



FLECK 2900S

SERVICE MANUAL

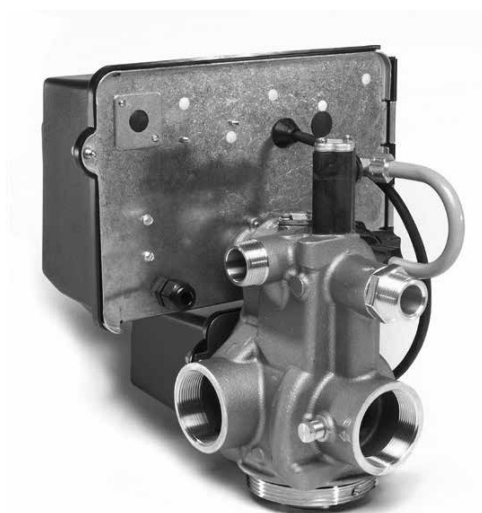


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CALIFORNIA PROPOSITION 65 WARNING

⚠ WARNING: This product contains chemicals known to the State of California to cause cancer or birth defects or other reproductive harm.

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-inch Std Range (125 - 2,100 gallon setting)
- B. 3/4-inch Ext Range (625 - 10,625 gallon setting)
- C. 1-inch Std Range (310 - 5,270 gallon setting)
- D. 1-inch Ext Range (1,150 - 26,350 gallon setting)
- E. 1-1/2 inch Std Range (625 - 10,625 gallon setting)
- F. 1-1/2 inch Ext Range (3,125 - 53,125 gallon setting)
- G. 2-inch Std Range (1,250 - 21,250 gallon setting)
- H. 2-inch Ext Range (6,250 - 106,250 gallon setting)
- I. 3-inch Std Range (3,750 - 63,750 gallon setting)
- J. 3-inch 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.

Bypass Valves

Always provide for the installation of a bypass 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-inch (13 mm). Backwash flow rates in excess of 7 gpm (26.5 Lpm) or length in excess of 20 feet (6 m) require 3/4-inch (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.

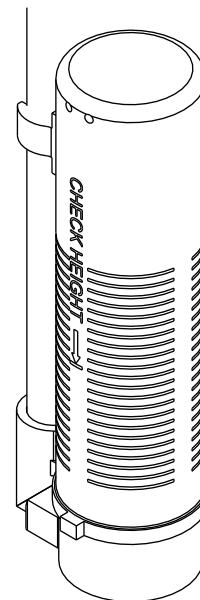
NOTE: Only use silicone lubricant.

6. **⚠ IMPORTANT:** For valves equipped with electromechanical timers and stainless steel meters, refer to the Meter Dome and Union Orientation section.
7. Solder joints near the drain must be done prior to connecting the Drain Line Flow Control fitting (DLFC). Leave at least 6 inches (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.
8. Plumber 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.

9. Make sure that the floor is clean beneath the salt storage tank and that it is level.
10. Place approximately 1 inch (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.
11. 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.
12. 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.
13. 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

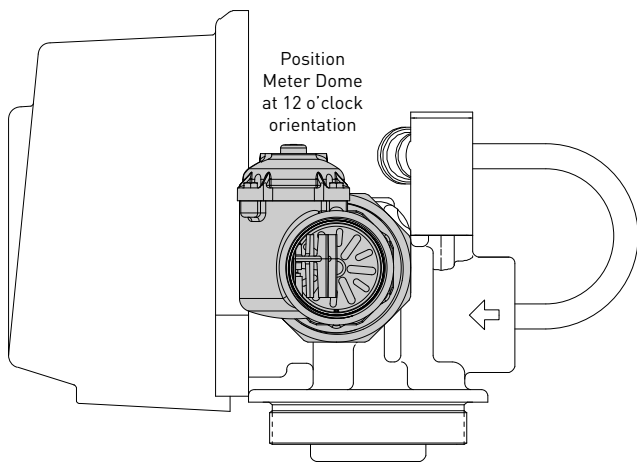
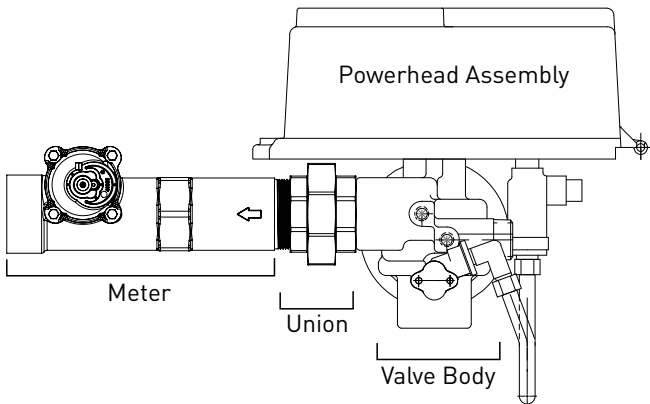
INSTALLATION *CONTINUED*

Meter Dome and Union Orientation

Control valves outfitted with an electromechanical timer and stainless steel water meter include a special male x female threaded stainless steel union to insure proper installation and operation of the water meter.

⚠ WARNING: The location of this union in relation to the control valve and water meter is critical for proper operation. DO NOT omit or substitute this special union; it positions the meter dome at the correct distance from the control valve and allows re-positioning the water meter dome for proper operation.

1. Apply a suitable thread sealant to the male threads of the union and meter body.
2. Thread the union into the OUTLET port of the control valve, then thread the meter into the union. See illustrations below.
3. Rotate the water meter body so the meter dome is at the 12 o'clock position. Loosen the nut on the union to facilitate this if required. Once in position, tighten the union nut.
4. Connect the meter cable to the open port in the center of the meter dome.
5. Continue with the installation of the control 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

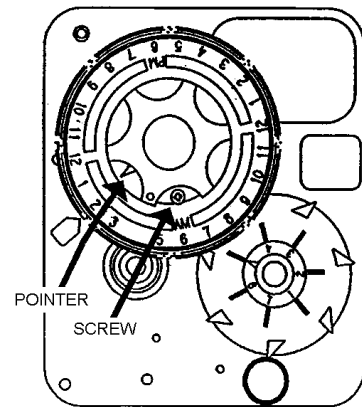
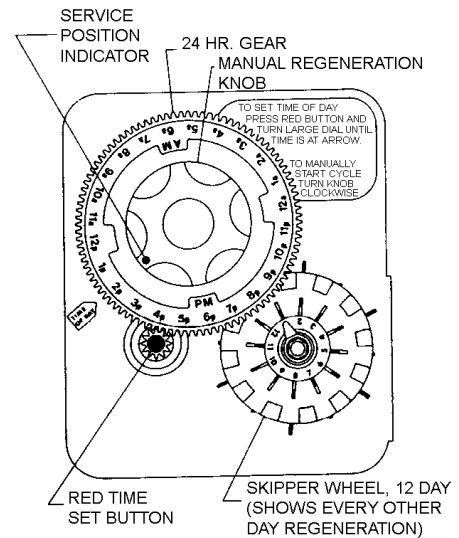
1. Press and hold the red button in to disengage the drive gear.
2. Turn the large gear until the actual time of day is at the time of day pointer.
3. Release the red button to again engage the drive gear.

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.

3210 & 3220 TIMER SETTING

PROCEDURE *CONTINUED*

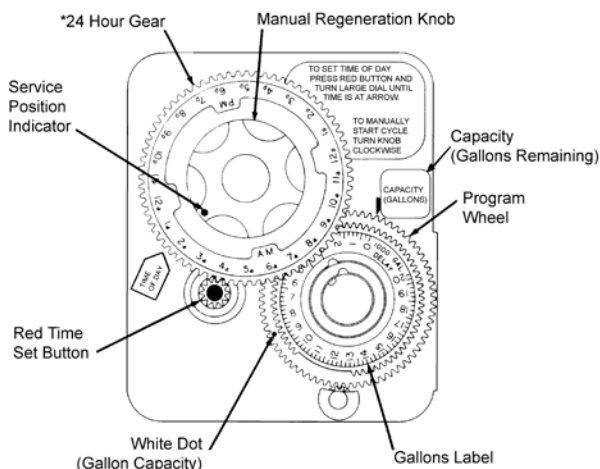
- The black center knob will make one revolution in the following approximately three hours and stop in the position shown in the drawing.
- Even though it takes three hours for this center knob to complete one revolution, the regeneration cycle of your unit might be set for only one half of this time.
- 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.



61502-3200 Rev A

Figure 3

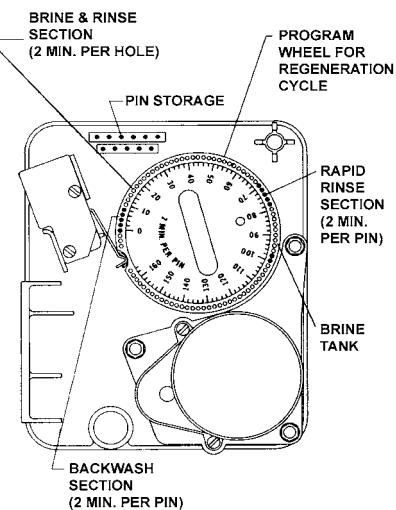
3200, 3210, 3220, 3230 REGENERATION CYCLE SETTING PROCEDURE

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)

- To expose cycle program wheel, grasp timer in upper left-hand corner and pull, releasing snap retainer and swinging timer to the right.
- 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.
- Return timer to closed position engaging snap retainer in back plate. Make certain all electrical wires locate above snap retainer post.



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Figure 4

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

- 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).
- 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

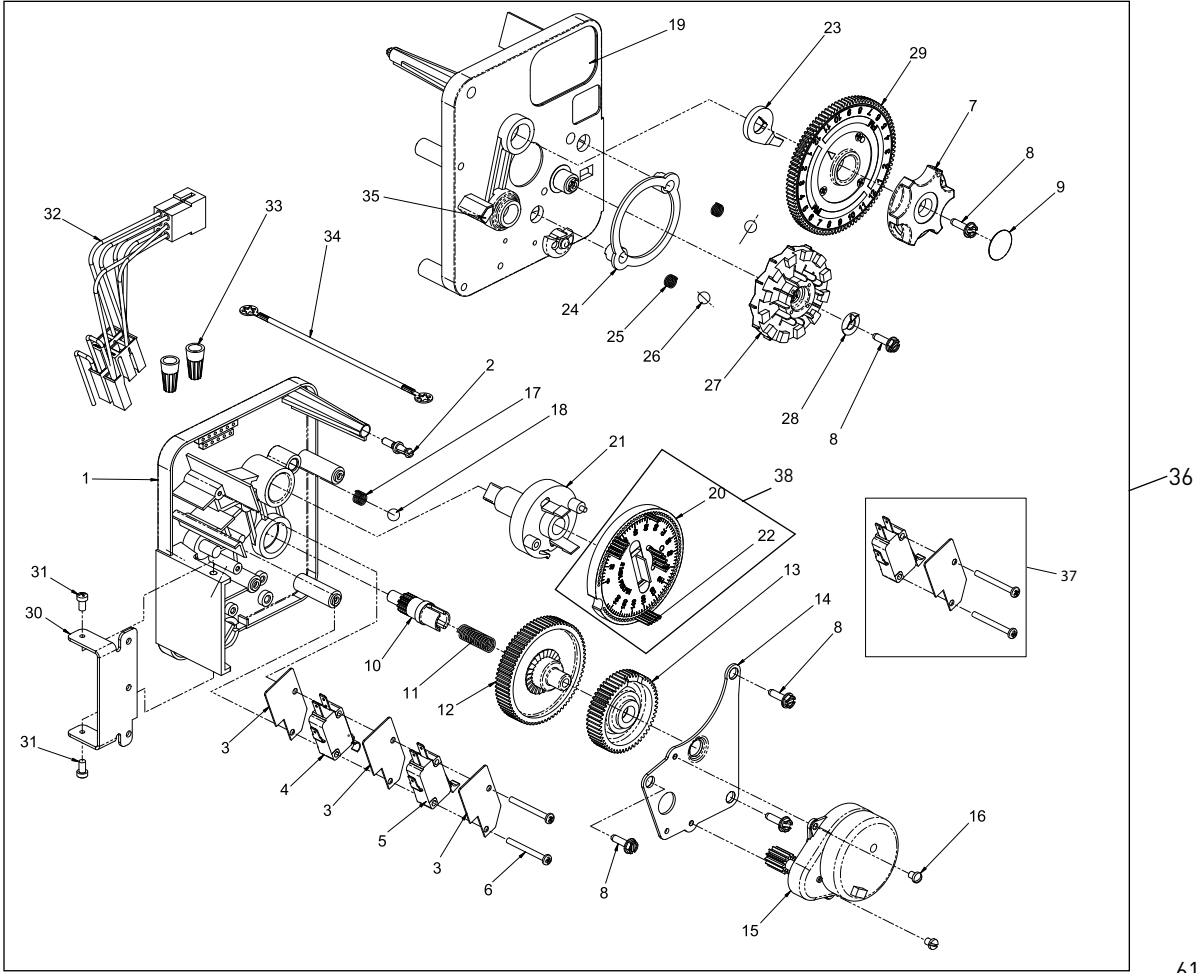
- The second group of pins on the program wheel determines the length of time that your water conditioner will rapid rinse (2 min. per pin).
- To change the length of rapid rinse time, add or remove pins at the higher numbered end of this section as required. The number of pins times two equals the rapid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

How To Change The Length Of Brine Tank Refill Time

- 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).
- To change the length of refill time, move the two pins at the end of the second group of holes as required.
- The regeneration cycle is complete when the outer microswitch is tripped by the two pin set at end of the brine tank refill section.
- The program wheel, however, will continue to rotate until the inner micro switch drops into the notch on the program wheel.

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3200 TIME CLOCK TIMER ASSEMBLY



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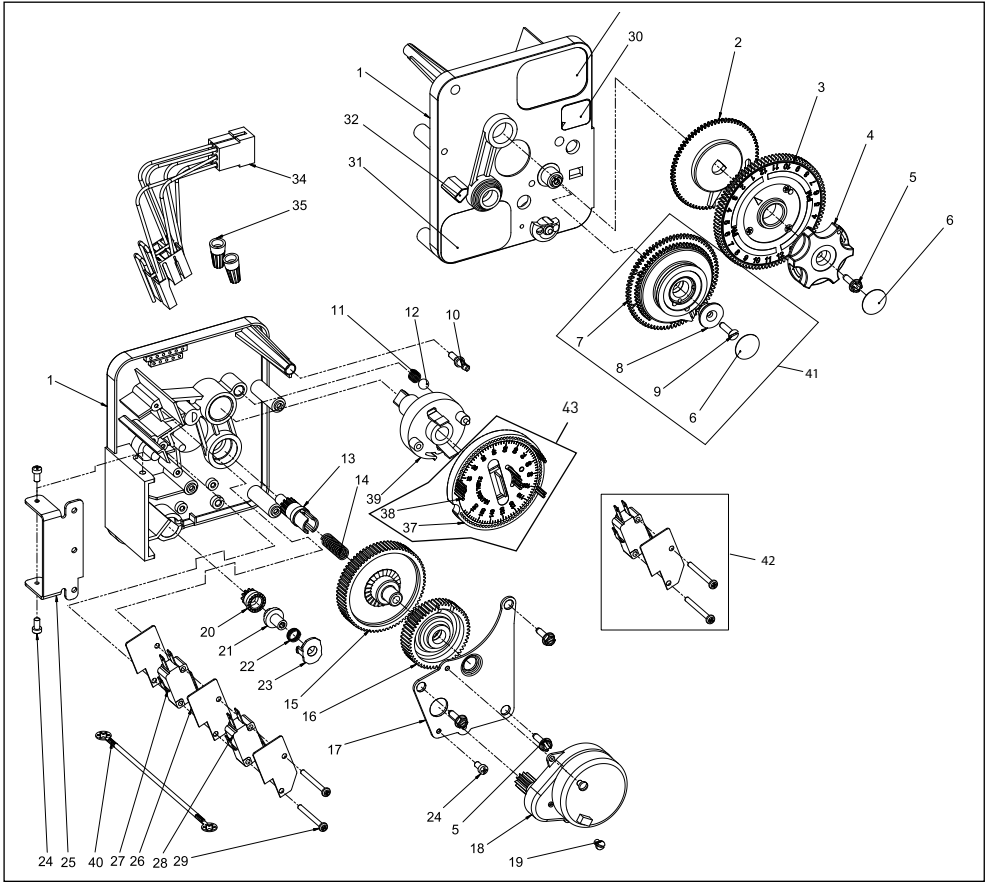
3200 TIME CLOCK TIMER ASSEMBLY

CONTINUED

Item No.	QTY	Part No.	Description	Item No.	QTY	Part No.	Description
1	1	13870	Housing, Timer, 3200	27	1	14381	Skipper Wheel Assy, 12 Day
2	1	14265	Clip, Sping		1	14860	Skipper Wheel Assy, 7 Day
3	3	14087	Insulator	28	1	13014	Pointer, Regeneration
4	1	10896	Switch, Micro	29	1	40096-24	Dial, 12 AM Regen Assy, Black
5	1	15320	Switch, Micro, Timer			40096-02	Dial, 2 AM Regen Assy, Black
6	2	11413	Screw, Pan Hd Mach, 4-40 x 1-1/8	30	1	13881	Bracket, Hinger Timer
7	1	13886	Knob, 3200	31	2	11384	Screw, Phil, 6-32 x 1/4 Zinc
8	5	13296	Screw, Hex Wsh, 6-20 x 1/2	32	1	13902	Harness, 3200
9	1	11999	Label, Button	33	2	40422	Nut, Wire, Tan
10	1	13018	Pinion, Idler	34	1	15354-01	Wire, Ground, 4 inches
11	1	13312	Spring, Idler Shaft	35	1	14007	Label, Time of Day
12	1	13017	Gear, Idler	36	1	*	Complete 3200 Time Clock Timer Assembly
13	1	13164	Gear, Drive	37		60320-02	Switch Kit, 3200/9000 Timer Auxiliary, Optional
14	1	13887	Plate, Motor Mounting	38		61420-03	Program Wheel, Gear Assy, Filter 2 Min Per Pin
15	1	18743-1	Motor, 120V, 60Hz, 1/30 RPM			61420-04	Program Wheel, Gear Assy, Softener, 2 Min Per Pin
		18752-1	Motor, 100V, 50Hz, 1/30 RPM				
		18824-1	Motor, 230V, 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				
16	2	13278	Screw, Sltd Fillister Hd 6-32 x .156				
17	1	15424	Spring, Detent, Timer				
18	1	15066	Ball, 1/4-inch, 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-inch, SS				

