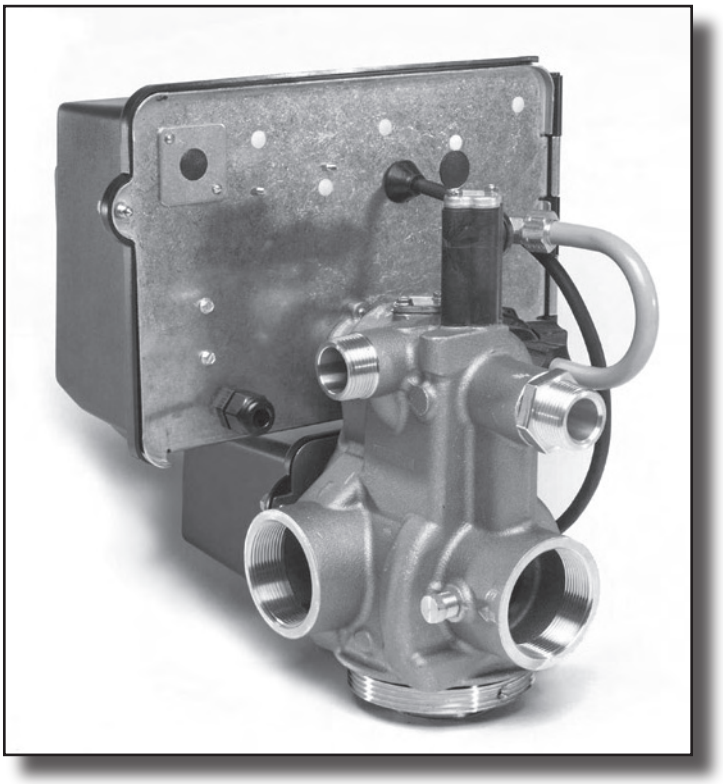
Model 2900s

Service Manual



IMPORTANT: Fill in Pertinent Information on Page 3 for Future Reference

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IMPORTANT PLEASE READ:

- The information, specifications and illustrations in this manual are based on the latest information available at the time of printing. The manufacturer reserves the right to make changes at any time without notice.
- This manual is intended as a guide for service of the valve only. System installation requires information from a number of suppliers not known at the time of manufacture. This product should be installed by a plumbing professional.
- This unit is designed to be installed on potable water systems only.
- This product must be installed in compliance with all state and municipal plumbing and electrical codes. Permits may be required at the time of installation.
- If daytime operating pressure exceeds 80 psi, nighttime pressures may exceed pressure limits. A pressure reducing valve must be installed.
- Do not install the unit where temperatures may drop below 32°F (0°C) or above 125°F (52°C).
- Do not place the unit in direct sunlight. Black units will absorb radiant heat increasing internal temperatures.
- Do not strike the valve or any of the components.
- Warranty of this product extends to manufacturing defects of the vessel and controller, not the membrane. Misapplication of this product may result in failure to properly condition water, or damage to product.
- A prefilter should be used on installations in which free solids are present.
- In some applications local municipalities treat water with Chloramines. High Chloramine levels may damage valve components.
- Correct and constant voltage must be supplied to the control valve to maintain proper function.

Job Specification Sheet

Job No. _____

Model No. _____

Water Test _____

Capacity Per Unit _____

Mineral Tank Size _____ Diameter _____ Height _____

Brine Tank Size & Salt Setting per Regeneration _____

2900s Control Valve Specifications

1. Type of Timer
   - A. 7 Day or 12 Day
   - B. 1,250 to 21,250 Gallon Meter or
     6,250 to 106,250 Gallon Meter or
     Other _____
   - C. Meter Wiring Package
     1. System #4 - 1 Tank, 1 Meter, Immediate or Delayed Regeneration
     2. System #5 - 2 Tanks, 2 Meters, Interlock
     3. System #6 - 2 Tanks, 1 Meter, Series Regeneration
     4. System #7 - 2 Tanks, 1 Meter, Alternator
2. Timer Program Settings
   - A. Backwash _____ Minutes
   - B. Brine & Slow Rinse _____ Minutes
   - C. Rapid Rinse _____ Minutes
   - D. Brine Tank Refill _____ Minutes
3. Drain Line Flow Control _____ gpm
4. Brine Line Flow Controller _____ gpm
5. Injector Size # _____
6. A. Hard Water Bypass
   B. No Hard Water Bypass

General Commercial Pre-Installation Check List

WATER PRESSURE: A minimum of 25 pounds of water pressure is required for regeneration valve to operate effectively.

ELECTRICAL FACILITIES: A continuous 115 volt, 60 Hertz current supply is required. Make certain the current supply is always hot and cannot be turned off with another switch.

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.

BY-PASS VALVES: Always provide for the installation of a by-pass valve.

CAUTION: Water pressure is not to exceed 120 p.s.i., water temperature is not to exceed 100° F, 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. (Maximum 4 feet apart for twin units)
2. All plumbing should be done in accordance with local plumbing codes. The pipe size for the drain line should be the same size as the drain line flow control connection. Water meters are to be installed on soft water outlets. Twin units with 1 meter shall be installed on common soft water outlet of units.
3. Solder joints near the drain must be done prior to connecting the Drain Line Flow Control fitting. Leave at least 6” between the DLFC and solder joints when soldering when the pipes are connected on the DLFC. Failure to do this could cause interior damage to the DLFC.
4. Teflon tape is the only sealant to be used on the drain fitting. The drain from twin units may be run through a common line.
5. Make sure that the floor is clean beneath the salt storage tank and that it is level.

6 Place approximately 1” of water above the grid plate (if used) in your salt tank. Salt may be placed in the unit at this time.

7. 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.

8. Place the by-pass in service position.
9. Manually index the softener control into “service” position and let water flow into the mineral tank. When water flow stops, close inlet valve, place control in “backwash” position to relieve head of air, then gradually open inlet valve to purge remaining air in tank. Return control to service position.
10. Electrical: All electrical connections must be connected according to codes. Use electrical conduit if applicable. Plug into power supply.

How To Set Days On Which Water Conditioner Is To Regenerate:

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:

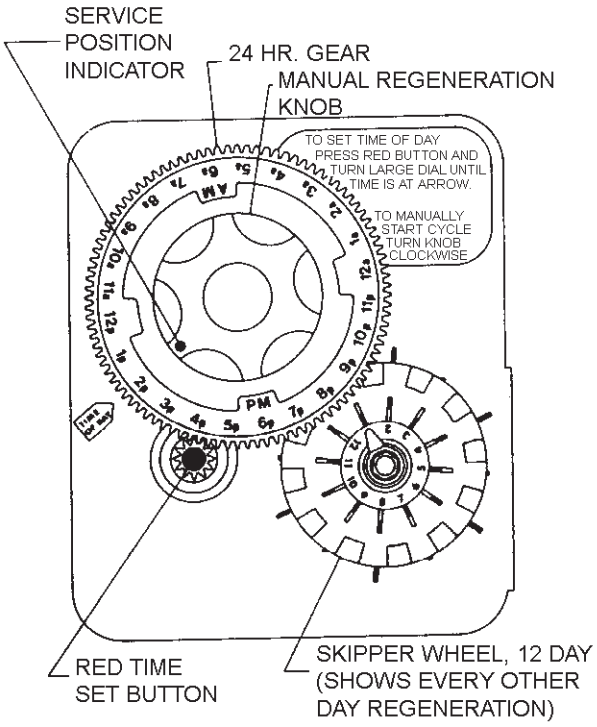
1. Press and hold the red button in to disengage the drive gear.
2. Turn the large gear until the actual time of day is at the time of day pointer.
3. Release the red button to again engage the drive gear.

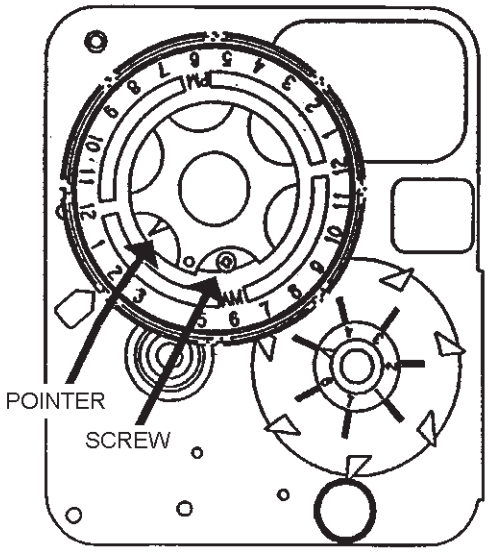
How To Manually Regenerate Your Water Conditioner At Any Time:

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 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

3210 Timer Settings

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.

NOTE: Drawing shows 8,750 gallon setting. The capacity (gallons) arrow denotes remaining gallons exclusive of fixed reserve.

How To Set The Time Of Day:

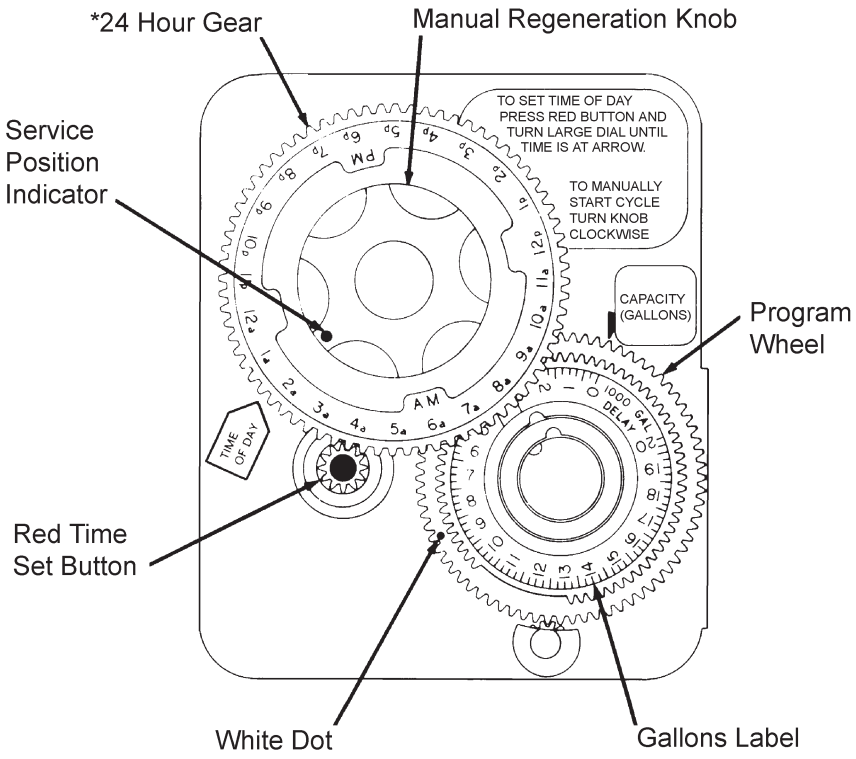
1. Press and hold the red button in to disengage the drive gear.
2. Turn the large gear until the actual time of day is opposite the time of day pointer.
3. Release the red button to again engage the drive gear.

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.



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.

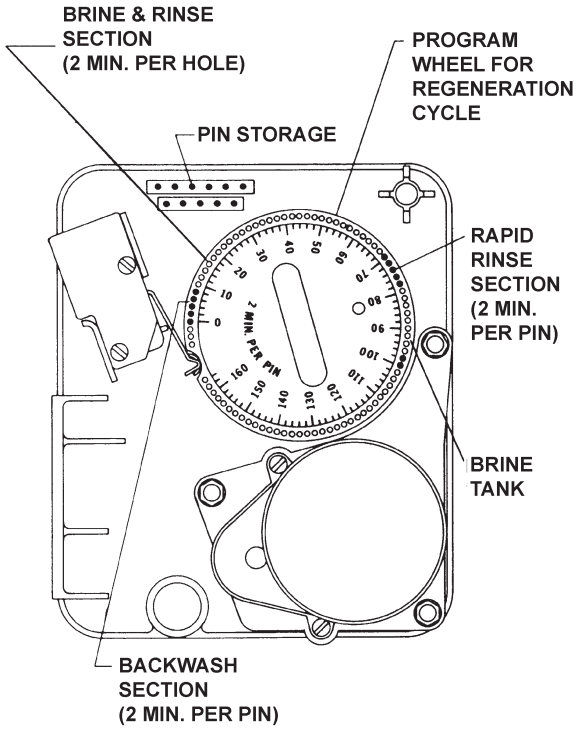
Regeneration Cycle Program Setting Procedure - Downflow

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 & 3210 Series Timers (Figure to Right)

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 for 3200 & 3210 Timer

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.

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.

Regeneration Cycle Program Setting Procedure - Upflow

How To Set The Regeneration Cycle Program:

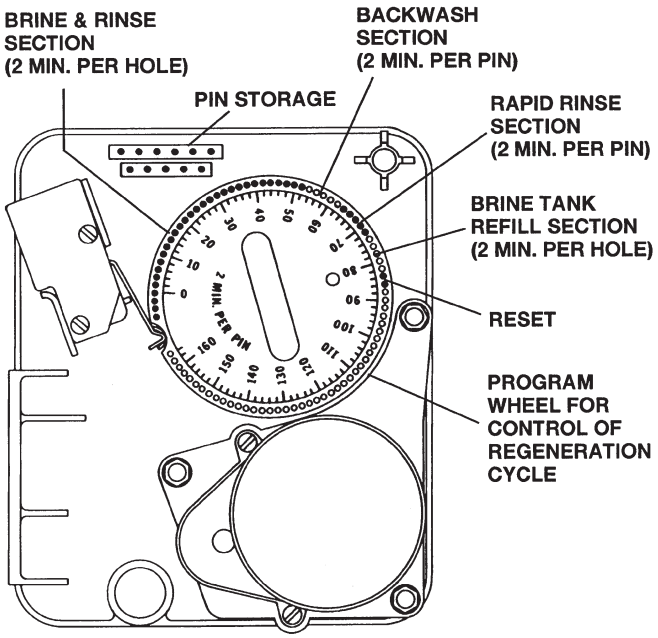
The regeneration cycle program on your water conditioner has been factory preset, however, portions of the cycle or program may be lengthened or shortened in time to suit local conditions.

3200 & 3210 Series Timers (Figure to Right):

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.



Timer Setting Procedure for 3200 & 3210 Timer

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.

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.

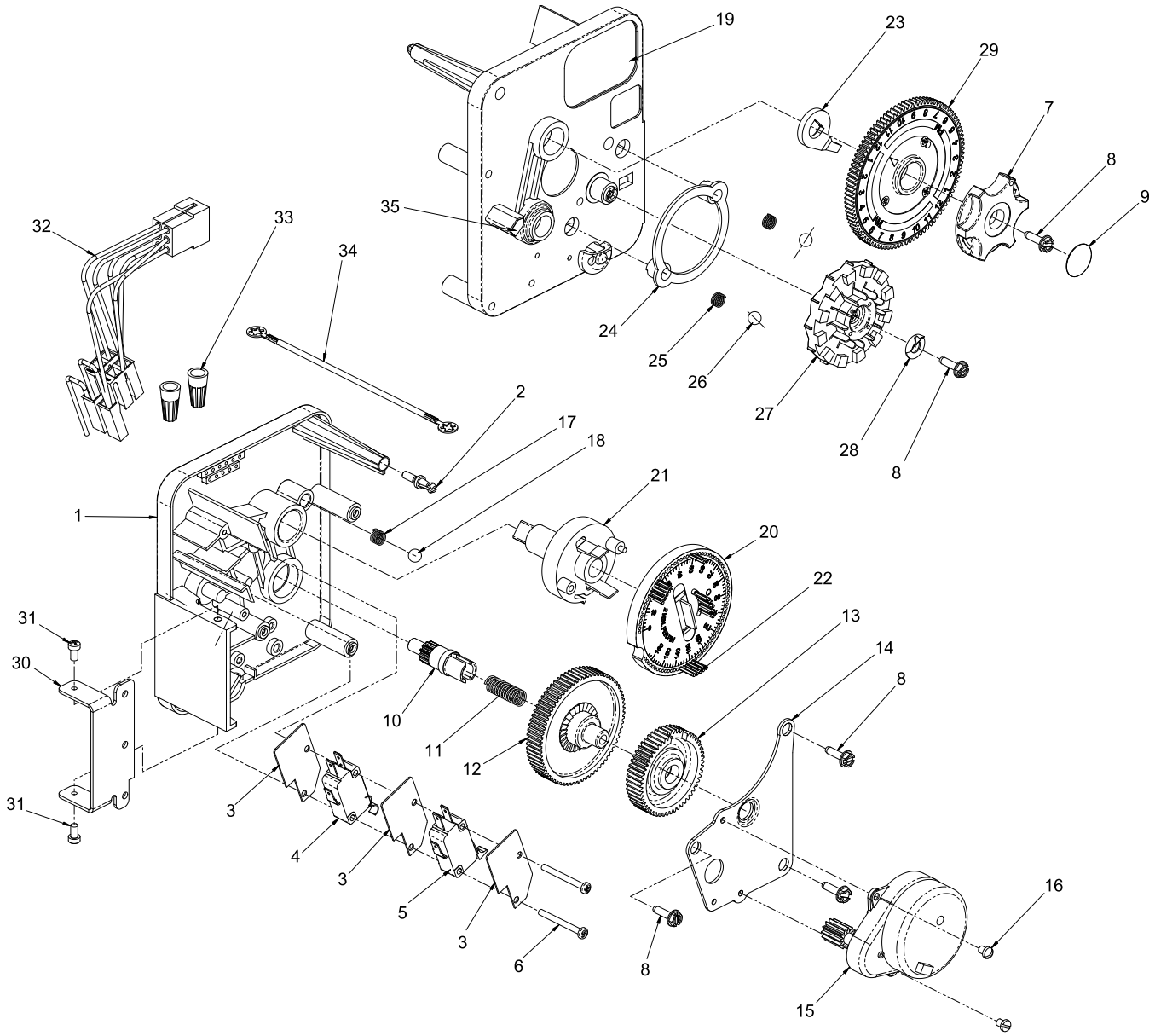
How To Change The Length Of Brine Tank Refill Time:

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.

3200 Timer Assembly



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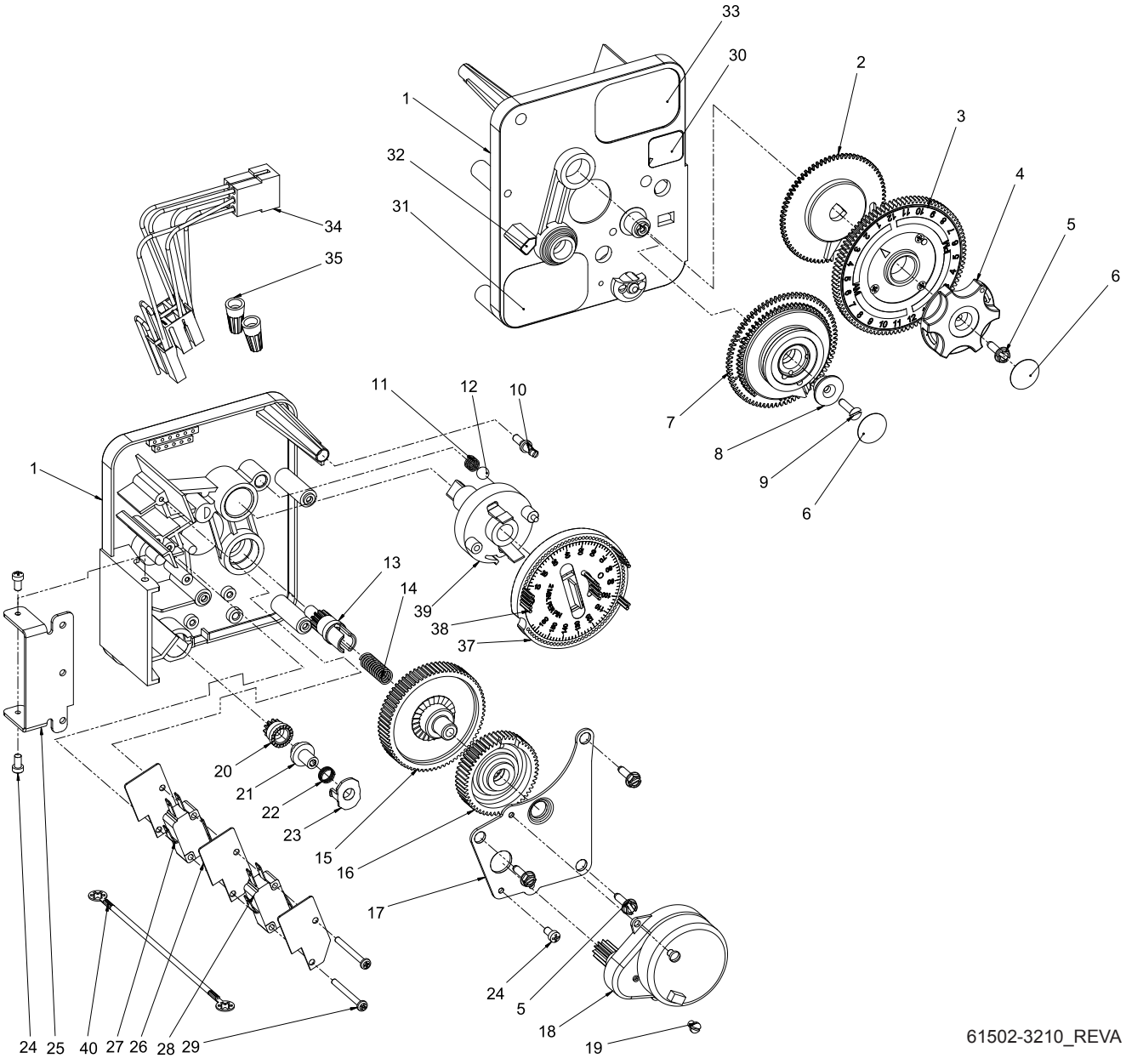
For Service Assembly Numbers, See the Back of this Manual

