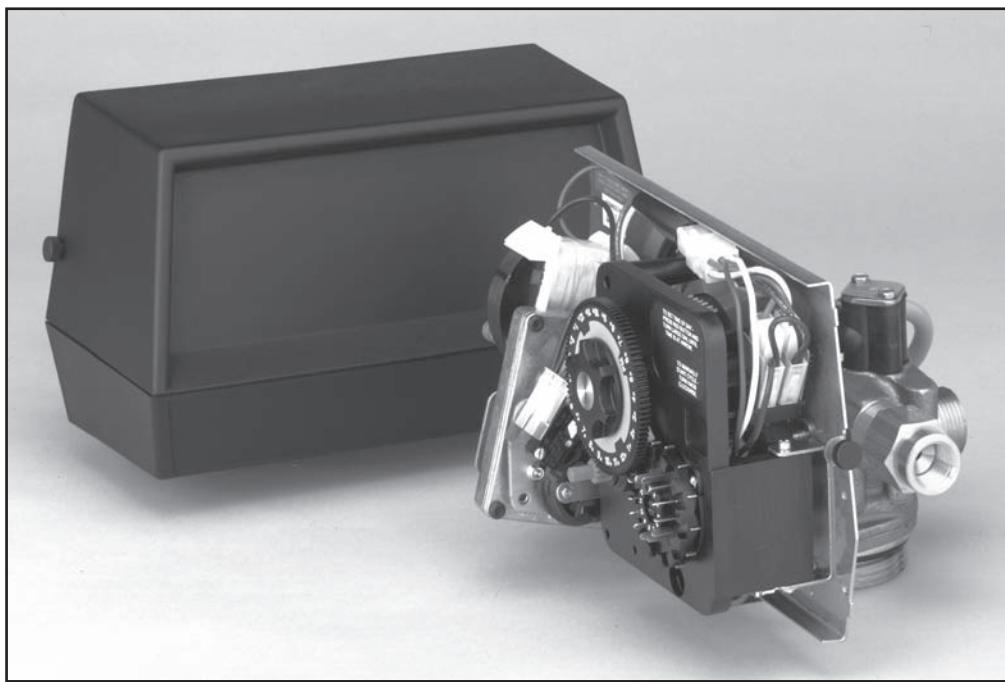


Model 2750 Downflow

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, 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 _____

2750 Control Valve Specifications

1. Type of Timer

- A. 7 Day or 12 Day
- B. 310 to 5,270 Gallon Meter or

1,550 to 26,350 Gallon Meter or

Other

C. Meter Wiring Package

- 1. System #4 - 1 Tank, 1 Meter, Immediate or Delayed Regeneration, Time Clock
- 2. System #5 - Up to 5 Tanks, 1 Meter per Valve, Immediate Regeneration Only, All Tanks Online, Interlock System
- 3. System #6 - Up to 5 Tanks, 1 Meter, Delayed or Immediate Remote Meter, All Tanks Online, Series Regeneration System
- 4. System #7 - 2 Tanks, 1 Meter, Immediate or Delayed Remote Meter, 1 Tank Online, 1 Tank Standby, Alternating System

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. Service Valve Operation Units (SVO)

Size of Service Valve _____

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.

3200 Timer Setting Procedure

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:

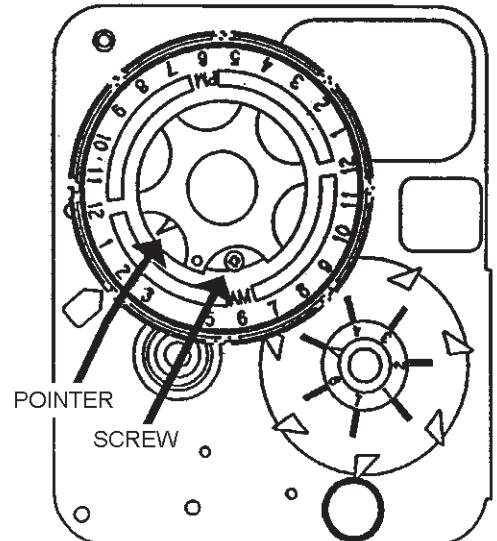
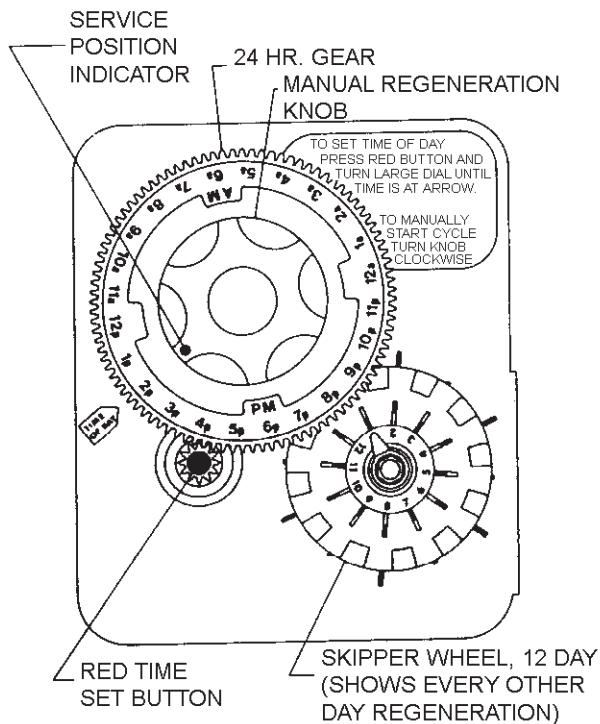
1. Press and hold the red button in to disengage the drive gear.
2. Turn the large gear until the actual time of day is at the time of day pointer.
3. Release the red button to again engage the drive gear.

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:

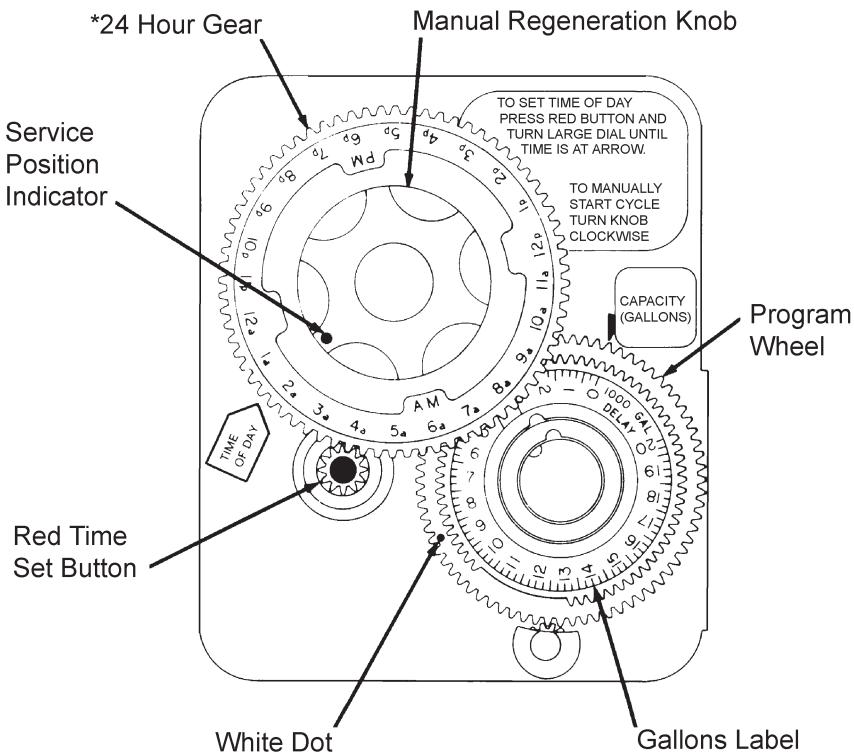
1. Press and hold the red button in to disengage the drive gear.
2. Turn the large gear until the actual time of day is opposite the time of day pointer.
3. Release the red button to again engage the drive gear.

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 (Brine Tank Refill Separate from Rapid Rinse)

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

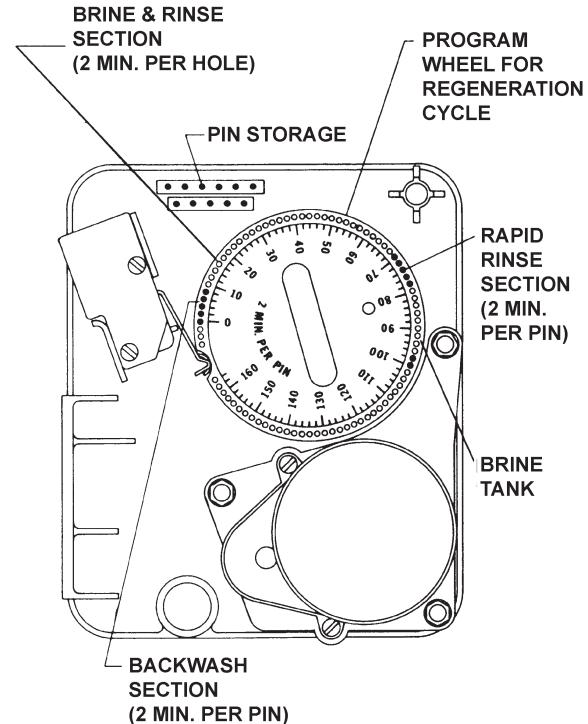
How To Change The Length Of The Backwash Time:

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.



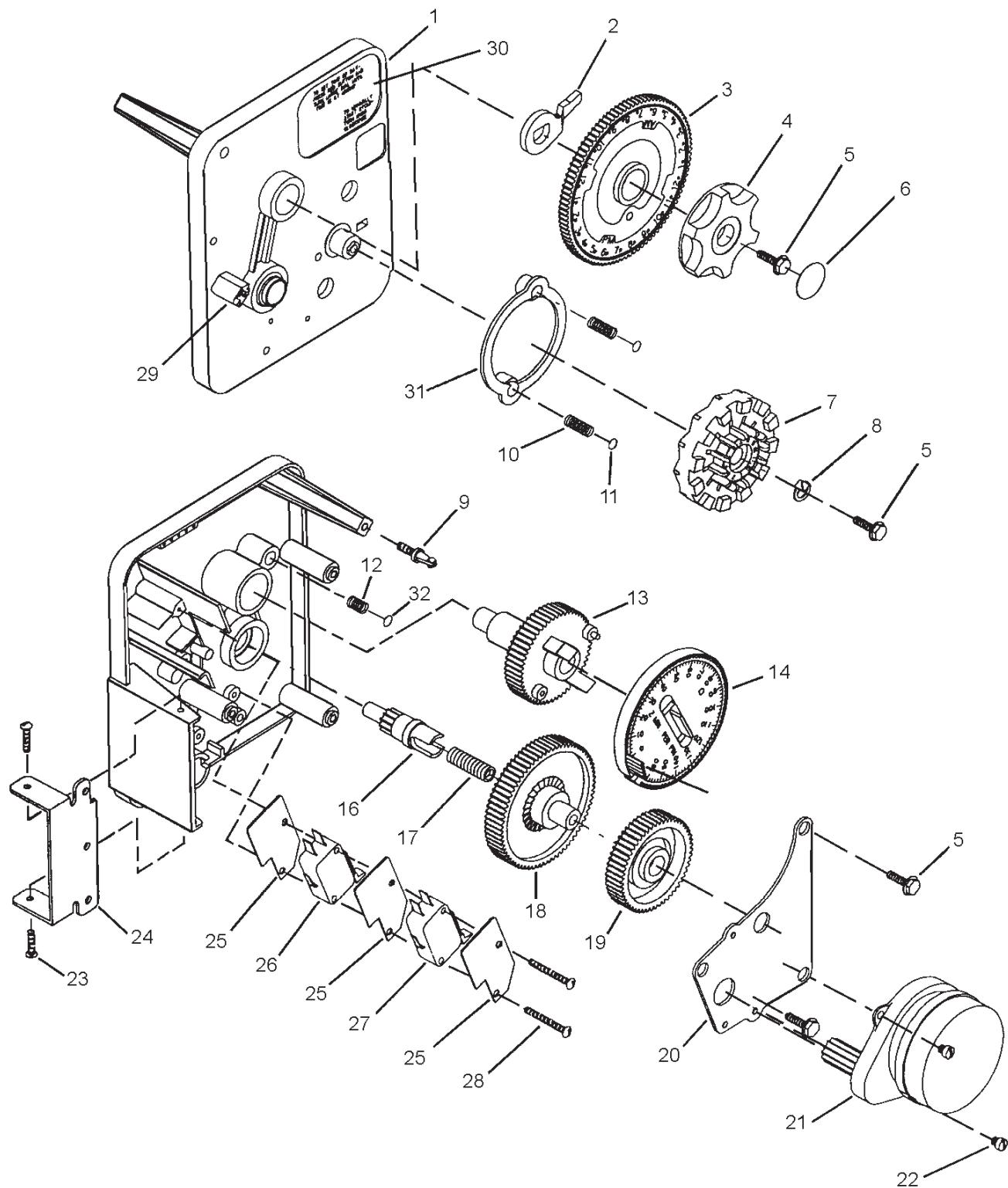
How To Change The Length Of Rapid Rinse:

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.

