



Fleck 3150 Downflow

Service Manual



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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

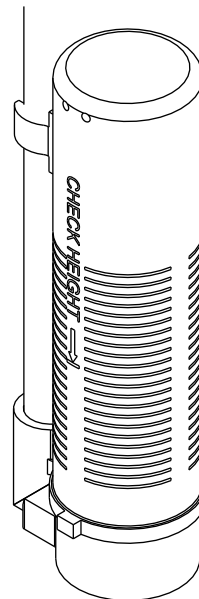
Always provide for the installation of a by-pass valve if unit is not equipped with one.

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

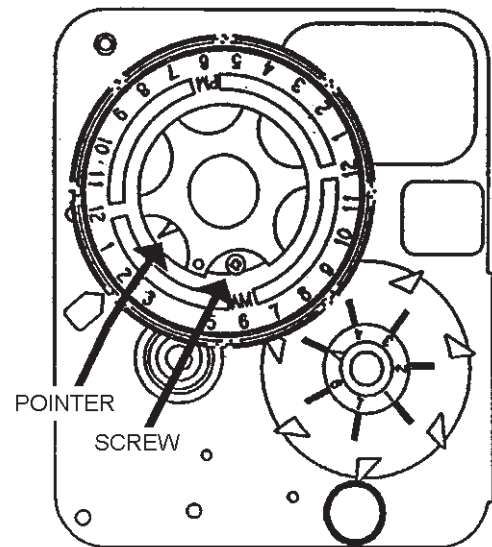
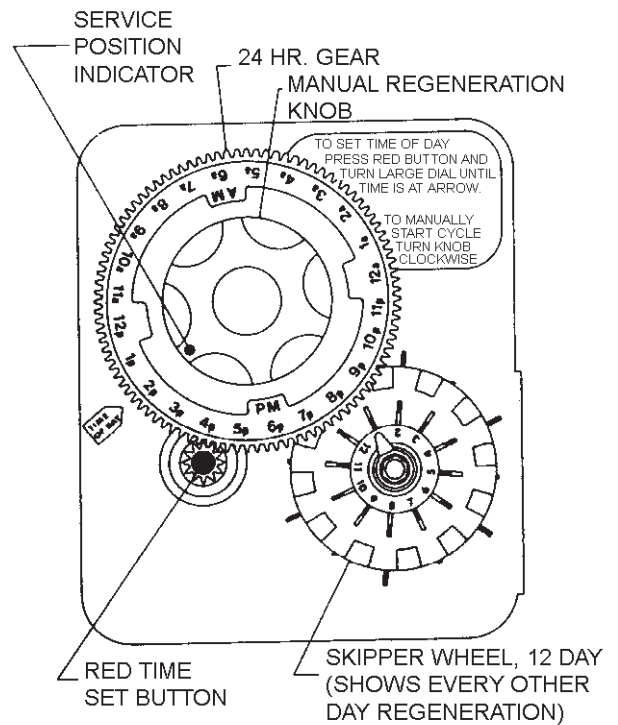
1. Press and hold the red button in to disengage the drive gear.
2. Turn the large gear until the actual time of day is at the time of day pointer.
3. Release the red button to again engage the drive gear.

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

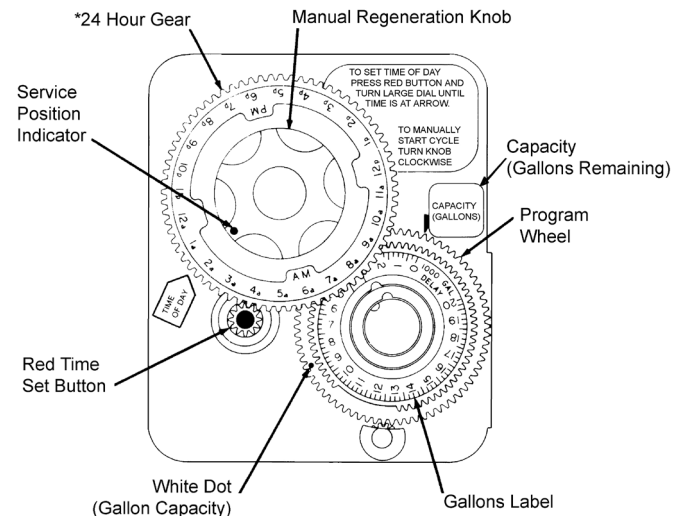
1. Turn the manual regeneration knob clockwise.
2. This slight movement of the manual regeneration knob engages the program wheel and starts the regeneration program.
3. The black center knob will make one revolution in the following approximately three hours and stop in the position shown in the drawing.
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 REGENERATION CYCLE PROGRAM SETTING PROCEDURE (DOWNFLOW)

How To Set The Regeneration Cycle Program

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

3200 & 3210 Series Timers (Figure 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 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.

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.

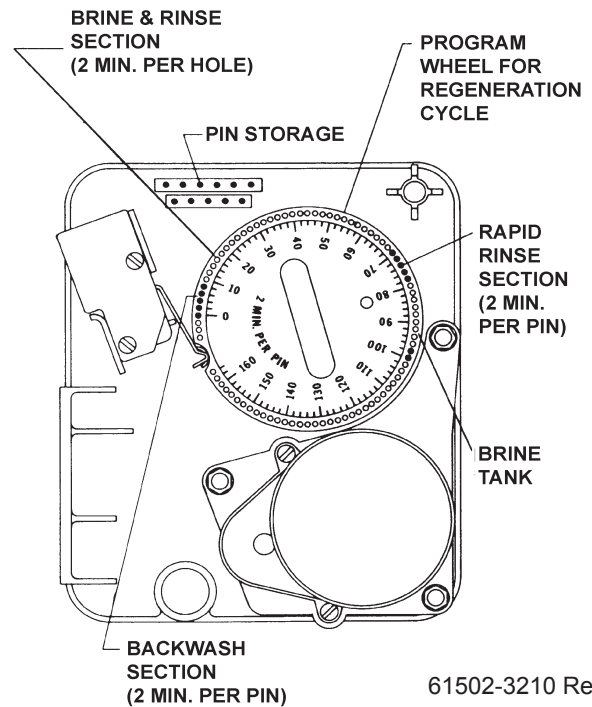
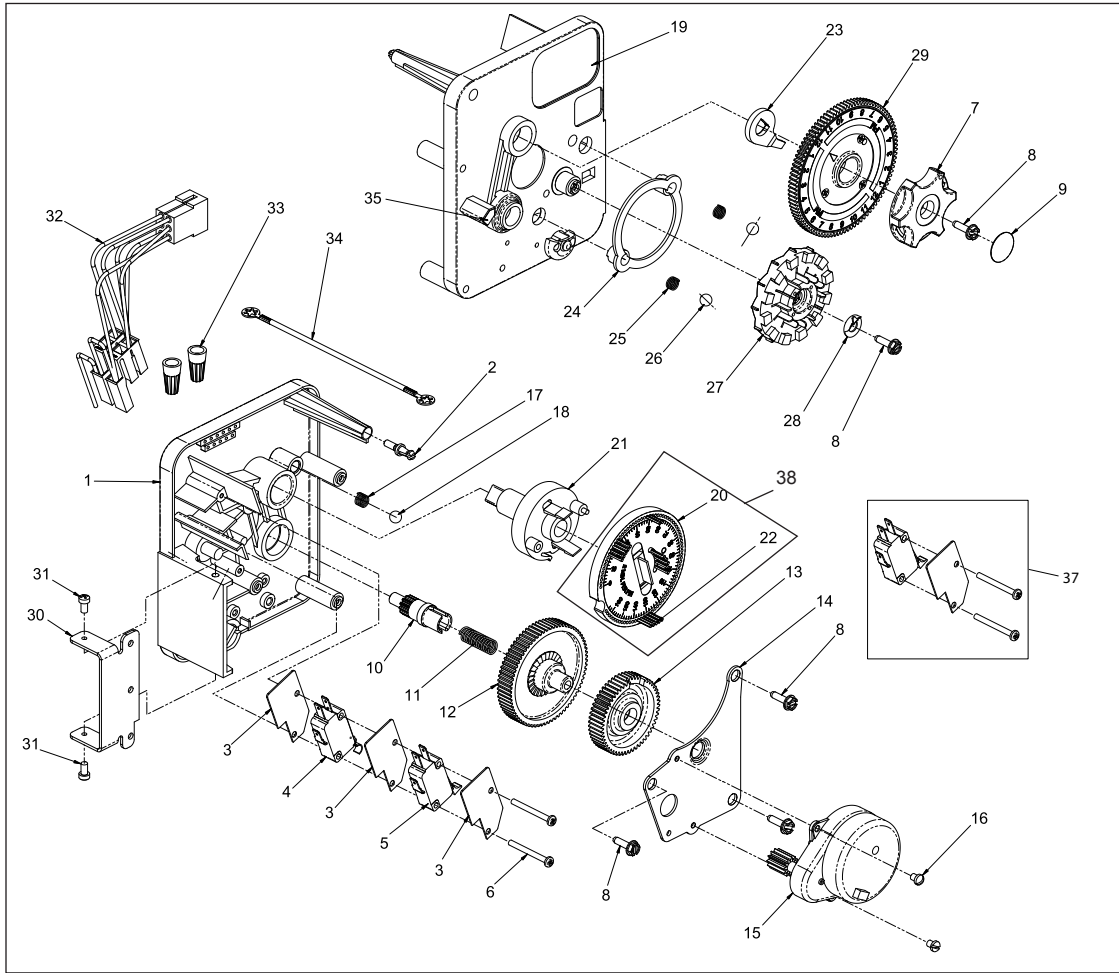


Figure 4

61502-3210 Rev A

3200 TIME CLOCK TIMER ASSEMBLY



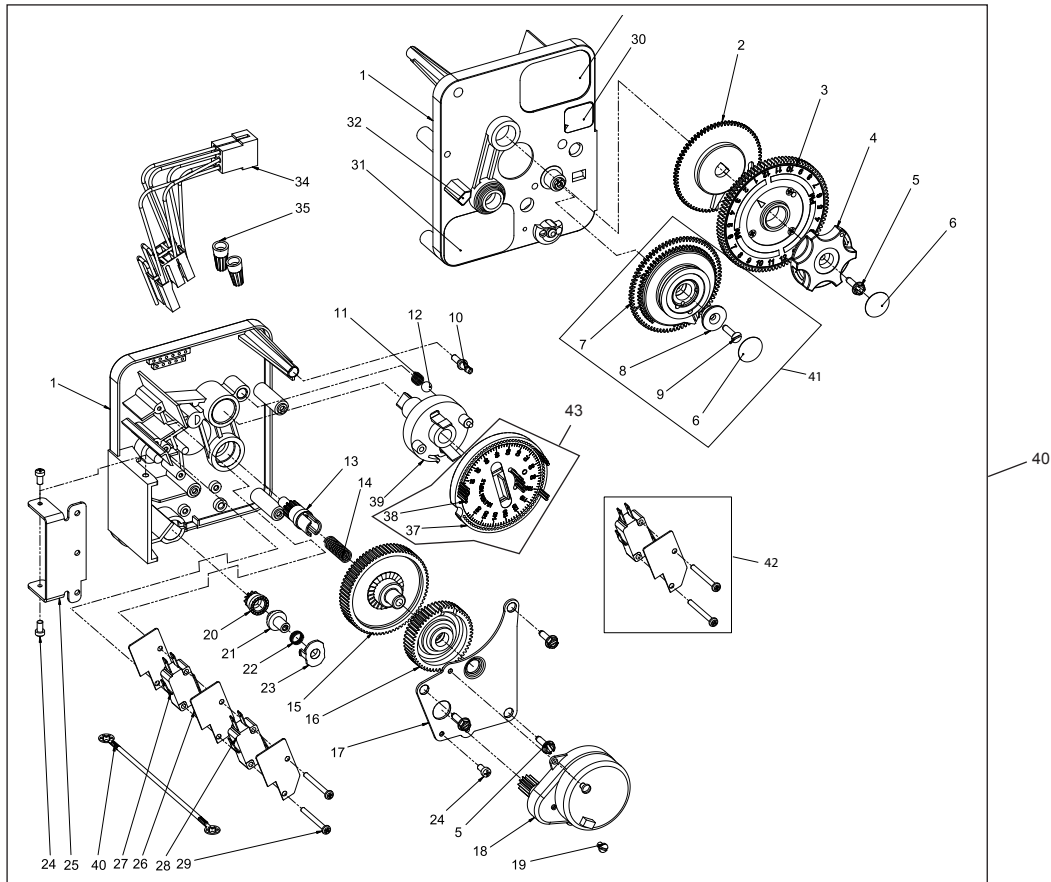
61502-3200 Rev A

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, 230V, 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, Slt'd Fillister Hd 6-32 x .156
17	1	15424	Spring, Detent, Timer
18	1	15066	Ball, 1/4", Delrin
19	1	15465	Label, Caution

Item No.	QTY	Part No.	Description
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
36	1	*	Complete 3200 Time Clock Timer Assembly
37		60320-02	Switch Kit, 3200/9000 Timer Auxiliary, Optional
38		61420-03	Program Wheel, Gear Assy, Filter 2 Min Per Pin
		61420-04	Program Wheel, Gear Assy, Softener, 2 Min Per Pin

