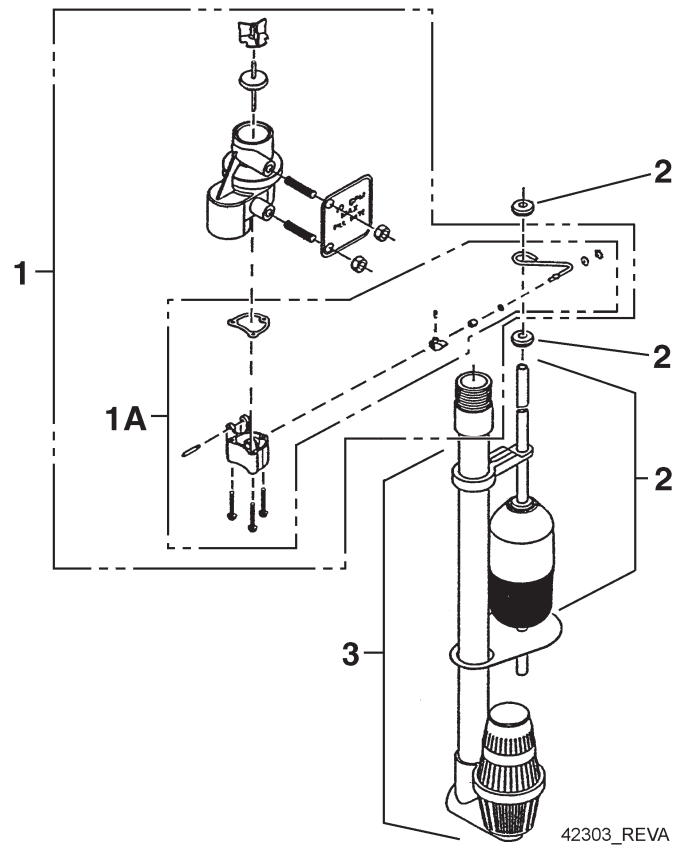
Item No.	QTY	Part No.	Description
11	1	10700	Float Assy, White
12	3	10150	Grommet, .30 Dia
13	1	60028-30	Float Assy, 2300, 30" White
14	1	60027-FFA	Safety Brine Valve, 2300, Fitting Facing Arm
	1	60027-FFS	Safety Brine Valve, 2300 Fitting Facing Stud

2310 SAFETY BRINE VALVE



Item No.	QTY	Part No.	Description	Item No.	QTY	Part No.	Description
1	1	19645	Body, Safety Brine Valve, 2310	14	1	60002-10	Air Check, #500, American Hydro
2	1	19803	Safety Brine Valve Assy			60002-11.38	Air Check, #500, 11.38" Long
3	1	19804	Screw, Sckt Hd, Set, 10-24 x .75			60002-24	Air Check, #500, 24" Long
4	1	19805	Nut, Hex, 10-24, Nylon Black			60002-27	Air Check, #500, 27" Long
5	1	19652-01	Poppet Assy, SBV w/O-ring			60002-32	Air Check, #500, 32" Long
6	1	19649	Flow Dispenser			60002-34	Air Check, #500, 34" Long
7	1	11183	O-ring, -.017			60002-36	Air Check, #500, 36" Long
8	1	19647	Elbow, Safety Brine Valve			60002-48	Air Check, #500, 48" Long
9	2	19625	Nut Assy, 3/8" Plastic			60002-26.25	Air Check, #500, 26.25" Long
10	1	18312	Retainer, Drain			60002-33.25	Air Check, #500, 33.25" Long
11	1	60014	Safety Brine Valve Assy, 2310				
12	2	10150	Grommet, .30 Dia				
13	1	60068-8.06	Float Assy, 2310, w/8.06" Rod				
		60068-10.5	Float Assy, 2310, w/10.5" Rod				
		60068-11.5	Float Assy, 2310, w/11.5" Rod				
		60068-20	Float Assy, 2310, w/20" Rod				
		60068-30	Float Assy, 2310, w/30" Rod				

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

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.

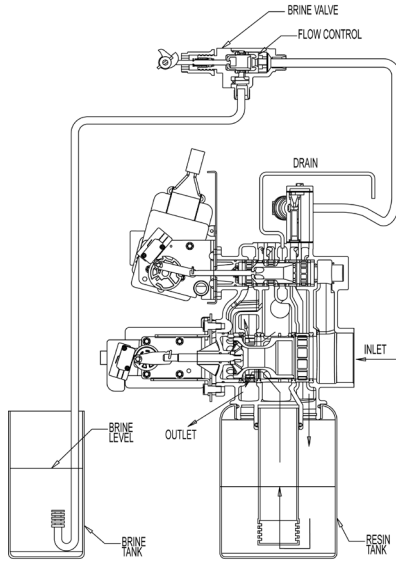
Correction: Check meter with meter checker.

TROUBLESHOOTING

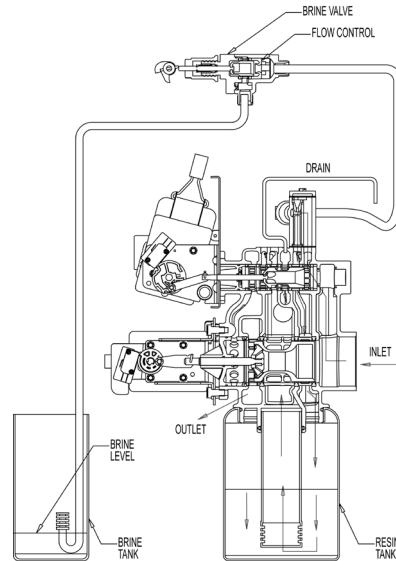
Problem	Cause	Correction
Water conditioner fails to regenerate.	Electrical service to unit has been interrupted	Assure permanent electrical service (check fuse, plug, pull chain, or switch)
	Timer is defective.	Replace timer.
	Power failure.	Reset time of day.
Hard water.	By-pass valve is open.	Close 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.

