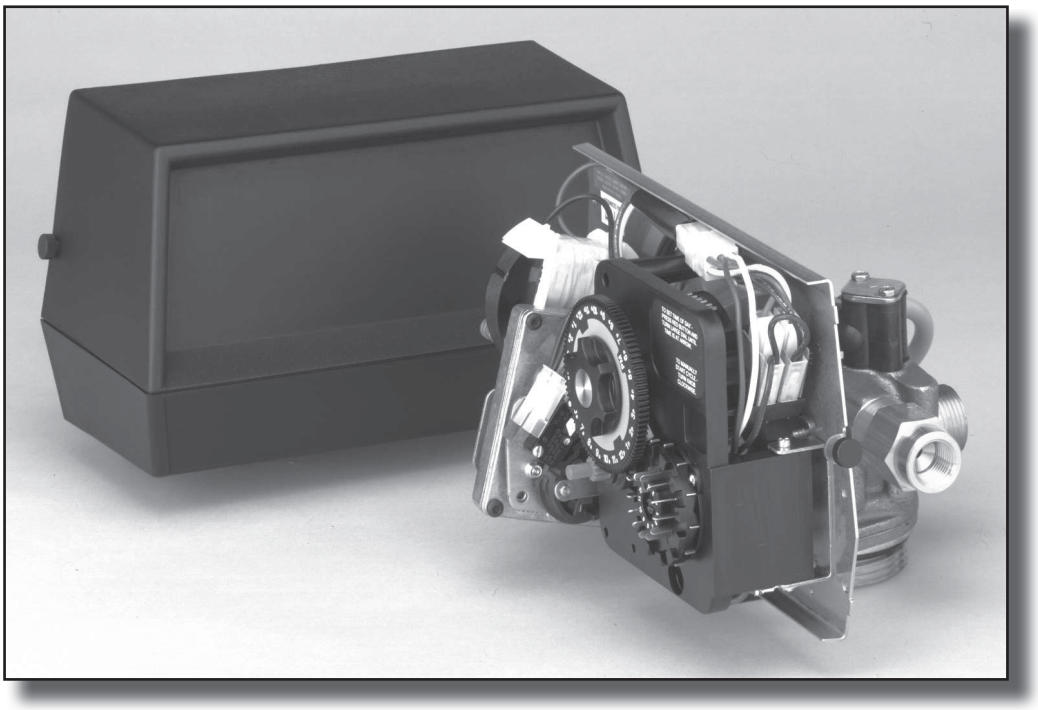
Model 2750 Downflow

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 (5.5 bar), 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 110°F (43°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. 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 Number: _____

Model Number: _____

Water Hardness: _____ ppm or gpg

Capacity Per Unit: _____

Mineral Tank Size: _____ Diameter: _____ Height:

Salt Setting per Regeneration: _____

1. **Type of Timer:**
   A. 7 Day or 12 Day B. Meter Initiated
2. **Downflow:** **Upflow** **Upflow Variable**
3. **Meter Size:**
   A. 3/4” Std Range (125 - 2,100 gallon setting)
   B. 3/4” Ext Range (625 - 10,625 gallon setting)
   C. 1” Std Range (310 - 5,270 gallon setting)
   D. 1” Ext Range (1,150 - 26,350 gallon setting)
   E. 1-1/2” Std Range (625 - 10,625 gallon setting)
   F. 1-1/2” Ext Range (3,125 - 53,125 gallon setting)
   G. 2” Std Range (1,250 - 21,250 gallon setting)
   H. 2” Ext Range (6,250 - 106,250 gallon setting)
   I. 3” Std Range (3,750 - 63,750 gallon setting)
   J. 3” Ext Range (18,750 - 318,750 gallon setting)
   K. Electronic_____ Pulse Count _____ Meter Size
4. **System Type:**
   A. System #4: 1 Tank, 1 Meter, Immediate, or Delayed Regeneration
   B. System #4: Time Clock
   C. System #4: Twin Tank
   D. System #5: 2-5 Tanks, 2 Meters, Interlock
   E. System #6: 2-5 Tanks, 1 Meter, Series Regeneration
   F. System #7: 2-5 Tanks, 1 Meter, Alternating
   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 Instructions

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

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

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

LOCATION OF SOFTENER AND DRAIN: The softener should be located close to a drain to prevent air breaks and back flow.

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

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

Installation Instructions

1. Place the softener tank where you want to install the unit making sure the unit is level and on a firm base.
2. During cold weather, the installer should warm the valve to room temperature before operating.
3. All plumbing should be done in accordance with local plumbing codes. The pipe size for residential drain line should be a minimum of 1/2" (13 mm). Backwash flow rates in excess of 7 gpm (26.4 Lpm) or length in excess of 20' (6 m) require 3/4" (19 mm) drain line. Commercial drain lines should be the same size as the drain line flow control.
4. Refer to the dimensional drawing for cutting height of the distributor tube. If there is no dimensional drawing, cut the distributor tube flush with the top of the tank.
5. Lubricate the distributor O-ring seal and tank O-ring seal. Place the main control valve on tank. Note: Only use silicone lubricant.
6. Solder joints near the drain must be done prior to connecting the Drain Line Flow Control fitting (DLFC). Leave at least 6" (15 cm) between the DLFC and solder joints when soldering pipes that are connected on the DLFC. Failure to do this could cause interior damage to the DLFC.
7. Teflon tape is the only sealant to be used on the drain fitting. The drain from twin tank units may be run through a common line.
8. Make sure that the floor is clean beneath the salt storage tank and that it is level.
9. Place approximately 1" (25 mm) of water above the grid plate. If a grid is not utilized, fill to the top of the air check (Figure 1) in the salt tank. Do not add salt to the brine tank at this time.
10. On units with a by-pass, place in by-pass position. Turn on the main water supply. Open a cold soft water tap nearby and let run a few minutes or until the system is free from foreign material (usually solder) that may have resulted from the installation. Once clean, close the water tap.
11. Slowly place the by-pass in service position and let water flow into the mineral tank. When water flow stops, slowly open a cold water tap nearby and let run until the air is purged from the unit.
12. Plug unit into an electrical outlet. Note: All electrical connections must be connected according to local codes. (Be certain the outlet is uninterrupted).

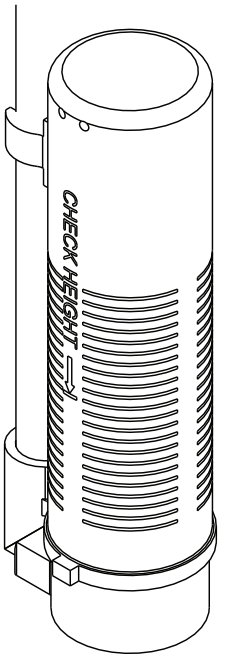

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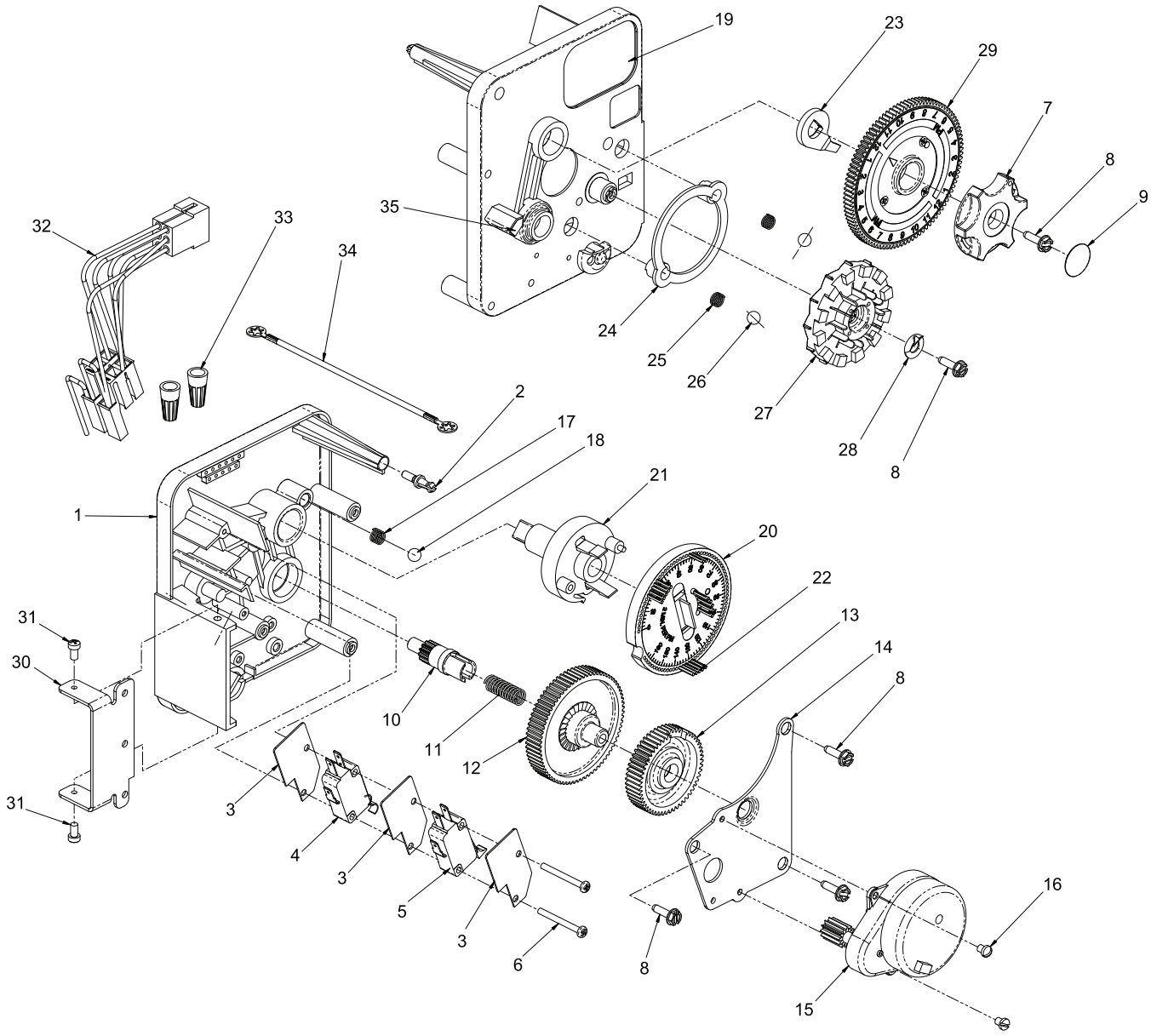
Figure 1 Residential Air Check Valve

CAUTION
- **Do not exceed 125 psi water pressure**
- **Do not exceed 110°F (43°C) water temperature**
- **Do not subject unit to freezing conditions**

WARNING

The system MUST be depressurized before removing any connections for servicing.

3200 Timer Assembly



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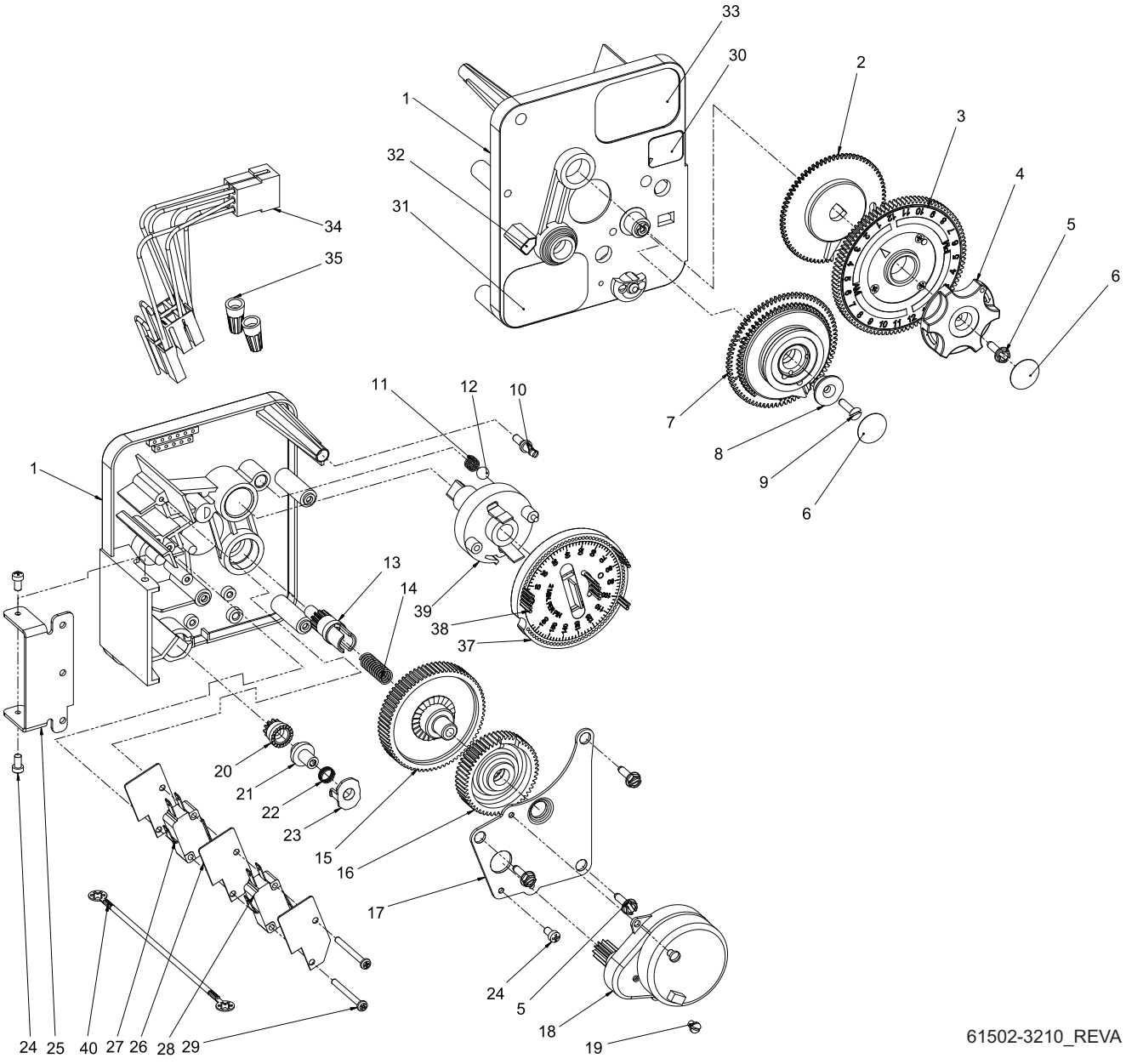
For Service Assembly Numbers, See the Back of this Manual

