



Fleck 3150 Downflow

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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

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.

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

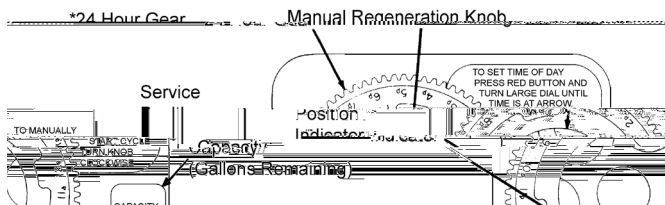
1. Turn the manual regeneration knob clockwise.
2. This slight movement of the manual regeneration knob engages the program wheel and starts the regeneration program.
3. The black center knob will make one revolution in the following approximately three hours and stop in the position shown in the drawing.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



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.

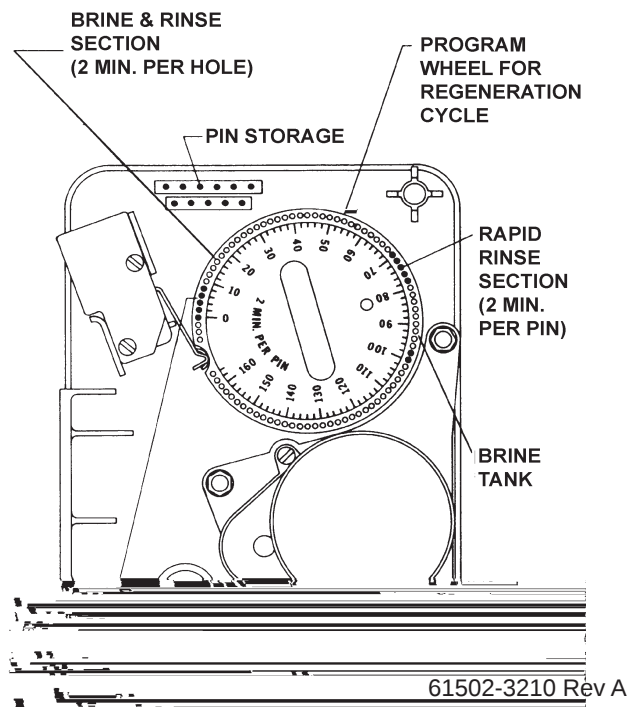


Figure 4

32

33

34

2

17

18

1

31

30

8

31

3

4

3

5

3

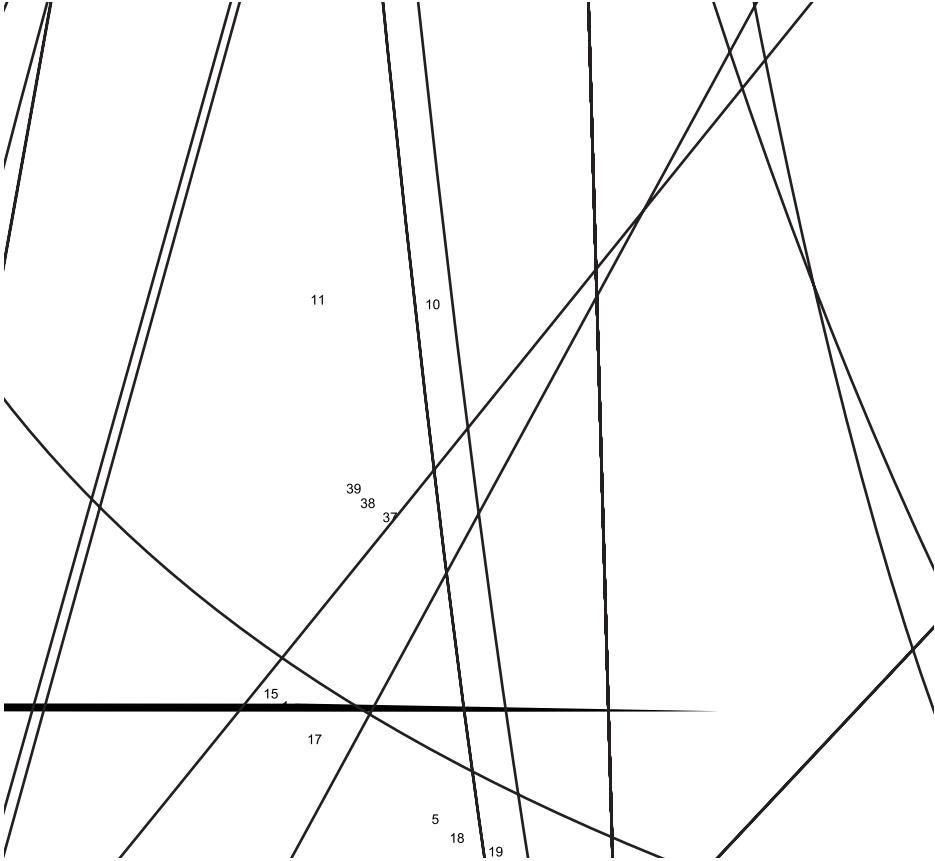
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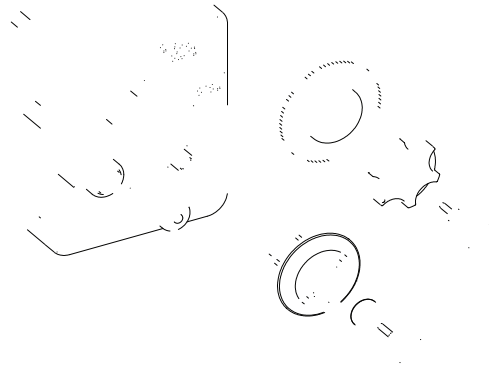
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3210 METER DELAYED TIMER
ASSEMBLY