WATER CONDITIONER FLOW DIAGRAMS - DOWNFLOW

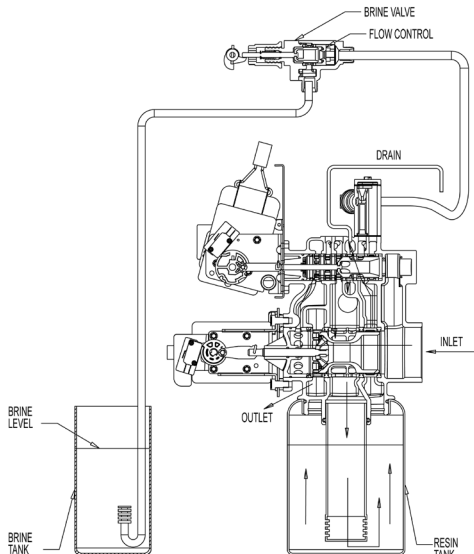
1 Service Position



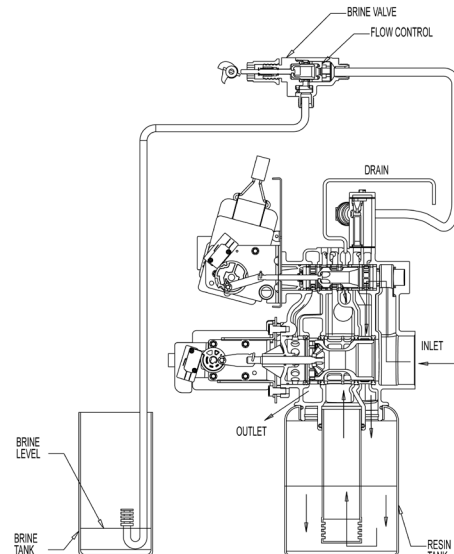
4 Slow Rinse Position



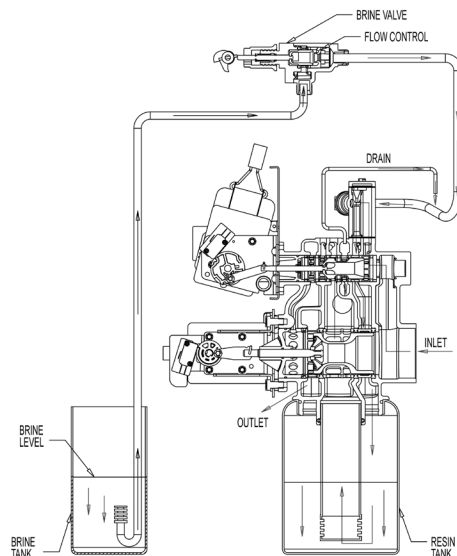
2 Backwash Position



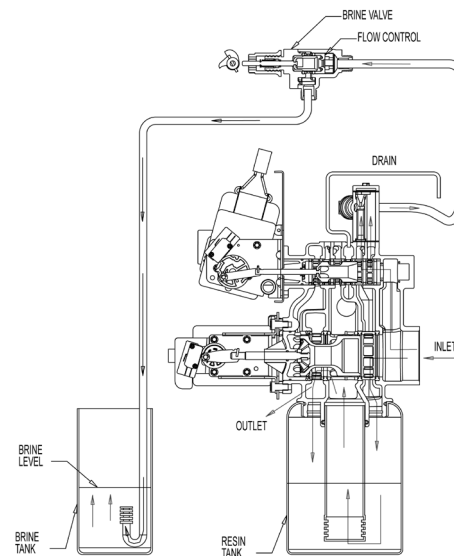
5 Rapid Rinse



3 Brine Position

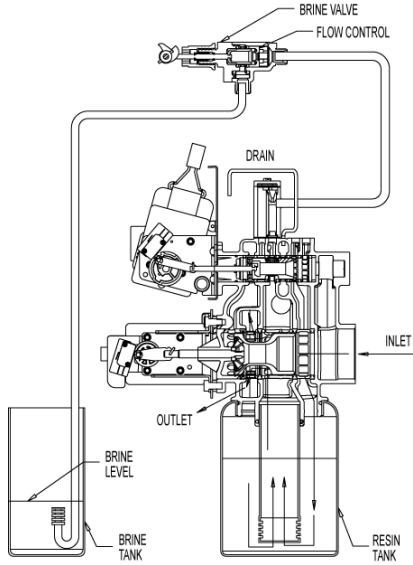


6 Brine Tank Refill Position

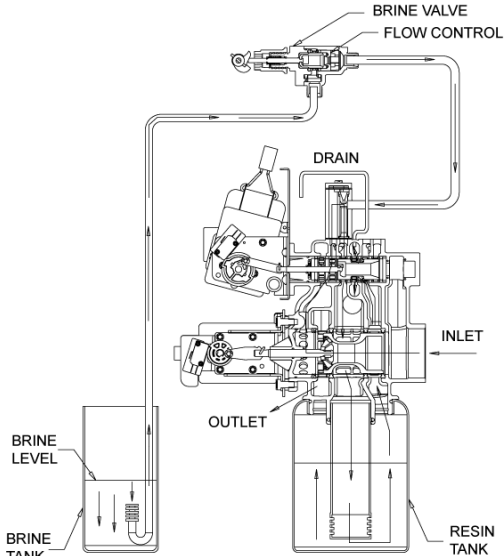


WATER CONDITIONER FLOW DIAGRAMS - UPFLOW

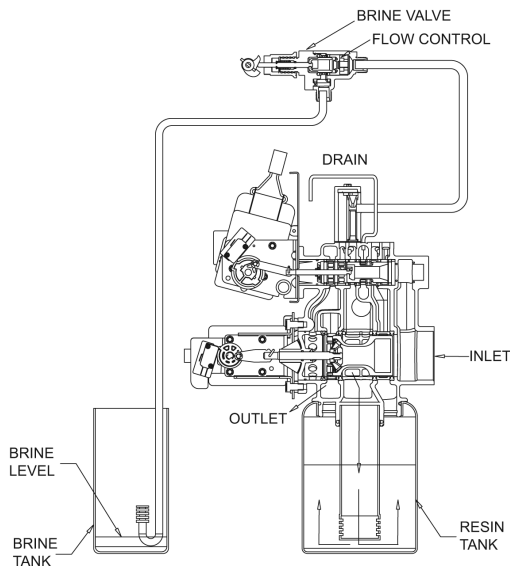
1 Service Position



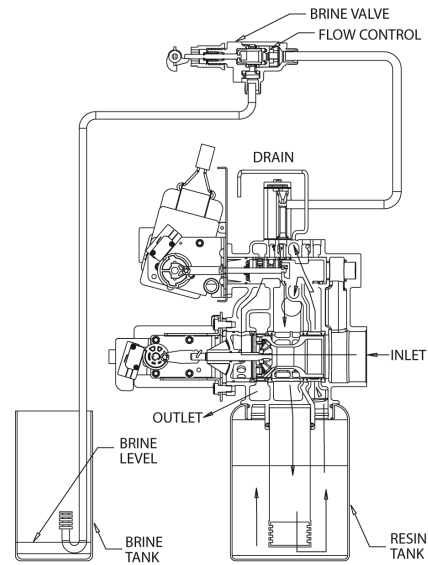
2 Brine Position



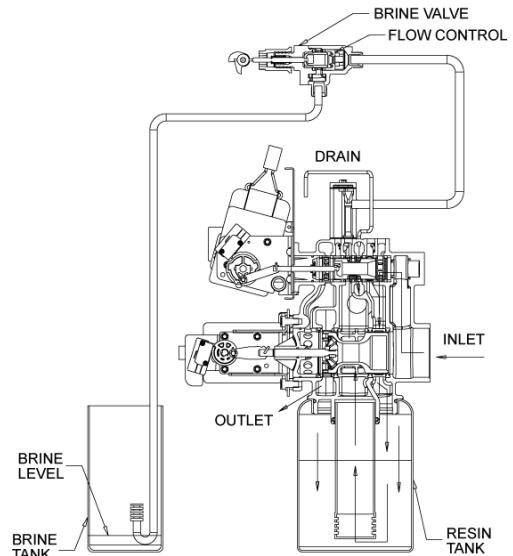
3 Slow Rinse Position



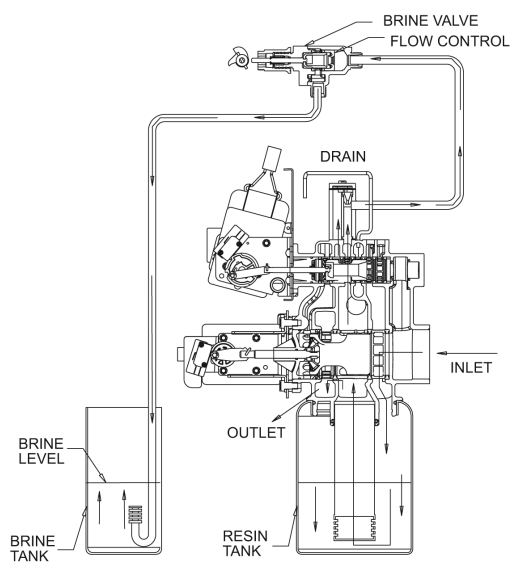
4 Back Wash Position



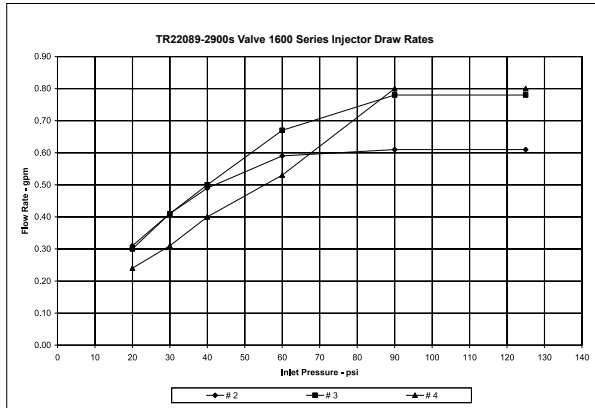
5 Rapid Rinse Position



6 Brine Tank Fill Position

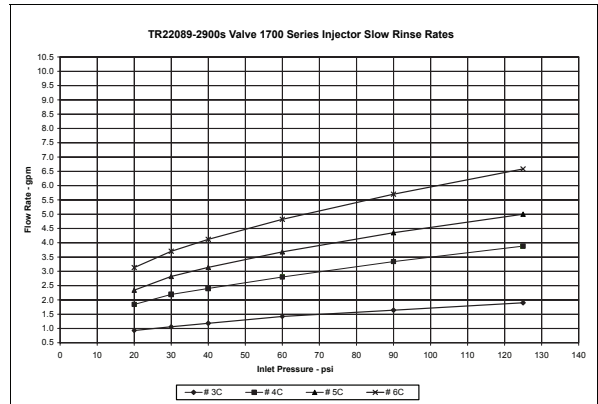


FLOW DATA & INJECTOR DRAW RATES - DOWNFLOW



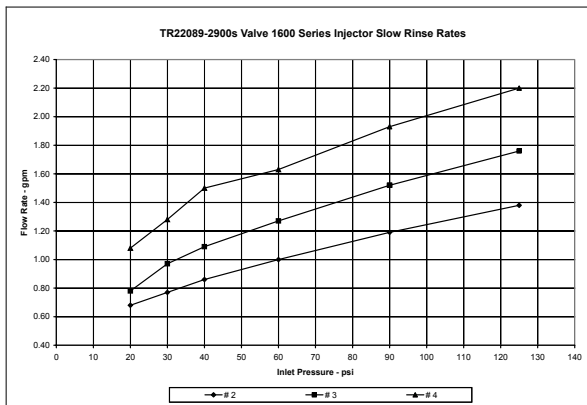
1600 series injectors	Draw Rate - gpm		
pressure	# 2	# 3	# 4
20	0.31	0.30	0.24
30	0.41	0.41	0.31
40	0.49	0.50	0.40
60	0.59	0.67	0.53
90	0.61	0.78	0.80
125	0.61	0.78	0.80

all injectors used the steel cap and an air disperser



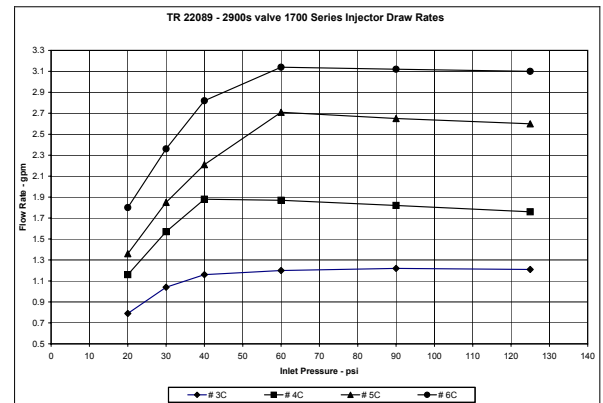
1700 series injectors	Slow Rinse - gpm			
pressure	# 3C	# 4C	# 5C	# 6C
20	0.93	1.84	2.34	3.13
30	1.06	2.19	2.82	3.70
40	1.18	2.40	3.14	4.12
60	1.42	2.80	3.68	4.82
90	1.64	3.34	4.35	5.70
125	1.90	3.88	5.00	6.58