*Call your distributor for Part Number

3210 METER DELAYED TIMER ASSEMBLY



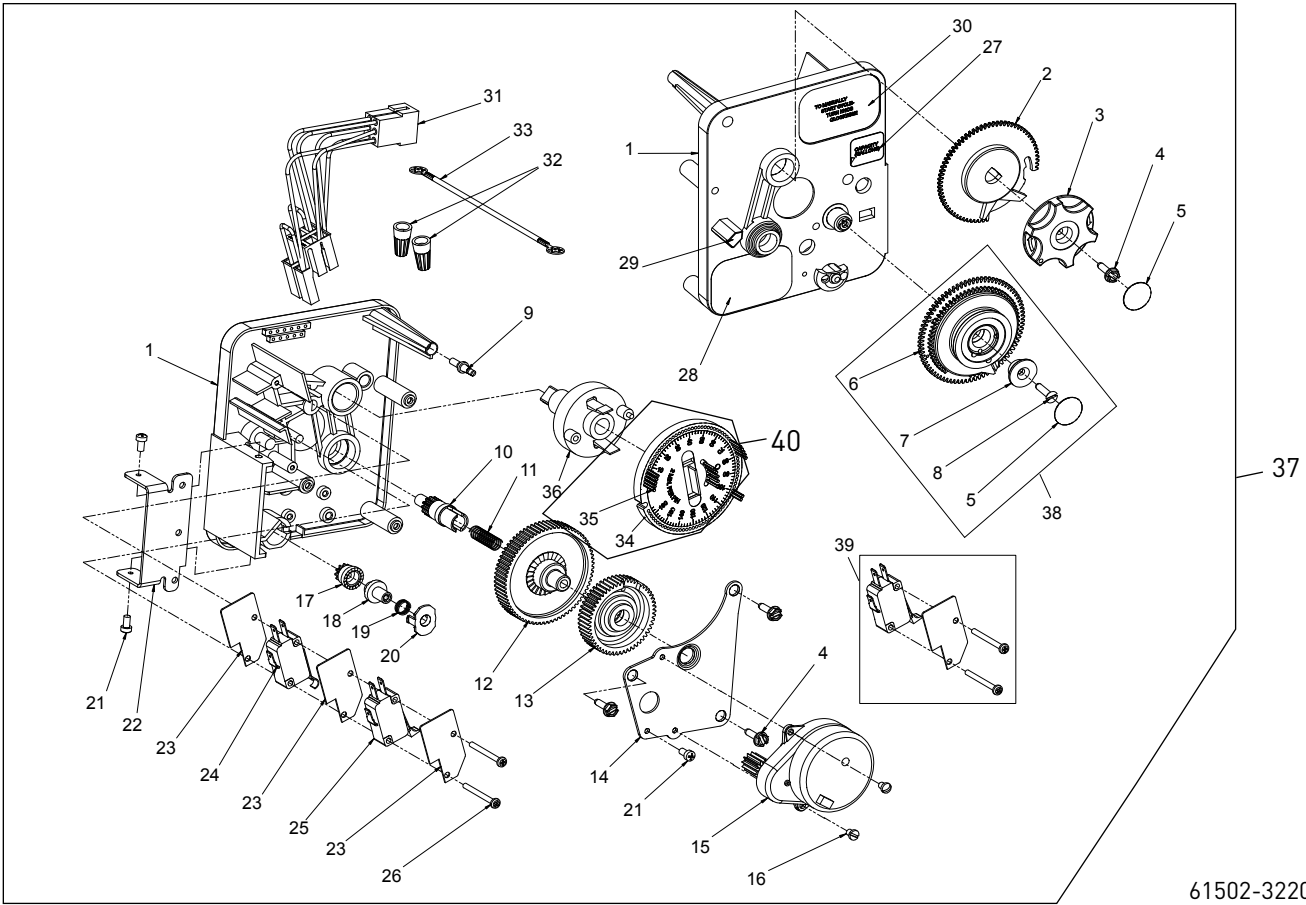
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3210 METER DELAYED TIMER ASSEMBLY

CONTINUED

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

3220 METER IMMEDIATE TIMER ASSEMBLY



61502-3220 Rev B

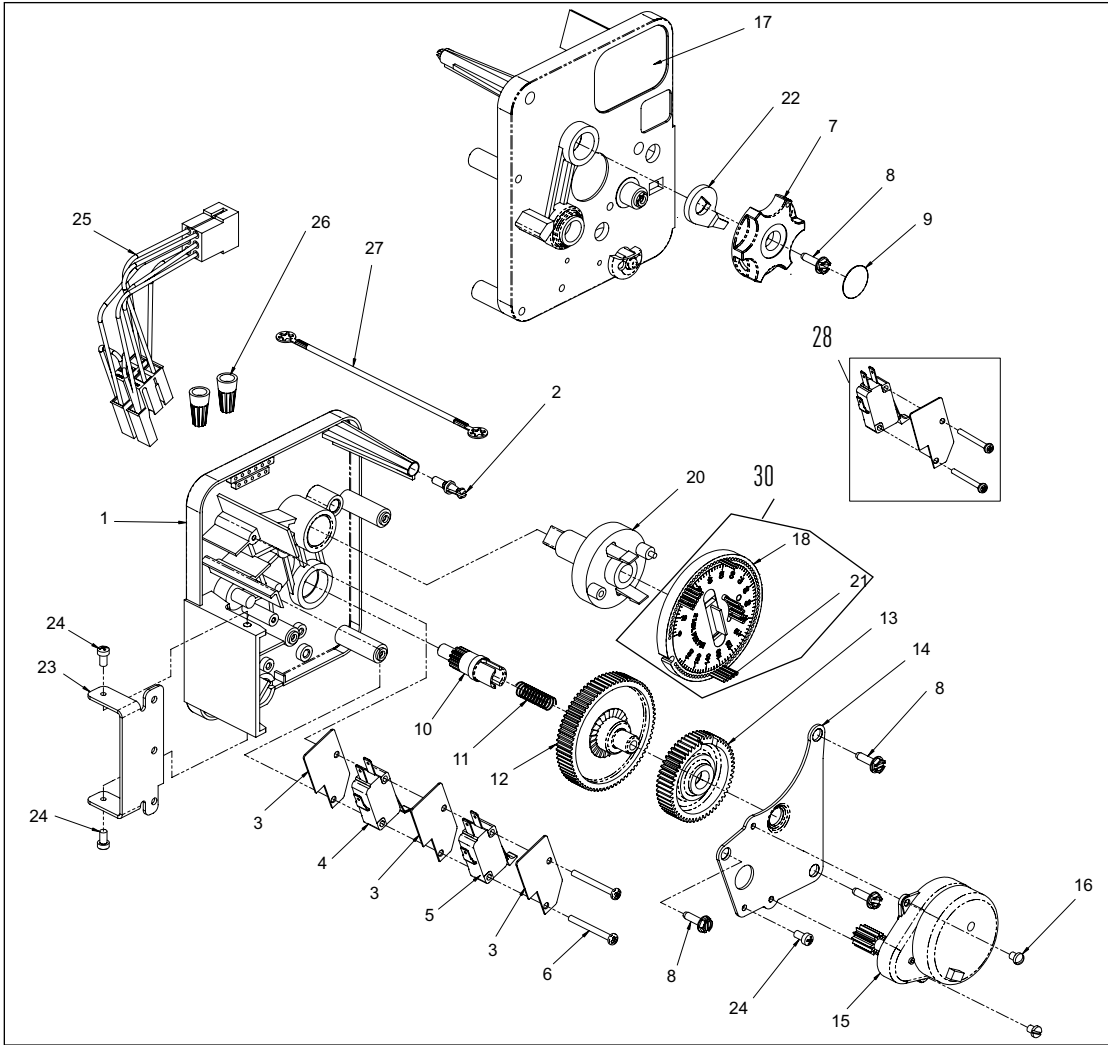
3220 METER IMMEDIATE TIMER

ASSEMBLY *CONTINUED*

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

*Call your distributor for Part Number

3230 REMOTE START TIMER ASSEMBLY



61502-3230R REV A

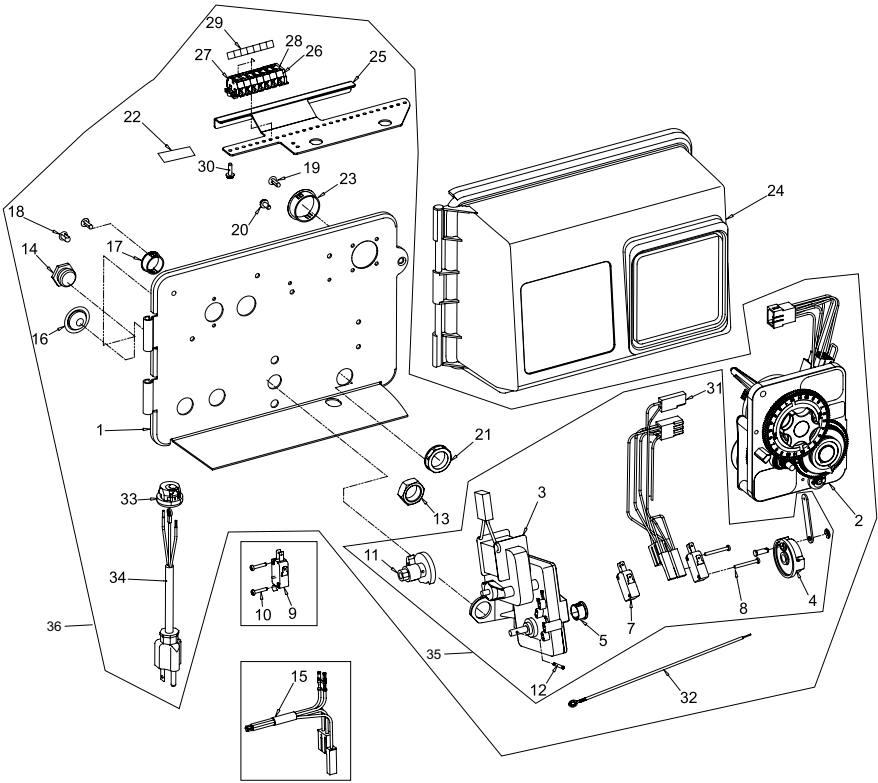
3230 REMOTE START TIMER ASSEMBLY

CONTINUED

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

*Call your distributor for Part Number

UPPER ENVIRONMENTAL POWERHEAD ASSEMBLY



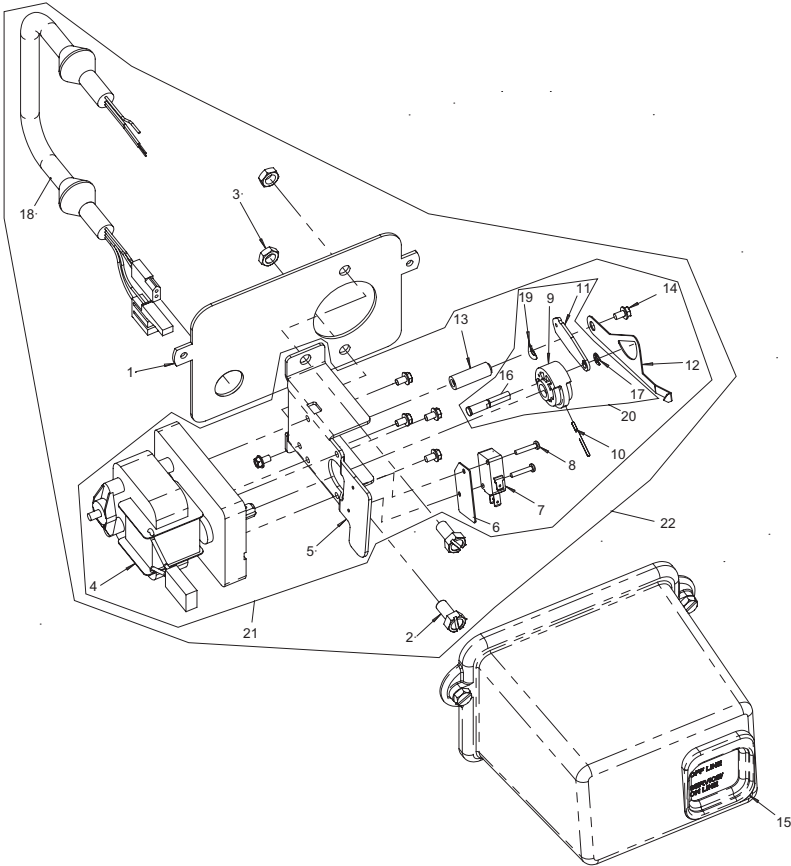
61501-2900 Rev G

UPPER ENVIRONMENTAL POWERHEAD

ASSEMBLY *CONTINUED*

Item No.	QTY	Part No.	Description	Item No.	QTY	Part No.	Description
1	1	18697-15	Backplate, Hinged	25	1	19772	Bracket, Terminal Block
2	1		3200 Clock Timer Assembly	26	1	40174	Terminal Block, Green/ Yellow Commercial, 809- 260/141
			3200 Meter Timer Assembly	27	6	41084	Terminal Block, Segment, Gray
3	1	41543	Motor, Drive, 115V, 50/60 Hz	28	1	41085	Endplate, Terminal Block, Gray
		42579	Motor, Drive, 24VAC/DC, 50/60 Hz	29	2	15250	Label, Terminal Strip
		41545	Motor, Drive, 230V, 50/60 Hz	30	2	13296	Screw, Hex Wsh, 6-20 6-20 x 1/2 Type 25 Steel Zinc
4	1	60160-15	Drive Cam Assembly, STF, Blue, 2900	31	1	40400	Harness, Drive, Designer/ Environmental
		60160-30*	Drive Cam Assembly, Upflow	32	1	40175-01	Wire, Ground, Commercial Valves
		60160-31*	Drive Cam Assembly, Upflow, Variable	33	1	13547	Strain Relief, Flat Cord Heyco #30-1
5	1	17904	Bushing, Heyco 1/2, Heyco #2073			13547-01	Strain Relief, Euro Round Cord
7	2	10218	Switch, Micro			13547-02	Strain Relief, U.S. Round
8	2	14923	Screw, Pan Hd Mach, 4-40 X 1 MS Steel Zinc	34	1	11545	Powercord, 4-foot European, Black
9	1	10896	Switch, Micro			19303	Powercord, 8-foot, Australian
10	2	11805	Screw, Rd Hd, 4-40 X 5/8 TYPE 1 Steel Zinc			40084-12	Powercord, 12-foot US, Round, 120V, Sys 5,6,7&2900/3150/3900
11	1	12472	Cam Assy, Tri-Stack, After RR			40085-12	Powercord, 12-foot US, Round, 240V
		12777	Cam, Shut-Off Valve	35		60050-23	Drive Assy, 2750, STF, 24V 50/60 Hz, Downflow Less Lower Drive Brine Cam Switch, Item 9 & 10
		15770	Cam Assy, Special Tri- Stack, After Brine Fill			60050-22	Drive Assy, 2750, STF, 220V 50/60 Hz, Downflow Less Lower Drive Brine Cam Switch, Item 9 & 10
		15805	Cam, SVO			60052-21	Upper Drive Assy, 2900, STF 120V, Downflow
		19887*	Cam, Brine, 2750 U/F, Std			60052-217	Upper Drive Assy, 2900, STF 120V, System 7, Downflow
12	2	10338	Pin, Roll 3/32 x 7/8	36		**	Upper Powerhead Assembly
13	1	10269	Nut, Jam, 3/4-16	Not Shown:			
14	1	43560	Fitting, Brine Valve	1		15216	Meter Cable Assembly, 15.25 inch long, 2 inch Brass Meter
15	1	14822	Harness, 2900	1		15513	Meter Cable Assembly, 17.5 inch long 2 inch Stainless Steel Meter
16	2	19691	Plug, .750 Dia Recessed, Black	1		15879	Cable Guide Assembly, 2900
17	1	15806	Plug, Hole, Heyco #2693	*Upflow Only			
18	1	19801	Plug, .190 Dia, White Heyco 0307	**Call your distributor for Part Number			
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- inch				
22	1	40038-03	Label, Voltage, 120V, 3200ET				
23	1	17421	Plug, 1.20 Hole Heyco #2733				
24	1	60219-02	Cover Assembly, Environmental, Black w/ Clear Window				

LOWER ENVIRONMENTAL POWERHEAD ASSEMBLY



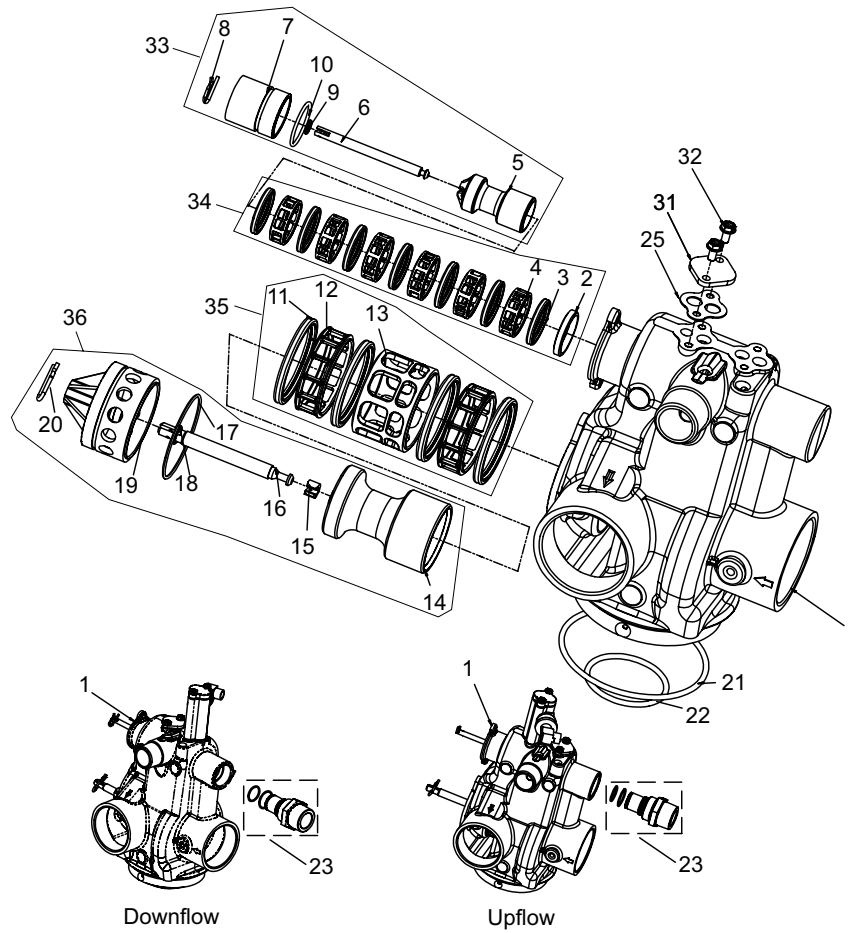
61501-2900 Rev G

LOWER ENVIRONMENTAL POWERHEAD

ASSEMBLY *CONTINUED*

Item No.	QTY	Part No.	Description	Item No.	QTY	Part No.	Description
1	1	18709	Backplate, Lower			40408	Harness, Lower Drive, Syst 7, Duplex, Lag, Enviromental
2	2	11224	Screw, Slotted Hex Head			40398	Harness, Lower Drive, Syst #7, Multiple, Enviromental
3	2	16346	Nut, Hex, Jam, 5/16-18, 18-8-SS (only used for shipping)	19	1	18727	Washer, Curved Spring, /265 ID
4	1	40387	Motor, Drive, 115V, 60 Hz, SP FAM	20		60160-22	Drive Cam Assy, Link, Enviromental, 2900 Lower Drive
		42580	Motor, Drive, 24 Vac/Dc, 50-60 Hz, Fam 2	21		60055-53	Lower Drive Assy, 2900, 24/60, System #4
		40389	Motor, Drive, 220V, 50/60 Hz, SP			60055-51	Lower Drive Assy, 2900, 120, System #4
5	1	14769	Bracket, Motor, 2900			60055-52	Lower Drive Assy, 2900, 220, System #4
6	1	10302	Insulator, Limit Switch			60255-51	Lower Drive Assy, 2900, 120, System #5 and #6, Lead/Lag
7	1	10218	Switch, Micro			60056-51	Lower Drive Assy, 2900, 120, System #7, Lead
8	2	19849	Screw, Pan HD, 4-40 x 5/8			60056-61	Lower Drive Assy, 2900, 120, System #7, Lag
9	1	14775	Cam, Main Drive, 2900 Lower	22	*		2900 Lower Powerhead Assembly
10	1	41022	Pin, Roll 2900 Lower	Not Shown:			
11	1	14759	Link, Piston Rod	1		14044	Tie, Cable, HeyCo VNT # 4-18
12	1	18725	Indicator, Service/Standby	1		43062	Grease, Lubriplate, 630-2
13	1	18726	Spacer, Indicator			60320-11	Switch Kit, 2900 Lower Drive, Adding Second Switch
14	6	10872	Screw, Hex WSH, 8-32 x 5/16			60320-08	Switch Kit, 2900 Lower Drive, Adding Third Switch
15	1	60217-02	Cover Assy, 2900, Lower, Black	*Call your distributor for Part Number			
16	1	42979	Bearing, Connecting Rod				
17	1	42980	Ring, Retaining				
18	1	42446	Harness, Lower Drive SYS4, ENV				
		40405	Harness, Lower Drive, Sys 4 Remote Start				
		40406	Harness, Lower Drive, Sys 5 & 6, Duplex, Enviromental				
		40405	Harness, Lower Drive Syst 5 Multiple, Enviromental				
		40405	Harness, Lower Drive Syst 6 Multiple, Lead, Enviromental				
		40406	Harness, Lower Drive, Sys 6, Multiple, Middle/Lag, Enviromental				
		40407	Harness, Lower Drive, Syst #7, Duplex, Lead, Enviromental				

