



Fleck 2750 Downflow

Service Manual

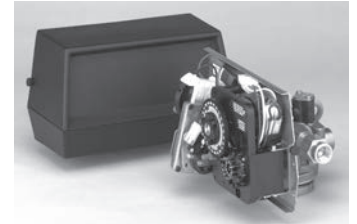


TABLE OF CONTENTS

JOB SPECIFICATION SHEET	1
INSTALLATION	2
START-UP INSTRUCTIONS	2
3200 TIMER SETTING PROCEDURE	3
3210 TIMER SETTING PROCEDURE	4
3200, 3210, 3220, 3230 REGENERATION CYCLE SETTING PROCEDURE.....	5
3200 TIME CLOCK TIMER ASSEMBLY.....	6
3210 METER DELAYED TIMER ASSEMBLY	7
3220 METER IMMEDIATE TIMER ASSEMBLY	8
3230 REMOTE START TIMER ASSEMBLY.....	9
POWERHEAD ASSEMBLY (ENVIRONMENTAL).....	10
MANUAL POWERHEAD ASSEMBLY	11
CONTROL VALVE WITH 1700 INJECTOR	12
1600 BRINE SYSTEM ASSEMBLY	13
1600 BRINE SYSTEM ASSEMBLY.....	14
1700 SERIES BRINE SYSTEM ASSEMBLY.....	15
1710 BRINE SYSTEM ASSEMBLY	16
1" METER ASSEMBLY	17
1600 SERVICE VALVE OPERATOR (OLD STYLE)	18
1600 SERVICE VALVE OPERATOR (NEW STYLE)	19
2300 SAFETY BRINE VALVE.....	20
2310 SAFETY BRINE VALVE.....	21
TROUBLESHOOTING	22
GENERAL SERVICE HINTS FOR METER CONTROL	23
WATER CONDITIONER FLOW DIAGRAMS	24
FLOW DATA & INJECTOR DRAW RATES	25
SYSTEM #4.....	26
SYSTEM #5 INTERLOCK	26
SYSTEM #6.....	26
SYSTEM #7.....	26
SYSTEM #4 IMMEDIATE & DELAYED VALVE WIRING.....	28
SYSTEM #4 REMOTE SIGNAL START VALVE WIRING	29
SYSTEM #5 DUPLEX VALVE WIRING	30
SYSTEM #6 DUPLEX VALVE WIRING.....	31
SYSTEM #7 DUPLEX 24V/120V 3-WAY VALVE WIRING	32
SYSTEM #7 DUPLEX 230V 3-WAY VALVE WIRING.....	33
SERVICE ASSEMBLIES	34

JOB SPECIFICATION SHEET

Job Number: _____
 Model Number: _____
 Water Hardness: _____ ppm or gpg
 Capacity Per Unit: _____
 Mineral Tank Size: _____ Diameter: _____ Height: _____
 Salt Setting per Regeneration: _____

1. Type of Timer:

- A. 7 Day or 12 Day
- B. Meter Initiated

2. Downflow: Upflow Upflow Variable

3. Meter Size:

- A. 3/4" Std Range (125 - 2,100 gallon setting)
- B. 3/4" Ext Range (625 - 10,625 gallon setting)
- C. 1" Std Range (310 - 5,270 gallon setting)
- D. 1" Ext Range (1,150 - 26,350 gallon setting)
- E. 1-1/2" Std Range (625 - 10,625 gallon setting)
- F. 1-1/2" Ext Range (3,125 - 53,125 gallon setting)
- G. 2" Std Range (1,250 - 21,250 gallon setting)
- H. 2" Ext Range (6,250 - 106,250 gallon setting)
- I. 3" Std Range (3,750 - 63,750 gallon setting)
- J. 3" Ext Range (18,750 - 318,750 gallon setting)
- K. Electronic _____ Pulse Count _____ Meter Size _____

4. System Type:

- A. System #4: 1 Tank, 1 Meter, Immediate, or Delayed Regeneration
- B. System #4: Time Clock
- C. System #4: Twin Tank
- D. System #5: 2-5 Tanks, Interlock Mechanical
2-4 Tanks, Interlock Electronic
Meter per unit for Mechanical and Electronic
- E. System #6: 2-5 Tanks, 1 Meter, Series Regeneration, Mechanical
2-4 Tanks, 1 Meter, Series Regeneration, Electronic
- F. System #7: 2-5 Tanks, 1 Meter, Alternating Regeneration,
Mechanical
2 Tanks only, 1 Meter, Alternating Regeneration,
Electronic
- G. System #9: Electronic Only, 2-4 Tanks, Meter per Valve, Alternating
- H. System #14: Electronic Only, 2-4 Tanks, Meter per Valve.
Brings units on and offline based on flow.

5. Timer Program Settings:

- A. Backwash: _____ Minutes
- B. Brine and Slow Rinse: _____ Minutes
- C. Rapid Rinse: _____ Minutes
- D. Brine Tank Refill: _____ Minutes
- E. Pause Time: _____ Minutes
- F. Second Backwash: _____ Minutes

6. Drain Line Flow Control: _____ gpm

7. Brine Line Flow Controller: _____ gpm

8. Injector Size#: _____

9. Piston Type:

- A. Hard Water Bypass
- B. No Hard Water Bypass

INSTALLATION

Water Pressure

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

Electrical Facilities

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

Existing Plumbing

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

Location Of Softener And Drain

The softener should be located close to a drain to prevent air breaks and back flow.

BY-PASS VALVES

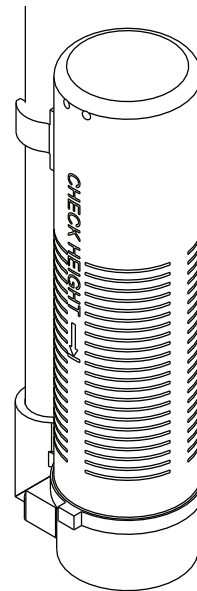
Always provide for the installation of a by-pass valve if unit is not equipped with one.

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

Installation Instructions

1. Place the softener tank where you want to install the unit making sure the unit is level and on a firm base.
2. During cold weather, the installer should warm the valve to room temperature before operating.
3. All plumbing should be done in accordance with local plumbing codes. The pipe size for residential drain line should be a minimum of 1/2" (13 mm). Backwash flow rates in excess of 7 gpm (26.5 Lpm) or length in excess of 20' (6 m) require 3/4" (19 mm) drain line. Commercial drain lines should be the same size as the drain line flow control.
4. Refer to the dimensional drawing for cutting height of the distributor tube. If there is no dimensional drawing, cut the distributor tube flush with the top of the tank.
5. Lubricate the distributor O-ring seal and tank O-ring seal. Place the main control valve on tank. Note: Only use silicone lubricant.
6. Solder joints near the drain must be done prior to connecting the Drain Line Flow Control fitting (DLFC). Leave at least 6" (15 cm) between the DLFC and solder joints when soldering pipes that are connected on the DLFC. Failure to do this could cause interior damage to the DLFC.
7. Teflon tape is the only sealant to be used on the drain fitting. The drain from twin tank units may be run through a common line.
8. Make sure that the floor is clean beneath the salt storage tank and that it is level.
9. Place approximately 1" (25 mm) of water above the grid plate. If a grid is not utilized, fill to the top of the air check (Figure 1) in the salt tank. Do not add salt to the brine tank at this time.
10. On units with a by-pass, place in by-pass position. Turn on the main water supply. Open a cold soft water tap nearby and let run a few minutes or until the system is free from foreign material (usually solder) that may have resulted from the installation. Once clean, close the water tap.

11. Slowly place the by-pass in service position and let water flow into the mineral tank. When water flow stops, slowly open a cold water tap nearby and let run until the air is purged from the unit.
12. Plug unit into an electrical outlet. Note: All electrical connections must be connected according to local codes. Be certain the outlet is uninterrupted.



60002 Rev E

Figure 1 Residential Air Check Valve

START-UP INSTRUCTIONS

The water softener should be installed with the inlet, outlet, and drain connections made in accordance with the manufacturer's recommendations, and to meet applicable plumbing codes.

1. Turn the manual regeneration knob slowly in a clockwise direction until the program micro switch lifts on top of the first set of pins. Allow the drive motor to move the piston to the first regeneration step and stop. Each time the program switch position changes, the valve will advance to the next regeneration step. Always allow the motor to stop before moving to the next set of pins or spaces.
NOTE: For electronic valves, please refer to the manual regeneration part of the timer operation section. If the valve came with a separate electronic timer service manual, refer to the timer operation section of the electronic timer service manual.
2. Position the valve to backwash. Ensure the drain line flow remains steady for 10 minutes or until the water runs clear (see above).
3. Position the valve to the brine / slow rinse position. Ensure the unit is drawing water from the brine tank (this step may need to be repeated).
4. Position the valve to the rapid rinse position. Check the drain line flow, and run for 5 minutes or until the water runs clear.
5. Position the valve to the start of the brine tank fill cycle. Ensure water goes into the brine tank at the desired rate. The brine valve drive cam will hold the valve in this position to fill the brine tank for the first regeneration.
6. Replace control box cover.
7. Put salt in the brine tank.

NOTE: Do not use granulated or rock salt.

3200 TIMER SETTING PROCEDURE

How To Set Days On Which Water Conditioner Is To Regenerate (Figure 2)

Rotate the skipper wheel until the number "1" is at the red pointer. Set the days that regeneration is to occur by sliding tabs on the skipper wheel outward to expose trip fingers. Each tab is one day. Finger at red pointer is tonight. Moving clockwise from the red pointer, extend or retract fingers to obtain the desired regeneration schedule.

How To Set The Time Of Day

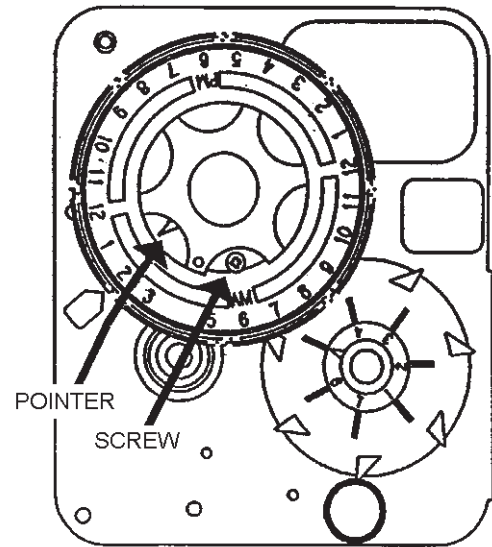
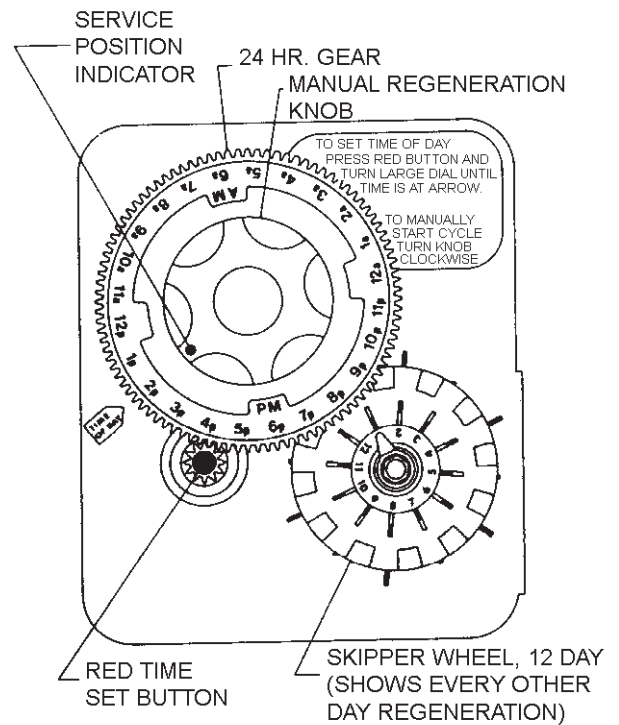
1. Press and hold the red button in to disengage the drive gear.
2. Turn the large gear until the actual time of day is at the time of day pointer.
3. Release the red button to again engage the drive gear.

How To Manually Regenerate Your Water Conditioner At Any Time

1. Turn the manual regeneration knob clockwise.
2. This slight movement of the manual regeneration knob engages the program wheel and starts the regeneration program.
3. The black center knob will make one revolution in the following approximately three hours and stop in the position shown in the drawing.
4. Even though it takes three hours for this center knob to complete one revolution, the regeneration cycle of your unit might be set for only one half of this time.
5. In any event, conditioned water may be drawn after rinse water stops flowing from the water conditioner drain line.

How to Adjust Regeneration Time

1. Disconnect the power source.
2. Locate the three screws behind the manual regeneration knob by pushing the red button in and rotating the 24 hour dial until each screw appears in the cut out portion of the manual regeneration knob.
3. Loosen each screw slightly to release the pressure on the time plate from the 24 hour gear.
4. Locate the regeneration time pointer on the inside of the 24 hour dial in the cut out.
5. Turn the time plate so the desired regeneration time aligns next to the raised arrow.
6. Push the red button in and rotate the 24 hour dial. Tighten each of the three screws.
7. Push the red button and locate the pointer one more time to ensure the desired regeneration time is correct.
8. Reset the time of day and restore power to the unit.



3200 ADJUSTABLE REGENERATION TIMER

IMPORTANT!
SALT LEVEL MUST ALWAYS BE ABOVE
WATER LEVEL IN BRINE TANK

61502-3200 Rev A

Figure 2

3210 TIMER SETTING PROCEDURE

Typical Programming Procedure

Calculate the gallon capacity of the system, subtract the necessary reserve requirement and set the gallons available opposite the small white dot on the program wheel gear (Figure 3).

NOTE: Drawing shows 8,750 gallon setting. The capacity (gallons) arrow (15) shows zero gallons remaining. The unit will regenerate tonight at the set regeneration time.

How To Set The Time Of Day

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

How To Manually Regenerate Your Water Conditioner At Any Time

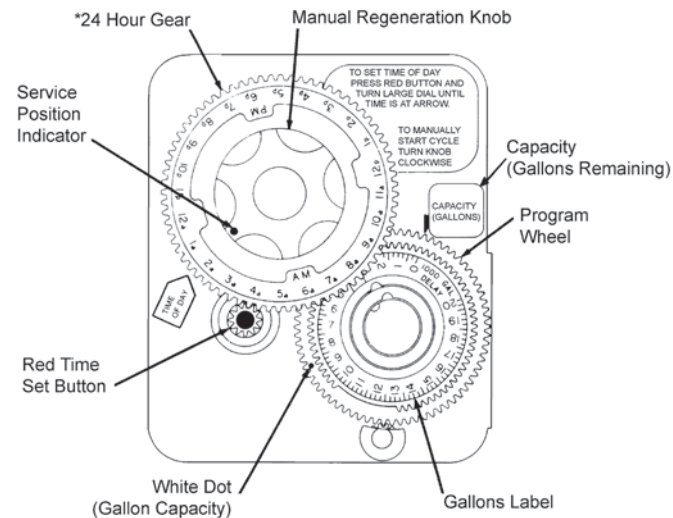
1. Turn the manual regeneration knob clockwise.
2. This slight movement of the manual regeneration knob engages the program wheel and starts the regeneration program.
3. The black center knob will make one revolution in the following approximately three hours and stop in the position shown in the drawing.
4. Even though it takes three hours for this center knob to complete one revolution, the regeneration cycle of your unit might be set for only one half of this time.
5. In any event, conditioned water may be drawn after rinse water stops flowing from the water conditioner drain line.

Immediate Regeneration Timers

These timers do not have a 24 hour gear. Setting the gallons on the program wheel and manual regeneration procedure are the same as previous instructions. The timer will regenerate as soon as the capacity gallons reaches zero.

NOTE: The program wheel to the left may be different than the program wheel on the product.

NOTE: To set meter capacity rotate manual knob one - 360° revolution to set gallonage.



*Immediate regeneration timers do not have a 24-hour gear. No time of day can be set.

61502-3200 Rev A

Figure 3

3200, 3210, 3220, 3230 REGENERATION CYCLE SETTING PROCEDURE

How To Set The Regeneration Cycle Program

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

3200 Series Timers (Figure 4)

1. To expose cycle program wheel, grasp timer in upper left-hand corner and pull, releasing snap retainer and swinging timer to the right.
2. To change the regeneration cycle program, the program wheel must be removed. Grasp program wheel and squeeze protruding lugs toward center, lift program wheel off timer. Switch arms may require movement to facilitate removal.
3. Return timer to closed position engaging snap retainer in back plate. Make certain all electrical wires locate above snap retainer post.

Timer Setting Procedure

How To Change The Length Of The Backwash Time

The program wheel as shown in the drawing is in the service position. As you look at the numbered side of the program wheel, the group of pins starting at zero determines the length of time your unit will backwash.

For example, if there are six pins in this section, the time of backwash will be 12 min. (2 min. per pin). To change the length of backwash time, add or remove pins as required. The number of pins times two equals the backwash time in minutes.