*Call your distributor for Part Number

3210 METER DELAYED TIMER ASSEMBLY

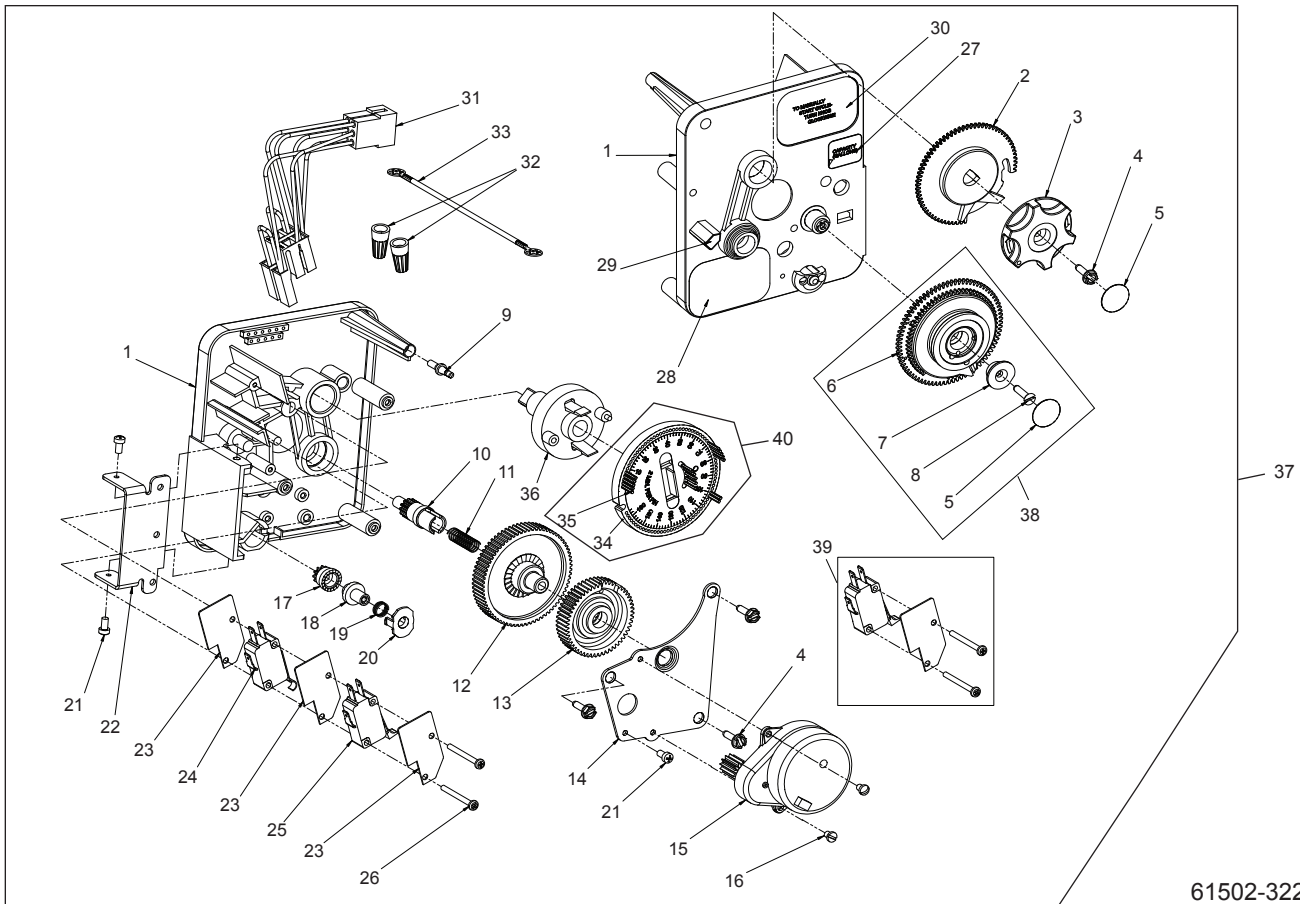


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Item No.	QTY	Part No.	Description	Item No.	QTY	Part No.	Description
1.....	1	13870.....	Housing, Timer, 3200	26.....	3	14087.....	Insulator
2.....	1	13802.....	Gear, Cycle Actuator	27.....	1	10896.....	Switch, Micro
3.....	1	40096-02.....	Dial 2 AM Regen Assy, Black	28.....	1	15320.....	Switch, Micro, Timer
4.....	1	13886.....	Knob, 3200	29.....	2	11413.....	Screw, Pan Hd Mach, 4-40 x 1 1/8
5.....	4	13296.....	Screw, Hex Wsh, 6-20 x 1/2	30.....	1	14198.....	Label, Indicator
6.....	2	11999.....	Label, Button	31.....	1	15465.....	Label, Caution
7.....	1	13803.....	Gear, Program Drive Wheel	32.....	1	14007.....	Label, Time of Day
8.....	1	13806.....	Retainer, Program Wheel	33.....	1	14045.....	Label, Instruction
9.....	1	13748.....	Screw, Flat Head St, 6-20 x 1/2	34.....	1	13902.....	Harness, 3200
10.....	1	14265.....	Clip, Spring	35.....	2	40422.....	Nut, Wire, Tan
11.....	1	15424.....	Spring, Detent, Timer	36.....	1	15354-01.....	Wire, Ground, 4"
12.....	1	15066.....	Ball, 1/4" Delrin	37.....	1	19210.....	Program Wheel Assy
13.....	1	13018.....	Pinion, Idler	38.....	17	41754.....	Pin, Spring, 1/16 x 5/8 SS, Timer
14.....	1	13312.....	Spring, Idler Shaft	39.....	1	13911.....	Gear, Main Drive, Timer
15.....	1	13017.....	Gear, Idler	40.....	1	*	Complete 3210 Meter Delayed Timer Assembly
16.....	1	13164.....	Gear, Drive	41.....		60405-50.....	Program Wheel, w/2" STD Label 0-2,100 gal
17.....	1	13887.....	Plate, Motor Mounting			60405-60.....	Program Wheel, w/2" EXT Label 0-10,000 gal
18.....	1	18743-1.....	Motor, 120V, 60Hz 1/30 RPM			60405-61.....	Program Wheel, w/2" EXT Range 375 m3
	1	18752-1.....	Motor, 100V, 50Hz, 1/30 RPM	42.....		60320-02.....	Switch Kit, 3200/9000 Timer Auxiliary, Optional
	1	18824-1.....	Motor, 230V, 50Hz, 1/30 RPM	43.....		61420-03.....	Program Wheel, Gear Assy, Filter 2 Min Per Pin
	1	18826-1.....	Motor, 24V, 50Hz, 1/30 RPM			61420-04.....	Program Wheel, Gear Assy, Softener, 2 Min Per Pin
	1	19659-1.....	Motor, 24V, 60Hz, 1/30 RPM				
	1	19660-1.....	Motor, 230V, 60Hz, 1/30 RPM				
19.....	1	13278.....	Screw, Fillister Hd, 6-32 x .156				
20.....	1	13830.....	Pinion, Program Wheel Drive				
21.....	1	13831.....	Clutch, Drive Pinion				
22.....	1	14276.....	Spring, Meter, Clutch				
23.....	1	14253.....	Retainer, Clutch Spring				
24.....	3	11384.....	Screw, Phil, 6-32 x 1/4				
25.....	1	13881.....	Bracket, Hinge Timer				

*Call your distributor for Part Number

3220 METER IMMEDIATE TIMER ASSEMBLY

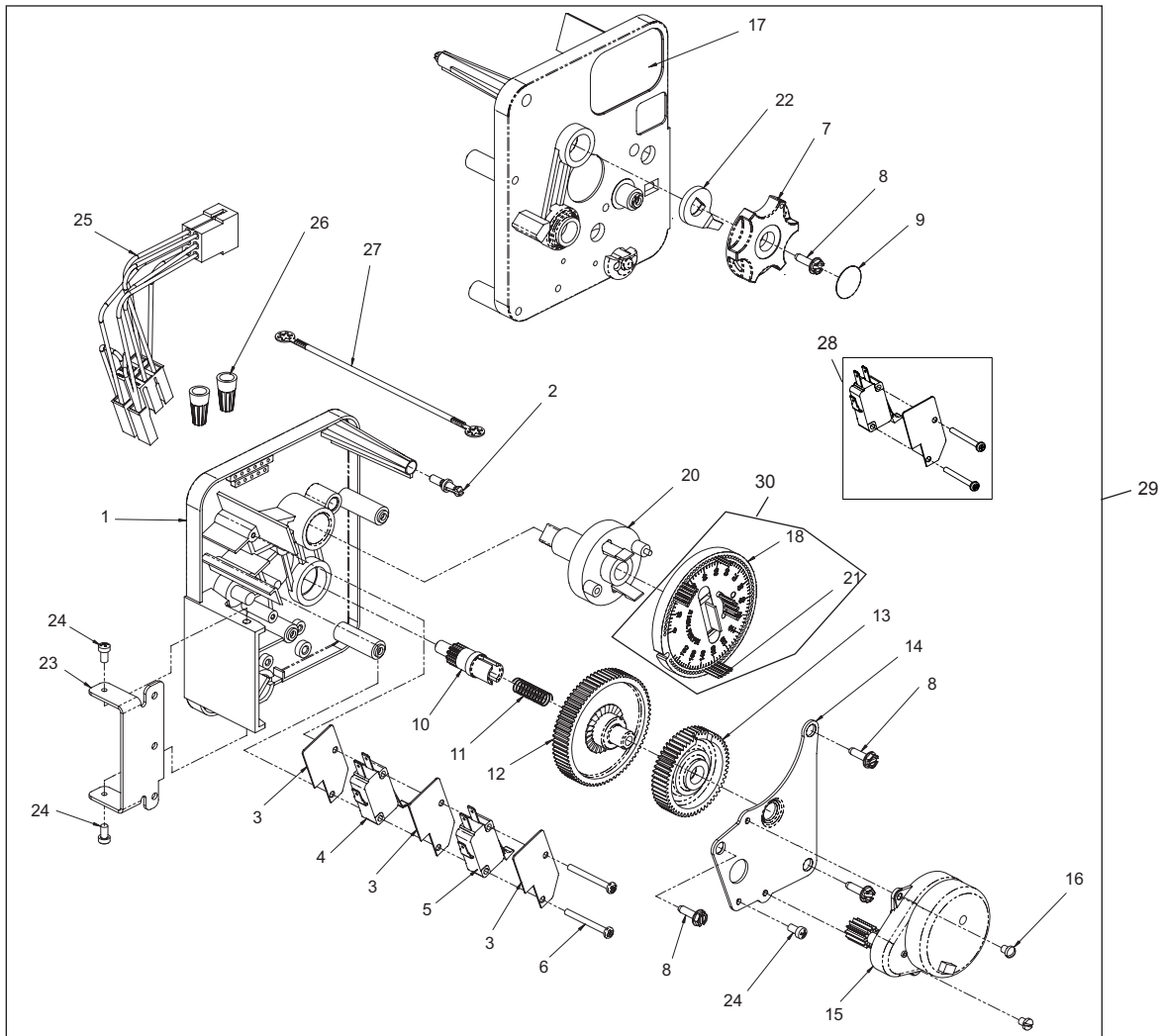


61502-3220 Rev B

Item No.	QTY	Part No.	Description	Item No.	QTY	Part No.	Description
1	1	13870	Housing, Timer	25	1	15320	Switch, Micro, Timer
2	1	15431	Gear, Cycle Actuator, System #5	26	2	11413	Screw, Pan Hd Mach, 4-40 x 1-1/8
3	1	13886	Knob, 3200	27	1	14198	Label, Indicator
4	4	13296	Screw, Hex Wsh, 6-20 x 1/2	28	1	15465	Label, Caution
5	2	11999	Label, Button	29	1	14007	Label, Time of Day
6	1	13807	Gear, Program Drive Wheel	30	1	15148	Label, Instruction
7	1	13806	Retainer, Program Wheel	31	1	40617	Harness, 3220
8	1	13748	Screw, Flt Hd St, 6-20 x 1/2	32	2	40422	Nut, Wire, Tan
9	1	14265	Spring Clip	33	1	15354-01	Wire, Ground, 4"
10	1	13018	Pinion, Idler	34	1	19210-05	Program Wheel Assembly, 9000/3230
11	1	18563	Idler Shaft Spring	35	17	41754	Pin, Spring, 1/16 x 5/8 Stainless Steel, Timer
12	1	13017	Gear, Idler	36	1	15055	Gear, Main Drive
13	1	13164	Drive Gear	37	1	*	Complete 3220 Meter Immediate Timer Assembly
14	1	13887	Plate, Motor Mounting	38		60405-50	Program Wheel, w/2" STD Label 0-2,100 gal
15	1	18743-1	Motor, 120V, 60 Hz, 1/30 RPM			60405-60	Program Wheel, w/2" EXT Label 0-10,000 gal
	1	18752-1	Motor, 100V, 50Hz, 1/30 RPM			60405-61	Program Wheel, w/2" EXT Range 375 m3
	1	18824-1	Motor, 230V, 50Hz, 1/30 RPM	39		60320-02	Switch Kit, 3200/9000 Timer Auxiliary, Optional
	1	18826-1	Motor, 24V, 50Hz, 1/30 RPM	40		61420-06	Program Wheel, Gear Assy, Softener Immediate 2 Min Per Pin
	1	19659-1	Motor, 24V, 60Hz, 1/30 RPM			61420-42	Program Wheel, Gear Assy, Filter Immediate 2 Min Per Pin
	1	19660-1	Motor, 230V, 60Hz, 1/30 RPM				
16	2	13278	Screw, Sltl Fillister Hd				
17	1	14502	Pinion, Program Wheel				
18	1	14501	Clutch, Drive Pinion				
19	1	14276	Meter Clutch Spring				
20	1	14253	Retainer, Clutch Spring				
21	3	11384	Screw, Phil, 6-32 x 1/4 Zinc				
22	1	13881	Bracket, Hinge Timer				
23	3	14087	Insulator				
24	1	15414-00	Micro Switch				