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
On current builds from Pentair		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

Item No.	QTY	Part No.	Description
		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
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

CONTROL VALVE ASSEMBLY *CONTINUED*

Item No.	QTY	Part No.	Description	Item No.	QTY	Part No.	Description
4	6	11451	Spacer, 12 Hole			61545	Piston Assy, 2900S, Upflow, Upper
		16589	Spacer, Hot Water			61545-01	Piston Assy, 2900S, Upflow, Upper, Hot Water
5	1	14451	Piston, 2750			61530	Seal & Spacer Kit, 2900S, Upper
		19454*	Piston, 2750, Upflow			61530-01	Seal & Spacer Kit, 2900S, Upper, Hot Water
6	1	41424	Rod, Piston, 2900S, Upper	34		61530-02	Seal & Spacer Kit, 2900S, Upper, VITON, Chemical Resistant
7	1	41131	Plug, End			60128	Seal & Spacer Kit, 2900, Lower
	1	10212	Plug, End, 1500/2750, Brass			60128-01	Seal & Spacer Kit, 2900, Lower, Hot Water
8	1	10909	Pin, Link			60128-10	Seal & Spacer Kit, 2900, Lower, Silicone
9	1	10209	Quad Ring, -010			61550	Piston Assy, 2900S, HWBP, Lower
10	1	40078	O-ring, 28mm X 2mm			61550-03	Piston Assy, 2900S, HWBP, Lower, Hot Water
		10234-01	O-ring, -024, Hot Water			61555	Piston Assy, 2900S, NHWBP, Lower
11	4	11720	Seal, Piston, 2900/3150			61555-03	Piston Assy, 2900S, NHWBP, Lower, Hot Water
		10548-02	Seal, Piston, Silicone				
12	2	10369	Spacer, 2-inch, 2900/3150				
		14241-01	Spacer, Hot Water	36		60366-00	DLFC, 1-inch F x 3/4-inch F, NPT, No Button
13	1	14753	Spacer, 2900			60366-06	DLFC, 1-inch F x 3/4-inch F, NPT, 0.6 gpm
		16589	Spacer, Hot Water			60366-08	DLFC, 1-inch F x 3/4-inch F, NPT, 0.8 gpm
14	1	14757	Piston, HWBP			60366-10	DLFC, 1-inch F x 3/4-inch F, NPT, 1.0 gpm
		14752	Piston, 2900, NHWBP			60366-12	DLFC, 1-inch F x 3/4-inch F, NPT, 1.2 gpm
15	1	14818	Ring, Piston Rod, Snap			60366-13	DLFC, 1-inch F x 3/4-inch F, NPT, 1.3 gpm
16	1	14758	Rod, Piston, 2900			60366-15	DLFC, 1-inch F x 3/4-inch F, NPT, 1.5 gpm
17	1	14922	O-ring, -035, Piston			60366-17	DLFC, 1-inch F x 3/4-inch F, NPT, 1.7 gpm
18	1	14926	Quad Ring, -012			60366-20	DLFC, 1-inch F x 3/4-inch F, NPT, 2.0 gpm
19	1	14754-00	End Plug Assy, 2900 2 PC			60366-24	DLFC, 1-inch F x 3/4-inch F, NPT, 2.4 gpm
		14754-01	Plug, End, White, Machined	2900S 1 PC		60366-30	DLFC, 1-inch F x 3/4-inch F, NPT, 3.0 gpm
		14754-10	End Plug Assembly, 2900/2930, NHWBP			60366-35	DLFC, 1-inch F x 3/4-inch F, NPT, 3.5 gpm
		19276-01	End Plug Assembly, 2900S, Brass, HW			60366-40	DLFC, 1-inch F x 3/4-inch F, NPT, 4.0 gpm
		41427-01	Plug, End, 2900S, Lower, White				
		41427-11	Plug, End, 2900S, Lower, Black				
20	1	14813	Pin, Spring, Connecting Rod				
21	1	13575	O-ring, -240				
		15210	O-ring, -343, Park Tank				
22	1	13577	O-ring, -226				
23	1	61525	Softwater Adapter Kit, 2900S				
25	2	19925	Gasket, Injector Body, 1700				
31	1	11893	Cap, Injector, Stainless Steel				
32	2	15137	Screw, Hex Wsh Mach, 10 - 24 x 3/8				
33		61540	Piston Assy, 2900S Downflow, Upper				
		61540-01	Piston Assy, 2900S, Downflow, Upper, Hot Water				

Not Shown:

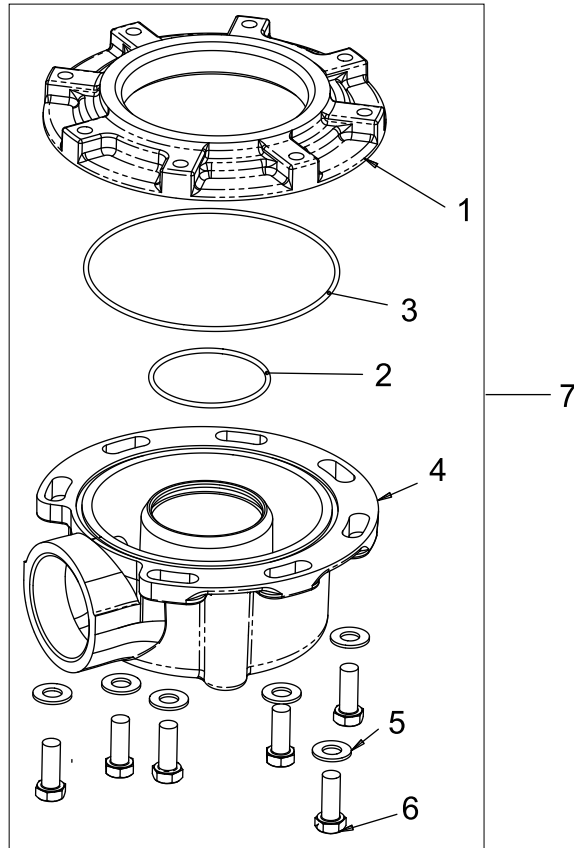
60366-00	DLFC, 1-inch F x 3/4-inch F, NPT, No Button
60366-06	DLFC, 1-inch F x 3/4-inch F, NPT, 0.6 gpm
60366-08	DLFC, 1-inch F x 3/4-inch F, NPT, 0.8 gpm
60366-10	DLFC, 1-inch F x 3/4-inch F, NPT, 1.0 gpm
60366-12	DLFC, 1-inch F x 3/4-inch F, NPT, 1.2 gpm
60366-13	DLFC, 1-inch F x 3/4-inch F, NPT, 1.3 gpm
60366-15	DLFC, 1-inch F x 3/4-inch F, NPT, 1.5 gpm
60366-17	DLFC, 1-inch F x 3/4-inch F, NPT, 1.7 gpm
60366-20	DLFC, 1-inch F x 3/4-inch F, NPT, 2.0 gpm
60366-24	DLFC, 1-inch F x 3/4-inch F, NPT, 2.4 gpm
60366-30	DLFC, 1-inch F x 3/4-inch F, NPT, 3.0 gpm
60366-35	DLFC, 1-inch F x 3/4-inch F, NPT, 3.5 gpm
60366-40	DLFC, 1-inch F x 3/4-inch F, NPT, 4.0 gpm

CONTROL VALVE ASSEMBLY *CONTINUED*

Item No.	QTY	Part No.	Description
.....		60366-45	DLFC, 1-inch F x 3/4-inch F, NPT, 4.5 gpm
.....		60366-50	DLFC, 1-inch F x 3/4-inch F, NPT, 5.0 gpm
.....		60366-60	DLFC, 1-inch F x 3/4-inch F, NPT, 6.0 gpm
.....		60366-70	DLFC, 1-inch F x 3/4-inch F, NPT, 7.0 gpm
.....		60708-00	DLFC, 1-inch F x 3/4-inch F, NPT, No Button
.....		60708-8.0	DLFC, 1-inch F x 3/4-inch F, NPT, 8.0 gpm
.....		60708-9.0	DLFC, 1-inch F x 3/4-inch F, NPT, 9.0 gpm
.....		60708-10	DLFC, 1-inch F x 3/4-inch F, NPT, 10.0 gpm
.....		60708-12	DLFC, 1-inch F x 3/4-inch F, NPT, 12.0 gpm
.....		60708-15	DLFC, 1-inch F x 3/4-inch F, NPT, 15.0 gpm
.....		60708-20	DLFC, 1-inch F x 3/4-inch F, NPT, 20.0 gpm
.....		60708-25	DLFC, 1-inch F x 3/4-inch F, NPT, 25.0 gpm
.....		60721-00	DLFC, 1-inch F x 1-inch F, NPT, No Button
.....		60721-06	DLFC, 1-inch F x 1-inch F, NPT, 0.06 gpm
.....		60721-08	DLFC, 1-inch F x 1-inch F, NPT, 0.08 gpm
.....		60721-10	DLFC, 1-inch F x 1-inch F, NPT, 1.0 gpm
.....		60721-12	DLFC, 1-inch F x 1-inch F, NPT, 1.2 gpm
.....		60721-13	DLFC, 1-inch F x 1-inch F, NPT, 1.3 gpm
.....		60721-15	DLFC, 1-inch F x 1-inch F, NPT, 1.5 gpm
.....		60721-00	DLFC, 1-inch F x 1-inch F, NPTF, No Button
.....		60721-17	DLFC, 1-inch F x 1-inch F, NPTF, 1.7 gpm
.....		60721-20	DLFC, 1-inch F x 1-inch F, NPTF, 2.0 gpm
.....		60721-24	DLFC, 1-inch F x 1-inch F, NPTF, 2.4 gpm
.....		60721-30	DLFC, 1-inch F x 1-inch F, NPTF, 3.0 gpm
.....		60721-35	DLFC, 1-inch F x 1-inch F, NPTF, 3.5 gpm
.....		60721-40	DLFC, 1-inch F x 1-inch F, NPTF, 4.0 gpm
.....		60721-45	DLFC, 1-inch F x 1-inch F, NPTF, 4.5 gpm
.....		60721-50	DLFC, 1-inch F x 1-inch F, NPTF, 5.0 gpm
.....		60721-60	DLFC, 1-inch F x 1-inch F, NPTF, 6.0 gpm
.....		60721-70	DLFC, 1-inch F x 1-inch F, NPTF, 7.0 gpm
.....		60702-00	DLFC, 1-inch M x 1-inch F, NPT, Brass, No Button
.....		60702-8.0	DLFC, 1-inch M x 1-inch F, NPT, 8.0 gpm
.....		60702-9.0	DLFC, 1-inch M x 1-inch F, NPT, 9.0 gpm
.....		60702-10	DLFC, 1-inch M x 1-inch F, NPT, 10 gpm
.....		60702-12	DLFC, 1-inch M x 1-inch F, NPT, 12 gpm
.....		60702-15	DLFC, 1-inch M x 1-inch F, NPT, 15 gpm
.....		60702-20	DLFC, 1-inch M x 1-inch F, NPT, 20 gpm
.....		60702-25	DLFC, 1-inch M x 1-inch F, NPT, 25 gpm
.....		13640	Flow Control, Dole, 30 gpm
.....		60711-35	DLFC, 2-inch NPT, 35 gpm

*Upflow Only

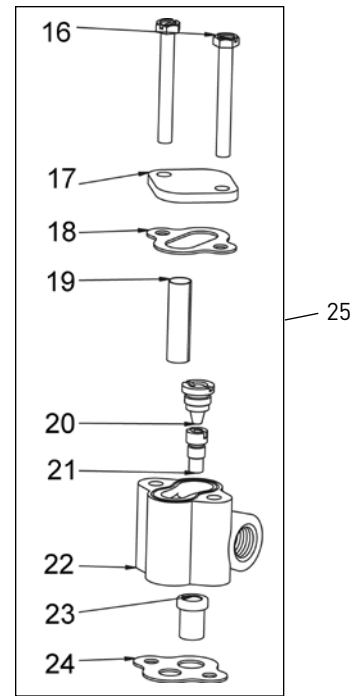
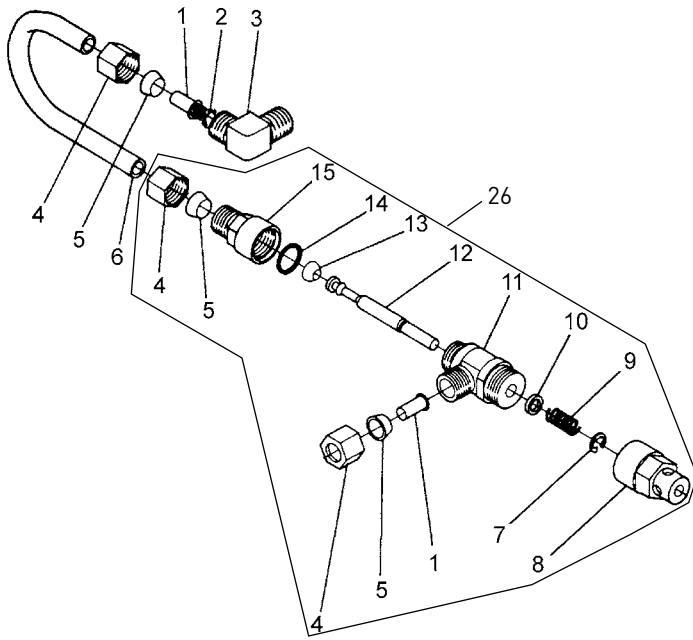
CONTROL VALVE SIDE MOUNT ADAPTER



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

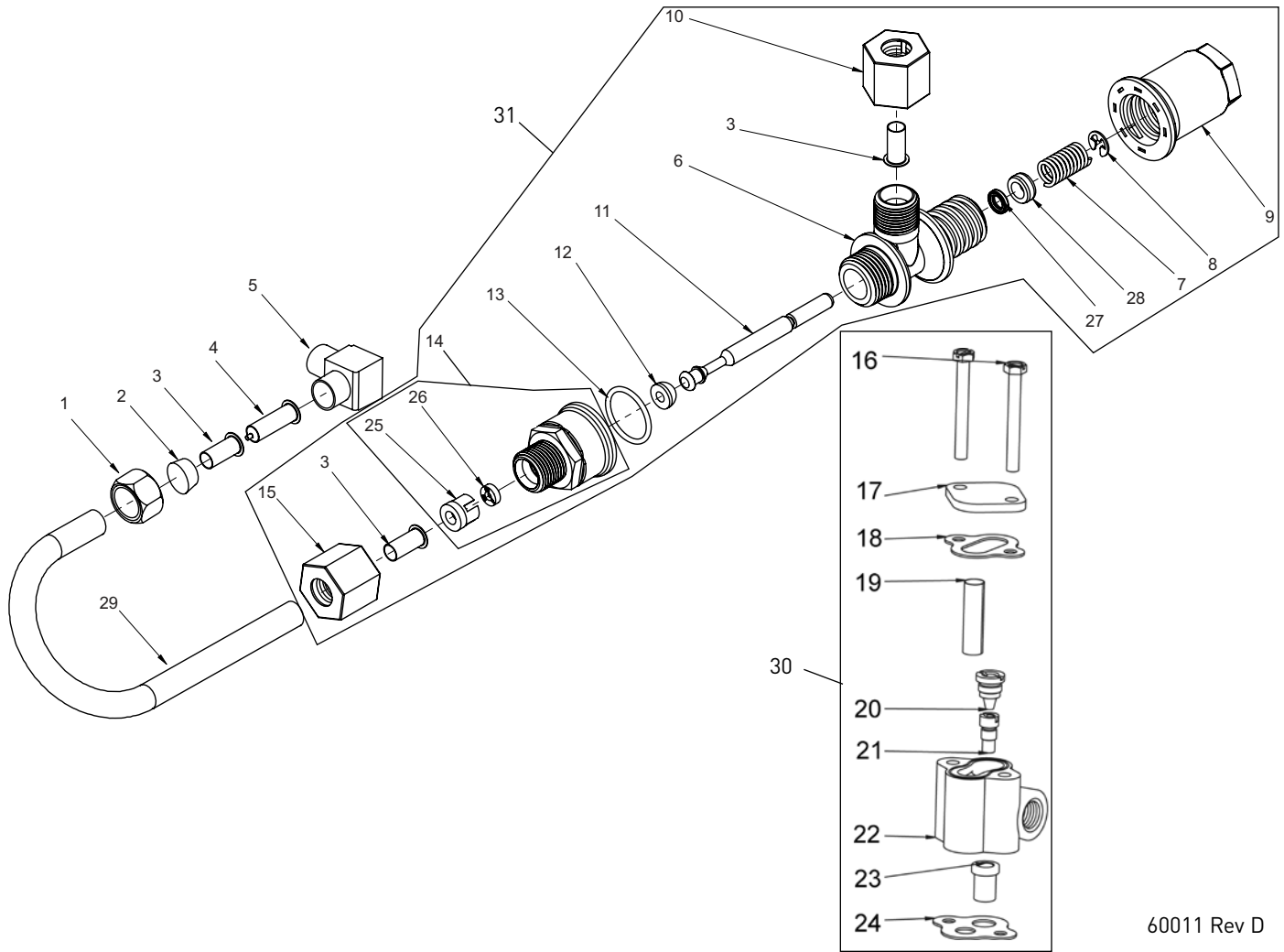
Item No.	QTY	Part No.	Description
1	2	10332	Fitting, Insert, 3/8
2	1	12767	Screen, Brine
3	1	10328	Fitting, Elbow, 90 Deg. 1/4 PT x 3/8 Tube
4	3	10329	Fitting, Tube, 3/8 Nut, Brass
5	3	10330	Fitting, Sleeve, 3/8 Celcon
6	1	16508	Tube, Brine, 1600, PVC
	1	16508-01	Tube, Brine Valve, 2850/2900s
	1	12774	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