How To Change The Length Of Brine And Rinse Time

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

How To Change The Length Of Rapid Rinse

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

How To Change The Length Of Brine Tank Refill Time

1. The second group of holes in the program wheel determines the length of time that your water conditioner will refill the brine tank (2 min. per hole).
2. To change the length of refill time, move the two pins at the end of the second group of holes as required.
3. The regeneration cycle is complete when the outer microswitch is tripped by the two pin set at end of the brine tank refill section.
4. The program wheel, however, will continue to rotate until the inner micro switch drops into the notch on the program wheel.

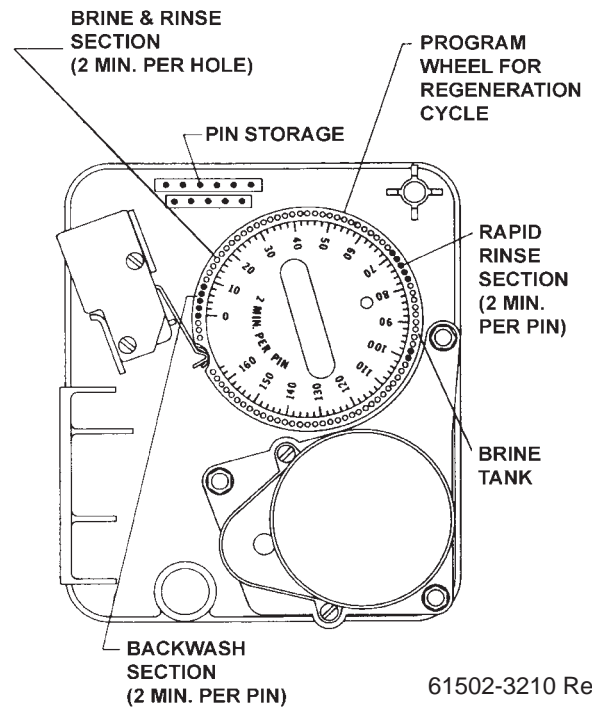
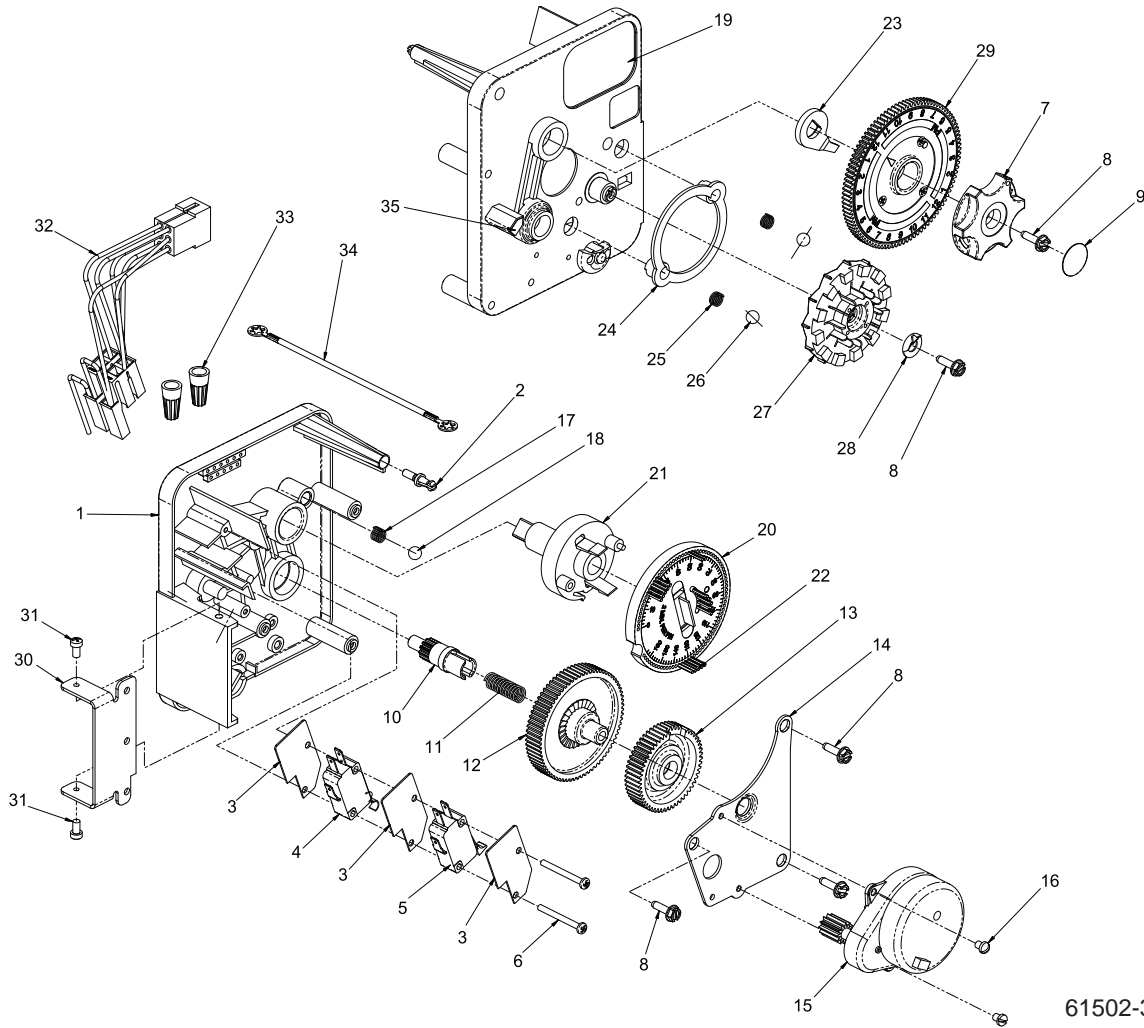


Figure 4

3200 TIME CLOCK TIMER ASSEMBLY

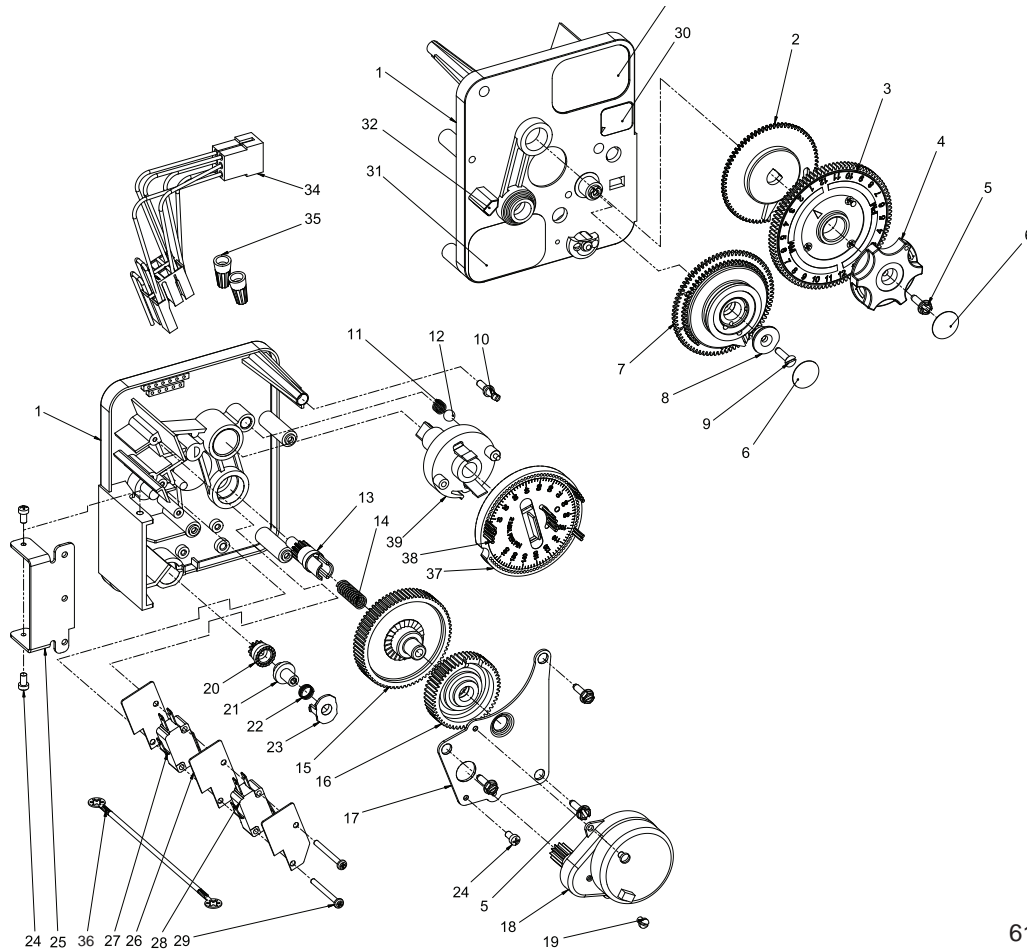


61502-3200 Rev A

Item No.	QTY	Part No.	Description
1.....	1	13870.....	Housing, Timer, 3200
2.....	1	14265.....	Clip, Spring
3.....	3	14087.....	Insulator
4.....	1	10896.....	Switch, Micro
5.....	1	15320.....	Switch, Micro, Timer
6.....	2	11413.....	Screw, Pan Hd Mach, 4-40 x 1-1/8
7.....	1	13886.....	Knob, 3200
8.....	5	13296.....	Screw, Hex Wsh, 6-20 x 1/2
9.....	1	11999.....	Label, Button
10.....	1	13018.....	Pinion, Idler
11.....	1	13312.....	Spring, Idler Shaft
12.....	1	13017.....	Gear, Idler
13.....	1	13164.....	Gear, Drive
14.....	1	13887.....	Plate, Motor Mounting
15.....	1	18743-1.....	Motor, 120V, 60Hz, 1/30 RPM
	1	18752-1.....	Motor, 100V, 50Hz, 1/30 RPM
	1	18824-1.....	Motor, 23V, 50Hz, 1/30 RPM
	1	18826-1.....	Motor, 24V, 50Hz, 1/30 RPM
	1	19659-1.....	Motor, 24V, 60Hz, 1/30 RPM
	1	19660-1.....	Motor, 230V, 60Hz, 1/30 RPM
16.....	2	13278.....	Screw, Sldt Fillister Hd 6-32 x .156

Item No.	QTY	Part No.	Description
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
	1	14860.....	Skipper Wheel Assy, 7 Day
28.....	1	13014.....	Pointer, Regeneration
29.....	1	40096-24.....	Dial, 12 AM Regen Assy, Black
	1	40096-02.....	Dial, 2 AM Regen Assy, Black
30.....	1	13881.....	Bracket, Hinger Timer
31.....	2	11384.....	Screw, Phil, 6-32 x 1/4 Zinc
32.....	1	13902.....	Harness, 3200
33.....	2	40422.....	Nut, Wire, Tan
34.....	1	15354-01.....	Wire, Ground, 4"
35.....	1	14007.....	Label, Time of Day

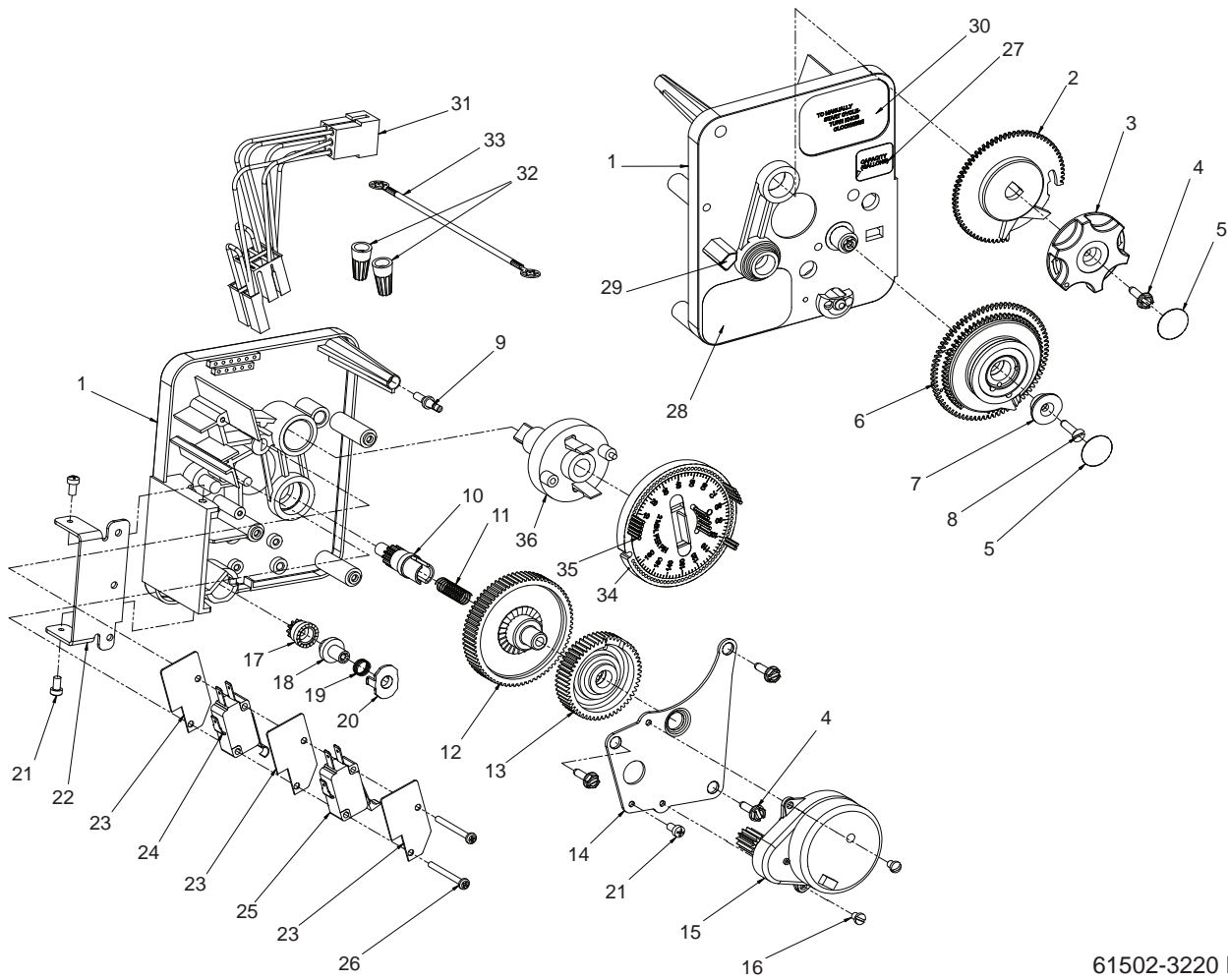
3210 METER DELAYED TIMER ASSEMBLY



61502-3210 Rev A

Item No.	QTY	Part No.	Description	Item No.	QTY	Part No.	Description
1.....	1	13870.....	Housing, Timer, 3200	1	19660-1.....	Motor, 230V, 60Hz, 1/30 RPM	
2.....	1	13802.....	Gear, Cycle Actuator	19.....	1	13278.....	Screw, Fillister Hd, 6-32 x .156
3.....	1	40096-02.....	Dial 2 AM Regen Assy, Black	20.....	1	13830.....	Pinion, Program Wheel Drive
4.....	1	13886.....	Knob, 3200	21.....	1	13831.....	Clutch, Drive Pinion
5.....	4	13296.....	Screw, Hex Wsh, 6-20 x 1/2	22.....	1	14276.....	Spring, Meter, Clutch
6.....	2	11999.....	Label, Button	23.....	1	14253.....	Retainer, Clutch Spring
7.....	1	60405-15.....	Program Wheel, w/34" Std Label, w/People Label Set @ 21	24.....	3	11384.....	Screw, Phil, 6-32 x 1/4
8.....	1	13806.....	Retainer, Program Wheel	25.....	1	13881.....	Bracket, Hinge Timer
9.....	1	13748.....	Screw, Flat Head St, 6-20 x 1/2	26.....	3	14087.....	Insulator
10.....	1	14265.....	Clip, Spring	27.....	1	10896.....	Switch, Micro
11.....	1	15424.....	Spring, Detent, Timer	28.....	1	15320.....	Switch, Micro, Timer
12.....	1	15066.....	Ball, 1/4" Delrin	29.....	2	11413.....	Screw, Pan Hd Mach, 4-40 x 1/8
13.....	1	13018.....	Pinion, Idler	30.....	1	14198.....	Label, Indicator
14.....	1	13312.....	Spring, Idler Shaft	31.....	1	15465.....	Label, Caution
15.....	1	13017.....	Gear, Idler	32.....	1	14007.....	Label, Time of Day
16.....	1	13164.....	Gear, Drive	33.....	1	14045.....	Label, Instruction
17.....	1	13887.....	Plate, Motor Mounting	34.....	1	13902.....	Harness, 3200
18.....	1	18743-1.....	Motor, 120V, 60Hz 1/30 RPM	35.....	2	40422.....	Nut, Wire, Tan
1	1	18752-1.....	Motor, 100V, 50Hz, 1/30 RPM	36.....	1	15354-01.....	Wire, Ground, 4"
1	1	18824-1.....	Motor, 23V, 50Hz, 1/30 RPM	37.....	1	19210.....	Program Wheel Assy
1	1	18826-1.....	Motor, 24V, 50Hz, 1/30 RPM	38.....	17	41754.....	Pin, Spring, 1/16 x 5/8 SS, Timer
1	1	19659-1.....	Motor, 24V, 60Hz, 1/30 RPM	39.....	1	13911.....	Gear, Main Drive, Timer