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 Stainless Steel, 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 Assembly, 12 Day
		14860	Skipper Wheel Assembly, 7 Day
28	1	13014	Pointer, Regeneration
29	1	40096-24	Dial, 12 AM Regen Assembly, Black
		40096-02	Dial, 2 AM Regen Assembly, 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

3210 Timer Assembly

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 Assembly, Black
4	1	13886	Knob, 3200
5	4	13296	Screw, Hex Wsh, 6-20 x 1/2
6	2	11999	Label, Button
7	1	60405-15	Program Wheel, w/34” Std Label, w/People Label Set @ 21
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 Stainless Steel, Timer
39	1	13911	Gear, Main Drive, Timer
40	1	15354-01	Wire, Ground 4”

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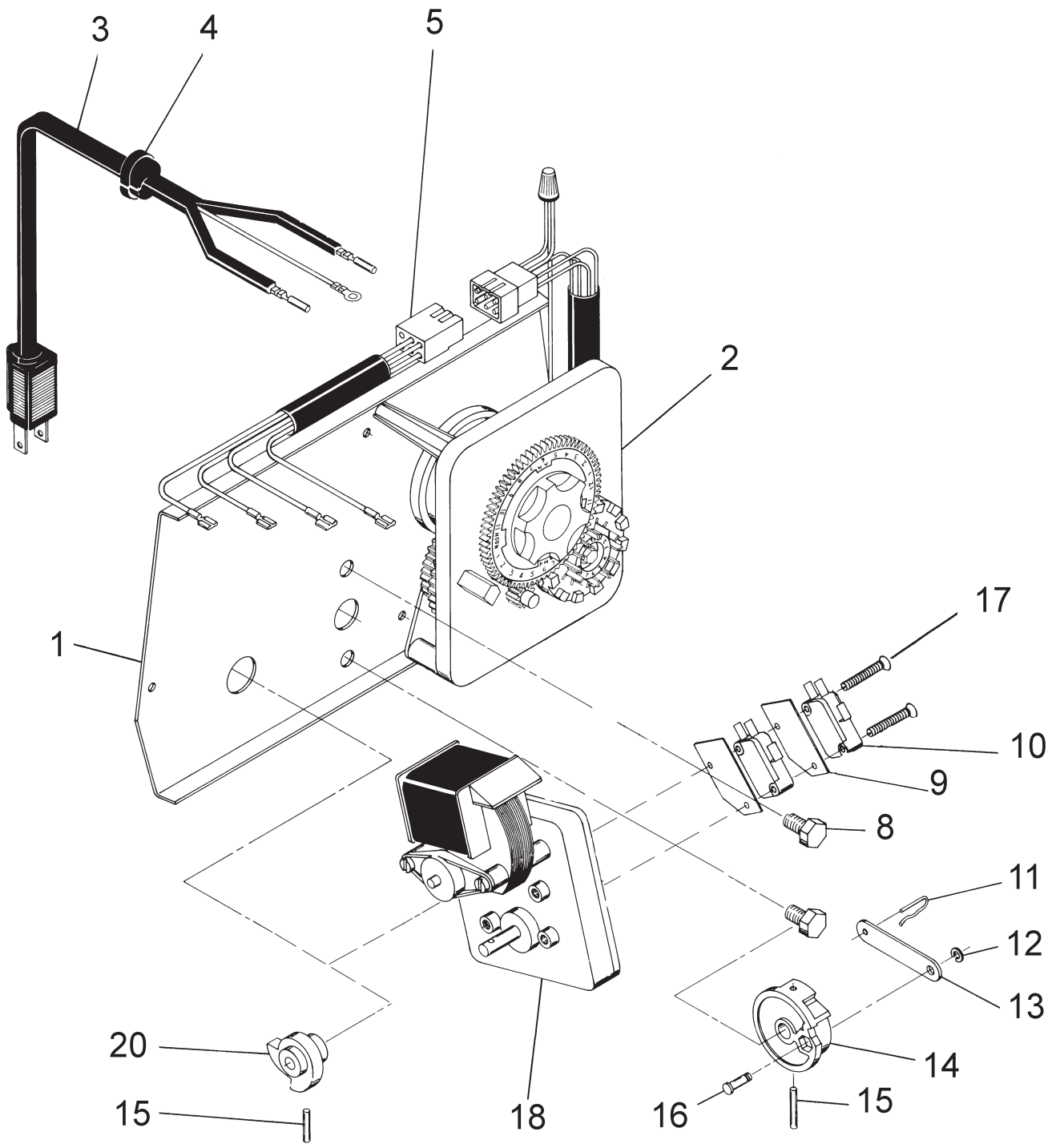
Powerhead Assembly (Designer)



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For Service Assembly Numbers, See the Back of this Manual

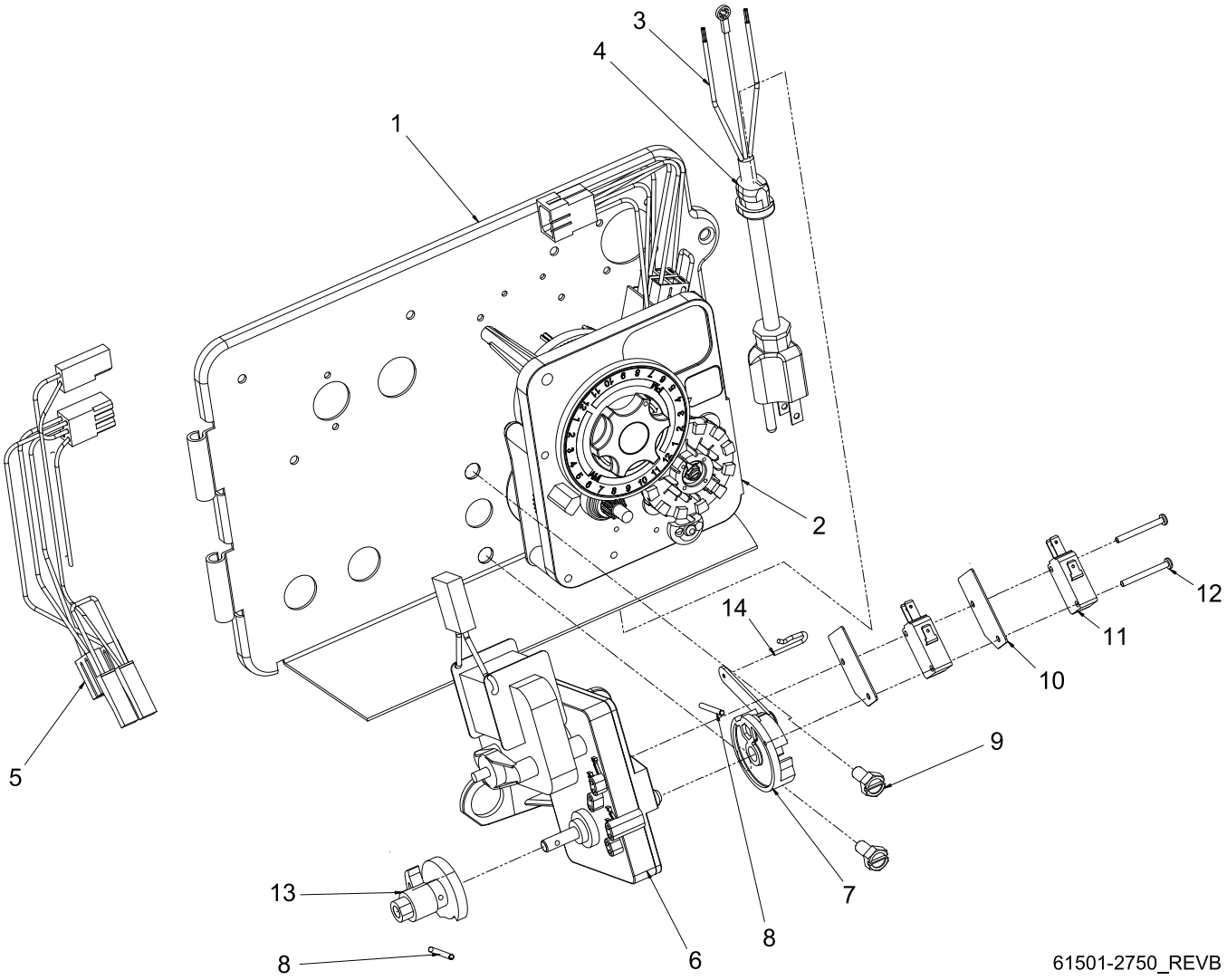
Item No.	Quantity	Part No.	Description
1	1	40264	Backplate, SS/SVO, W-T-Screws
2	1		3200, Timer 7 or 12 Day
3	1	11838	Power Cord
4	1	13547	Strain Relief
5	1	40400	Harness, Drive, Designer/Environmental
8	2	10231	Screw - Drive Mounting
9	2	10302	Insulator
10	2	10218	Switch
11	1	10909	Connecting Link Pin
12	1	10250	Retaining Ring
13	1	10621	Connecting Link
14	1	12576	Drive Cam - STF (Black)
15	2	10338	Roll Pin
16	1	13366	Drive Bearing
17	2	14923	Screw - Switch Mounting
18	1	41543*	Motor, Drive, 115V, 50/60Hz
		42579**	Motor, Drive, 24VAC/VDC, 50/60Hz
		41545*	Motor, Drive, 230V, 50/60Hz
20	1	12777	Brine Valve Cam - STF (Black)

Not Shown:

	2	10300	Screw - Timer Mounting
	1	13741	Hole Plug
	1	17904	Hole Plug
	2	19367	Screw, Thumb
	1	15441	Cable Guide Assembly, 2750
	1	15513	Meter Cable, 17.50”

* Bracket is integrated into the motor.
** Bracket is integrated into the motor and picture may not reflect actual component.

Environmental Powerhead Assembly



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Environmental Powerhead Assembly

1	1	18697	Backplate, Hinged, 2900
2	1		Timer: - 3200 7 Day - 3200 12 Day - 3210 Meter
3	1	11839	Power Cord, 12' Fleck
4	1	13547	Strain Relief, Flat Cord
5	1	40400	Harness, Drive, Designer/Environmental
6	1	41543*	Motor, Drive, 115V, 50/60Hz
		42579**	Motor, Drive, 24VAC/VDC, 50/60Hz
		41545*	Motor, Drive, 230V, 50/60Hz
7	1	60160-15	Drive Cam Assy, STF, Blue, 2900
8	2	10338	Pin, Roll, 8/32 x 7/8
9	2	10231	Screw, Slot Hex, 1/4 - 20 x 1/2
10	2	10302	Insulator, Limit Switch
11	2	10218	Switch, Micro
12	2	14923	Screw, Pan Hd Mach, 4-40 x 1
13	2	12777	Cam, Shut-Off Valve
14	1	10909	Pin, Link

Not Shown:

1	15513	Meter Cable, 17.50"
1	15441	Cable Guide Assy, 2750
2	10300	Screw, Slot Hex Wsh, 8-18 x 3/8
1	13741	Plug, 3/4", Knock-Out
1	15806	Plug, Hole, Heyco #2693
1	16493	Plug, Hole, Heyco
1	17421	Plug, 1.20 Hole Heyco #2733
2	19691	Plug, .750 Dia, Recessed, Black
7	19800	Plug, .140 Dia, White
4	19801	Plug, .190 Dia, White
1	10872	Screw, Hex Wsh, 8-32 x 17/64

* Bracket is integrated into the motor.
** Bracket is integrated into the motor and picture may not reflect actual component.