3200 Timer Assembly



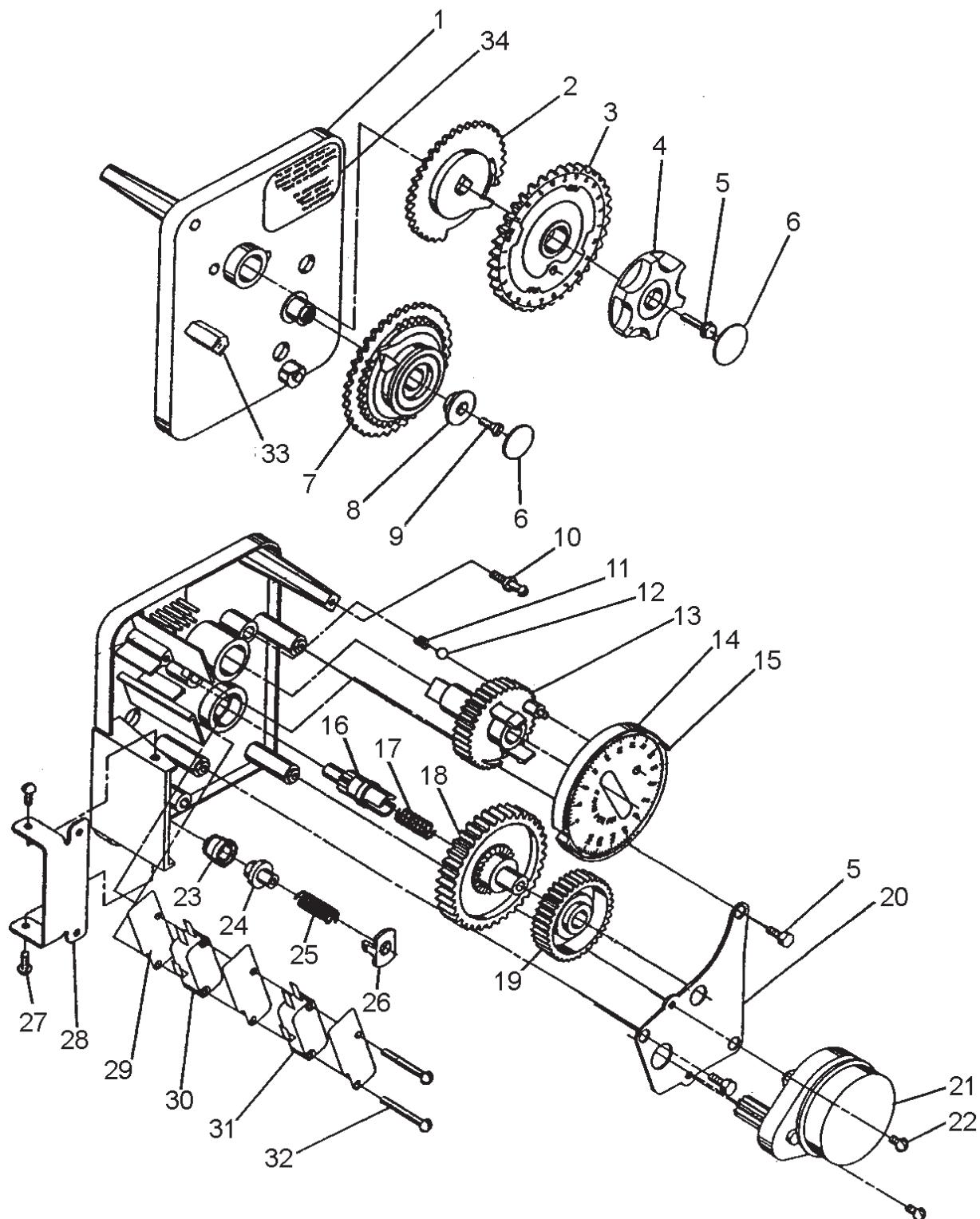
For Service Assembly Numbers, See the Back of this Manual

3200 Timer Assembly

1.....	1.....	13870	Housing, Timer, 3200
2.....	1.....	13011	Arm, Cycle Actuator
3.....	1.....	40096-24.....	Dial 12AM Regen Assy, Black
		40096-02.....	Dial 2AM Regen Assy, Black
4.....	1.....	13886	Knob, 3200
5.....	5.....	13296	Screw, Hex Wsh, 6-20 x 1/2
6.....	1.....	11999	Label, Button
7.....	1.....	14381	Skipper Wheel Assy, 12 Day
		14860	Skipper Wheel Assy, 7 Day
8.....	1.....	13014	Pointer, Regeneration
9.....	1.....	14265	Clip, Spring
10.....	2.....	13311	Spring, Detent, Timer
11.....	2.....	13300	Ball, 1/4" SS
12.....	1.....	15424	Spring, Detent, Timer
13.....	1.....	13911	Gear, Main Drive, Timer
14.....	1.....	19210	Program Wheel Assy, 3200
15.....	21.....	15493	Pin, Spring, 1/16 x 5/8 SS
16.....	1.....	13018	Pinion, Idler
17.....	1.....	13312	Spring, Idler Shaft
18.....	1.....	13017	Gear, Idler
19.....	1.....	13164	Gear, Drive
20.....	1.....	13887	Plate, Motor Mounting
21.....	1.....	18743-1.....	Motor, 120V, 60Hz 1/30 RPM, 5600
		19659-1.....	Motor, 24V, 60 Hz 1/30 RPM
22.....	2.....	13278	Screw, Phil Hd Mach, 6-32 x 1/8
23.....	3.....	11384	Screw, Phil, 6-32 x 1/4 Zinc
24.....	1.....	13881	Bracket, Hinge Timer
25.....	3.....	14087	Insulator
26.....	1.....	10896	Switch, Micro
27.....	1.....	15320	Switch, Micro, Timer
28.....	2.....	11413	Screw, Pan Hd Mach, 4-40 x 1 1/8
29.....	1.....	14007	Label, Time of Day
30.....	1.....	14045	Label, Instruction
31.....	1.....	13864	Ring, Skipper Wheel
32.....	1.....	15066	Ball, 1/4" Delrin
Not Shown ...	1.....	13902	Harness, 3200
Not Shown ...	2.....	40422	Nut, Wire, Tan
Not Shown ...	1.....	15354-01.....	Wire, Ground 4"

For Service Assembly Numbers, See the Back of this Manual

3210 Timer Assembly



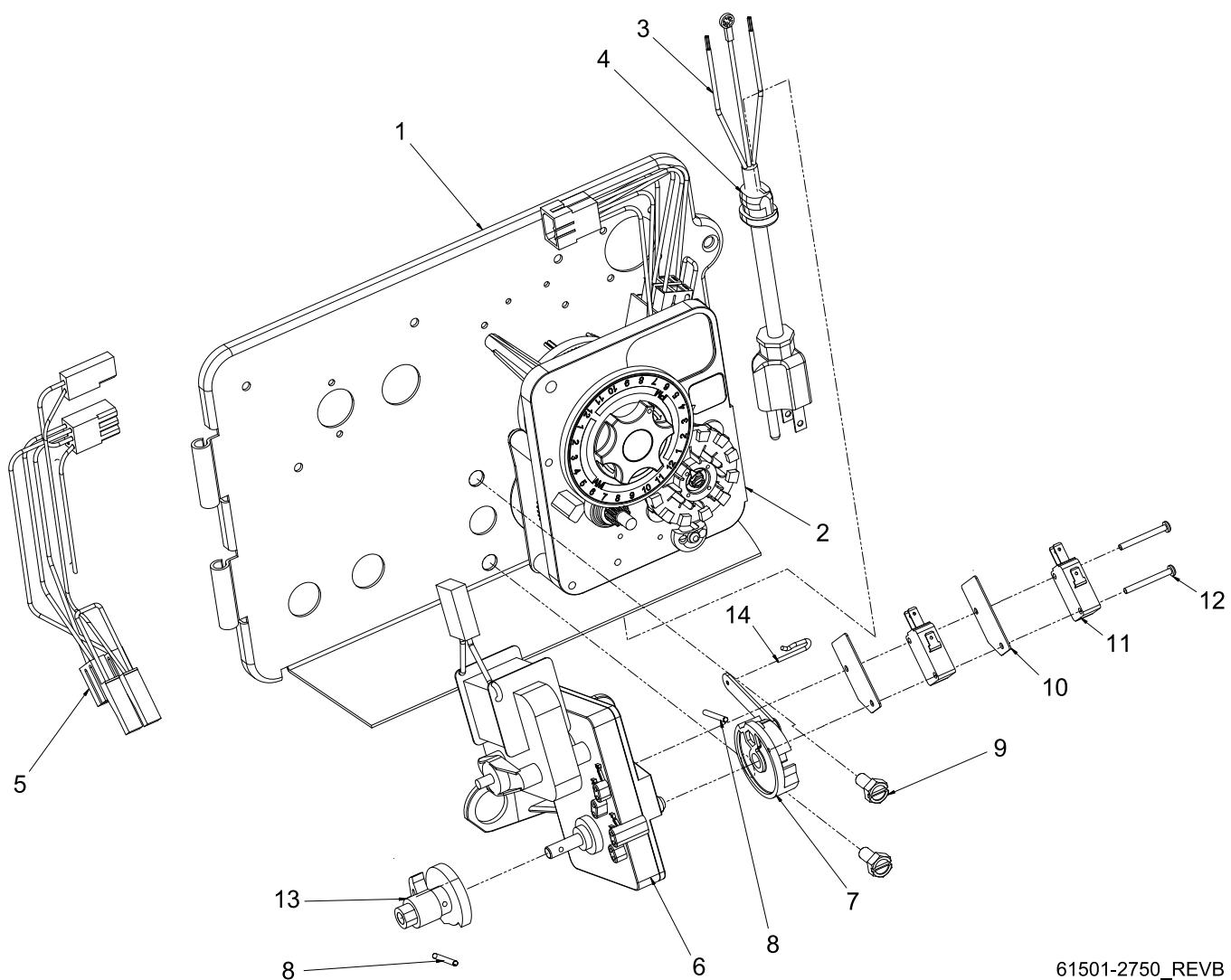
For Service Assembly Numbers, See the Back of this Manual

3210 Timer Assembly

Item No.	Quantity	Part No.	Description
1.....	1	13870-01	Housing Assembly, Timer, 3210
2.....	1	13802	Gear, Cycle Actuator
3.....	1	40096-24	Dial 12AM Regen Assy, Black
		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	60405-15	Program Wheel, w/3/4" Std Label with People Label Set
		60405-50	Program Wheel, w/2" Std Label Set @ 21
8.....	1	13806	Retainer, Program Wheel
9.....	1	13748	Screw, Flt Hd 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	13911	Gear, Main Drive, Timer
14.....	1	19210	Program Wheel Assy
15.....	21	15493	Pin, Spring, 1/16 x 5/8
16.....	1	13018	Pinion, Idler
17.....	1	13312	Spring, Shaft
18.....	1	13017	Gear, Idler
19.....	1	13164	Gear, Drive
20.....	1	13887	Plate, Motor Mounting
21.....	1	18743	Motor, 120V, 60Hz, 1/30 RPM, 5600
		19659-1	Motor, 24V, 60Hz, 1/30 RPM
22.....	2	13278	Screw, Phil Hd Mach, 6-32 x 1/8
23.....	1	13830	Pinion, Program Wheel Drive
24.....	1	13831	Clutch, Drive Pinion
25.....	1	14276	Spring, Meter Clutch
26.....	1	14253	Retainer, Clutch Spring
27.....	3	11384	Screw, Phil, 6-32 x 1/4
28.....	1	13881	Bracket, Hinge Timer
29.....	3	14087	Insulator
30.....	1	10896	Switch, Micro
31.....	1	15320	Switch, Micro, Timer
32.....	2	11413	Screw, Pan Hd Mach, 4-40 x 1 1/8
33.....	1	14007	Label, Time of Day
34.....	1	14045	Label, Instruction
Not Shown ..	1	13902	Harness, 3200
Not Shown ..	2	40422	Nut, Wire, Tan
Not Shown ..	1	15354-01	Wire, Ground 4"
Not Shown ..	1	15465	Label, Caution
Not Shown ..	1	14198	Label, Indicator