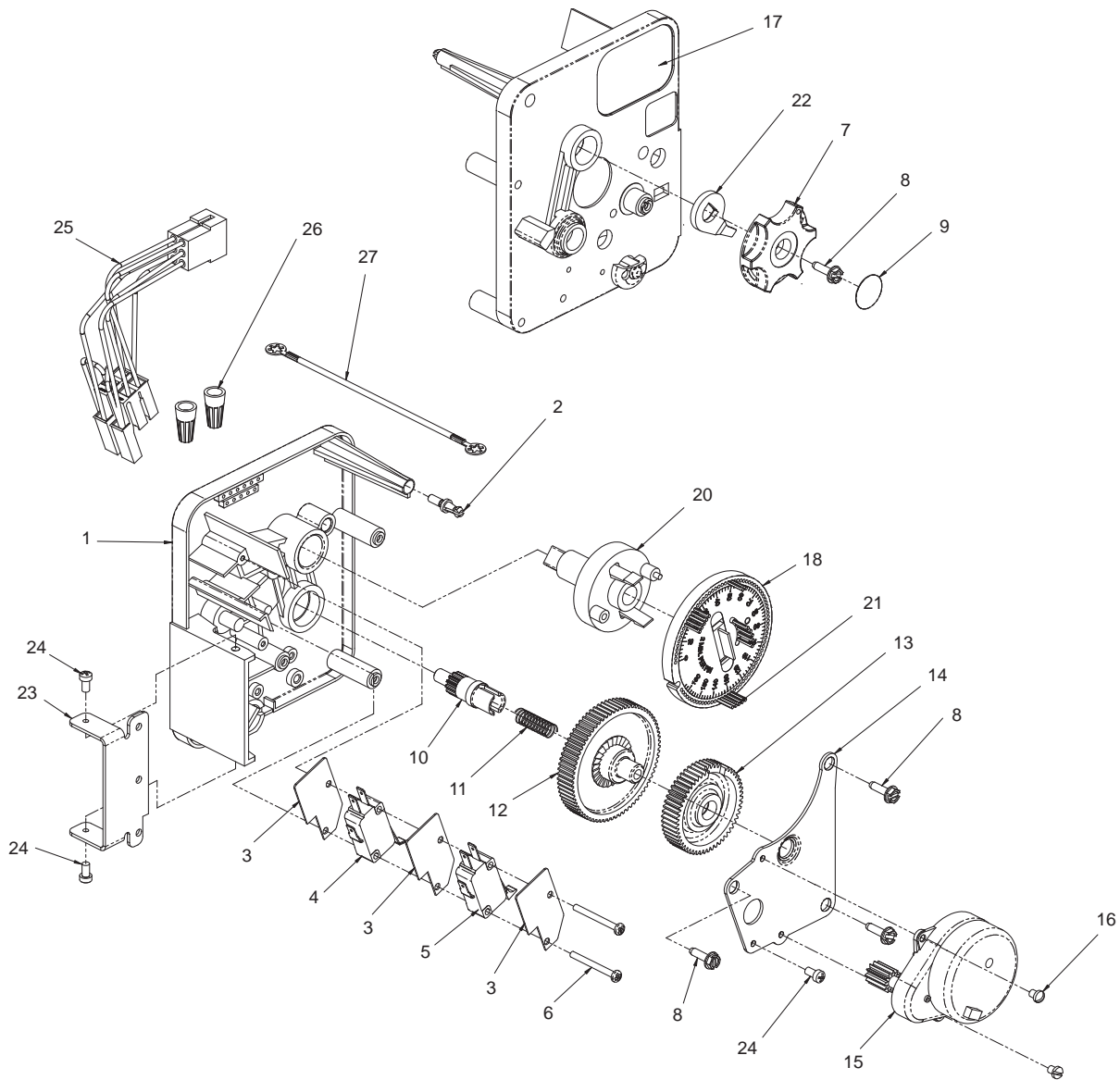
3220 METER IMMEDIATE TIMER ASSEMBLY



61502-3220 Rev B

Item No.	QTY	Part No.	Description	Item No.	QTY	Part No.	Description
1.....	1	13870.....	Housing, Timer	18.....	1	14501.....	Clutch, Drive Pinion
2.....	1	15431.....	Gear, Cycle Actuator, System #5	19.....	1	14276.....	Meter Clutch Spring
3.....	1	13886.....	Knob, 3200	20.....	1	14253.....	Retainer, Clutch Spring
4.....	4	13296.....	Screw, Hex Wsh, 6-20 x 1/2	21.....	3	11384.....	Screw, Phil, 6-32 x 1/4 Zinc
5.....	2	11999.....	Label, Button	22.....	1	13881.....	Bracket, Hinge Timer
6.....	1	60408-50.....	Program Wheel, W/2" Std Label	23.....	3	14087.....	Insulator
7.....	1	13806.....	Retainer, Program Wheel	24.....	1	15414-00.....	Micro Switch
8.....	1	13748.....	Screw, Flt Hd St, 6-20 x 1/2	25.....	1	15320.....	Switch, Micro, Timer
9.....	1	14265.....	Spring Clip	26.....	2	11413.....	Screw, Pan Hd Mach, 4-40 x 1-1/8
10.....	1	13018.....	Pinion, Idler	27.....	1	14198.....	Label, Indicator
11.....	1	18563.....	Idler Shaft Spring	28.....	1	15465.....	Label, Caution
12.....	1	13017.....	Gear, Idler	29.....	1	14007.....	Label, Time of Day
13.....	1	13164.....	Drive Gear	30.....	1	15148.....	Label, Instruction
14.....	1	13887.....	Plate, Motor Mounting	31.....	1	40617.....	Harness, 3220
15.....	1	18743-1.....	Motor, 120V, 60 Hz, 1/30 RPM	32.....	2	40422.....	Nut, Wire, Tan
	1	18752-1.....	Motor, 100V, 50Hz, 1/30 RPM	33.....	1	15354-01.....	Wire, Ground, 4"
	1	18824-1.....	Motor, 23V, 50Hz, 1/30 RPM	34.....	1	19210-05.....	Program Wheel Assembly, 9000/3230
	1	18826-1.....	Motor, 24V, 50Hz, 1/30 RPM	35.....	17	41754.....	Pin, Spring, 1/16 x 5/8 Stainless Steel, Timer
	1	19659-1.....	Motor, 24V, 60Hz, 1/30 RPM	36.....	1	15055.....	Gear, Main Drive
	1	19660-1.....	Motor, 230V, 60Hz, 1/30 RPM				
16.....	2	13278.....	Screw, Sldt Fillister Hd				
17.....	1	14502.....	Pinion, Program Wheel				

3230 REMOTE START TIMER ASSEMBLY

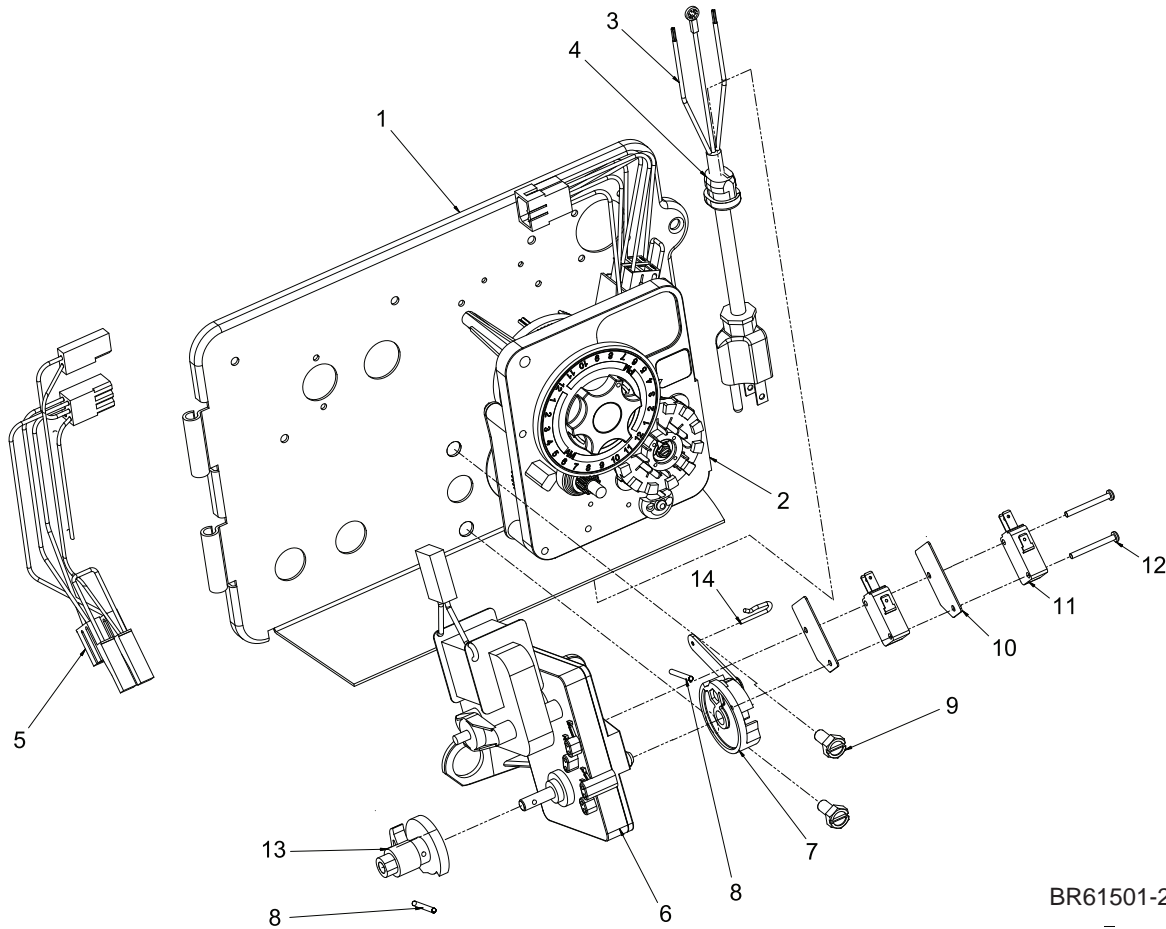


61502-3230R REV A

Item No.	QTY	Part No.	Description
1.....	1	13870.....	Housing, Timer
2.....	1	14265.....	Spring Clip
3.....	3	14087.....	Insulator
4.....	1	15314.....	Micro Switch
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.....	4	13296.....	Screw, Hex Wsh, 6-20 x 1/2
9.....	1	11999.....	Label, Button
10.....	1	13018.....	Pinion, Idler
11.....	1	18563.....	Idler Shaft Spring
12.....	1	13017.....	Gear, Idler
13.....	1	15055.....	Drive Gear
14.....	1	13887.....	Plate, Motor Mounting
15.....	1	18743-1.....	Motor, 120V, 60 Hz, 1/30 RPM
1.....	1	18752-1.....	Motor, 100V, 50Hz, 1/30 RPM

Item No.	QTY	Part No.	Description
1.....	1	18824-1.....	Motor, 23V, 50Hz, 1/30 RPM
1.....	1	18826-1.....	Motor, 24V, 50Hz, 1/30 RPM
1.....	1	19659-1.....	Motor, 24V, 60Hz, 1/30 RPM
1.....	1	19660-1.....	Motor, 230V, 60Hz, 1/30 RPM
16.....	2	13278.....	Screw, Slt'd Fillister Hd
17.....	1	15313.....	Label, Caution
18.....	1	19210-05.....	Program Wheel Assembly, 3200
20.....	1	15055.....	Main Drive Gear
21.....	17	41754.....	Pin, Spring, 1/16 x 5/8 Stainless Steel, Timer
22.....	1	13011.....	Cycle Actuator Arm
23.....	1	13881.....	Bracket, Hinge Timer
24.....	3	11384.....	Screw, Phil, 6-32 x 1/4 Zinc
25.....	1	16336.....	Harness, 3230R
26.....	2	40422.....	Nut, Wire, Tan
27.....	1	15354-01.....	Wire, Ground, 4"

POWERHEAD ASSEMBLY (ENVIRONMENTAL)



BR61501-2750 Rev E

Item No.	QTY	Part No.	Description
1.....	1	18697-13.....	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, 50/60 Hz
		41545*.....	Motor, Drive, 230V, 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

Item No.	QTY	Part No.	Description
12.....	2	14923.....	Screw, Pan Hd Mach, 4-40 x 1
13.....	2	12777.....	Cam, Shut-Off Valve
14.....	1	10909.....	Pin, Link

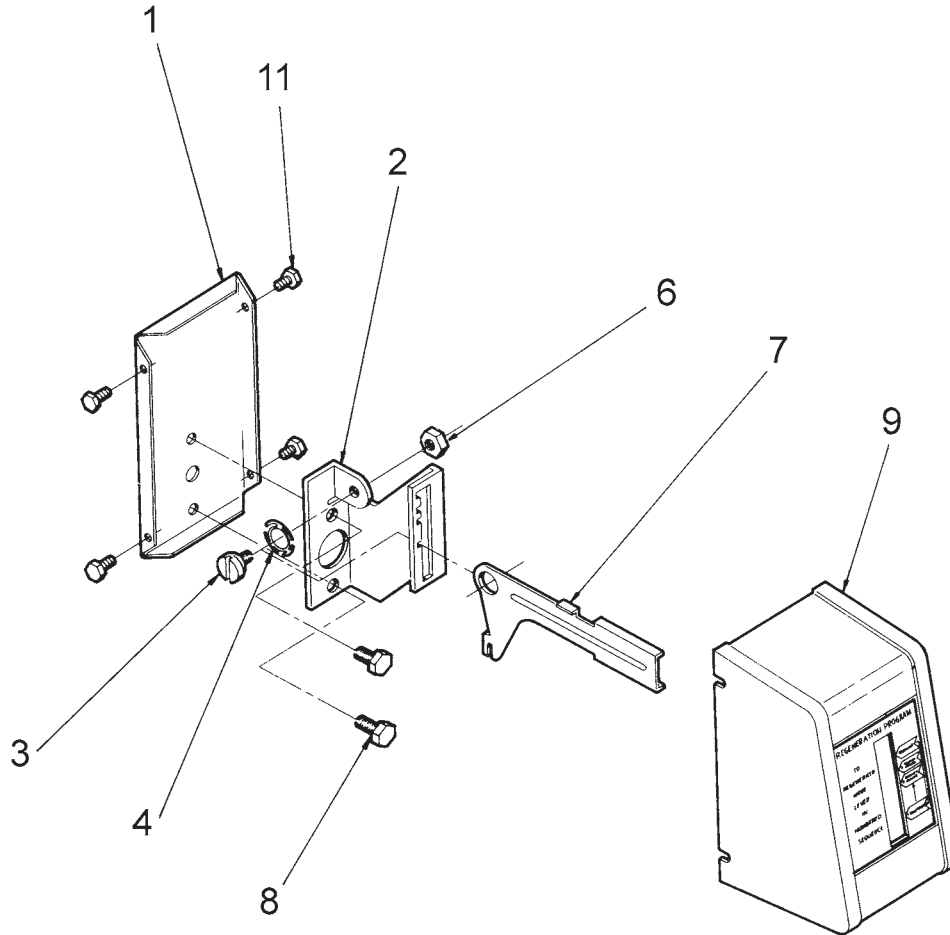
Not Shown:

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.