*Call your distributor for Part Number

3230 REMOTE START TIMER ASSEMBLY

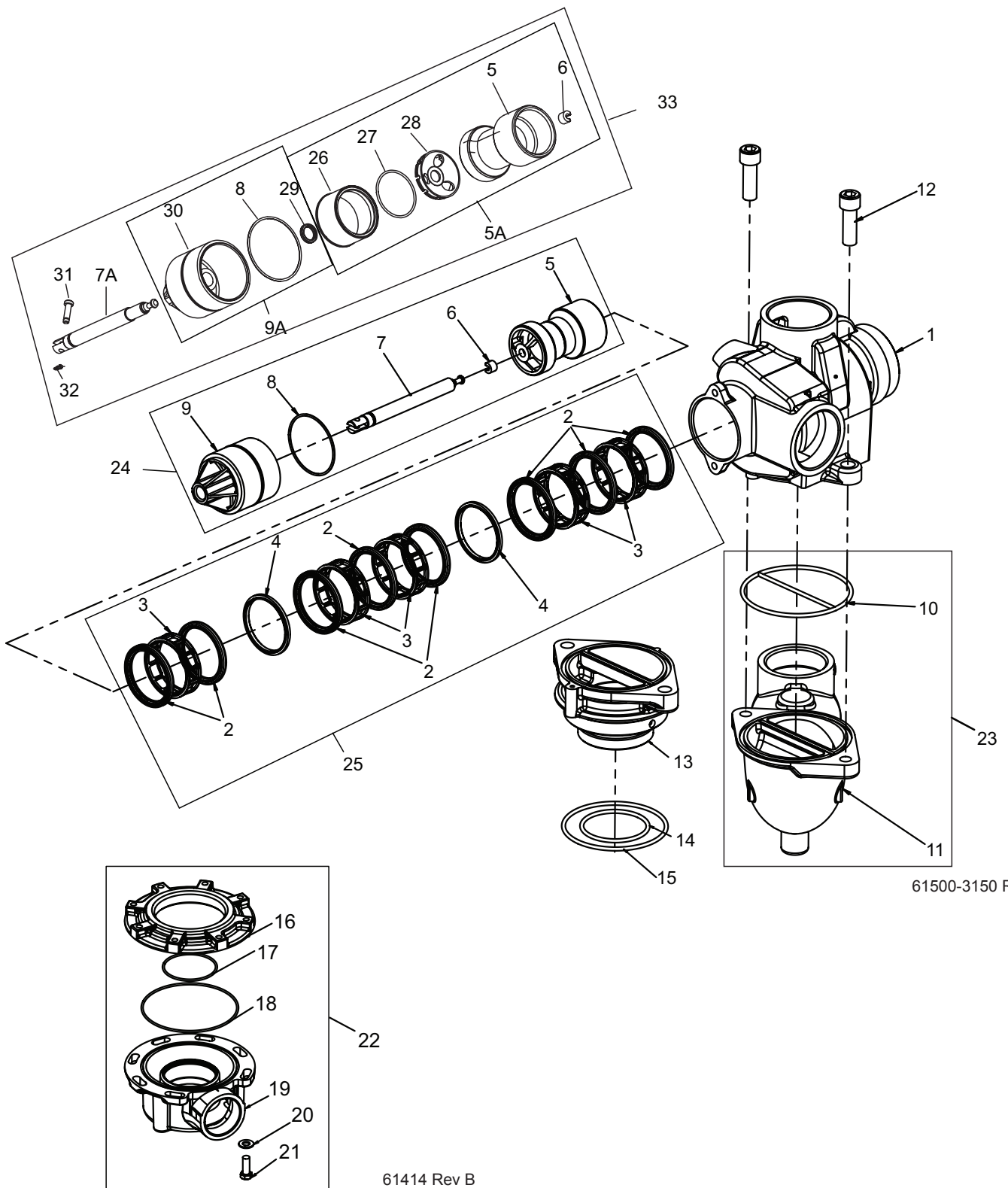


61502-3230R REV A

Item No.	QTY	Part No.	Description	Item No.	QTY	Part No.	Description
1.....	1	13870	Housing, Timer	16.....	2	13278	Screw, Slt'd Fillister Hd
2.....	1	14265	Spring Clip	17.....	1	15313	Label, Caution
3.....	3	14087	Insulator	18.....	1	19210-05	Program Wheel Assembly, 3200
4.....	1	15314	Micro Switch	20.....	1	15055	Main Drive Gear
5.....	1	15320	Switch, Micro, Timer	21.....	17	41754	Pin, Spring, 1/16 x 5/8 Stainless Steel, Timer
6.....	2	11413	Screw, Pan Hd Mach, 4-40 x 1-1/8	22.....	1	13011	Cycle Actuator Arm
7.....	1	13886	Knob, 3200	23.....	1	13881	Bracket, Hinge Timer
8.....	4	13296	Screw, Hex Wsh, 6-20 x 1/2	24.....	3	11384	Screw, Phil, 6-32 x 1/4 Zinc
9.....	1	11999	Label, Button	25.....	1	16336	Harness, 3230R
10.....	1	13018	Pinion, Idler	26.....	2	40422	Nut, Wire, Tan
11.....	1	18563	Idler Shaft Spring	27.....	1	15354-01	Wire, Ground, 4"
12.....	1	13017	Gear, Idler	28.....		60320-02	Switch Kit, 3200/9000 Timer Auxiliary, Optional
13.....	1	15055	Drive Gear	29.....	*		3230 Timer Assy
14.....	1	13887	Plate, Motor Mounting	30.....		61420-06	Program Wheel, Gear Assy, Softener Immediate 2 Min Per Pin
15.....	1	18743-1	Motor, 120V, 60 Hz, 1/30 RPM			61420-42	Program Wheel, Gear Assy, Filter Immediate 2 Min Per Pin
		18752-1	Motor, 100V, 50Hz, 1/30 RPM				
		18824-1	Motor, 23V, 50Hz, 1/30 RPM				
		18826-1	Motor, 24V, 50Hz, 1/30 RPM				
		19659-1	Motor, 24V, 60Hz, 1/30 RPM				
		19660-1	Motor, 230V, 60Hz, 1/30 RPM				

*Call your distributor for Part Number

CONTROL VALVE ASSEMBLY



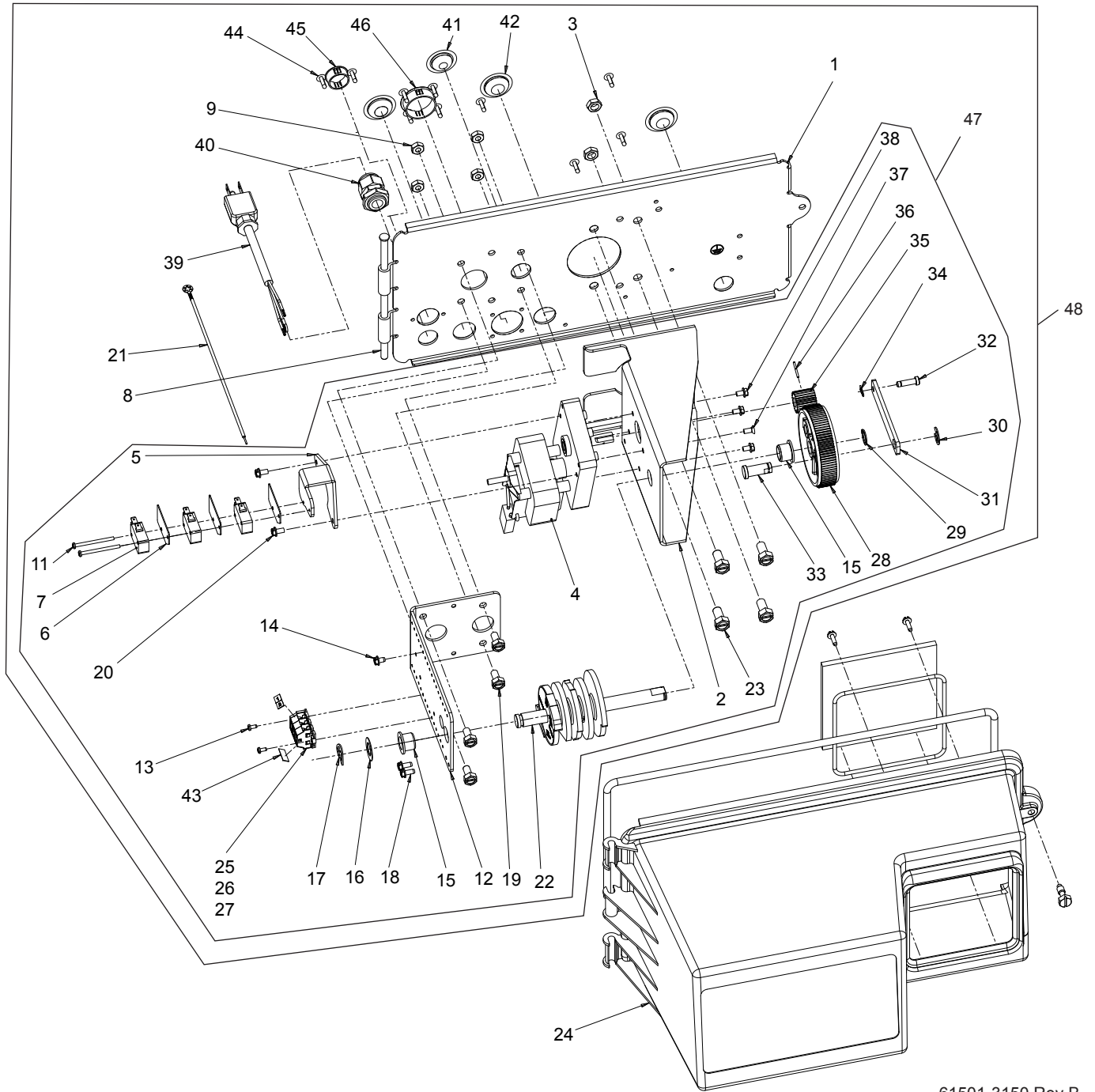
61500-3150 Rev B

61414 Rev B

CONTROL VALVE ASSEMBLY *continued*

Item No.	QTY	Part No.	Description	Item No.	QTY	Part No.	Description
1	1	15114-01	Valve Body, 3150	22	1	61414	Adapter Assy, Sidemount, 3150, Rotating
		15114NP	Valve Body, 3150, Nickel Plated			61414NP	Adapter Assy, SDMNT, 3150, Nickel Plated, Rotating
		15114-20	Valve Body, 3150, BSP/Metric	23	1	61418	Adapter Assy, Sidemount, 3150, Fixed
		15114-20NP	Valve Body, 3150, BSP/Metric, Nickel Plated			61418-22	Adapter Assy, SDMNT, 3150, BSP/Metric
2	8	11720	Seal, Piston, 2900/3150	24	1	60106-00	Piston Assy, 3900/3150 STD
		11720-02	Seal, 1-1/2", Silicone	1	60106-01	Piston Assy, 3900/3150, HWBP, Hot Water 180 degrees	
3	5	10369	Spacer, 2", 2900/3150	1	60106-10	Piston Assy 3900/3150, HWBP, Upflow	
		16141	Spacer, Port Ring, HW, 180°	25		60131	Seal & Spacer Kit, 3900/3150, Upper
4	2	10368	Spacer, Narrow, 3150/3900			60131-01	Seal & Spacer Kit, Hot Water, 180 Degrees, 3150
		10368-01	Spacer, Quad Ring, Brass, HW, 180°			60131-10	Seal & Spacer Kit, Silicone, 3150/3900 Upper
5	1	16130	Piston, High Backwash	26	1	BR42008	Piston, 3150, NHWBP
5A	1	19611-01	Piston Assy, 3150, NHWBP, O-ring	27	1	BR40952	O-ring, -030
6	1	14818	Ring, Piston Rod, Snap	28	1	BR42009	Retainer, 3150 NWHBP O-ring
7	1	15125	Rod, Piston, 3150	29	1	BR11242	Quad, Ring, -112, 560CD
7A	1	19708	Rod, Piston, 3150 NHWBP	30	1	BR15118-11	Plug, End, 3150, Black, Machined
8	1	14922	O-ring, -035, Piston	31	1	BR11709	Pin, Connecting Rod
9	1	16398-01	End Plug Assy, 3150, White, HWBP	32	1	BR11898	0.35 M.B. Spring Wire
9A		16398-11	End Plug Assy, 3150, Black, NHWBP	33	1	60113-01	Piston Assy, 3150, NHWBP, D/Flow Conversion/Replacement
10	1	15112	Seal, 3150 Adapter Base				
11	1	17407-02	Adapter, 3150, Sidemount, Aux Tap				
		17407-02NP	Adapter, 3150, Sidemount, Aux, Nickel Plated				
		17407-22	Adapter, 3150, Sidemount, Aux Tap, BSP, Metric				
		17407-22NP	Adapter, 3150, Sidemount, Aux Tap, BSP/MTRC, Nickel Plated				
12	2	40118	Screw, Sckt Hd, 1/2 - 13 Unc				
		17122	Screw, Socket HD, M12 x 35, 18-8, SS, Metric				
13	1	15117-01	Adapter, 3150, Machined (Not used with a fixed sidemount)				
		15117-01NP	Adapter, 3150, Machined, Nickel Plated				
		15117-21	Adapter, 3150, Metric, Machined				
14	1	15247	O-ring, -229 (Not used with a rotating or fixed sidemount)				
15	1	13575	O-ring, -240 (Not used with a fixed sidemount)				
		15210	O-ring, -343, Park Tank				
16	1	19608-20	Dispenser, Commercial, 2", 3150 (Not used with a rotating or fixed sidemount)				
16	1	40316	Adapter, Sidemount				
17	1	16804-01	O-ring, -150				
18	1	40368	O-ring, -160, Sidemount, Flange				
19	1	40365	Base, 3130/3150, Rotating				
20	7	40375	Washer, Flat, 3/8, Type A				
21	7	19768	Screw, Hex Hd, 3/8 - 16 x 1, Cap 18-8				