Item No.	QTY	Part No.	Description
17	1	11893	Cap, Injector, SS
18	1	10229	Gasket, Injector Cap, 1600
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

1600 SERIES BRINE SYSTEM *CONTINUED*

Item No.	QTY	Part No.	Description	Item No.	QTY	Part No.	Description
21	1	10914-000	Throat, Injector #000, Brown	25	1	60480-01	Injector Assy, 1600, #1, Plastic
		10914-00	Throat, Injector #00, Violet			60480-02	Injector Assy, 1600, #2, Plastic
		10914-0	Throat, Injector #0, Red			60480-03	Injector Assy, 1600, #3, Plastic
		10914-1	Throat, Injector #1, White			60480-04	Injector Assy, 1600, #4, Plastic
		10914-2	Throat, Injector #2, Blue			60481-21	Injector Assy, 1600, #1, S.S. Brass
		10914-3	Throat, Injector #3, Yellow			60481-22	Injector Assy, 1600, #2, S.S. Brass
		10914-4	Throat, Injector #4, Green			60481-23	Injector Assy, 1600, #3, S.S. Brass
		12974-0	Throat, Injector #0, PVC, Grey			60080-11	Injector Assy, 1600, #1, PVC
		12974-1	Throat, Injector #1, PVC, Grey			60080-12	Injector Assy, 1600, #2, PVC
		12974-2	Throat, Injector #2, PVC, Grey			60080-14	Injector Assy, 1600, #4, PVC
		12974-3	Throat, Injector #3, PVC, Grey			60485-003	Injector Assy, 2900/1600, Upflow, #0, w/Reg Cap, 20 psi
		12974-4	Throat, Injector #4, PVC, Grey			60485-012	Injector Assy, 2900/1600, Upflow, #1, w/Reg Cap, 20 psi
		10226-0	Throat, Injector #0, Stainless Steel			60485-022	Injector Assy, 2900/1600, Upflow, #2, w/Reg Cap, 20 psi
		10226-1	Throat, Injector #1, Stainless Steel			60485-032	Injector Assy, 2900/1600, Upflow, #3, w/Reg Cap, 20 psi
		10226-2	Throat, Injector #2, Stainless Steel			60485-043	Injector Assy, 2900/1600, Upflow, #4, w/Reg Cap, 20 psi
		10226-3	Throat, Injector #3, Stainless Steel	26	1	60029-010	Brine Valve, 1600, 0.25 gpm
		10226-4	Throat, Injector #4, Stainless Steel			60029-020	Brine Valve, 1600, 0.50 gpm
22	1	17776	Body, Injector, 1600			60029-030	Brine Valve, 1600, 1.0 gpm
	1	17776-02*	Body, Injector, 1600 Upflow	*Upflow Only			
23	1	16221	Dispenser, Air				
24	1	14805	Gasket, Injector Body, 1600/1700				

1650 BRINE SYSTEM ASSEMBLY



60011 Rev D

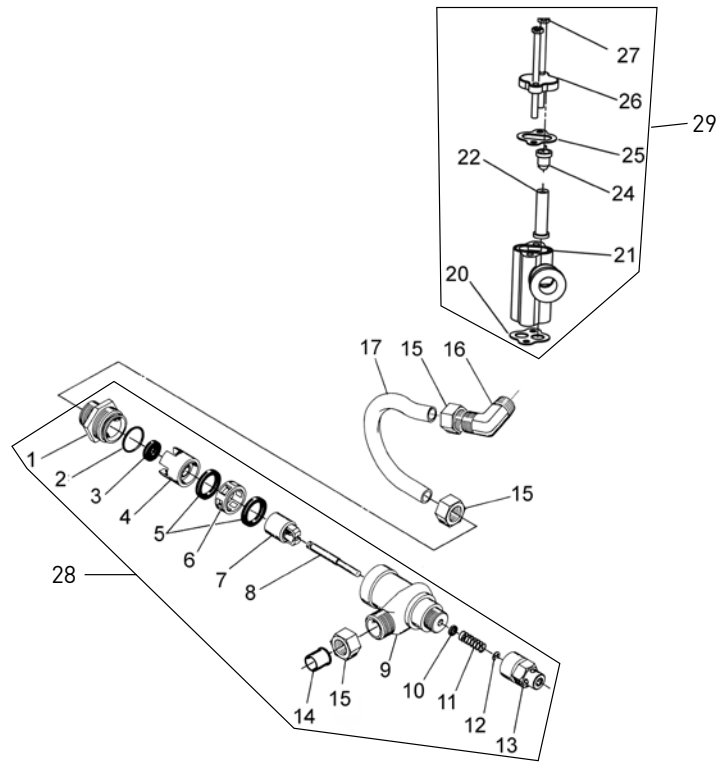
Item No.	QTY	Part No.	Description
1	1	10329	Fitting, Tube, 3/8 Nut, Brass
2	1	10330	Fitting, Sleeve, 3/8 Celcon
3	3	10332	Fitting, Insert, 3/8
4	1	12767	Screen, Brine
5	1	10328	Fitting, Elbow, 90 Deg 1/4 NPT x 3/8T
6	1	17884	Brine Valve Body Assy, 1650
7	1	10249	Spring, Brine Valve
8	1	10250	Ring, Retaining
9	1	17906	Guide, Brine Valve Stem
10	1	19625	Nut Assy, 3/8-inch, 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	1	60010-50	BLFC, 1650, .50 GPM,

Item No.	QTY	Part No.	Description
1	1	60010-100	BLFC, 1650, 1.0 GPM, Plastic
15	1	19625	Nut Assy, 3/8-inch, 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
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

1650 BRINE SYSTEM ASSEMBLY *CONTINUED*

Item No.	QTY	Part No.	Description	Item No.	QTY	Part No.	Description
		12973-3	Nozzle, Injector #3, PVC, Grey	27	1	12550	Quad Ring -009
		12973-4	Nozzle, Injector #4, PVC, Grey		1	12550-01	Quad Ring -009 560CD
		10225-0	Nozzle, Injector #0, Stainless Steel	28	1	17908	Sleeve, Brine Valve Stem
		10225-1	Nozzle, Injector #1, Stainless Steel	29	1	16508-01	Tube, Brine Valve, 2850/1600
		10225-2	Nozzle, Injector #2, Stainless Steel		1	40027	Tube, Brine Valve, 2510
		10225-3	Nozzle, Injector #3, Stainless Steel		1	42184	Tube, Brine Valve, 2850s
		10225-4	Nozzle, Injector #4, Stainless Steel		1	12774	Tube, Brine Valve, 1500
21	1	10914-000	Throat, Injector #000, Brown		1	15221	Tube, Brine Valve, 2750
		10914-00	Throat, Injector #00, Violet		1	41683*	Tube, Brine Valve, UF, 1600/1650
		10914-0	Throat, Injector #0, Red	30		60480-01	Injector Assy, 1600, #1, Plastic
		10914-1	Throat, Injector #1, White			60480-02	Injector Assy, 1600, #2, Plastic
		10914-2	Throat, Injector #2, Blue			60480-03	Injector Assy, 1600, #3, Plastic
		10914-3	Throat, Injector #3, Yellow			60480-04	Injector Assy, 1600, #4, Plastic
		10914-4	Throat, Injector #4, Green			60481-21	Injector Assy, 1600, #1, S.S. Brass
		12974-0	Throat, Injector #0, PVC, Grey			60481-22	Injector Assy, 1600, #2, S.S. Brass
		12974-1	Throat, Injector #1, PVC, Grey			60481-23	Injector Assy, 1600, #3, S.S. Brass
		12974-2	Throat, Injector #2, PVC, Grey			60080-11	Injector Assy, 1600, #1, PVC
		12974-3	Throat, Injector #3, PVC, Grey			60080-12	Injector Assy, 1600, #2, PVC
		12974-4	Throat, Injector #4, PVC, Grey			60080-14	Injector Assy, 1600, #4, PVC
		10226-0	Throat, Injector #0, Stainless Steel			60485-003	Injector Assy, 2900/1600, Upflow, #0, w/Reg Cap, 20 psi
		10226-1	Throat, Injector #1, Stainless Steel			60485-012	Injector Assy, 2900/1600, Upflow, #1, w/Reg Cap, 20 psi
		10226-2	Throat, Injector #2, Stainless Steel			60485-022	Injector Assy, 2900/1600, Upflow, #2, w/Reg Cap, 20 psi
		10226-3	Throat, Injector #3, Stainless Steel			60485-032	Injector Assy, 2900/1600, Upflow, #3, w/Reg Cap, 20 psi
		10226-4	Throat, Injector #4, Stainless Steel			60485-043	Injector Assy, 2900/1600, Upflow, #4, w/Reg Cap, 20 psi
22	1	17776	Body, Injector, 1600	31		60011-010	Brine Valve, 1650, 0.25 gpm
	1	17776-02*	Body, Injector, 1600 Upflow			60011-020	Brine Valve, 1650, 0.50 gpm
23	1	16221	Dispenser, Air			60011-030	Brine Valve, 1650, 1.0 gpm
24	1	14805	Gasket, Injector Body, 1600/1700	*Upflow Only			
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				

1700 BRINE SYSTEM ASSEMBLY



60034 Rev D

1700 BRINE SYSTEM ASSEMBLY *CONTINUED*

Item No.	QTY	Part No.	Description	Item No.	QTY	Part No.	Description
1	1	14792	Plug, End, Brine Valve			14801-05c	Nozzle, Injector, #5c, White
2	1	13201	Quad Ring, -020			14801-06c	Nozzle, Injector, #6c, Red
3	1	12085	Washer, Flow, 1.2 GPM	25	1	10229	Gasket, Injector Cap, 1600
	1	12086	Washer, Flow, 1.5 GPM	26	1	11893	Cap, Injector, Stainless Steel
	1	12087	Washer, Flow, 2.0 GPM		1	10228	Cap, Injector
	1	12088	Washer, Flow, 2.4 GPM	27	2	14804	Screw, Hex Hd Mach, 10 - 24 x 2-3/4-inch 18-8 Stainless Steel
	1	12089	Washer, Flow, 3.0 GPM				
	1	12090	Washer, Flow, 3.5 GPM	28	1	60034-00	Brine Valve, 1700, Blank
	1	12091	Washer, Flow, 4.0 GPM			60034-10	Brine Valve, 1700, 1.0 gpm
	1	12092	Washer, Flow, 5.0 GPM			60034-12	Brine Valve, 1700, 1.2 gpm
4	1	14785	Retainer, Flow Control			60034-15	Brine Valve, 1700, 1.5 gpm
5	3	14811	O-ring, -210, 560CD, Brine			60034-20	Brine Valve, 1700, 2.0 gpm
6	1	14798	Spacer, 1700, Brine			60034-24	Brine Valve, 1700, 2.4 gpm
7	1	14795	Piston, Brine Valve			60034-30	Brine Valve, 1700, 3.0 gpm
8	1	14797	Brine Valve Stem			60034-40	Brine Valve, 1700, 4.0 gpm
9	1	14790	Brine Valve Body			60034-50	Brine Valve, 1700, 5.0 gpm
10	1	12550	Quad Ring, -009	29	1	60381-03	Injector Assy, 1700, #3c, Complete
11	1	15310	Spring, Brine Valve			60381-04	Injector Assy, 1700, #4c, Complete
12	1	10250	Retaining Ring			60381-05	Injector Assy, 1700, #5c, Complete
13	1	15517	Guide, Stem			60381-06	Injector Assy, 1700, #6c, Complete
14	1	15415	Fitting, Insert, 1/2-inch, Tube				
15	3	15414	Nut, 2900, w/Sleeve	Not Shown:			
16	1	15413	Fitting, Elbow, Male, 1/2T x 3/8 NPT	1	16974	Fitting, Plastic, Female, 3/4 x 3/4 Slip	
17	1	15416	Tube, Brine, 2900/2750	1	17996	Dispenser, Air, Injector	
	1	16460	Tube, Brine, 2850/2900s				
	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				
22	1	14802-03c	Throat, Injector, #3c, Yellow				
		14802-04c	Throat, Injector, #4c, Green				
		14802-05c	Throat, Injector, #5c, White				
		14802-06c	Throat, Injector, #6c, Red				
24		14801-03c	Nozzle, Injector, #3c, Yellow				
		14801-04c	Nozzle, Injector, #4c, Green				

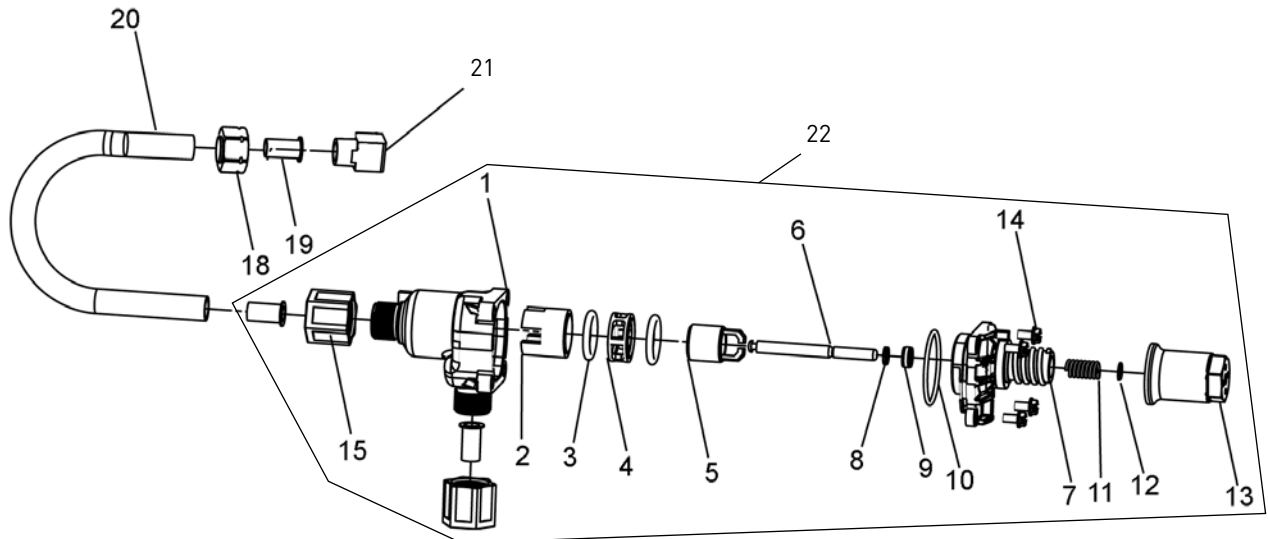
Not Shown:

- 1 16974 Fitting, Plastic, Female,
3/4 x 3/4 Slip
- 1 17996 Dispenser, 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

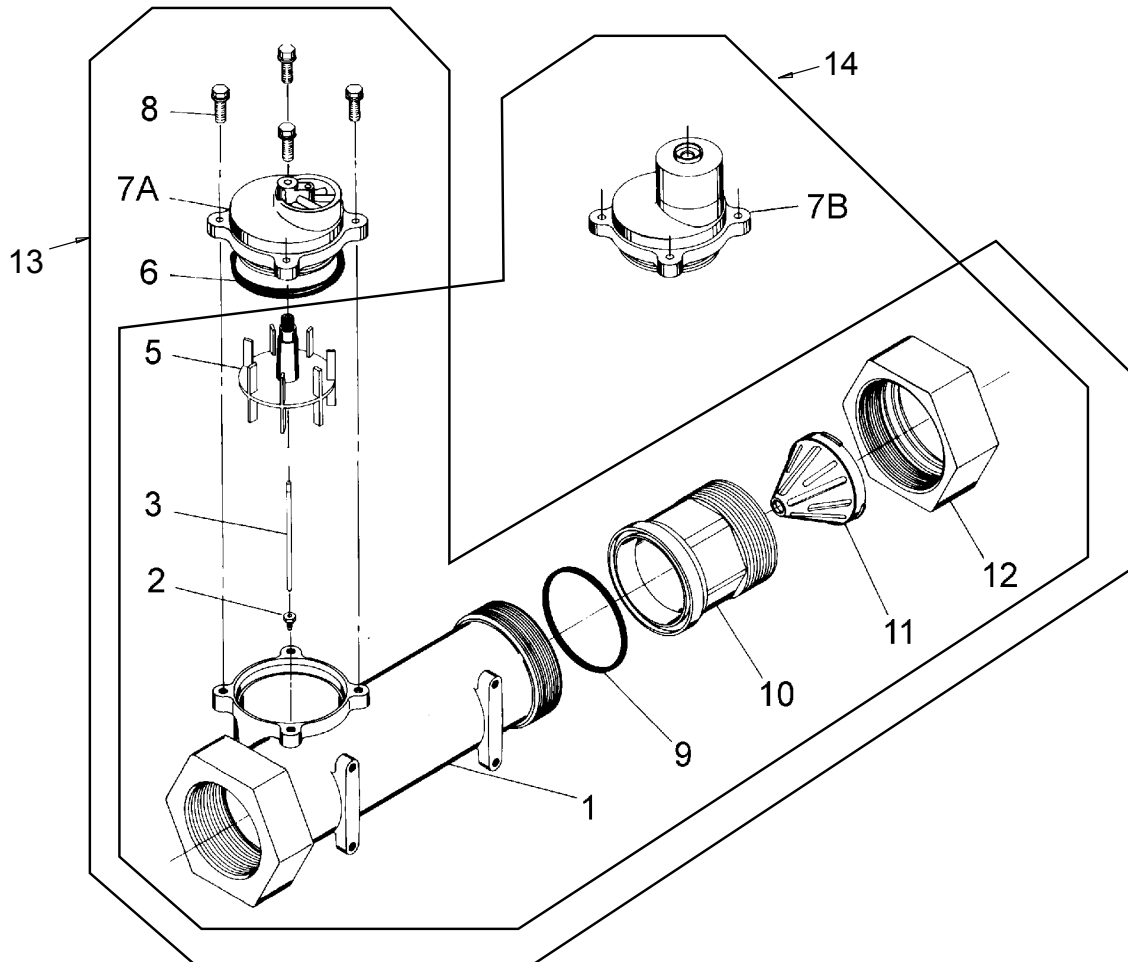
Item No.	QTY	Part No.	Description
1	1	41202	Brine Valve, 1700, Plastic, Top
2	1	14785-01	Retainer, Flow Control
3	1	14811	O-Ring, -210, 560CD, Brine
4	1	14798	Spacer, 1700, Brine
5	1	14795	Piston, Brine Valve
6	1	41203	Stem, Brine, 1710, Plastic, 2900
7	1	41201	Brine Valve, 1700, Plastic, Bottom
8	5	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-inch Plastic
18	1	15414	Nut, 2900, w/Sleeve
19	1	15415	Fitting, Insert, 1/2-inch, Tube
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

Item No.	QTY	Part No.	Description
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	Dispenser, Air, Injector
1		414193-00	Label, Blank, BLFC, 1710