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



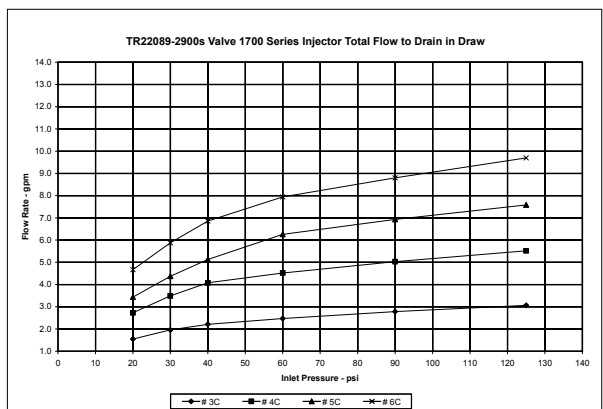
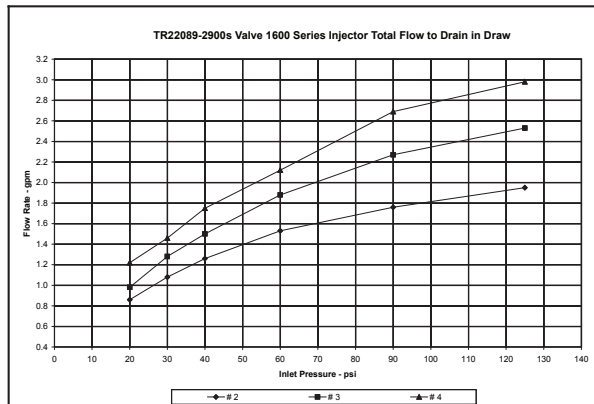
1600 series injectors	Slow Rinse Rates - gpm		
pressure	# 2	# 3	# 4
20	0.68	0.78	1.08
30	0.77	0.97	1.28
40	0.86	1.09	1.50
60	1.00	1.27	1.63
90	1.19	1.52	1.93
125	1.38	1.76	2.20

all injectors used the steel cap and an air disperser

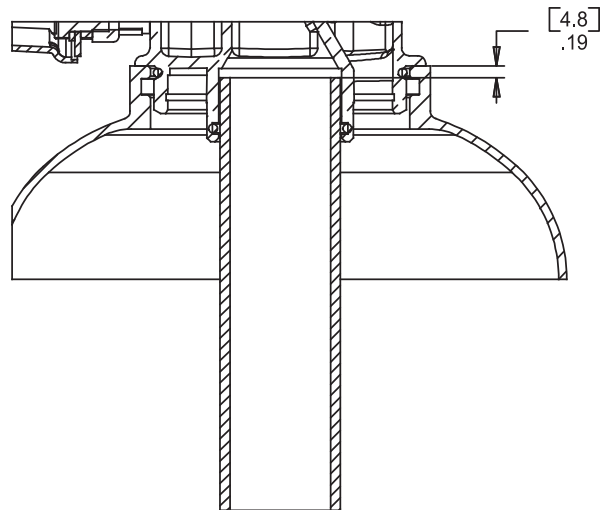
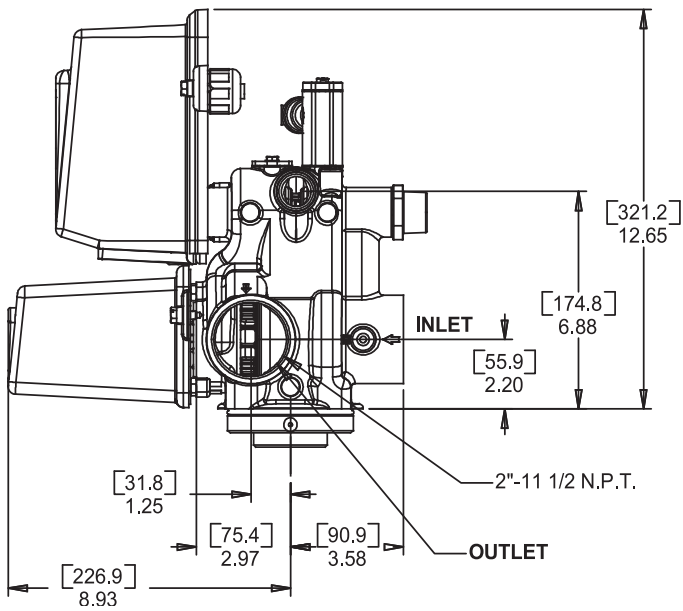
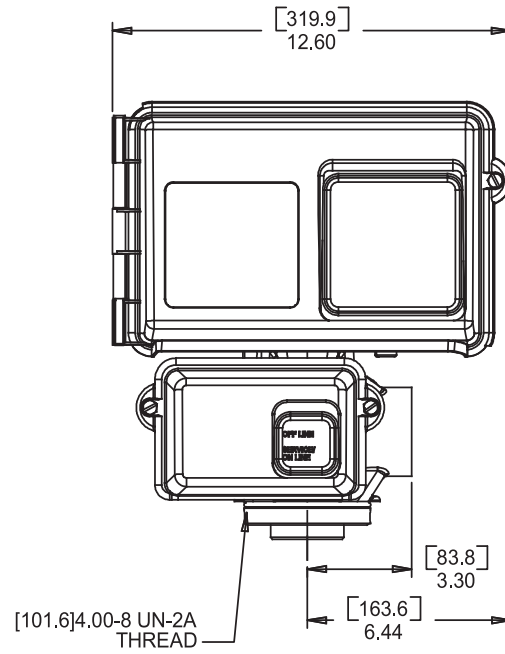
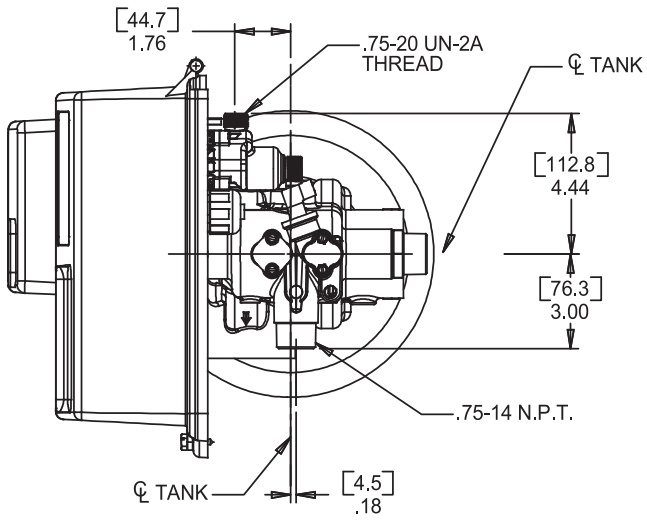


1700 series injectors	Draw Rate - gpm			
pressure	# 3C	# 4C	# 5C	# 6C
20	0.79	1.16	1.36	1.80
30	1.04	1.57	1.85	2.36
40	1.16	1.88	2.21	2.82
60	1.20	1.87	2.71	3.14
90	1.22	1.82	2.65	3.12
125	1.21	1.76	2.60	3.10

3C - steel cap, no o-ring, air disperser
4C & 5C - steel cap, o-ring, air disperser
6C - brass cap, o-ring, no air disperser