3220 METER IMMEDIATE TIMER ASSEMBLY

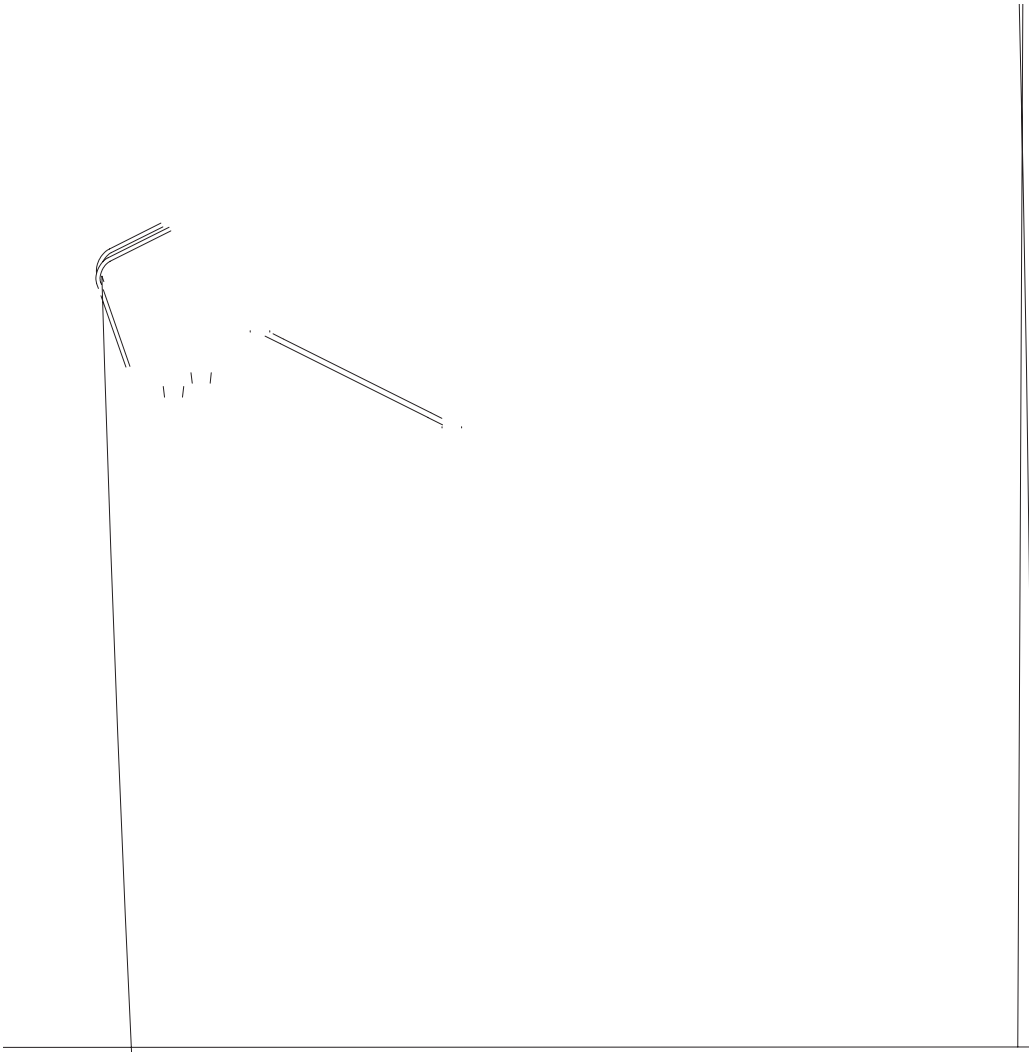


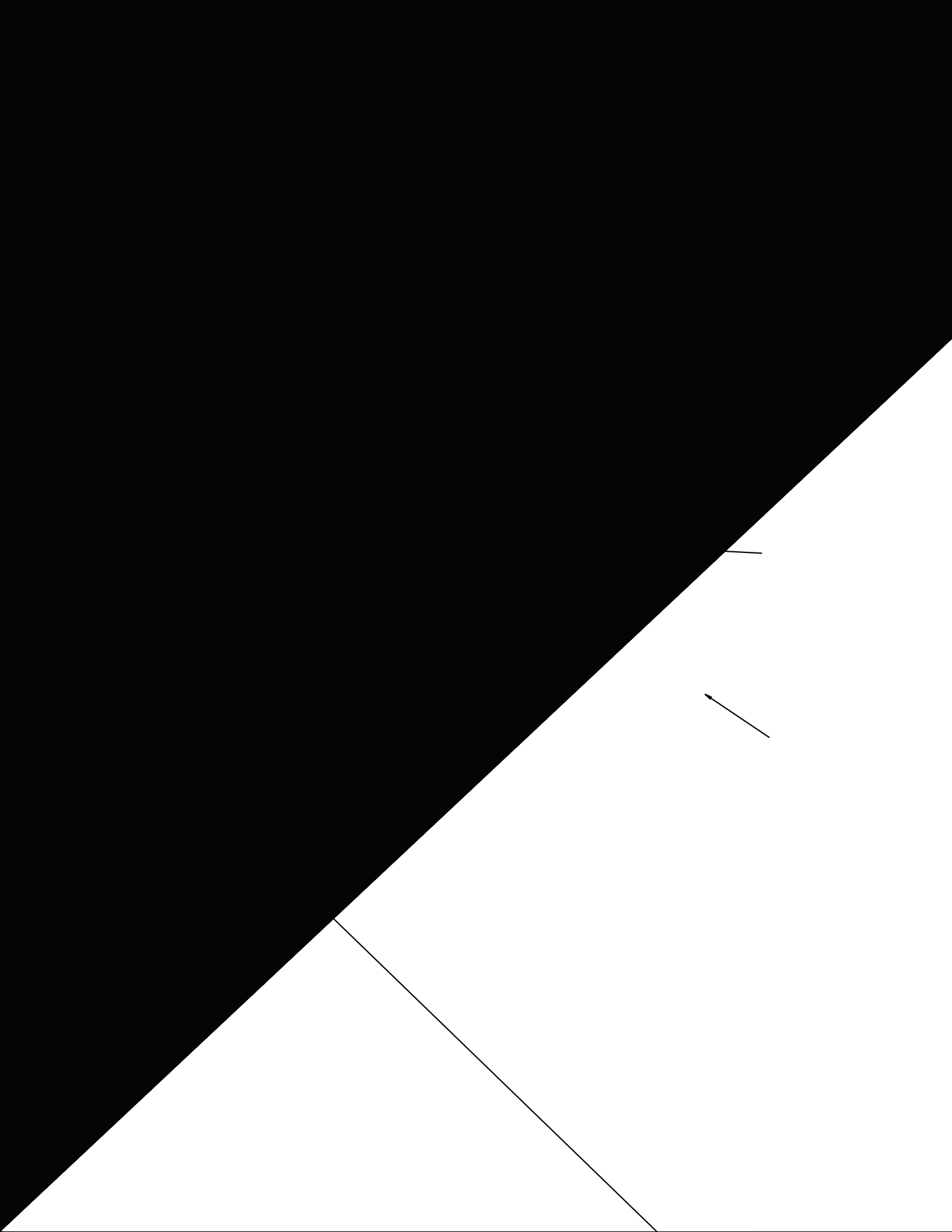
Item No.	QTY	Part No.	Description
1.....	1	13870.....	Housing, Timer
2.....	1	15431.....	Gear, Cycle Actuator, System #5
3.....	1	13886.....	Knob, 3200
4.....	4	13296.....	Screw, Hex Wsh, 6-20 x 1/2
5.....	2	11999.....	Label, Button
6.....	1	13807.....	Gear, Program Drive Wheel
7.....	1	13806.....	Retainer, Program Wheel
8.....	1	13748.....	Screw, Flt Hd St, 6-20 x 1/2
9.....	1	14265.....	Spring Clip
10.....	1	13018.....	Pinion, Idler
11.....	1	18563.....	Idler Shaft Spring
12.....	1	13017.....	Gear, Idler
13.....	1	13164.....	Drive Gear
14.....	1	13887.....	Plate, Motor Mounting
15.....	1	18743-1.....	Motor, 120V, 60 Hz, 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
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