MANUAL POWERHEAD ASSEMBLY



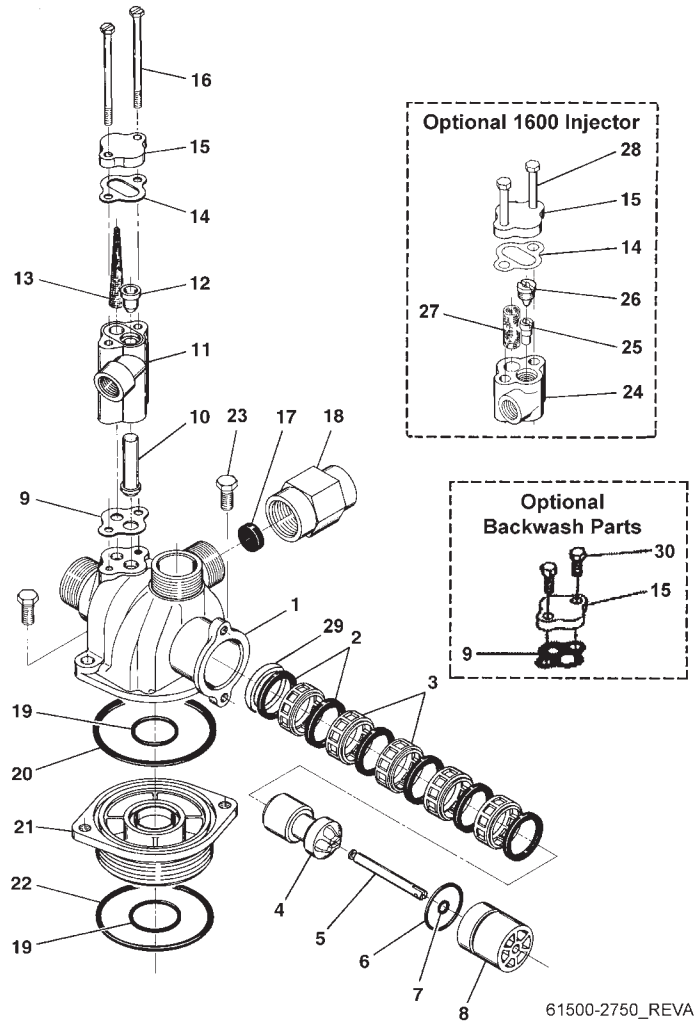
60409 Rev G

Item No.	QTY	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 SS
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
---------	------------	-----------

CONTROL VALVE WITH 1700 INJECTOR



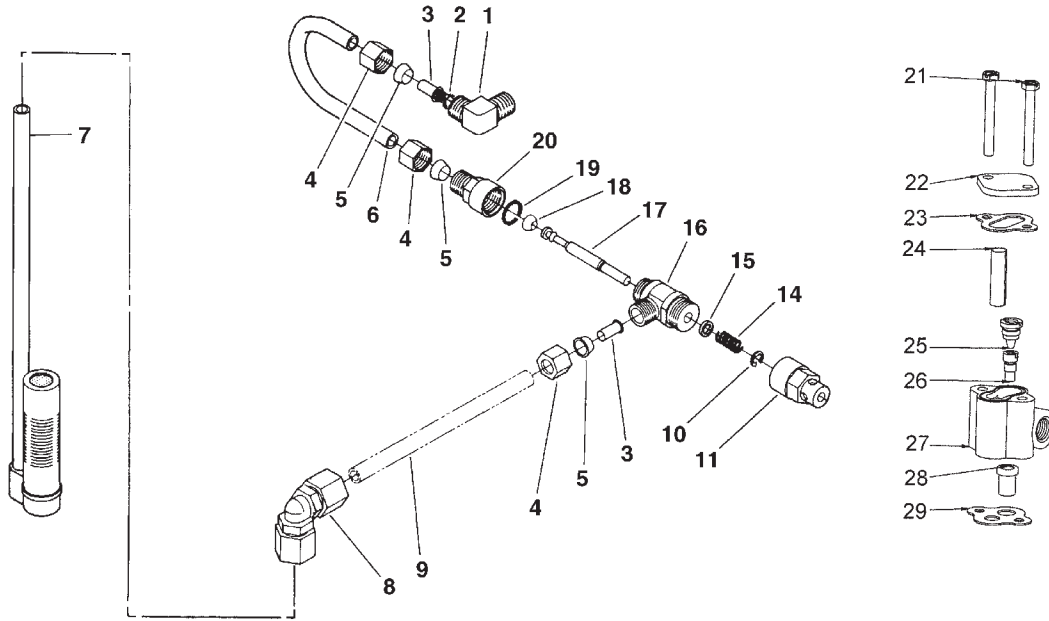
Item No.	QTY	Part No.	Description
1.....	1	14749.....	Valve Body, 2750
2.....	6	10545.....	Seal, Piston
3.....	5	11451.....	Spacer, 12 Hole
		16589.....	Spacer, HW
4.....	1	14451.....	Piston, 2750
5.....	1	14452.....	Rod, Piston
6.....	1	10234-01.....	O-Ring, -024, 560CD
7.....	1	10209.....	Quad Ring, -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)

Item No.	QTY	Part No.	Description
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.....	Dispenser, Air, 1600
.....	1	17996.....	Dispenser, Air, 1700

1600 BRINE SYSTEM ASSEMBLY

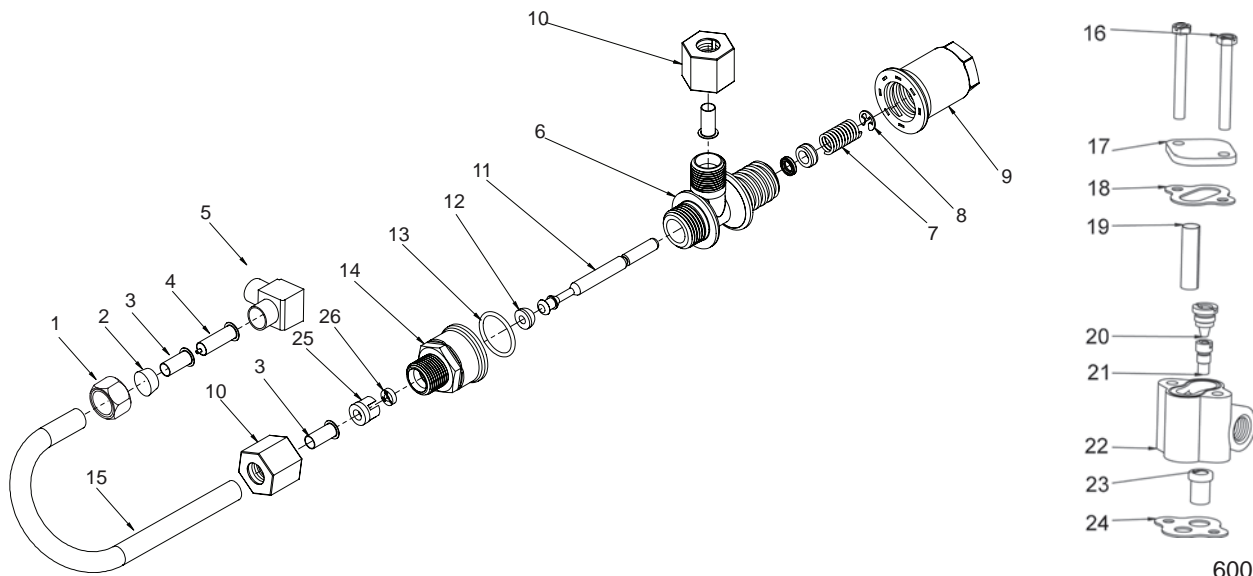


60029 Rev C

Item No.	QTY	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

Item No.	QTY	Part No.	Description
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

1600 BRINE SYSTEM ASSEMBLY



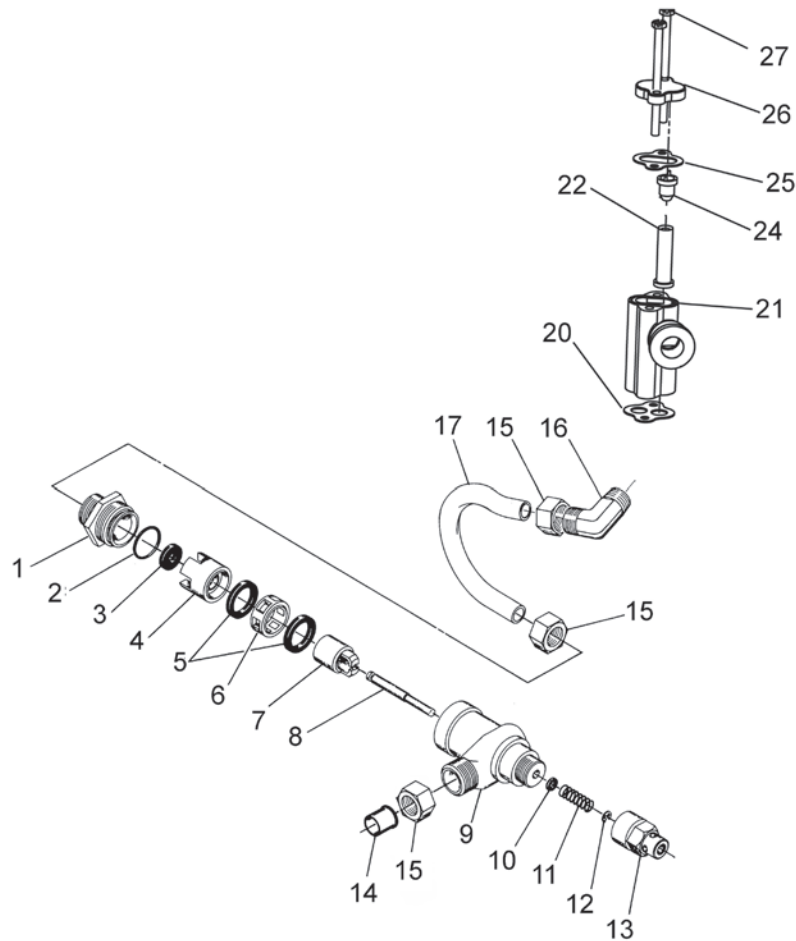
60011 Rev C

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

Item No.	QTY	Part No.	Description
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.....	Dispenser, 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



Item No.	QTY	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

Item No.	QTY	Part No.	Description
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

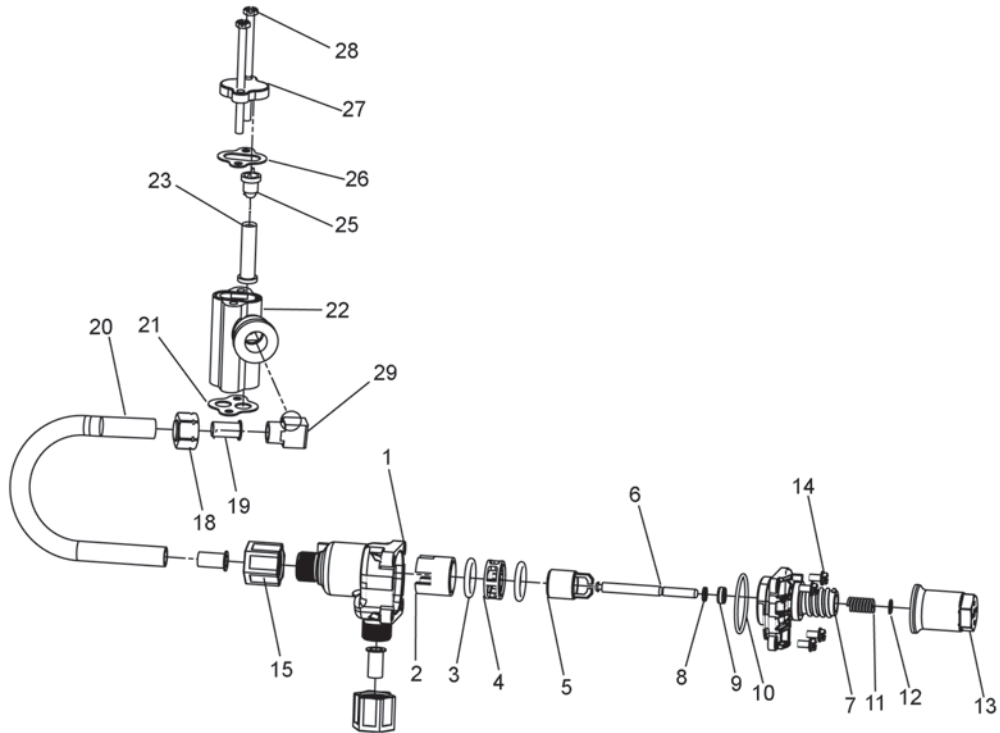
Not Shown:

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

*Upflow Only

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

1710 BRINE SYSTEM ASSEMBLY



60604 Rev F

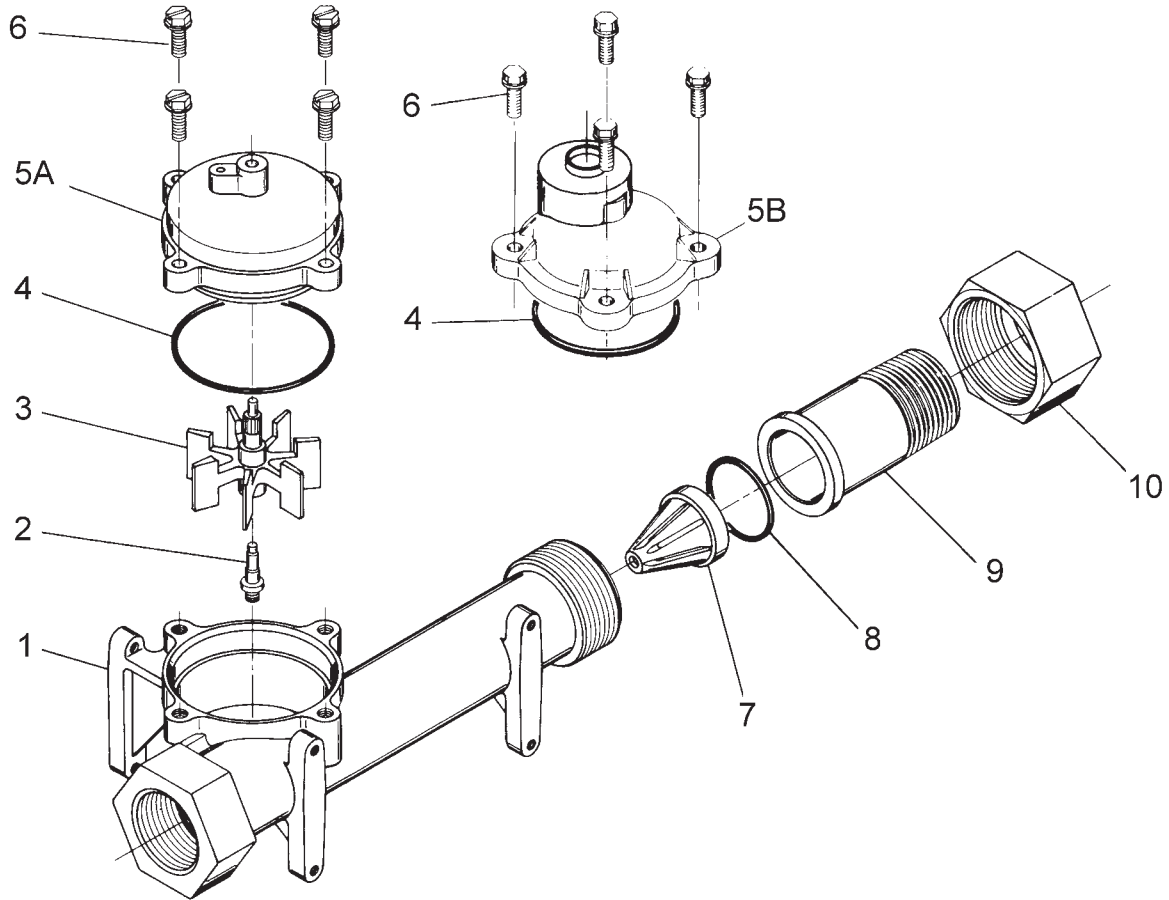
Item No.	QTY	Part No.	Description
1.....	1	41202.....	Brine Valve, 1700, Plastic, Top
2.....	1	14785-01.....	Retainer, Flow Control
3.....	1	14811.....	O-Ring, -210, 560CD, Brine
4.....	1	14798.....	Spacer, 1700, Brine
5.....	1	14795.....	Piston, Brine Valve
6.....	1	41203.....	Stem, Brine, 1710, Plastic, 2900
7.....	1	41201.....	Brine Valve, 1700, Plastic, Bottom
8.....	5	17908.....	Sleeve, Brine Valve Stem
9.....	1	12550.....	Quad Ring, -009
10.....	3	41547.....	O-Ring, 2mmx35mm
11.....	2	15310.....	Spring, Brine Valve
12.....	2	10250.....	Ring, Retaining
13.....	1	17906.....	Guide, Brine Valve Stem
14.....	2	14202-01.....	Screw, Hex Wsh Mach, 8-32 X 5/16
15.....	2	41056.....	Nut Assembly, 1/2" Plastic
18.....	1	15414.....	Nut, 2900, w/Sleeve
19.....	1	15415.....	Fitting, Insert, 1/2", Tube

Item No.	QTY	Part No.	Description
20.....	1	16460.....	Tube, Brine, 2850, 2900s
	1	42183.....	Tube, Brine, 1700/2850s
	1	15416.....	Tube, Brine, 2900/2750
	1	41447*.....	Tube, Brine, 2900s U/F
21.....	1	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	1	19151.....	Washer, Flow, 1.0 gpm
1	1	17996.....	Dispenser, Air, Injector
1	1	414193-00.....	Label, Blank, BLFC, 1710