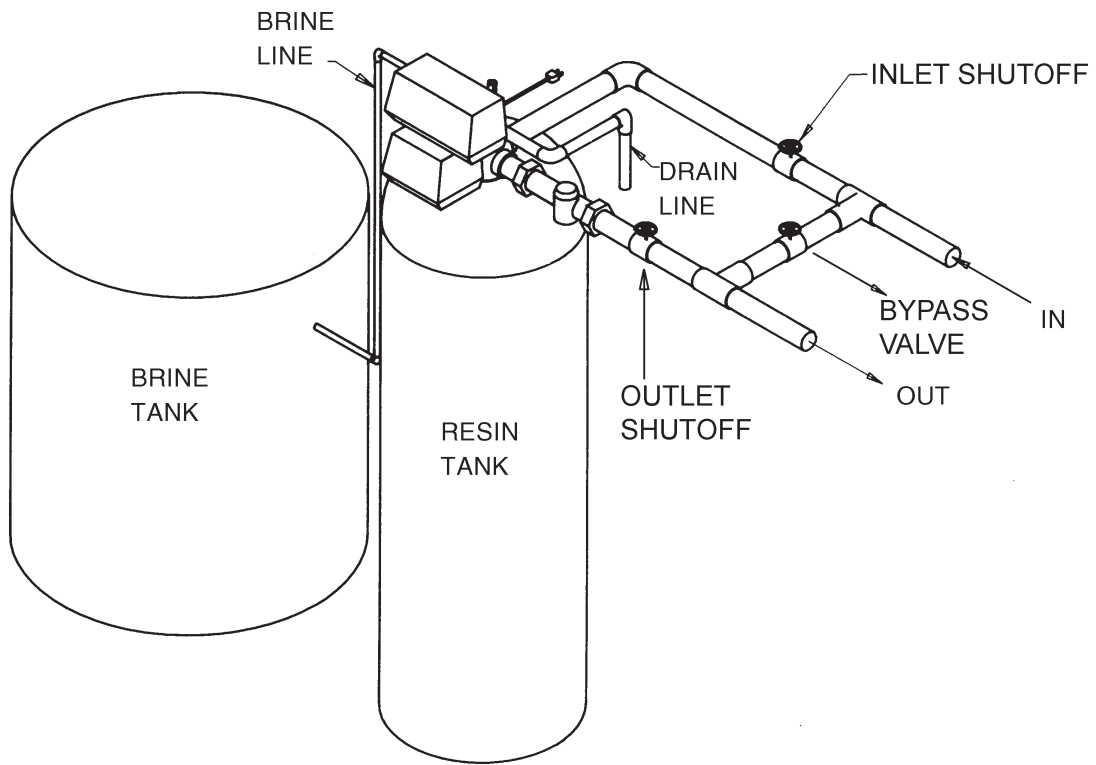
ENVIRONMENTAL BACKPLATE DIMENSIONS



61500-2900LNE Rev B

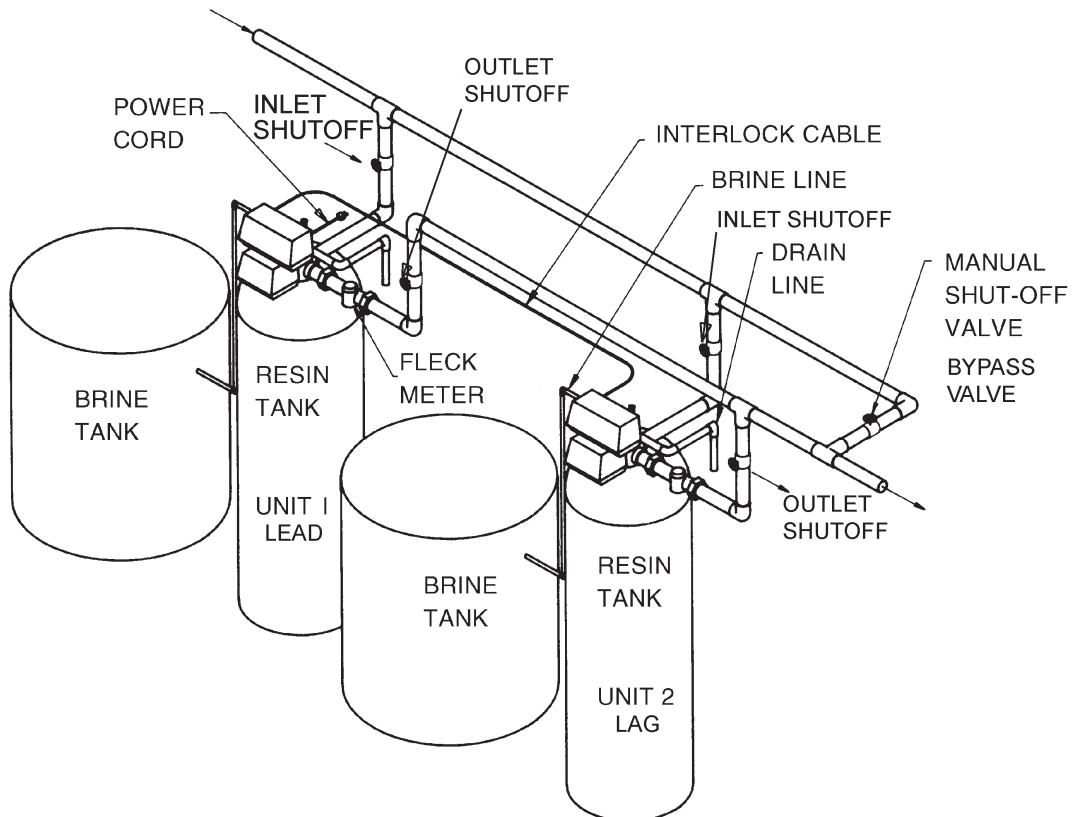
SYSTEM #4

Typical Single Tank Installation with Optional Meter



SYSTEM #5 INTERLOCK

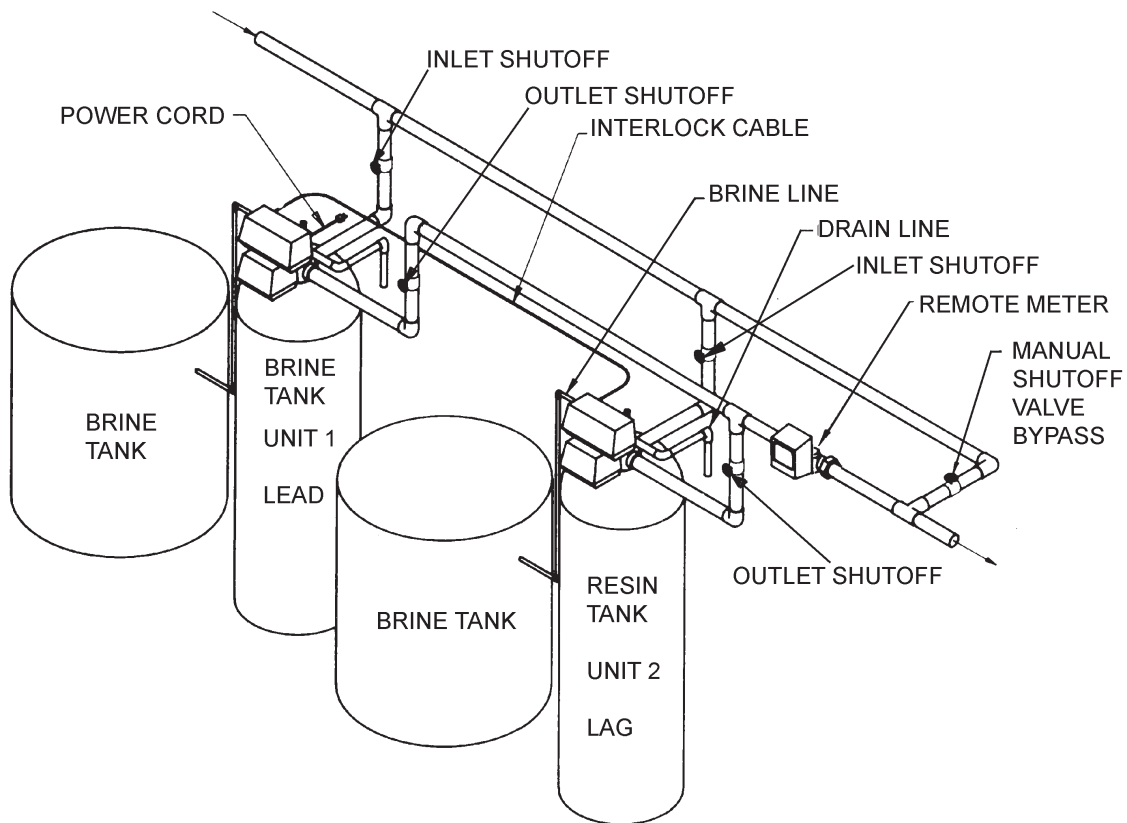
Typical Twin Tank Installation with Optional Meter Interlock and No Hard Water Bypass