Item No.	QTY	Part No.	Description
25.....	1	15320.....	Switch, Micro, Timer
26.....	2	11413.....	Screw, Pan Hd Mach, 4-40 x 1-1/8
27.....	1	14198.....	Label, Indicator
28.....	1	15465.....	Label, Caution
29.....	1	14007.....	Label, Time of Day
30.....	1	15148.....	Label, Instruction
31.....	1	40617.....	Harness, 3220
32.....	2	40422.....	Nut, Wire, Tan
33.....	1	15354-01.....	Wire, Ground, 4"
34.....	1	19210-05.....	Program Wheel Assembly, 9000/3230
35.....	17	41754.....	Pin, Spring, 1/16 x 5/8 Stainless Steel, Timer
36.....	1	15055.....	Gear, Main Drive
37.....	1	*	Complete 3220 Meter Immediate Timer Assembly
38.....		60405-50.....	Program Wheel, w/2" STD Label 0-2,100 gal
		60405-60.....	Program Wheel, w/2" EXT Label 0-10,000 gal
		60405-61.....	Program Wheel, w/2" EXT Range 375 m3
39.....		60320-02.....	Switch Kit, 3200/9000 Timer Auxiliary, Optional
40.....		61420-06.....	Program Wheel, Gear Assy, Softener Immediate 2 Min Per Pin
		61420-42.....	Program Wheel, Gear Assy, Filter Immediate 2 Min Per Pin