1" METER ASSEMBLY



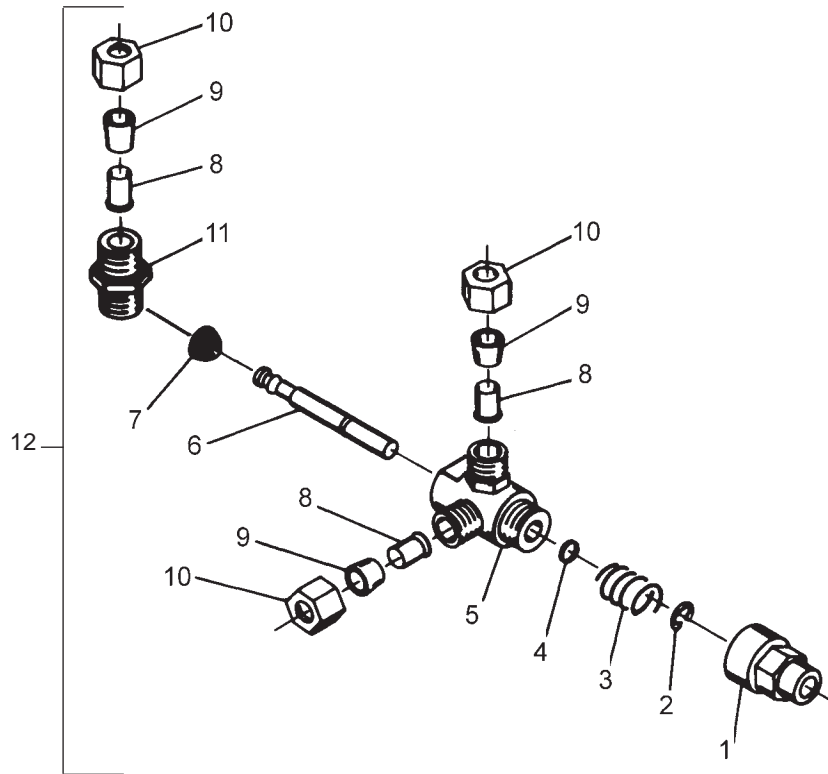
60391 Rev d

Item No.	QTY	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

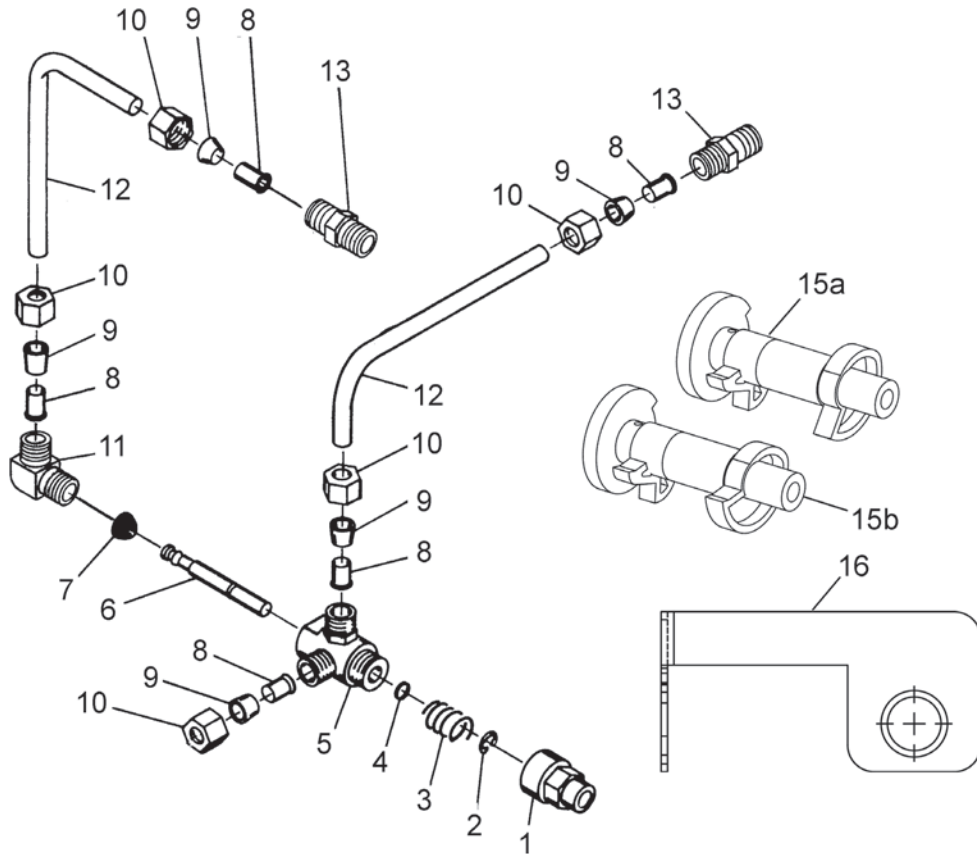
1600 SERVICE VALVE OPERATOR (OLD STYLE)



60150 Rev A

Item No.	QTY	Part No.	Description
1.....	1	11749	Guide, Brine Valve Stem
2.....	1	10250	Ring, Retaining
3.....	1	10249	Spring, Brine Valve
4.....	1	12550	Quad Ring, -009
5.....	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

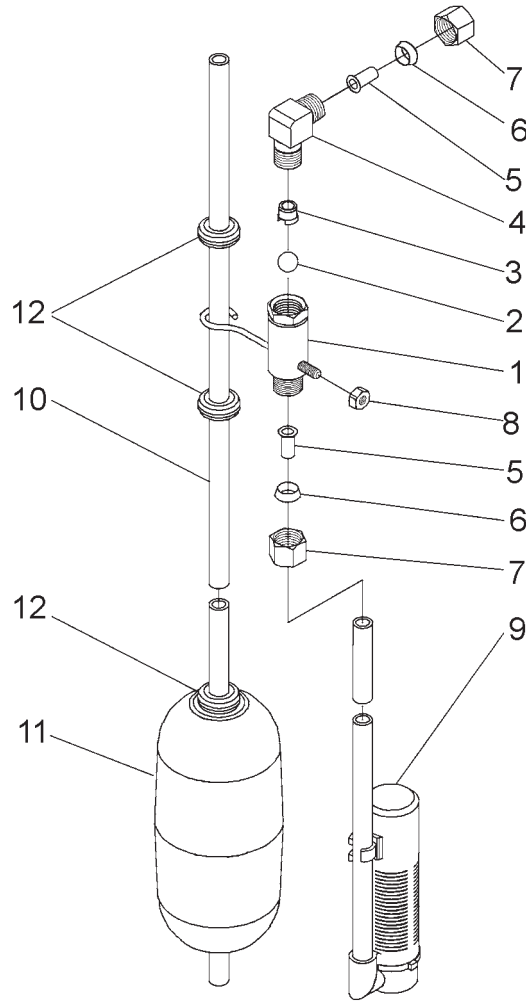
1600 SERVICE VALVE OPERATOR (NEW STYLE)



60150 Rev A

Item No.	QTY	Part No.	Description
1.....	1	11749	Guide, Brine Valve Stem
2.....	1	10250	Ring, Retaining
3.....	1	10249	Spring, Brine Valve
4.....	1	12550	Quad Ring, -009
5.....	2	10785	SVO Body Assy Brass Valves
6.....	1	12552	Brine Valve Stem, 1600
7.....	1	12626	Seat, Brine Valve
8.....	5	10332	Fitting, Insert, 3/8
9.....	5	10330	Fitting, Sleeve, 3/8" Celcon
10.....	5	10329	Fitting, Tube, 3/8 Nut, Brass
11.....	1	10328	Fitting, Elbow, 90 Deg 1/4 NPT x 3/8 Tube
12.....	2	12897	Tube, Fitting, 3/8 x 9 3/4
13.....	1	16730	Fitting, Male, 1/4 x 1
14.....	2	15415	Fitting, Insert, 1/2" Tube
15a.....	1	12472	Cam 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

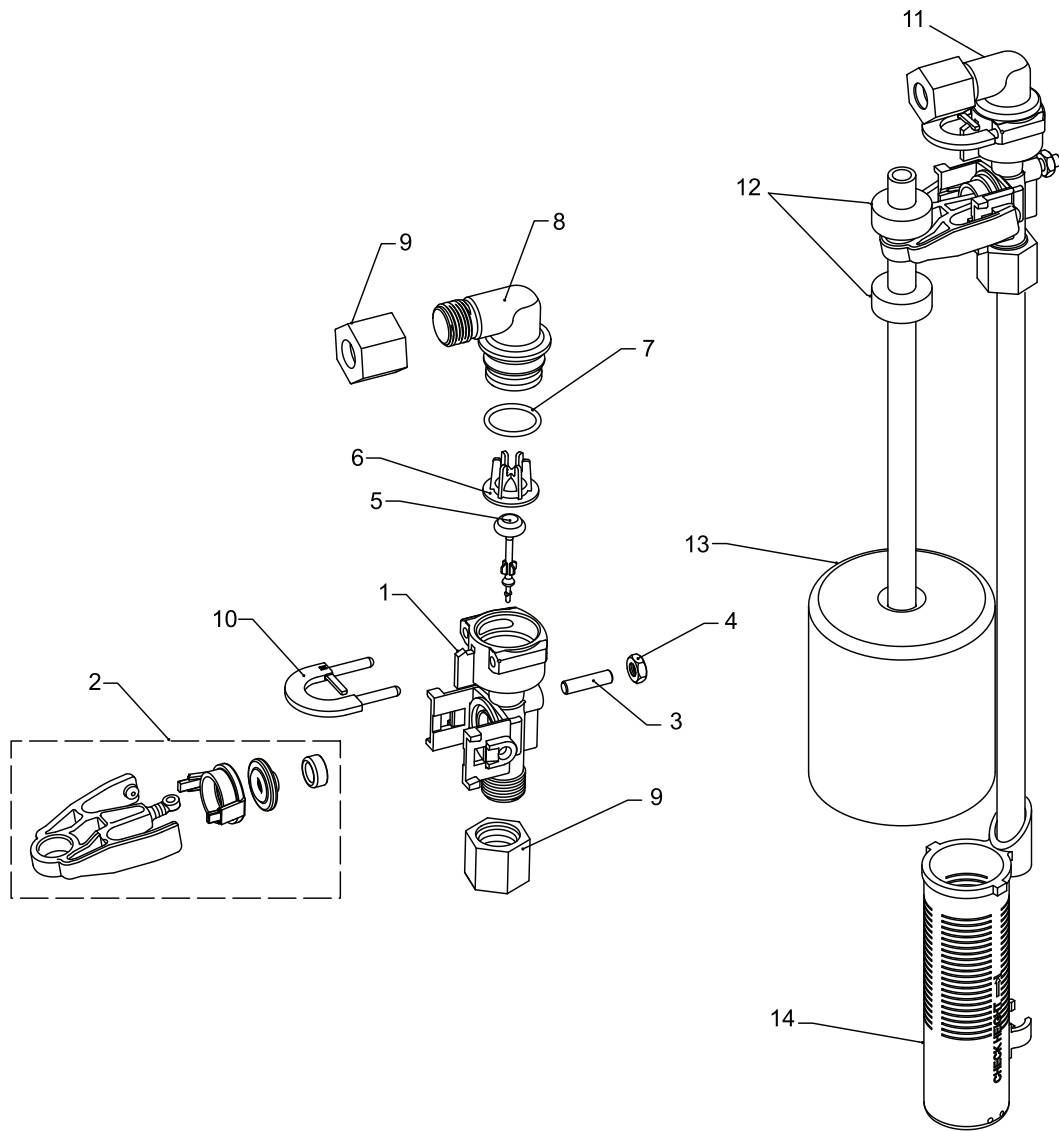
2300 SAFETY BRINE VALVE



60027 Rev D

Item No.	QTY	Part No.	Description
1	1	60027-00	Safety Brine Valve, 2300, Less Elbow
2	1	10138	Ball, 3/8", Brass
3	1	11566	Ball Stop, Slow Fill
4	1	10328	Fitting, Elbow, 90 Deg. 1/4 NPT x 3/8 Tube
5	1	10332	Fitting, Insert, 3/8
6	1	10330	Fitting, Sleeve, 3/8 Celcon
7	1	10329	Fitting, Tube, 3/8 Nut, Brass
8	1	10186	Nut, Hex, 10-32
9	1	60002-34	Air Check, #500, 34" Long
		60003-34	Air Check, #500, HW, 34" Tube
10	1	10149	Rod, Float
11	1	10700	Float Assy, White
12	3	10150	Grommet, .30 Dia

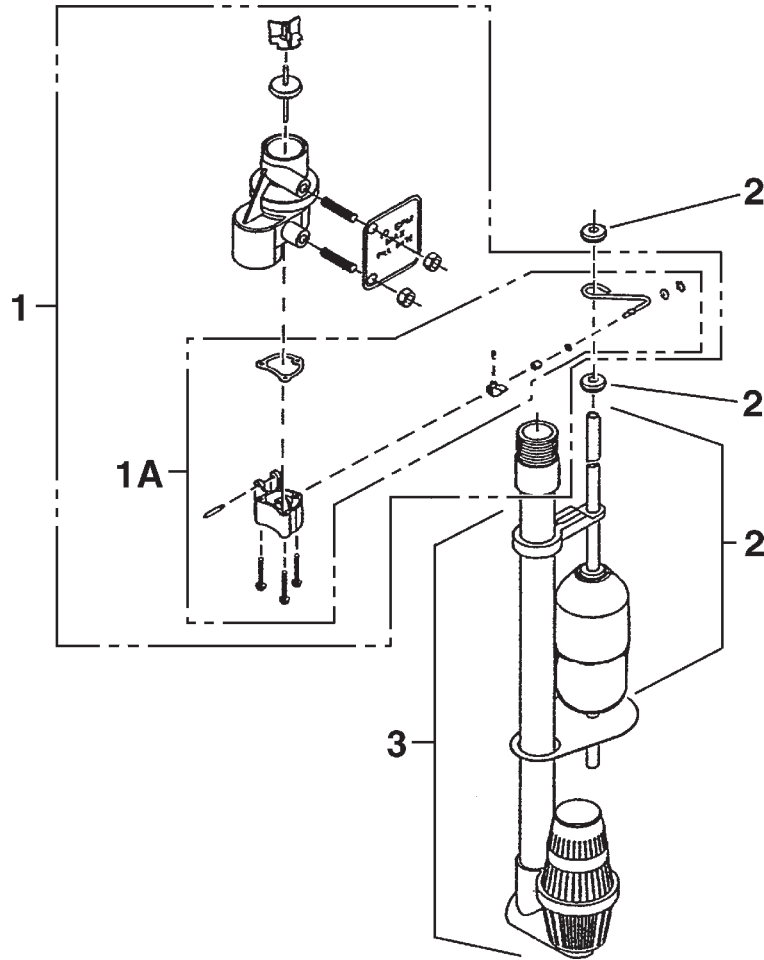
2310 SAFETY BRINE VALVE



42112_REVA

Item No.	QTY	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, 34" Long

2350 SAFETY BRINE VALVE ASSEMBLY



42303 REV A

Item No.	QTY	Part No.	Description
1.....	1	60038.....	Safety Brine Valve, 2350
1A.....	1	61024.....	Actuator Assembly, 2350 Brine
2.....	1	60028-30.....	Float Assembly, 2350, 30" Wht
.....	1	60026-30SAN ..	Float Assembly, 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 Assembly, 900 Air Check 2350
.....	1	18602.....	Fitting Assembly, 900 Air Check

TROUBLESHOOTING

Problem	Cause	Correction
Water conditioner fails to regenerate.	Electrical service to unit has been interrupted	Assure permanent electrical service (check fuse, plug, pull chain, or switch)
	Timer is defective.	Replace timer.
	Power failure.	Reset time of day.
Hard water.	By-pass valve is open.	Close by-pass valve.
	No salt is in brine tank.	Add salt to brine tank and maintain salt level above water level.
	Injector screen plugged.	Clean injector screen.
	Insufficient water flowing into brine tank.	Check brine tank fill time and clean brine line flow control if plugged.
	Hot water tank hardness.	Repeated flushings of the hot water tank is required.
	Leak at distributor tube.	Make sure distributor tube is not cracked. Check O-ring and tube pilot.
	Internal valve leak.	Replace seals and spacers and/or piston.
Unit used too much salt.	Improper salt setting.	Check salt usage and salt setting.
	Excessive water in brine tank.	See "Excessive water in brine tank".
Loss of water pressure.	Iron buildup in line to water conditioner.	Clean line to water conditioner.
	Iron buildup in water conditioner.	Clean control and add mineral cleaner to mineral bed. Increase frequency of regeneration.
	Inlet of control plugged due to foreign material broken loose from pipes by recent work done on plumbing system.	Remove piston and clean control.
Loss of mineral through drain line.	Air in water system.	Assure that well system has proper air eliminator control. Check for dry well condition.
	Improperly sized drain line flow control.	Check for proper drain rate.
Iron in conditioned water.	Fouled mineral bed.	Check backwash, brine draw, and brine tank fill. Increase frequency of regeneration. Increase backwash time.
Excessive water in brine tank.	Plugged drain line flow control.	Clean flow control.
	Plugged injector system.	Clean injector and screen.
	Timer not cycling.	Replace timer.
	Foreign material in brine valve.	Replace brine valve seat and clean valve.
	Foreign material in brine line flow control.	Clean brine line flow control.
Softener fails to draw brine.	Drain line flow control is plugged.	Clean drain line flow control.
	Injector is plugged.	Clean injector
	Injector screen plugged.	Clean screen.
	Line pressure is too low.	Increase line pressure to 20 psi
	Internal control leak	Change seals, spacers, and piston assembly.
	Service adapter did not cycle.	Check drive motor and switches.
Control cycles continuously.	Misadjusted, broken, or shorted switch.	Determine if switch or timer is faulty and replace it, or replace complete power head.
Drain flows continuously.	Valve is not programming correctly.	Check timer program and positioning of control. Replace power head assembly if not positioning properly.
	Foreign material in control.	Remove power head assembly and inspect bore. Remove foreign material and check control in various regeneration positions.
	Internal control leak.	Replace seals and piston assembly.