SYSTEM #6 & #7

Twin Series Regeneration Installation with a Remote Meter

Twin Alternator Installation

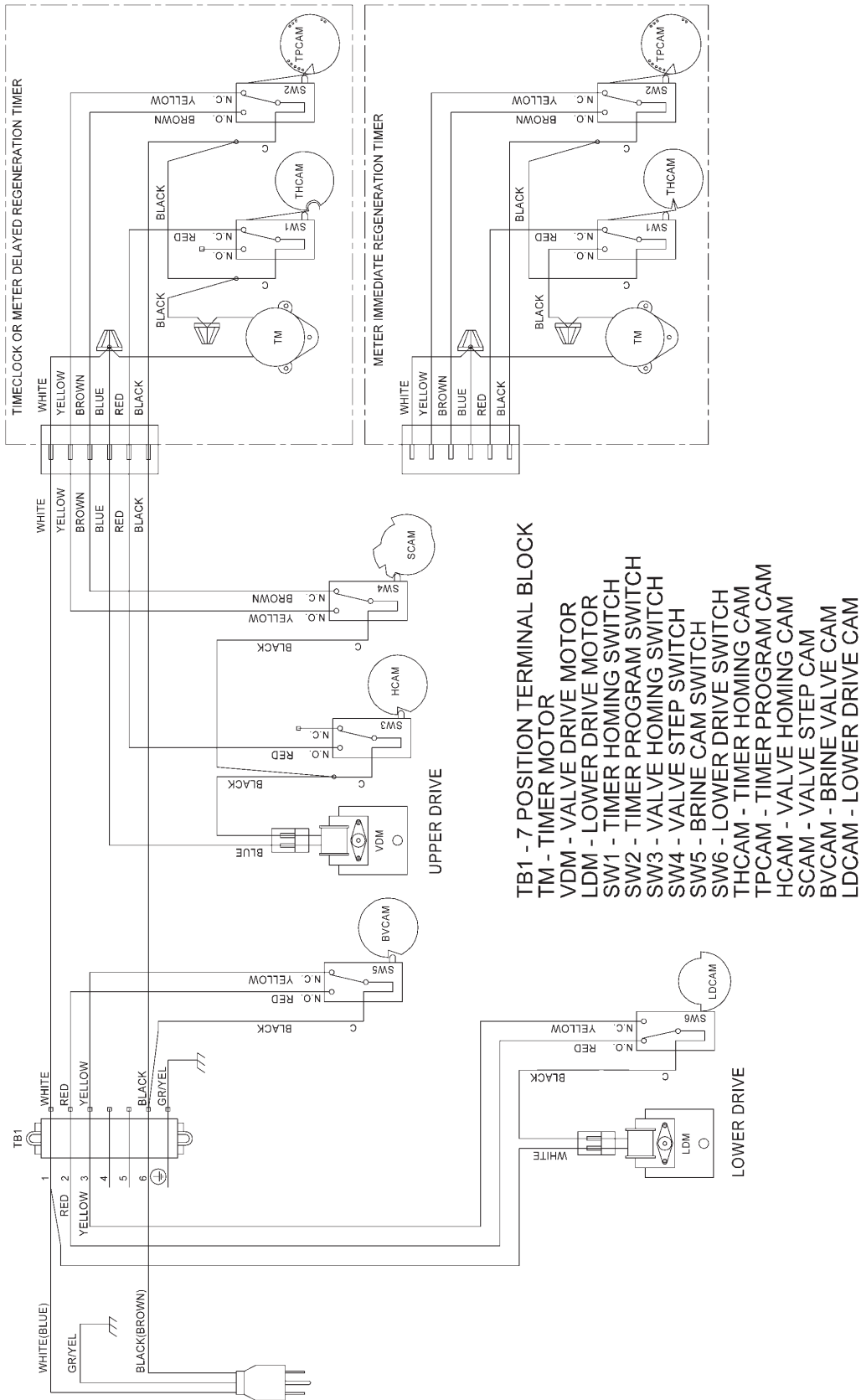


NOTE: On System 7, the power cord is on Unit 2.

NOTE: System 7 can run with either one or two brine tanks. Two brine tanks should be used if regeneration is less than 4 hours.

SYSTEM #4 WIRING

Single Valve Regeneration Immediate and Delayed Valve Wiring



TB1 - 7 POSITION TERMINAL BLOCK

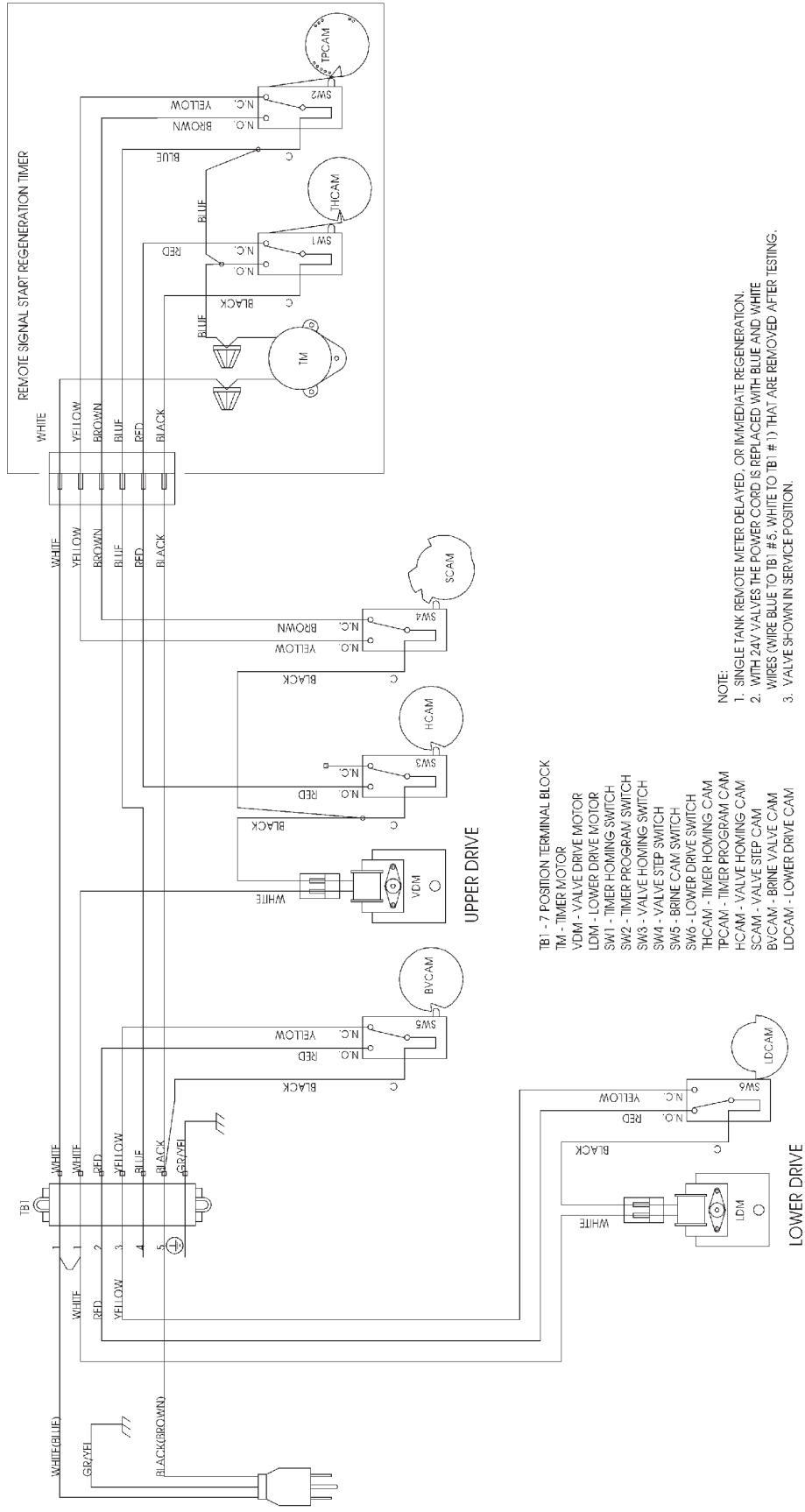
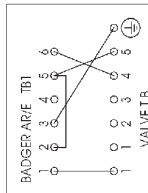
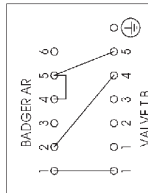
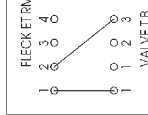
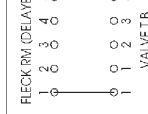
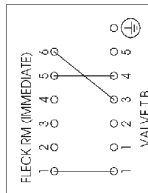
- TM - TIMER MOTOR
- VDM - VALVE DRIVE MOTOR
- LDM - LOWER DRIVE MOTOR
- SW1 - TIMER HOMING SWITCH
- SW2 - TIMER PROGRAM SWITCH
- SW3 - VALVE HOMING SWITCH
- SW4 - VALVE STEP SWITCH
- SW5 - BRINE CAM SWITCH
- SW6 - LOWER DRIVE SWITCH
- THCAM - TIMER HOMING CAM
- TPCAM - TIMER PROGRAM CAM
- HCAM - VALVE HOMING CAM
- SCAM - VALVE STEP CAM
- BVCAM - BRINE VALVE CAM
- LDCAM - LOWER DRIVE CAM