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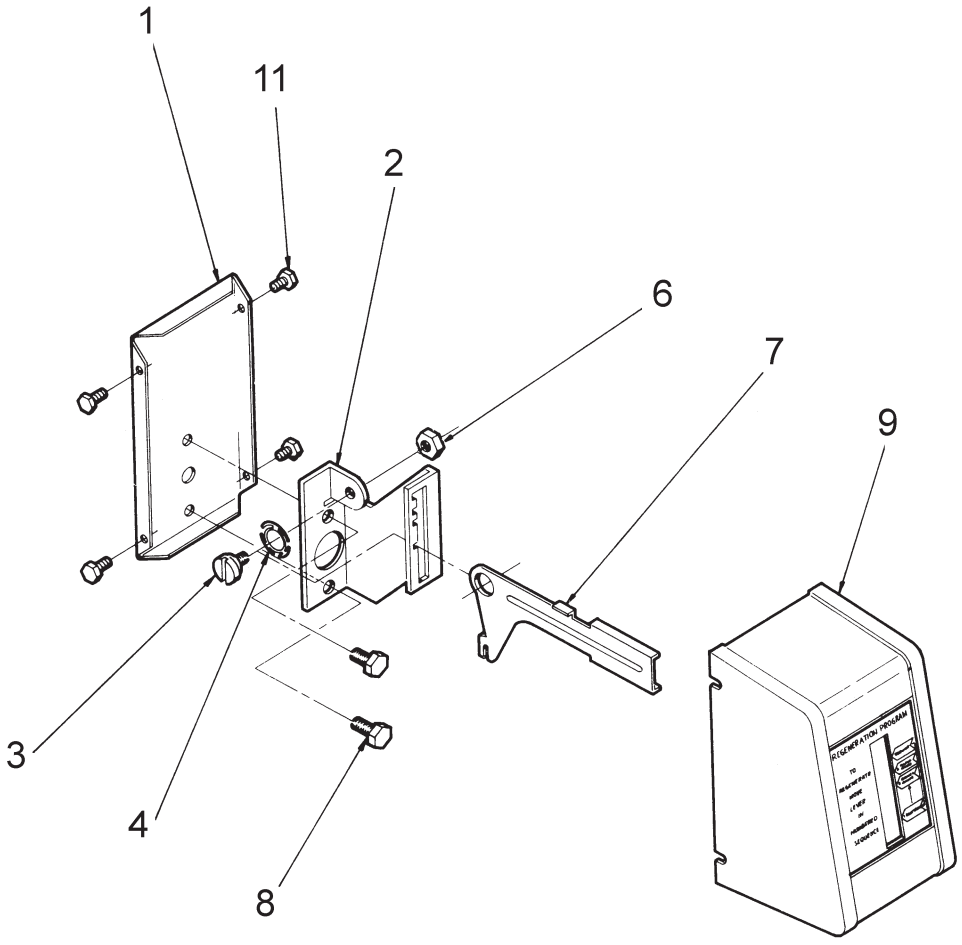
Manual Powerhead Assembly



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Item No.	Quantity	Part No.	Description
1	1	12593	Backplate, Manual
2	1	12592	Bracket, Lever Position
3	1	12596	Screw, Spec Mach, 1/4 - 20 x 1/2
4	1	12707	Washer, Spring
6	1	11235	Nut, Hex, 1/4 - 20, Mach Screw, Zinc
7	1	12594	Lever, Valve Position
8	2	10231	Screw, Slot Hex, 1/4 - 20 x 1/2 18-8 S.S.
9	1	60224-32	Cover Assy, Manual, Filter
	1	60224-33	Cover Assy, Manual, Softener
11	4	10300	Screw, Slot Hex Wsh, 8-18 x 3/8 Type “B” RC44-47

Not Shown:

	1	10909	Pin, Link

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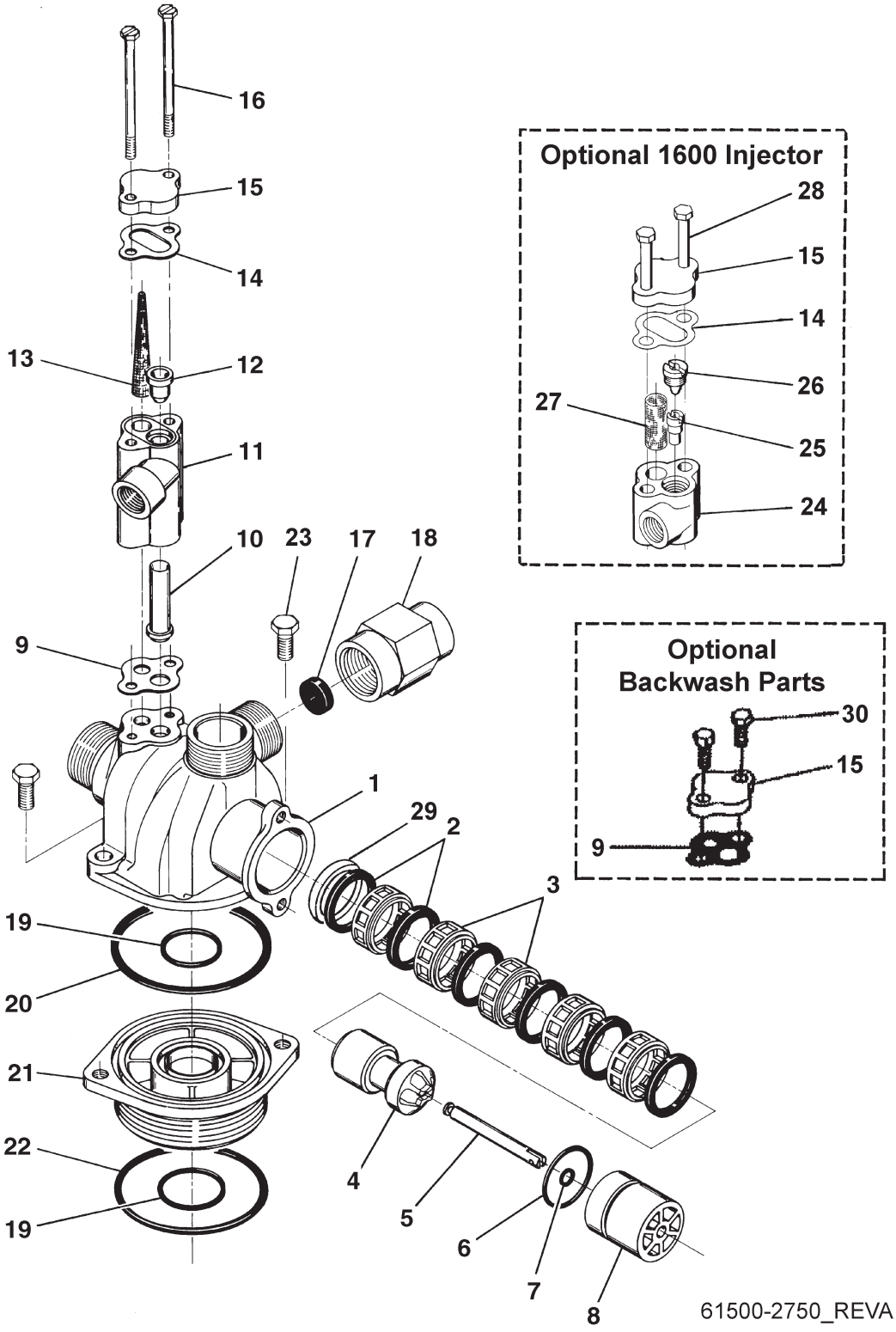
Control Valve with 1700 Injector



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Item No.	Quantity	Part No.	Description
1	1	14749	Valve Body, 2750
2	6	10545	Seal, Piston
3	5	11451	Spacer, 12 Hole
		16589	Spacer, HW
4	1	14451	Piston, 2750
5	1	14452	Rod, Piston
6	1	10234-01	O-Ring, -024, 560CD
7	1	10209	Quad Ring, -010
8	1	10598	End Plug Assembly
		10598-01	End Plug Assembly, Hot Water
9	1	14805	Gasket, Injector Body, 1600/1700
10	1	14802-xxc	Throat, Injector, -xxc is for Injector Size
11	1	17777	Body, Injector, 1700
12	1	14801-xxc	Nozzle, Injector, -xxc is for Injector Size
13	1	14803	Screen, Injector
14	1	10229	Gasket, Injector Cap, 1600
15	1	11893	Cap, Injector, Stainless Steel
		10228	Cap, Injector, Brass
16	2	14804	Screw, Hex Hd Mach, 10-24 x 2-3/4
17	1		Washer - Flow Control (specify size)
18	1	60365-00	Housing, DLFC, 1/2”F x 3/4”F
19	2	11710	O-ring, -215
20	1	11208	O-ring, -232
21	1	12461-01	Adapter Base, 1” 2-1/2” - 8 Quick Connect
22	1	10381	O-ring, -231
23	2	11224	Screw, Hex Hd, 5/16 - 18 x 5/8
24	1	17776	Body, Injector
25	1	10914-xx	Throat, Injector, -xx is for Injector Size
26	1	10913-xx	Nozzle, Injector, -xx is for Injector Size
27	1	10227	Screen, Injector
28	2	10692	Screw, Slot Hex Hd, 10-24 x 18-8 Stainless Steel
29	1	10757	Spacer, End
		10757B	Spacer, End, Brass
30	1	15137	Screw, Hex Wsh Mach, 10-24 x 3/8
Not Shown	1	16221	Disperser, Air, 1600
	1	17996	Disperser, Air, 1700

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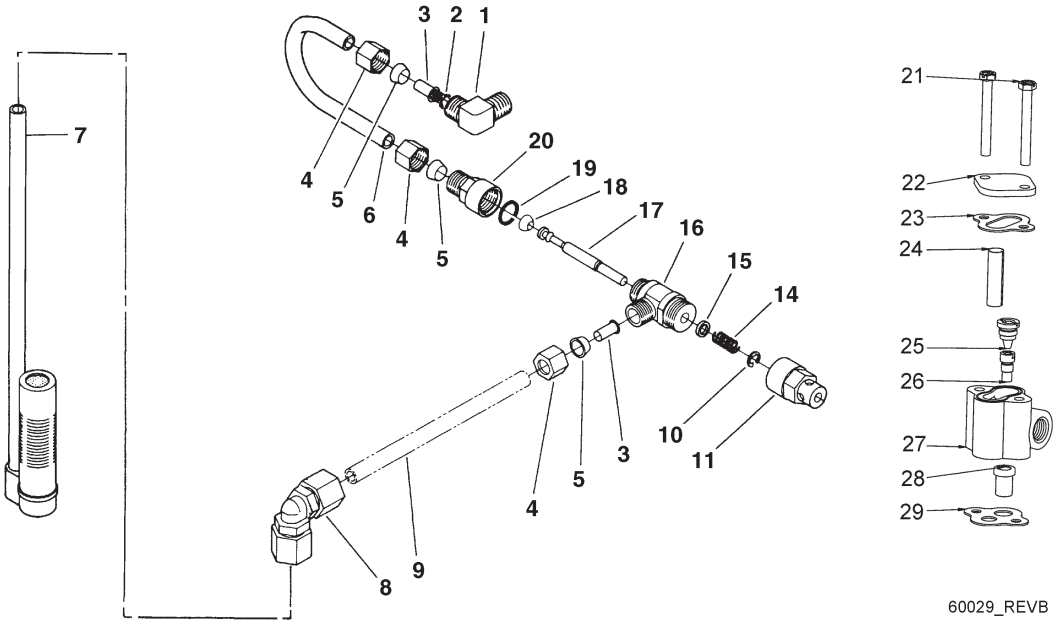
1600 Series Brine System Assembly



Item No.	Quantity	Part No.	Description
1	1	10328	Elbow, 90 Deg. 1/4 NPT x 3/8 Tube
2	1	12767	Screen, Brine
3	2	10332	Fitting, Insert, 3/8
4	3	10329	Fitting, Tube, 3/8 Nut, Brass
5	3	10330	Fitting, Sleeve, 3/8 Celcon
6	1	15221	Tube, Brine Valve, Gray
7	1	60002-34	Air Check, #500
		60003-34	Air Check, #500, HW
8	1	12794	Fitting, Elbow, 90 Deg 3/8, White, Poly Tube
9	1	Not Supplied	Brine Line Tube (3/8” Flexible Tube)
10	1	10250	Ring, Retaining
11	1	11749	Guide, Brine Valve Stem
14	1	10249	Spring, Brine Valve
15	1	12550	Quad Ring, -009
16	1	12748	Brine Valve Body Assy, 1600 w/Quad Ring
17	1	12552-02	Brine Valve Stem, 1600, w/Seat
18	1	12626	Seat, Brine Valve
19	1	11982	O-ring, -016
20	1	60020-25	BLFC, .25 GPM, 1600
		60020-50	BLFC, .50 GPM, 1600
		60020-100	BLFC, 1.0 GPM, 1600
21	2	10692	Screw, Slot Hex Hd, 10-24 x 18-8
22	1	11893	Cap, Injector, SS
23	1	10229	Gasket, Injector Cap, 1600
24	1	10227	Screen, Injector
25	1	10913-xx	Nozzle, Injector, -xx is for Injector Size
26	1	10914-xx	Throat, Injector, -xx is for Injector Size
27	1	17776	Body, Injector, 1600
28	1	16221	Disperser, Air
29	1	14805	Gasket, Injector Body, 1600/1700

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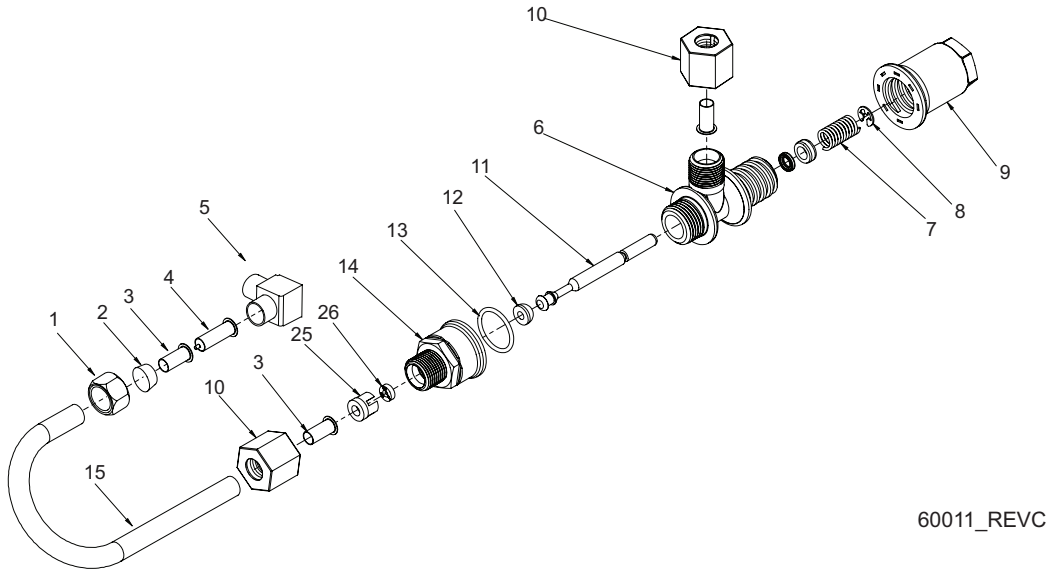