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.

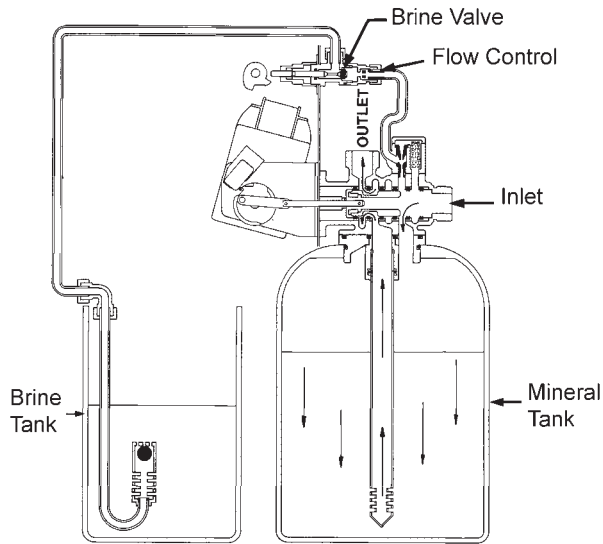
Correction: Pull cable out of meter cover and rotate manually. Program wheel must move without binding and clutch must give positive clicks when program wheel strikes regeneration stop. If it does not, replace timer.

Reason: Meter is not measuring flow.

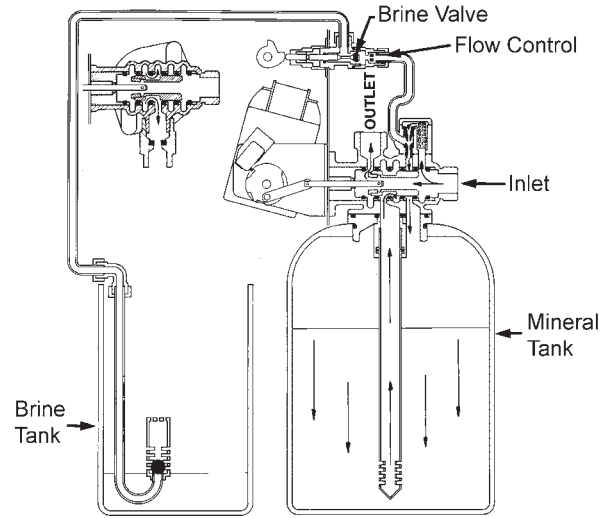
Correction: Check meter with meter checker.

WATER CONDITIONER FLOW DIAGRAMS

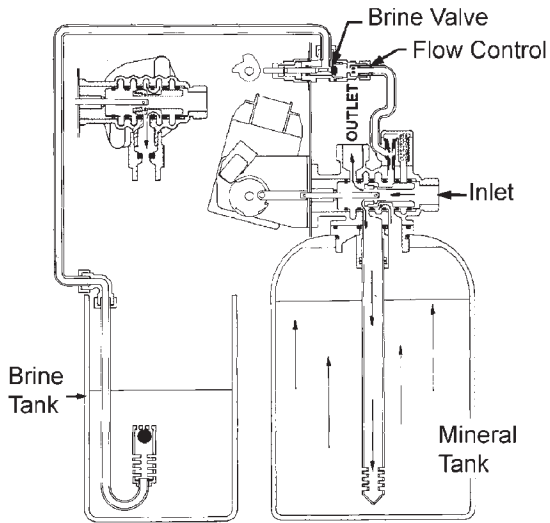
1 Service Position



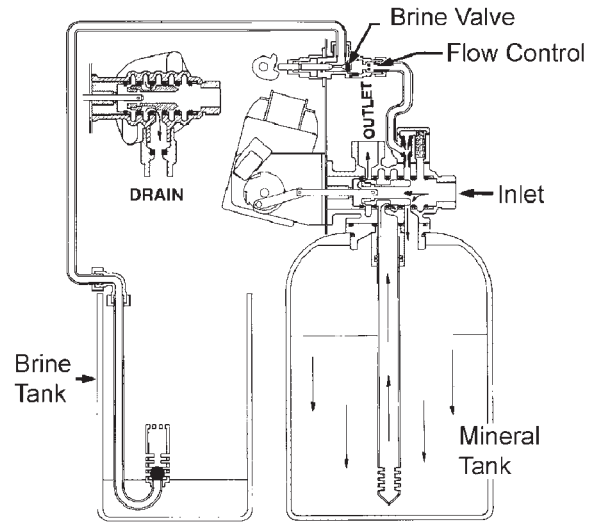
4 Slow Rinse Position



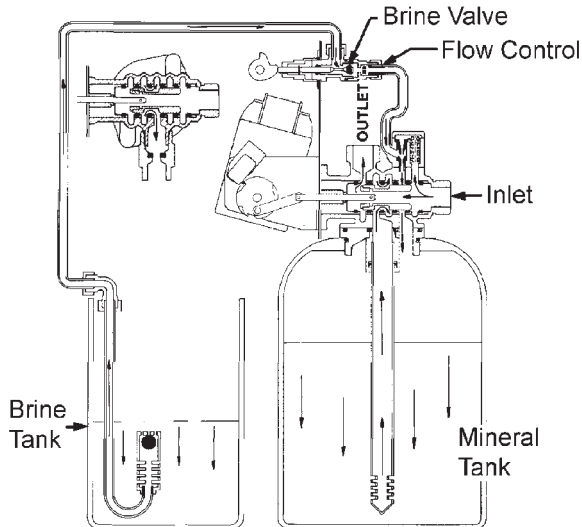
2 Backwash Position



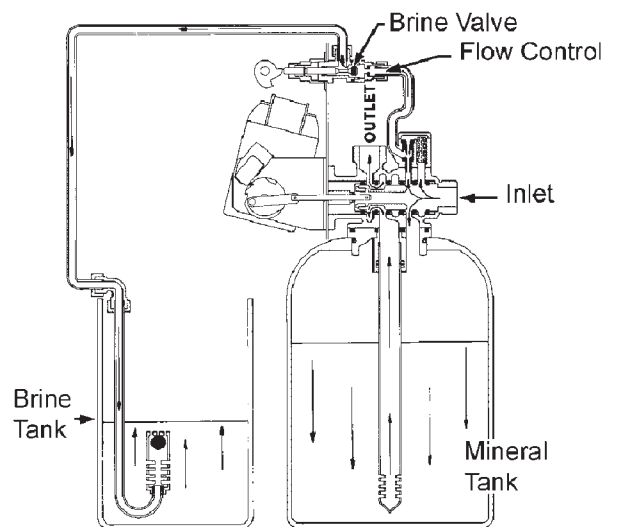
5 Rapid Rinse Position



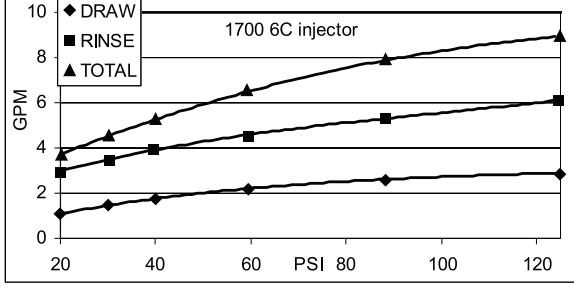
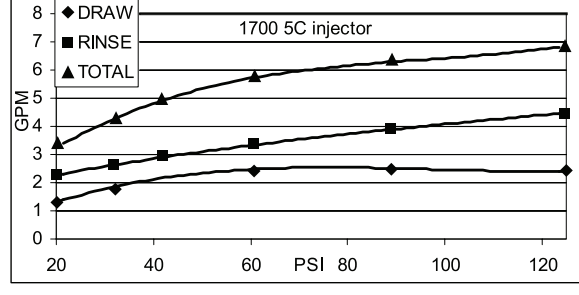
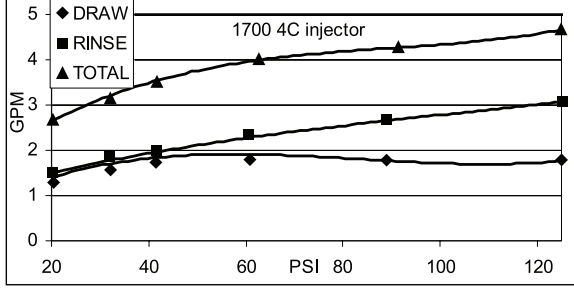
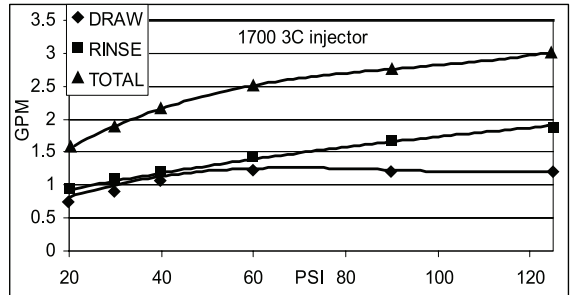
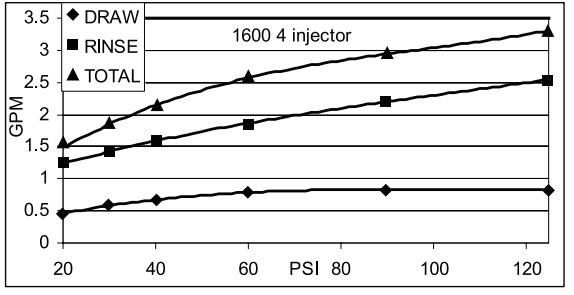
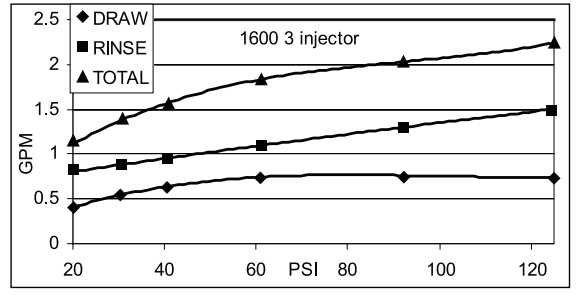
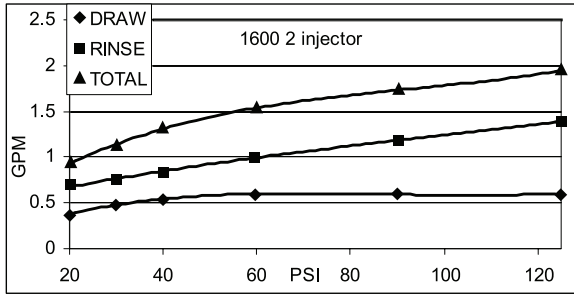
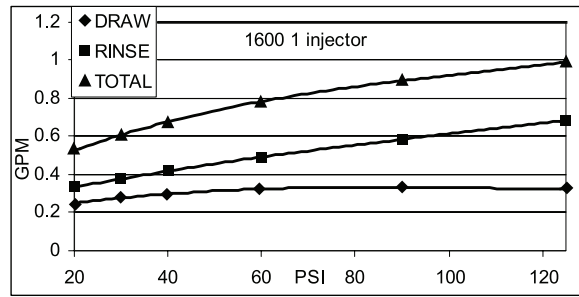
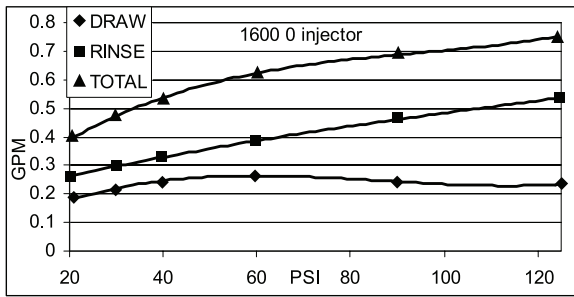
3 Brine Position



6 Brine Tank Fill Position



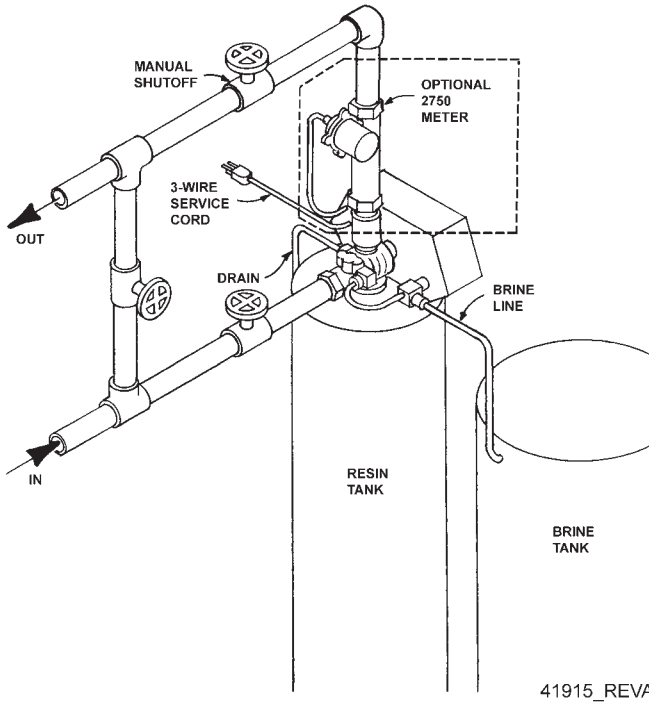
FLOW DATA & INJECTOR DRAW RATES



TR20391_REVA

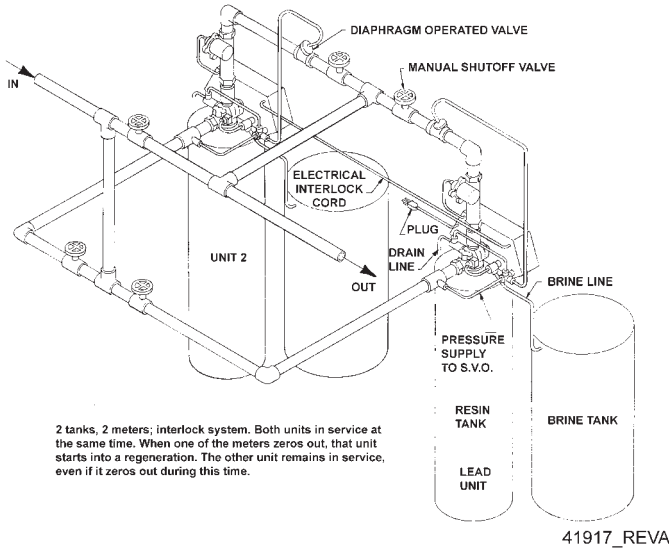
SYSTEM #4

Typical Tank Installation with Optional Meter



SYSTEM #5 INTERLOCK

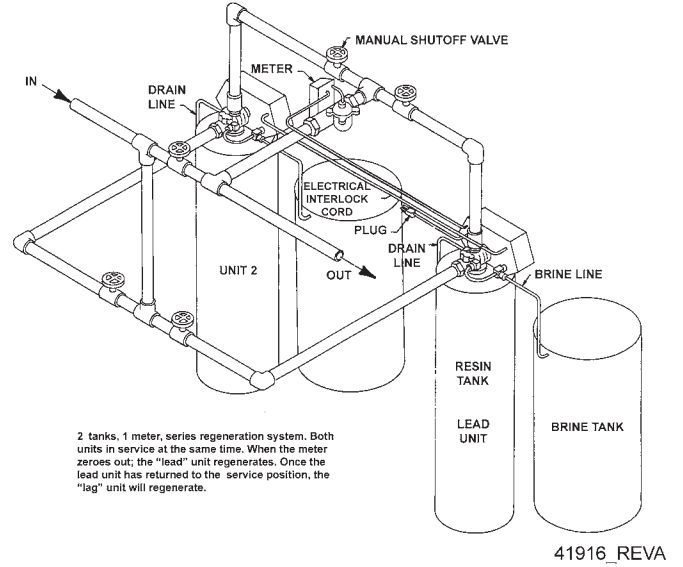
Typical Twin Tank Installation with Optional 2 Meter Interlock and No Hard Water Bypass



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

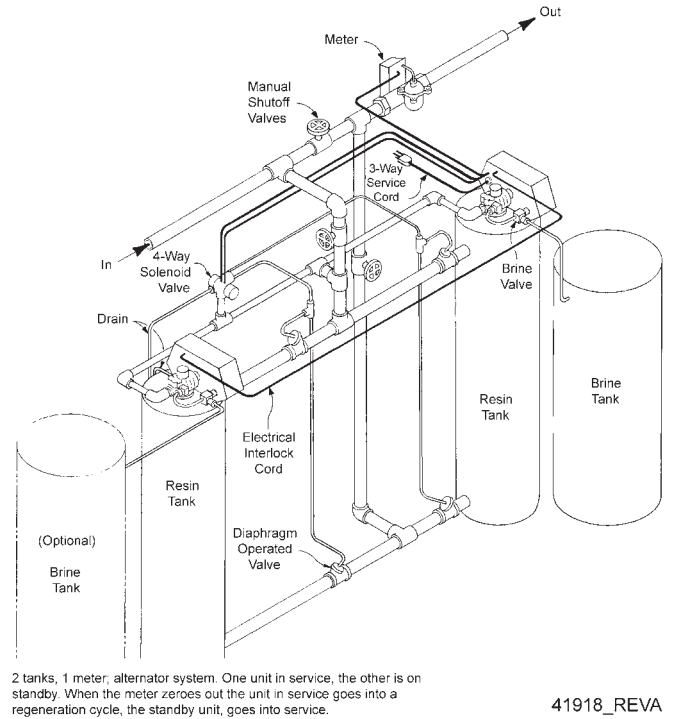
Twin Series Regeneration Installation with a Remote Meter



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.