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

SYSTEM #4 WIRING *continued*

With Remote Starter Valve Wiring

REMOTE METER WIRING

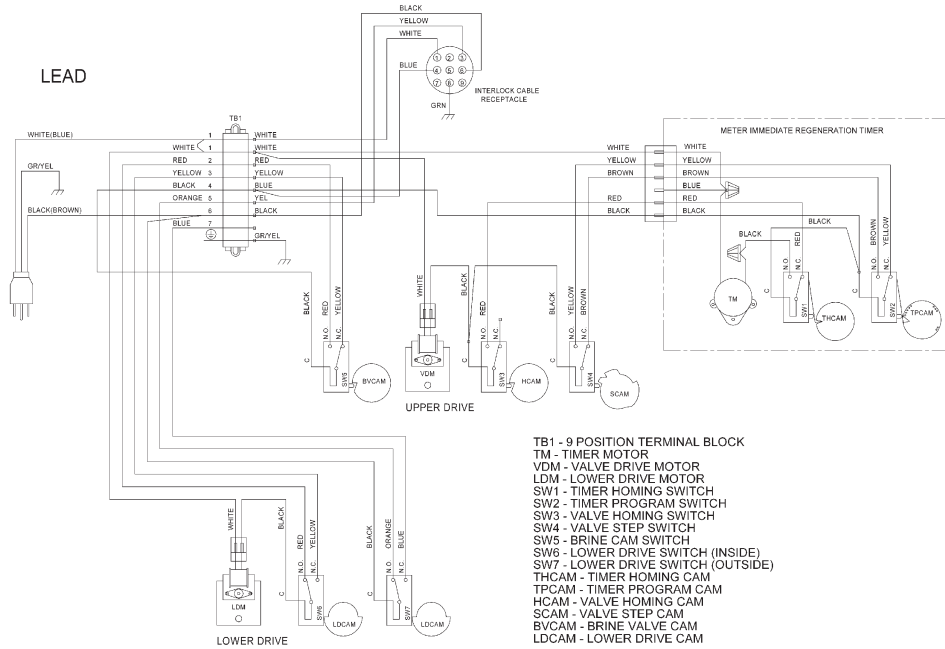


TB1 - 7 POSITION TERMINAL BLOCK
 TM - TIMER MOTOR
 VDM - VALVE DRIVE MOTOR
 LDM - LOWER DRIVE MOTOR
 SW1 - TIMER HOMING SWITCH
 SW2 - TIMER PROGRAM SWITCH
 SW3 - VALVE HOMING SWITCH
 SW4 - VALVE STEP SWITCH
 SW5 - BRINE CAM SWITCH
 SW6 - LOWER DRIVE SWITCH
 TPCAM - TIMER HOMING CAM
 HCAM - VALVE HOMING CAM
 SCAM - VALVE STEP CAM
 BVCAM - BRINE VALVE CAM
 LDCAM - LOWER DRIVE CAM

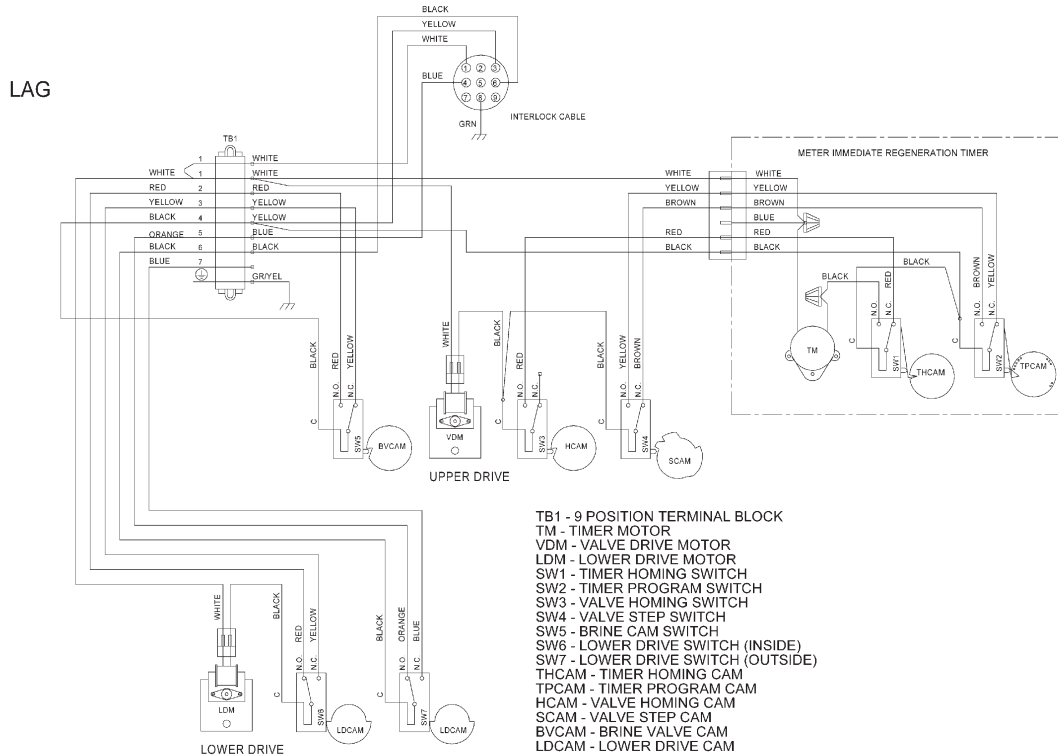
- NOTE:
1. SINGLE TANK REMOTE METER DELAYED, OR IMMEDIATE REGENERATION.
 2. WITH 24V VALVES THE POWER CORD IS REPLACED WITH BLUE AND WHITE WIRES (WIRE BLUE TO TB1 #5, WHITE TO TB1 #1) THAT ARE REMOVED AFTER TESTING.
 3. VALVE SHOWN IN SERVICE POSITION.

SYSTEM #5 WIRING

Interlocked Regeneration Valve Wiring



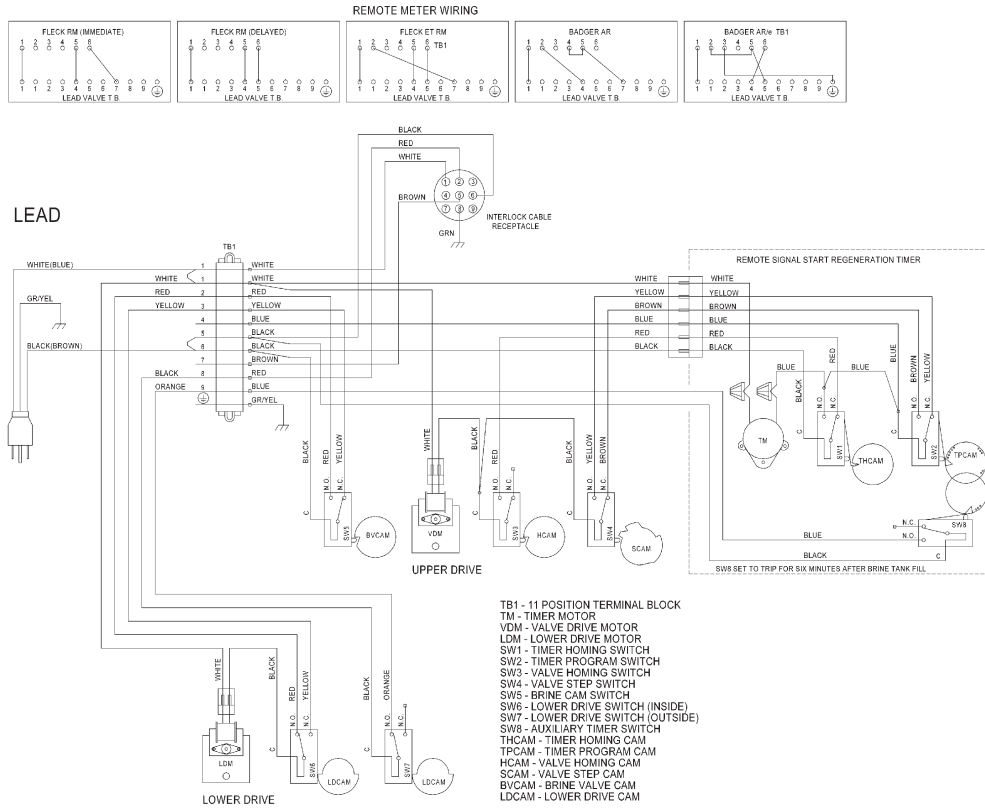
18685-01 Rev D



18685-02 Rev D

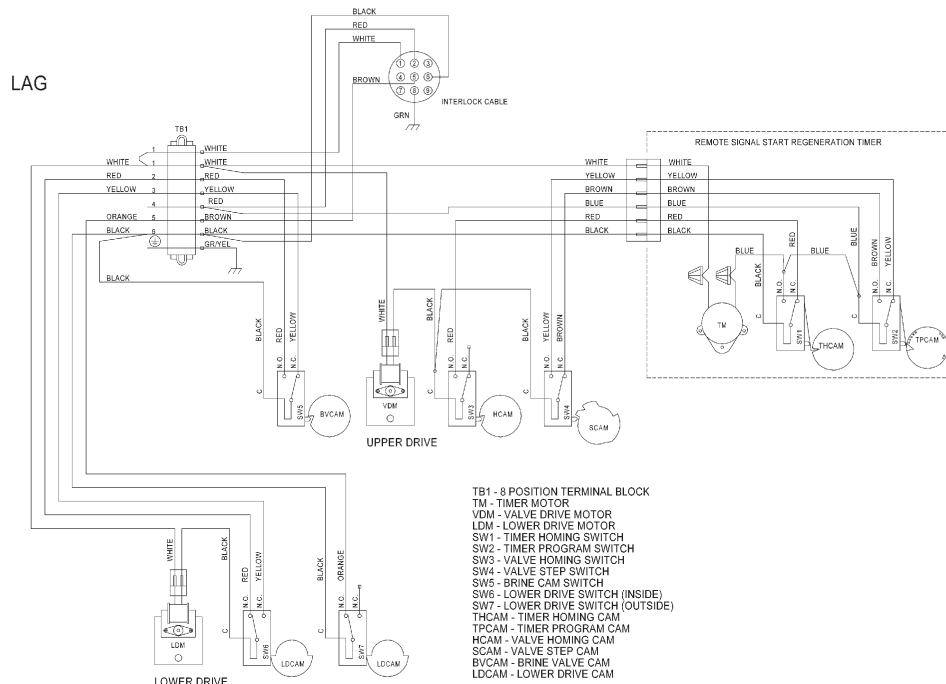
SYSTEM #6 WIRING

Series Regeneration Valve Wiring



- 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. VALVE SHOWN IN SERVICE POSITION.