For Service Assembly Numbers, See the Back of this Manual

Control Drive Assembly



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For Service Assembly Numbers, See the Back of this Manual

Control Drive Assembly

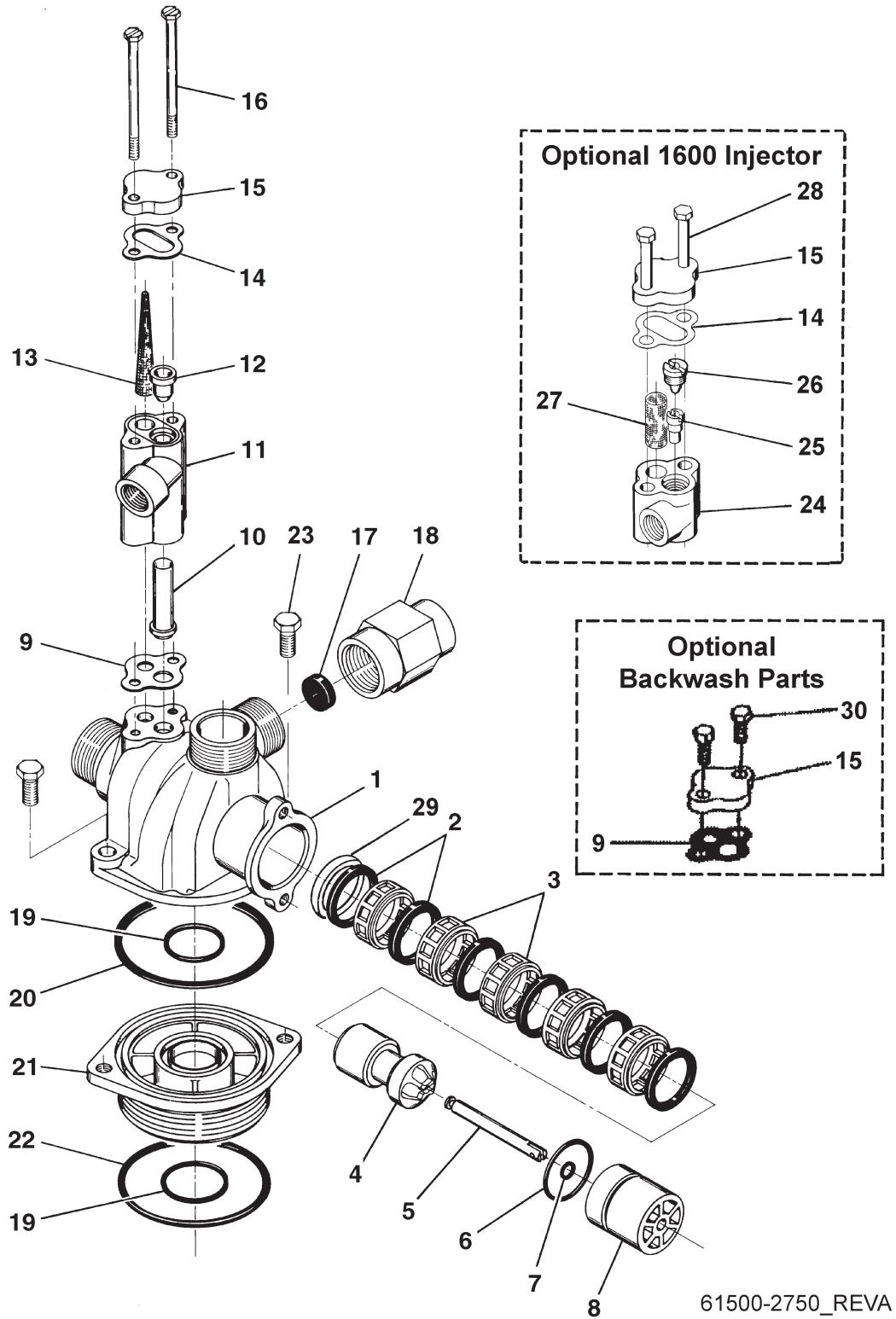
Item No.	Quantity	Part No.	Description
1.....	1	18697	Backplate, Hinged, 2900
2.....	1		Timer: - 3200 7 Day - 3200 12 Day - 3210 Meter
3.....	1	11839	Power Cord, 12' Fleck
4.....	1	13547	Strain Relief, Flat Cord
5.....	1	40400	Harness, Drive, Designr/Envirmtl
6.....	1	41543	Motor, Drive, 115V, 50/60 Hz
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:

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

For Service Assembly Numbers, See the Back of this Manual

Control Valve with 1700 Injector



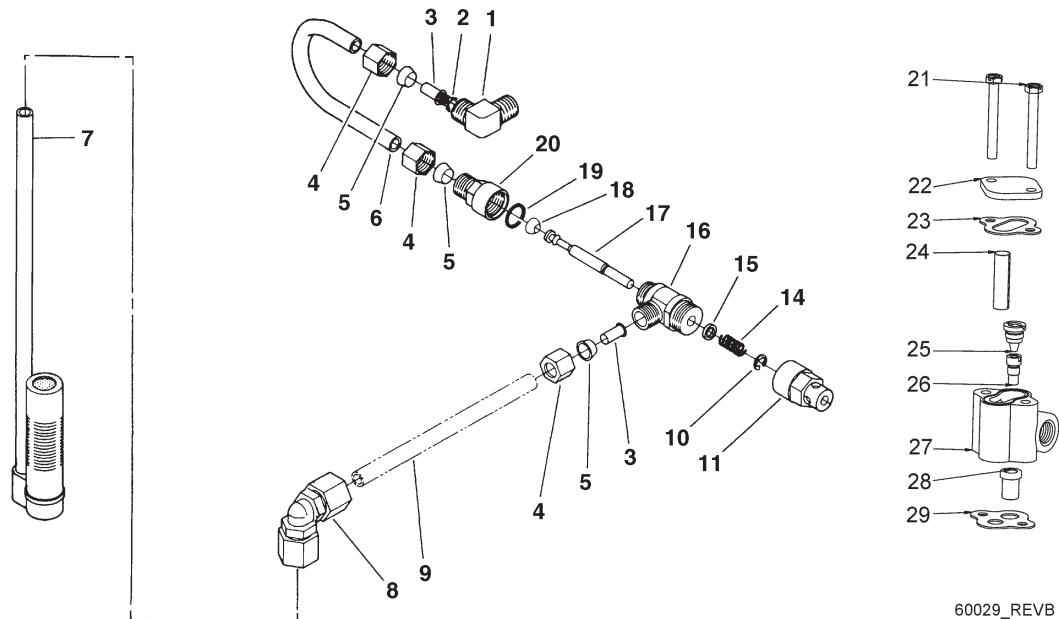
For Service Assembly Numbers, See the Back of this Manual

Control Valve with 1700 Injector

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 Assy
		10598-01	End Plug Assy, Hot Water
9.....	1	14805	Gasket, 2700 Flat Cap w/SVO
10.....	1	14802	Throat, Injector
11.....	1	17777	Body, Injector, 1700
12.....	1	14801	Nozzle, Injector
13.....	1	14803	Screen, Injector
14.....	1	10229	Gasket, Injector Cap, 1600
15.....	1	11893	Cap, Injector, SS
		10228	Cap, Injector
16.....	2	14804	Screw, Hex Hd Mach, 10-24 x 2 3/4
17.....	1		Washer - Flow Control (specify size)
18.....	1	15177	Housing, DLFC, 1/2"F x 3/4"F
19.....	2	11710	O-ring, -215
20.....	1	11208	O-ring, -232
21.....	1	12461	Adapter Base, 1" 2 1/2" - 8 QC
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	Throat, Injector
26.....	1	10913	Nozzle, Injector
27.....	1	10227	Screen, Injector
28.....	2	10692	Screw, Slot Hex Hd, 10-24 x 18-8 S.S.
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

For Service Assembly Numbers, See the Back of this Manual

1600 Series Brine System Assembly

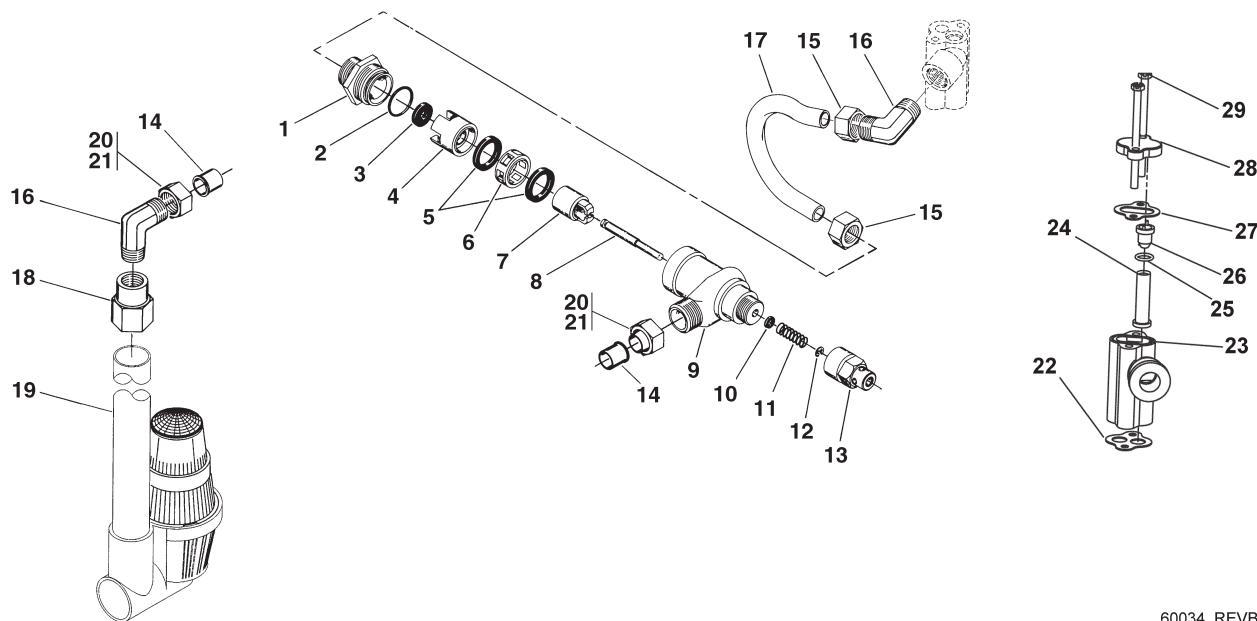


60029_REVB

Item No.	Quantity	Part No.	Description
1.....	1	10328.....	Elbow, 90 Deg. 1/4 NPT x 3/8T
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.....	Air Check, #500
		60003.....	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.....	Brine Valve Stem, 1600
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.....	Nozzle, Injector
26.....	1	10914.....	Throat, Injector
27.....	1	17776.....	Body, Injector, 1600
28.....	1	16221.....	Disperser, Air
29.....	1	14805.....	Gasket, Injector Body, 1600/1700