3200 Timer Assembly

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

For Service Assembly Numbers, See the Back of this Manual

3210 Timer Assembly



For Service Assembly Numbers, See the Back of this Manual

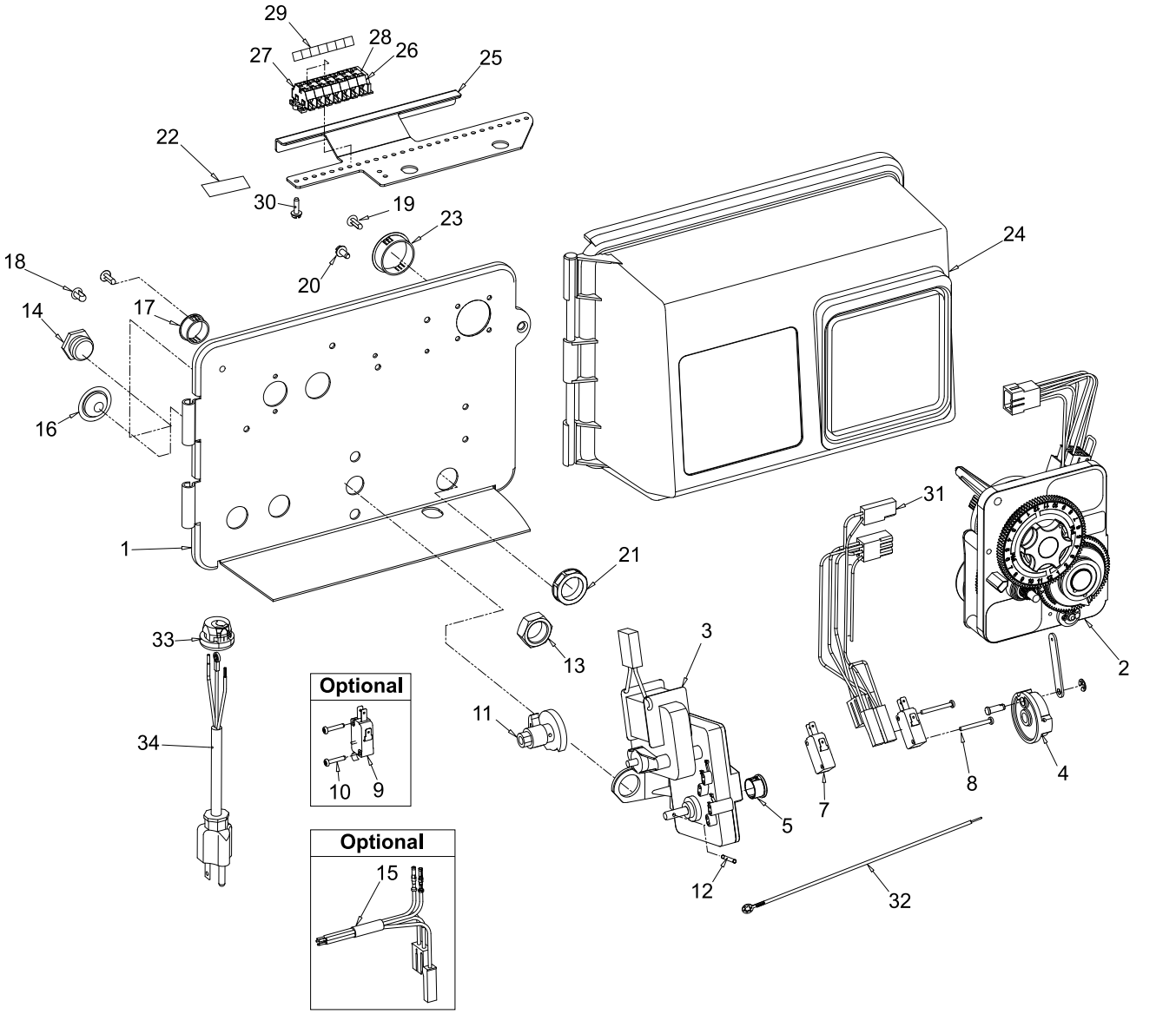
Item No.	Quantity	Part No.	Description
1	1	13870	Housing, Timer, 3200
2	1	13802	Gear, Cycle Actuator
3	1	40096-02	Dial 2AM Regen Assy, Black
4	1	13886	Knob, 3200
5	4	13296	Screw, Hex Wsh, 6-20 x 1/2
6	2	11999	Label, Button
7	1	60405-50	Program Wheel, w/2” Std Label
8	1	13806	Retainer, Program Wheel
9	1	13748	Screw, Flat Head St, 6-20 x 1/2
10	1	14265	Clip, Spring
11	1	15424	Spring, Detent, Timer
12	1	15066	Ball, 1/4” Delrin
13	1	13018	Pinion, Idler
14	1	13312	Spring, Idler Shaft
15	1	13017	Gear, Idler
16	1	13164	Gear, Drive
17	1	13887	Plate, Motor Mounting
18	1	18743-1	Motor, 120V, 60Hz 1/30 RPM, 5600
19	1	13278	Screw, Fillister Hd, 6-32 x .156
20	1	13830	Pinion, Program Wheel Drive
21	1	13831	Clutch, Drive Pinion
22	1	14276	Spring, Meter, Clutch
23	1	14253	Retainer, Clutch Spring
24	3	11384	Screw, Phil, 6-32 x 1/4
25	1	13881	Bracket, Hinge Timer
26	3	14087	Insulator
27	1	10896	Switch, Micro
28	1	15320	Switch, Micro, Timer
29	2	11413	Screw, Pan Hd Mach, 4-40 x 1 1/8
30	1	14198	Label, Indicator
31	1	15465	Label, Caution
32	1	14007	Label, Time of Day
33	1	14045	Label, Instruction
34	1	13902	Harness, 3200
35	2	40422	Nut, Wire, Tan
36	1	15354-01	Wire, Ground, 4”
37	1	19210	Program Wheel Assy
38	17	41754	Pin, Spring, 1/16 x 5/8 SS, Timer
39	1	13911	Gear, Main Drive, Timer
40	1	15354-01	Wire, Ground 4”

Not Shown:

	1	15216	Meter Cable Assy, 15.25”
	1	15425	Meter Cable, 13.25”

For Service Assembly Numbers, See the Back of this Manual

Upper Environmental Powerhead Assembly



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For Service Assembly Numbers, See the Back of this Manual

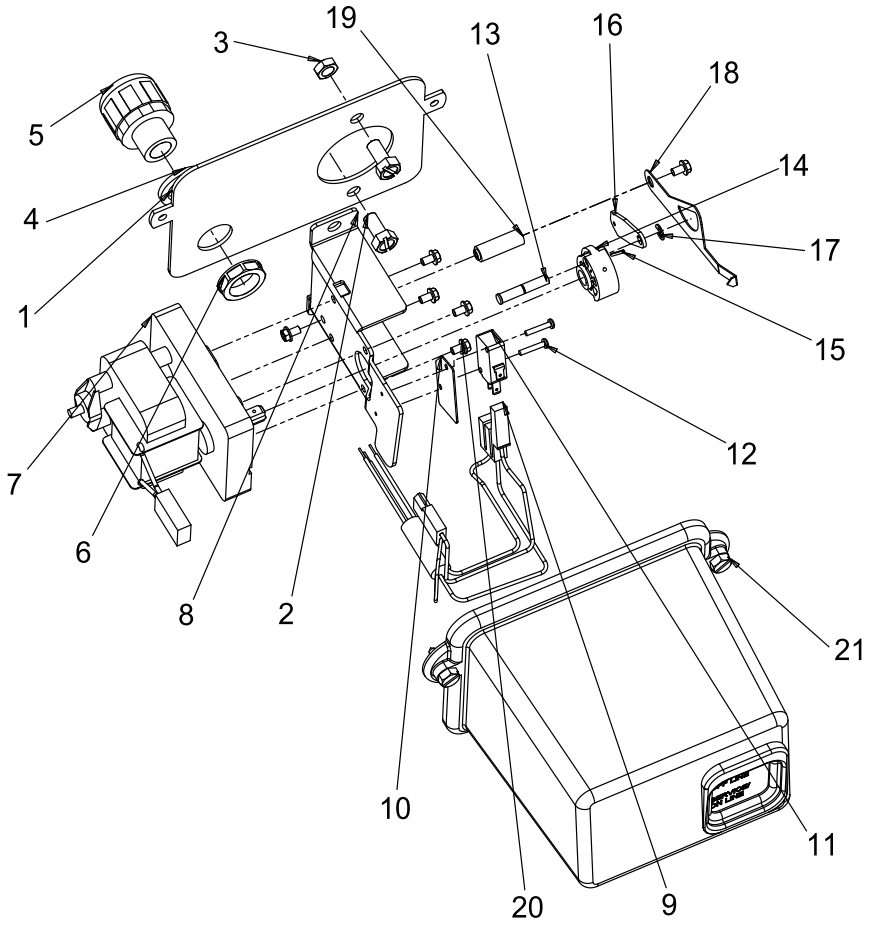
Upper Environmental Powerhead Assembly

Item No.	Quantity	Part No.	Description
1	1	18697-15	Backplate, Hinged
2	1	3200 Clock Timer Assy	3200 Clock Timer Assy
	1	3200 Meter Timer Assy	3200 Meter Timer Assy
3	1	41543	Motor, Drive, 115V, 50/60 Hz
	1	41544	Motor, Drive, 24V, 50/60 Hz
	1	41545	Motor, Drive, 230V, 50/60 Hz
4	1	60160-15	Drive Cam Assy, STF, Blue, 2900
	1	60160-30*	Drive Cam Assy, Upflow
	1	60160-31*	Drive Cam Assy, Upflow, Variable
5	1	17904	Bushing, Heyco 1/2, Heyco #2073
7	2	10218	Switch, Micro
8	2	14923	Screw, Pan Hd Mach, 4-40 X 1 MS Steel Zinc
9	1	10896	Switch, MIcro
10	2	11805	Screw, Rd Hd, 4-40 X 5/8 TYPE 1 Steel Zinc
11	1	12472	Cam Assy, Tri-Stack, After RR
	1	12777	Cam, Shut-Off Valve
	1	15770	Cam Assy, Special Tri-Stack, After Brine Fill
	1	15805	Cam, SVO
	1	19887*	Cam, Brine, 2750 U/F, Std
12	2	10338	Pin, Roll 3/32 x 7/8
13	1	10269	Nut, Jam, 3/4-16
14	1	10712	Fitting, Brine Valve
15	1	14822	Harness, 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
24	1	60219-02	Cover Assy, Environmental, Black w/Clear Window
25	1	19772	Bracket, Terminal Block
26	1	40174	Terminal Block, Green/Yellow Commercial, 809-260/141
27	6	41084	Terminal Block, Segment, Gray
28	1	41085	Endplate, Terminal Block, Gray
29	2	15250	Label, Terminal Strip
30	2	13296	Screw, Hex Wsh, 6-20 6-20 x 1/2 Type 25 Steel Zinc
31	1	40400	Harness, Drive, Designer/Environmental
32	1	40175-01	Wire, Ground, Commercial Valves
33	1	13547	Strain Relief, Flat Cord Heyco #30-1
	1	13547-01	Strain Relief, Euro Round Cord
	1	13547-02	Strain Relief, U.S. Round
34	1	11545	Powercord, 4’ European, Black
	1	19303	Powercord, 8’, Australian
	1	40084-12	Powercord, 12’ US, Round, 120V,Sys 5,6,7&2900/3150/3900
	1	40085-12	Powercord, 12’ US, Round, 240V

*Upflow Only

For Service Assembly Numbers, See the Back of this Manual

Lower Environmental Powerhead Assembly



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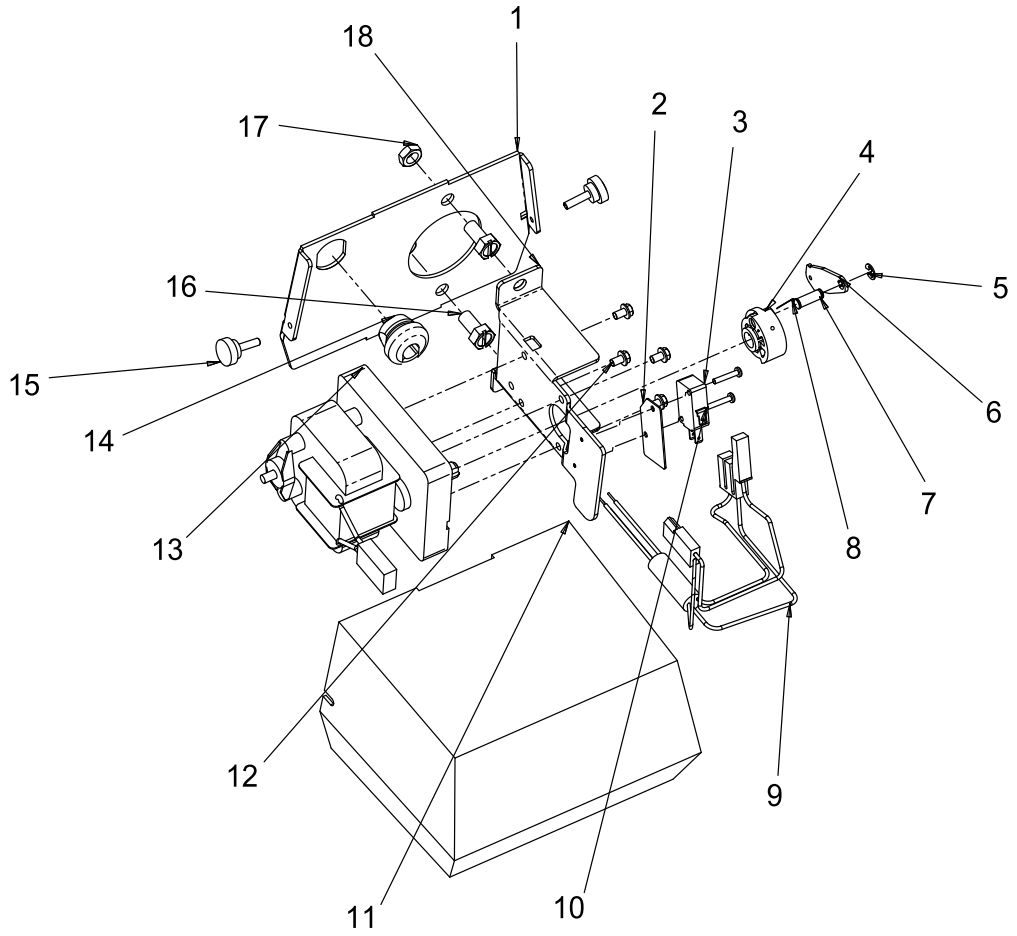
Item No.	Quantity	Part No.	Description
1	1	18709	Backplate, Lower
2	2	11224	Screw, Hex Hd, 5/16 - 18 x 5/8
3	2	16346	NUT, HEX, JAM, 5/16-18, 18-8 S.S.
4	1	18692	Washer, 3/8, Sealing
5	1	18691-01	Fitting, Conduit
6	1	18691-02	Nut, Conduit Fitting,1/2”
7	1	40387	Motor, Drive, 115v, 60 Hz, SP, Fam 2
	1	40388	Motor, Drive, 24V, 50/60 Hz, SP, Fam 2
	1	40389	Motor, Drive, 220V, 50/60 Hz, SP, Fam 2
8	1	14769	Bracket, Motor, 2900
9	1	40405	Harness, Lower Drive, Sys4, Env
10	1	10302	Insulator, Limit Switch
11	1	10218	Switch, Micro
12	2	19849	Screw, Pan Hd, 4-40 x 5/8
13	1	18746	Bearing, Connecting Rod
14	1	14775	Cam, Drive, 2900
15	1	41022	Pin, Roll, 2900 Lower
16	1	14759	Link, Piston Rod
17	1	10250	Ring, Retaining
18	1	18725	Indicator, Service/Standby
19	1	18726	Spacer, Indicator
20	6	10872	Screw, Hex Wsh,8-32 X 17/64 18-8 S.S.
21	1	60217-02	Cover Assy, 2900, Lower, Black, Environmental

For Service Assembly Numbers, See the Back of this Manual

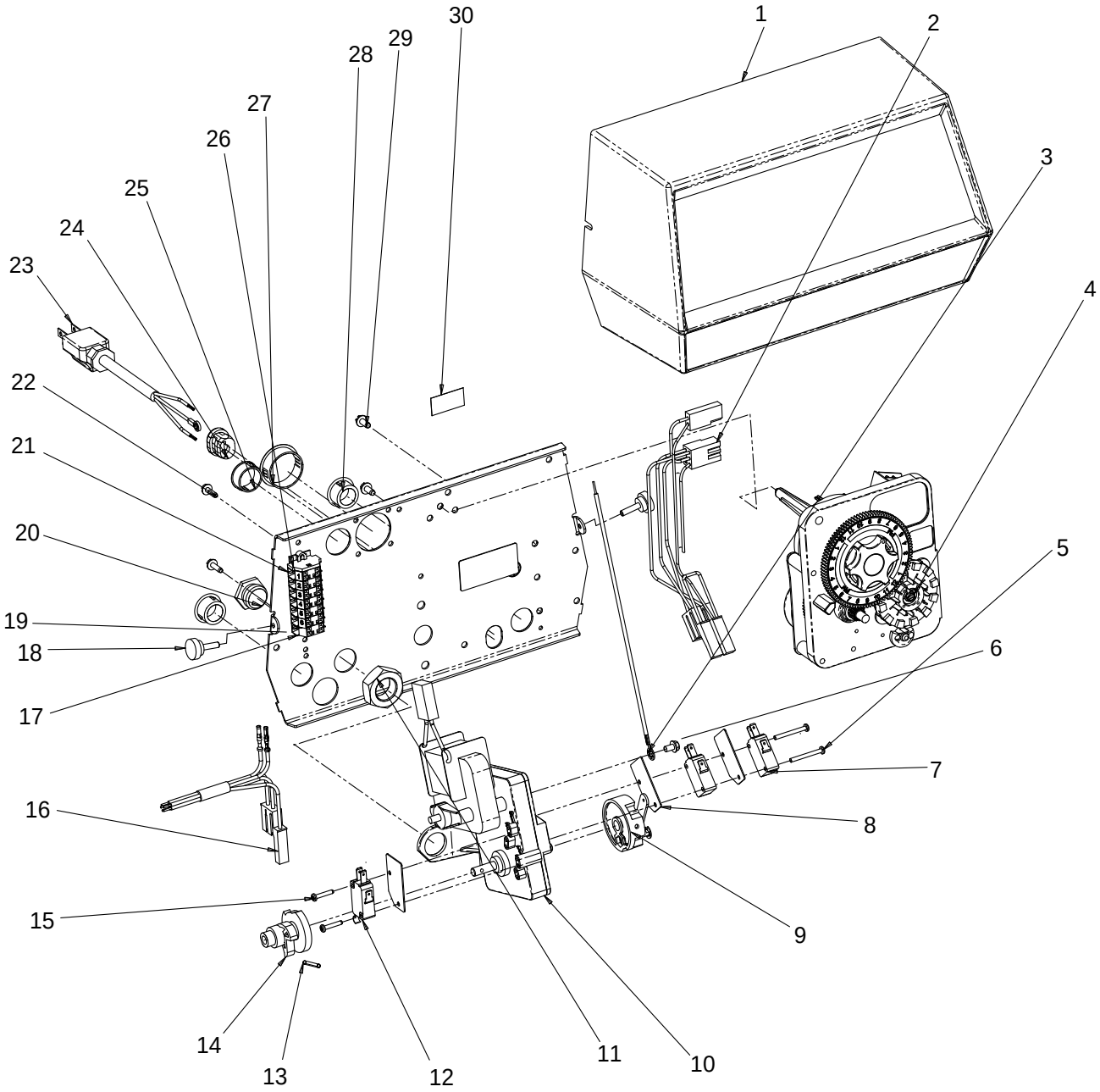
Lower Designer Powerhead Assembly



Item No.	Quantity	Part No.	Description
1	1	14770	Backplate, Lower 2900
2	1	10302	Insulator, Limit Switch
3	1	10218	Switch, Micro
4	1	14775	Cam, Drive, 2900
5	1	10250	Ring, Retaining
6	1	14759	Link, Piston Rod
7	1	14784	Bearing, Connecting Rod
8	1	41022	Pin, Roll, 2900 Lower
9	1	40402	Harness, Lead, Sys #4, Designer
10	2	19849	Screw, Pan Hd, 4-40 X 5/8
11	1	14800-02	Cover, Dust, Lower, 2900, Black
12	4	10872	Screw, Hex Wsh, 8-32 X 17/64
13	1	40387	Motor, Drive, 115V, 60HZ, SP FAM 2
	1	40388	Motor, Drive, 24V, 50/60 Hz, Sp Fam 2
	1	40389	Motor, Drive, 220V, 50/60 Hz, Sp Fam 2
14	1	14924	Strain Relief Heyco #1247
15	2	19367	Screw, Designer Cover, Thumb 8-32 Black UV Stable
16	2	11224	Screw Hex Hd, 5/16 - 18 x 5/8 MS 410 S.S.
17	2	16346	Nut, Hex, Jam, 5/16-18
18	1	14769	Bracket, Motor, 2900