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Item No.	Quantity	Part No.	Description
1	1	10329	Fitting, Tube, 3/8 Nut, Brass
2	1	10330	Fitting, Sleeve, 3/8 Celcon
3	3	10332	Fitting, Insert, 3/8
4	1	12767	Screen, Brine
5	1	10328	Fitting, Elbow, 90 Deg 1/4 NPT x 3/8T
6	1	17884	Brine Valve Body Assy, 1650
7	1	10249	Spring, Brine Valve
8	1	10250	Ring, Retaining
9	1	17906	Guide, Brine Valve Stem
10	2	19625	Nut Assy, 3/8", Plastic
11	1	12552-02	Brine Valve Stem, 1600, with Seat
12	1	12626	Seat, Brine Valve
13	1	16924	O-Ring, -018
14	1	60010-25	BLFC, 1650, .25 GPM, Plastic
	1	60010-50	BLFC, 1650, .50 GPM, Plastic
	1	60010-100	BLFC, 1650, 1.0 GPM, Plastic
15	1	16508-01	Tube, Brine Valve, 2850/1600
	1	40027	Tube, Brine Valve, 2510
	1	42184	Tube, Brine Valve, 2850s
	1	12774	Tube, Brine Valve, 1500
	1	15221	Tube, Brine Valve, 2750
	1	41683*	Tube, Brine Valve, UF, 1600/1650
16	2	10692	Screw, Slot Hex Hd, 10 - 24X 18-8 Stainless Steel
17	1	11893	Cap, Injector, SS
18	1	10229	Gasket, Injector Cap, 1600
19	1	10227	Screen, Injector
20	1	10913-xx	Nozzle, Injector, -xx is for Injector Size
21	1	10914-xx	Throat, Injector, -xx is for Injector Size
22	1	17776	Body, Injector, 1600
	1	17776-02*	Body, Injector, 1600 Upflow
23	1	16221	Disperser, Air
24	1	14805	Gasket, Injector Body, 1600/1700
25	1	12098	Retainer, Flow Control
26	1	12094	Washer, Flow, .25 gpm
	1	12095	Washer, Flow, .50 gpm
	1	12097	Washer, Flow, 1.00 gpm

*Upflow Only

1700 Series 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	3	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	15416	Tube, Brine, 2900/2750
	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-xxc	Throat, Injector, -xxc is for Injector Size
24		14801-xxc	Nozzle, Injection, -xxc is for Injector Size
25	1	10229	Gasket, Injector Cap, 1600
26	1	11893	Cap, Injector, Stainless Steel
	1	10228	Cap, Injector
27	2	14804	Screw, Hex Hd Mach, 10 - 24 x 2 3/4” 18-8 Stainless Steel
Not Shown:			
	1	16974	Fitting, Plastic, Female, 3/4 x 3/4 Slip
	1	17996	Disperser, Air, Injector

*Upflow Only

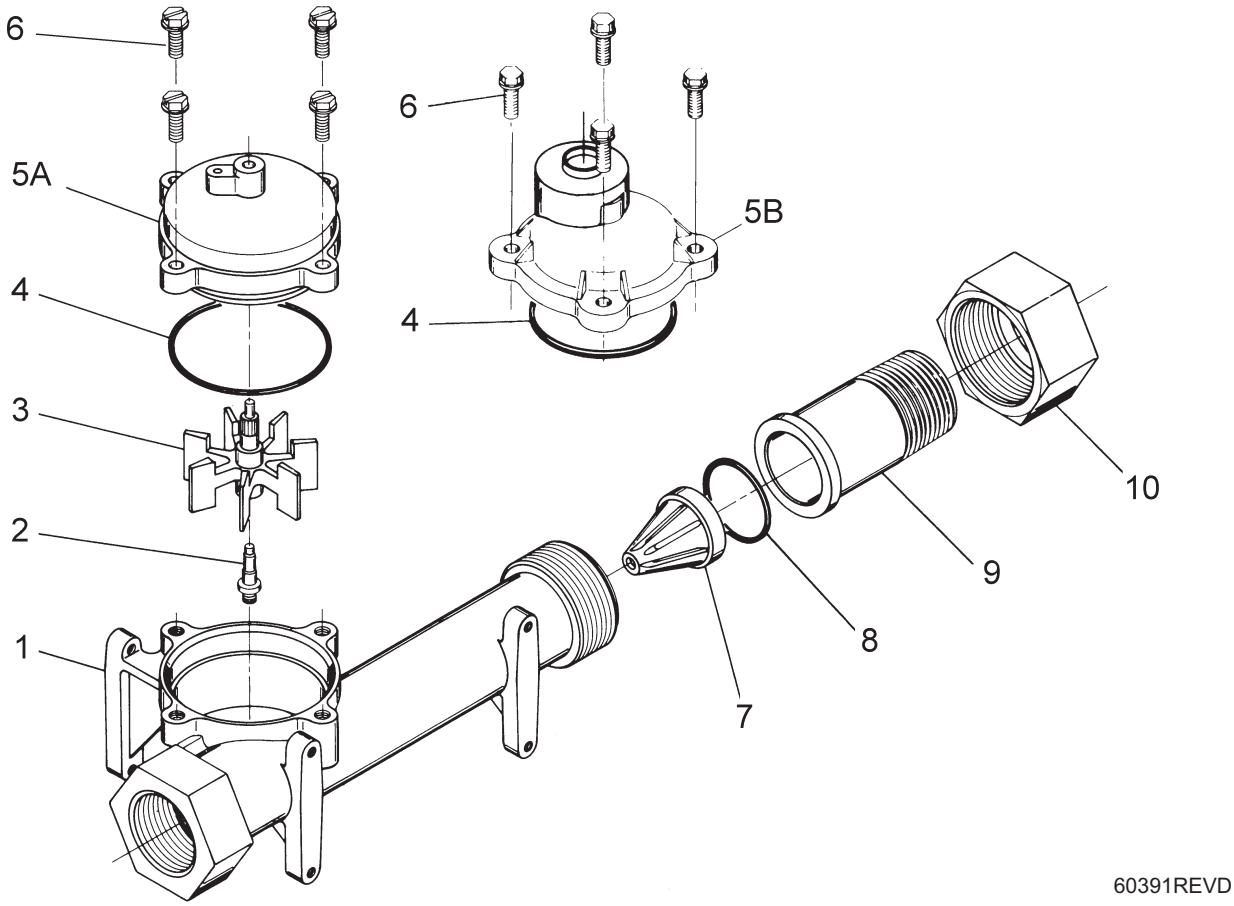
NOTE: Item number 26 (11893) is used on injector sizes 2 through 5C. Part number 10228 is used on injector sizes 6C.

For Service Assembly Numbers, See the Back of this Manual

1710 Brine System Assembly

60604_REVF

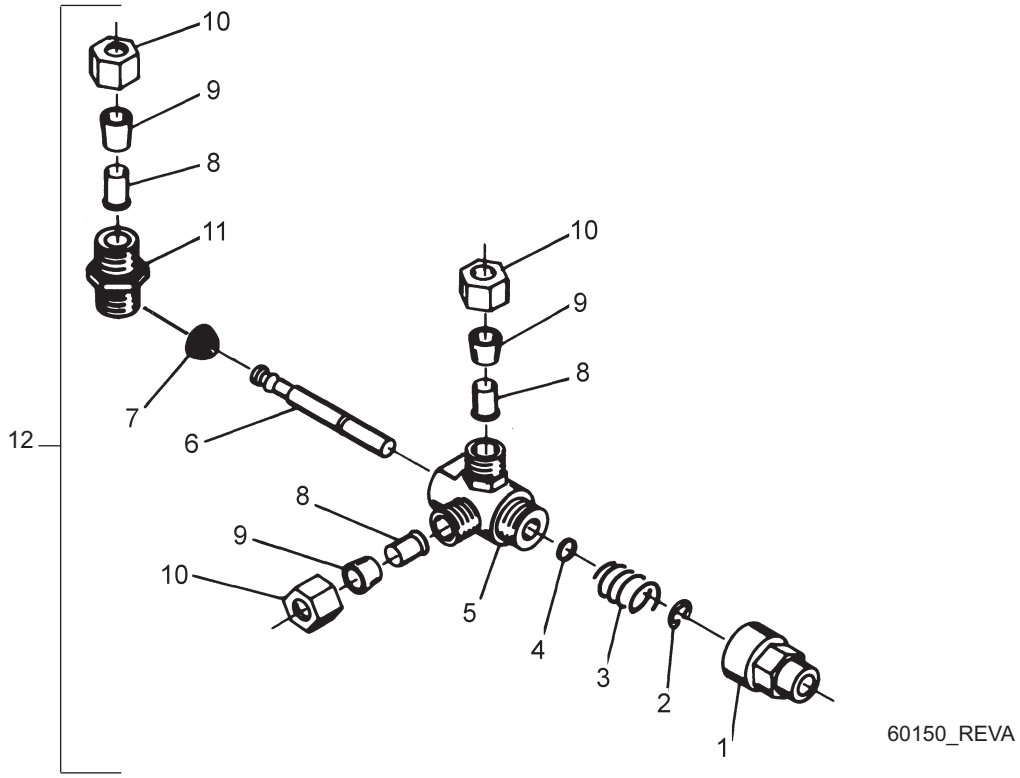
Item No.	Quantity	Part No.	Description
1	1	41202	Brine Valve, 1700, Plastic, Top
2	1	14785-01	Retainer, Flow Control
3	1	14811	O-Ring, -210, 560CD, Brine
4	1	14798	Spacer, 1700, Brine
5	1	14795	Piston, Brine Valve
6	1	41203	Stem, Brine, 1710, Plastic, 2900
7	1	41201	Brine Valve, 1700, Plastic, Bottom
8	5	17908	Sleeve, Brine Valve Stem
9	1	12550	Quad Ring, -009
10	3	41547	O-Ring, 2mmx35mm
11	2	15310	Spring, Brine Valve
12	2	10250	Ring, Retaining
13	1	17906	Guide, Brine Valve Stem
14	2	14202-01	Screw, Hex Wsh Mach, 8-32 X 5/16
15	2	41056	Nut Assembly, 1/2” Plastic
18	1	15414	Nut, 2900, w/Sleeve
19	1	15415	Fitting, Insert, 1/2”, Tube
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	19925	Gasket, Injector Body, 1700
22	1	17777	Body, Injector, 1700
23	1	14802-xxc	Throat, Injector, -xxc is for Injector Size
25	1	14801-xxc	Nozzle, Injector, -xxc is for Injector Size
26	1	10229	Gasket, Injector Cap, 1600
27	1	10228	Cap, Injector
28	2	14804	Screw, Hex Head Mach, 10 - 24 x 2 3/4
29	1	15413	Fitting, Elbow, Male, 1/2T X 3/8NPT
Not Shown	1	19151	Washer, Flow, 1.0 gpm
	1	17996	Disperser, Air, Injector
	1	414193-00	Label, Blank, BLFC, 1710



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

For Service Assembly Numbers, See the Back of this Manual

1600 Service Valve Operator (Old Style)



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	Service Valve Operator Body Assembly 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”
12	1	60150	Service Valve Assembly, Old Style

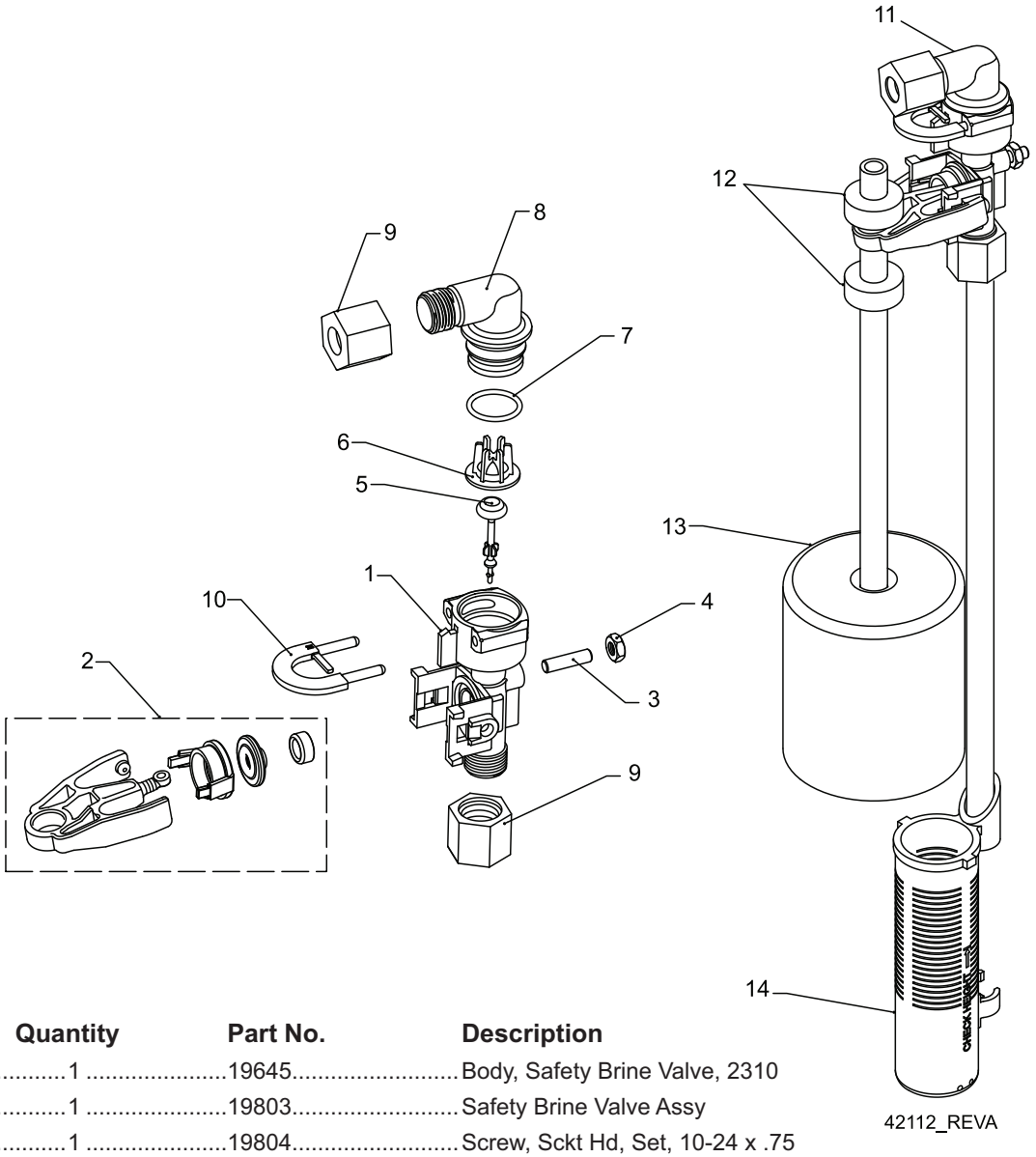
For Service Assembly Numbers, See the Back of this Manual