For Service Assembly Numbers, See the Back of this Manual

1700 Series Brine System Assembly

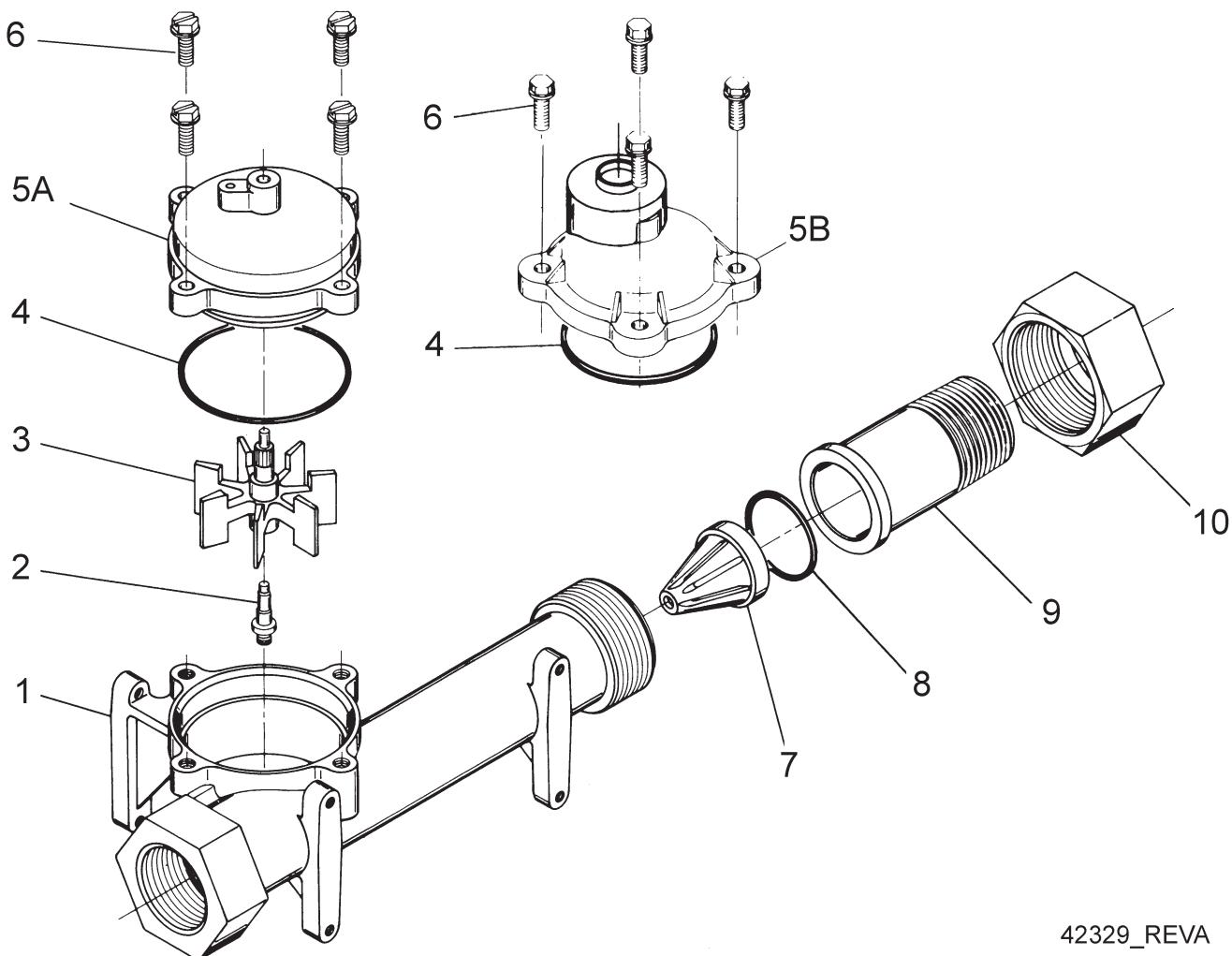


60034_REVB

Item No.	Quantity	Part No.	Description
1.....	1	14792.....	Plug, End, Brine Valve
2.....	1	13201.....	Quad Ring, -020
3.....	1		Washer Flow Control (specify size)
4.....	1	14785-01	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.....	Ring, Retaining
13.....	1	15517.....	Guide, Stem
14.....	2	15415.....	Fitting, Insert, 1/2" Tube
15.....	2	15414.....	Nut, 2900, w/Sleeve
16.....	2	15413.....	Fitting, Elbow, Male, 1/2T x 3/8 NPT
17.....	1	15416.....	Tube, Brine, 2900, 8.671"
18.....	1	16977.....	Bushing, Reducer, 3/4" x 3/8"
19.....	1	60009-01	#900 Air Check Assembly, Hot Water
		60009-00	Air Check, #900, Commercial Less Fittings
20.....	2	16123.....	Nut, Brass
21.....	2	16124.....	Fitting, Sleeve, Delrin
22.....	1	16974.....	Fitting, Plstc, Female, 3/4 3/4 Slip
23.....	1	17777-03	Body, Injector, 1700
24.....	1	14802.....	Throat, Injector
25.....	1	17777.....	Body, Injector, 1700
26.....	1	14801.....	Nozzle, Injection
27.....	1	10229.....	Gasket, Injector Cap, 1600
28.....	1	11893.....	Cap, Injector, SS
		10228.....	Cap, Injector
29.....	2	14804.....	Screw, Hex Hd Mach, 10-24 x 2 3/4"

For Service Assembly Numbers, See the Back of this Manual

1" Meter Assembly

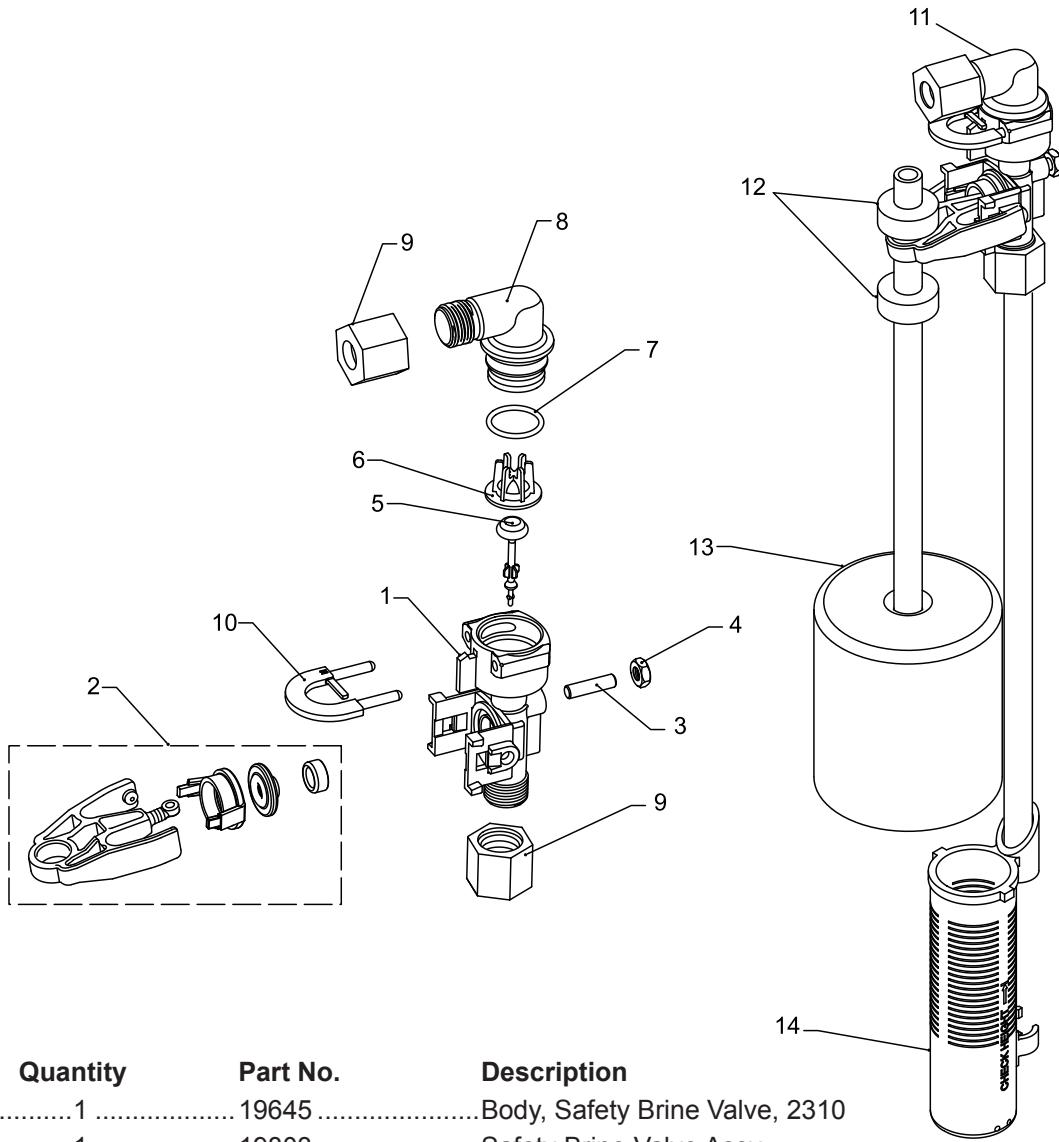


42329_REV A

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 Assy
5B	1	15237	Meter Cap Assy, Ext
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 Connector
10.....	1	14962	Nut, 1" Meter, Q/C
Not Shown ..	1	15308	Fitting, Coupling, 1", Brass

For Service Assembly Numbers, See the Back of this Manual

2310 Safety Brine Valve

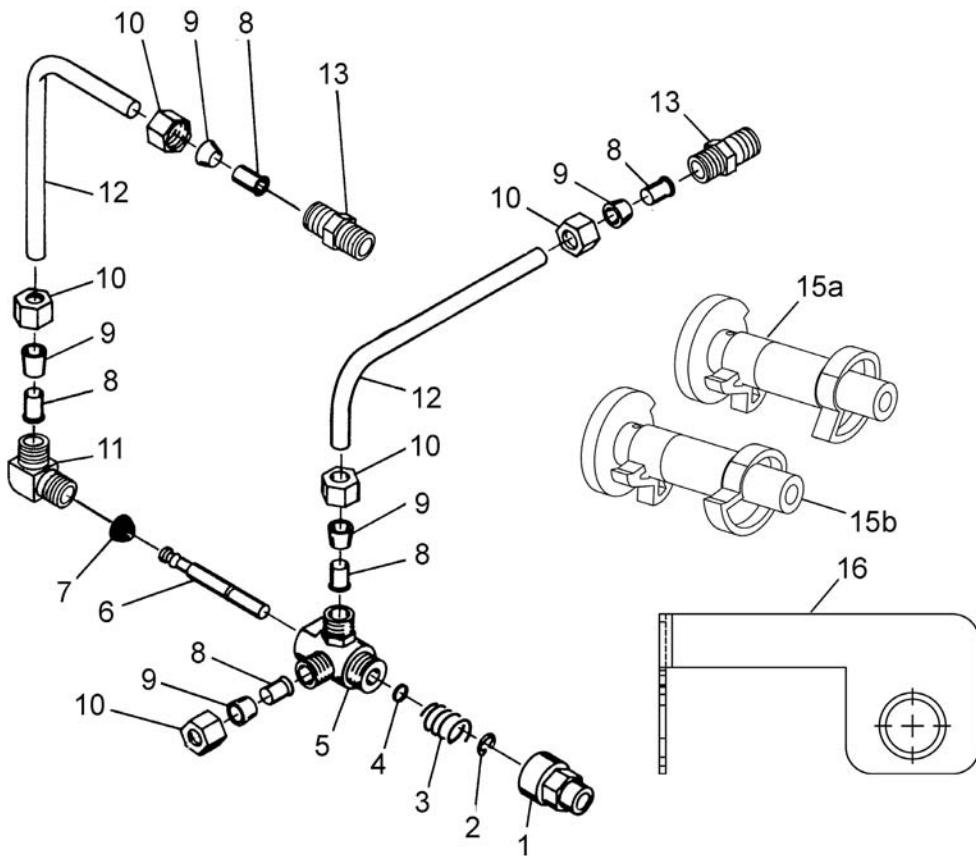


42112_REV A

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	Float Assy, 2310, w/30" Rod
14.....	1	60002	Air Check, #500

For Service Assembly Numbers, See the Back of this Manual

Service Valve Operator



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 3/8T
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

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

Troubleshooting

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.

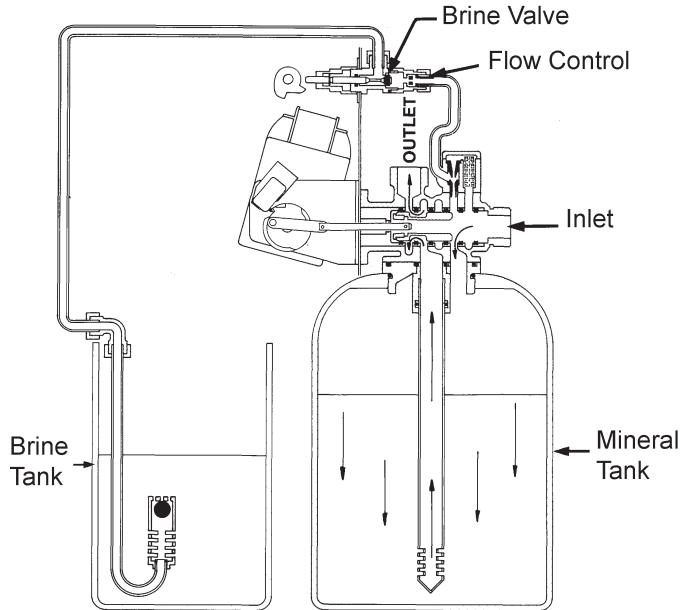
Correction: Pull cable out of meter cover and rotate manually. Program wheel must move without binding and clutch must give positive clicks when program wheel strikes regeneration stop. If it does not, replace timer.