For Service Assembly Numbers, See the Back of this Manual

Upper Designer Powerhead Assembly



For Service Assembly Numbers, See the Back of this Manual

Upper Designer Powerhead Assembly

Item No.	Quantity	Part No.	Description
1	1	19291-020	Cover, Designer
2	1	14822	Harness, 2900
	1	16563	Harness, 2900/3900/Sys 7
	1	18585	Harness, 3900, Aux Switch
	1	40395	Harness, Drive, Sys#7, Multi
	1	40400	Harness, Drive, Designer/Environmental
3	1	40175-01	Wire, Ground, Commercial Valves
4	1	3200 Meter Timer Assy	3200 Meter Timer Assy
	-	3200 Clock Timer Assy	3200 Clock Timer Assy
5	2	14923	Screw, Pan Hd Mach, 4-40 X 1
6	5	10872	Screw, Hex Wsh, 8-32 X 17/64
7	2	10218	Switch, Micro
8	3	10302	Insulator, Limit Switch
9	1	60160-15	Drive Cam Assy, STF, Blue, 2900
	1	60160-30*	Drive Cam Assy, Upflow
	1	60160-31*	Drive Cam Assy, Upflow, Variable
10	1	41543	Motor, Drive, 115V, 50/60 Hz
	1	40384	Motor, Drive, 115V, 60Hz, SP, Fam 1
	1	40385	Motor, Drive, 24V, 50/60 Hz, SP Fam 1
	1	40386	Motor, Drive, 220V, 50/60 Hz, SP Fam 1
11	1	10269	Nut, Jam, 3/4-16
12	1	10896	Switch, Micro
13	1	10338	Pin, Roll, 3/32 x 7/8
14	1	12472	Cam Assy, Tri-Stack, After RR
	1	12777	Cam, Shut-Off Valve
	1	15770	Cam Assy, Special Tri-Stack, After Brine Fill
	1	15805	Cam, SVO
	1	19749*	Cam, Brine, 2750, U/F, Variable
	1	19887*	Cam, Brine, 2750 U/F Std
15	2	11805	Screw, Rd Hd, 4-40 X 5/8
16	1	14822	Harness, 2900
17	1	40174	Terminal Block, Green/Yellow Commercial
18	1	40264	Backplate, w/t - Screws, 2750,2850,2900
19	2	15250	Label, Terminal Strip
20	1	10712	Fitting, Brine Valve
21	6	41084	Terminal Block, Segment, Gray
22	2	13296	Screw, Hex Wsh, 6-20 X 1/2
23	1	11545	Power Cord, 4' European, Black
	1	19303	Power Cord, 8', Australian
	1	19885	Power Cord, Japanese, 110V/120V
	1	40084-12	Power Cord, 12'US, ROUND, 120V Sys 5, 6, 7
	1	40085-12	Power Cord, 12' US, Round, 240V
24	1	13547	Strain Relief, Flat Cord Heyco #30-1
	1	13547-01	Strain Relief, Euro Round Cord
	1	13547-02	Strain Relief, U.S. Round
	1	14924	Strain Relief, Heyco #1247
25	1	15806	Plug, Hole, Heyco #2693
26	1	41085	Endplate, Terminal Block, Gray
27	1	17421	Plug, 1.20 Hole Heyco #2733
28	1	13741	Plug, 3/4", Knock-Out, Heyco #2683
29	2	10300	Screw, Slot Hex Wsh, 8-18 X 3/8 Type "B" RC44-47
30	1	40038-03	Label, Voltage, 120V, 3200ET

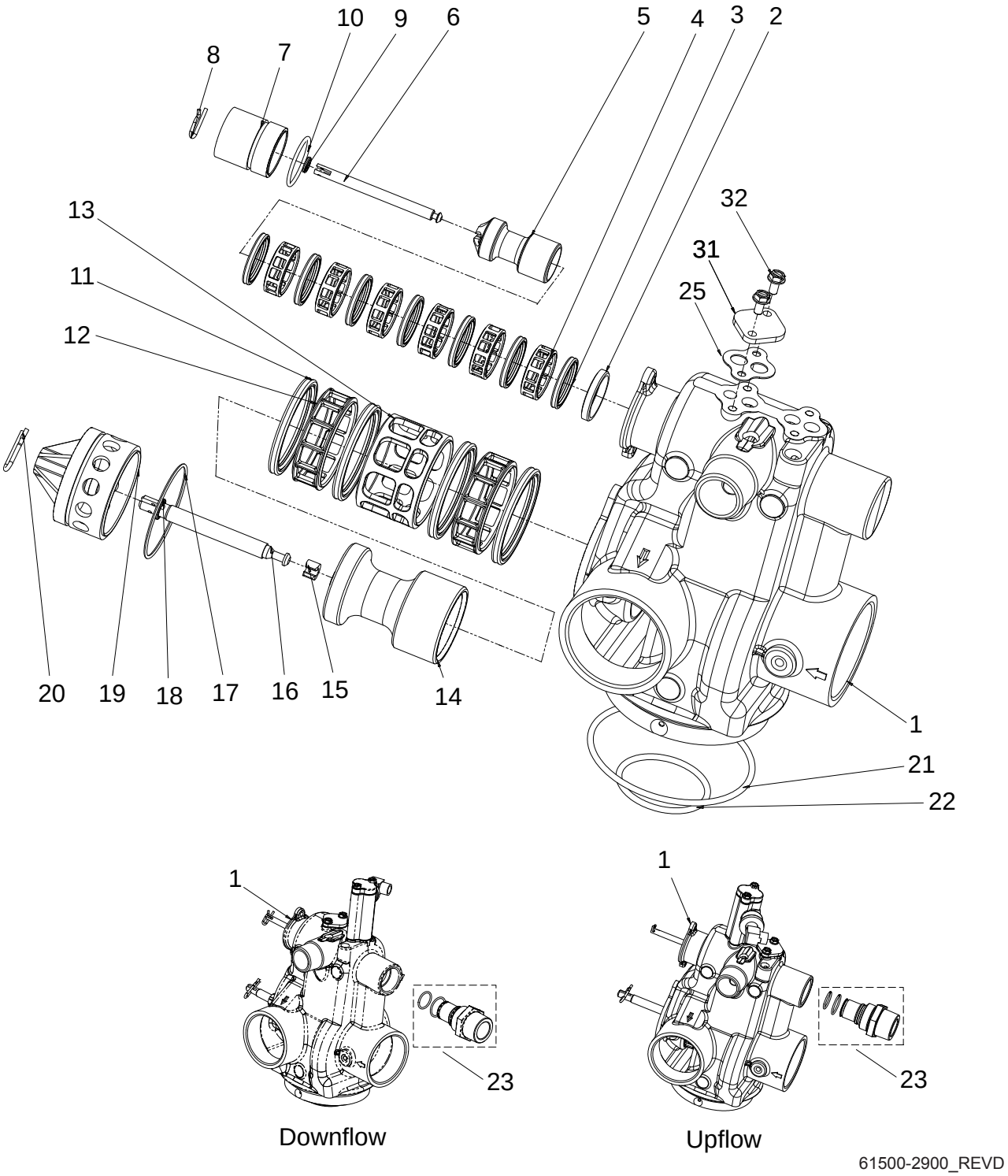
Not Shown:

	1	17967	Fitting Assy, Liquid-Tight, Black
	1	15158	Tube, Cable Guide, 2900

*Upflow Only

For Service Assembly Numbers, See the Back of this Manual

Control Valve Assembly



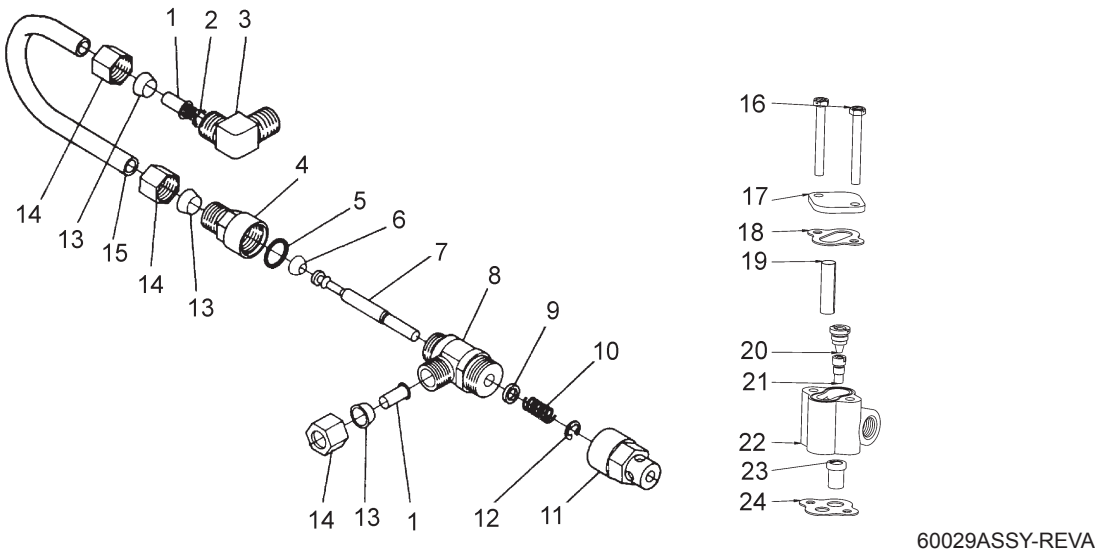
For Service Assembly Numbers, See the Back of this Manual

Item No.	Quantity	Part No.	Description
1	1	41428	Valve Body, 2900s, Machd, NPT U.S. Tap
		41428-XX	Valve Body, 2900s, Machined, w/Soft Water Adapter
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, HW
5	1	14451	Piston, 2750
		19454*	Piston, 2750, Upflow
6	1	41424	Rod, Piston, 2900s, Upper
7	1	41131	Plug, End
	1	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, HW
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, HW
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
19	1	14754-00	End Plug Assy, 2900
		14754-01	Plug, End, White, Machined
		14754-10	End Plug Assy, 2900/2930, NHWBP
		19276-01	End Plug Assy, 2900s, Brass, HW
		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, ss
32	2	15137	Screw, Hex Wsh Mach, 10 - 24 x 3/8

*Upflow Only

For Service Assembly Numbers, See the Back of this Manual

1600 Brine System Assembly

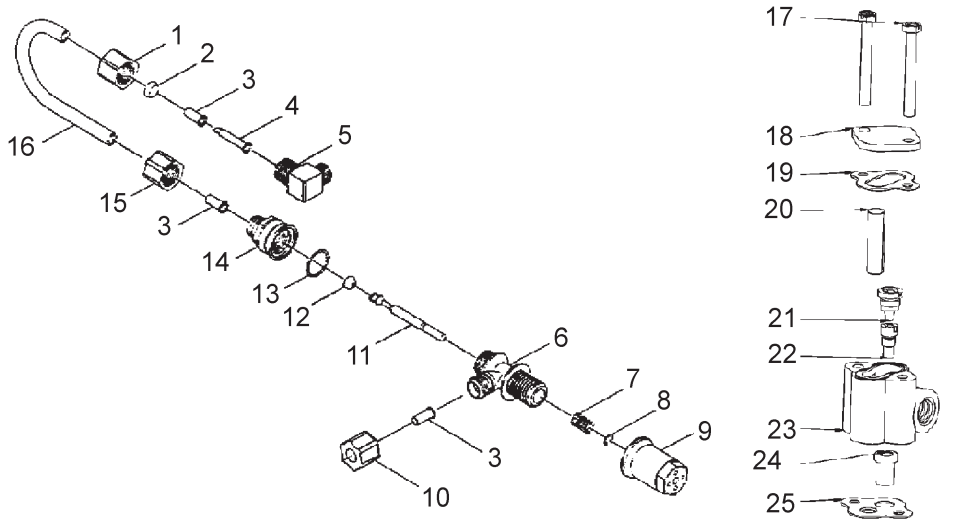


60029ASSY-REVA

Item No.	Quantity	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 3/8T
4	1	60020-25	BLFC, .25 GPM, 1600
4	1	60020-50	BLFC, .50 GPM, 1600
4	1	60020-100	BLFC, 1.0 GPM, 1600
5	1	11982	O-Ring, -016
6	1	12626	Seat, Brine Valve
7	1	12552	Brine Valve Stem, 1600
8	1	12748	Brine Valve Body Assy, 1600 w/Quad Ring
9	1	12550	Quad Ring, -009
10	1	10249	Spring, Brine Valve
11	1	11749	Guide, Brine Valve Stem
12	1	10250	Ring, Retaining
13	3	10330	Fitting, Sleeve, 3/8 Celcon
14	3	10329	Fitting, Tube, 3/8 Nut, Brass
15	1	16508-01	Tube, Brine Valve, 2850/1600
	1	41683*	Tube, Brine Valve, UF, 1600/1650
16	2	10692	Screw, Slot Hex Hd, 10 - 24X 18-8 S.S.
17	1	11893	Cap, Injector, SS
18	1	10229	Gasket, Injector Cap, 1600
19	1	10227	Screen, Injector
20	1	10913	Nozzle, Injector
21	1	10914	Throat, Injector
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

*Upflow Only

For Service Assembly Numbers, See the Back of this Manual



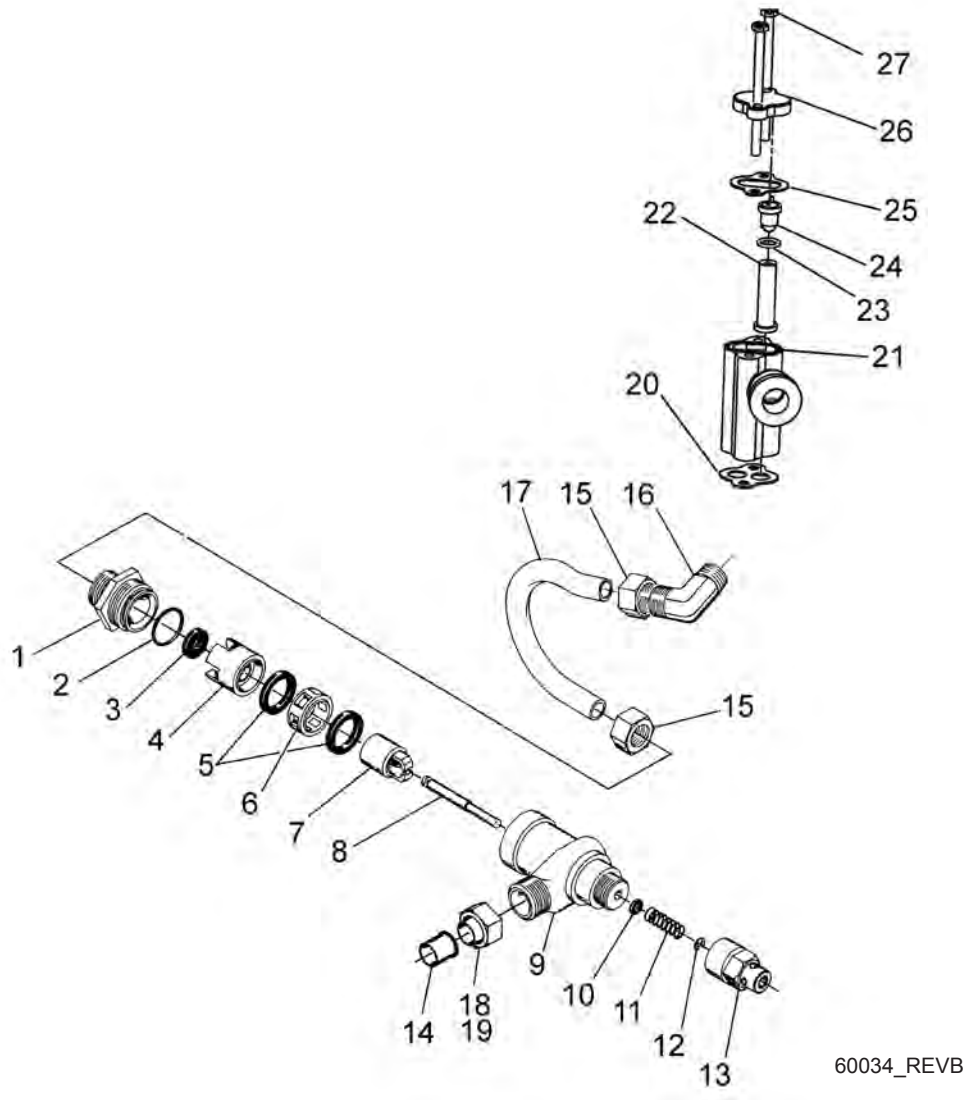
60011_REVC

Item No.	Quantity	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	Brine Valve Stem, 1600
12	1	12626	Seat, Brine Valve
13	1	16924	O-Ring, -018
14	1	60020-25	BLFC, .25 GPM, 1600
	1	60020-50	BLFC, .50 GPM, 1600
	1	60020-100	BLFC, 1.0 GPM, 1600
15	1	19625	Nut Assy, 3/8”, Plastic
16	1	16508-01	Tube, Brine Valve, 2850/1600
	1	41683*	Tube, Brine Valve, UF, 1600/1650
17	2	10692	Screw, Slot Hex Hd, 10 - 24X 18-8 S.S.
18	1	11893	Cap, Injector, SS
19	1	10229	Gasket, Injector Cap, 1600
20	1	10227	Screen, Injector
21	1	10913	Nozzle, Injector
22	1	10914	Throat, Injector
23	1	17776	Body, Injector, 1600
	1	17776-02*	Body, Injector, 1600 Upflow
24	1	16221	Disperser, Air
25	1	14805	Gasket, Injector Body, 1600/1700

*Upflow Only

For Service Assembly Numbers, See the Back of this Manual

1700 Brine System Assembly



For Service Assembly Numbers, See the Back of this Manual

Item No.	Quantity	Part No.	Description
1	1	14792	Plug, End, Brine Valve
2	1	13201	Quad Ring, -020
3	1	12085	Washer, Flow, 1.2 GPM
	1	12086	Washer, Flow, 1.5 GPM
	1	12087	Washer, Flow, 2.0 GPM
	1	12088	Washer, Flow, 2.4 GPM
	1	12089	Washer, Flow, 3.0 GPM
	1	12090	Washer, Flow, 3.5 GPM
	1	12091	Washer, Flow, 4.0 GPM
	1	12092	Washer, Flow, 5.0 GPM
4	1	14785	Retainer, Flow Control
5	2	14811	O-ring, -210, 560CD, Brine
6	1	14798	Spacer, 1700, Brine
7	1	14795	Piston, Brine Valve
8	1	14797	Brine Valve Stem
9	1	14790	Brine Valve Body
10	1	12550	Quad Ring, -009
11	1	15310	Spring, Brine Valve
12	1	10250	Retaining Ring
13	1	15517	Guide, Stem
14	1	15415	Fitting, Insert, 1/2”, Tube
15	2	15414	Nut, 2900, w/Sleeve
16	1	15413	Fitting, Elbow, Male, 1/2T x 3/8 NPT
17	1	16460	Tube, Brine, 2850, 9.123”
	1	41447*	Tube, Brine, 2900s, U/F
18	2	16123	Nut, Brass
19	2	16124	Fitting, Sleeve, Delrin
21	1	17777-03	Body, Injector, 1700
22	1	14802	Throat, Injector
23	1	17777	Body, Injector, 1700
	1	17777-02*	Body, Injector, 1700 U/F
24	1	14801	Nozzle, Injection
25	1	10229	Gasket, Injector Cap, 1600
26	1	11893	Cap, Injector, SS
	1	10228	Cap, Injector
27	2	14804	Screw, Hex Hd Mach, 10 - 24 x 2 3/4” 18-8 SS

Not Shown:

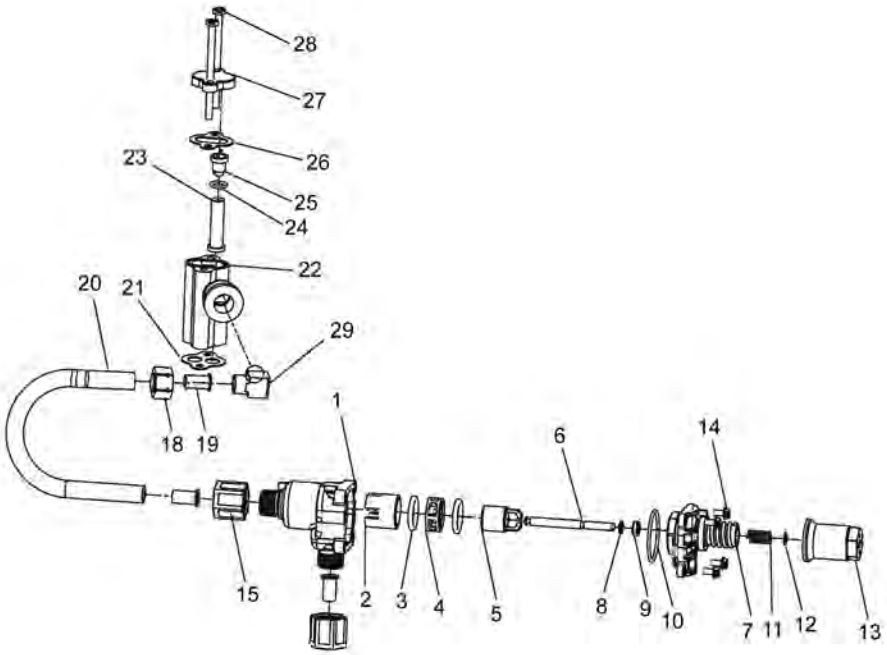
	1	16974	Fitting, Plstc, Female, 3/4 x 3/4 Slip
	1	17996	Disperser, Air, Injector

*Upflow Only

NOTE: Item number 26 (11893) is used on injector sizes 2 through 5C. Part number 10228 is used on injector sizes 6C and 7C.