CONTROL DRIVE ASSEMBLY

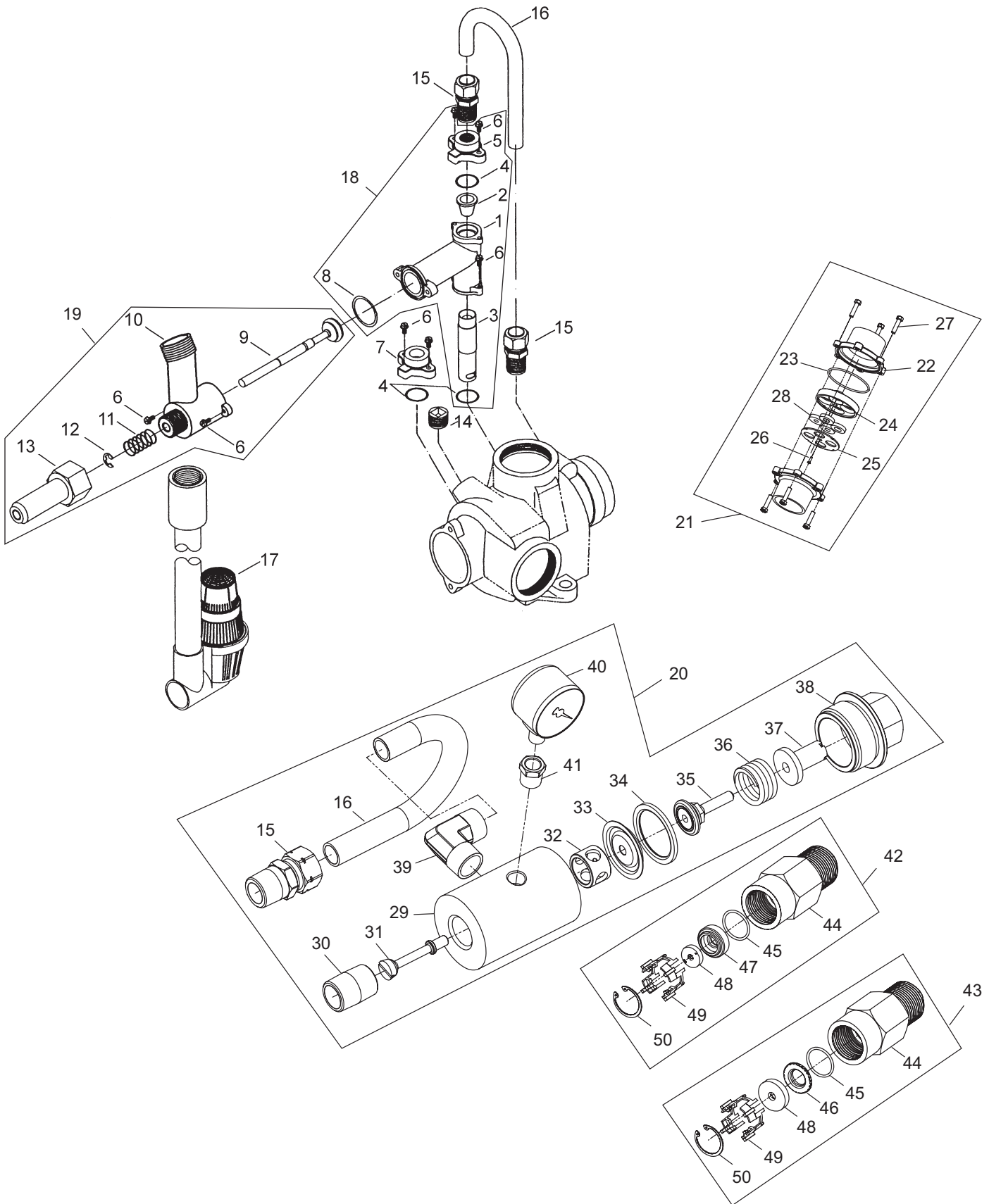


61501-3150 Rev B

CONTROL DRIVE ASSEMBLY *continued*

Item No.	QTY	Part No.	Description	Item No.	QTY	Part No.	Description
1	1	19304-04	Backplate, 3150/3900, Upper, NEMA 3R	42	3	19591	Plug, .8750 Hole, Recessed, Black
2	1	15120-01	Bracket, Motor Mtg, 3150/3900 Environmental	43	2	15250	Label, Terminal Strip
3	2	16346	Nut, Hex, Jam, 5/16 - 18	44	10	19800	Plug, .140 Dia, White
4	1	40392	Motor, Drive, 115V, 50/60 Hz, Sp	45	1	15806	Plug, Hole, Heyco #2693
		40390	Motor, Drive, 220V, 50 Hz, Sp, Fam 3	46	1	17421	Plug, 1.20 Hole
		42581	Motor, Drive, 24VAC/DC, 50-60 Hz, Fam 3	47		60057-01	Drive Assy, 3150, 120V, SYS 5 & 7, Signal After Brine Tank Fill
5	1	17797	Bracket, Switch Mounting, 3150/3900			60057-03	Drive Assy, 3150, 24V, 3900 Upper, SYS #5 or SYS #7
6	4	10302	Insulator, Limit Switch			60057-11	Drive Assy, 3150, 120V, 3900 Upper, SYS #4 or SYS #6
7	3	10218	Switch, Micro			60057-21	Drive Assy, 3150, 120V, Upflow, 3900 Upper, SYS 5 or SYS 7, Brine Draw First
8	1	17845-03	Pin, Hinge, 3150/3900, Env	48	*		3150 Powerhead Assembly
9	4	11235	Nut, Hex, 1/4 -20, Mach Screw, Zinc	Not Shown			
10	2	13365	Washer, Lock, #4, External	1		17470	Cable Guide Assy, 2850/3150
11	2	40080	Screw, Rd Hd, 4-40 x 1 1/2"	1		19856	Ring, Retaining (Used on Cover)
12	1	16053	Bracket, Brine Side	1			Timer (See Timer Section)
13	2	40133	Screw, Pan Hd, 4-40 x 1/4	1		40396	Harness, Drive, Environmental
14	1	15226-6	Terminal Block	1		16427-04	Wire, Lead, 12", White
15	2	16052	Bushing, 3150/3900	1		40396	Harness, Drive, Environmental
16	1	16059	Washer, SS, .88, 3150/3900	1		14924	Strain Relief Heyco #1247
17	1	16051	Ring, Retaining, Bowed	1		15513	Meter Cable, 17.5", 2"
18	2	10300	Screw, Slot Hex Wsh, 18-8 x 3/8	1		15216	MeterCable, 15.25", 1.5"
19	4	10231	Screw, Slot Hex, 1/4 - 20 x 1/2	*Call your distributor for Part Number			
20	2	14202-01	Screw, Hex Wsh Hd, 8 x 5/16				
21	1	10475-01	Wire, Ground				
22	1	16494-03	Cam Assy, 3150/3900 Signal After Brine Fill				
		16494-05	Cam Assy, 3150/3900 Upper Signal After Rapid Rinse				
		16494-06	Cam Assy, 3150/3900, Upper, Upflow, Signal After Rapid Rinse				
23	4	11224	Screw, Hex Hd, 5/16 - 18 x 5/8				
24	1	60240-02	Cover Assy, 3150/3900 Env, Black, NEMA 3R				
25	2	41084	Terminal Block, Segment, Gray				
26	1	41085	Endplate, Terminal Block, Gray				
27	1	40174	Terminal Block, Green/Yellow				
28	1	16046	Gear, Drive				
29	1	16050	Ring, Retaining				
30	1	11774	Ring, Retaining				
31	1	16047	Link, Drive				
32	1	11709	Pin, Drive Link				
33	1	16048	Bearing, Drive Link				
34	1	11898	Clip, 3150/3900				
35	1	16045	Pinion, Drive				
36	1	11381	Pin, Roll, 2900/3900				
37	1	11080	Screw, Fit Hd Mach, 8-32 x 3/8				
38	3	10872	Screw, Hex Wsh, 8-32 x 17/64				
39	1	40084-12	Power Cord, 12' US, Round, 120V				
40	1	17967	Fitting Assy, Liquid Tight, Blk				
41	1	19691	Plug, .750 Dia, Recessed, Black				

1800 SERIES BRINE SYSTEM AND DRAIN LINE FLOW CONTROL ASSEMBLY



60036 Rev C

1800 SERIES BRINE SYSTEM AND DRAIN LINE FLOW CONTROL

ASSEMBLY *continued*

Item No.	QTY	Part No.	Description	Item No.	QTY	Part No.	Description
1.....	1	16340.....	Body, Injector, 1800 D/F	18.....	60277-04.....	Injector Assy, 1800, #4, Downflow	
		..... 16340-20.....	Body, Injector, 1800, Downflow, Metric		..... 60272-04.....	Injectory Assy, 1800, #4, Upflow
		..... 16340-01.....	Body, Injector, 1800 Upflow		..... 60277-05.....	Injectory Assy, 1800 #5, Downflow
		..... 16340-21.....	Body, Injector, 1800, Upflow, Metric		..... 60272-05.....	Injector Assy, 1800, #5, Upflow
2.....	1	15128-xx.....	Injector Nozzle		..... 60277-06.....	Injector Assy, 1800, #6, Downflow
		..... 15128-04.....	#4 Green		..... 60277-07.....	Injector Assy, 1800, #7, Downflow
		..... 15128-05.....	#5 Red		..... 60272-07.....	Injector Assy, 1800, #7, Upflow
		..... 15128-06.....	#6 White		..... 60277-08.....	Injector Assy, 1800, #8, Downflow
		..... 15128-07.....	#7 Blue		..... 60277-09.....	Injectory Assy, 1800 #9, Downflow
		..... 15128-08.....	#8 Yellow		..... 60277-10.....	Injectory Assy, 1800 #10, Downflow
		..... 15128-09.....	#9 Violet			
		..... 15128-10.....	#10 Black	19.....	60036-02.....	Brine Valve, 1800, Design 3
3.....	1	15127-xx.....	Injector Throat		..... 60276-01.....	Brine Valve, 1800, Retrofit Kit, Downflow 1800 Injector and Brine Valve, Update to Design 3
		..... 15127-04.....	#4 Green	20.....	60734.....	Regulator, 3150/3900, Pressure, Upflow
		..... 15127-05.....	#5 Red			
		..... 15127-06.....	#6 White			
		..... 15127-07.....	#7 Blue			
		..... 15127-08.....	#8 Yellow			
		..... 15127-09.....	#9 Violet			
		..... 15127-10.....	#10 Black			
4.....	3	15246.....	O-ring, -116				
5.....	1	16341-01.....	Cap, Injector, 1800				
6.....	8	12473.....	Screw, Hex Wsh, 10-24 x 5/8				
7.....	1	16341-02.....	Plug, Injector, 1800				
8.....	1	19054.....	O-ring, -021, 560CD				
9.....	1	16497-01.....	Stem Assy, 1800, Brine Valve				
10.....	1	18713.....	Brine Valve Body, 1800				
11.....	1	11772.....	Spring, 3150 Brine Valve				
12.....	1	11774.....	Ring, Retaining				
13.....	1	16498-01.....	Stem Guide Assy, Brine				
14.....	1	16387.....	Plug, Pipe, 1/2" NPT				
15.....	2	18702.....	Fitting, Tube, 1/2 NPT 5/8				
16.....	1	18703.....	Tube, Brine, 5/8 OD Annealed				
		..... 18703-01.....	Tube, Brine, 5/8 OD, Short, Upflow			
17.....	1	60009-00.....	Air Check, #900, Commercial Less Fittings				
		..... 60009-01.....	Air Check, #900, Commercial, HW Less Fittings			

1800 SERIES BRINE SYSTEM AND DRAIN LINE FLOW CONTROL

ASSEMBLY *continued*

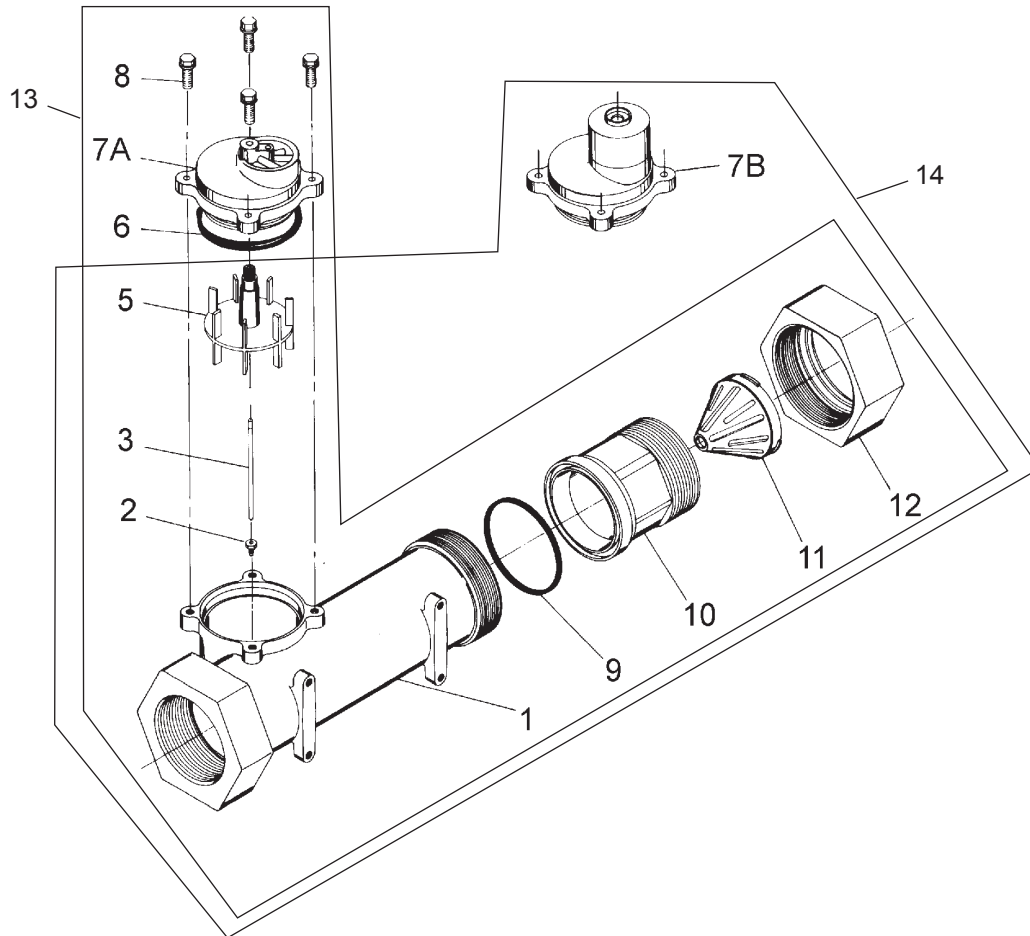
Item No.	QTY	Part No.	Description
21		60711-000	DLFC, 2" NPT, Less BTTNS, w/4 HLS
		60711-00	DLFC, 2" NPT, Less BTTNS, W/2 HLS
		60711-01	DLFC, 2" NPT, Less BTTNS, W/1 HLS
		60711-20	DLFC, 2" NPT, 20 gpm
		60711-25	DLFC, 2" NPT, 25 gpm
		60711-30	DLFC, 2" NPT, 30 gpm
		60711-35	DLFC, 2" NPT, 35 gpm
		60711-40	DLFC, 2" NPT, 40 gpm
		60711-45	DLFC, 2" NPT, 45 gpm
		60711-50	DLFC, 2" NPT, 50 gpm
		60711-55	DLFC, 2" NPT, 55 gpm
		60711-60	DLFC, 2" NPT, 60 gpm
		60711-65	DLFC, 2" NPT, 65 gpm
		60711-70	DLFC, 2" NPT, 70 gpm
		60711-75	DLFC, 2" NPT, 75 gpm
		60711-80	DLFC, 2" NPT, 80 gpm
		60711-85	DLFC, 2" NPT, 85 gpm
		60711-90	DLFC, 2" NPT, 90 gpm
		60711-95	DLFC, 2" NPT, 95 gpm
		60711-100	DLFC, 2" NPT, 100 gpm
		60812-30	DLFC, 2" BSP/Metric, 30 gpm
		60812-35	DLFC, 2" BSP/Metric, 35 gpm
		60812-45	DLFC, 2" BSP/Metric, 45 gpm
		60812-50	DLFC, 2" BSP/Metric, 50 gpm
		60812-55	DLFC, 2" BSP/Metric, 55 gpm
		60812-70	DLFC, 2" BSP/Metric, 70 gpm
		60812-75	DLFC, 2" BSP/Metric, 75 gpm
		60812-80	DLFC, 2" BSP/Metric, 80 gpm
		60812-90	DLFC, 2" BSP/Metric, 90 gpm
		60812-95	DLFC, 2" BSP/Metric, 95 gpm
		60812-100	DLFC, 2" BSP/Metric, 100 gpm
22	2	27913-21	Housing, Flow Control, 2" BSP
23		16804	O-ring, -150
24	1	16649	Holder, DLFC Button
25	1	16650	Cover Plate DLFC
26	1	13898	Screw, Flat HD, Phil, Steel
27	6	13386	Screw, Hex HD MACH, 1/4-20 x 1 OR Slot Hex Cap Screw 18-8 S.S.
	6	17976	Screw, Hex HD, M6 x 25 mm
28		16529	Washer, Flow, 10.0 gpm
		16736	Washer, Flow, 15.0 gpm
		16528	Washer, Flow, 20.0 gpm
		16737	Washer, Flow, 25.0 gpm
29	1	19089	Body Regulator 3150
30	1	10242	Fitting, Nipple, 1/2", Close
31	1	19091	Pin, Regulator 3150
32	1	19093	Stand-Off Regulator 3150