18686-01 Rev E

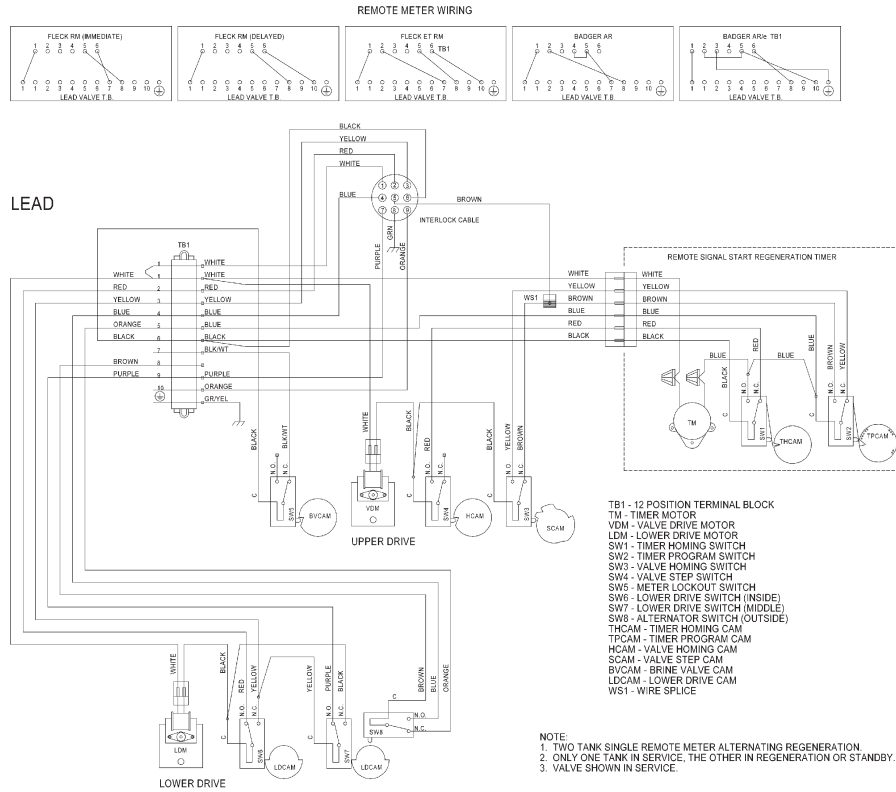


- NOTE:**
1. TWO TANK INTERLOCKED, SINGLE REMOTE METER, SERIES REGENERATION.
 2. BOTH TANKS NORMALLY IN SERVICE.
 3. ONLY ONE TANK IN REGENERATION, THE OTHER REMAINS IN SERVICE.
 4. LEAD VALVE REGENERATES FIRST, FOLLOWED IMMEDIATELY BY LAG VALVE.
 5. VALVE SHOWN IN SERVICE POSITION.

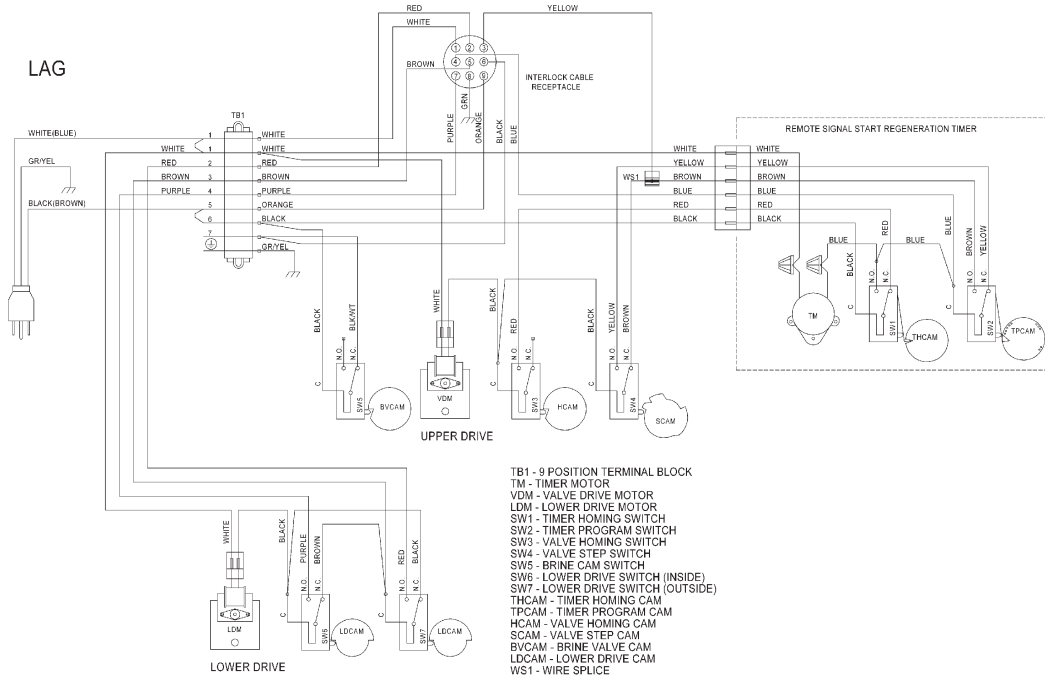
18686-02 Rev E

SYSTEM #7 WIRING

Alternating Regeneration Valve Wiring



18687-01 Rev E



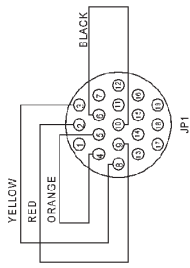
NOTE:

- TWO TANK SINGLE REMOTE METER ALTERNATING REGENERATION
- ONLY ONE TANK IN SERVICE, THE OTHER IN REGENERATION OR STANDBY.
- VALVE SHOWN IN STANDBY.

18687-02 Rev E

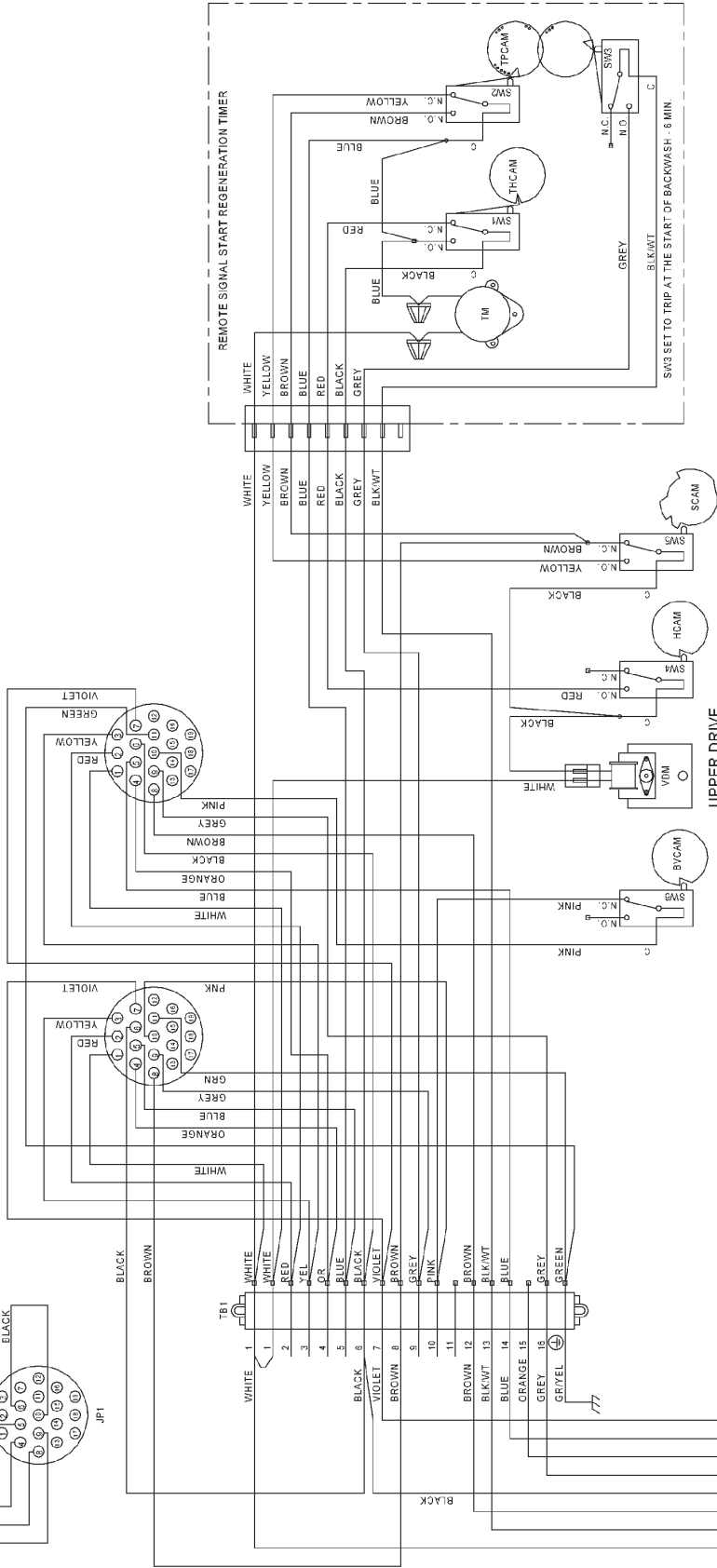
SYSTEM #7 WIRING *continued*

JUMPER PLUG WIRING
 JUMPER PLUG PLACED ON LAST VALVE IN SYSTEM



INTERLOCK CABLE RECEPTACLE
 (CONNECT TO DOWNSTREAM VALVE OR THE JUMPER PLUG)