*Call your distributor for Part Number

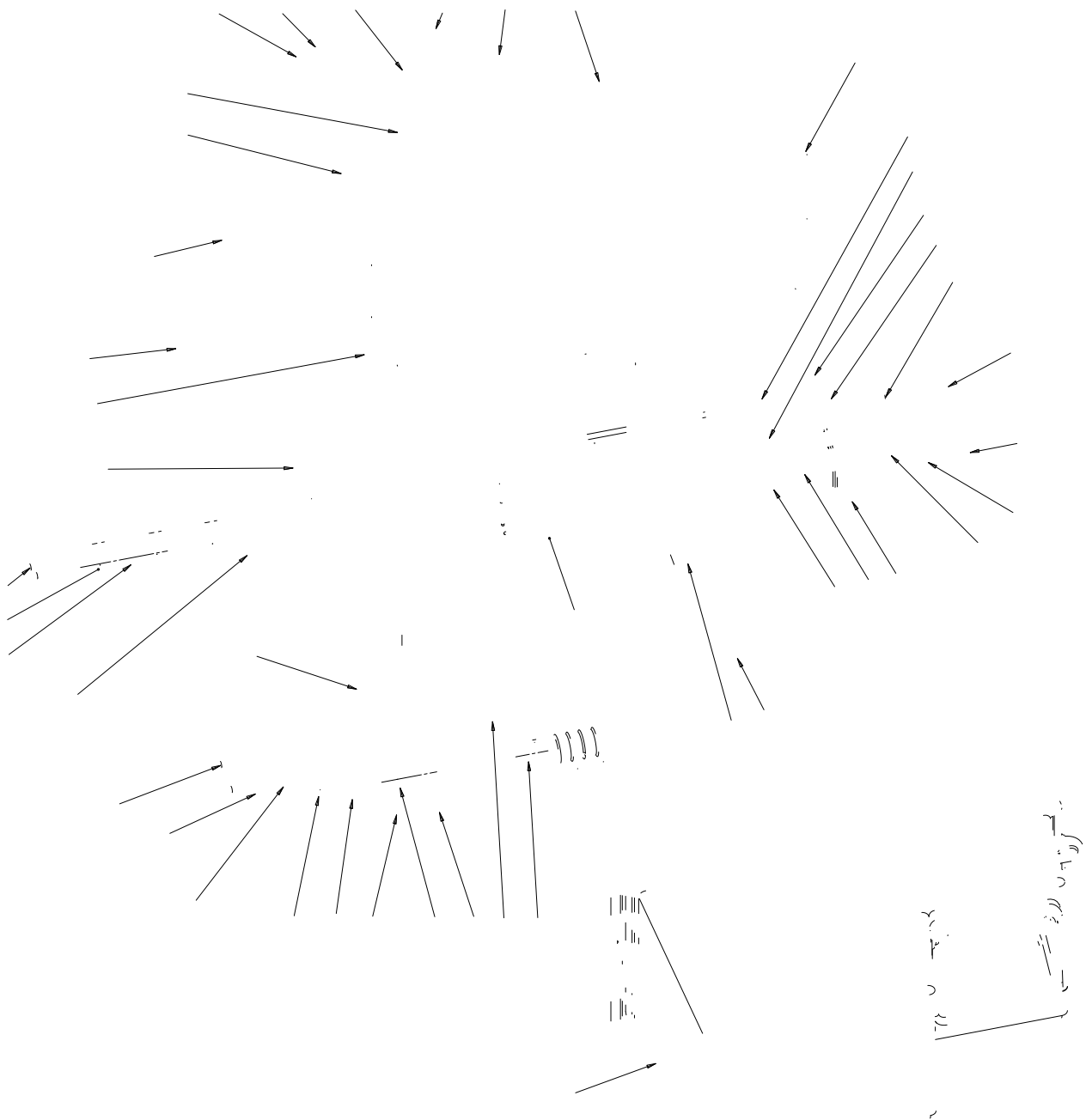
**3230 REMOTE START TIMER
ASSEMBLY**





CONTROL VALVE ASSEMBLY *continued*

Item No.	QTY	Part No.	Description	Item No.	QTY	Part No.	Description
1.....	1	15114	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, Upfow
.....	.....	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, Nickle 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.....	Disperser, 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 *continued*

Item No.	QTY	Part No.	Description
1.....	1	19304-04.....	Backplate, 3150/3900, Upper, NEMA 3R
2.....	1	15120-01.....	Bracket, Motor Mtg, 3150/3900 Environmental
3.....	2	16346.....	Nut, Hex, Jam, 5/16 - 18
4.....	1	40392.....	Motor, Drive, 115V, 50/60 Hz, Sp
		40390.....	Motor, Drive, 220V, 50 Hz, Sp, Fam 3
		42581.....	Motor, Drive, 24VAC/DC, 50-60 Hz, Fam 3
5.....	1	17797.....	Bracket, Switch Mounting, 3150/3900
6.....	4	10302.....	Insulator, Limit Switch
7.....	3	10218.....	Switch, Micro
8.....	1	17845-03.....	Pin, Hinge, 3150/3900, Env
9.....	4	11235.....	Nut, Hex, 1/4 - 20, Mach Screw, Zinc
10.....	2	13365.....	Washer, Lock, #4, External
11.....	2	40080.....	Screw, Rd Hd, 4-40 x 1 1/2"
12.....	1	16053.....	Bracket, Brine Side
13.....	2	40133.....	Screw, Pan Hd, 4-40 x 1/4
14.....	1	15226-6.....	Terminal Block
15.....	2	16052.....	Bushing, 3150/3900
16.....	1	16059.....	Washer, SS, .88, 3150/3900
17.....	1	16051.....	Ring, Retaining, Bowed
18.....	2	10300.....	Screw, Slot Hex Wsh, 18-8 x 3/8
19.....	4	10231.....	Screw, Slot Hex, 1/4 - 20 x 1/2
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, Upfow, 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, Flt 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