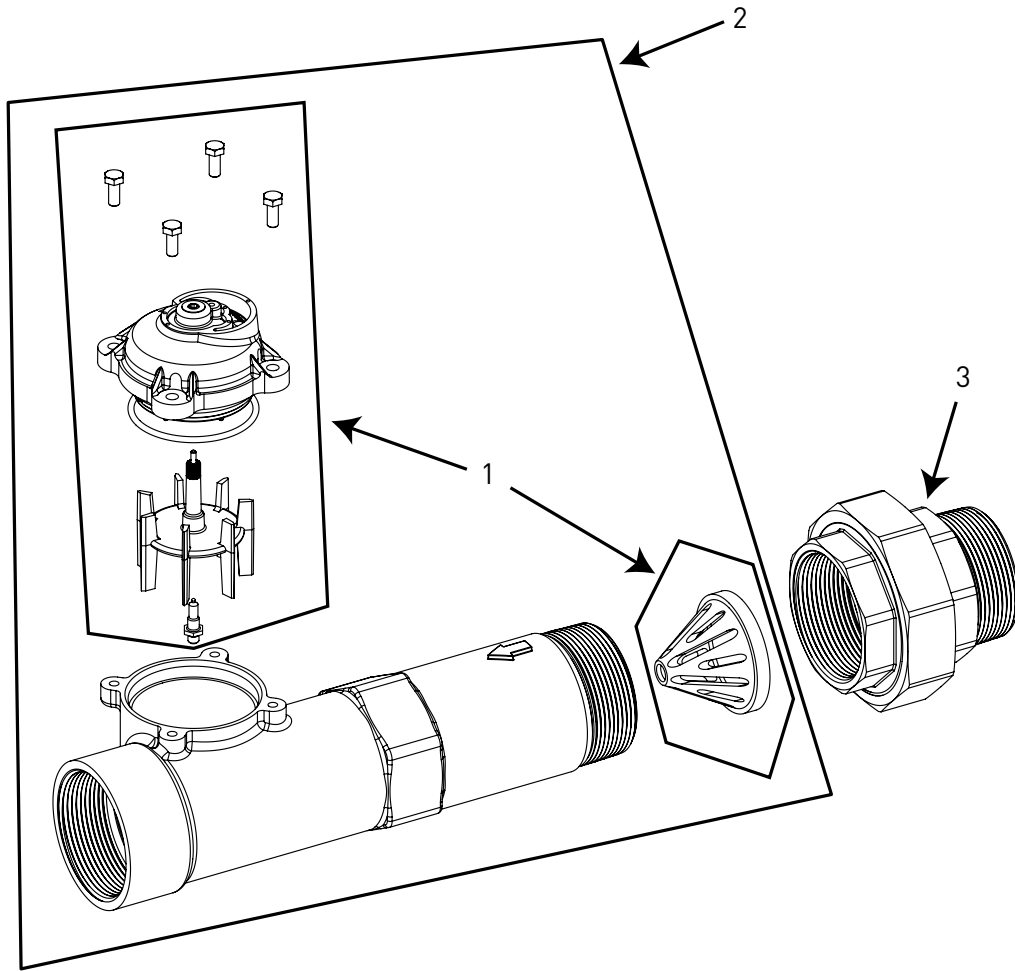
2-INCH BRASS METER ASSEMBLY



Item No.	QTY	Part No.	Description
1	1	14456	Body, Meter, 2-inch
		14456-20	Body, Meter, 2-inch, BSP, Metric
2	1	15532	Seat, Impeller Shaft, Hex
3	1	15432	Shaft
5	1	15374	Impeller Assy, 2-inch 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-inch to 2-inch, 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-inch
		14568-10	Fitting, Nipple, 2-inch BSP, Brass

Item No.	QTY	Part No.	Description
11	1	14680	Flow Straightener
12	1	14569	Nut, 2900 Meter
13			Meter Assy, 2-inch In-line, NPT, STD, Brass, Paddlewheel
			Meter Assy, 2-inch In-line, BSP, STD, Brass, Paddlewheel
14			Meter Assy, 2-inch In-line, NPT, EXT, Brass Paddlewheel
			Meter Assy, 2-inch In-line, BSP, EXT, Brass, Paddlewheel
Not Shown			
		61439	Meter Sleeve w/O-rings, 1-1/2 inch

2-INCH STAINLESS STEEL METER ASSEMBLY

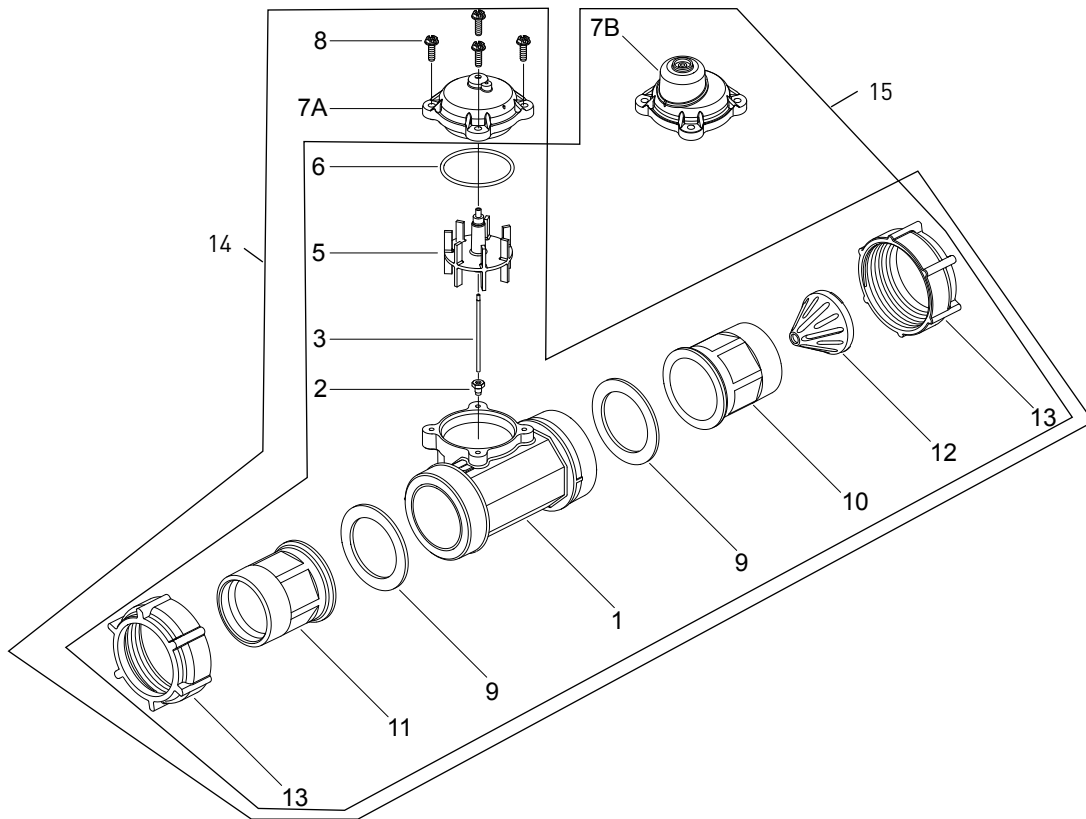


▲ IMPORTANT: For valves equipped with electromechanical timers and stainless steel meters, refer to the Meter Dome and Union Orientation section.

Item No.	QTY	Part No.	Description
1	1	62048-01	Service Kit, 2 inch Meter, Standard Range
1	1	62048-02	Service Kit, 2 inch Meter, Extended Range
2	1	61934-10	Meter Assy, 2 inch, Inline, Stainless Steel, NPT Standard Range
1	1	61934-11	Meter Assy, 2 inch, Inline, Stainless Steel, NPT Extended Range
1	1	61934-20	Meter Assy, 2 inch, Inline, Stainless Steel, BSP Standard Range
1	1	61934-21	Meter Assy, 2 inch, Inline, Stainless Steel, BSP Extended Range
3	1	44026	Union, 2 inch, NPT (Optional on models with electronic controls)
1	1	44027	Union, 2 inch, BSP (Optional on models with electronic controls)

Item No.	QTY	Part No.	Description
Not Shown (optional)			
1	1	62073	Meter Sleeve, 2 inch to 1-1/2 inch (optional)

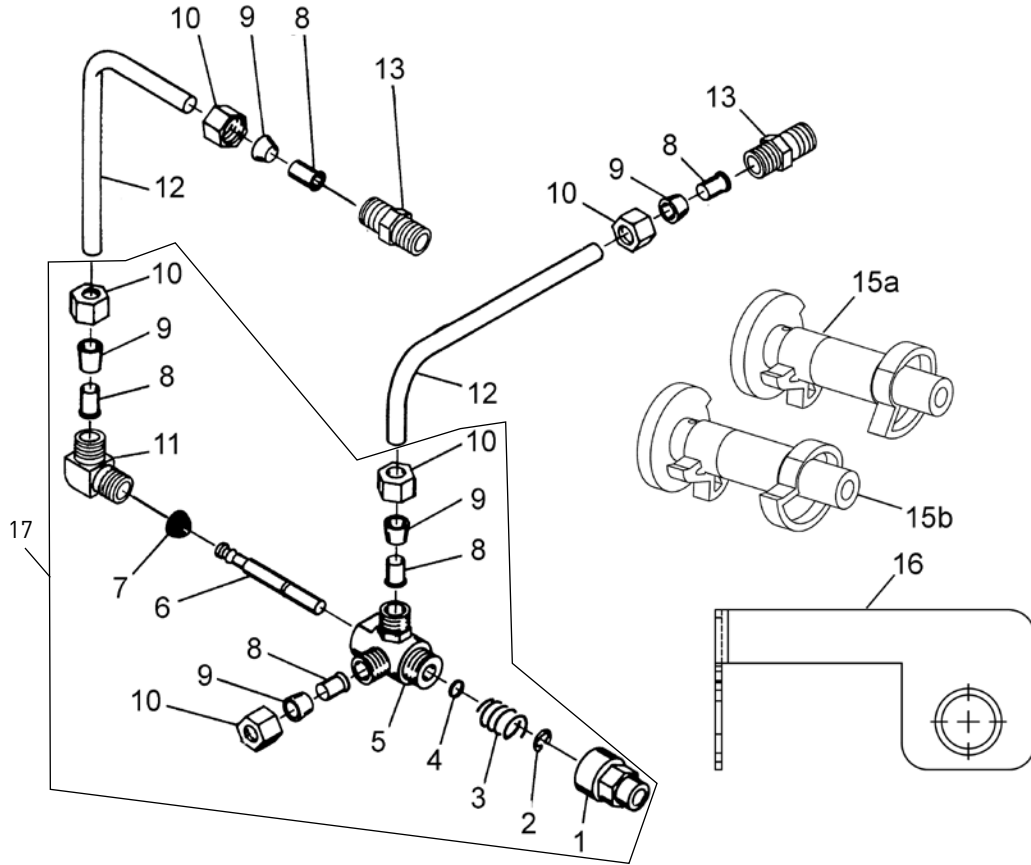
2-INCH PLASTIC METER ASSEMBLY



60621 Rev D

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

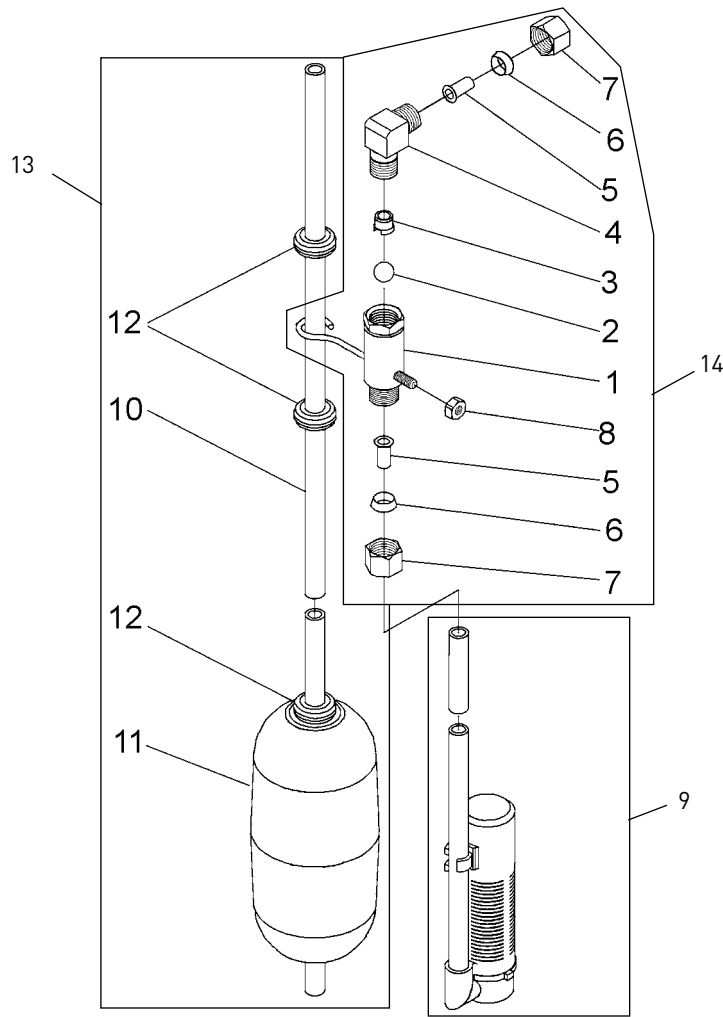
1600 SERVICE VALVE OPERATOR (NEW STYLE)



60150 Rev A

Item No.	QTY	Part No.	Description	Item No.	QTY	Part No.	Description
1	1	11749	Guide, Brine Valve Stem	14	2	15415	Fitting, Insert, 1/2-inch Tube
2	1	10250	Ring, Retaining	15a	1	12472	Cam Assembly, Tri-Stack, After RR
3	1	10249	Spring, Brine Valve	15b	1	15770	Cam Assembly, Special Tri-Stack After Brine Fill
4	1	12550	Quad Ring, -009	16	1	12114	Bracket, Motor Outboard, Coated
5	2	10785	SVO Body Assy Brass Valves	17	1	60150-01	Service Valve Operator Assembly, 1600, New Style, Item No's 1-11
6	1	12552	Brine Valve Stem, 1600				
7	1	12626	Seat, Brine Valve				
8	5	10332	Fitting, Insert, 3/8-inch				
9	5	10330	Fitting, Sleeve, 3/8-inch 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				

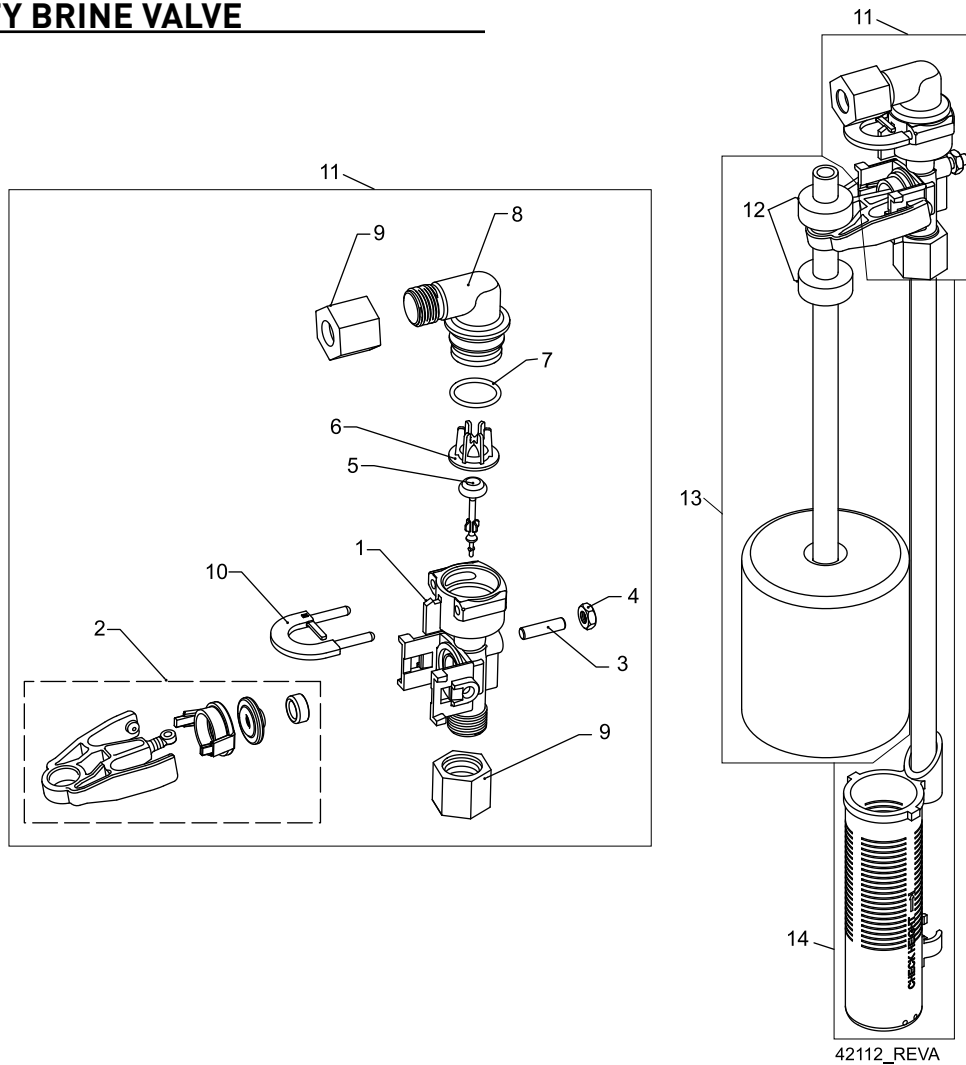
2300 SAFETY BRINE VALVE



60027 Rev D

Item No.	QTY	Part No.	Description	Item No.	QTY	Part No.	Description
1	1	60027-00	Safety Brine Valve, 2300, Less Elbow			60002-36	Air Check, #500, 36 inches Long
2	1	10138	Ball, 3/8-inch, Brass			60002-48	Air Check, #500, 48 inches Long
3	1	11566	Ball Stop, Slow Fill			60002-26.25	Air Check, #500, 26.25 inches Long
4	1	10328	Fitting, Elbow, 90 Deg. 1/4 NPT x 3/8 Tube			60002-33.25	Air Check, #500, 33.25 inches Long
5	1	10332	Fitting, Insert, 3/8				
6	1	10330	Fitting, Sleeve, 3/8 Celcon	10	1	10149	Rod, Float, 30-inch
7	1	10329	Fitting, Tube, 3/8 Nut, Brass	11	1	10700	Float Assy, White
8	1	10186	Nut, Hex, 10-32	12	3	10150	Grommet, .30 Dia
9	1	60002-10	Air Check, #500, American Hydro	13	1	60028-30	Float Assy, 2300, 30-inch White
		60002-11.38	Air Check, #500, 11.38 inches Long	14	1	60027-FFA	Safety Brine Valve, 2300, Fitting Facing Arm
		60002-24	Air Check, #500, 24 inches Long			60027-FFS	Safety Brine Valve, 2300 Fitting Facing Stud
		60002-27	Air Check, #500, 27 inches Long				
		60002-32	Air Check, #500, 32 inches Long				
		60002-34	Air Check, #500, 34 inches Long				

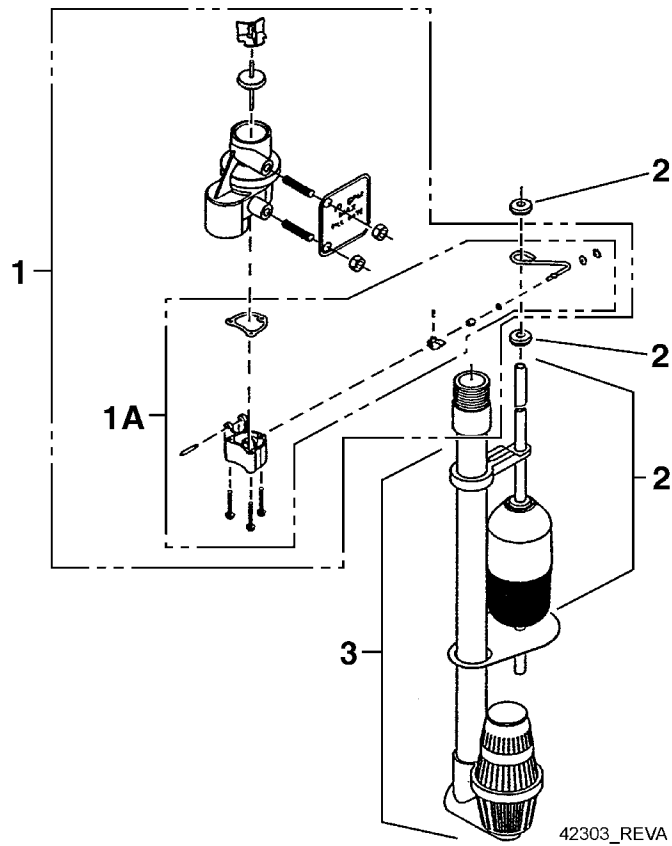
2310 SAFETY BRINE VALVE



42112_REVA

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

2350 SAFETY BRINE VALVE



42303_REVA

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-inch Wht
	1	60026-30SAN	Float Assy, 2350, 30-inch 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.