For Service Assembly Numbers, See the Back of this Manual

1710 Brine System Assembly



60604_REVF

Item No.	Quantity	Part No.	Description
1	1	41202	Brine Valve, 1700, Plastic, Top
2	1	14785-01	Retainer, Flow Control
3	-	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
20	1	41447*	Tube, Brine, 2900s, U/F
	1	16460	Tube, Brine, 2850, 9.123”
21	1	19925	Gasket, Injector Body, 1700
22	1	17777-03	Body, Injector, 1700
23	1	14802-XXX	Throat, Injector
24	1	13771	O-ring, -012
25	1	14801-XXX	Nozzle, Injector
26	1	10229	Gasket, Injector Cap, 1600
27	1	10228	Cap, Injector
28	2	14804	Screw, Hex Head Mach, 10 - 24 x 2 3/4
29	1	15413	Fitting, Elbow, Male, 1/2T X 3/8NPT

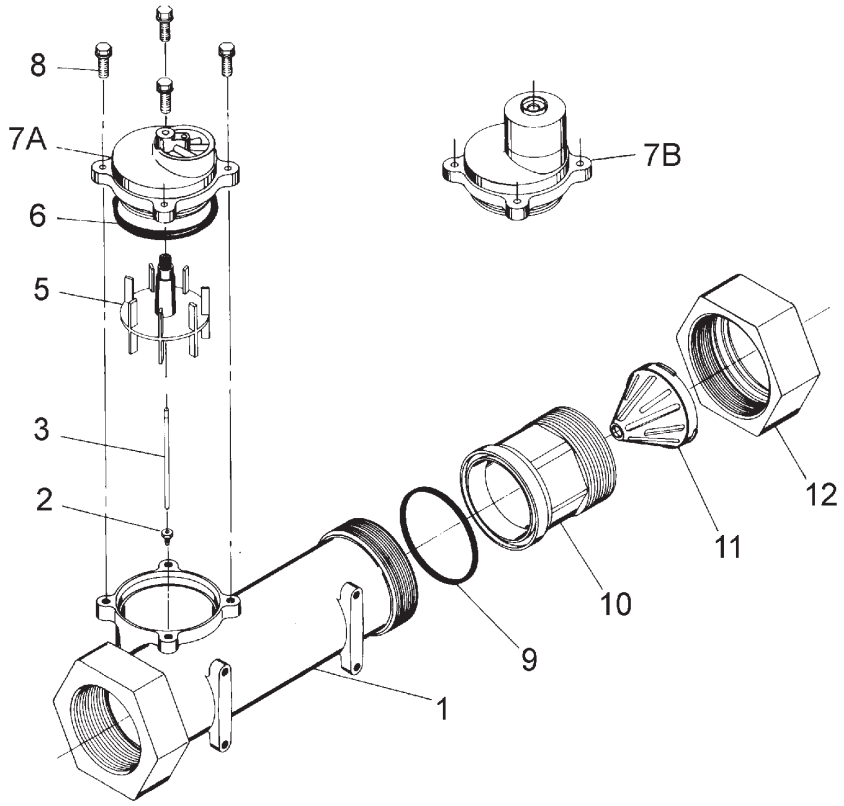
*Upflow Only

Not Shown:

	1	17996	Disperser, Air, Injector
	1	19151	Washer, Flow, 1.0 GPM
	1	41493-00	Label, Blank, BLFC, 1710

For Service Assembly Numbers, See the Back of this Manual

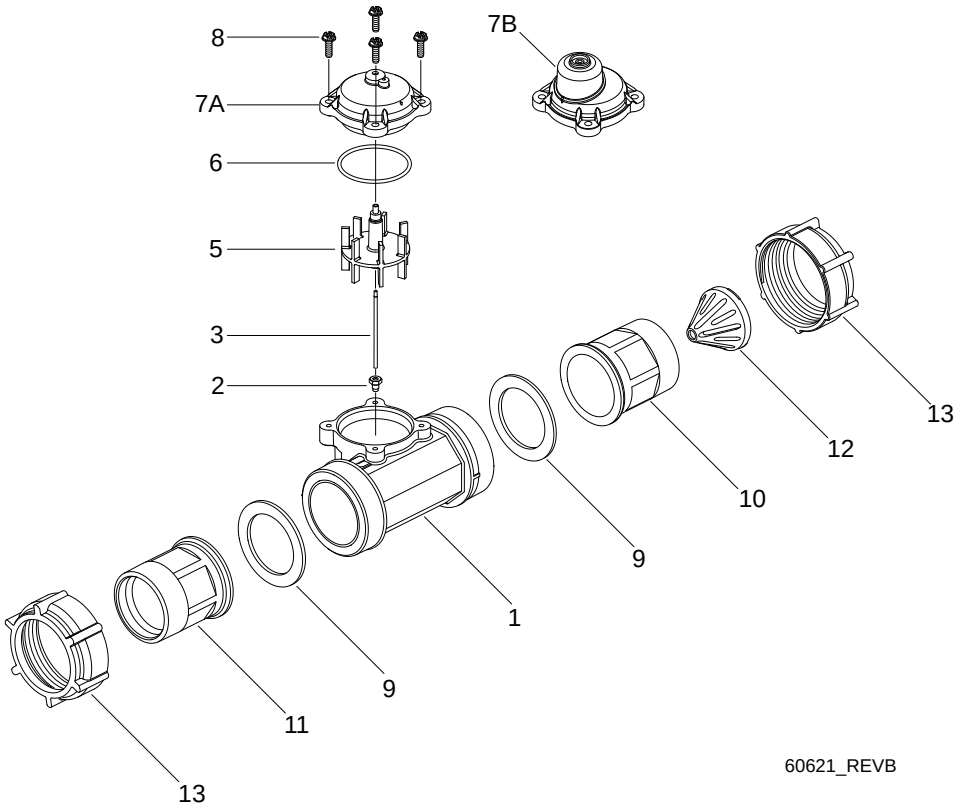
2” Brass Meter Assembly



Item No.	Quantity	Part No.	Description
1	1	14456	Body, Meter, 2”
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 Assy, Std, Plas
7B	1	15150	Meter Cap Assy, 3/4” to 2”, Ext Plas, Pdl
8	4	12112	Screw, Hex Hd Mach, 10-24 x 1/2 18-8 S.S.
9	1	14679	O-Ring, -227, Meter
10	1	14568	Fitting, Nipple, 2”
11	1	14680	Flow Straightener
12	1	14569	Nut, 2900 Meter

For Service Assembly Numbers, See the Back of this Manual

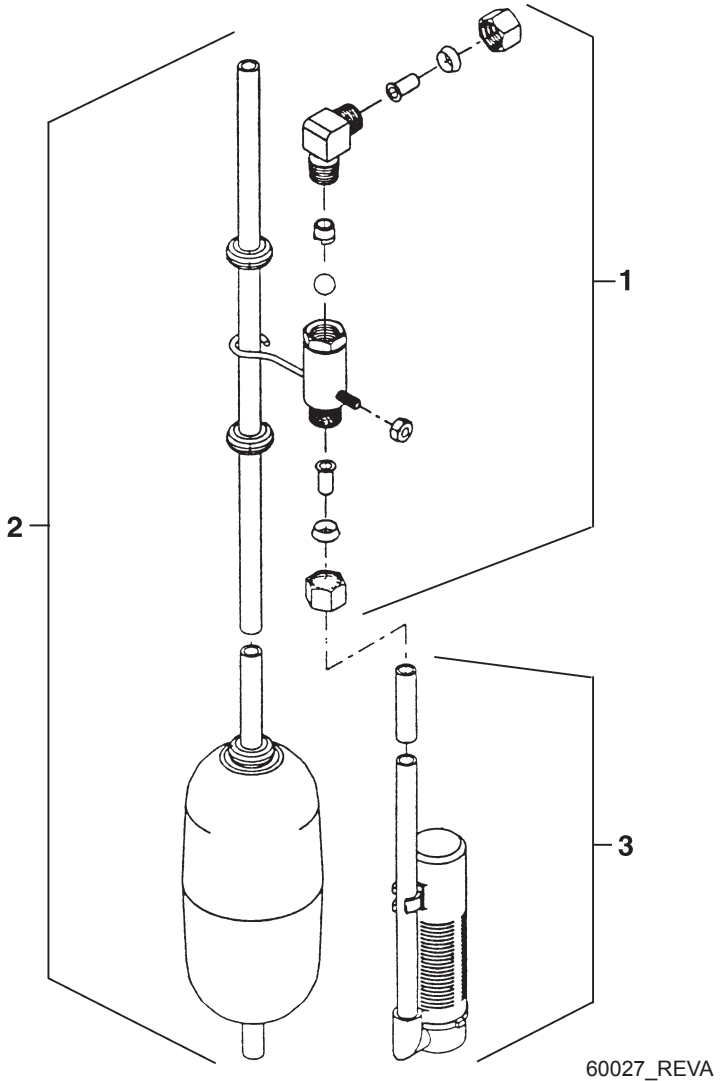
2” Plastic Meter Assembly



Item No.	Quantity	Part No.	Description
1	1	17689	Body, Meter, 2ð Plastic w/Impeller Shaft Seat
2	1	15532	Seat, Impeller Shaft, Hex
3	1	15432	Shaft, Impeller, SS
5	1	15374	Impeller Assy, 2” Meter
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 S.S.
9	2	40666	Seal, Face, 2ð, Plastic Meter
10A	1	17987-001	Fitting, Nipple, 2ð, Plastic, NPT, Machined, Flow Straightener
10B	1	17987-101	Fitting, Nipple, 2ð, Plastic, BSP, Machined, Flow Straightener
11A	1	17987-000	Fitting, Nipple, 2ð, Plastic, NPT
11B	1	17987-100	Fitting, Nipple, 2ð, Plastic, BSP
12	1	14680	Flow Straightener
13	2	17988	Nut, 2ð Meter

For Service Assembly Numbers, See the Back of this Manual

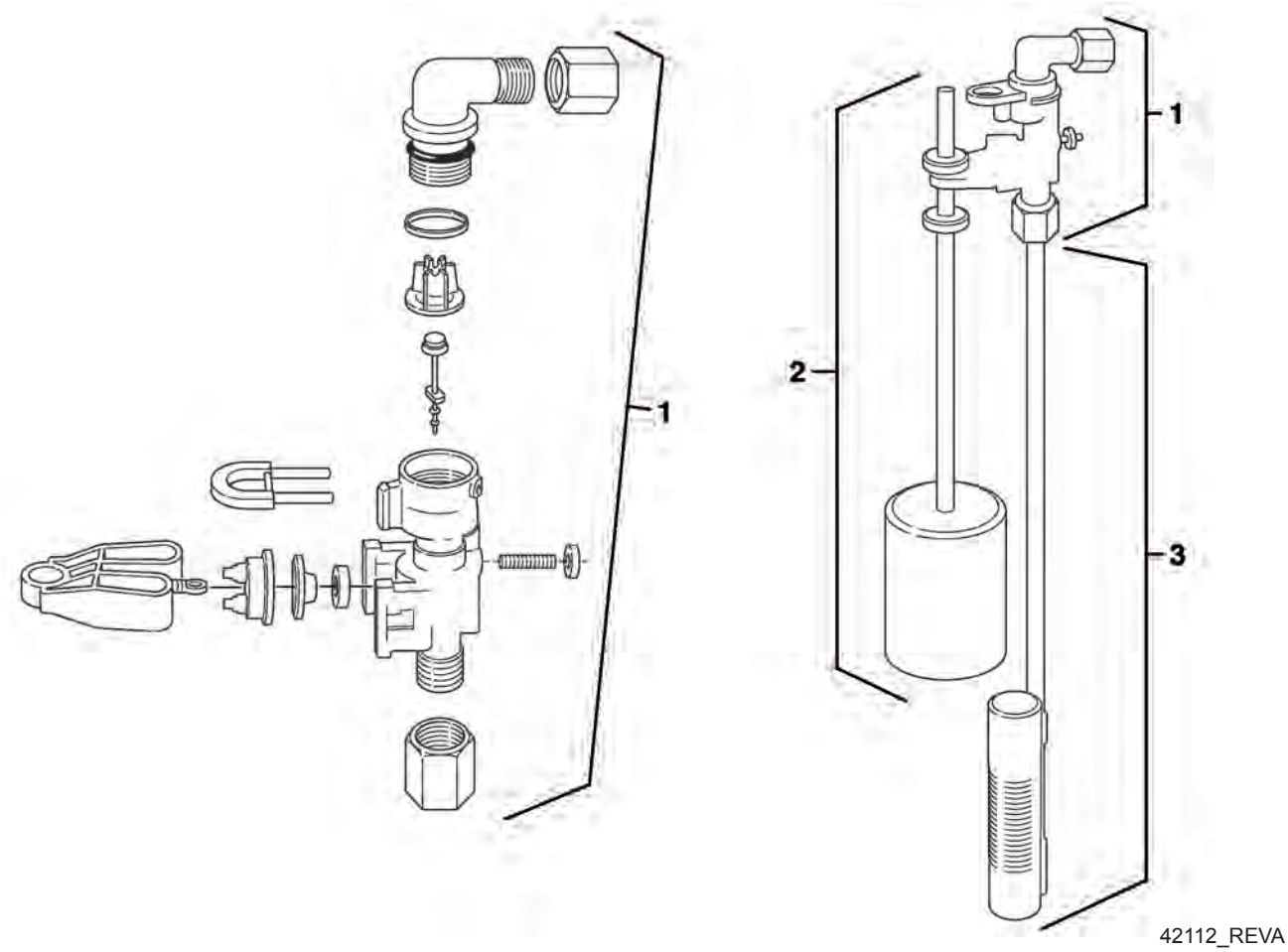
2300 Safety Brine Valve Assembly



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

For Service Assembly Numbers, See the Back of this Manual

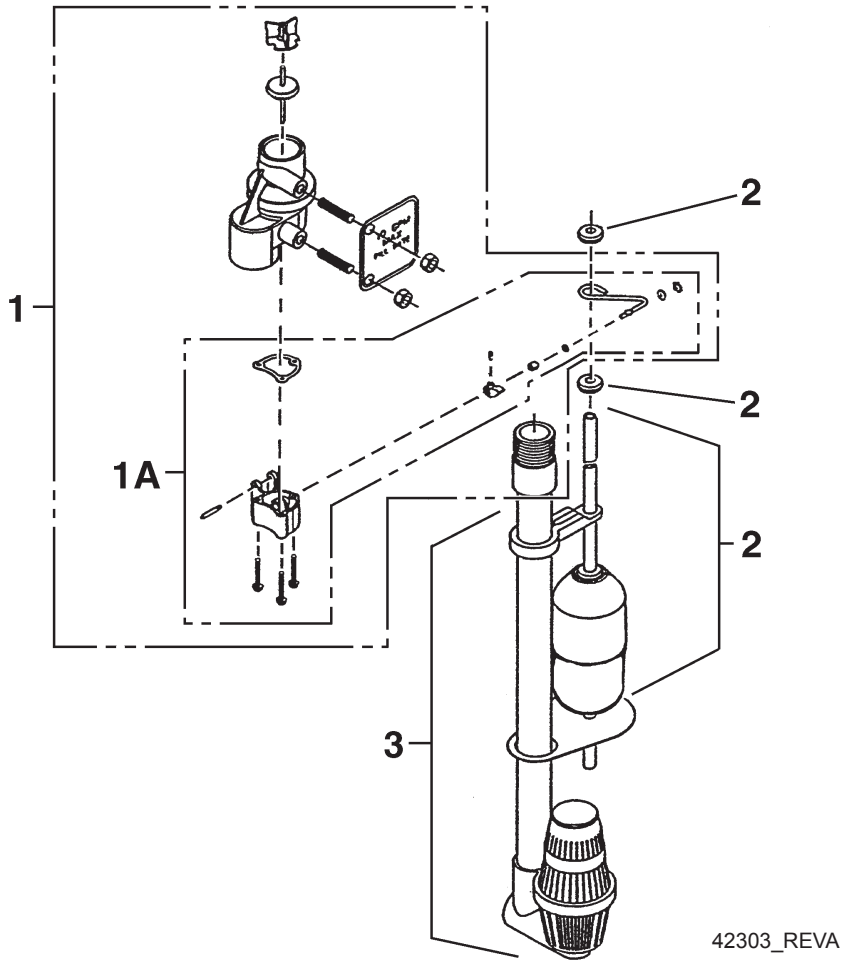
2310 Safety Brine Valve Assembly



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

For Service Assembly Numbers, See the Back of this Manual

2350 Safety Brine Valve Assembly



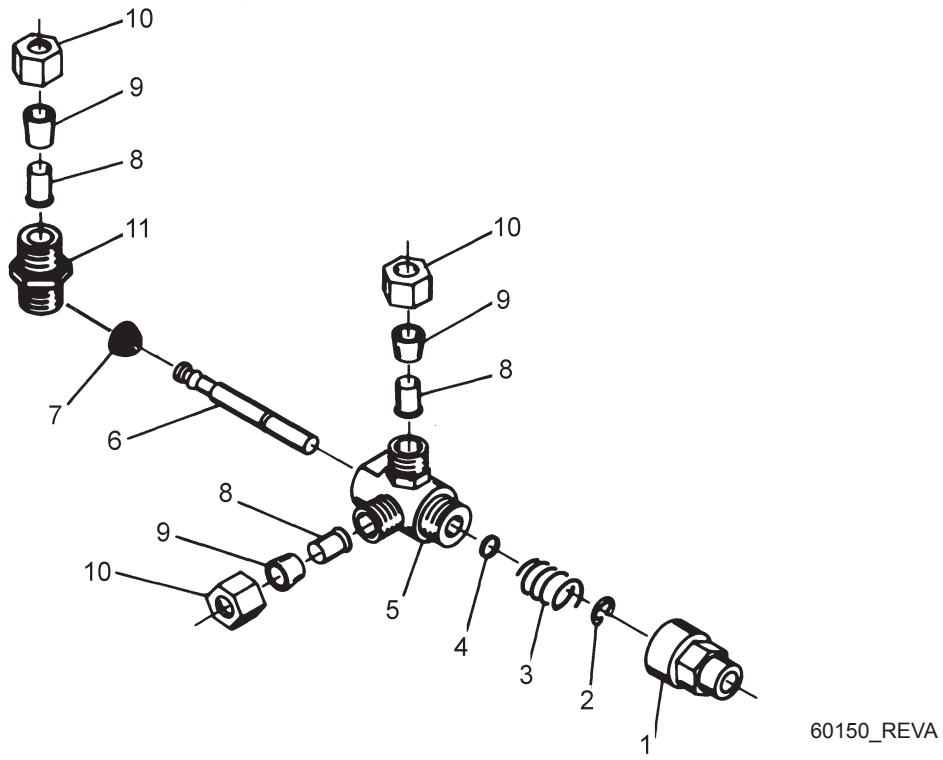
Item No.	Quantity	Part No.	Description
1	1	60038	Safety Brine Valve, 2350
1A	1	61024	Actuator Assy, 2350 Brine
2	1	60028-30	Float Assy, 2350, 30” Wht
	1	60026-30SAN	Float Assy, 2350, 30”, HW
3	1	60009-00	Air Check, #900, Commercial Less Fittings
	1	60009-01	Air Check, #900, Commercial, HW Less Fittings

Not Shown:

	1	18603	Fitting Assy, 900 Air Check 2350
	1	18602	Fitting Assy, 900 Air Check

For Service Assembly Numbers, See the Back of this Manual

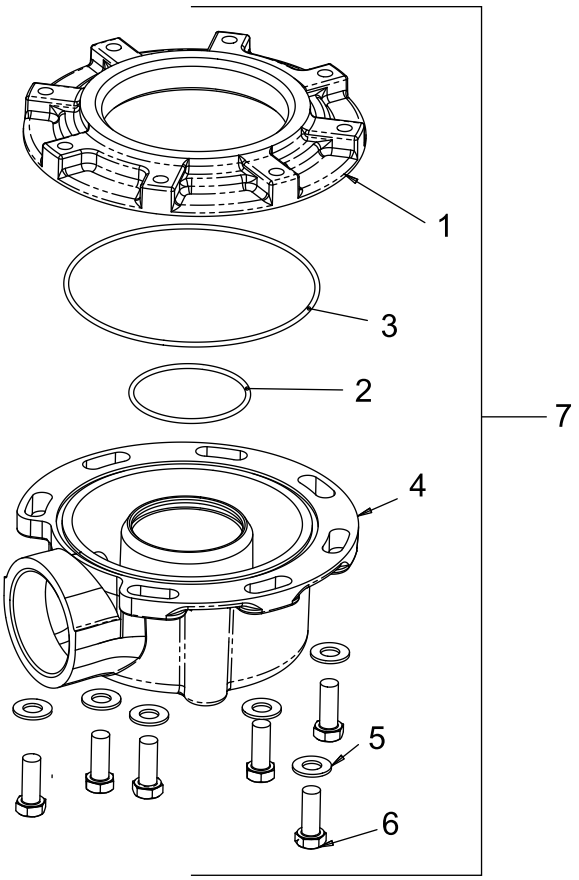
1600 Service Valve Operator Assembly



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

For Service Assembly Numbers, See the Back of this Manual

Control Valve Side Mount Adapter



61415_REVA

Item No.	Quantity	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
		61530	Seal & Spacer Kit, 2900s Upper
		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

For Service Assembly Numbers, See the Back of this Manual

Troubleshooting

Problem	Cause	Correction
1. Water conditioner fails to regenerate.	A. Electrical service to unit has been interrupted	A. Assure permanent electrical service (check fuse, plug, pull chain, or switch)
	B. Timer is defective.	B. Replace timer.
	C. Power failure.	C. Reset time of day.
2. Hard water.	A. By-pass valve is open.	A. Close by-pass valve.
	B. No salt is in brine tank.	B. Add salt to brine tank and maintain salt level above water level.
	C. Injector screen plugged.	C. Clean injector screen.
	D. Insufficient water flowing into brine tank.	D. Check brine tank fill time and clean brine line flow control if plugged.
	E. Hot water tank hardness.	E. Repeated flushings of the hot water tank is required.
	F. Leak at distributor tube.	F. Make sure distributor tube is not cracked. Check O-ring and tube pilot.
	G. Internal valve leak.	G. Replace seals and spacers and/or piston.
3. Unit used too much salt.	A. Improper salt setting.	A. Check salt usage and salt setting.
	B. Excessive water in brine tank.	B. See problem 7.
4. Loss of water pressure.	A. Iron buildup in line to water conditioner.	A. Clean line to water conditioner.
	B. Iron buildup in water conditioner.	B. Clean control and add mineral cleaner to mineral bed. Increase frequency of regeneration.
	C. Inlet of control plugged due to foreign material broken loose from pipes by recent work done on plumbing system.	C. Remove piston and clean control.
5. Loss of mineral through drain line.	A. Air in water system.	A. Assure that well system has proper air eliminator control. Check for dry well condition.
	B. Improperly sized drain line flow control.	B. Check for proper drain rate.
6. Iron in conditioned water.	A. Fouled mineral bed.	A. Check backwash, brine draw, and brine tank fill. Increase frequency of regeneration. Increase backwash time.
7. Excessive water in brine tank.	A. Plugged drain line flow control.	A. Clean flow control.
	B. Plugged injector system.	B. Clean injector and screen.
	C. Timer not cycling.	C. Replace timer.
	D. Foreign material in brine valve.	D. Replace brine valve seat and clean valve.
	E. Foreign material in brine line flow control.	E. Clean brine line flow control.