60150REVA

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	2	10785	SVO Body Assy Brass Valves
6	1	12552	Brine Valve Stem, 1600
7	1	12626	Seat, Brine Valve
8	5	10332	Fitting, Insert, 3/8
9	5	10330	Fitting, Sleeve, 3/8” Celcon
10	5	10329	Fitting, Tube, 3/8 Nut, Brass
11	1	10328	Fitting, Elbow, 90 Deg 1/4 NPT x 3/8 Tube
12	2	12897	Tube, Fitting, 3/8 x 9 3/4
13	1	16730	Fitting, Male, 1/4 x 1
14	2	15415	Fitting, Insert, 1/2” Tube
15a	1	12472	Cam Assy, Tri-Stack, After RR
15b	1	15770	Cam Assy, Special Tri-Stack After Brine Fill
16	1	12114	Bracket, Motor Outboard, Coated
17	1	60150-01	Service Valve Operator Assy, 1600, New Style, Item Nos 1-11

For Service Assembly Numbers, See the Back of this Manual

2310 Safety Brine Valve



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

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 psi.
	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

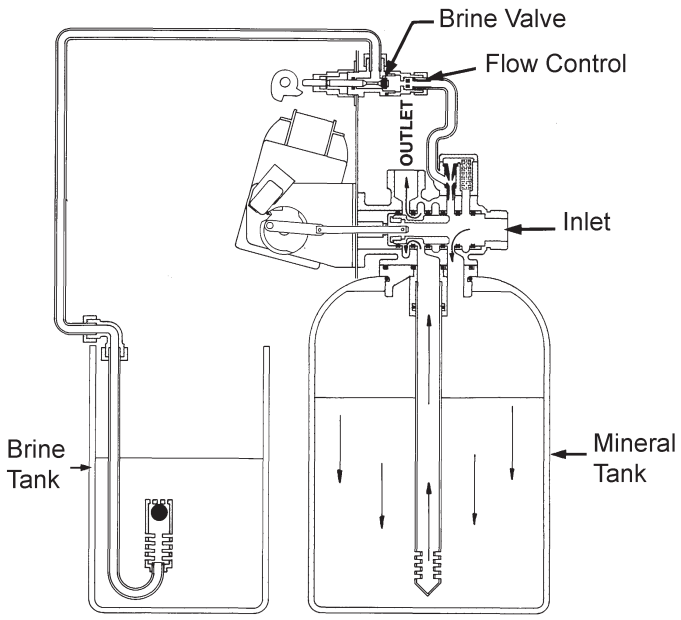
Reason: Reserve capacity has been exceeded.
Correction: Check salt dosage requirements and reset program wheel to provide additional reserve.

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.

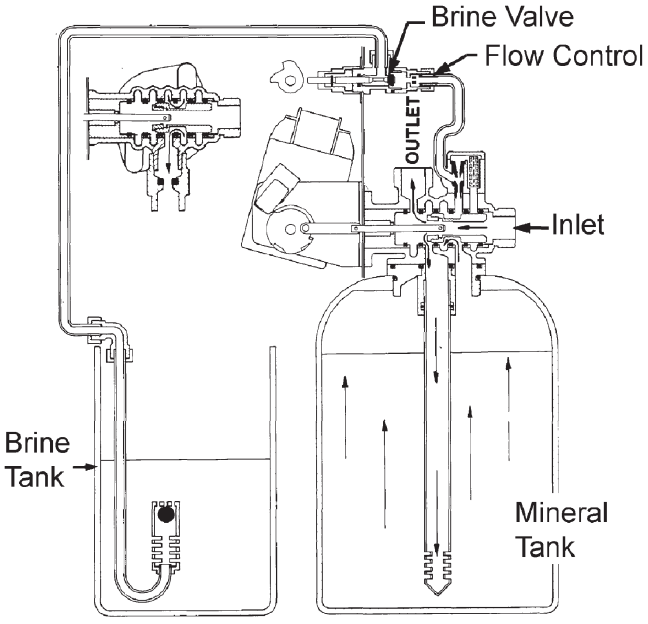
Reason: Meter is not measuring flow.
Correction: Check meter with meter checker.