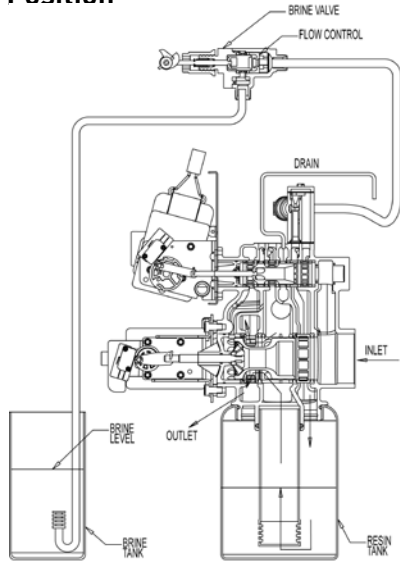
Correction: Check meter with meter checker.

TROUBLESHOOTING

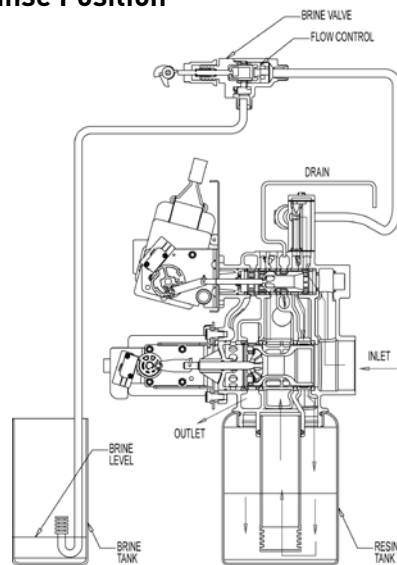
Problem	Cause	Correction
Water conditioner fails to regenerate.	Electrical service to unit has been interrupted	Assure permanent electrical service (check fuse, plug, pull chain, or switch)
	Timer is defective.	Replace timer.
	Power failure.	Reset time of day.
Hard water.	By-pass valve is open.	Close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

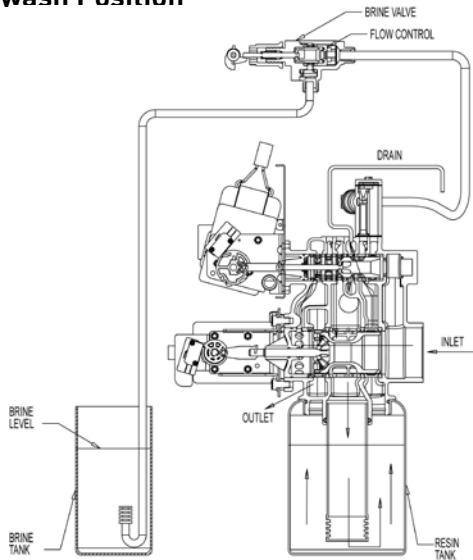
1 Service Position



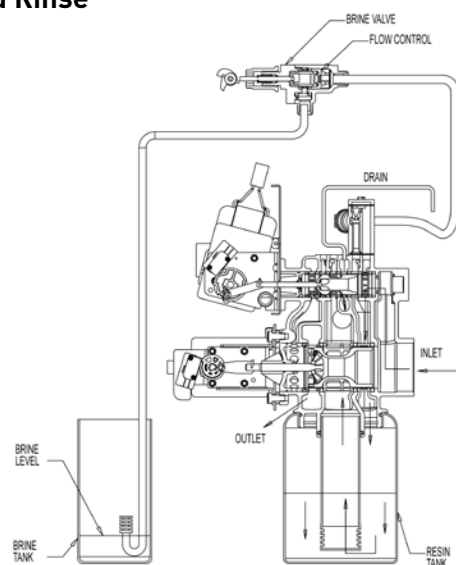
4 Slow Rinse Position



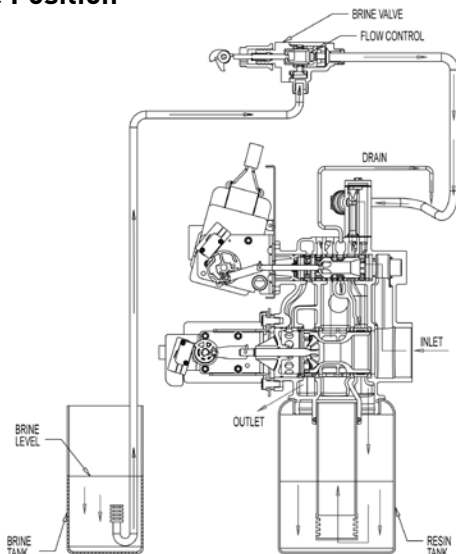
2 Backwash Position



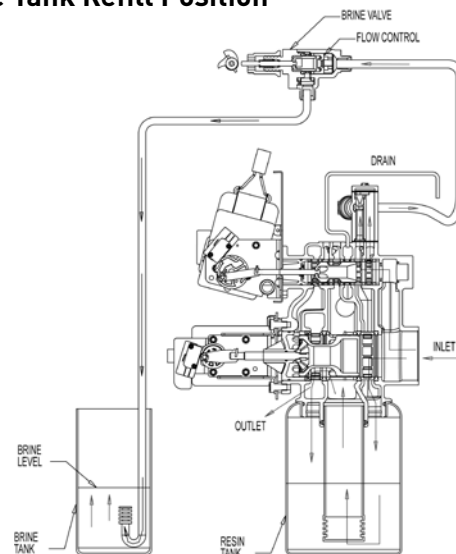
5 Rapid Rinse



3 Brine Position

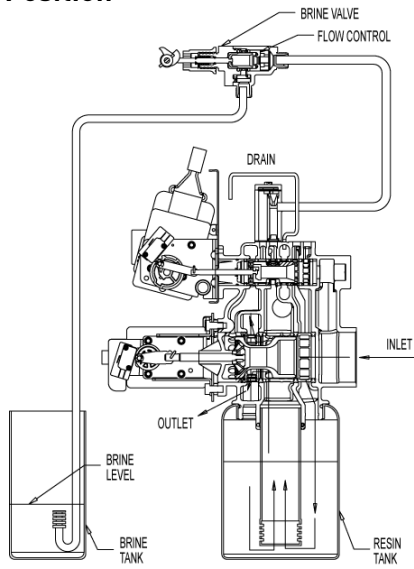


6 Brine Tank Refill Position

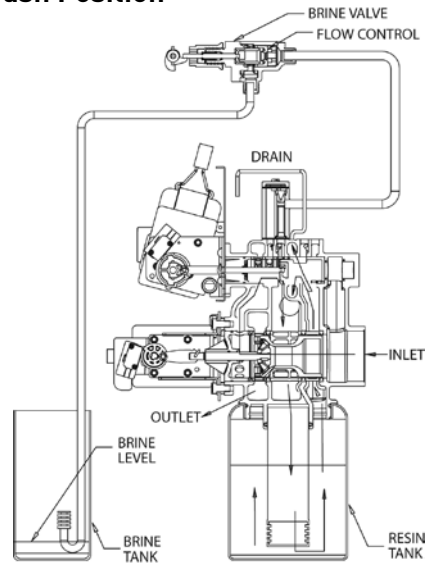


WATER CONDITIONER FLOW DIAGRAMS - UPFLOW

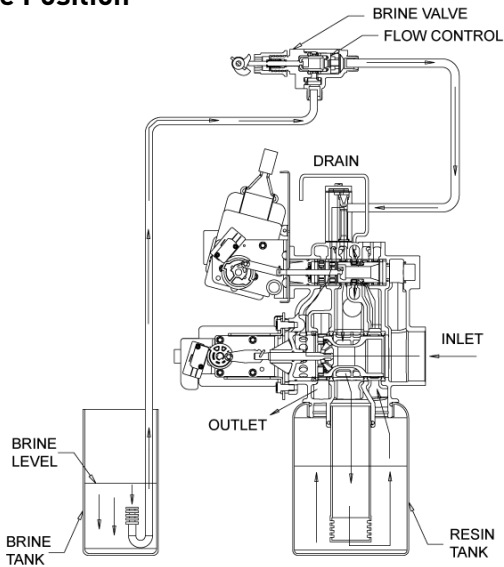
1 Service Position



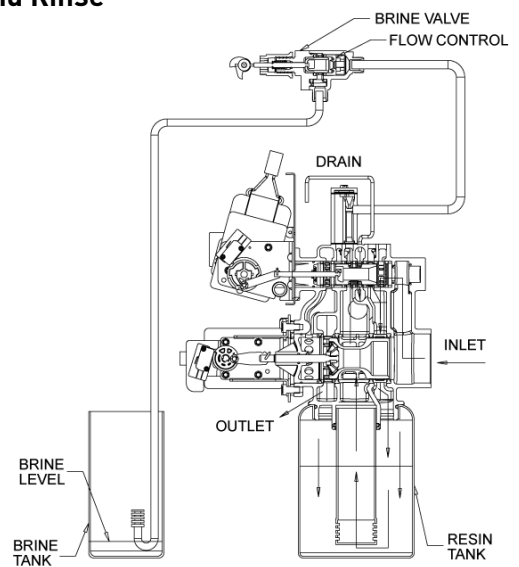
4 Back Wash Position



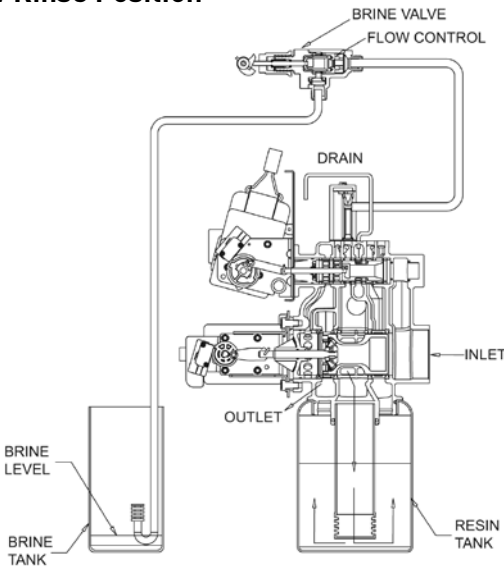
2 Brine Position



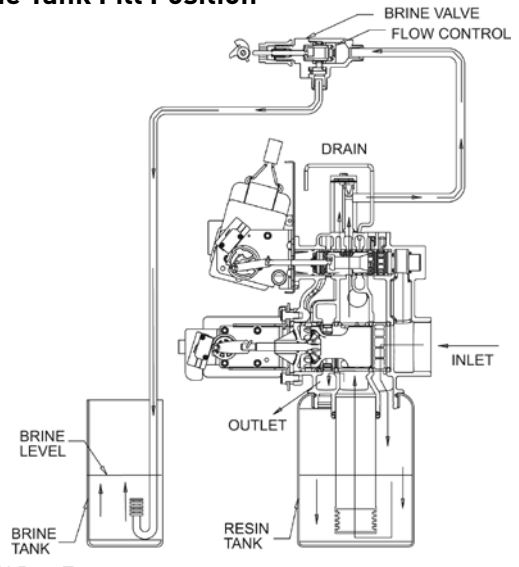
5 Rapid Rinse



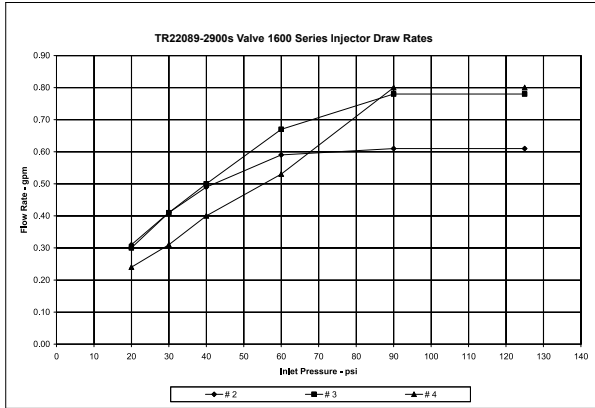
3 Slow Rinse Position



6 Brine Tank Fill Position

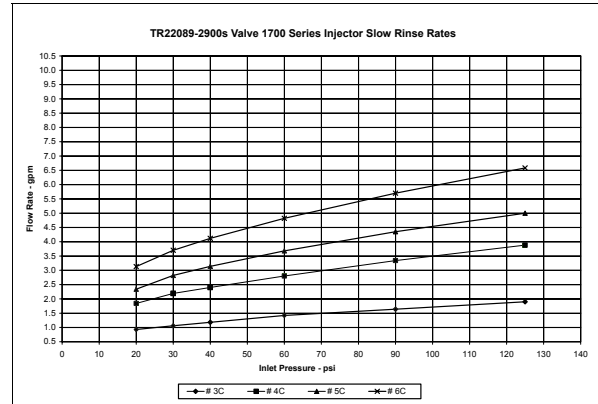


FLOW DATA & INJECTOR DRAW RATES - DOWNFLOW



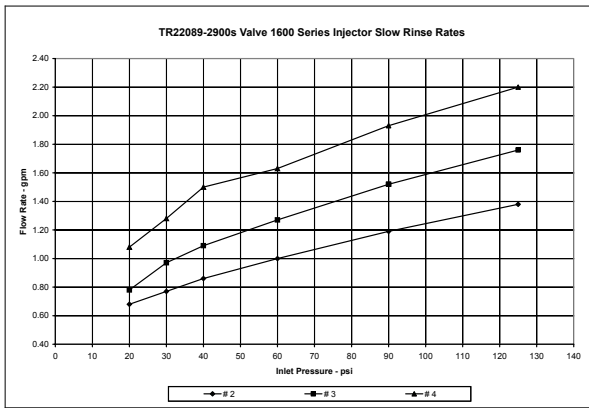
1600 series injectors	Draw Rate - gpm		
pressure	# 2	# 3	# 4
20	0.31	0.30	0.24
30	0.41	0.41	0.31
40	0.49	0.50	0.40
60	0.59	0.67	0.53
90	0.61	0.78	0.80
125	0.61	0.78	0.80

all injectors used the steel cap and an air disperser



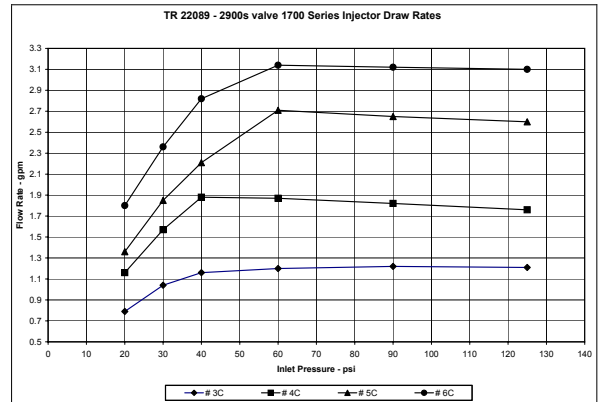
1700 series injectors	Slow Rinse - gpm			
pressure	# 3C	# 4C	# 5C	# 6C
20	0.93	1.84	2.34	3.13
30	1.06	2.19	2.82	3.70
40	1.18	2.40	3.14	4.12
60	1.42	2.80	3.68	4.82
90	1.64	3.34	4.35	5.70
125	1.90	3.88	5.00	6.58