Reason: Meter is not measuring flow.

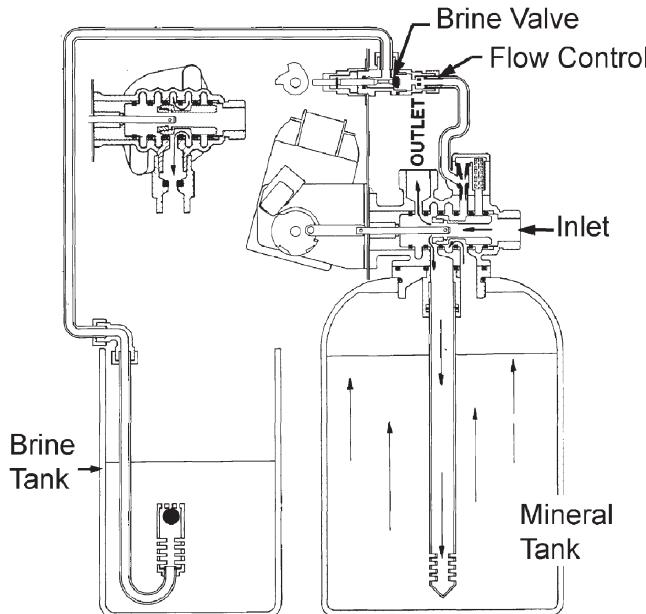
Correction: Check meter with meter checker.

Water Conditioner Flow Diagrams

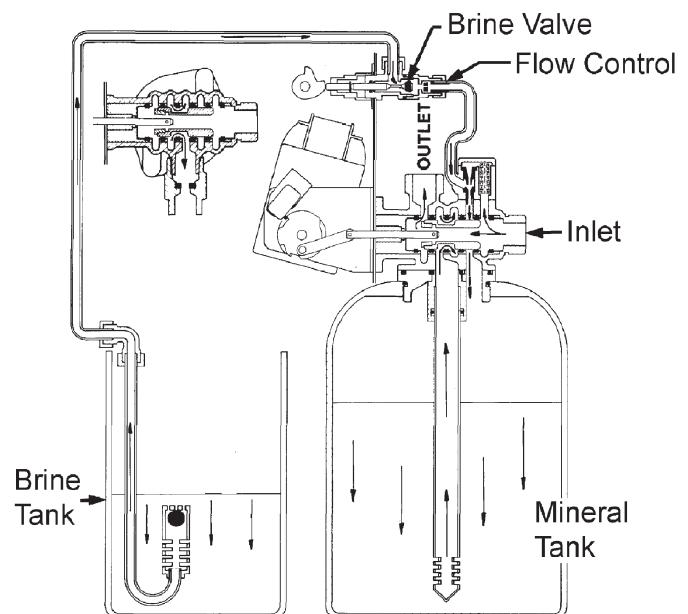
1 Service Position



2 Backwash Position



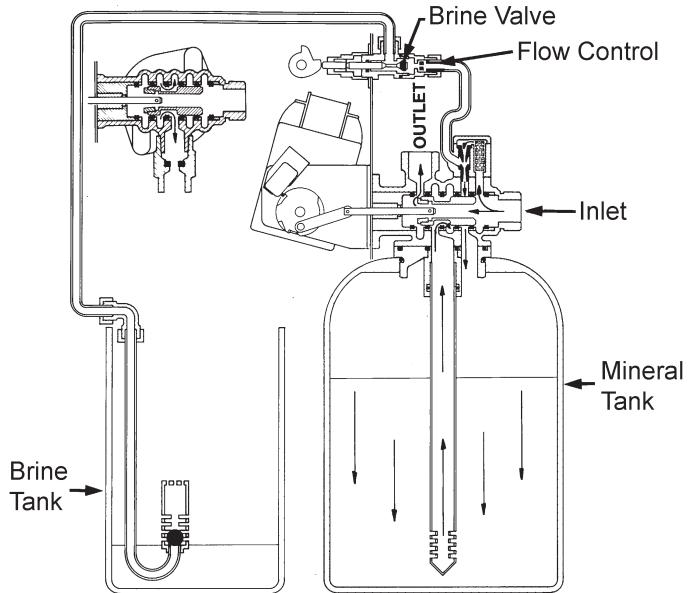
3 Brine Position



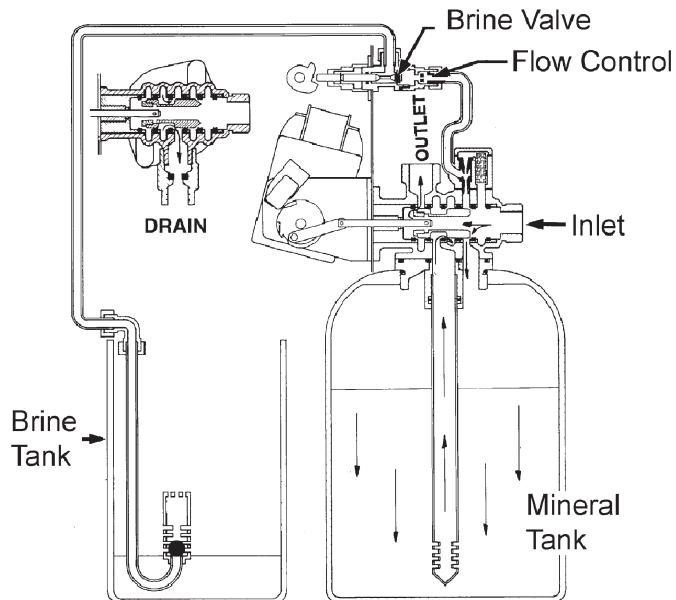
61500-2750 DF_REVA

Water Conditioner Flow Diagrams

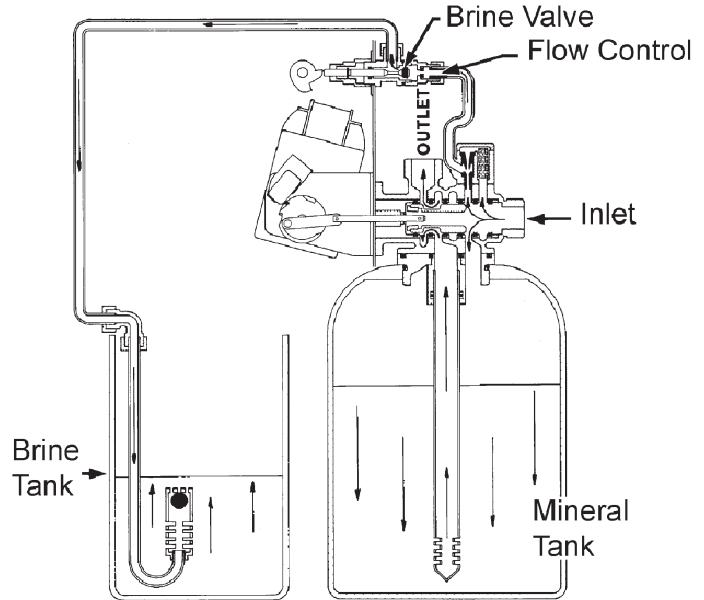
4 Slow Rinse Position



5 Rapid Rinse

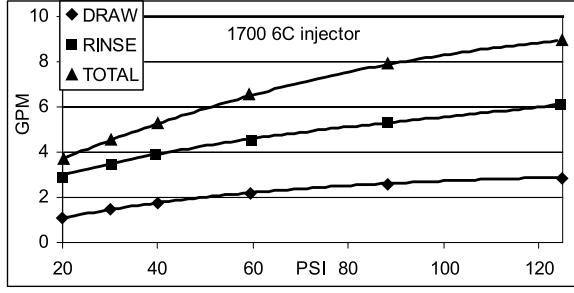
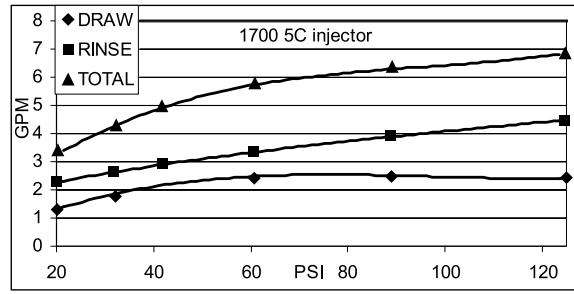
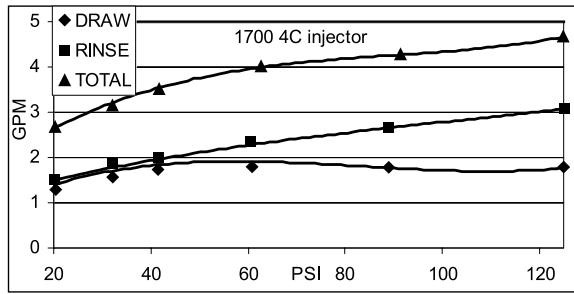
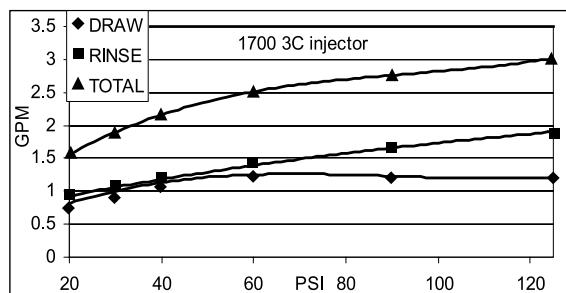
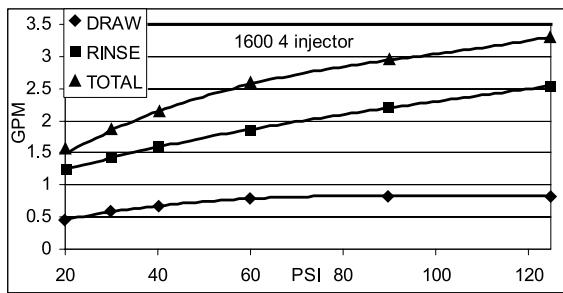
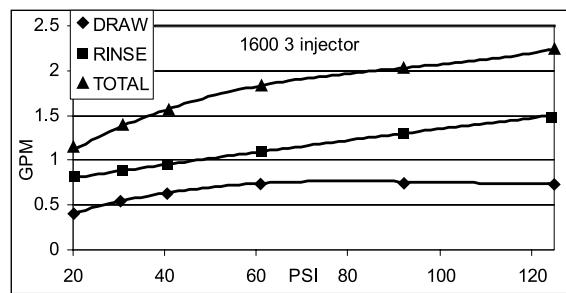
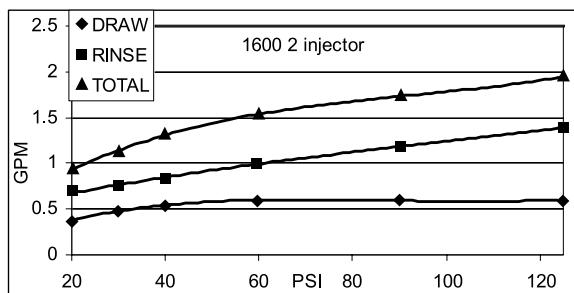
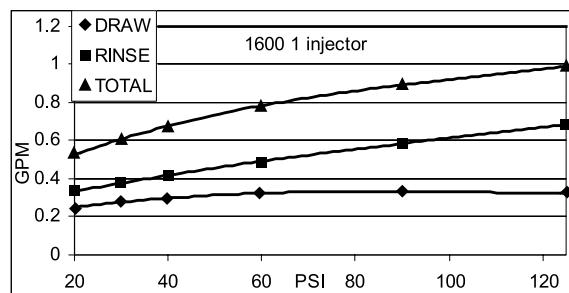
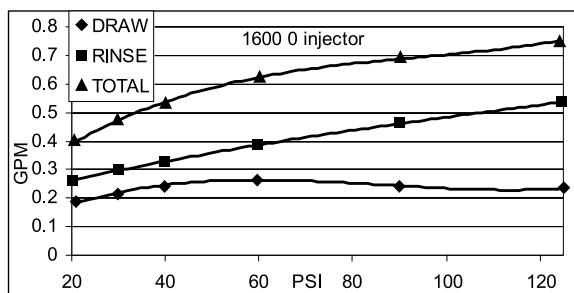