Item No.	QTY	Part No.	Description
33	1	19095	Diaphragm, Regulator 3150
34	1	19094	Washer, Regulator 3150
35	1	19092	Retainer, Regulator 3150
36	1	19101	Spring, Regulator 3150
37	1	19399	Washer, Calibration 3150
38	1	19090	Cap, Regulator 3150
39	1	19278	Fitting, Tube, 90 Deg
40	1	19693	Pressure Gauge
41	1	41232	Bushing Reducer 1/4 x 1/8
42		60710-1.2	BLFC, 1"F x 1"M, NPT, 1.2 gpm
		60710-2.0	BLFC, 1"F x 1"M, NPT, 2.0 gpm
		60710-2.4	BLFC, 1"F x 1"M, NPT, 2.4 gpm
		60710-3.0	BLFC, 1"F x 1"M, NPT, 3.0 gpm
		60710-3.5	BLFC, 1"F x 1"M, NPT, 3.5 gpm
		60710-4.0	BLFC, 1"F x 1"M, NPT, 4.0 gpm
		60710-5.0	BLFC, 1"F x 1"M, NPT, 5.0 gpm
		60710-7.0	BLFC, 1"F x 1"M, NPT, 7.0 gpm
43		60710-9.0	BLFC, 1"F x 1"M, NPT, 9.0 gpm
		60710-10	BLFC, 1"F x 1"M, NPT, 10 gpm
		60710-12	BLFC, 1"F x 1"M, NPT, 12 gpm
		60710-15	BLFC, 1"F x 1"M, NPT, 15 gpm
		60710-20	BLFC, 1"F x 1"M, NPT, 20 gpm
		60710-25	BLFC, 1"F x 1"M, NPT, 25 gpm
44		16530	Housing, BLFC, 1"M x 1"F
45		19292	O-ring, -020
46		19279	Retainer, Flow Control, Flow 9.0 - 25 gpm
47		19053	Retainer, Flow Control, Flow 2.0 - 7.0 gpm
48		12085	Washer, Flow, 1.2 gpm
		12087	Washer, Flow, 2.0 gpm
		12088	Washer, Flow, 2.4 gpm
		12089	Washer, Flow, 3.0 gpm
		12090	Washer, Flow, 3.5 gpm
		12091	Washer, Flow, 4.0 gpm
		12092	Washer, Flow, 5.0 gpm
		12408	Washer, Fow, 7.0 gpm
		17944	Washer, Flow, 9.0 gpm
		16529	Washer, Flow, 10.0 gpm
		16735	Washer, Flow, 12.0 gpm
		16736	Washer, Flow, 15.0 gpm
		16528	Washer, Flow, 20.0 gpm
		16737	Washer, Flow, 25.0 gpm
49		16738	Retainer, Flow Control
50		16805	Ring, Retaining

Not Shown - Option Without Brine Valve

1		16605	Retainer Plate
1		19860	Fitting, Brine Valve, 1800

2" BRASS METER ASSEMBLY



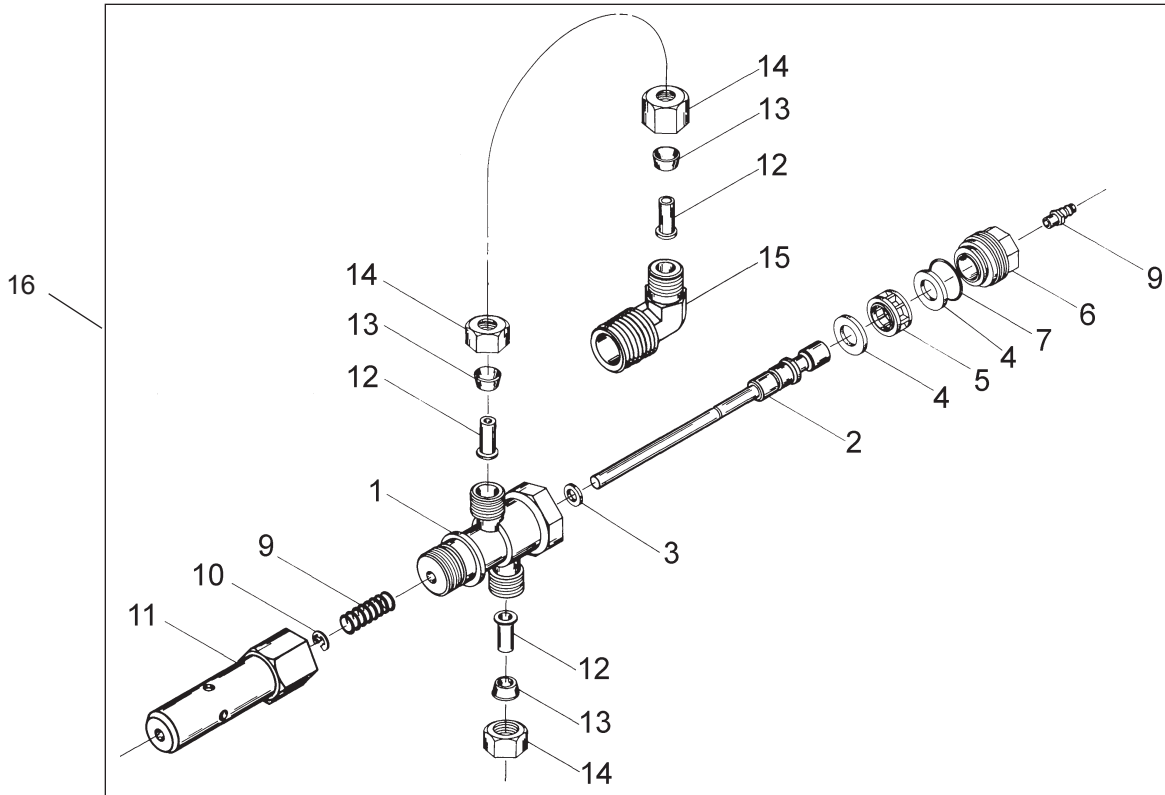
60393 Rev E

Item No.	QTY	Part No.	Description
1	1	14456	Body, Meter, 2"
		14456-20	Body, Meter, 2", BSP, Metric
2	1	15532	Seat, Impeller Shaft, Hex
3	1	15432	Shaft
5	1	15374	Impeller Assy, 2" Meter
6	1	13847	O-ring, -137, Std/560CD, Meter
7A	1	14038	Meter Cap Assembly, Std, Plastic
7B	1	15150	Meter Cap Assembly, 3/4" to 2", Ext Plastic, Pdl
8	4	12112	Screw, Hex Hd Mach, 10-24 x 1/2 18-8 Stainless STEel
		15886	Screw, Hex Hd, M5 x 12 SS, Metric
9	1	14679	O-ring, -227, Meter
10	1	14568	Fitting, Nipple, 2", NPT
		14568-10	Fitting, Nipple, 2", BSP, Brass
11	1	14680	Flow Straightener
12	1	14569	Nut, 2900 Meter
13			Meter Assy, 2" Inline, NPT, STD, Brass, Paddlewheel
			Meter Assy, 2" Inline, BSP, STD, Brass Paddlewheel
14			Meter Assy, 2" Inline, NPT, EXT, Brass Paddlewheel
			Meter Assy, 2" Inline, BSP, EXT, Brass, Paddlewheel

Not Shown

		61439	Meter Sleeve w/O-ring, 1-1/2"
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SERVICE VALVE OPERATOR ASSEMBLY



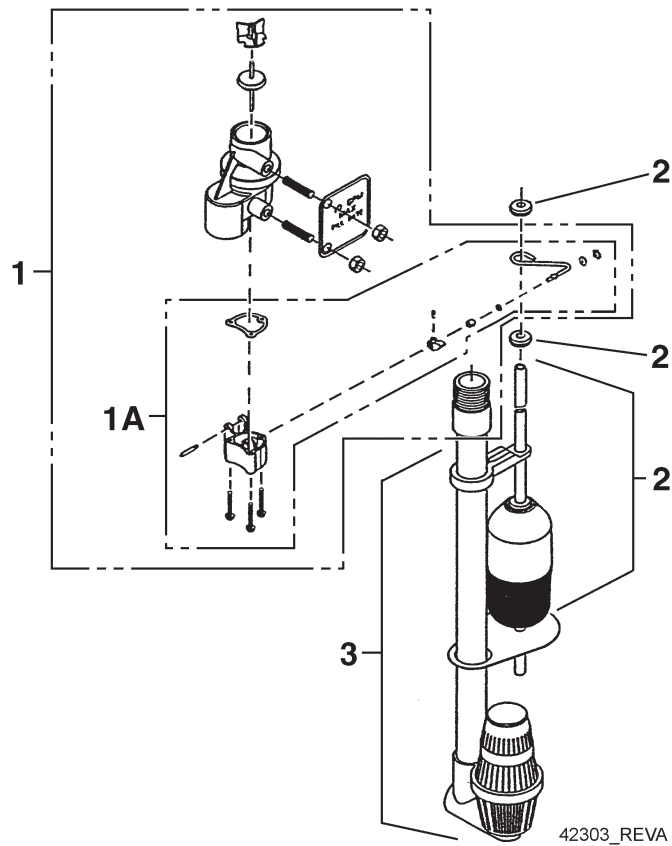
BR60150-3150REVA

Item No.	QTY	Part No.	Description
1.....	1	15074.....	Body, SVO
2.....	1	16065.....	Piston & Stem, SVO
3.....	1	10141.....	O-ring, -010
4.....	2	14835.....	Seal, 3150
5.....	1	14834.....	Spacer, Softwater Fill
6.....	1	16509.....	Plug, End, SVO
7.....	1	12977.....	O-ring, -015
8.....	1	15965.....	Fitting, Bias
9.....	1	10249.....	Spring, Brine Valve
10.....	1	10250.....	Ring, Retaining
11.....	1	16498-02.....	Stem Guide Assy, SVO
12.....	3	10332.....	Fitting, Insert, 3/8
13.....	3	10330.....	Fitting, Sleeve, 3/8 Celcon
14.....	3	10329.....	Fitting, Tube, 3/8 Nut, Brass
15.....	1	16503.....	Fitting, Elbow, 90 Deg.
16.....	1	60150-3150.....	SVO Assy, 3150/3900 (Includes Items 1-15)

Not Shown

.....	1	16511.....	Tube, 3150, PVC, SVO
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2350 SAFETY BRINE VALVE



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

Not Shown

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

GENERAL SERVICE HINTS FOR METER CONTROL

Problem: Softener delivers hard water

Reason: Reserve capacity has been exceeded.

Correction: Check salt dosage requirements and reset program wheel to provide additional reserve.

Reason: Program wheel is not rotating with meter output.

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

Reason: Meter is not measuring flow.

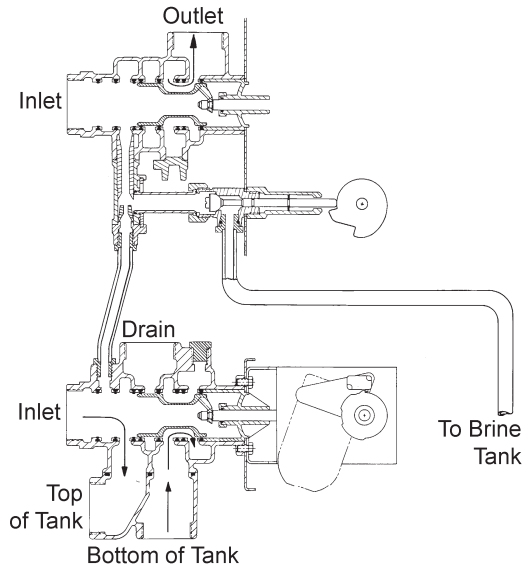
Correction: Check meter with meter checker.