Water Conditioner Flow Diagrams

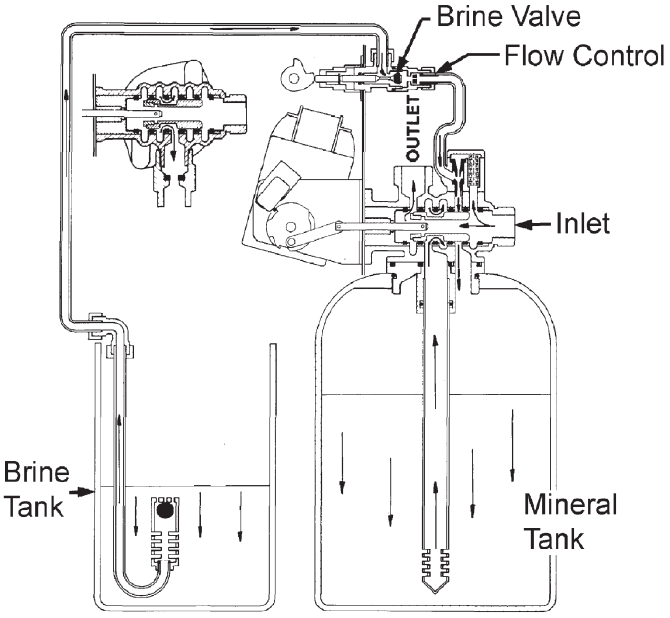
1 Service Position



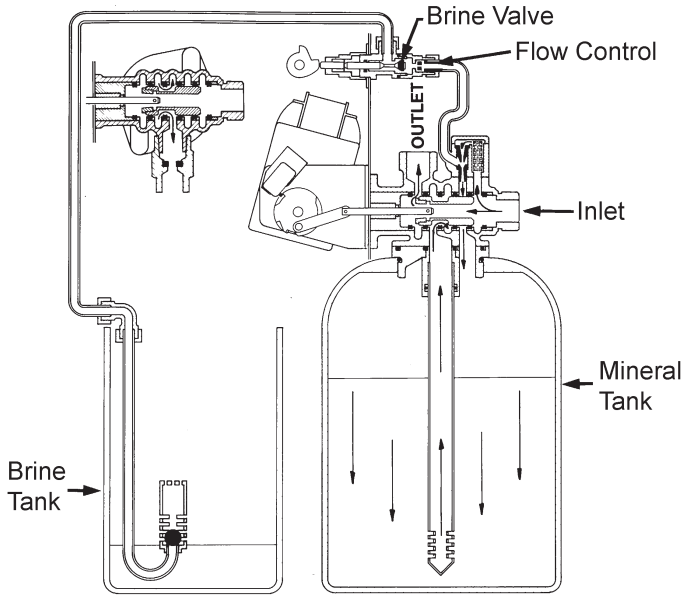
2 Backwash Position



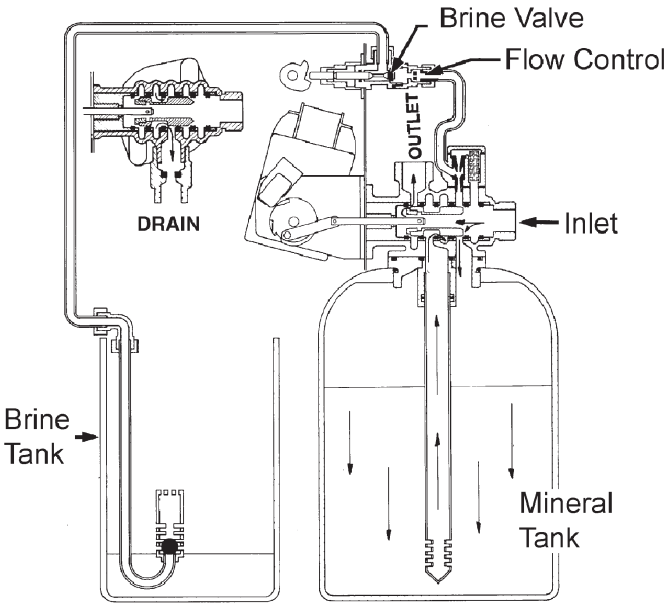
3 Brine Position



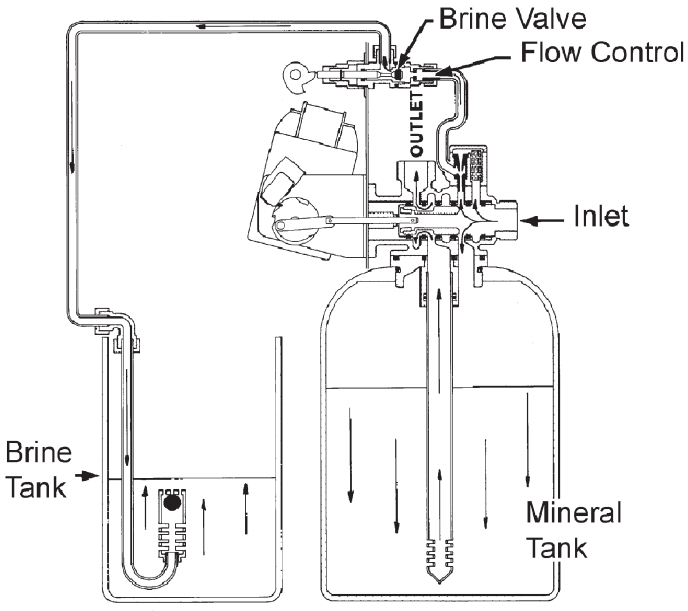
4 Slow Rinse Position



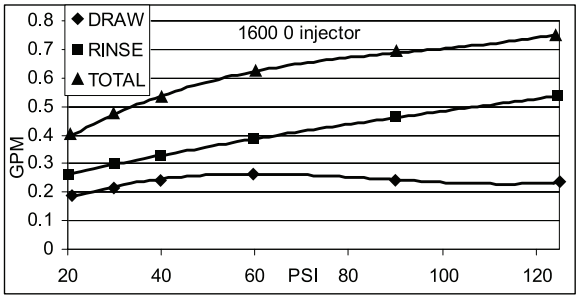
5 Rapid Rinse

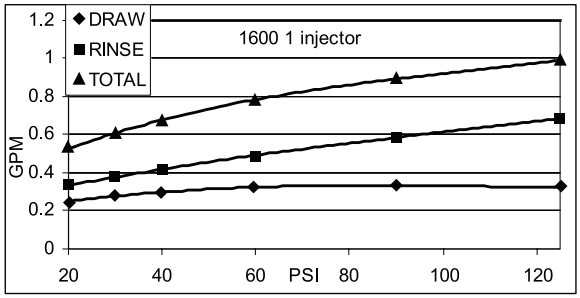


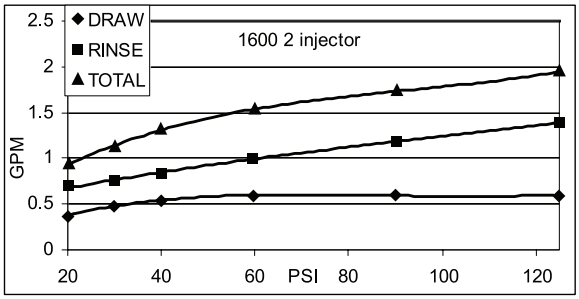
6 Brine Tank Fill Position

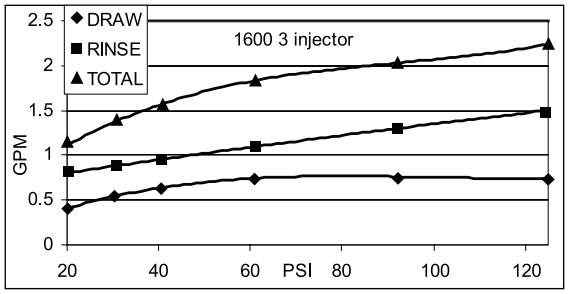


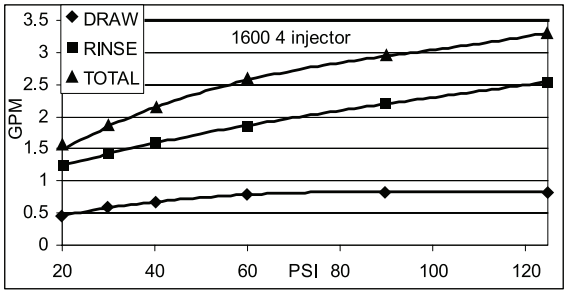
Flow Data & Injector Draw Rates

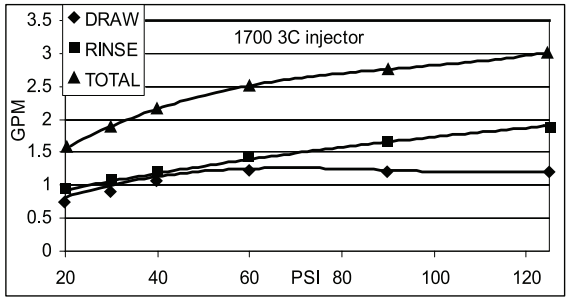


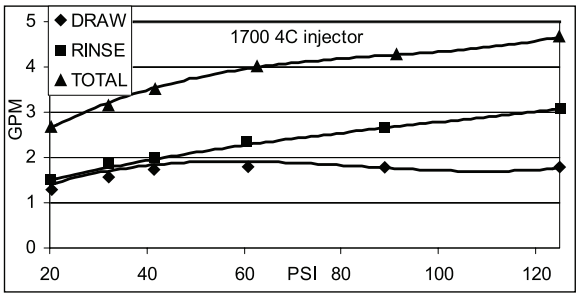


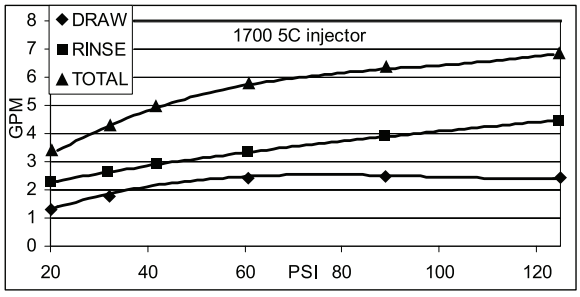


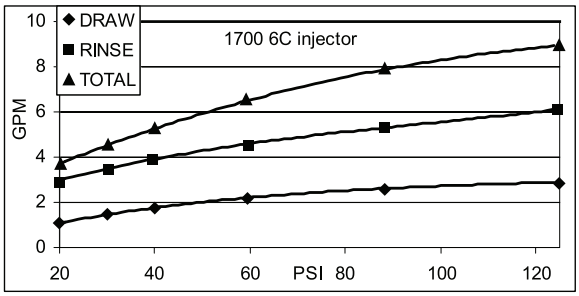






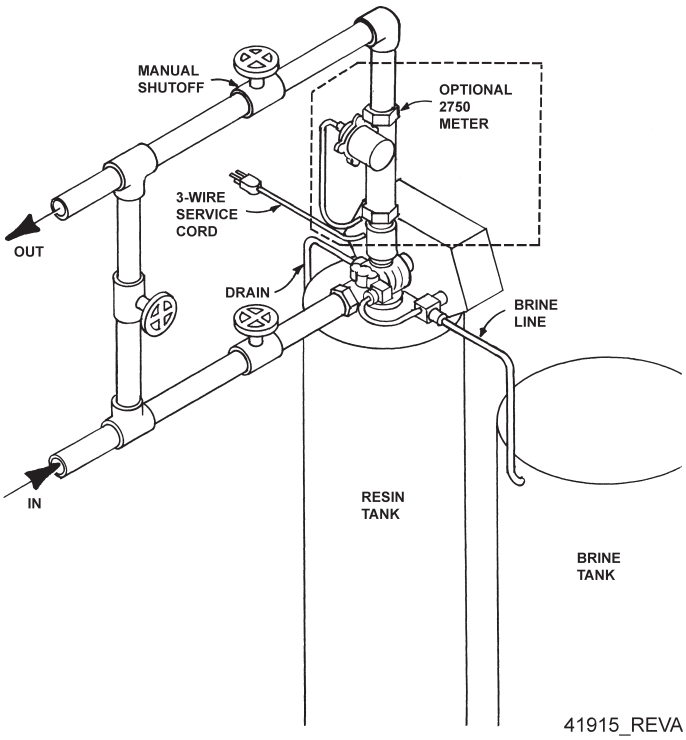




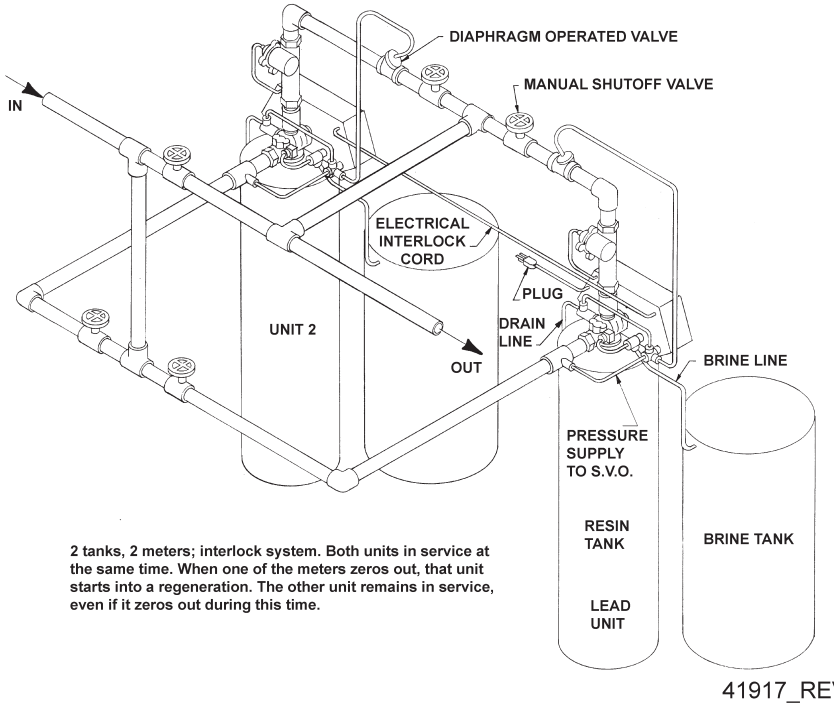


TR20391_REVA

System #4 Typical Tank Installation with Optional Meter

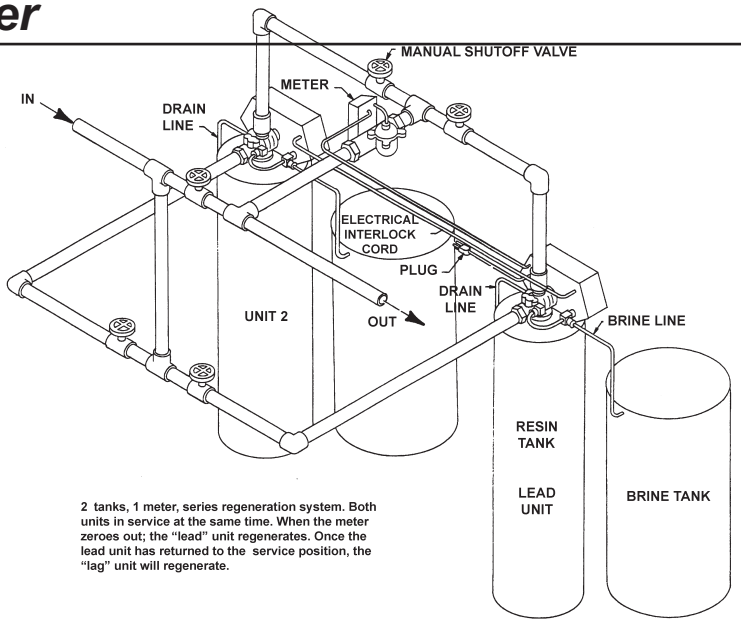


System #5 Interlock - Typical Twin Tank Installation with Optional 2 Meter Interlock and No Hard Water Bypass



2 tanks, 2 meters; interlock system. Both units in service at the same time. When one of the meters zeros out, that unit starts into a regeneration. The other unit remains in service, even if it zeros out during this time.

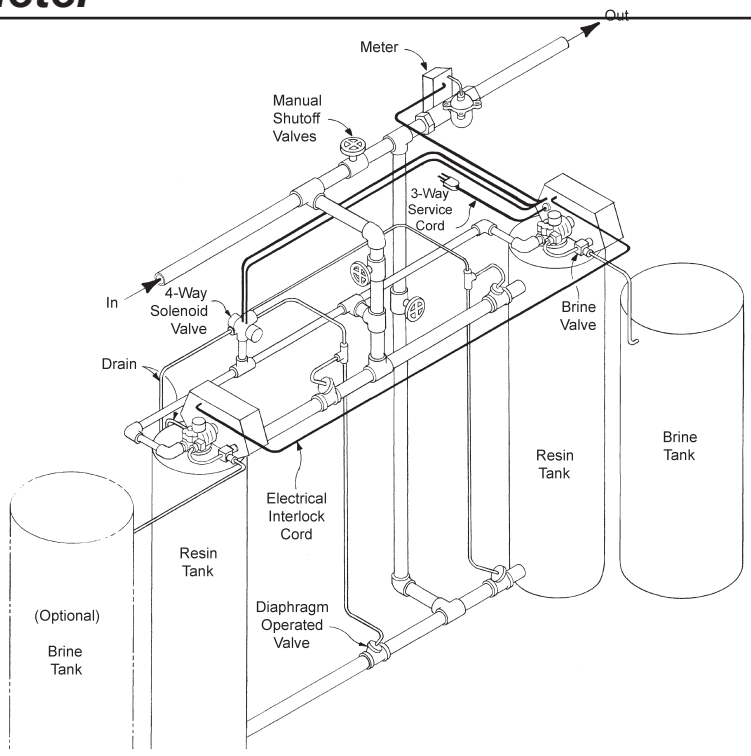
System #6 Twin Series Regeneration Installation with a Remote Meter



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

41916_REVA

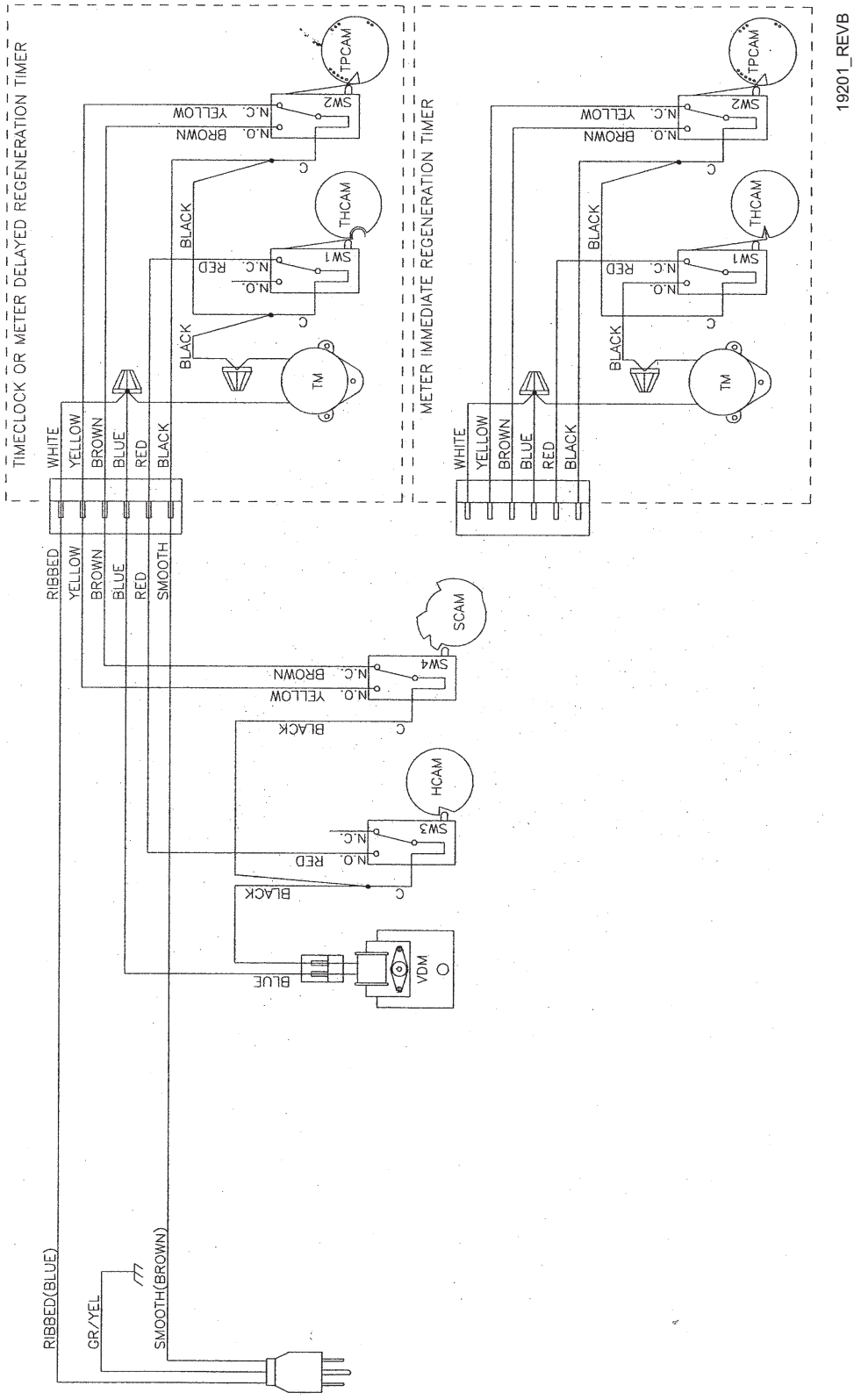
System #7 - Twin Alternator Installation with a Remote Meter



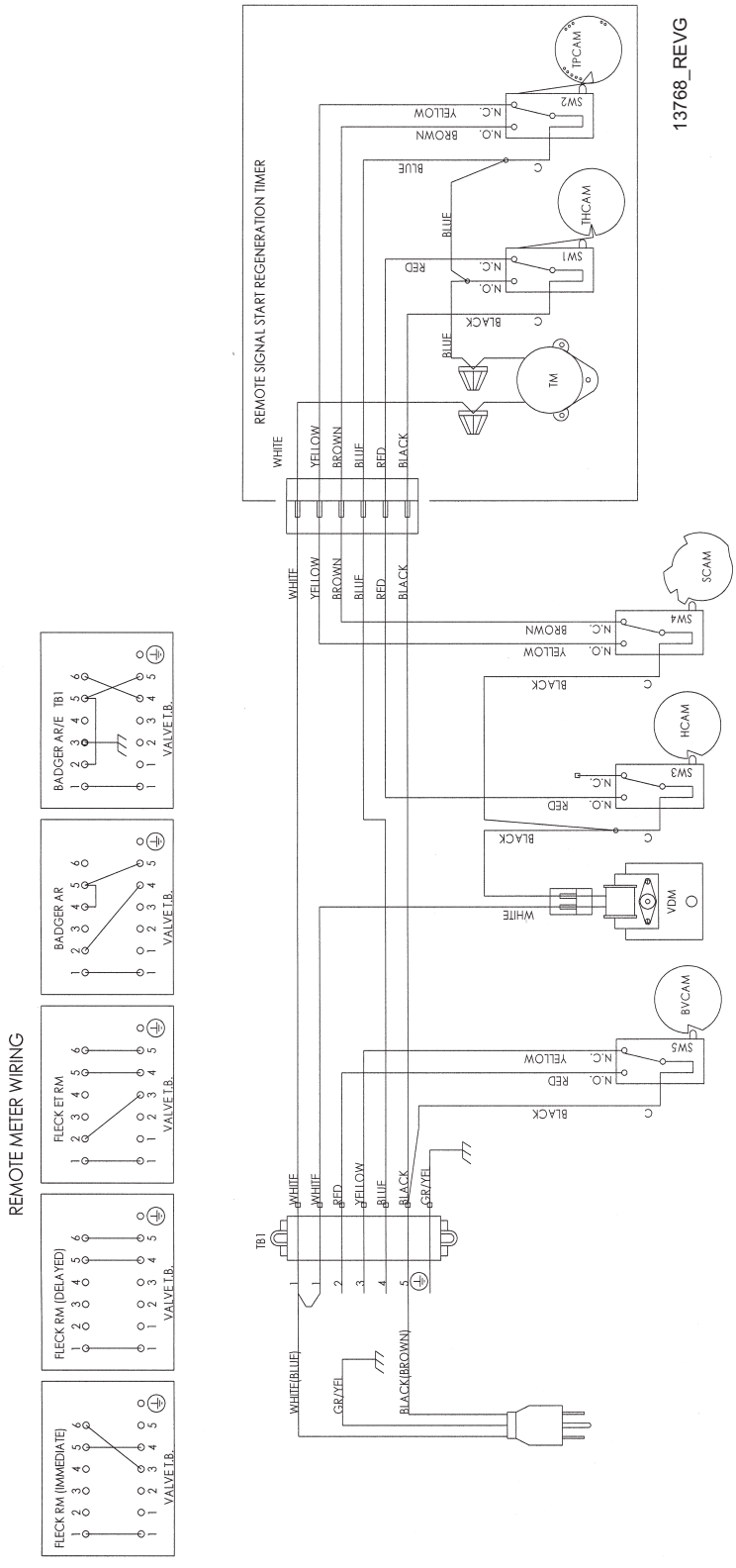
2 tanks, 1 meter; alternator system. One unit in service, the other is on standby. When the meter zeroes out the unit in service goes into a regeneration cycle, the standby unit, goes into service.