Problem	Cause	Correction
8. Softener fails to draw brine.	A. Drain line flow control is plugged.	A. Clean drain line flow control.
	B. Injector is plugged.	B. Clean injector
	C. Injector screen plugged.	C. Clean screen.
	D. Line pressure is too low.	D. Increase line pressure to 20 P.S.I.
	E. Internal control leak	E. Change seals, spacers, and piston assembly.
	F. Service adapter did not cycle.	F. Check drive motor and switches.
9. Control cycles continuously.	A. Misadjusted, broken, or shorted switch.	A. Determine if switch or timer is faulty and replace it, or replace complete power head.
10. Drain flows continuously.	A. Valve is not programming correctly.	A. Check timer program and positioning of control. Replace power head assembly if not positioning properly.
	B. Foreign material in control.	B. Remove power head assembly and inspect bore. Remove foreign material and check control in various regeneration positions.
	C. Internal control leak.	C. Replace seals and piston assembly.

General Service Hints For Meter Control

Problem: Softener delivers hard water

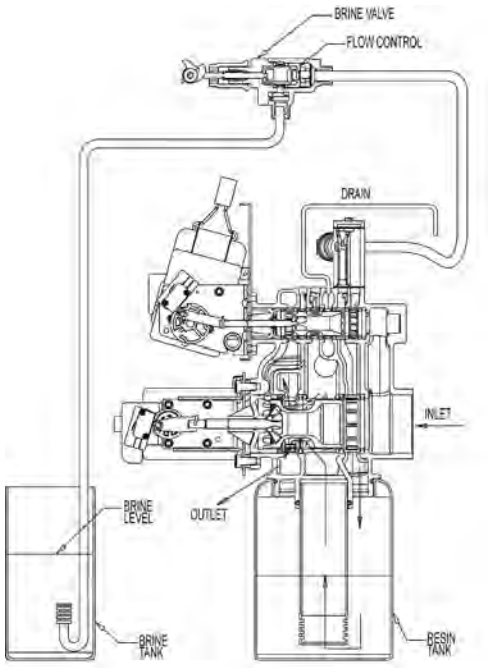
Reason: Reserve capacity has been exceeded.
Correction: Check salt dosage requirements and reset program wheel to provide additional reserve.

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

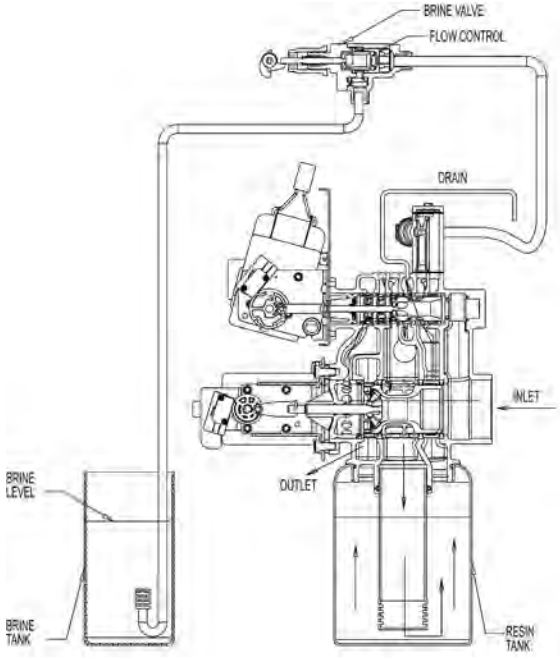
Reason: Meter is not measuring flow.
Correction: Check meter with meter checker.