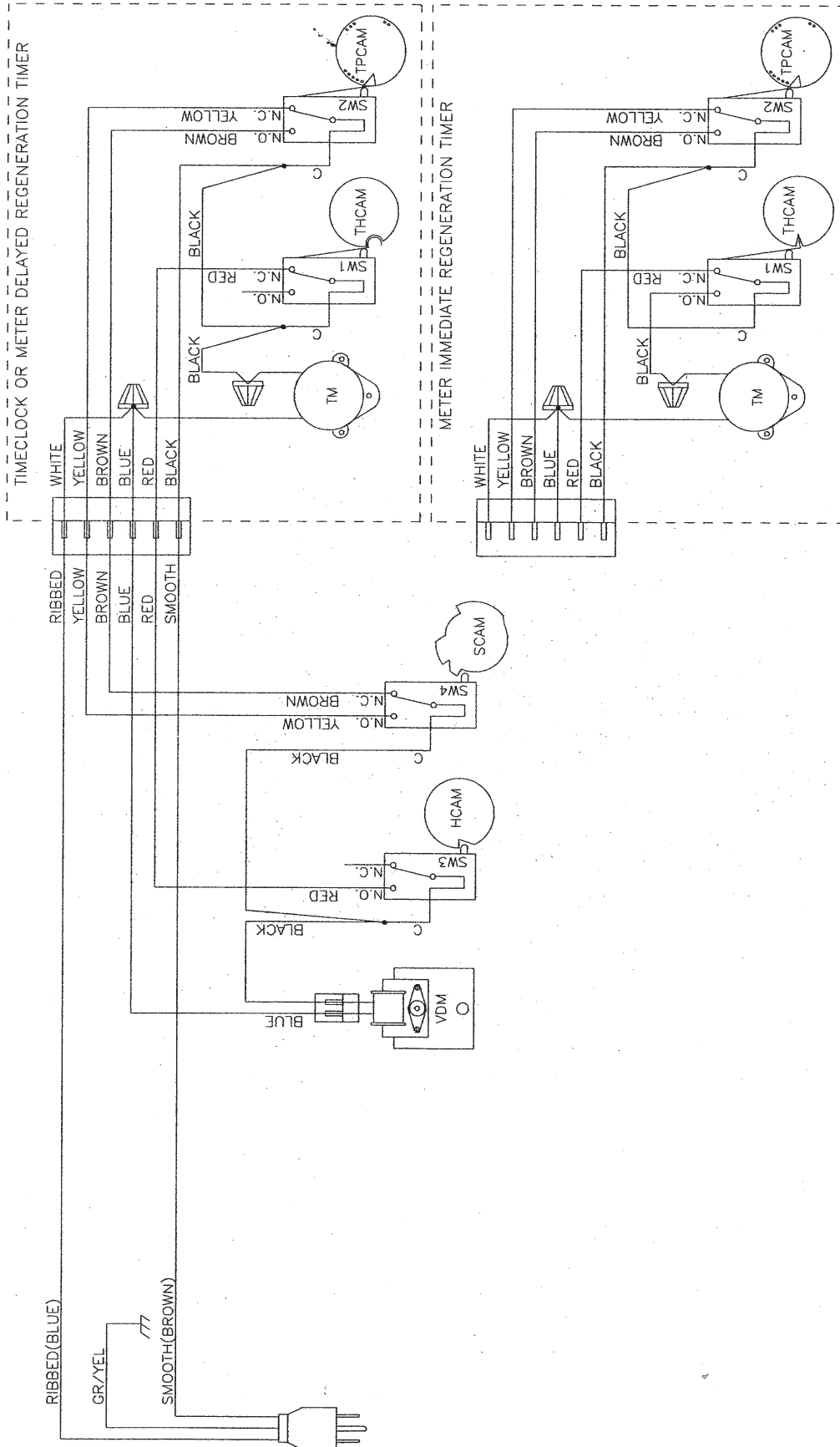
SYSTEM #7

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.

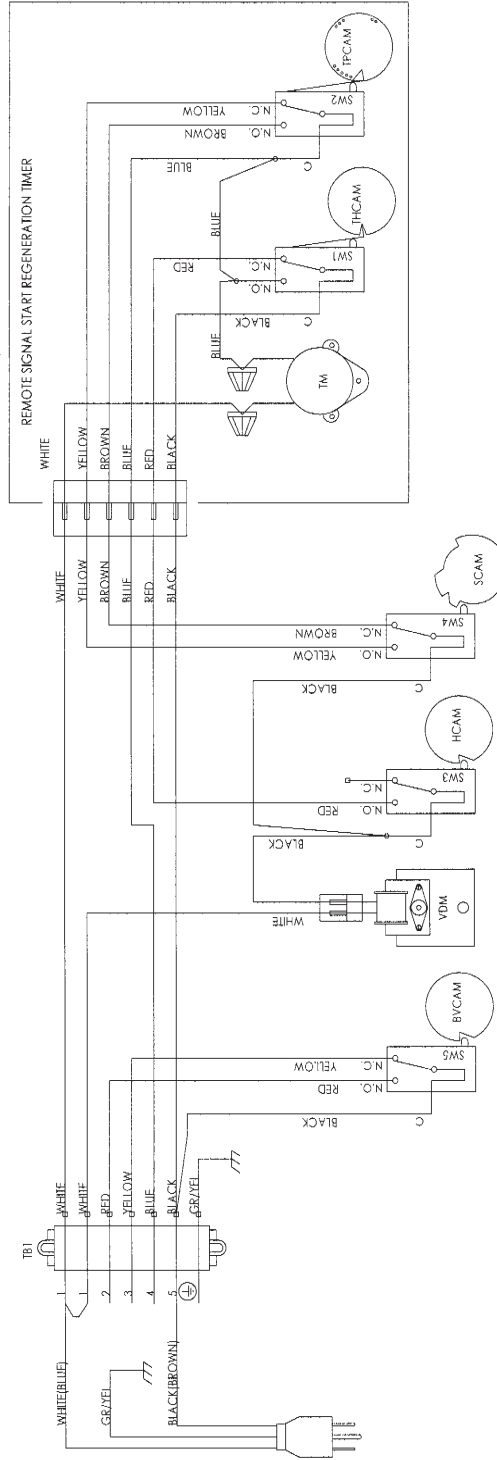
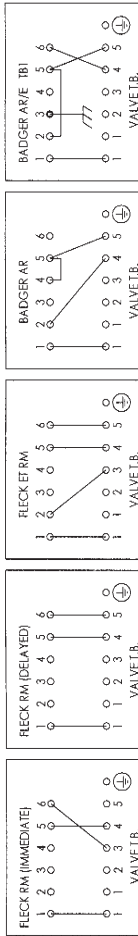
SYSTEM #4 IMMEDIATE & DELAYED VALVE WIRING



19201 Rev C

SYSTEM #4 REMOTE SIGNAL START VALVE WIRING

REMOTE METER WIRING



TBI - 7 POSITION TERMINAL BLOCK

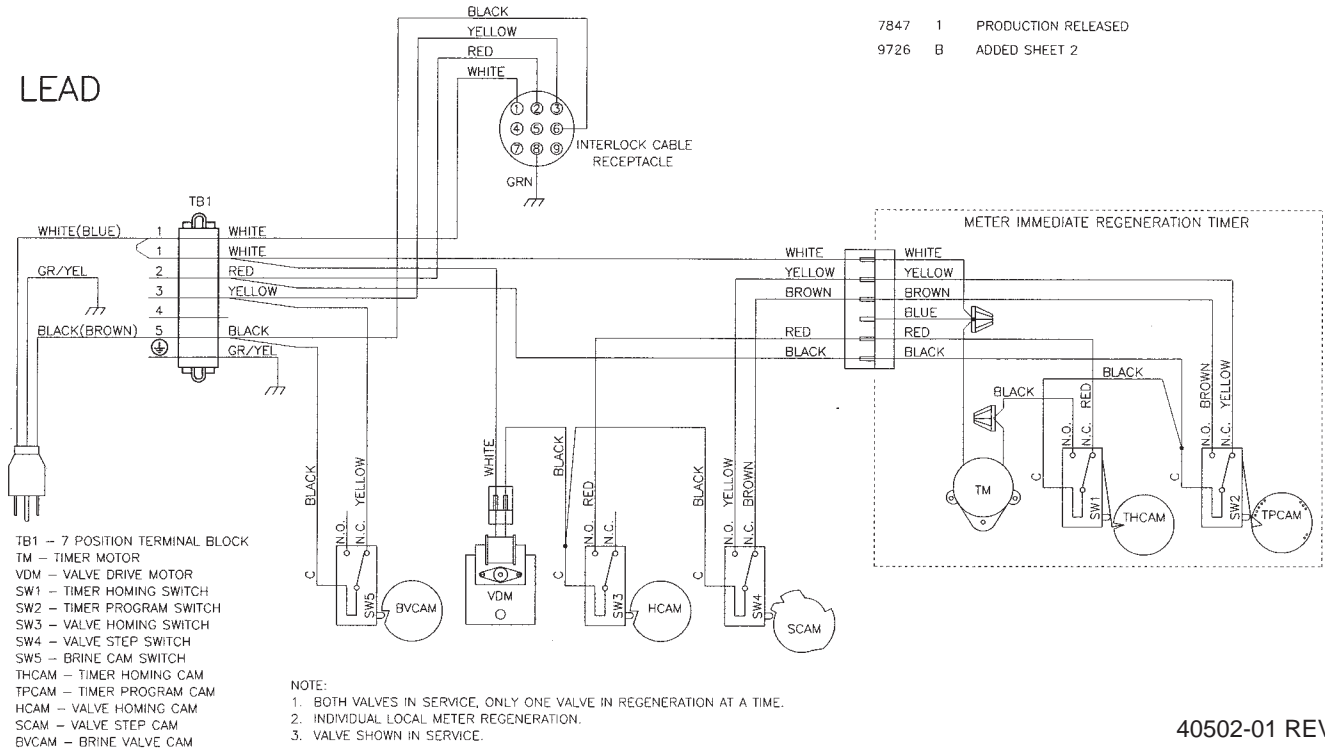
- TM - TIMER MOTOR
- VDM - VALVE DRIVE MOTOR
- SW1 - TIMER HOMING SWITCH
- SW2 - TIMER PROGRAM SWITCH
- SW3 - VALVE HOMING SWITCH
- SW4 - VALVE STEP SWITCH
- SW5 - BRNE CAM SWITCH
- TFCAM - TIMER HOMING CAM
- HCAM - TIMER PROGRAM CAM
- BVCAM - VALVE HOMING CAM
- SCAM - VALVE STEP CAM
- BRNECAM - BRNE VALVE CAM

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

SYSTEM #5 DUPLEX VALVE WIRING

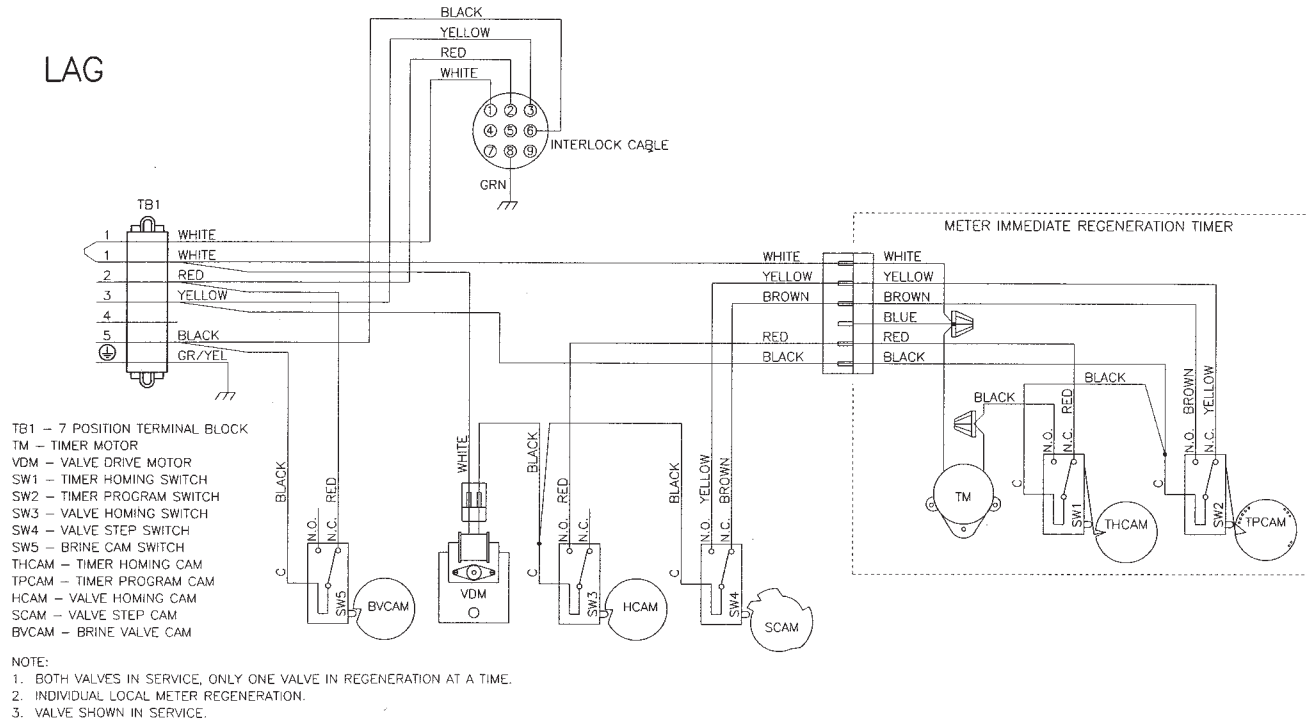
7847 1 PRODUCTION RELEASED
9726 B ADDED SHEET 2

LEAD



40502-01 REV C

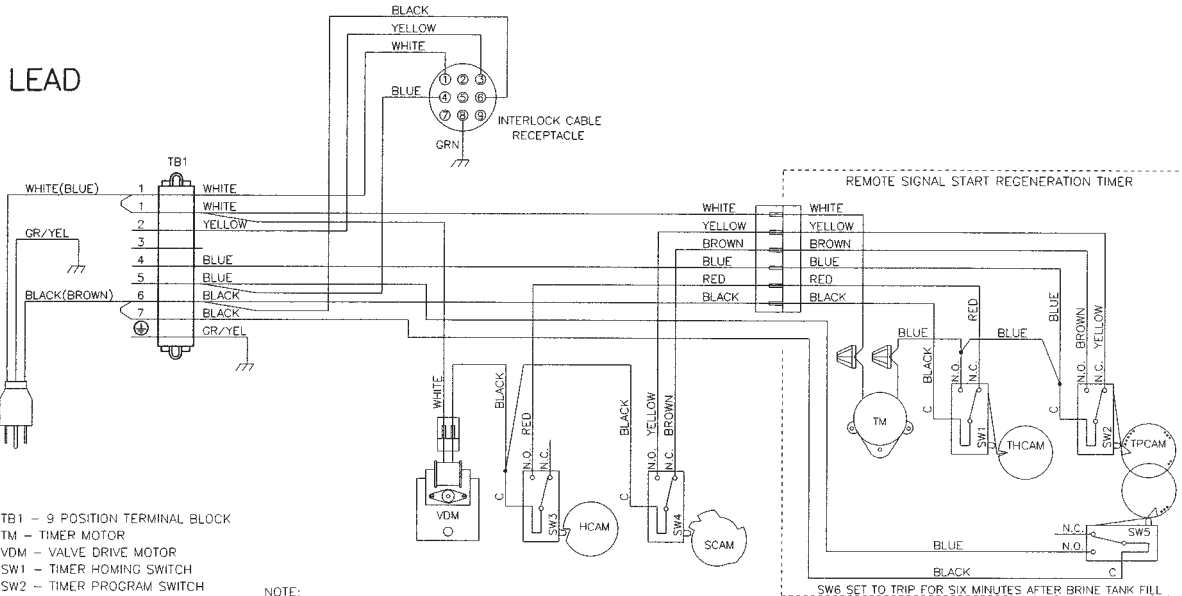
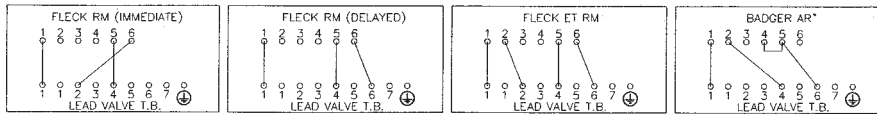
LAG