TROUBLESHOOTING

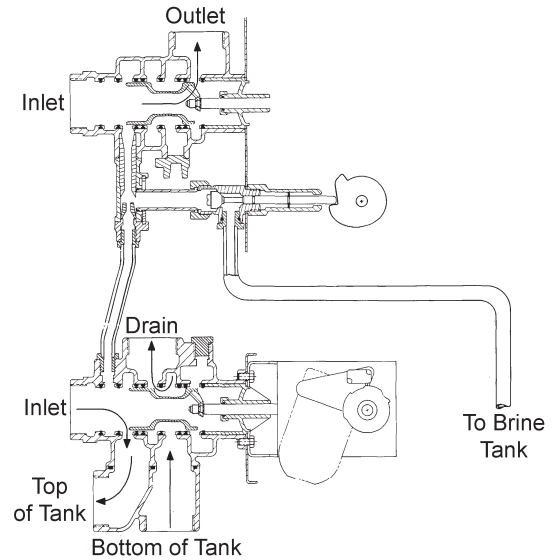
Problem	Cause	Correction
Water conditioner fails to regenerate.	Electrical service to unit has been interrupted	Assure permanent electrical service (check fuse, plug, pull chain, or switch)
	Timer is defective.	Replace timer.
	Power failure.	Reset time of day.
Hard water.	By-pass valve is open.	Close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

WATER CONDITIONER FLOW DIAGRAMS

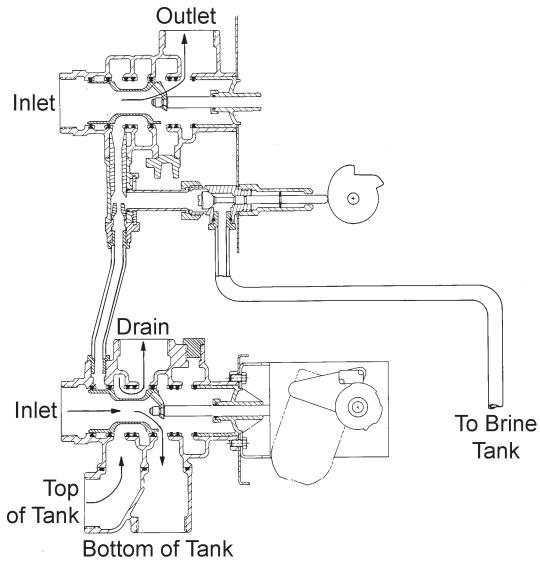
1 Service Position



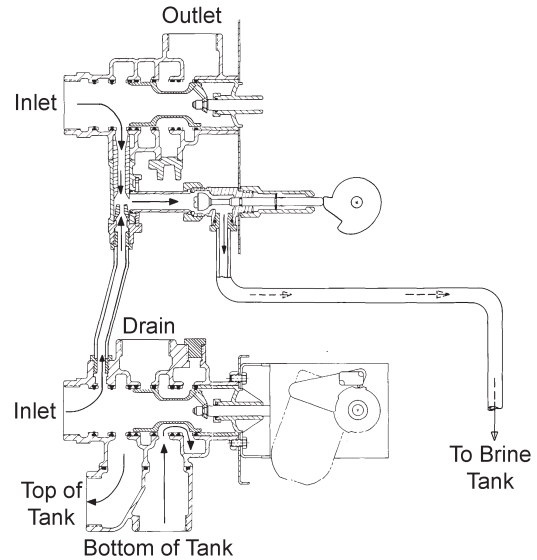
4 Rapid Rinse



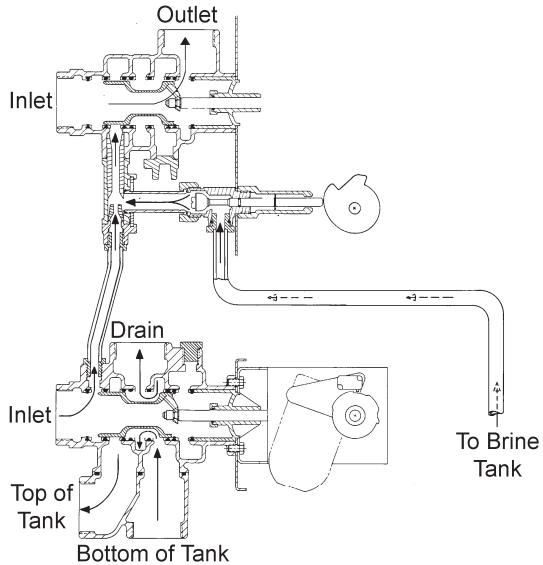
2 Backwash Position



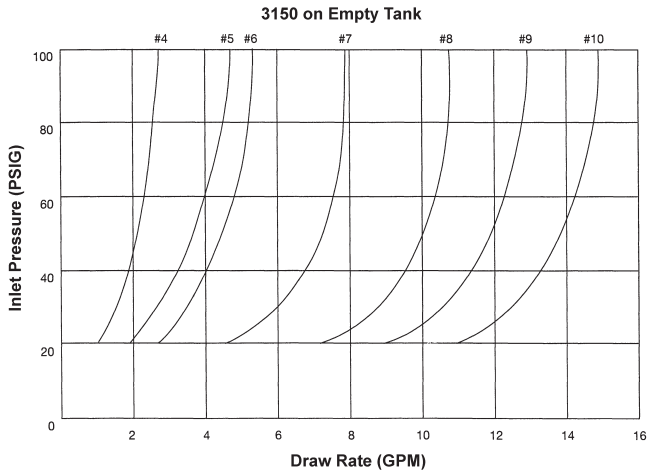
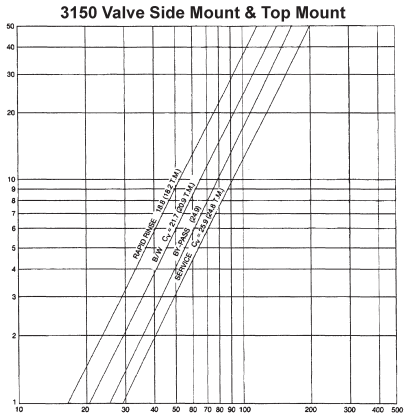
5 Brine Tank Refill Position