Water Conditioner Flow Diagrams - Downflow

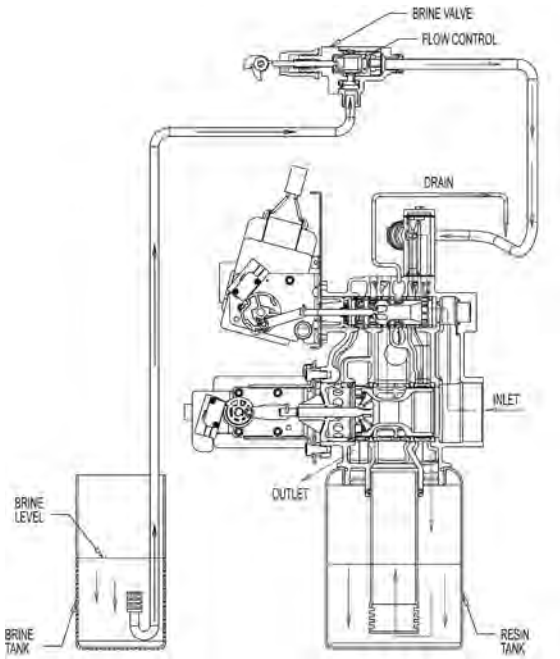
1 Service Position



2 Backwash Position

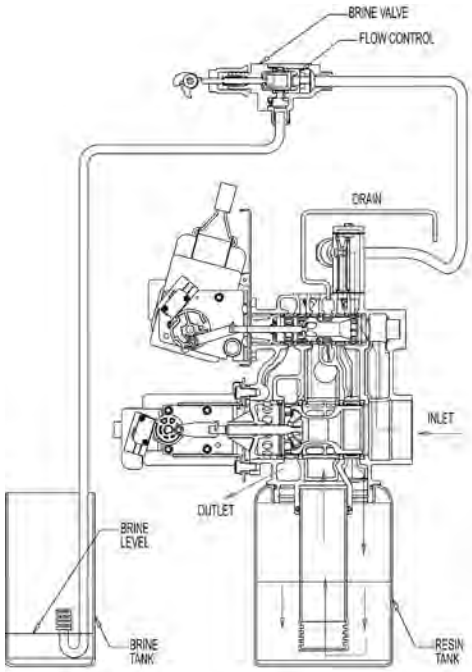


3 Brine Position

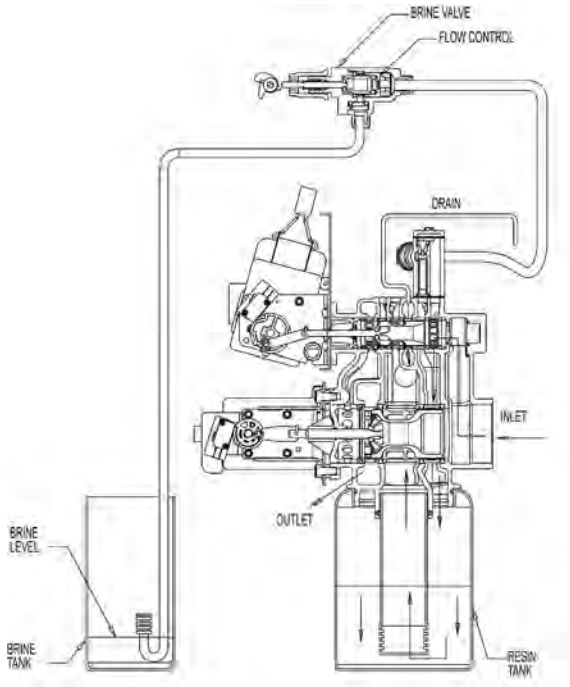


61500-2900 DOWNFLW_REVB

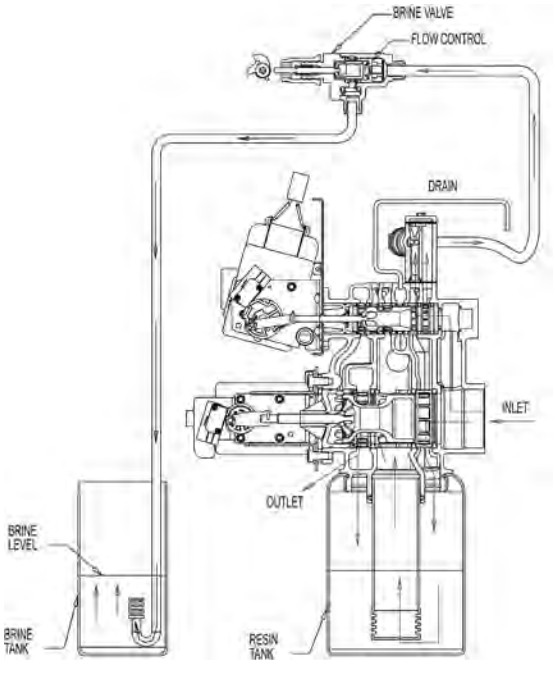
4 Slow Rinse Position



5 Rapid Rinse



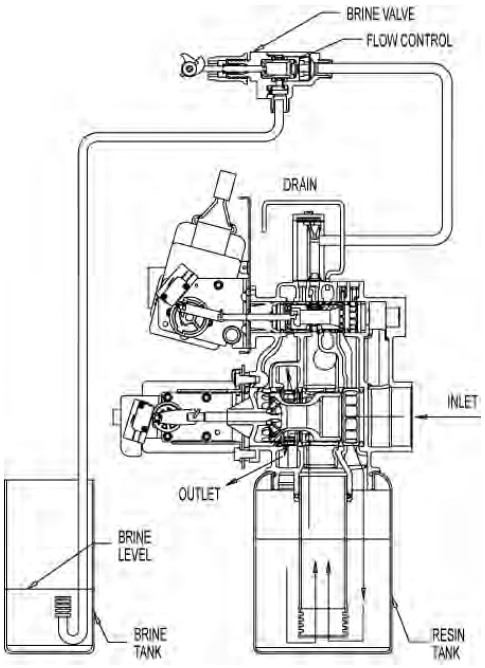
6 Brine Tank Refill Position



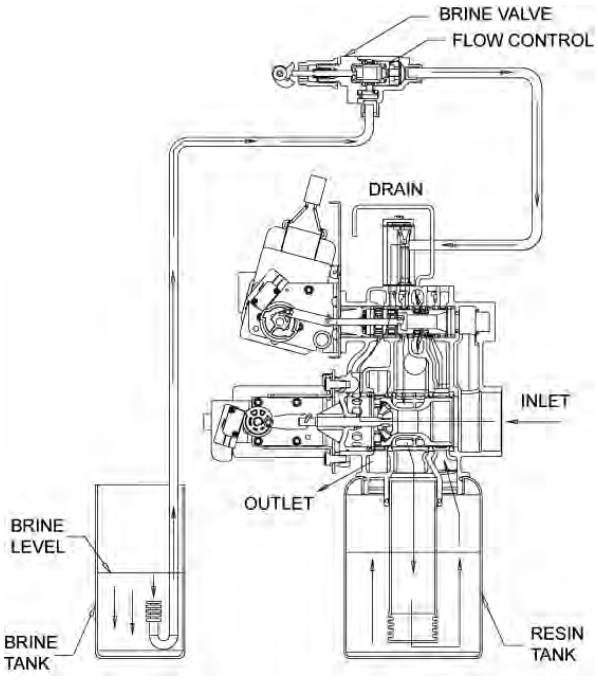
61500-2900 DOWNFLW_REVB

Water Conditioner Flow Diagrams - Upflow

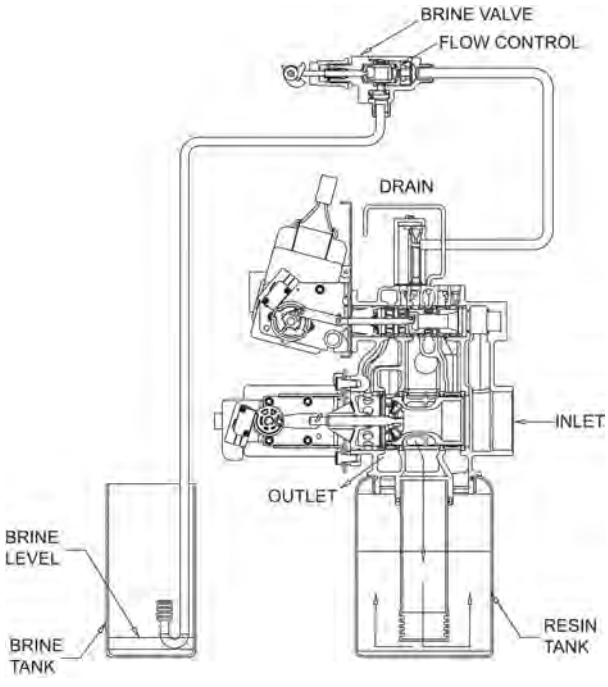
1 Service Position



2 Brine Position

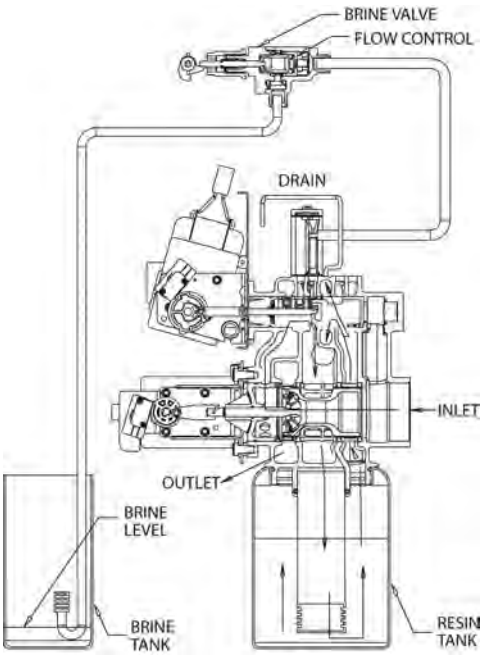


3 Slow Rinse Position

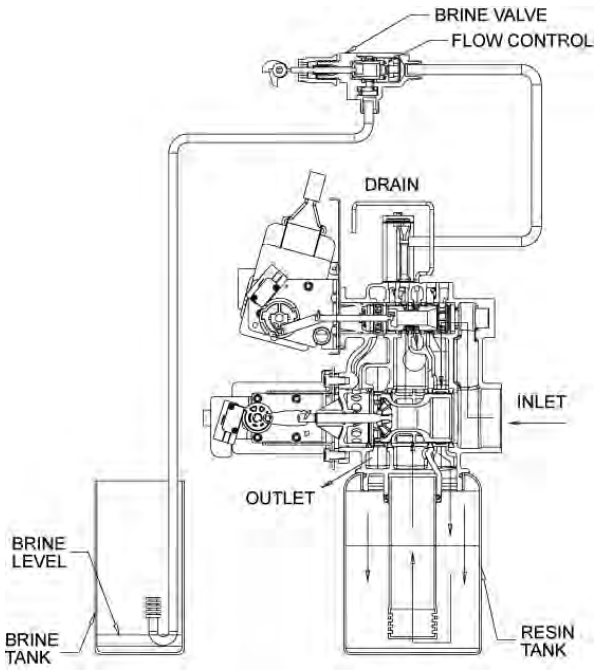


61500-2900 UPFLW_REVB

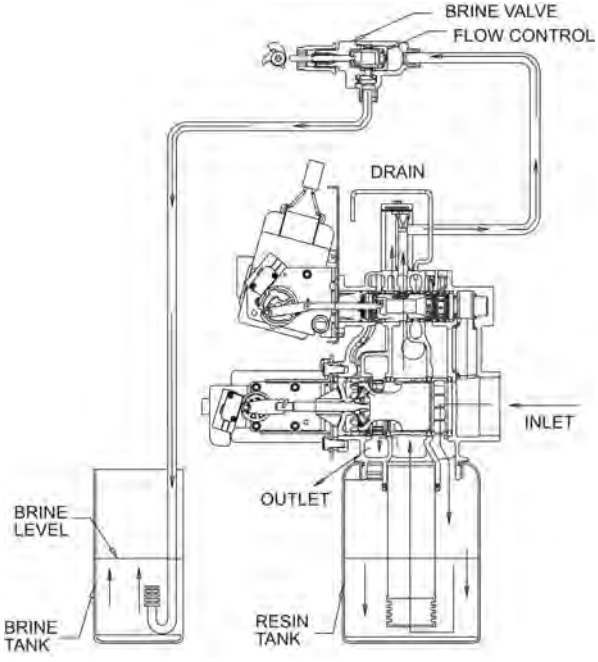
4 Back Wash Position



5 Rapid Rinse

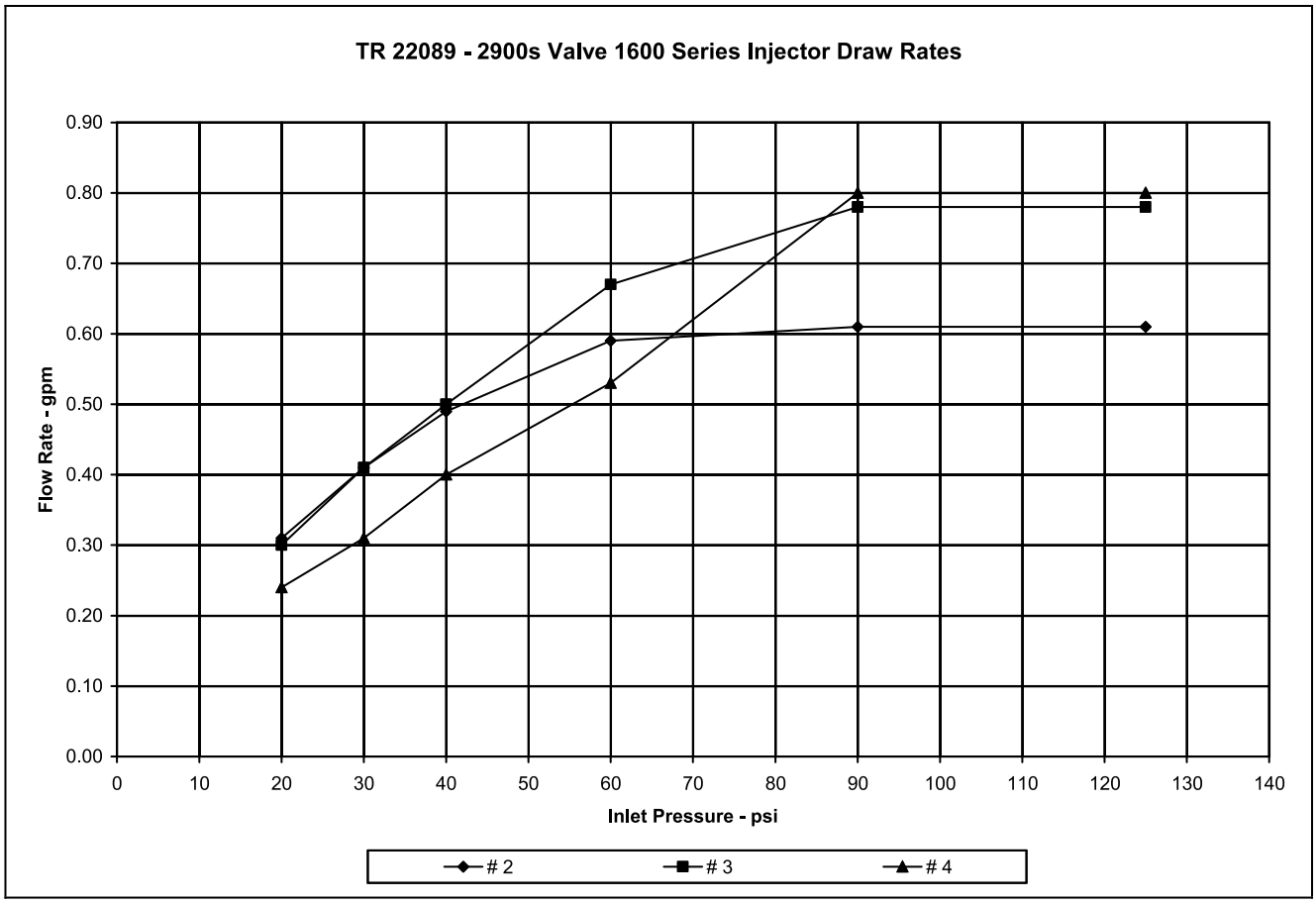


6 Brine Tank Fill Position

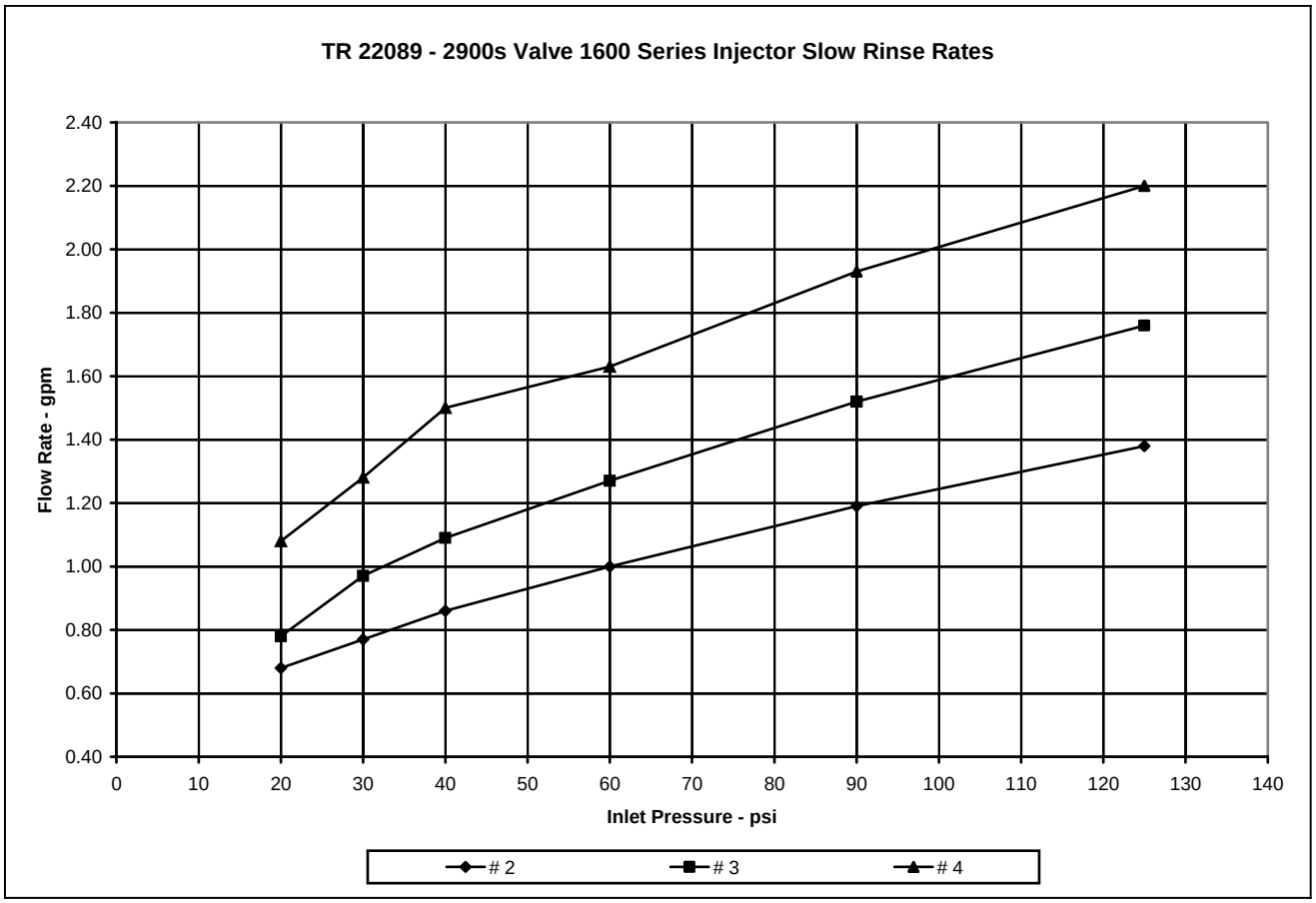


61500-2900 UPFLW_REVB

Flow Data & Injector Draw Rates - Downflow

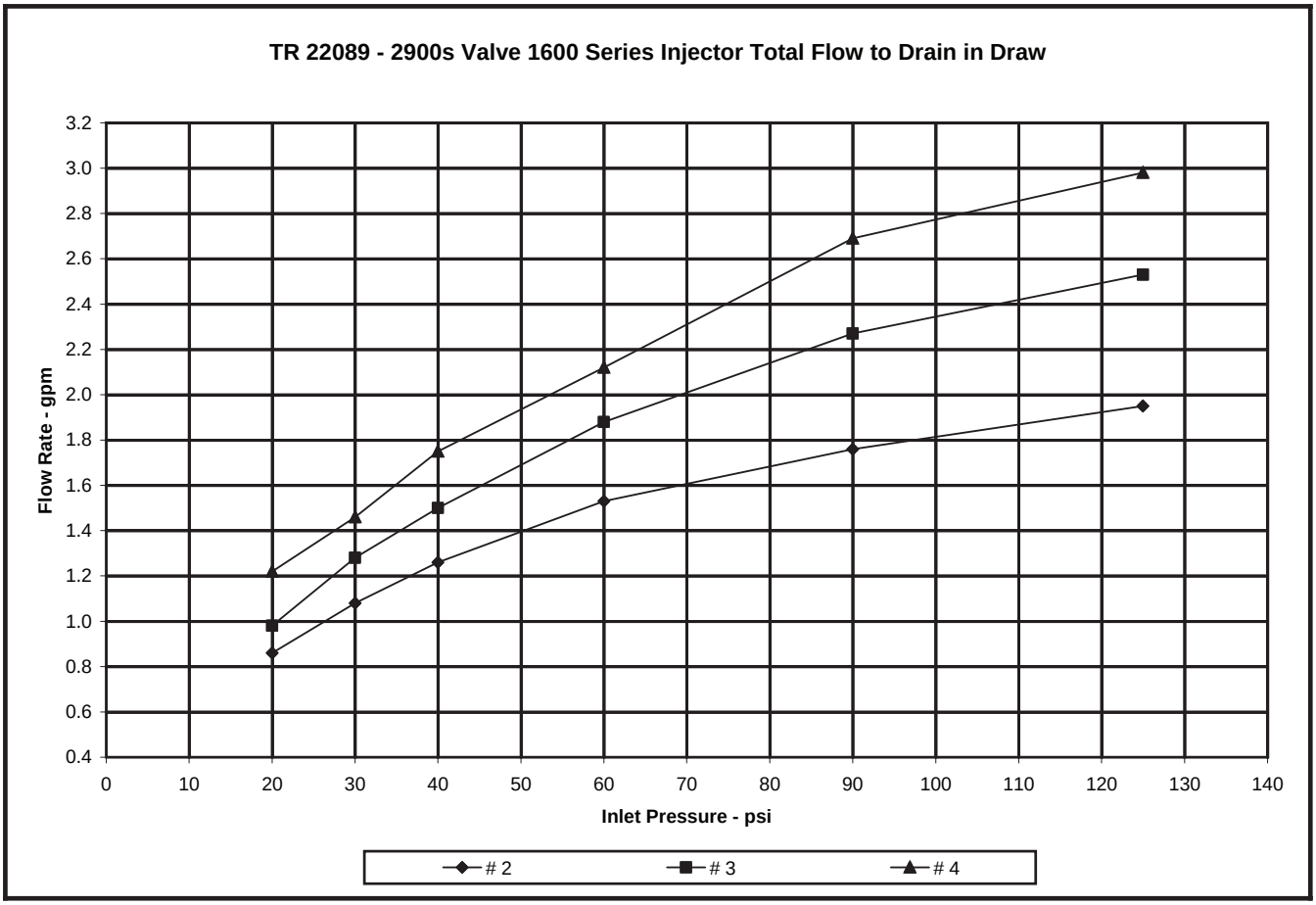


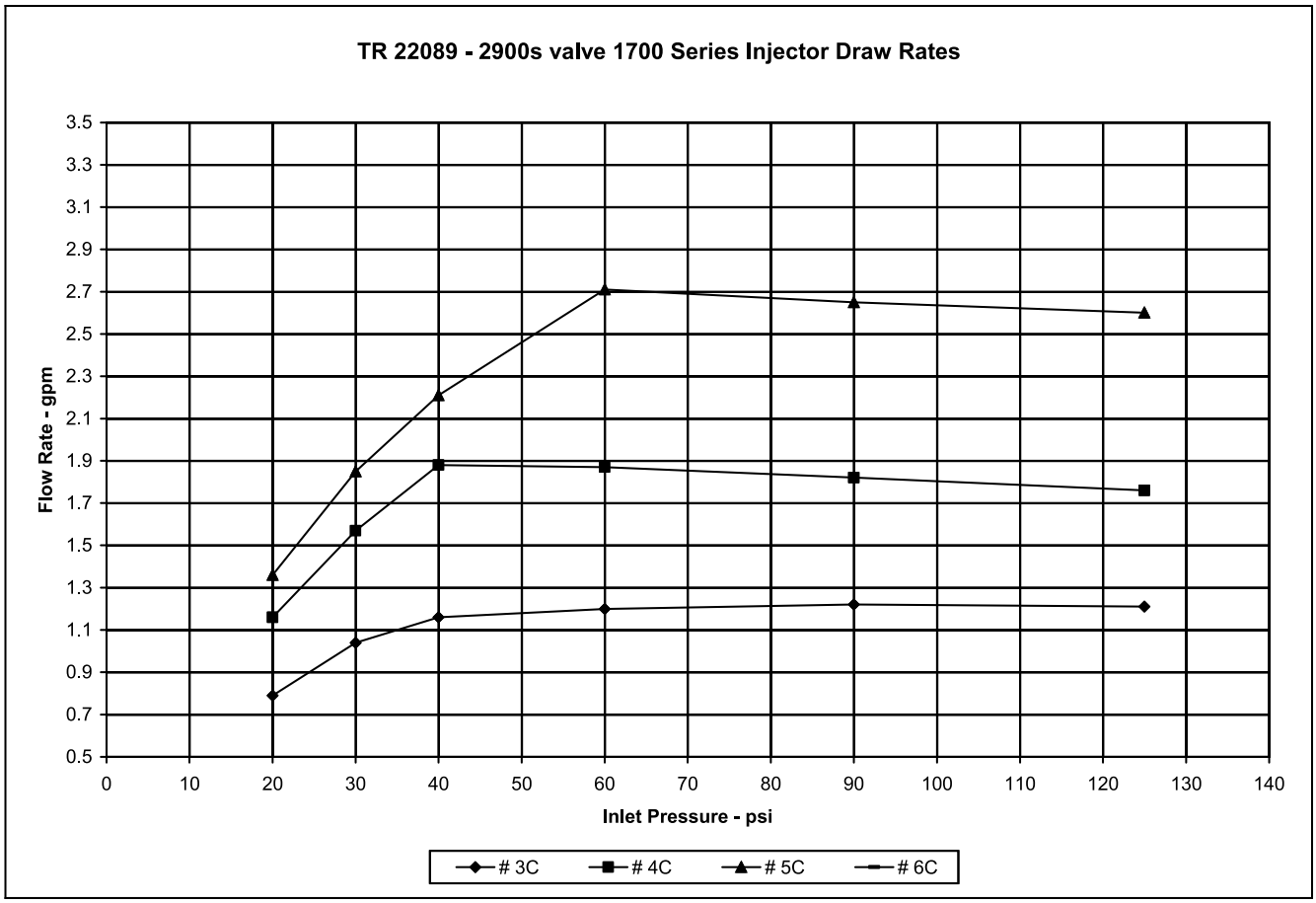
2900s valve 1600 series injectors	Draw Rate - gpm		
pressure	# 2	# 3	# 4
20	0.31	0.30	0.24
30	0.41	0.41	0.31
40	0.49	0.50	0.40
60	0.59	0.67	0.53
90	0.61	0.78	0.80
125	0.61	0.78	0.80
all injectors used the steel cap and an air disperser			



2900s valve 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			

Flow Data & Injector Draw Rates - Downflow

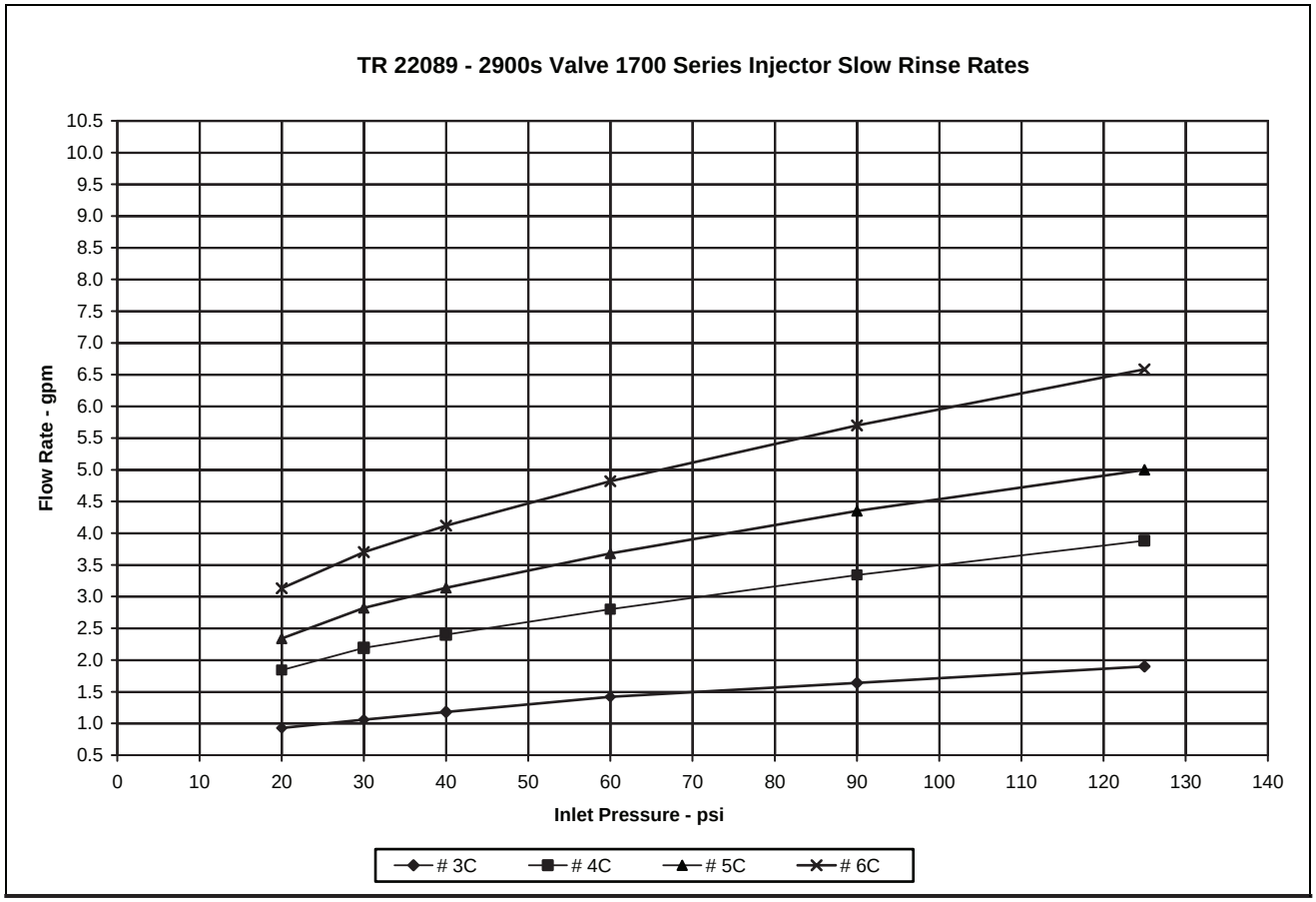




2900s valve 1700 series injectors	Draw Rate - gpm			
pressure	# 3C	# 4C	# 5C	# 6C
20	0.79	1.16	1.36	1.80
30	1.04	1.57	1.85	2.36
40	1.16	1.88	2.21	2.82
60	1.20	1.87	2.71	3.14
90	1.22	1.82	2.65	3.12
125	1.21	1.76	2.60	3.10

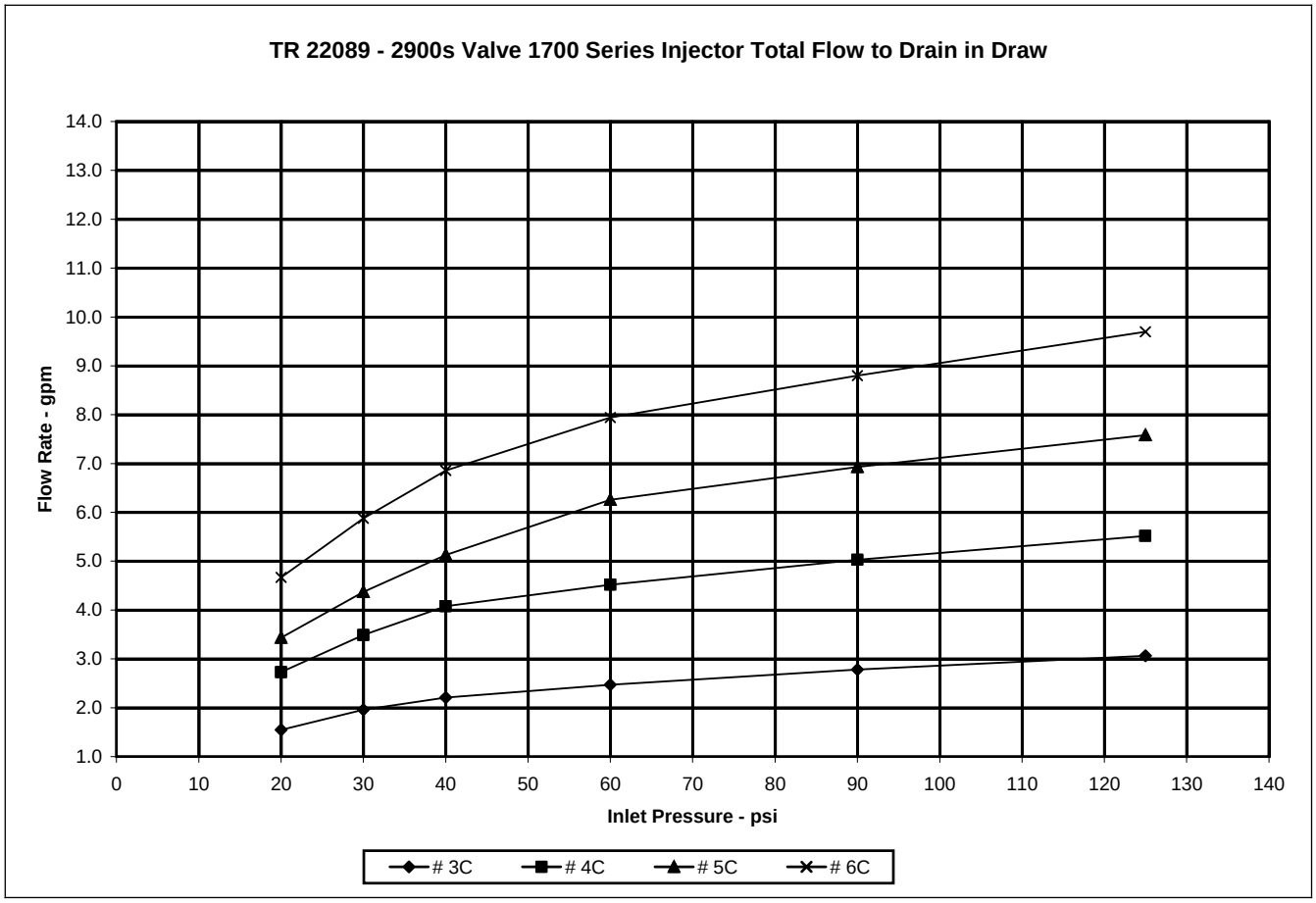
3C - steel cap, no o-ring, air disperser
4C & 5C - steel cap, o-ring, air disperser
6C & 7C - brass cap, o -ring, no air disperser