6 Brine Tank Fill Position



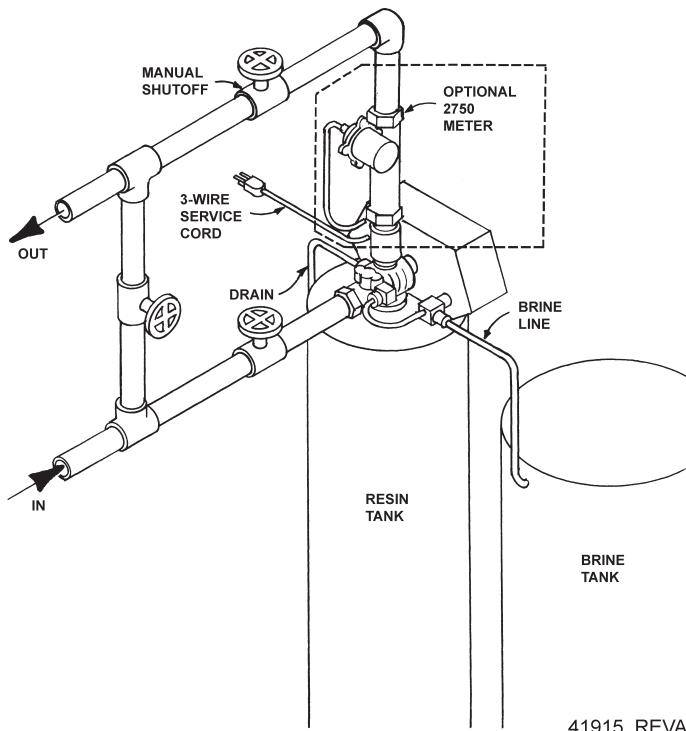
61500-2750 DF_REVA

Flow Data & Injector Draw Rates



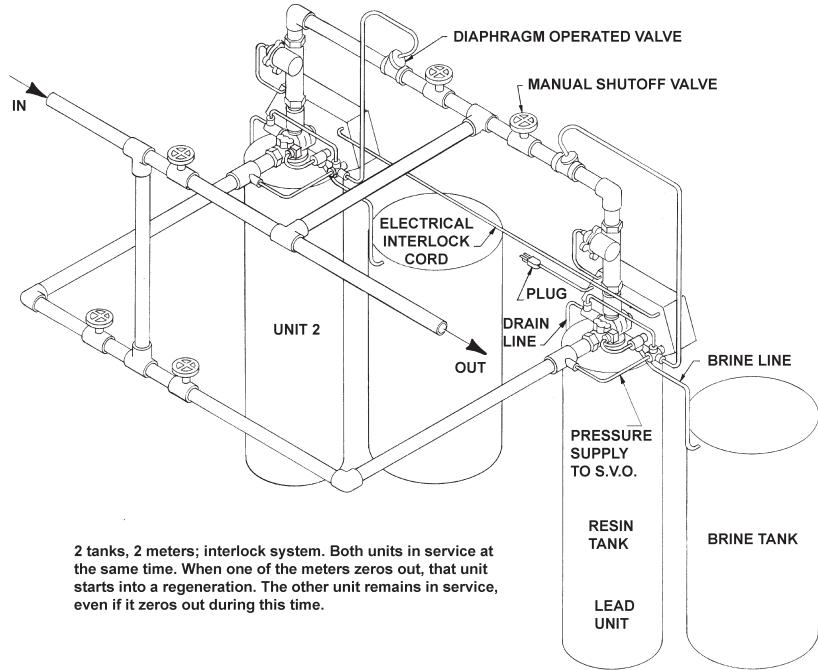
TR20391_REV A

System #4 Typical Tank Installation with Optional Meter



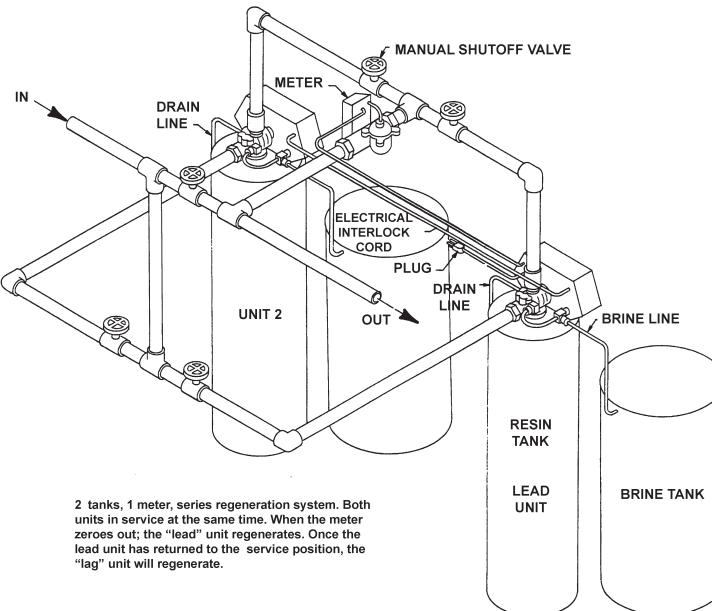
41915_REV A

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



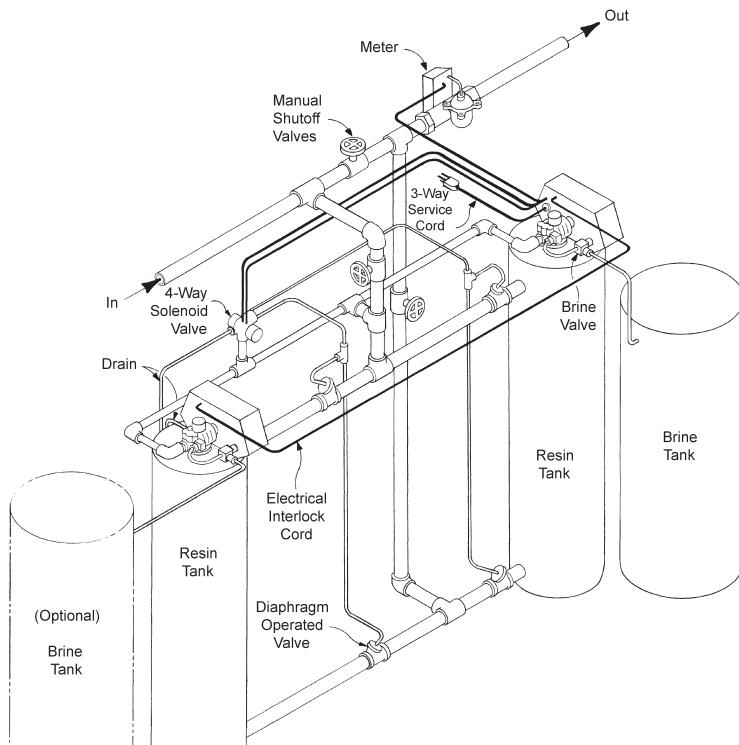
41917_REV A

System #6 Twin Series Regeneration Installation with a Remote Meter



41916_REV A

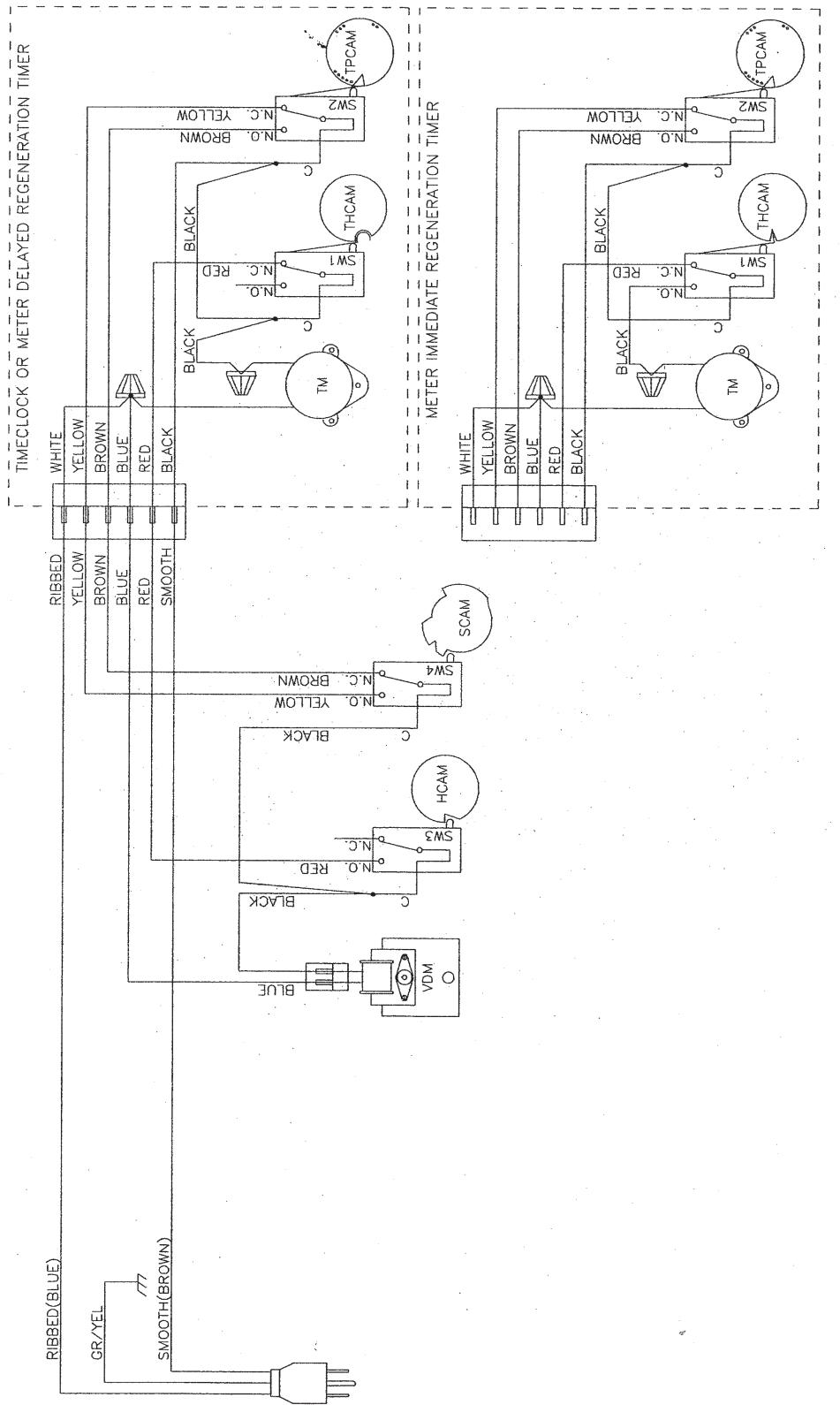
System #7 - Twin Alternator Installation with a Remote Meter