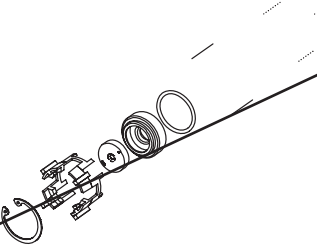
Item No.	QTY	Part No.	Description
42.....	3	19591.....	Plug, .8750 Hole, Recessed, Black
43.....	2	15250.....	Label, Terminal Strip
44.....	10	19800.....	Plug, .140 Dia, White
45.....	1	15806.....	Plug, Hole, Heyco #2693
46.....	1	17421.....	Plug, 1.20 Hole
47.....		60057-01.....	Drive Assy, 3150, 120V, SYS 5 & 7, Signal After Brine Tank Fill
		60057-03.....	Drive Assy, 3150, 24V, 3900 Upper, SYS #5 or SYS #7
		60057-11.....	Drive Assy, 3150, 120V, 3900 Upper, SYS #4 or SYS #6
		60057-21.....	Drive Assy, 3150, 120V, Upfow, 3900 Upper, SYS 5 or SYS 7, Brine Draw First
48.....		*	3150 Powerhead Assembly

Not Shown

1	17470.....	Cable Guide Assy, 2850/3150
1	19856.....	Ring, Retaining (Used on Cover)
1		Timer (See Timer Section)
1	40396.....	Harness, Drive, Environmental
1	16427-04.....	Wire, Lead, 12", White
1	40396.....	Harness, Drive, Environmental
1	14924.....	Strain Relief Heyco #1247
1	15513.....	Meter Cable, 17.5", 2"
1	15216.....	MeterCable, 15.25", 1.5"

*Call your distributor for Part Number

**1800 SERIES BRINE SYSTEM AND
DRAIN LINE FLOW CONTROL
ASSEMBLY**



1800 SERIES BRINE SYSTEM AND DRAIN LINE FLOW CONTROL

ASSEMBLY *continued*

Item No.	QTY	Part No.	Description
1.....	1	16340.....	Body, Injector, 1800 D/F
		 16340-20.....	Body, Injector, 1800, Downfow, Metric
		 16340-01.....	Body, Injector, 1800 Upfow
		 16340-21.....	Body, Injector, 1800, Upfow, Metric
2.....	1	15128-xx.....	Injector Nozzle
		 15128-04.....	#4 Green
		 15128-05.....	#5 Red
		 15128-06.....	#6 White
		 15128-07.....	#7 Blue
		 15128-08.....	#8 Yellow
		 15128-09.....	#9 Violet
		 15128-10.....	#10 Black
3.....	1	15127-xx.....	Injector Throat
		 15127-04.....	#4 Green
		 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, Upfow
17.....	1	60009-00.....	Air Check, #900, Commercial Less Fittings
		 60009-01.....	Air Check, #900, Commercial, HW Less Fittings

Item No.	QTY	Part No.	Description
18.....		60277-04.....	Injector Assy, 1800, #4, Downfow
		 60272-04.....	Injector Assy, 1800, #4, Upfow
		 60277-05.....	Injector Assy, 1800 #5, Downfow
		 60272-05.....	Injector Assy, 1800, #5, Upfow
		 60277-06.....	Injector Assy, 1800, #6, Downfow
		 60277-07.....	Injector Assy, 1800, #7, Downfow
		 60272-07.....	Injector Assy, 1800, #7, Upfow
		 60277-08.....	Injector Assy, 1800, #8, Downfow
		 60277-09.....	Injector Assy, 1800 #9, Downfow
		 60277-10.....	Injector Assy, 1800 #10, Downfow
19.....		60036-02.....	Brine Valve, 1800, Design 3
		 60276-01.....	Brine Valve, 1800, Retroft Kit, Downfow 1800 Injector and Brine Valve, Update to Design 3
20.....		60734.....	Regulator, 3150/3900, Pressure, Upfow