Flow Data & Injector Draw Rates - Downflow

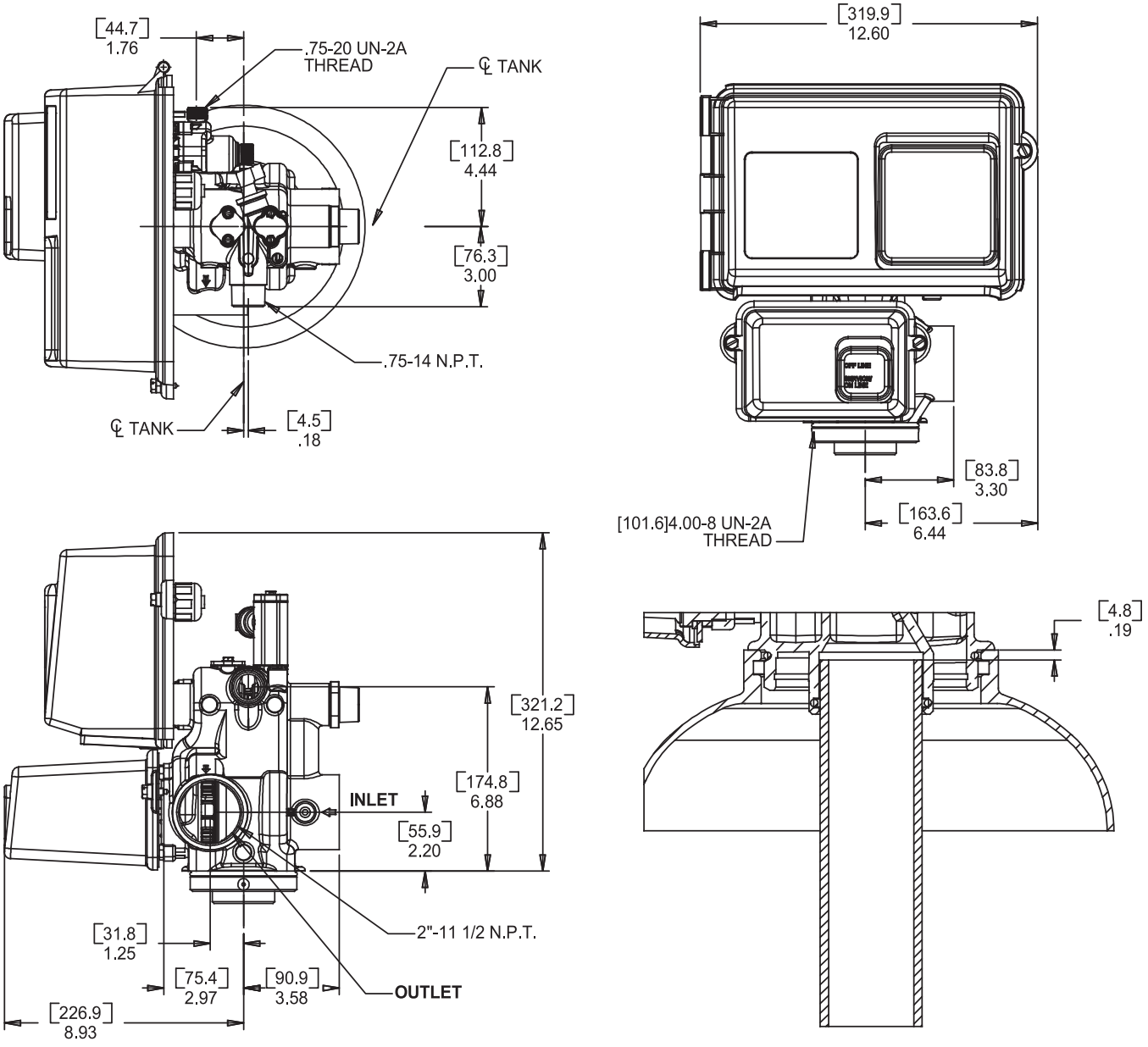


2900s valve 1700 series injectors	Slow Rinse - gpm			
pressure	# 3C	# 4C	# 5C	# 6C
20	0.93	1.84	2.34	3.13
30	1.06	2.19	2.82	3.70
40	1.18	2.40	3.14	4.12
60	1.42	2.80	3.68	4.82
90	1.64	3.34	4.35	5.70
125	1.90	3.88	5.00	6.58

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

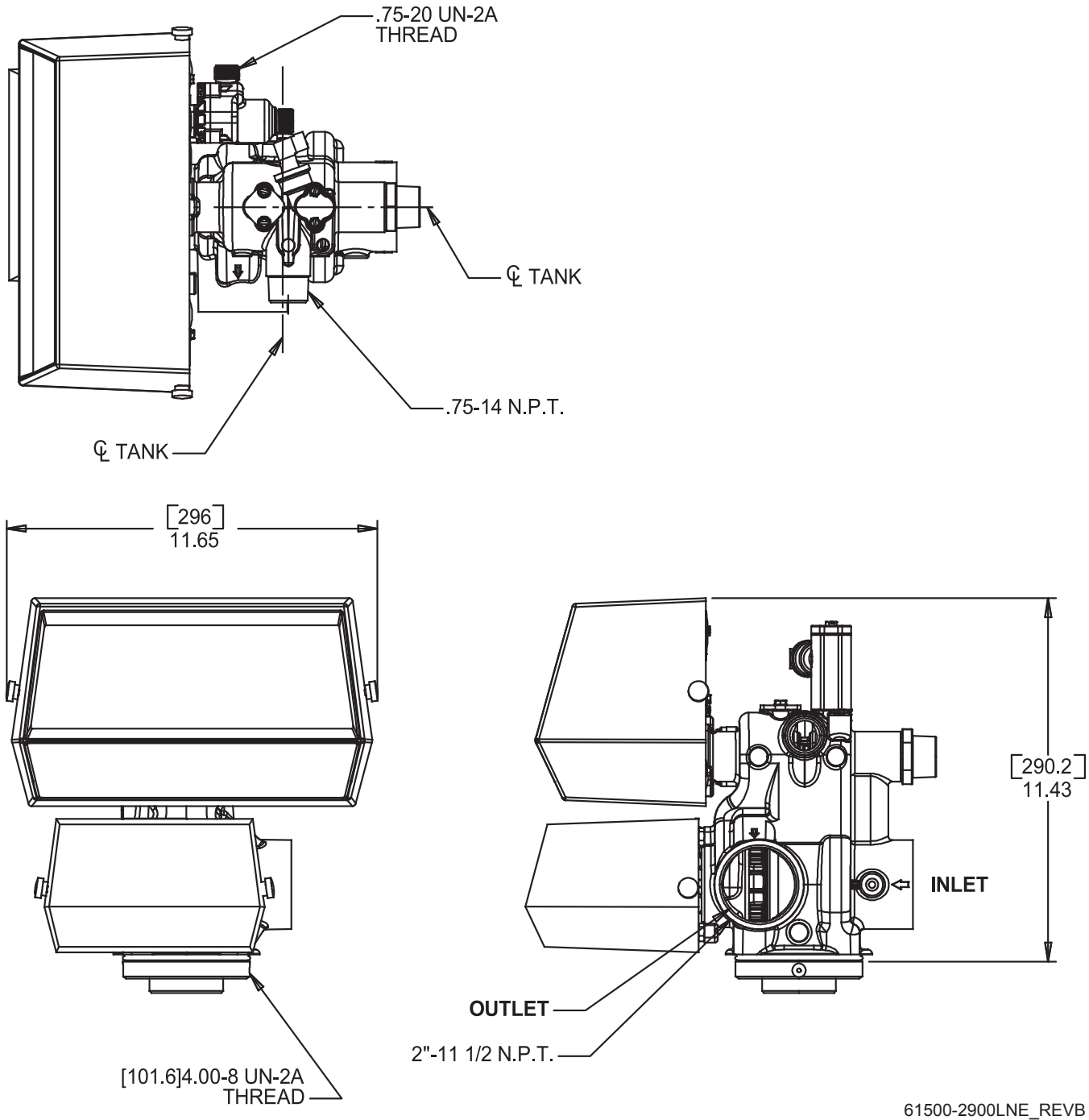

TR 22089 - 2900s Valve 1700 Series Injector Total Flow to Drain in Draw
Flow Rate - gpm
14.0
13.0
12.0
11.0
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
Inlet Pressure - psi
3C
4C
5C
6C

Environmental Backplate Line Drawing



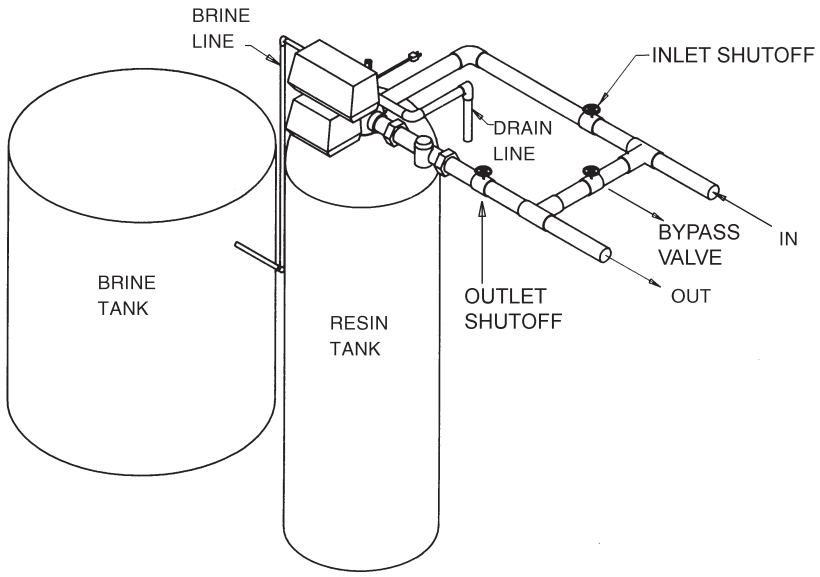
61500-2900LNE_REVB

Designer Backplate Line Drawing

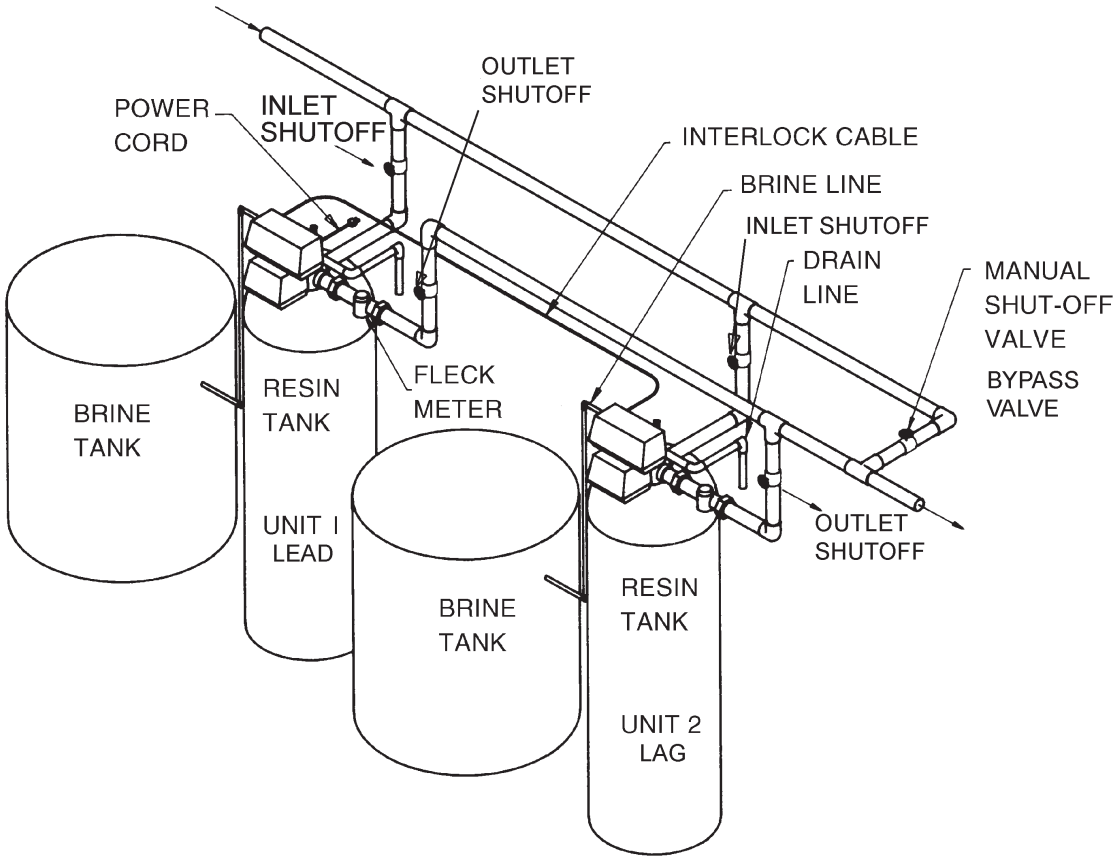


61500-2900LNE_REVB

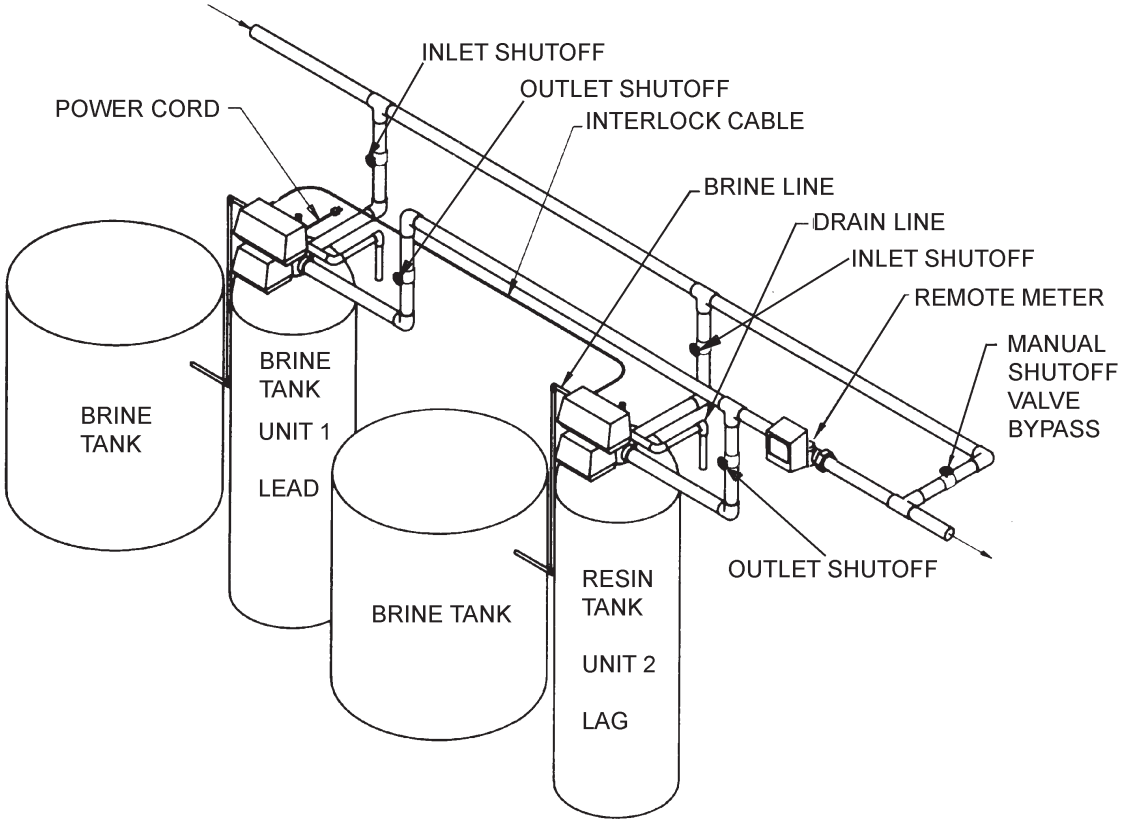
System #4 - Typical Single Tank Installation With Optional Meter



System #5 - Interlock - Typical Twin Tank Installation With Optional Meter Interlock And No Hard Water Bypass



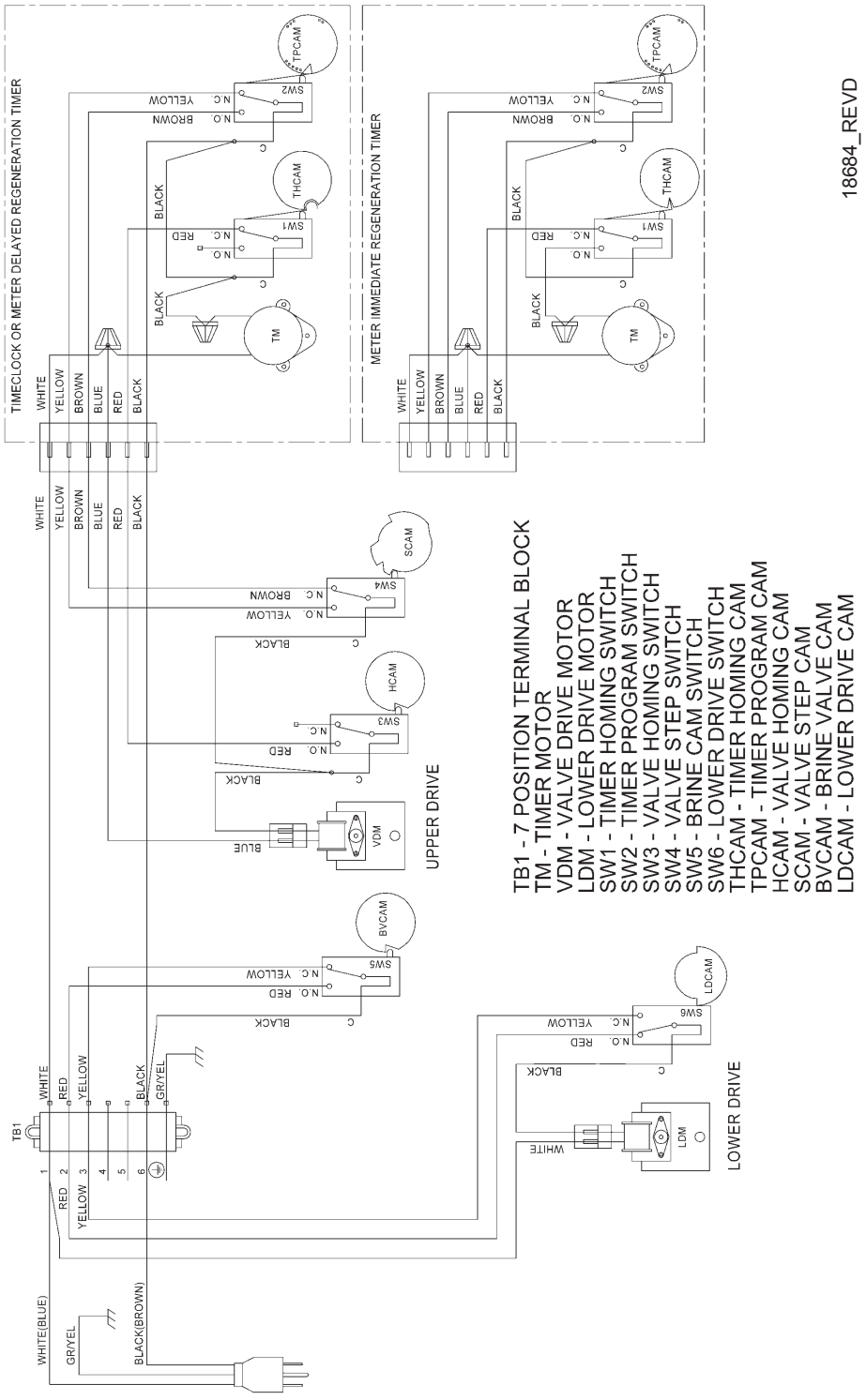
System #6 - Twin Series Regeneration & System #7 - Twin Alternator Installation



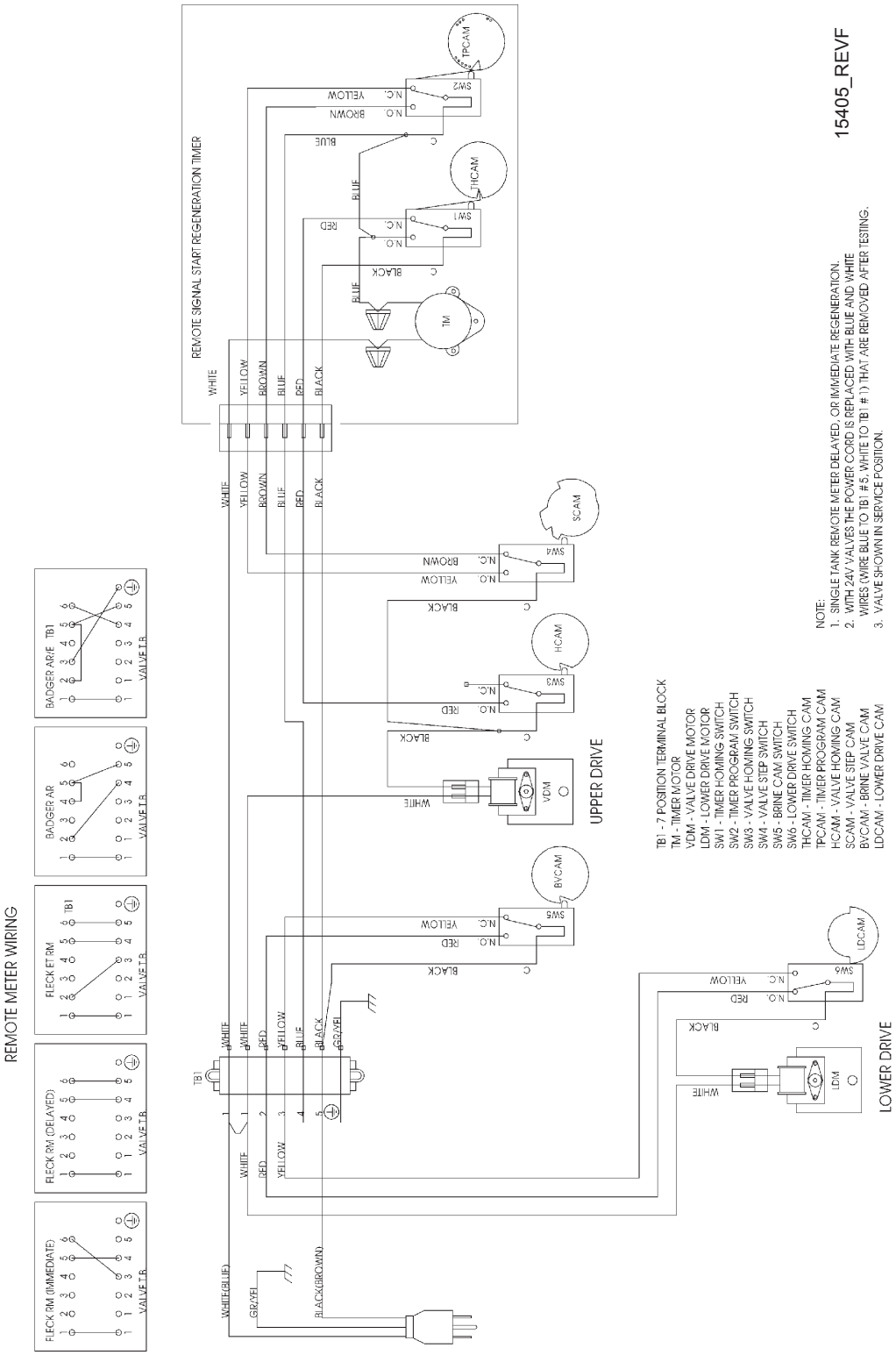
NOTE: On System 7, the power cord is on unit 2.