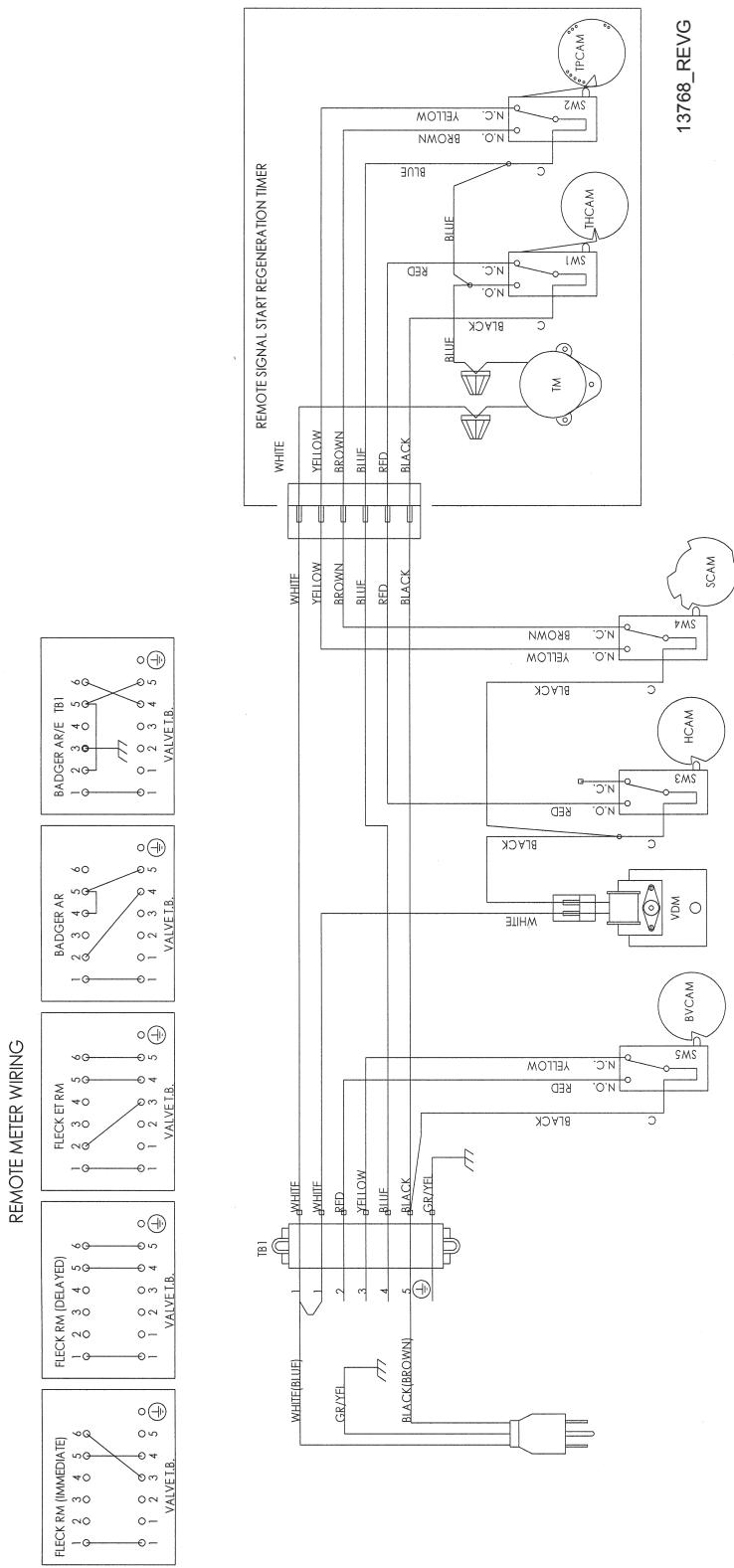
2 tanks, 1 meter, alternator system. One unit in service, the other is on standby. When the meter zeroes out the unit in service goes into a regeneration cycle, the standby unit, goes into service.

41918_REV A

System #4 Immediate & Delayed Valve Wiring



System #4 Remote Signal Start Valve Wiring



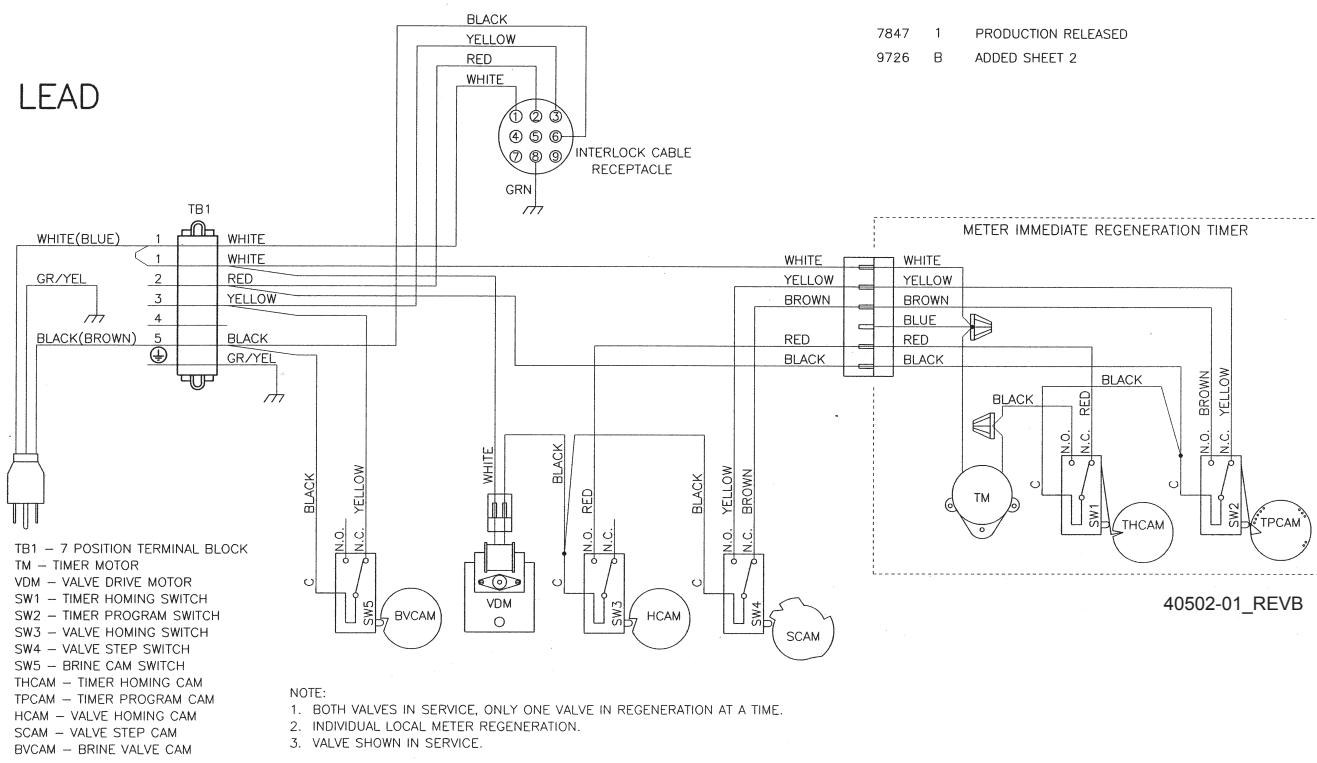
TB1 - 7 POSITION TERMINAL BLOCK
 TM - TIMER MOTOR
 VDM - VALVE DRIVE MOTOR
 SW1 - TIMER HONING SWITCH
 SW2 - TIMER PROGRAM SWITCH
 SW3 - VALVE HONING SWITCH
 SW4 - VALVE STEP SWITCH
 SW5 - BRINE CAM SWITCH
 TFCAM - TIMER HONING CAM
 HCAM - VALVE HONING CAM
 SCAM - VALVE STEP CAM
 BYCAMS - BRINE VALVE CAM