INTERLOCK CABLE
 (CONNECT TO UPSTREAM VALVE OR REMOTE METER)



TB1 - 18 POSITION TERMINAL BLK

JP1 - JUMPER PLUG ASSEMBLY

TM - TIMER MOTOR

VDM - VALVE DRIVE MOTOR

WV - VALVE WIPER SWITCH

SW1 - TIMER PROGRAM SWITCH

SW2 - TIMER POWER SWITCH

SW3 - TIMER AUX. SWITCH

SW4 - VALVE HOMING SWITCH

SW5 - VALVE STEP SWITCH

SW6 - BRINE CAM SWITCH

SW7 - LOWER DRIVE SWITCH (INSIDE)

SW8 - LOWER DRIVE SWITCH (OUTSIDE)

THCAM - TIMER HOMING CAM

TPCAM - TIMER PROGRAM CAM

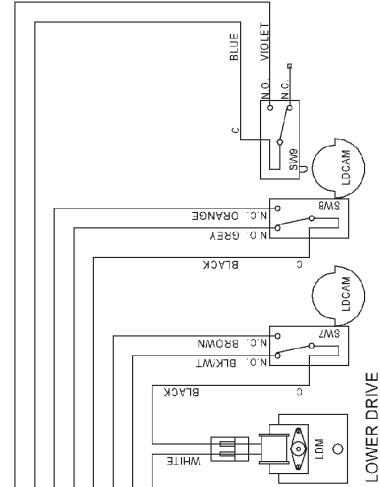
HCAM - VALVE HOMING CAM

SCAM - VALVE STEP CAM

BVCAM - BRINE VALVE CAM

LDCAM - LOWER DRIVE CAM

NOTE
 1. TWO TO FOUR TANK, SINGLE METER ALTERNATING REGENERATION.
 2. 1 TO 3 TANKS IN SERVICE.
 3. ONE TANK IN REGENERATION OR STANDBY.
 4. ALL VALVES IN SYSTEM WIRED ALIKE.
 5. LAST VALVE IN SYSTEM RECEIVES JUMPER PLUG ASSEMBLY.
 6. CONNECT JUMPER PLUG TO INTERLOCK CABLE RECEPTACLE.
 7. SPECIAL INITIAL VALVE REMOTE METER OR EQUIV. REQUIRED FOR PROPER OPERATION.
 8. SPECIAL INITIAL VALVE REMOTE METER CABLE BE CONNECTED TO REMOTE METER.
 9. VALVE SHOWN IN SERVICE POSITION.



UPPER DRIVE

LOWER DRIVE

1600/1700 SYSTEM NOZZLE & THROAT CHART

1600 Brine System

Standard

Size	Color	Nozzle	Throat
#0.....	Red	10913-0	10914-0
#1.....	White.....	10913-1	10914-1
#2.....	Blue.....	10913-2	10914-2
#3.....	Yellow.....	10913-3	10914-3
#4.....	Green.....	10913-4	10914-4

PVC

Size	Color	Nozzle	Throat
#0.....	Gray	12973-0	12974-0
#1.....	Gray	12973-1	12974-1
#2.....	Gray	12973-2	12974-2
#3.....	Gray	12973-3	12974-3
#4.....	Gray	12973-4	12974-4

Stainless Steel

Size	Color	Nozzle	Throat
#0.....	Silver.....	10225-0	10226-0
#1.....	Silver.....	10225-1	10226-1
#2.....	Silver.....	10225-2	10226-2
#3.....	Silver.....	10225-3	10226-3
#4.....	Silver.....	10225-4	10226-4

1700 Brine System

Standard

Size	Color	Nozzle	Throat
#3.....	Yellow.....	14801-03C ..	14802-03C
#4.....	Green.....	14801-04C ..	14802-04C
#5.....	White.....	14801-05C ..	14802-05C
#6.....	Red	14801-06C ..	14802-06C

SERVICE ASSEMBLIES

Adapters:

61525.....	Softwater Adapter Kit, 2900s
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
60009-01.....	Air Check, #900, Commercial, HW Less Fittings

Auxiliary Micro Switch:

60320-02.....	Switch Kit, 3200/9000 Timer Auxiliary
60320-11.....	Switch Assy, 2900, Lower Drive (For Adding 2nd Switch)
60320-08.....	Switch Assy, 2900, Lower Drive Aux (For Adding Third Switch)

Brine Line Flow Controls (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
60029HW.....	Brine Valve, 1600, Short Stem Hot Water
60034-XX.....	Model 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)

Covers:

60217-02.....	Environmental Lower Cover, Black
60219-02.....	Environmental, Cover, Black
60232-XX.....	Designer 2 Piece
60232-110.....	Cover, Designer, 1 Piece Black
14800-02.....	Cover, Dust, Lower, 2900, Black

Drain Line Flow Controls (DLFC):

60366-XX.....	1" FNPT x ¾" 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 ¾" FNPT (specify flow control 8.0 - 25.0)
60721-XX.....	1" FNPT x 1" FNPT (specify flow control .6 - 7.0)

Cam Assemblies:

60160-00.....	Drive Cam Assy, RR, White
60160-20.....	Drive Cam Assy, Std
60160-22.....	Drive Cam Assy, Link, Environmental 2900 Lower Drive
60160-30*.....	Drive Cam Assy, Upflow
60160-31*.....	Drive Cam Assy, Upflow, Variable

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

Injector Assemblies (Complete):

60480-XX.....	1600/1650 - 3/8" brine (specify size of injector)
---------------	--

Meters:

60393.....	Meter Assy, 2900, 2" Std
60394.....	Meter Assy, 2900, 2" Ext
60616.....	Meter Assy, Elec 2"
60620.....	Meter Assy, 2" Plastic, Std
60621.....	Meter Assy, 2" Plastic, Ext
60625.....	Meter Assy, 2" Plastic Electronic
61439.....	Meter Sleeve w/O-ring, Machd

Piston Assemblies:

60103.....	Piston Assy, 2900/2930, HWBP Lower
60103-01.....	Piston Assy, 2900/2930, HWBP, HW, Lower
60104.....	Piston Assy, 2900/2930, NHWP Lwr, 2900s, Soft Wtr Rgn
60104-01.....	Piston Assy, 2900/2930, NHWP, HW Lwr, 2900s Soft Wtr Rgn
61540.....	Piston Assy, 2900s, Downflow Upper
61540-01.....	Piston Assy, 2900s Downflow Upper, HW
61545*.....	Piston Assy, 2900s, Upflow Upper
61545-01*.....	Piston Assy, 2900s, Upflow Upper, HW
61550.....	Piston Assy, 2900s, HWBP Lower
61550-03.....	Piston Assy, 2900s, HWBP Lower, HW
61555.....	Piston Assy, 2900s, NHWP Lower
61555-03.....	Piston Assy, 2900s, NHWP Lower, HW

Program Wheel Assemblies:

60405-20.....	Program Wheel, w/3/4" Ext Label 1 1/2" Std Set @ 100
60405-50.....	Program Wheel, w/2" Std Label Set @ 21
60405-60.....	Program Wheel, w/2" Ext Label
60405-70.....	Program Wheel, w/1 1/2" 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
60026-30SAN	Float Assy, 400A/2350, 30" HW
60028-30	Float Assy, 2300, 30" White
60028-30	Float Assy, 2300, 30", Blue/White
60068-30	Float Assy, 2310, w/30" Rod

Sales & Service Aids:

40738.....	Literature, 2900 Spec Sheet
41689.....	Literature, 2900s S/Manual
40717.....	Literature, Catalog Assy, PWT Residential/Commercial

Seal & Spacer Kits:

61530.....	Seal & Spacer Kit, 2900s Upper
61530-01	Seal & Spacet Kit, 2900s, HW Upper
60128.....	Seal & Spacer Kit, 2900/2930 Lower
60128-01	Seal & Spacer Kit, 2900/2930, HW Lower

Service Equipment:

11098.....	Stuffer Tool Assy, Complete
12682.....	Puller Tool Assy, 2900/3150
12683.....	Stuffer Tool Assy, 2900/3150
13061.....	Puller Assy, Port Ring
16174.....	Silicone, 2 oz. Tube
60460.....	Meter Checker Kit, Std
60461.....	Meter Checker Kit, Ext
16586-8	Silicone, Dow #7 8 Lb

Service Valve Operator Assemblies:

60150.....	SVO Assy, 1600 O/S
60150-01	SVO Assy, 1600 N/S

Skipper Wheel Assemblies:

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

*Upflow Only