40502-02 REV C

SYSTEM #6 DUPLEX VALVE WIRING

REMOTE METER WIRING

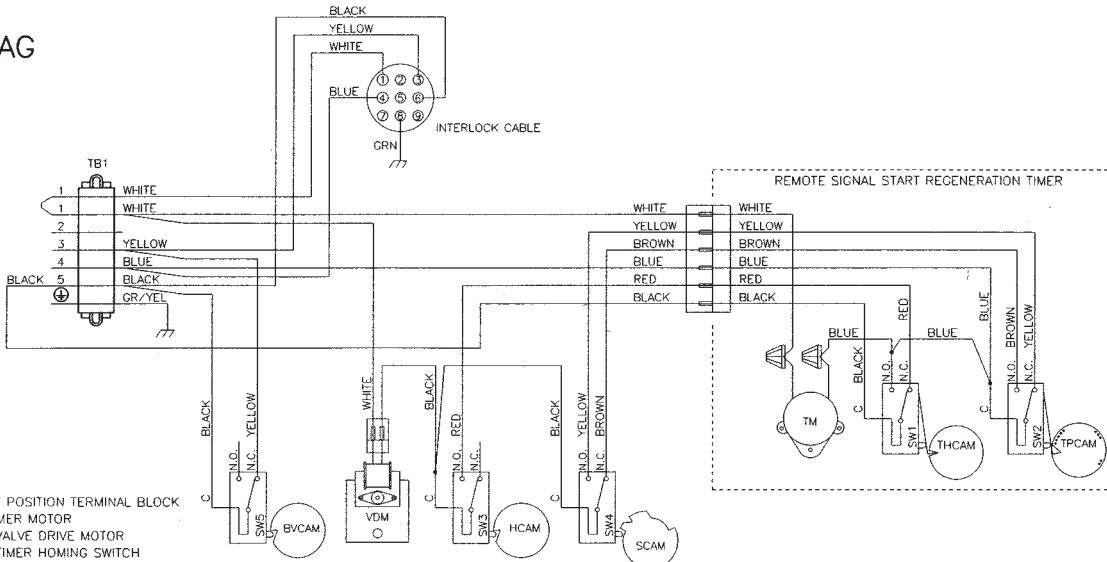


- TB1 - 9 POSITION TERMINAL BLOCK
 VDM - VALVE DRIVE MOTOR
 TM - TIMER MOTOR
 SW1 - TIMER HOMING SWITCH
 SW2 - TIMER PROGRAM SWITCH
 SW3 - VALVE HOMING SWITCH
 SW4 - VALVE STEP SWITCH
 SW5 - AUXILIARY TIMER SWITCH
 THCAM - TIMER HOMING CAM
 TPCAM - TIMER PROGRAM CAM
 HCAM - VALVE HOMING CAM
 SCAM - VALVE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

LAG



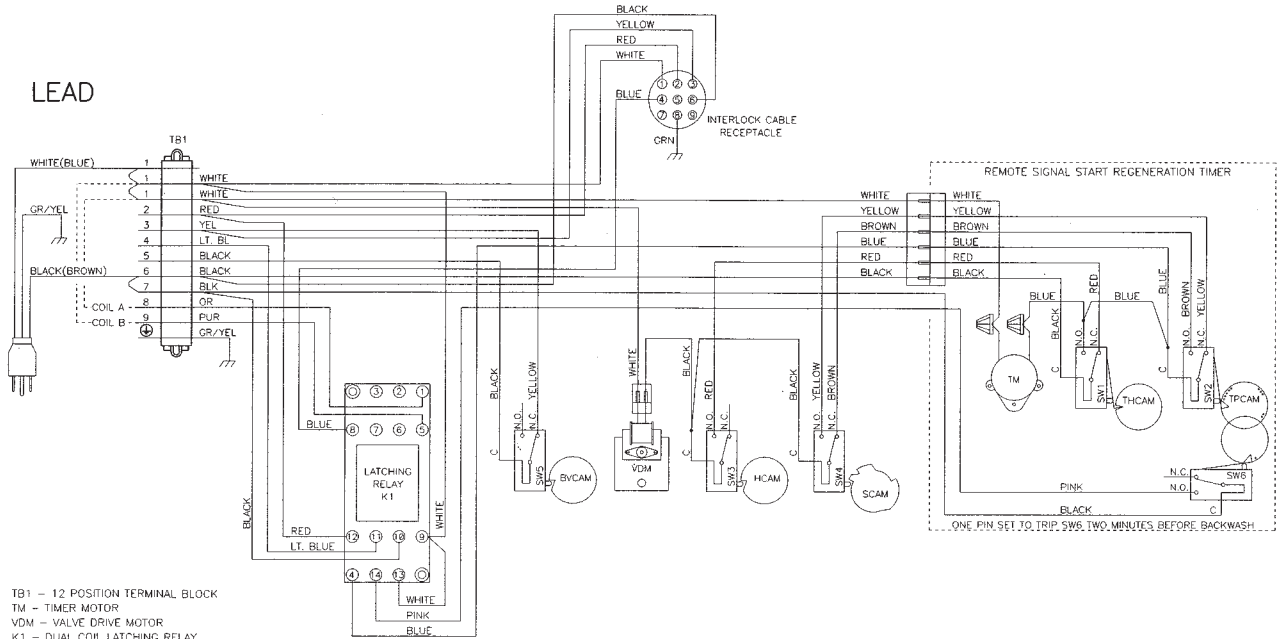
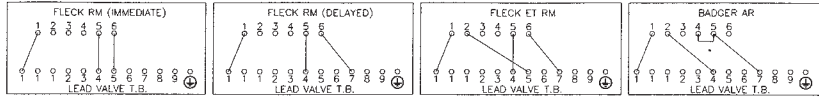
- TB1 - 7 POSITION TERMINAL BLOCK
 TM - TIMER MOTOR
 VDM - VALVE DRIVE MOTOR
 SW1 - TIMER HOMING SWITCH
 SW2 - TIMER PROGRAM SWITCH
 SW3 - VALVE HOMING SWITCH
 SW4 - VALVE STEP SWITCH
 SW5 - BRINE VALVE CAM SWITCH
 THCAM - TIMER HOMING CAM
 TPCAM - TIMER PROGRAM CAM
 HCAM - VALVE HOMING CAM
 SCAM - VALVE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

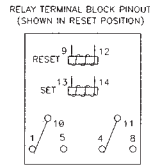
13632-02 REV L

SYSTEM #7 DUPLEX 24V/120V 3-WAY VALVE WIRING

REMOTE METER WIRING



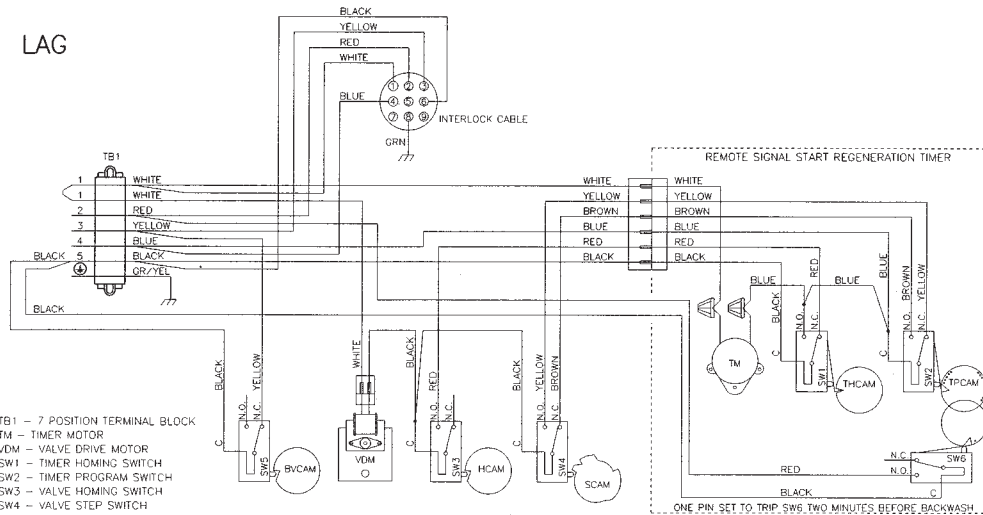
- TB1 - 12 POSITION TERMINAL BLOCK
 TM - TIMER MOTOR
 VDM - VALVE DRIVE MOTOR
 K1 - DUAL COIL LATCHING RELAY
 - 24V P/N 1781B
 - 120V P/N 16807
 SW1 - TIMER HOMING SWITCH
 SW2 - TIMER PROGRAM SWITCH
 SW3 - VALVE HOMING SWITCH
 SW4 - VALVE STEP SWITCH
 SW5 - BRINE CAM SWITCH
 SW6 - TIMER AUXILIARY SWITCH
 THCAM - TIMER HOMING CAM
 TPCAM - TIMER PROGRAM CAM
 HCAM - VALVE HOMING CAM
 SCAM - VALVE STEP CAM
 BVCM - 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 CLOSSES THE DIAPHRAGM VALVES OF LAG UNIT.
 COIL B CLOSSES THE DIAPHRAGM VALVES OF LEAD UNIT.
 3. VALVE SHOWN IN SERVICE POSITION.

19138-01 REV E

LAG



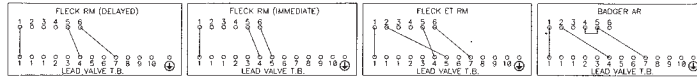
- TB1 - 7 POSITION TERMINAL BLOCK
 TM - TIMER MOTOR
 VDM - VALVE DRIVE MOTOR
 SW1 - TIMER HOMING SWITCH
 SW2 - TIMER PROGRAM SWITCH
 SW3 - VALVE HOMING SWITCH
 SW4 - VALVE STEP SWITCH
 SW5 - BRINE CAM SWITCH
 SW6 - TIMER AUXILIARY SWITCH
 THCAM - TIMER HOMING CAM
 TPCAM - TIMER PROGRAM CAM
 HCAM - VALVE HOMING CAM
 SCAM - VALVE STEP CAM
 BVCM - 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 CLOSSES THE DIAPHRAGM VALVES OF LAG UNIT.
 COIL B CLOSSES THE DIAPHRAGM VALVES OF LEAD UNIT.
 3. VALVE SHOWN IN SERVICE POSITION.

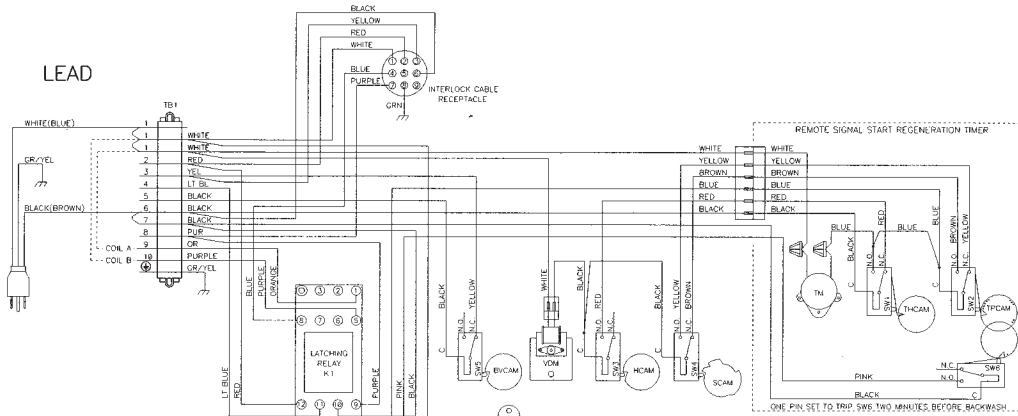
19138-02 REV E

SYSTEM #7 DUPLEX 230V 3-WAY VALVE WIRING

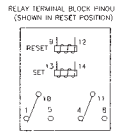
REMOTE METER WIRING



LEAD



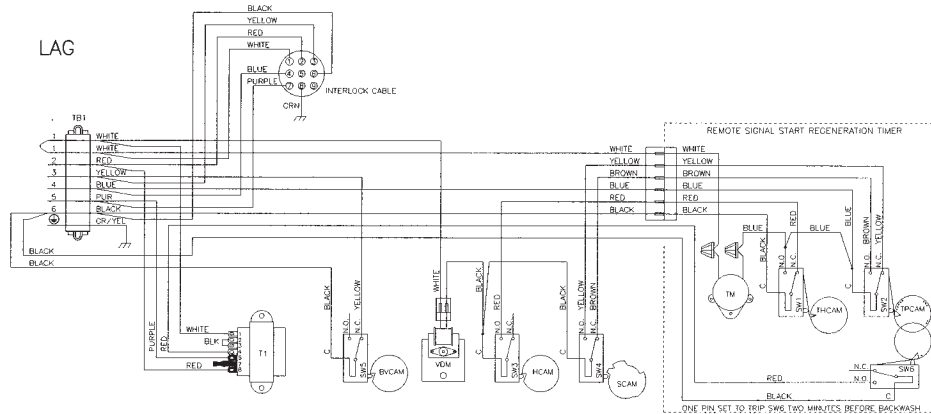
- TB1 - 13 POSITION TERMINAL BLOCK
 TM - TIMER MOTOR
 VDM - VALVE DRIVE MOTOR
 R1 - 120V DUAL COIL LATCHING RELAY P/N 16807
 T1 - 230V/120V TRANSFORMER P/N 48112
 SW1 - TIMER HOMING SWITCH
 SW2 - TIMER PROGRAM SWITCH
 SW3 - VALVE HOMING SWITCH
 SW4 - VALVE STEP SWITCH
 SW5 - BRINE CAM SWITCH
 SW6 - TIMER AUXILIARY SWITCH
 TPCAM - TIMER HOMING CAM
 HCAM - VALVE HOMING CAM
 SCAM - VALVE STEP CAM
 EVCAM - 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 CLOSSES THE DIAPHRAGM VALVES OF LEAD UNIT.
 COIL B CLOSSES THE DIAPHRAGM VALVES OF LEAD UNIT.
 3. VALVE SHOWN IN SERVICE POSITION.

17727-01 REV E

LAG



- TB1 - 8 POSITION TERMINAL BLOCK
 TM - TIMER MOTOR
 T1 - 230V TO 120V TRANSFORMER P/N 48112
 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
 TPCAM - TIMER HOMING CAM
 HCAM - VALVE HOMING CAM
 SCAM - VALVE STEP CAM
 EVCAM - 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 CLOSSES THE DIAPHRAGM VALVES OF LAG UNIT.
 COIL B CLOSSES THE DIAPHRAGM VALVES OF LAG UNIT.
 3. VALVE SHOWN IN SERVICE POSITION.

17727-02 REV E

SERVICE ASSEMBLIES

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

Air Checks

60002-34	Air Check, #500, 34" Long
60003-34	Air Check, #500, HW, 34" Tube
60009-00	Air Check, #900, Commercial, Less Fittings
60009-01	Air Check, #900, Commercial, HW Less Fittings

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, 1"
60392.....	2750 Meter Assy, Ext, Plastic Cap, 1"

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 NHWP Filter, Conversion Kit
60101-01	Piston Assy, 2750 NHWP
60101-02	Piston Assy, 2750 NHWP, 1600 Conversion Kit
60101-03	Piston Assy, 2750 NHWP, 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
60405-30	Program Wheel, w/1" Std
60405-40	Program Wheel, w/1" Ext
60405-70	Program Wheel, w/1-1/2" EXT

Safety Brine Valves

60014.....	Safety Brine Valve Assy, 2310
60038.....	Safety Brine Valve, 2350
60027-FFA.....	Safety Brine Valve Body, 2300 Fitting Facing Arm
60027-FFS.....	Safety Brine Valve Body Fitting Facing Stud
60026-30	Float Assy, 2350, 30" Red/Wht
60026-30SAN.....	60026-30SAN Float Assy, 2350, 30" HW
60028-30	Float Assy, 2300, 30", Blue/White
60068-30	Float Assy, 2310, w/30" Rod

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