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

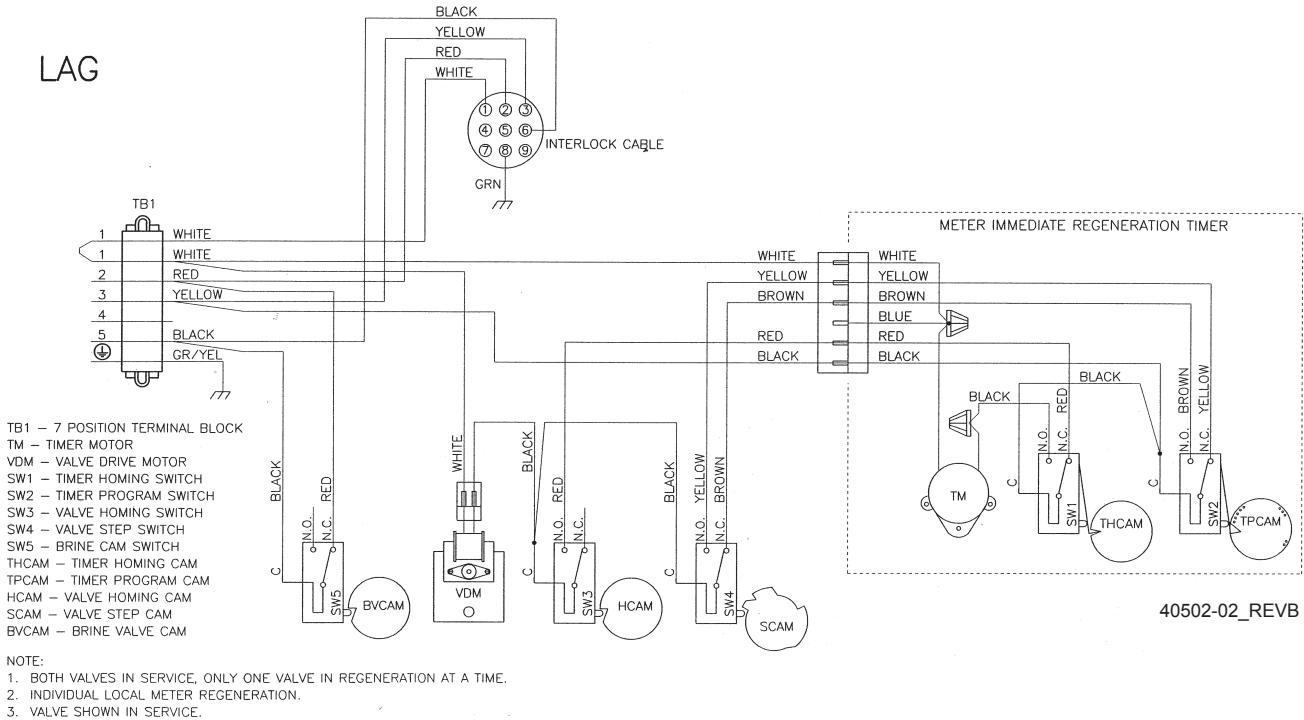
System #5 Duplex Valve Wiring

7847 1 PRODUCTION RELEASED
9726 B ADDED SHEET 2

LEAD

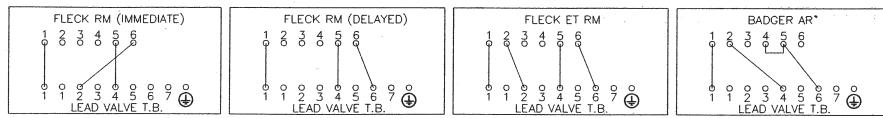


LAG

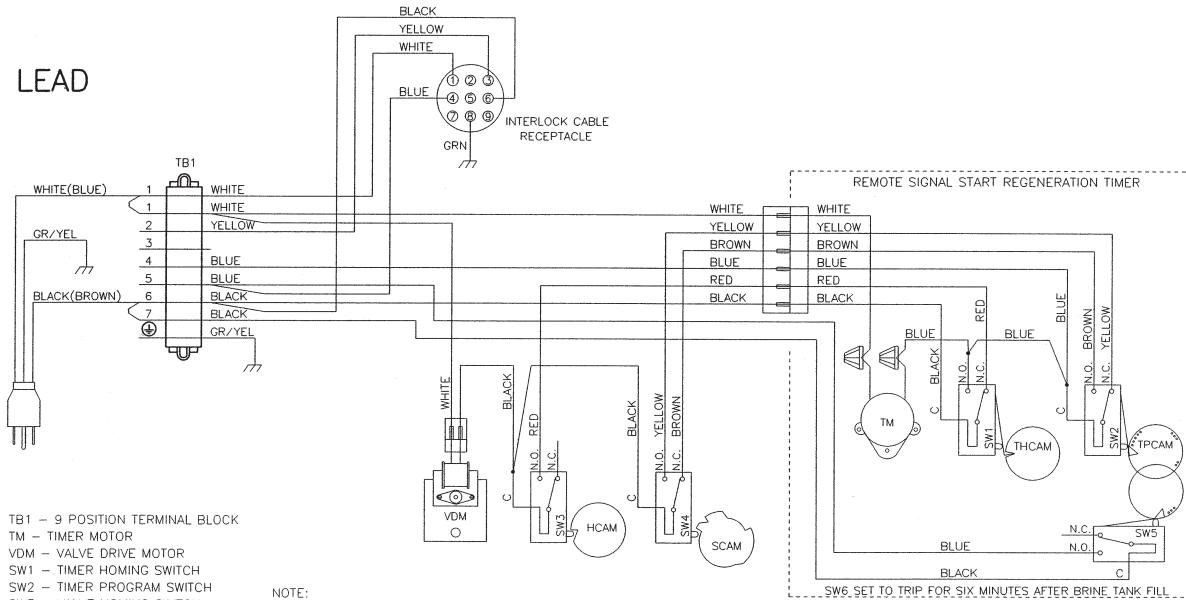


System #6 Duplex Valve Wiring

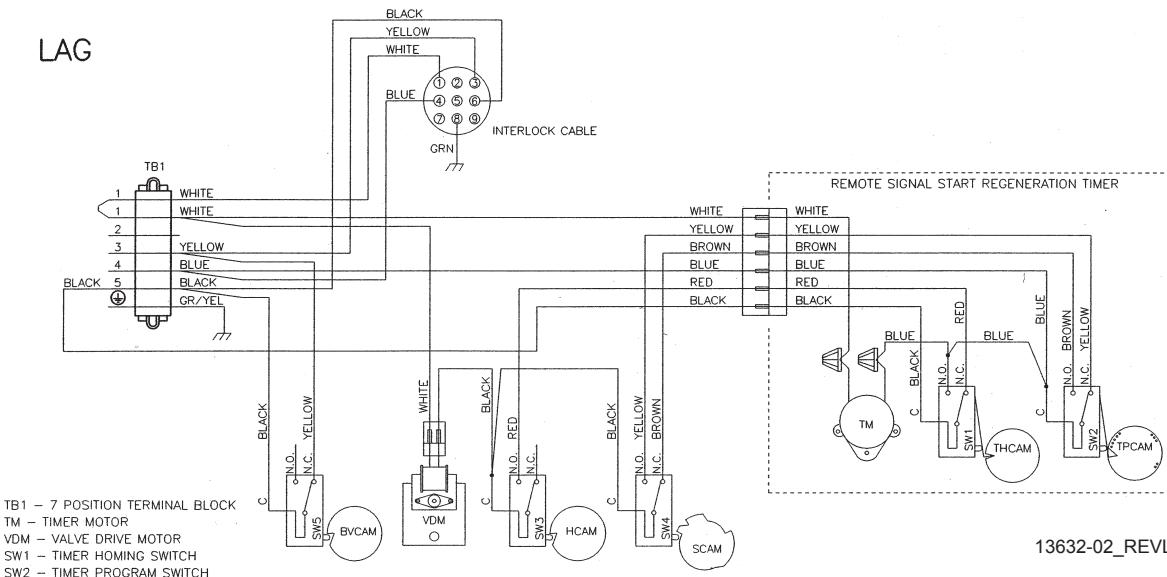
REMOTE METER WIRING



LEAD

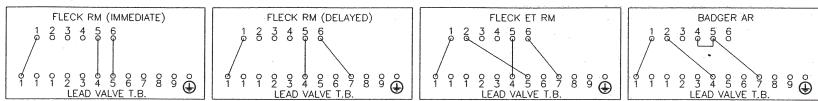


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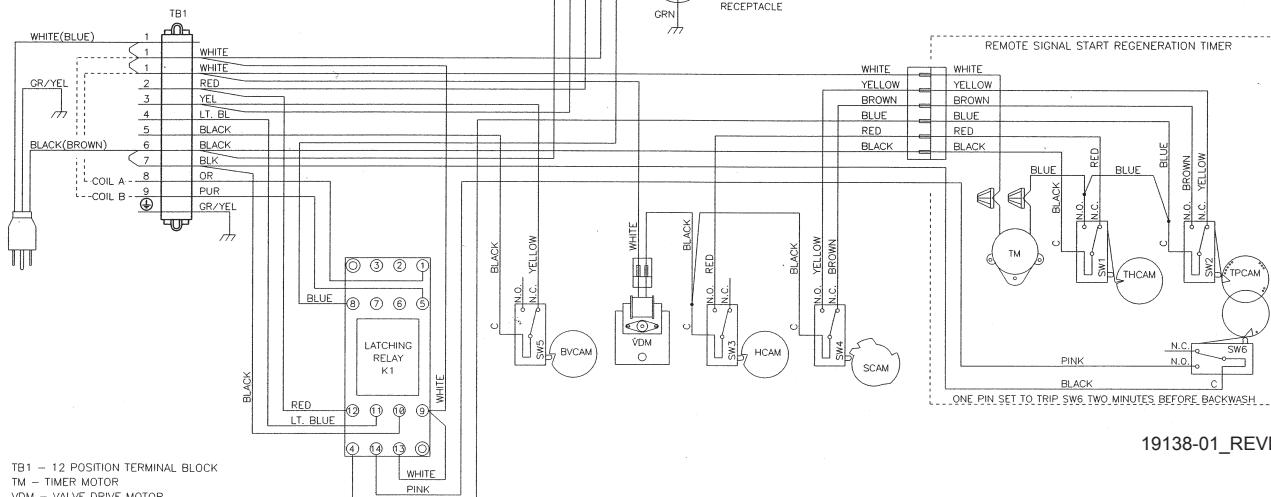


System #7 Duplex 24V/120V 3-Way Valve Wiring

REMOTE METER WIRING



LEAD



19138-01_REV0

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

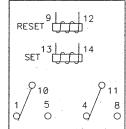
TPCAM - TIMER PROGRAM CAM

HCAM - VALVE HOMING CAM

SCAM - VALVE STEP CAM

BVCAM - BRINE VALVE CAM

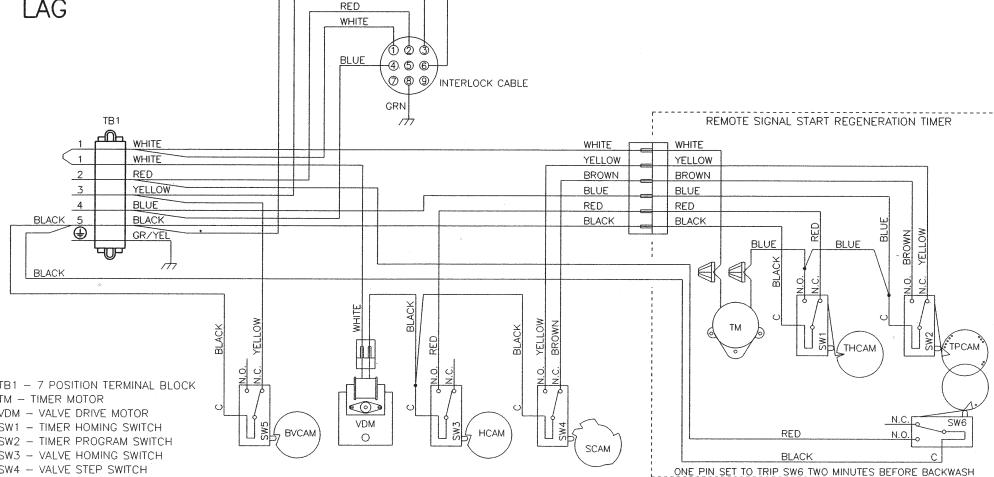
RELAY TERMINAL BLOCK PINOUT
(SHOWN IN RESET POSITION)



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.

LAG



19138-02_REV0

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

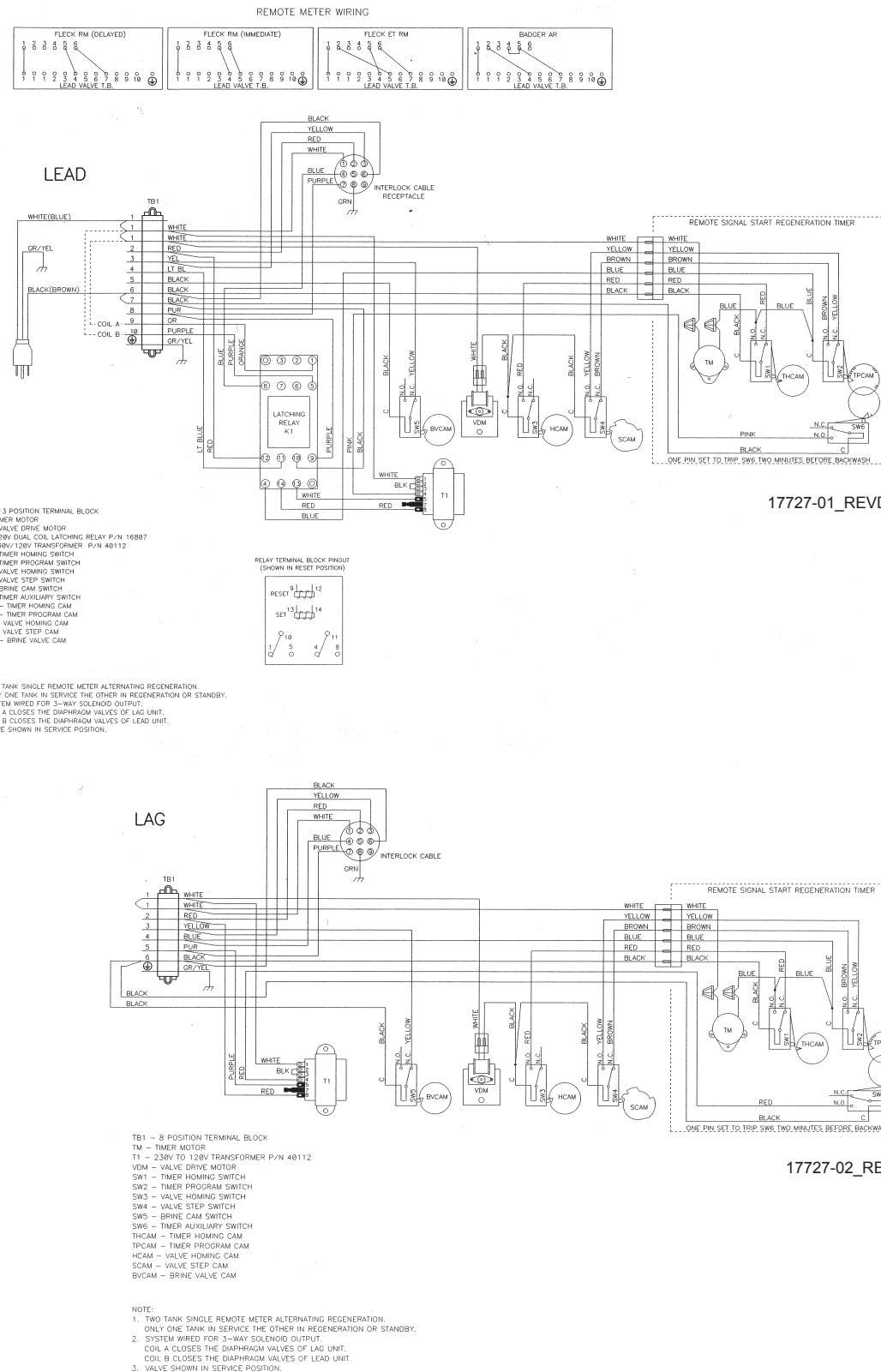
SCAM - VALVE STEP CAM

BVCAM - BRINE VALVE CAM

NOTE:

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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.

System #7 Duplex 230V 3-Way Valve Wiring



Service Assemblies

24 Hour Gear Assembly:

19205..... Gear Assy, 24 Hour, Silver, 5600, 12AM

Brine Line Flow (BLFC):

60011-XX..... Brine Valve, 1650, Short Stem

60710-XX..... BLFC, 1"

Brine Valves:

60029..... 1600 Brine Valve

60034-XX..... 1700 Brine Valve

Cam Assemblies:

60160-00 Drive Cam Assy, RR, White

60160-20 Drive Cam Assy, Std

Drain Line Flow Controls:

60365-XX..... Brass DLFC 3/4" NPT

Drive Assemblies:

60050-XX..... Drive Assy, 2750, STF, 120V Softener

60050-21 Drive Assy, 2750, STF, 120V Softener

Injector Assemblies:

60080-XX..... 1600 Injector Assembly

60485-XX..... 1600 Injector Assembly

60381-XX..... 1700 Injector Assembly

60486-XX..... 1700 Injector Assembly

Meters:

60391..... 2750 Meter Assy, Std

60391-005 Meter, 1" Std Range, Plastic Cap

60392..... 2750 Meter Assy, Ext

60392-005 Meter, 1" Ext Range, Plastic Cap

60621..... Meter Assy, 2" Plastic, Std

60625..... Meter Assy, 2" Plastic Electronic

Piston Assemblies:

60090-HF..... Piston Assy, 2750/2900

60091-HF..... Piston Assy, 2750, Hot Water

60190-UF..... 2750 Piston Assembly

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

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