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



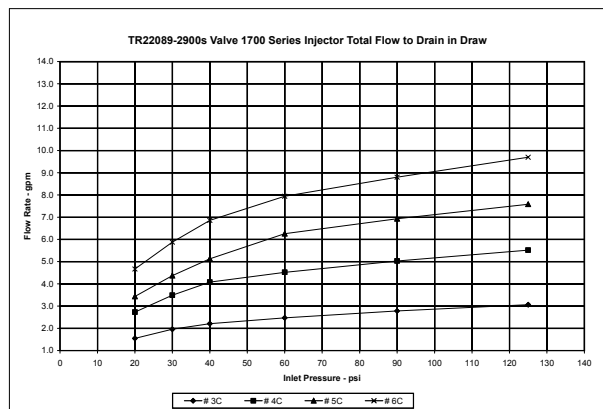
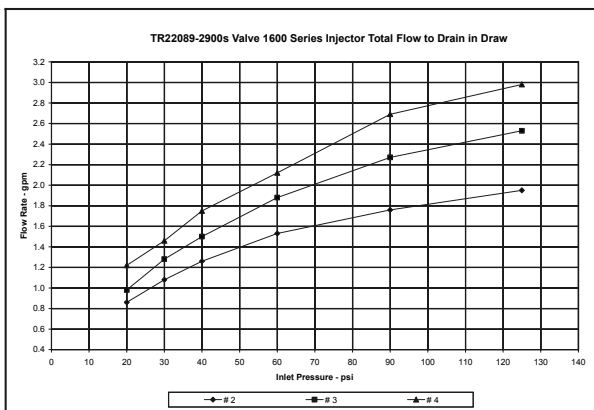
1600 series injectors	Slow Rinse Rates - gpm		
pressure	# 2	# 3	# 4
20	0.68	0.78	1.08
30	0.77	0.97	1.28
40	0.86	1.09	1.50
60	1.00	1.27	1.83
90	1.19	1.52	1.93
125	1.38	1.76	2.20

all injectors used the steel cap and an air disperser



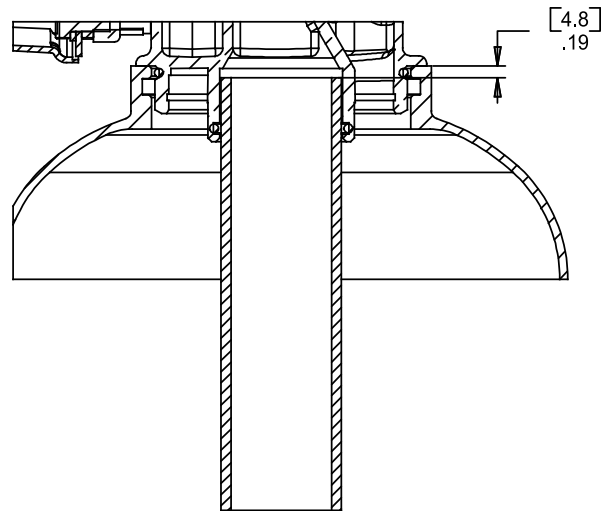
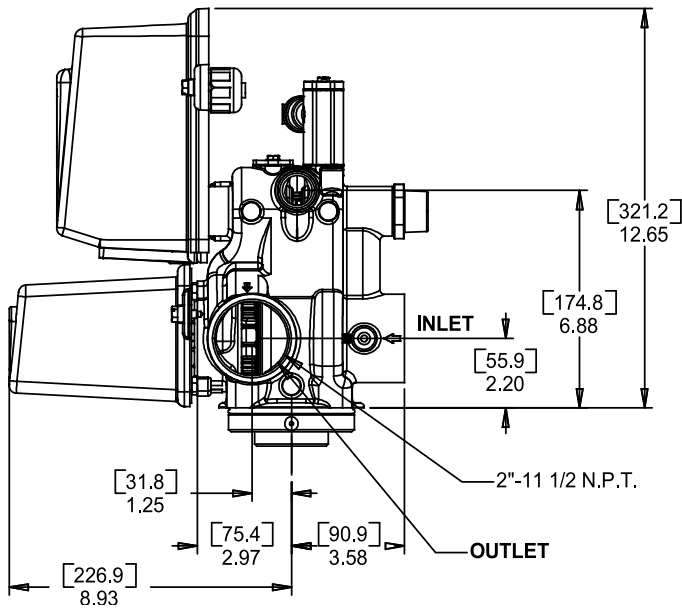
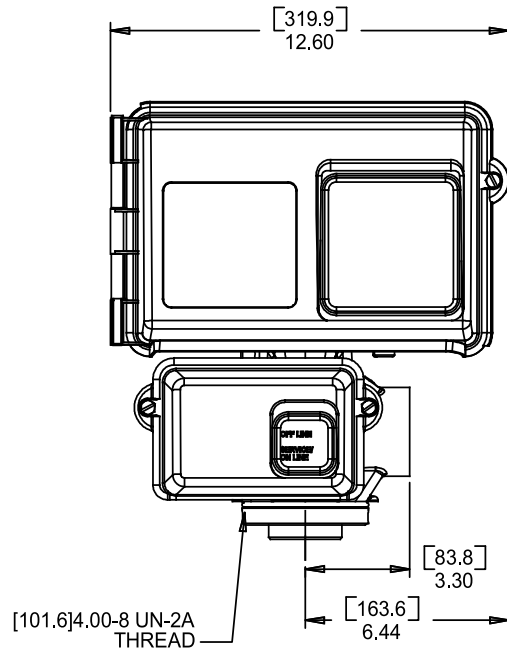
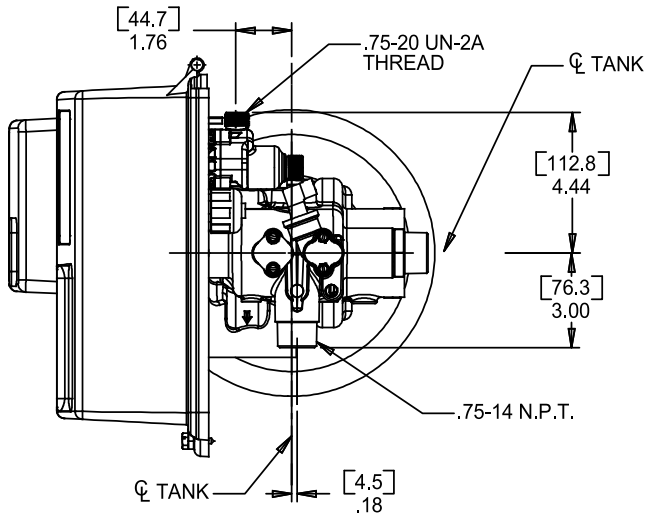
1700 series injectors	Draw Rate - gpm			
pressure	# 3C	# 4C	# 5C	# 6C
20	0.79	1.16	1.36	1.80
30	1.04	1.57	1.85	2.36
40	1.16	1.88	2.21	2.82
60	1.20	1.87	2.71	3.14
90	1.22	1.82	2.65	3.12
125	1.21	1.76	2.60	3.10

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



TR22089 Rev A

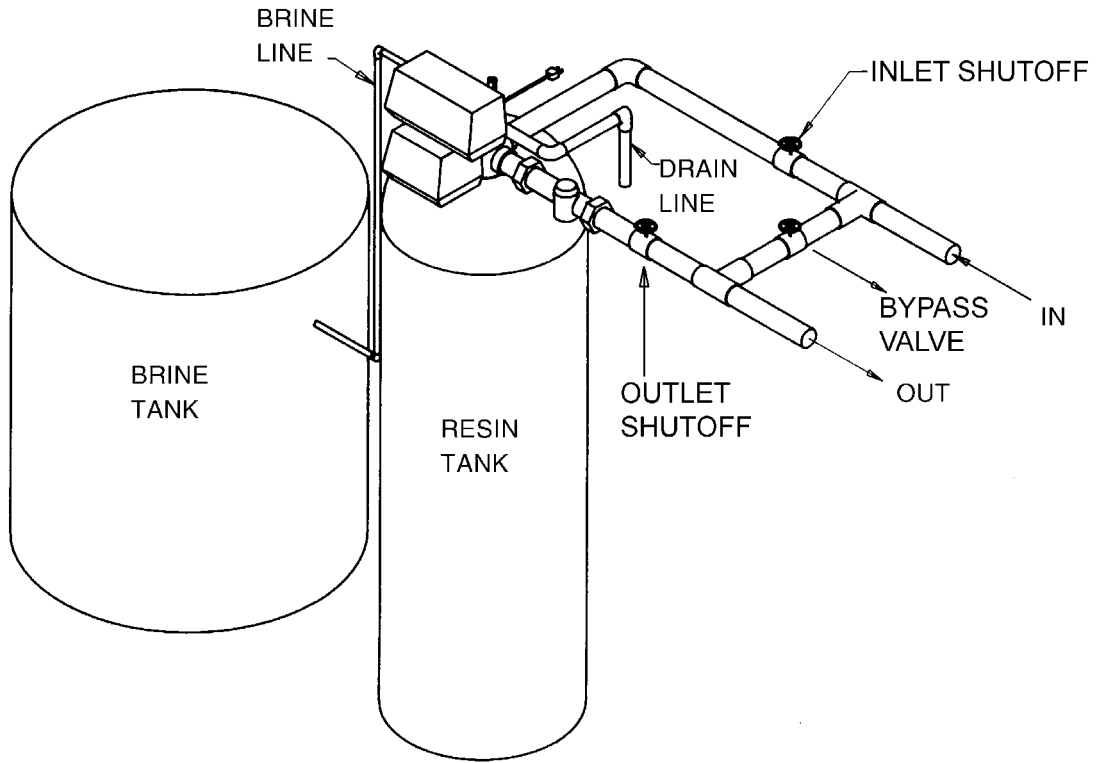
ENVIRONMENTAL BACKPLATE DIMENSIONS



61500-2900LNE Rev B

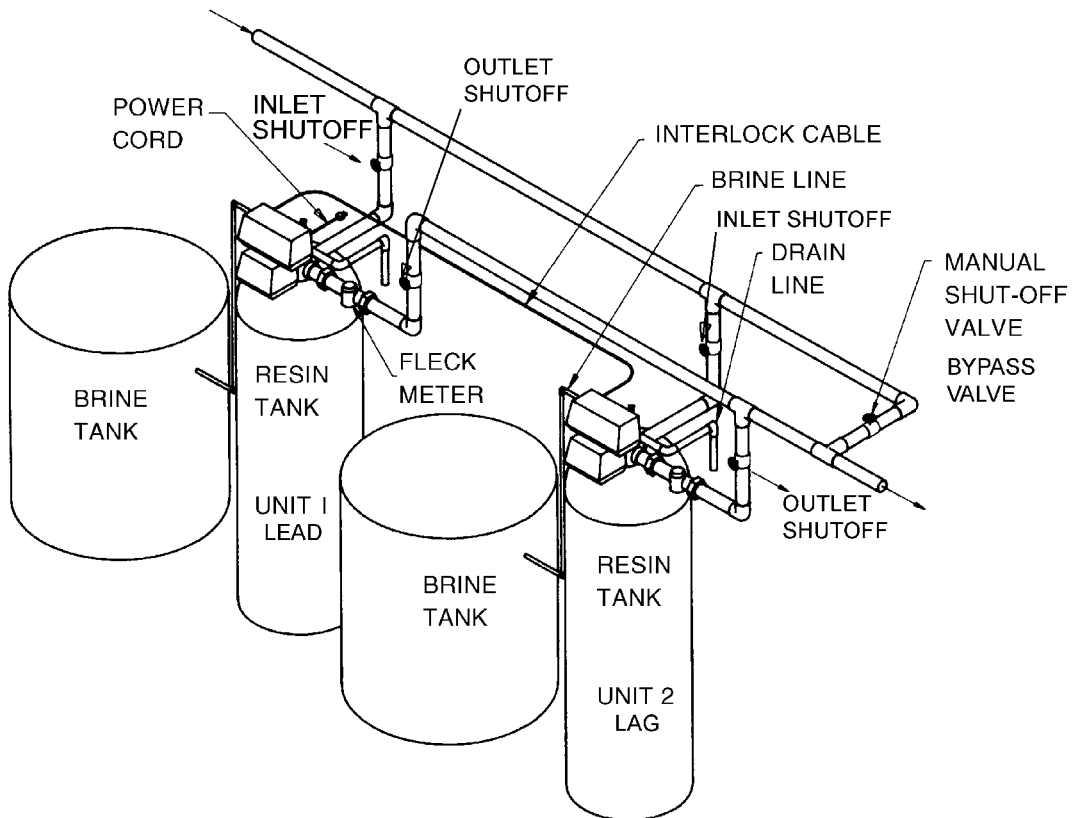
SYSTEM #4

Typical Single Tank Installation with Optional Meter



SYSTEM #5 INTERLOCK

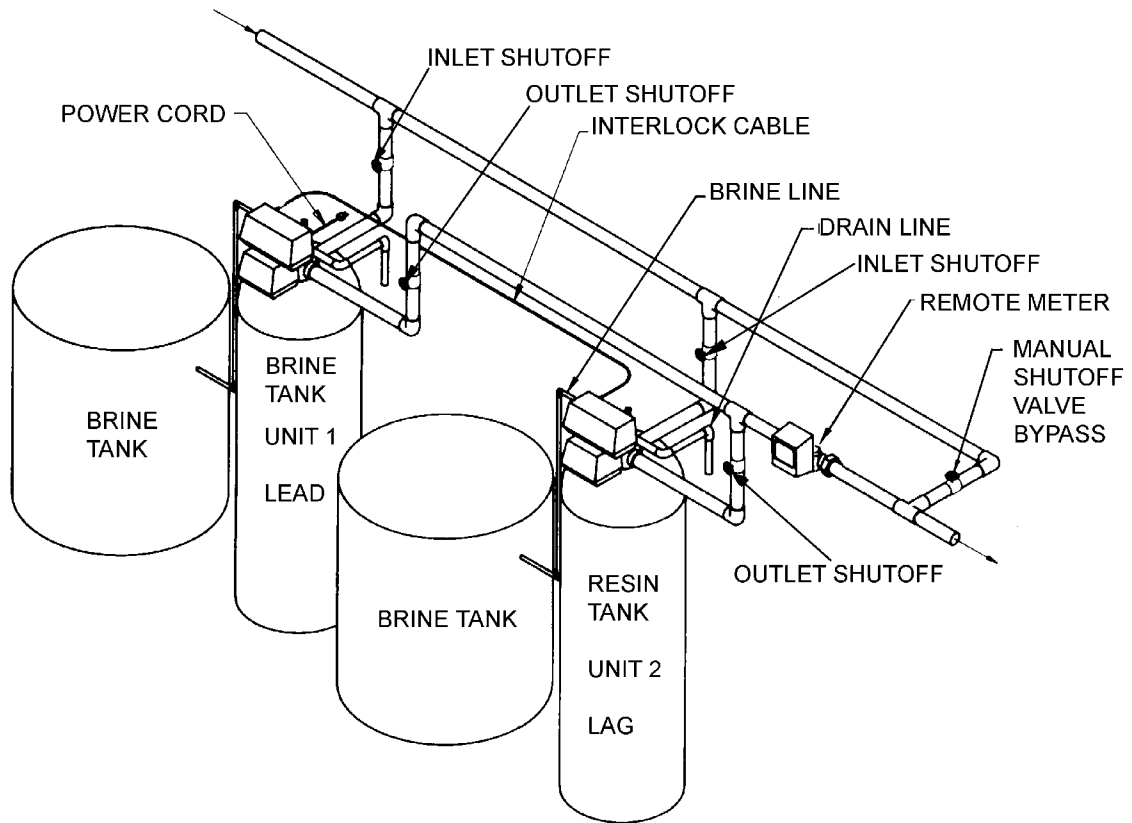
Typical Twin Tank Installation with Optional Meter Interlock and No Hard Water Bypass



SYSTEM #6 & #7

Twin Series Regeneration Installation with a Remote Meter

Twin Alternator Installation

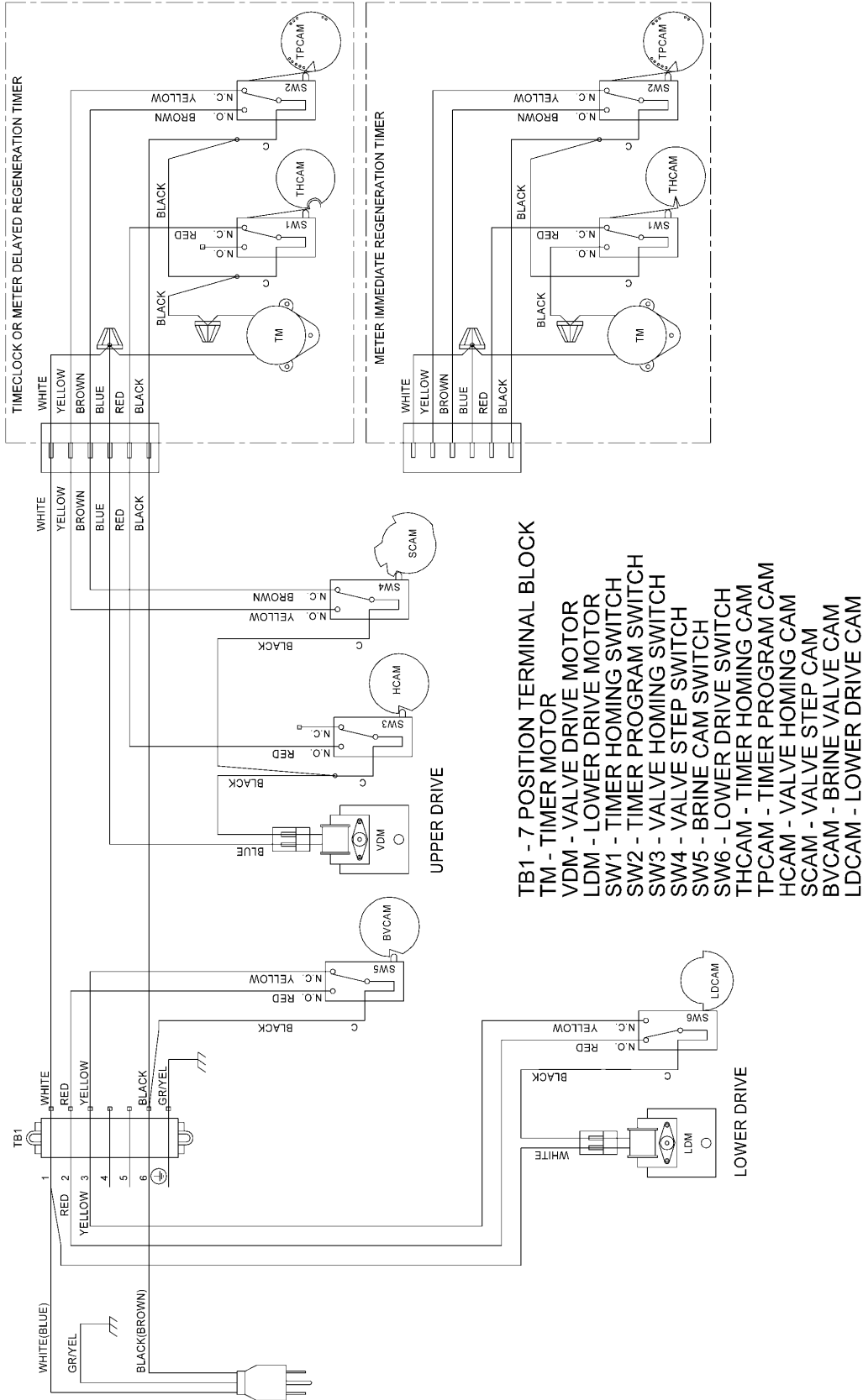


NOTE: On System 7, the power cord is on Unit 2.