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.

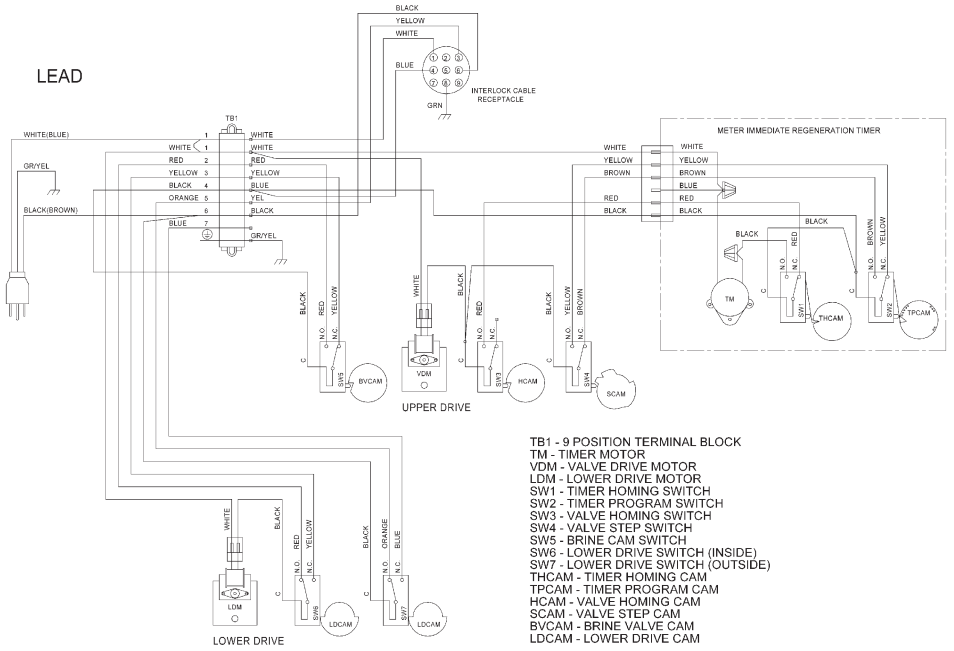
System #4 - Single Valve Regeneration Immediate and Delayed Valve Wiring



System #4 - With Remote Signal Start Valve Wiring

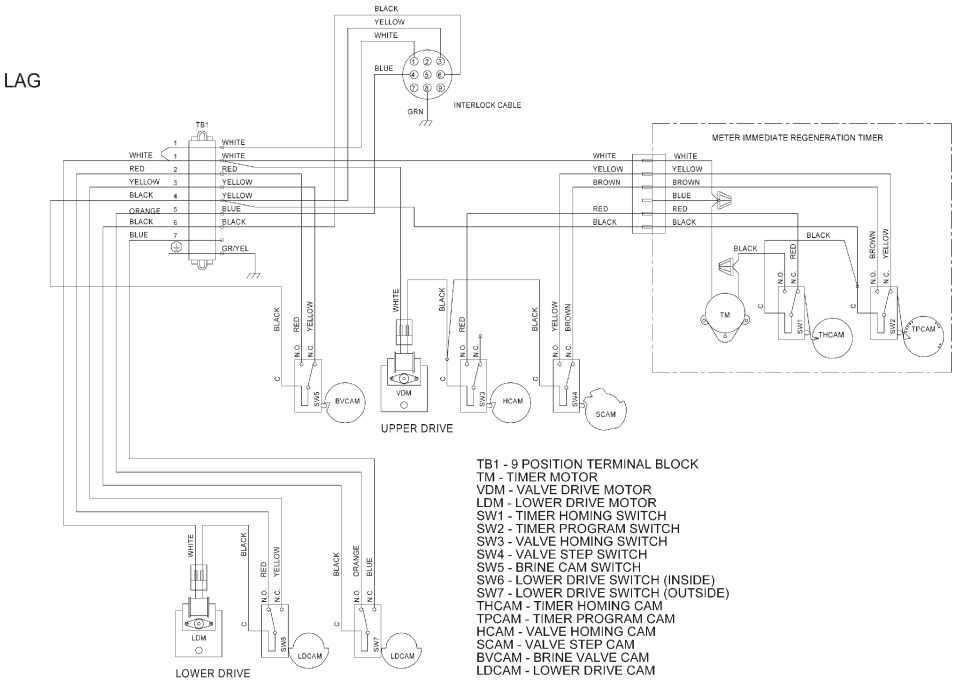


System #5 - Interlocked Regeneration Valve Wiring



NOTE:
1. TWO TANK INTERLOCKED, INDIVIDUAL METER, IMMEDIATE REGENERATION.
2. BOTH TANKS NORMALLY IN SERVICE. ONLY ONE TANK IN REGENERATION, THE OTHER REMAINS IN SERVICE.
3. VALVE SHOWN IN SERVICE.

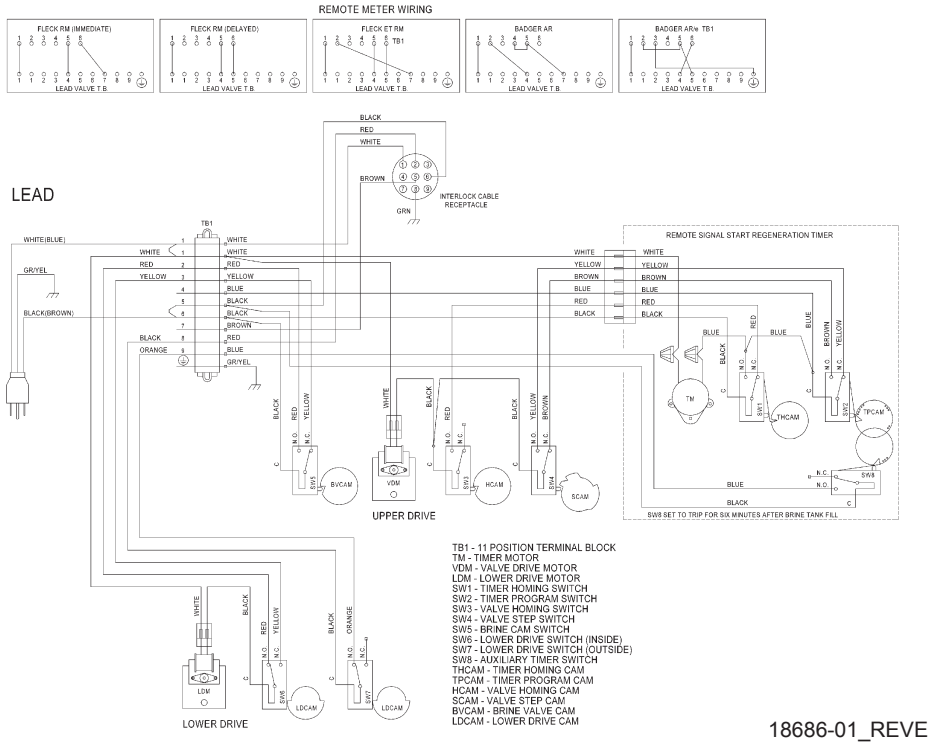
18685-01_REVD



NOTE:
1. TWO TANK INTERLOCKED, INDIVIDUAL METER, IMMEDIATE REGENERATION.
2. BOTH TANKS NORMALLY IN SERVICE. ONLY ONE TANK IN REGENERATION, THE OTHER REMAINS IN SERVICE.
3. VALVE SHOWN IN SERVICE.

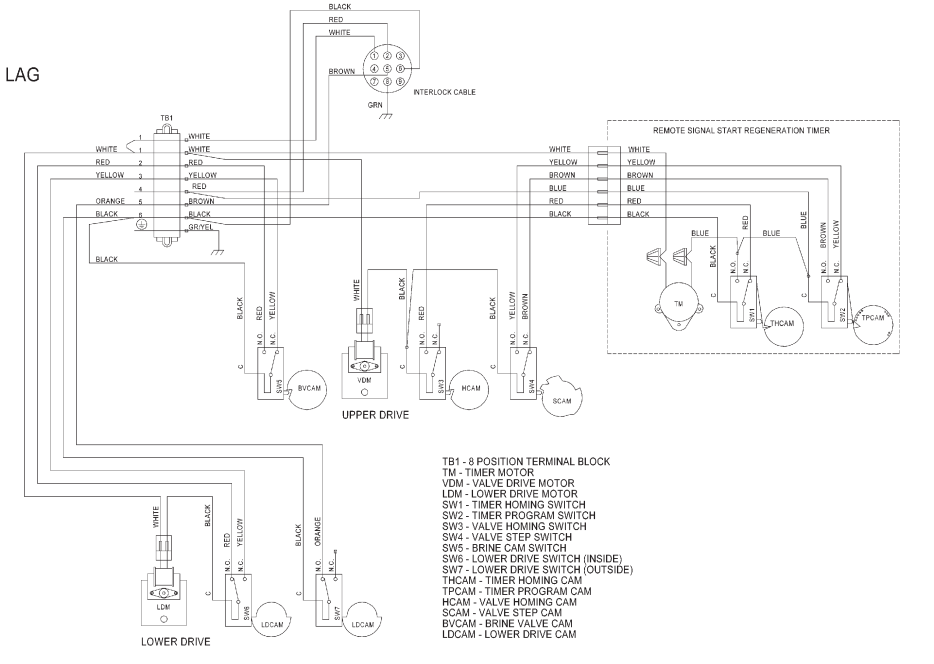
18685-02_REVD

System #6 - Series Regeneration Valve Wiring



18686-01_REVE

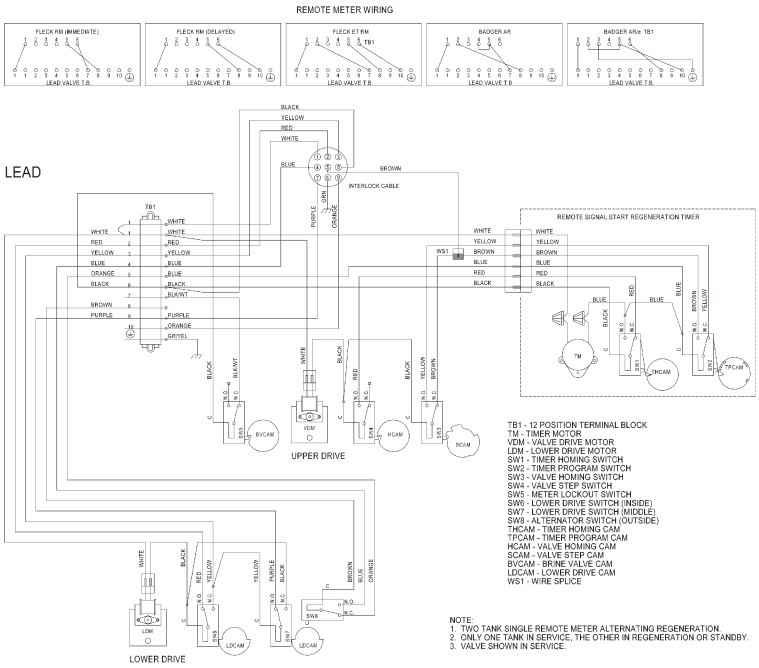
NOTE:
1. TWO TANK INTERLOCKED, SINGLE REMOTE METER, SERIES REGENERATION.
2. BOTH TANKS NORMALLY IN SERVICE.
3. ONLY ONE TANK IN REGENERATION, THE OTHER REMAINS IN SERVICE.
4. LEAD VALVE REGENERATES FIRST, FOLLOWED IMMEDIATELY BY LAG VALVE.
5. VALVE SHOWN IN SERVICE POSITION.



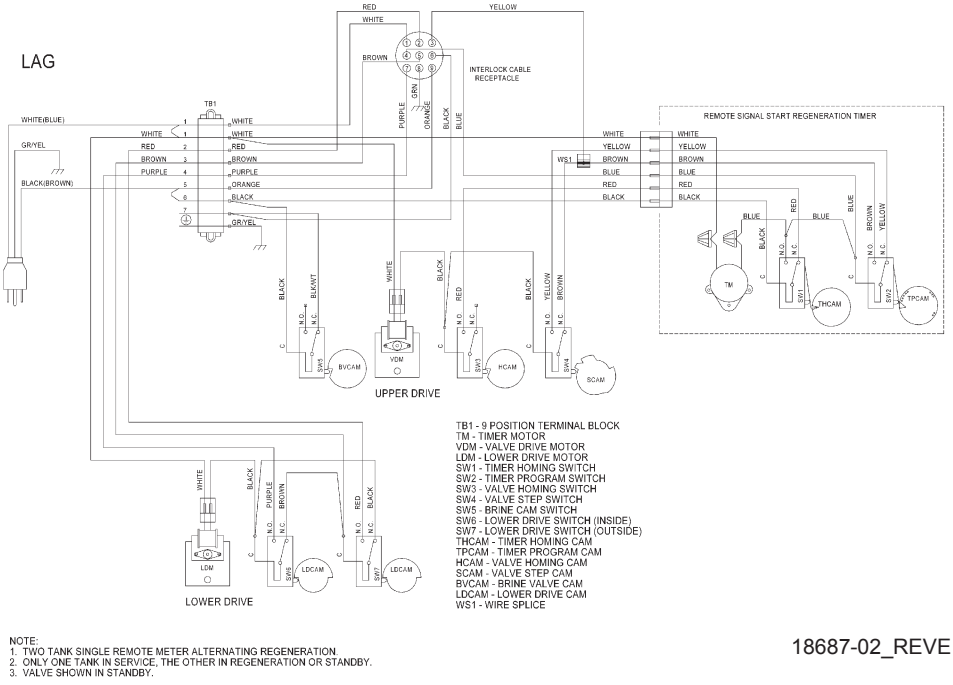
NOTE:
1. TWO TANK INTERLOCKED, SINGLE REMOTE METER, SERIES REGENERATION.
2. BOTH TANKS NORMALLY IN SERVICE.
3. ONLY ONE TANK IN REGENERATION, THE OTHER REMAINS IN SERVICE.
4. LEAD VALVE REGENERATES FIRST, FOLLOWED IMMEDIATELY BY LAG VALVE.
5. VALVE SHOWN IN SERVICE POSITION.

18686-02_REVE

System #7 - Alternating Regeneration Valve Wiring

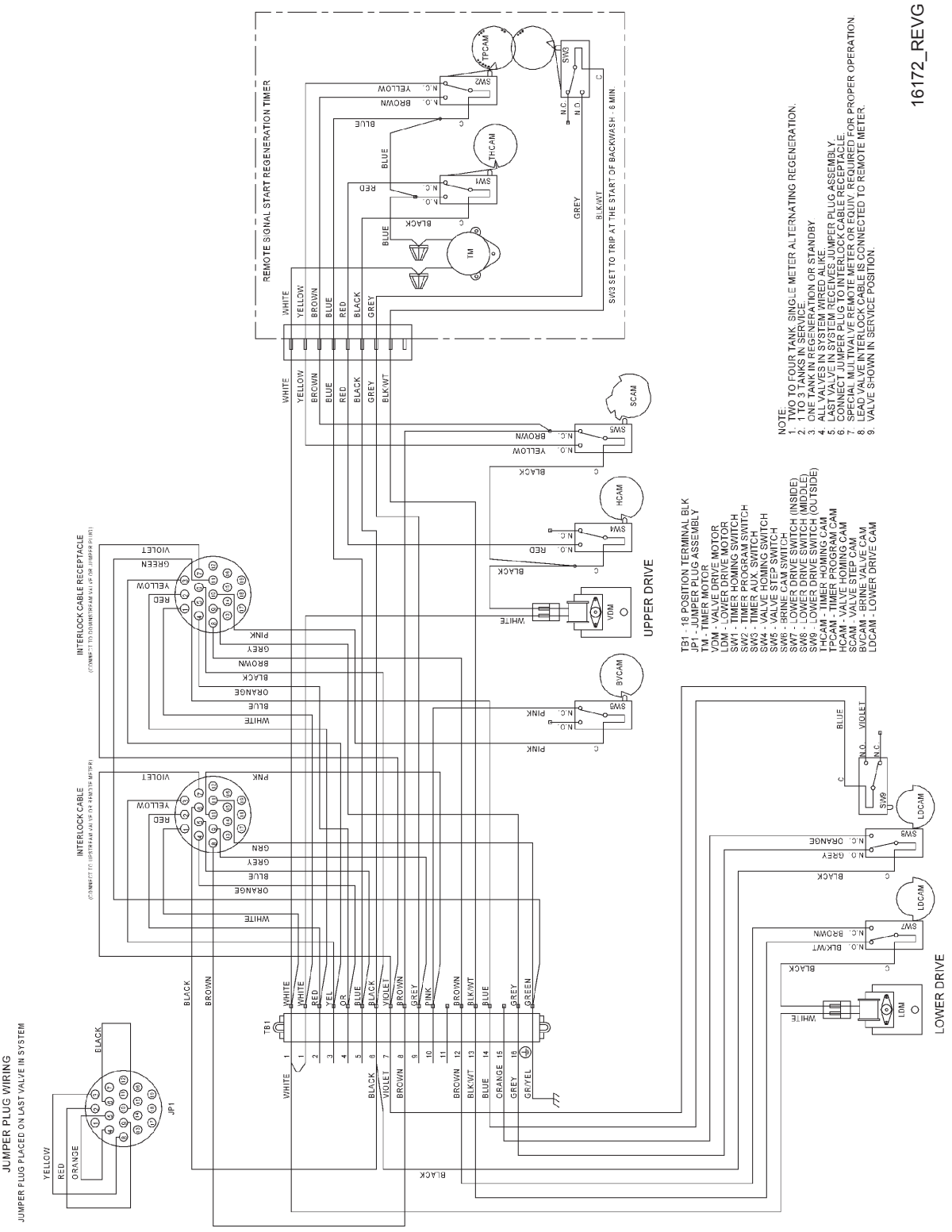


18687-01_REVE



18687-02_REVE

System #7 - Alternating Regeneration Valve Wiring



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

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-XX..... Environmental lower cover
60219-XX..... Environmental
60232-XX..... Designer 2 piece
60232-110..... Cover, Designer, 1 Pc Black
60239-XX..... Designer Lower cover

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" Std
60616..... Meter Assy, Elec 2"
60620..... Meter Assy, 2" Plastic, Std
60621..... Meter Assy, 2" Plastic, Std
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, 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" 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

Safety Brine Valves:
60014..... Safety Brine Valve Assy, 2310
60038..... Safety Brine Valve , 2350
60026-30 ..... Float Assy, 400A/2350, 30" Red/Wht
60026-30SAN.. Float Assy, 400A/2350, 30" HW
60027-FFA..... Safety Brine Valve Body, 2300 Fitting Facing Arm
60027-FFS..... Safety Brine Valve Body Fitting Facing Stud
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

Notes