41918_REVA

System #4 Immediate & Delayed Valve Wiring

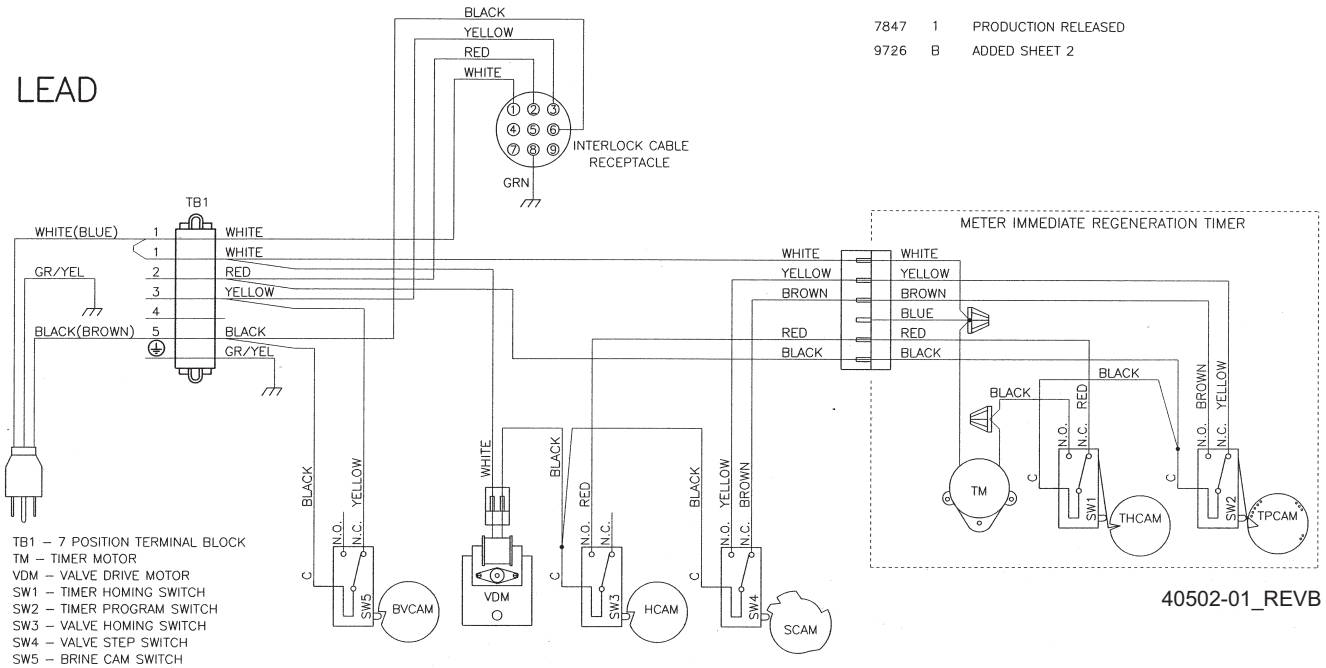


System #4 Remote Signal Start Valve Wiring



7847 1 PRODUCTION RELEASED
9726 B ADDED SHEET 2

LEAD

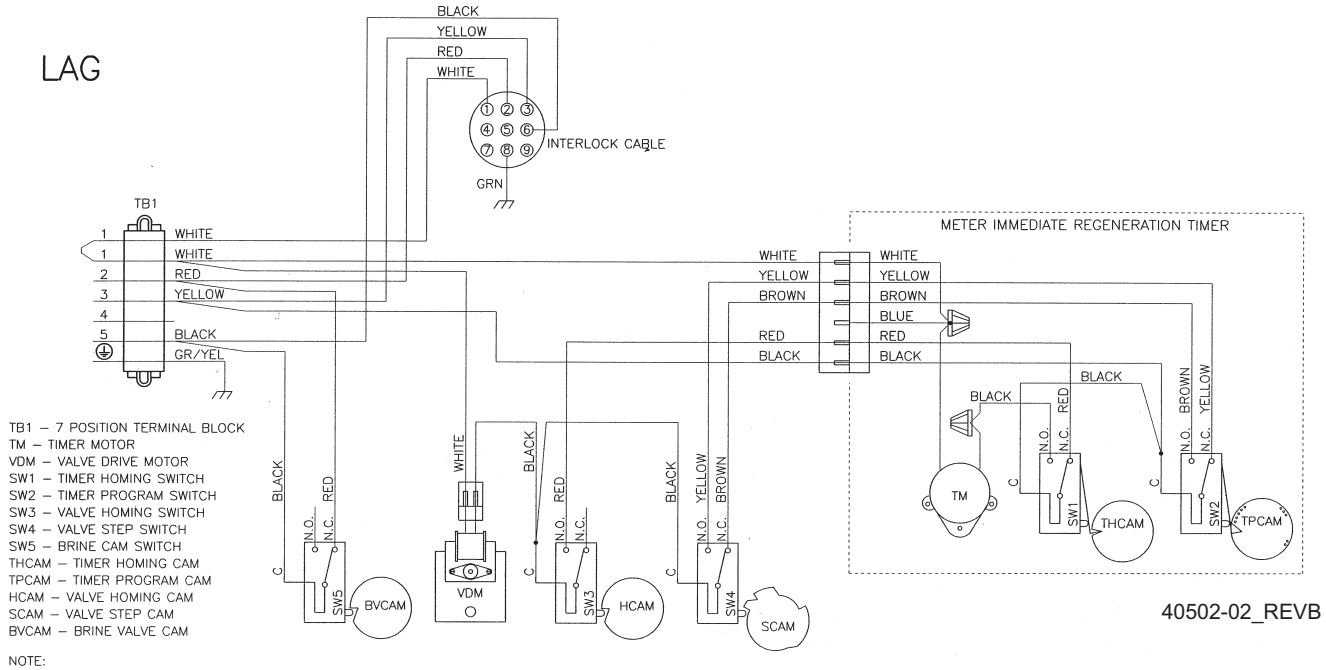


40502-01_REVB

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

NOTE:
1. BOTH VALVES IN SERVICE, ONLY ONE VALVE IN REGENERATION AT A TIME.
2. INDIVIDUAL LOCAL METER REGENERATION.
3. VALVE SHOWN IN SERVICE.

LAG

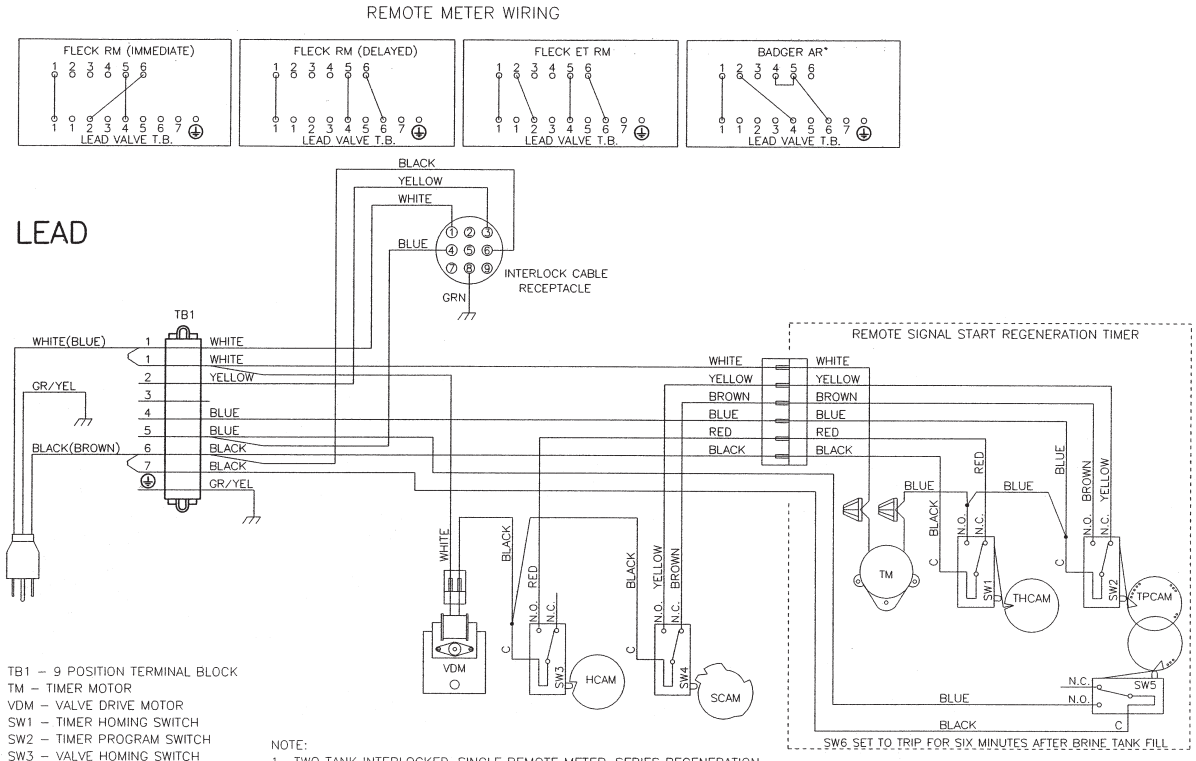


40502-02_REVB

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

NOTE:
1. BOTH VALVES IN SERVICE, ONLY ONE VALVE IN REGENERATION AT A TIME.
2. INDIVIDUAL LOCAL METER REGENERATION.
3. VALVE SHOWN IN SERVICE.