3 Brine and Slow Rinse Position

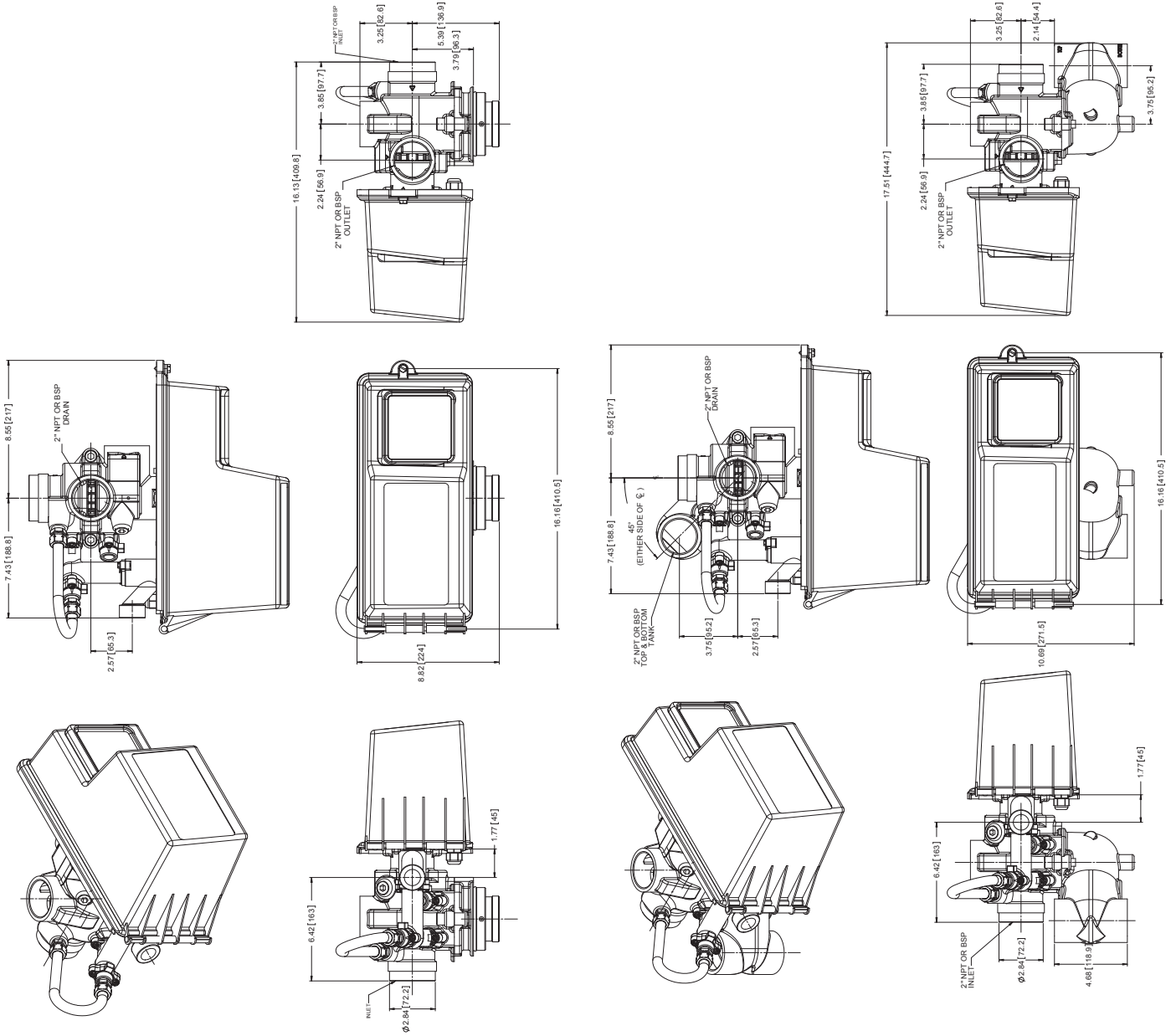


FLOW DATA & INJECTOR DRAW RATES



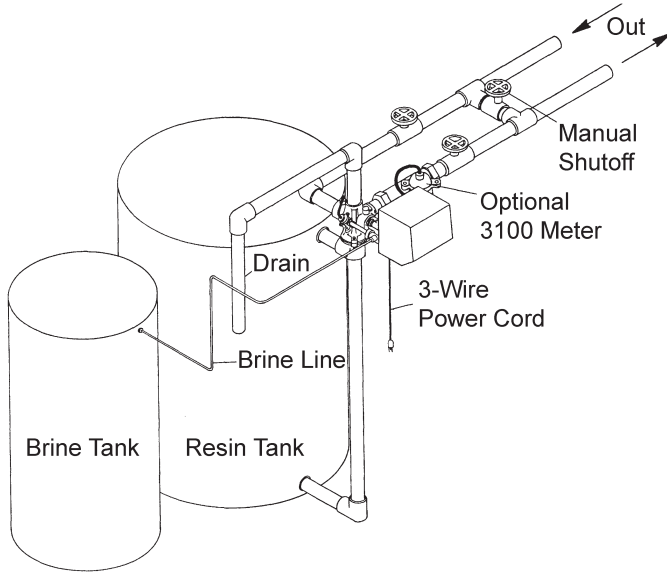
TR20395

DIMENSIONAL DRAWING



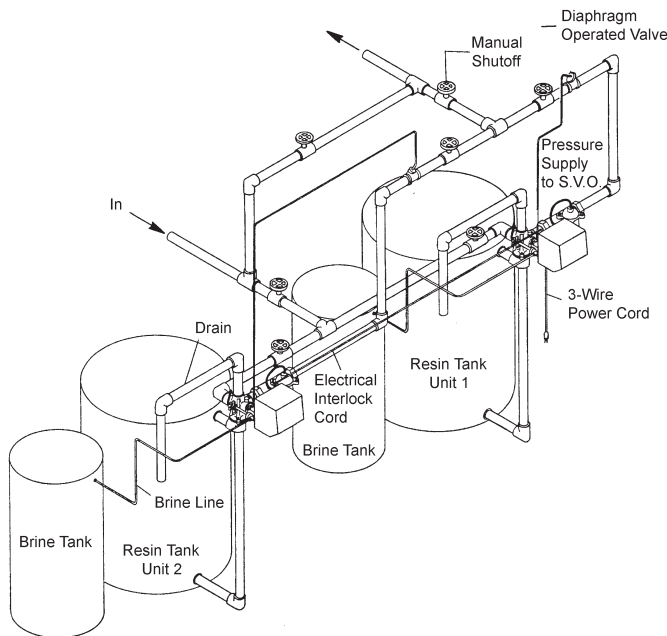
SYSTEM #4

Typical Single Tank Installation with Optional Meter



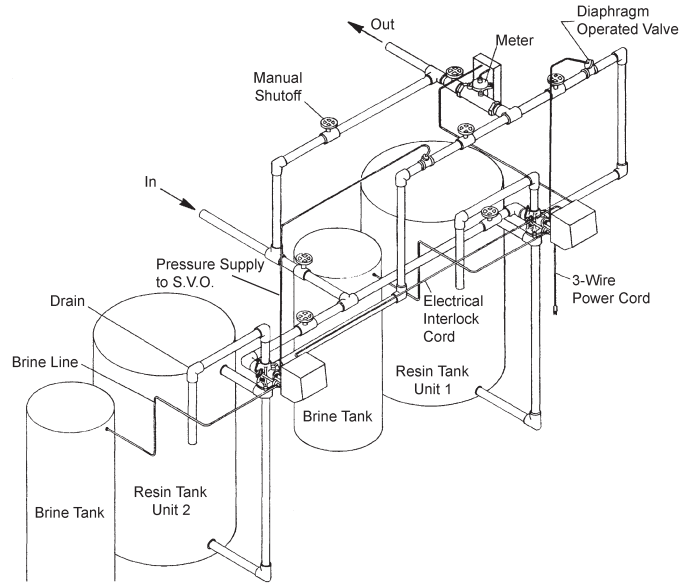
SYSTEM #5

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



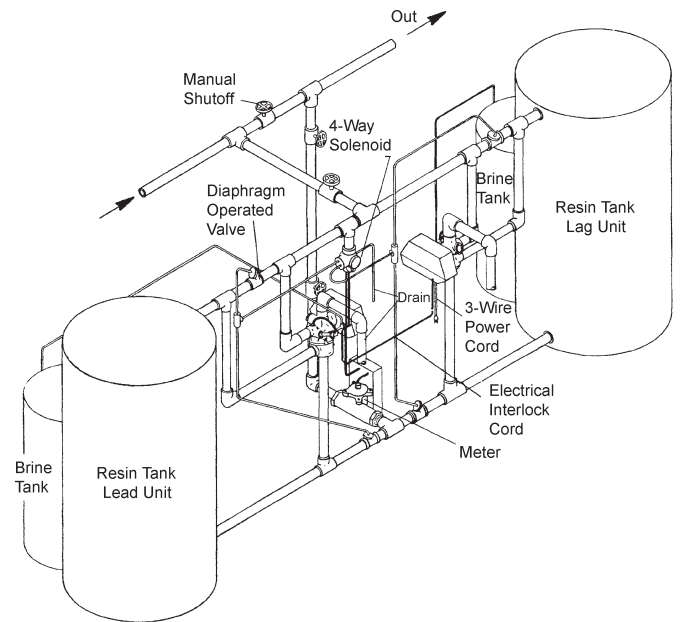
SYSTEM #6

Twin Series Regeneration Installation with a Remote Meter



SYSTEM #7

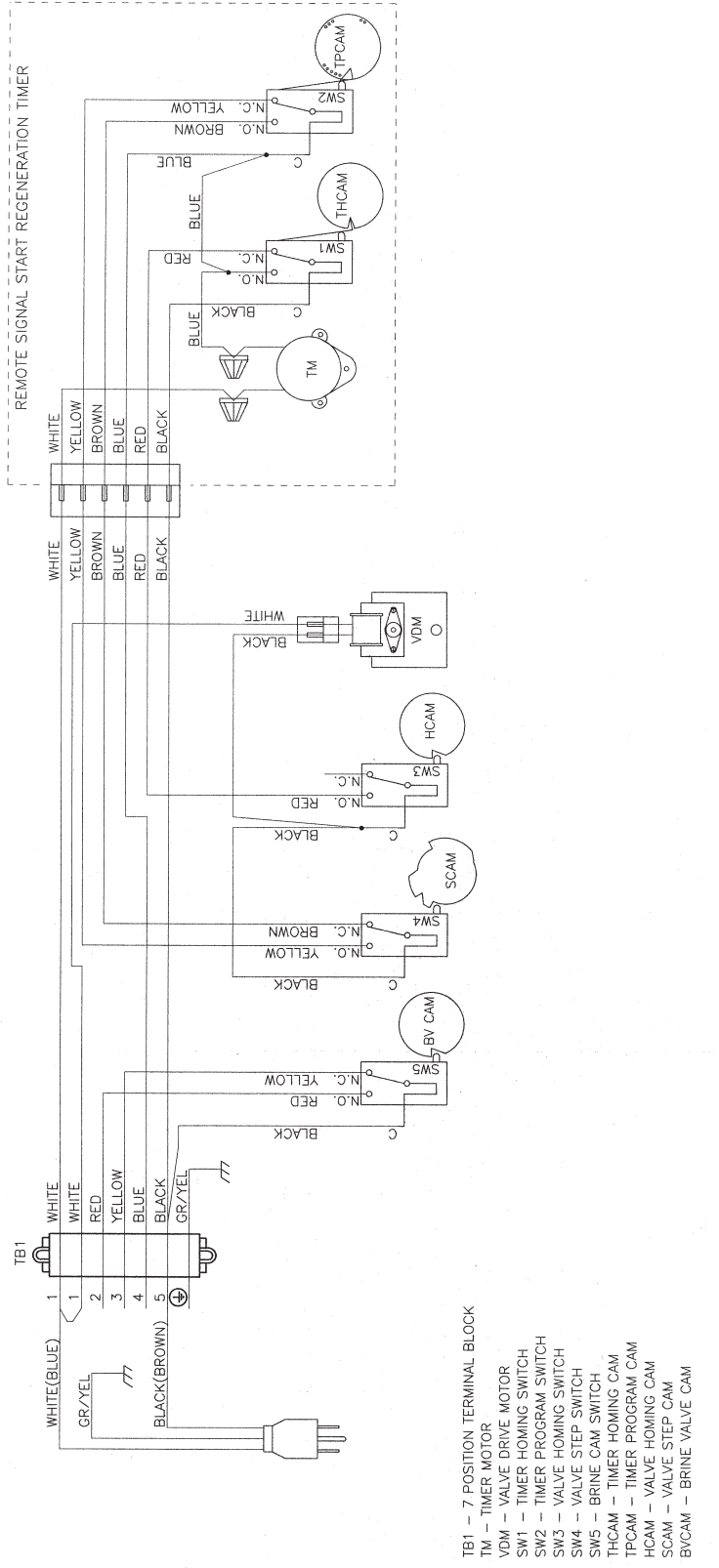
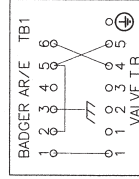
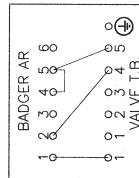
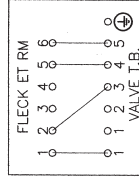
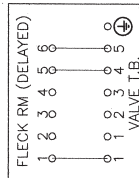
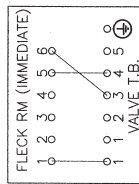
Twin Alternator Installation with a Remote Meter



VALVE WIRING *continued*

System #4 Remote Signal Start Valve Wiring

REMOTE METER WIRING



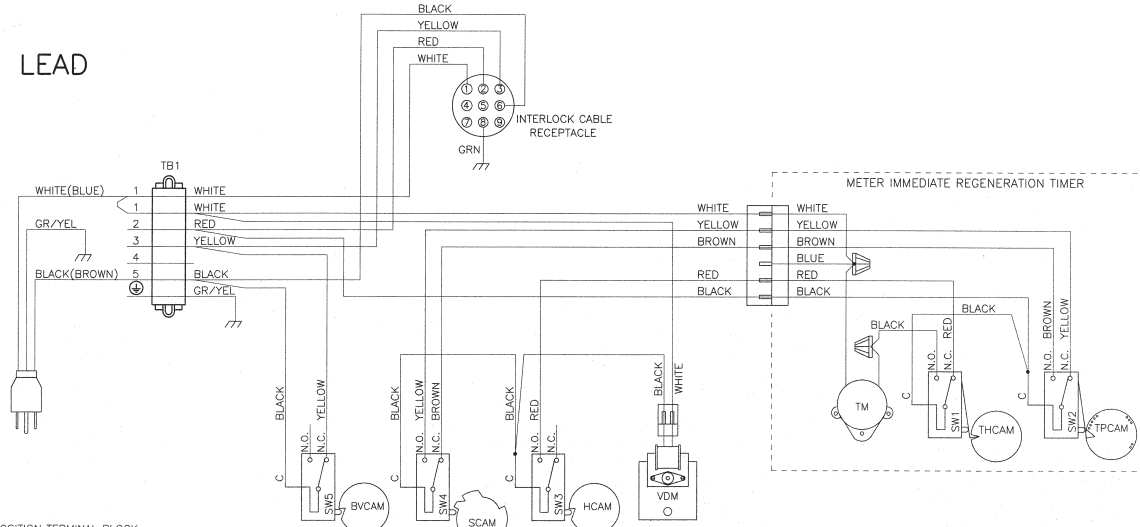
- TB1 - 7 POSITION TERMINAL BLOCK
- TM - TIMER MOTOR
- VDM - VALVE DRIVE MOTOR
- SW1 - TIMER HOMING SWITCH
- SW2 - TIMER PROGRAM SWITCH
- SW3 - VALVE HOMING SWITCH
- SW4 - VALVE STEP SWITCH
- SW5 - BRINE CAM SWITCH
- THCAM - TIMER HOMING CAM
- TPCAM - TIMER PROGRAM CAM
- HCAM - VALVE HOMING CAM
- SCAM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

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

VALVE WIRING *continued*

System #5 Duplex Valve Wiring

LEAD

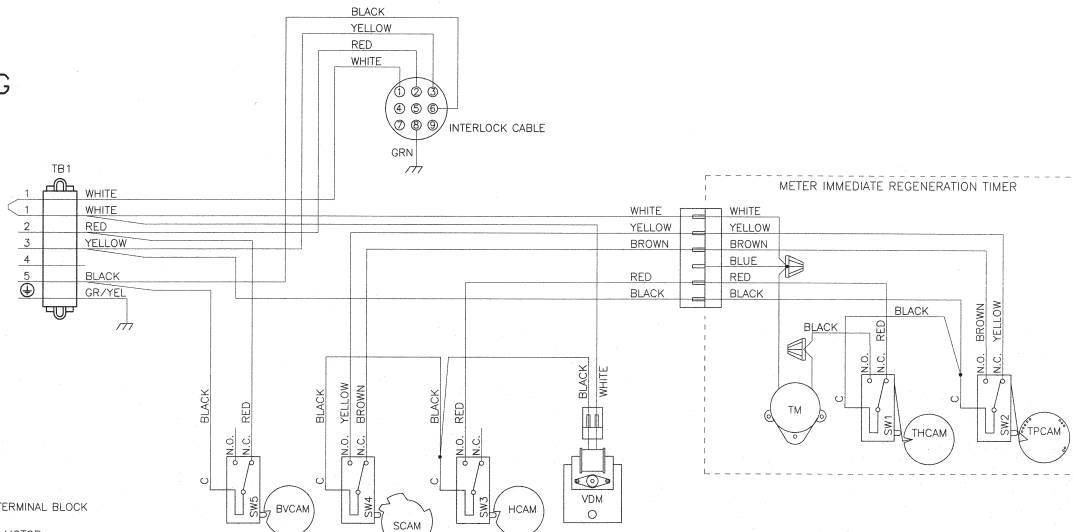


TB1 - 7 POSITION TERMINAL BLOCK
 TM - TIMER MOTOR
 VDM - VALVE DRIVE MOTOR
 SW1 - TIMER HOMING SWITCH
 SW2 - TIMER PROGRAM SWITCH
 SW3 - VALVE HOMING SWITCH
 SW4 - VALVE STEP SWITCH
 SW5 - BRINE CAM SWITCH
 THCAM - TIMER HOMING CAM
 TPCAM - TIMER PROGRAM CAM
 HCAM - VALVE HOMING CAM
 SCAM - VALVE STEP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

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

18690-01 Rev E

LAG



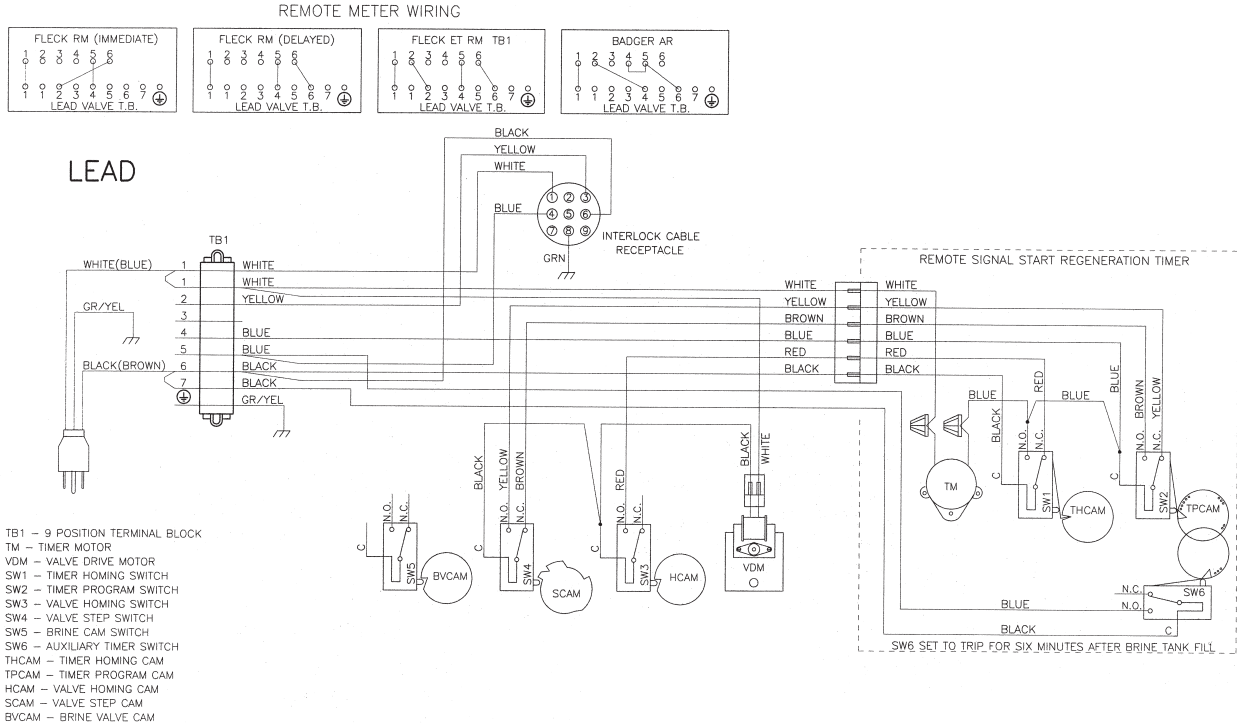
TB1 - 7 POSITION TERMINAL BLOCK
 TM - TIMER MOTOR
 VDM - VALVE DRIVE MOTOR
 SW1 - TIMER HOMING SWITCH
 SW2 - TIMER PROGRAM SWITCH
 SW3 - VALVE HOMING SWITCH
 SW4 - VALVE STEP SWITCH
 SW5 - BRINE CAM SWITCH
 THCAM - TIMER HOMING CAM
 TPCAM - TIMER PROGRAM CAM
 HCAM - VALVE HOMING CAM
 SCAM - VALVE STEP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

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

18690-02 Rev E

VALVE WIRING *continued*

System #6 Duplex Valve Wiring



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

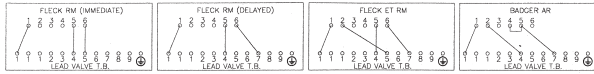
NOTE:
 1. TWO TANK INTERLOCKED, SINGLE REMOTE METER, SERIES REGENERATION.
 2. BOTH TANKS NORMALLY IN SERVICE.
 3. ONLY ONE TANK IN REGENERATION, THE OTHER REMAINS IN SERVICE.
 4. LEAD VALVE REGENERATES FIRST, FOLLOWED IMMEDIATELY BY LAG VALVE.
 5. VALVE SHOWN IN SERVICE POSITION.