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



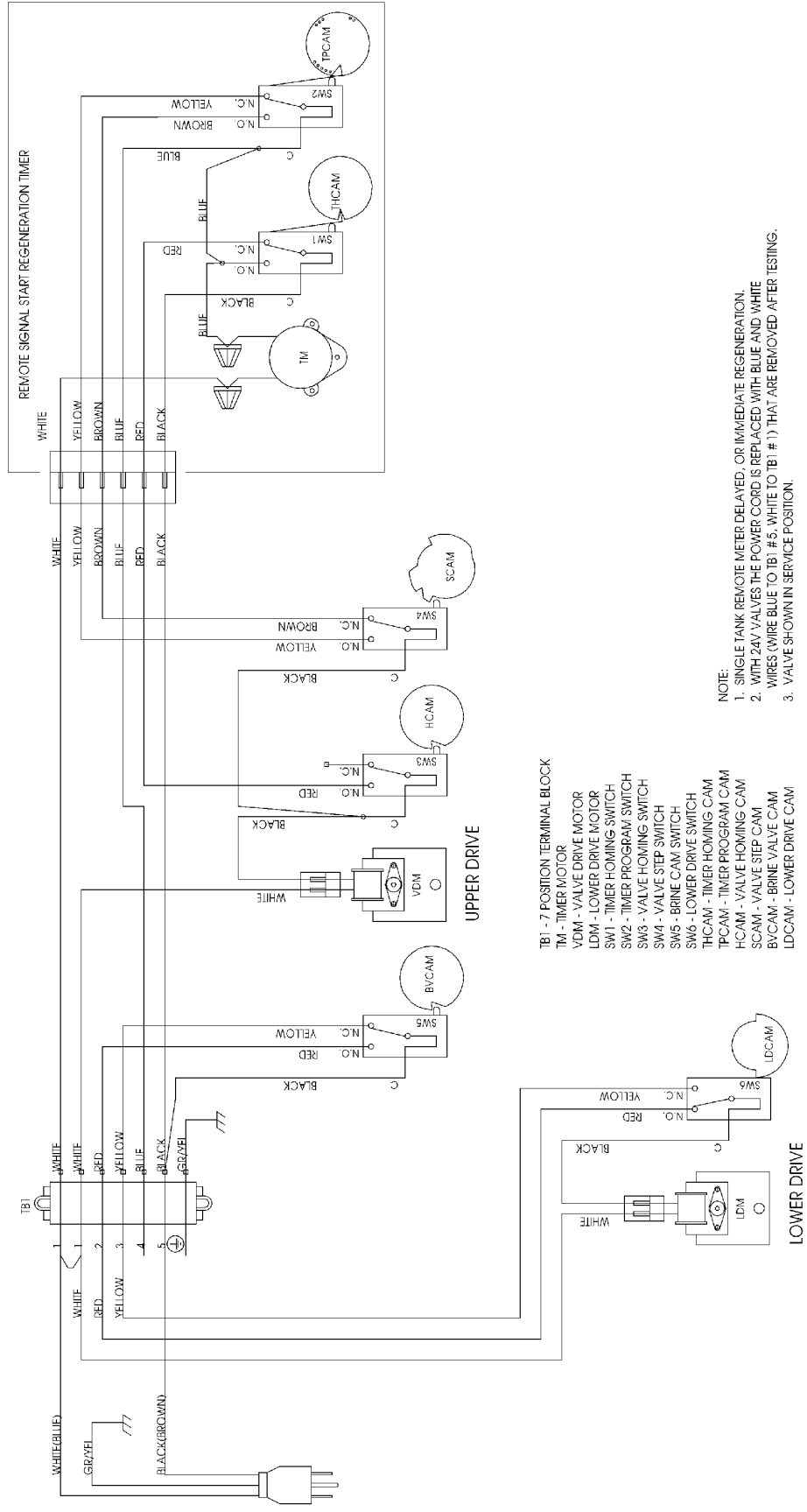
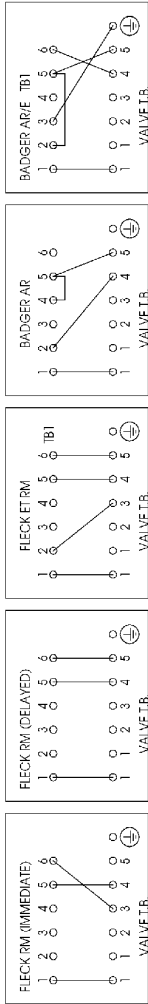
- TB1 - 7 POSITION TERMINAL BLOCK**
 TM - TIMER MOTOR
 VDM - VALVE DRIVE MOTOR
 LDM - LOWER DRIVE MOTOR
 SW1 - TIMER HOMING SWITCH
 SW2 - TIMER PROGRAM SWITCH
 SW3 - VALVE HOMING SWITCH
 SW4 - VALVE STEP SWITCH
 SW5 - BRINE CAM SWITCH
 SW6 - LOWER DRIVE SWITCH
 THCAM - TIMER HOMING CAM
 TPCAM - TIMER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

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

SYSTEM #4 WIRING *CONTINUED*

With Remote Starter Valve Wiring

REMOTE METER WIRING

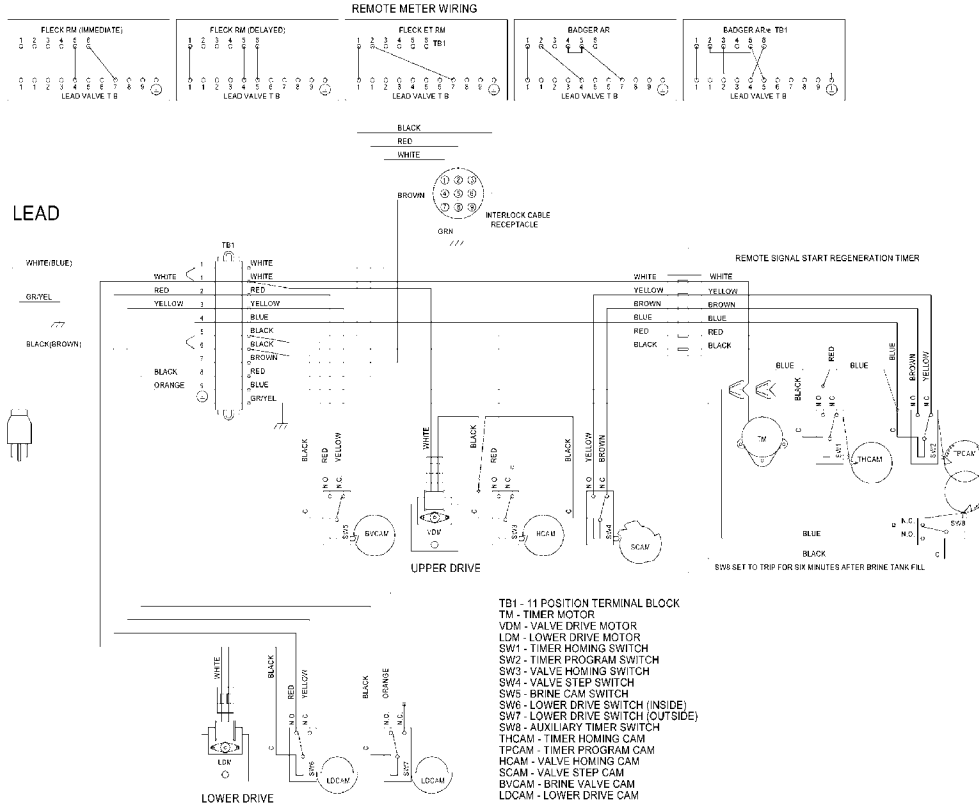


- NOTE:
1. SINGLE TANK REMOTE METER DELAYED, OR IMMEDIATE REGENERATION.
 2. WITH 24V VALVES THE POWER CORD IS REPLACED WITH BLUE AND WHITE WIRES (WIRE BLUE TO TBI #5, WHITE TO TBI #1) THAT ARE REMOVED AFTER TESTING.
 3. VALVE SHOWN IN SERVICE POSITION.

- TBI - 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
 HCAM - TIMER HOMING CAM
 SCAM - TIMER PROGRAM CAM
 BVCAM - VALVE HOMING CAM
 LDCAM - VALVE STEP CAM
 BVCAM - BRINE VALVE CAM
 LDCAM - LOWER DRIVE CAM

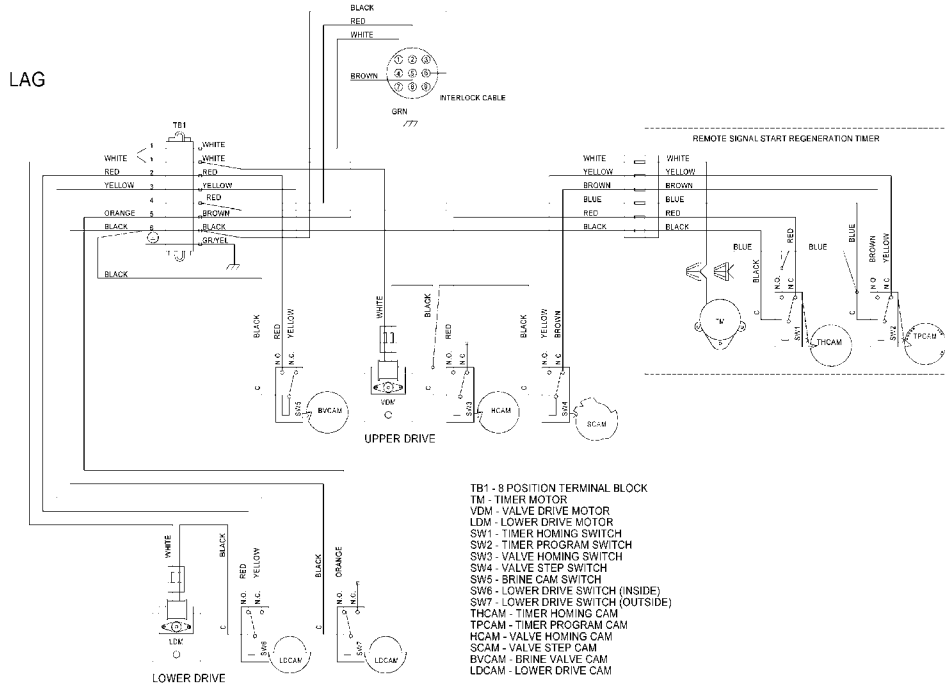
SYSTEM #6 WIRING

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.

18686-01 Rev E

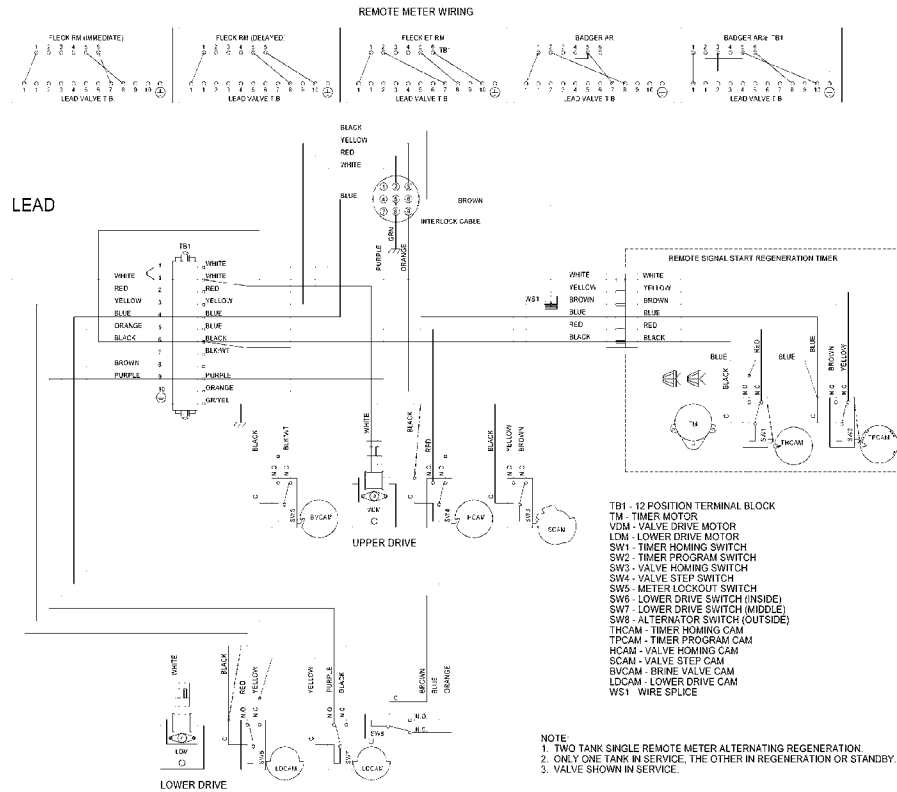


- NOTE:**
1. TWO TANK INTERLOCKED, SINGLE REMOTE METER, SERIES REGENERATION.
 2. BOTH TANKS NORMALLY IN SERVICE.
 3. ONLY ONE TANK IN REGENERATION, THE OTHER REMAINS IN SERVICE.
 4. LEAD VALVE REGENERATES FIRST, FOLLOWED IMMEDIATELY BY LAG VALVE.

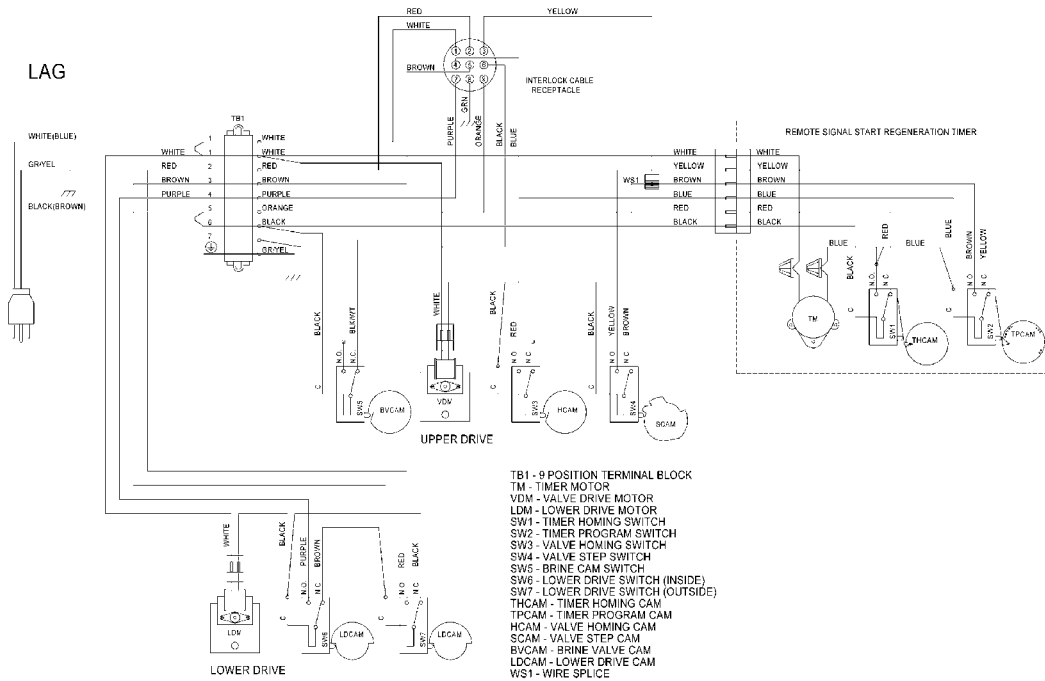
18686-02 Rev E

SYSTEM #7 WIRING

Alternating Regeneration Valve Wiring



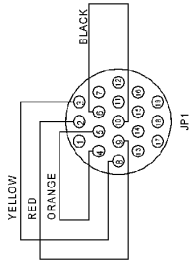
18687-01 Rev E



18687-02 Rev E

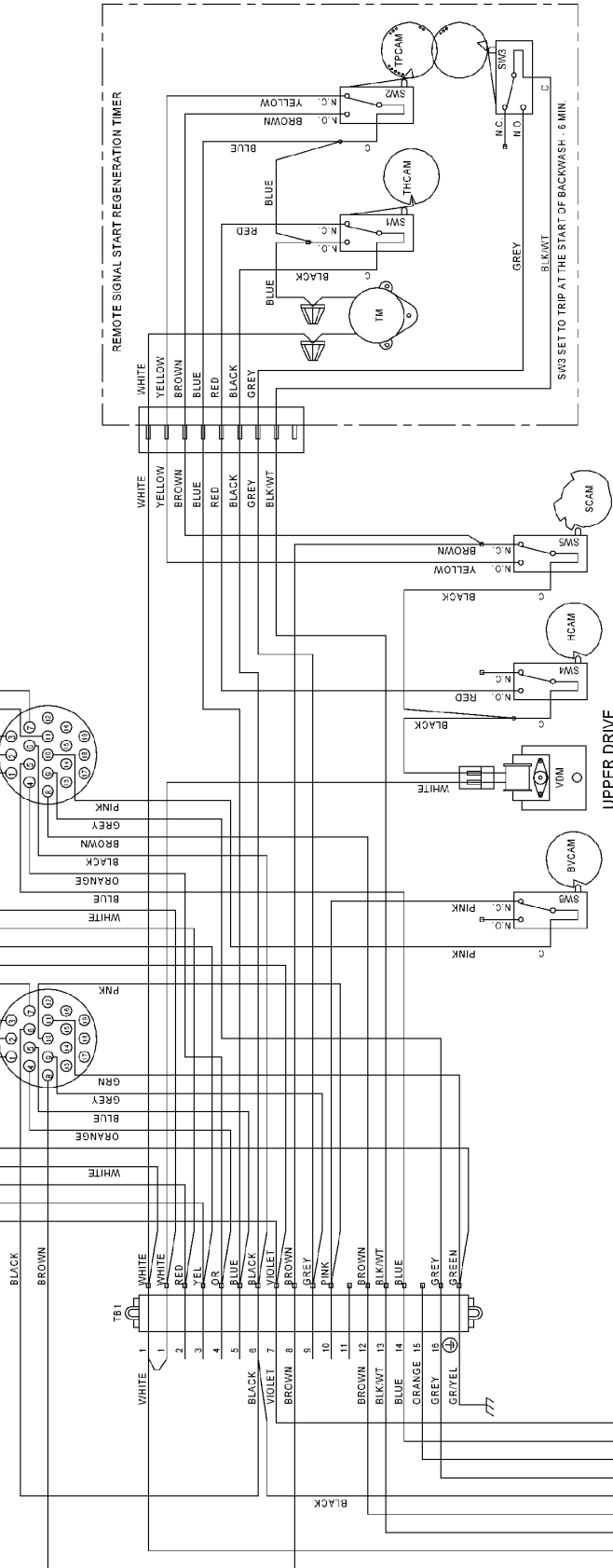
SYSTEM #7 WIRING CONTINUED

JUMPER PLUG WIRING
 JUMPER PLUG PLACED ON LAST VALVE IN SYSTEM



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

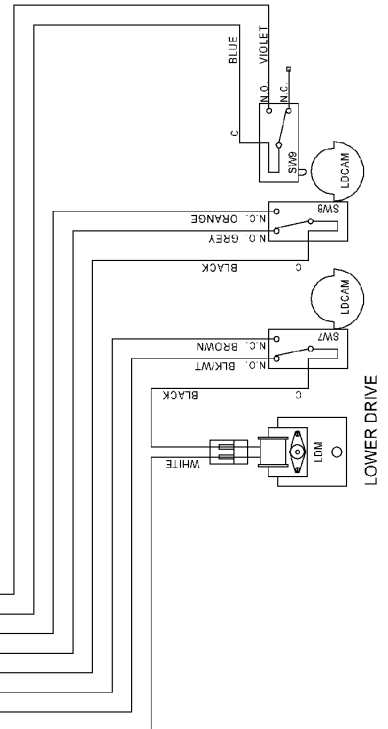
INTERLOCK CABLE
 (CONNECT TO UPSTREAM VALVE OR REMOTE METER)



UPPER DRIVE

- TB1 - 18 POSITION TERMINAL BLK
- JP1 - JUMPER PLUG ASSEMBLY
- TM - TIMER MOTOR
- VDM - VALVE DRIVE MOTOR
- LDM - LOWER DRIVE MOTOR
- SW1 - VALVE PROGRAM SWITCH
- SW2 - TIMER PROGRAM 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)
- SW9 - LOWER DRIVE SWITCH (OUTSIDE)
- TPCAM - TIMER PROGRAM CAM
- HCAM - VALVE HOMING CAM
- SCAM - VALVE STEP CAM
- BUCAM - BRINE VALVE CAM
- LDCAM - LOWER DRIVE CAM

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



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 inches Long
60003-34.....	Air Check, #500, HW, 34 inches 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-inch FNPT x 3/4-inch FNPT (specify flow control .6 - 7.0)
60701-XX.....	1-inch FNPT x 1-inch FNPT (specify flow control 8.0 - 25.0)
60702-XX.....	1-inch FNPT x 1-inch MNPT (specify flow control 8.0 - 25.0)
60708-XX.....	1-inch FNPT x 3/4-inch FNPT (specify flow control 8.0 - 25.0)
60721-XX.....	1-inch FNPT x 1-inch 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-inch brine (specify size of injector)
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Meters:

60393.....	Meter Assy, 2900, 2-inch Std
60394.....	Meter Assy, 2900, 2-inch Ext
60616.....	Meter Assy, Elec 2-inch
60620.....	Meter Assy, 2-inch Plastic, Std
60621.....	Meter Assy, 2-inch Plastic, Ext
60625.....	Meter Assy, 2-inch 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, NHWBP Lwr, 2900s, Soft Wtr Rgn
60104-01.....	Piston Assy, 2900/2930, NHWBP, 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, NHWBP Lower
61555-03.....	Piston Assy, 2900s, NHWBP Lower, HW

Program Wheel Assemblies:

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

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