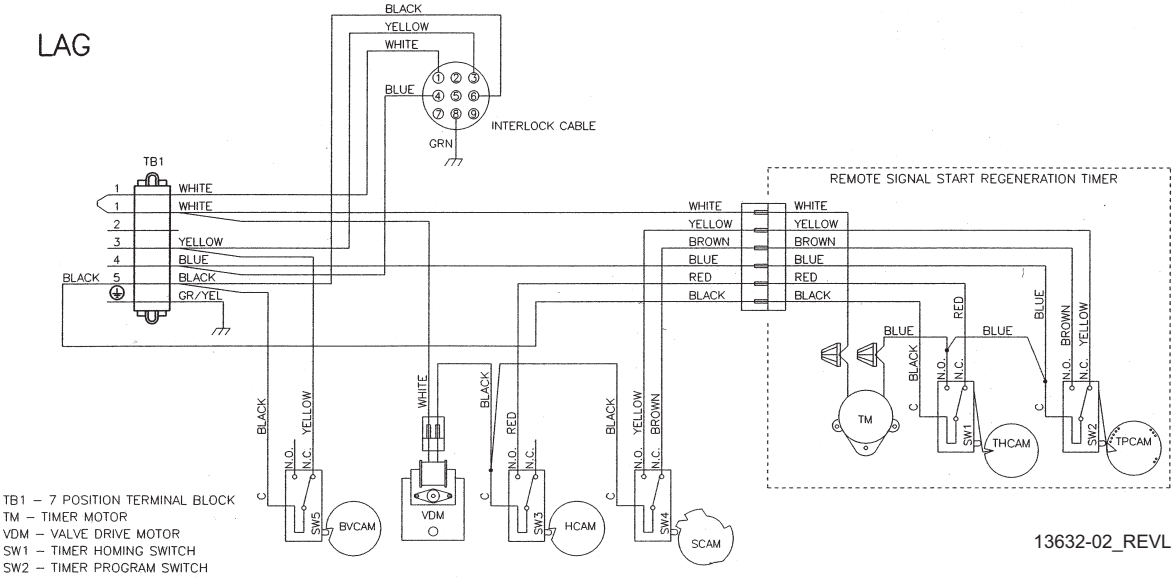
System #6 Duplex Valve Wiring



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

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

13632-01_REVK

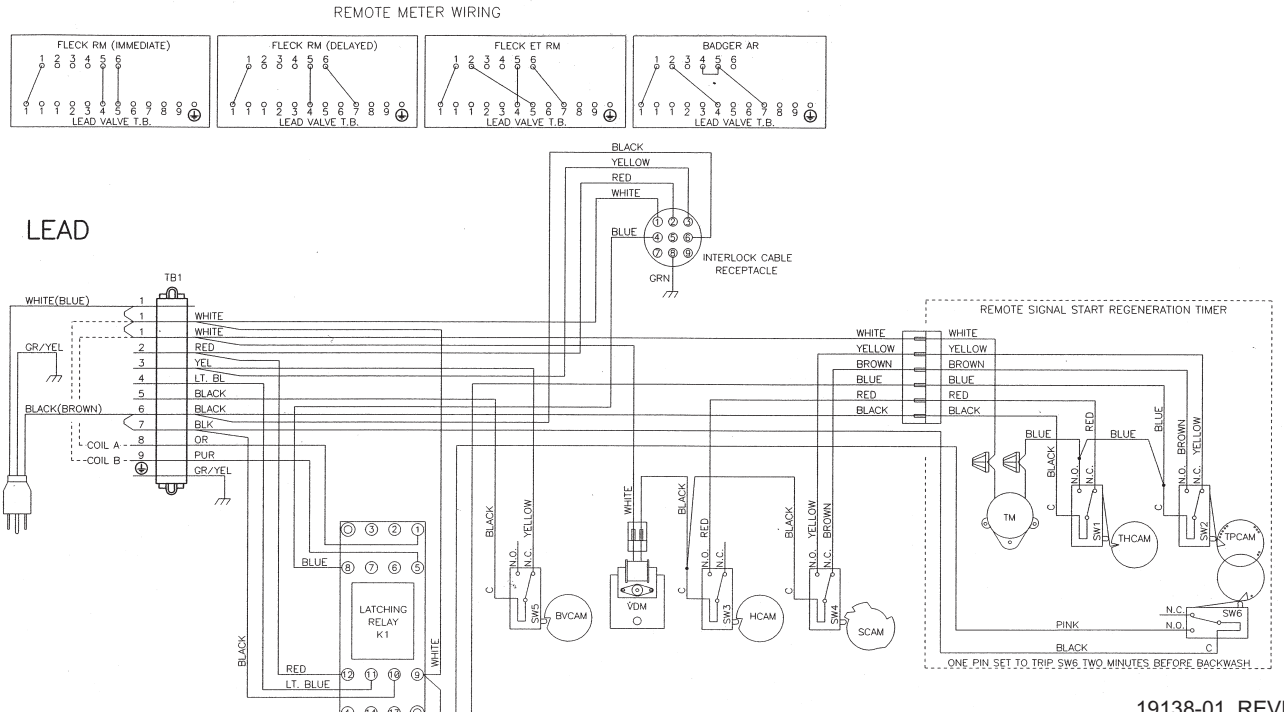


TB1 – 7 POSITION TERMINAL BLOCK
TM – TIMER MOTOR
VDM – VALVE DRIVE MOTOR
SW1 – TIMER HOMING SWITCH
SW2 – TIMER PROGRAM SWITCH
SW3 – VALVE HOMING SWITCH
SW4 – VALVE STEP SWITCH
SW5 – BRINE CAM SWITCH
THCAM – TIMER HOMING CAM
TPCAM – TIMER PROGRAM CAM
HCAM – VALVE HOMING CAM
SCAM – VALVE STEP CAM
BVCAM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

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

13632-02_REVL

System #7 Duplex 24V/120V 3-Way Valve Wiring

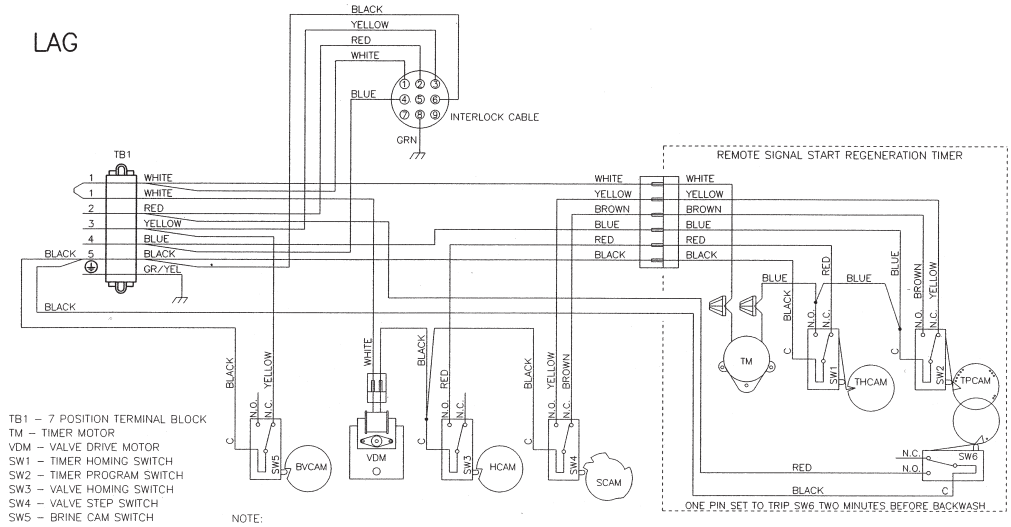


19138-01_REVD

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

RELAY TERMINAL BLOCK PINOUT
(SHOWN IN RESET POSITION)

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

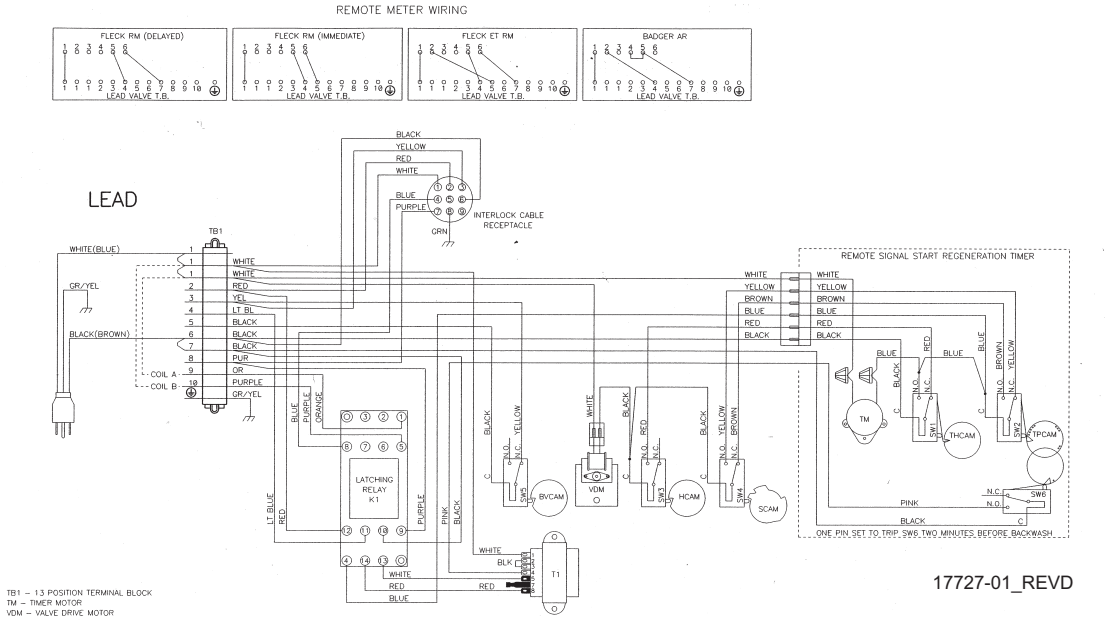


TB1 – 7 POSITION TERMINAL BLOCK
TM – TIMER MOTOR
VDM – VALVE DRIVE MOTOR
SW1 – TIMER HOMING SWITCH
SW2 – TIMER PROGRAM SWITCH
SW3 – VALVE HOMING SWITCH
SW4 – VALVE STEP SWITCH
SW5 – BRINE CAM SWITCH
SW6 – TIMER AUXILIARY SWITCH
THCAM – TIMER HOMING CAM
TPCAM – TIMER PROGRAM CAM
HCAM – VALVE HOMING CAM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

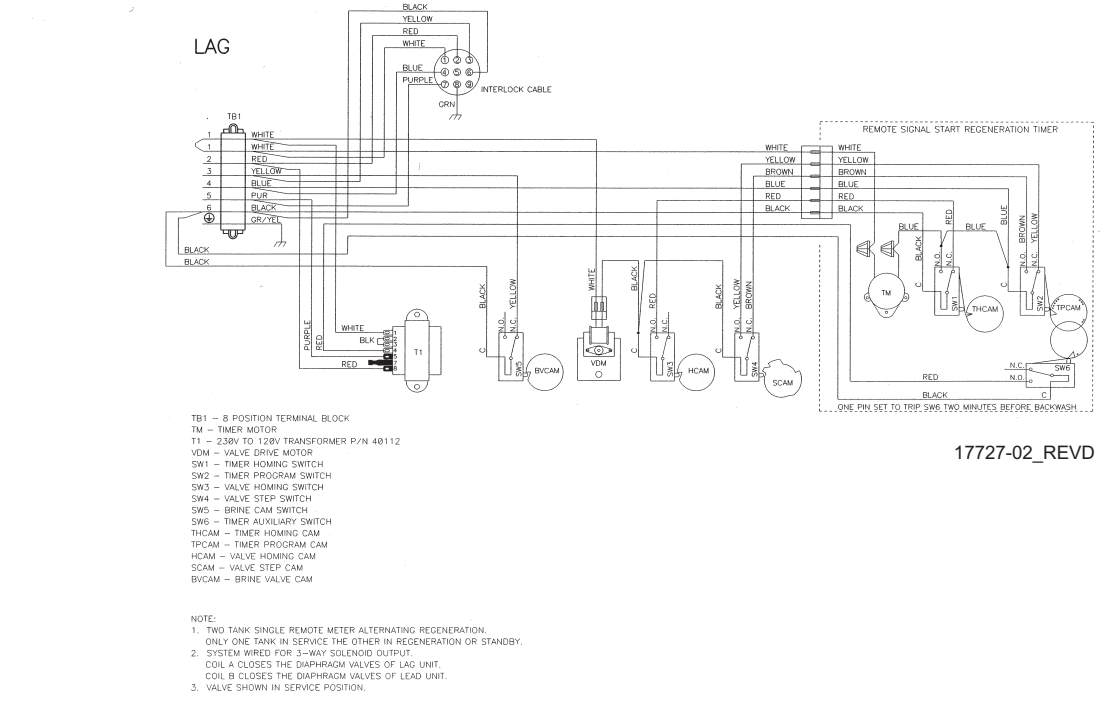
NOTE:
1. TWO TANK SINGLE REMOTE METER ALTERNATING REGENERATION.
ONLY ONE TANK IN SERVICE THE OTHER IN REGENERATION OR STANDBY.
2. SYSTEM WIRED FOR 3–WAY SOLENOID OUTPUT.
COIL A CLOSES THE DIAPHRAGM VALVES OF LAG UNIT.
COIL B CLOSES THE DIAPHRAGM VALVES OF LEAD UNIT.
3. VALVE SHOWN IN SERVICE POSITION.

19138-02_REVD

System #7 Duplex 230V 3-Way Valve Wiring



17727-01_REVD



17727-02_REVD

24 Hour Gear Assembly:
19205..... Gear Assy, 24 Hour, Silver, 5600, 12AM
60519-02 ..... Gear Assy, 24 Hour, 2 Times a Day Regen
60519-03 ..... Gear Assy, 24 Hour, 3 Times a Day Regen
60519-04 ..... Gear Assy, 24 Hour, 4 Times a Day Regen
60519-06 ..... Gear Assy, 24 Hour, 6 Times a Day Regen

Brine Line Flow (BLFC):
60010-25 ..... BLFC, 1650, .25 gpm
60010-50 ..... BLFC, 1650, .50 gpm
60010-100 ..... BLFC, 1650, 1.00 gpm
60020-25 ..... BLFC, 1600, .25 gpm
60020-50 ..... BLFC, 1600, .50 gpm
60010-100 ..... BLFC, 1600, 1.00 gpm

Brine Valves:
60011-xx ..... 1650 Brine Valve
60029-xx..... 1600 Brine Valve
60034-xx..... 1700 Brine Valve
60604-xx..... 1710 Brine Valve
-xx is for flow button size

Cam Assemblies:
60160-15 ..... Drive Cam Assy, Std, Blue

Drain Line Flow Controls:
60365-xx..... Brass DLFC 3/4" NPT

Drive Assemblies:
60050-21 ..... Drive Assy, 2750, STF, 120V Softener

Injector Assemblies:
60480-xx..... 1600 Injector Assembly
60485-xx..... 1600 Injector Assembly
60381-xx..... 1700 Injector Assembly
60486-xx..... 1700 Injector Assembly
-xx is for the size injector used

Meters:
60391..... 2750 Meter Assy, Std, Plastic Cap
60392..... 2750 Meter Assy, Ext, Plastic Cap

Covers:
60232-110..... Cover, Designer, 1pc, Black
60219-02 ..... Cover Assy, Enviromental, Black

Piston Assemblies:
60090-HF..... Piston Assy, 2750/2900
60091-HF..... Piston Assy, 2750, Hot Water
60101-00 ..... Piston Assy, 2750 NHWBP Filter,
..... Conversion Kit
60101-01 ..... Piston Assy, 2750 NHWBP
60101-02 ..... Piston Assy, 2750 NHWBP,
..... 1600 Conversion Kit
60101-03 ..... Piston Assy, 2750 NHWBP,
..... 1700 Conversion Kit

Auxillary Switch Kit:
60320-12 ..... Switch Kit, 1500 through 2850
60320-02 ..... Switch Kit, 3200/9000 Timer

Program Wheel Assemblies:
60405-20 ..... Program Wheel, w/3/4" Ext Label
1-1/2" Std
60405-70 ..... Program Wheel, w/1-1/2" EXT

Sales & Service Aids:
40737..... Literature, Spec Sheet
42327..... Literature, 2750 D/F
40717..... Literature, Catalog Assy, PWT
Residential/Commercial

Seal & Spacer Kits:
60121..... Seals & Spacers, 2750
60122..... Seal & Spacer Kit, 2750 H/W

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