18671-02 Rev E

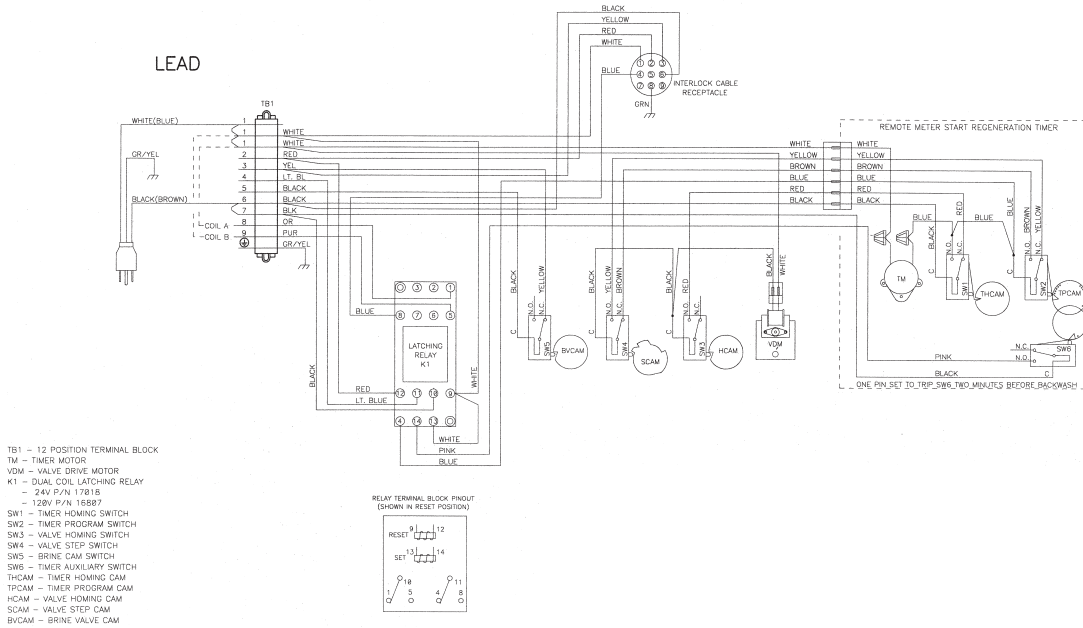
VALVE WIRING *continued*

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

REMOTE METER WIRING



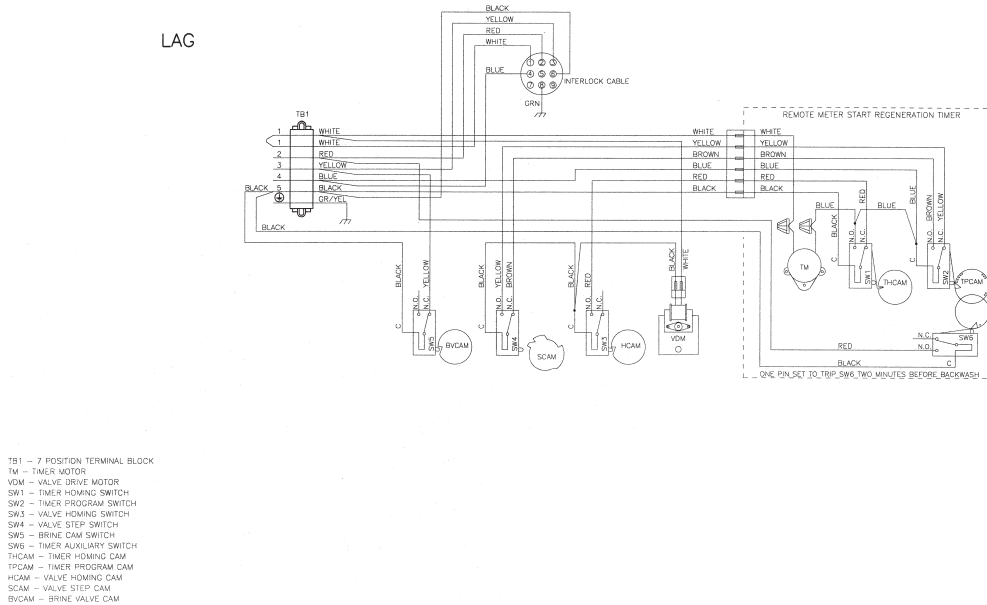
LEAD



- NOTE:
- TWO TANK SINGLE REMOTE METER ALTERNATING REGENERATION. ONLY ONE TANK IN SERVICE THE OTHER IN REGENERATION OR STANDBY.
 - 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.
 - VALVE SHOWN IN SERVICE POSITION.

40503-01 Rev C

LAG

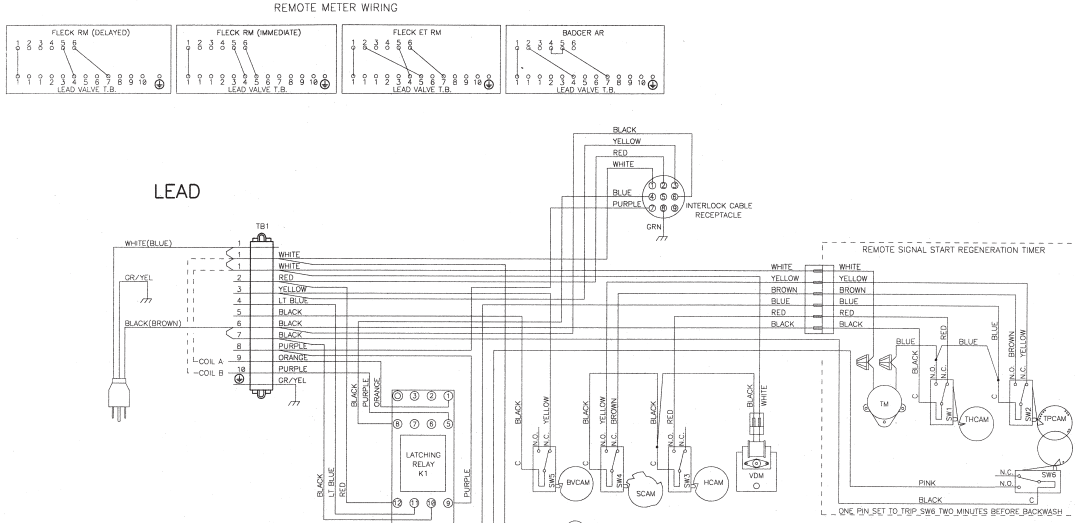


- NOTE:
- TWO TANK SINGLE REMOTE METER ALTERNATING REGENERATION. ONLY ONE TANK IN SERVICE THE OTHER IN REGENERATION OR STANDBY.
 - SYSTEM WIRED FOR 3-WAY SOLENOID OUTPUT.
 - COIL A CLOSSES THE DIAPHRAGM VALVES OF LAG UNIT. COIL B CLOSSES THE DIAPHRAGM VALVES OF LEAD UNIT.
 - VALVE SHOWN IN SERVICE POSITION.

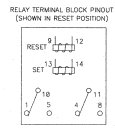
40503-02 Rev C

VALVE WIRING *continued*

System #7 Duplex 230V 3-Way Valve Wiring



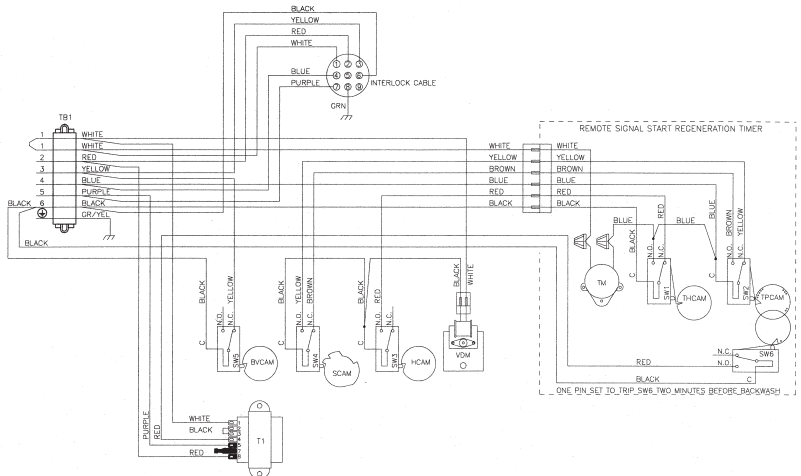
- TB1 - 13 POSITION TERMINAL BLOCK
 TM - TIMER MOTOR
 VDM - VALVE DRIVE MOTOR
 T1 - 230V/120V DUAL COIL LATCHING RELAY P/N 16807
 T1 - 230V/120V TRANSFORMER P/N 48112
 SW1 - TIMER HOMING SWITCH
 SW2 - TIMER PROGRAM SWITCH
 SW3 - VALVE HOMING SWITCH
 SW4 - VALVE STEP SWITCH
 SW5 - BRINE CAM SWITCH
 SW6 - TIMER AUXILIARY SWITCH
 THCAM - TIMER HOMING CAM
 TPCAM - TIMER PROGRAM CAM
 HCCAM - VALVE HOMING CAM
 SCAM - VALVE STEP CAM
 BVCAM - BRINE VALVE CAM



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

40504-01_REVC

LAG



- TB1 - 8 POSITION TERMINAL BLOCK
 TM - TIMER MOTOR
 T1 - 230V/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
 THCAM - TIMER HOMING CAM
 TPCAM - TIMER PROGRAM CAM
 HCCAM - VALVE HOMING CAM
 SCAM - VALVE STEP CAM
 BVCAM - BRINE VALVE CAM

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

40504-02_REVC

SERVICE ASSEMBLIES

60036-02	Brine Valve, 1800, Design 3
11772.....	Spring, 3150 Brine Valve
11774.....	Ring, Retaining
18713.....	Brine Valve Body, 1800
16497-01.....	Stem Assy, 1800 Brine Valve New Style
16498-01.....	Stem Guide Assy, Brine

60277-xx	1800 Injector Assembly
12473.....	Screw, Hex Wsh, 10-24 x 5/8
15127.....	Injector Throat Assy
15128-xx.....	Injector Nozzle - Specify Size
15246.....	O-ring, -116
16340.....	Body, Injector, 1800, D/F
16341-01.....	Cap, Injector, 1800

60106-00	Piston Assy, 3900/3150 Std
14818.....	Ring, Piston Rod, Snap
14922.....	O-ring, -035, Piston
16130.....	Piston, High Backwash
15125.....	Rod, Piston, 3150
16398-01.....	End Plug Assy, 3150, White

60113-01	Piston Assy, 3150, NHWBP, D-Flow Conversion/Replacement
16398-01.....	End Plug Assy, 3150, White
19611-01.....	Piston Assy, 3150, NHWBP, O-ring
19708.....	Rod, Piston, 3150 NHWBP
14818.....	Ring, Piston Rod, Snap

60131	Seal & Spacer Kit 2930/3130/3150
10368.....	Spacer, Narrow, 3150/3900
10369.....	Spacer, 2", 2900/3150
11720.....	Seal, Piston, 2900/3150

60057-01	Drive Assy, 3150, 120V, B/Fill 3900 Upper Sys #5 or Sys # 7
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60057-11	Drive Assy, 3150, 120V, 3900 Upper Sys #4 or Sys #6
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60150-3150	SVO Assy, 3150
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60393	Meter Assy, 2900, 2" Std
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60394	Meter Assy, 2900, 2" Ext
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Side Mount Adapter

61414.....	Adapter, Assy, Sdmnt, 3130/3150 Rotating
61414NP.....	Adapter Assy, Sdmnt, 3130/3150 Nickel Plated Rotating
61418.....	Adapter Assy, Sdmnt, 3150

60131-10	3900 Upper Seal Kit:
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10368.....	Spacer
10369.....	Spacer
11720-02.....	Seal, 1-1/2", Silicone

60038	Safety Brine Valve, 2350:
60028-30.....	Float Assembly, White
60009-00.....	#900 Air Check, Less Fittings
18602.....	Kit, Fitting, 1700 Brine, 900 Air Check
18603.....	Kit, Fitting, 1700 Brine, 2350 Safety

Drain Line Flow Controls (DLFC):

60711-00.....	2" NPT, Less BTTNS, w/2 Holes
60711-000.....	2" NPT, Less BTTNS, w/3 Holes
60711-01.....	2" NPT, Less BTTNS, w/1 Hole
60711-20.....	2" NPT, 20 gpm
60711-25.....	2" NPT, 25 gpm, Brass
60711-30.....	2" NPT, 30 gpm
60711-35.....	2" NPT, 35 gpm
60711-40.....	2" NPT, 40 gpm
60711-45.....	2" NPT, 45 gpm
60711-50.....	2" NPT, 50 gpm
60711-55.....	2" NPT, 55 gpm
60711-60.....	2" NPT, 60 gpm
60711-65.....	2" NPT, 65 gpm
60711-70.....	2" NPT, 70 gpm
60711-75.....	2" NPT, 75 gpm
60711-80.....	2" NPT, 80 gpm
60711-85.....	2" NPT, 85 gpm
60711-90.....	2" NPT, 90 gpm
60711-95.....	2" NPT, 95 gpm
60711-100.....	2" NPT, 100 gpm
60812-30.....	2" BSP/ Metric, 30 gpm
60812-35.....	2" BSP/ Metric, 35 gpm
60812-45.....	2" BSP/ Metric, 45 gpm
60812-50.....	2" BSP/ Metric, 50 gpm
60812-55.....	2" BSP/ Metric, 55 gpm
60812-70.....	2" BSP/ Metric, 70 gpm
60812-75.....	2" BSP/ Metric, 75 gpm
60812-80.....	2" BSP/ Metric, 80 gpm
60812-90.....	2" BSP/ Metric, 90 gpm
60812-95.....	2" BSP/ Metric, 95 gpm
60812-100.....	2" BSP/ Metric, 100 gpm

BLFC Assy

60710-1.2.....	BLFC, 1"F x 1"M, NPT, 1.2 GPM
60710-10.....	BLFC, 1"F x 1"M, NPT, 10 GPM
60710-12.....	BLFC, 1"F x 1"M, NPT, 12 GPM
60710-15.....	BLFC, 1"F x 1"M, NPT, 15 GPM
60710-2.0.....	BLFC, 1"F x 1"M, NPT, 2.0 GPM
60710-2.4.....	BLFC, 1"F x 1"M, NPT, 2.4 GPM
60710-20.....	BLFC, 1"F x 1"M, NPT, 20 GPM
60710-25.....	BLFC, 1"F x 1"M, NPT, 25 GPM
60710-3.0.....	BLFC, 1"F x 1"M, NPT, 3.0 GPM
60710-3.5.....	BLFC, 1"F x 1"M, NPT, 3.5 GPM
60710-30.....	BLFC, 1"F x 1"M, NPT, 30 GPM
60710-4.0.....	BLFC, 1"F x 1"M, NPT, 4.0 GPM
60710-5.0.....	BLFC, 1"F x 1"M, NPT, 5.0 GPM
60710-7.0.....	BLFC, 1"F x 1"M, NPT, 7.0 GPM
60710-9.0.....	BLFC, 1"F x 1"M, NPT, 9.0 GPM