1800 SERIES BRINE SYSTEM AND DRAIN LINE FLOW CONTROL ASSEMBLY *continued*

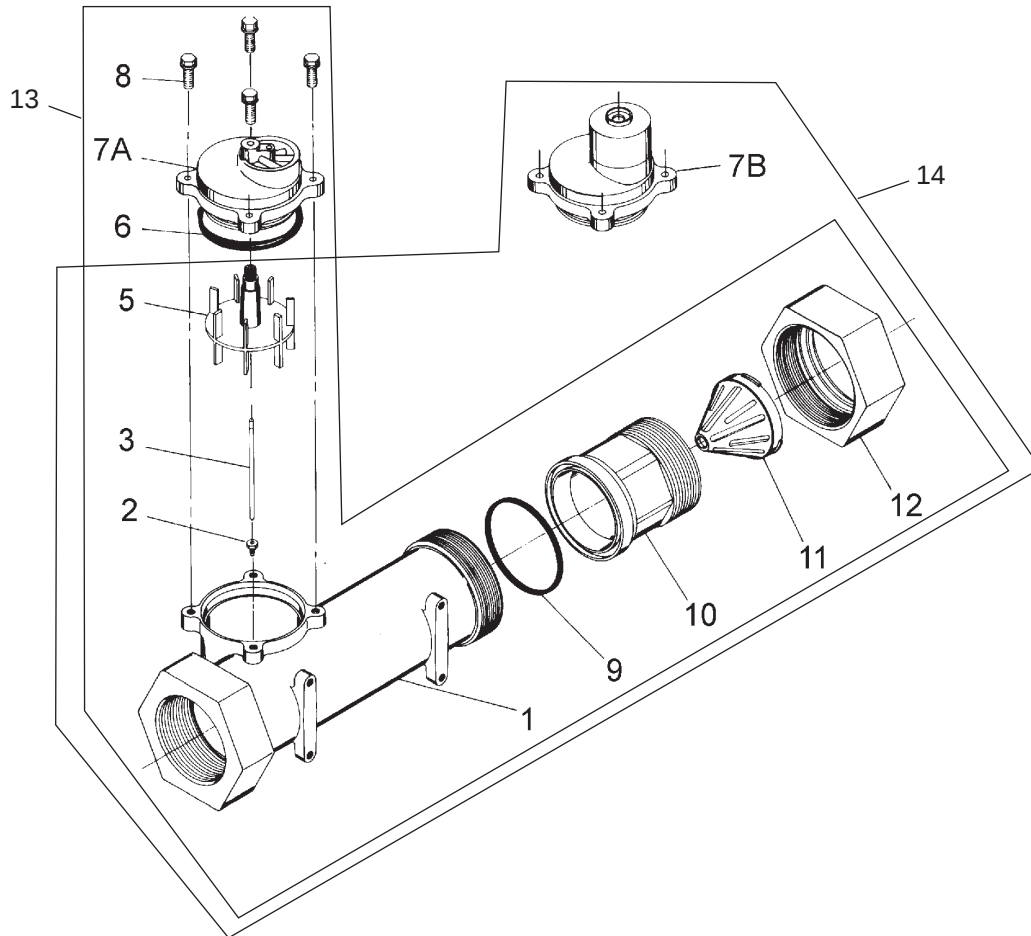
Item No.	QTY	Part No.	Description
21.....		60711-000.....	DLFC, 2" NPT, Less BTTNS, w/4 HLS
		 60711-00.....	DLFC, 2" NPT, Less BTTNS, W/2 HLS
		 60711-01.....	DLFC, 2" NPT, Less BTTNS, W/1 HLS
		 60711-20.....	DLFC, 2" NPT, 20 gpm
		 60711-25.....	DLFC, 2" NPT, 25 gpm
		 60711-30.....	DLFC, 2" NPT, 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



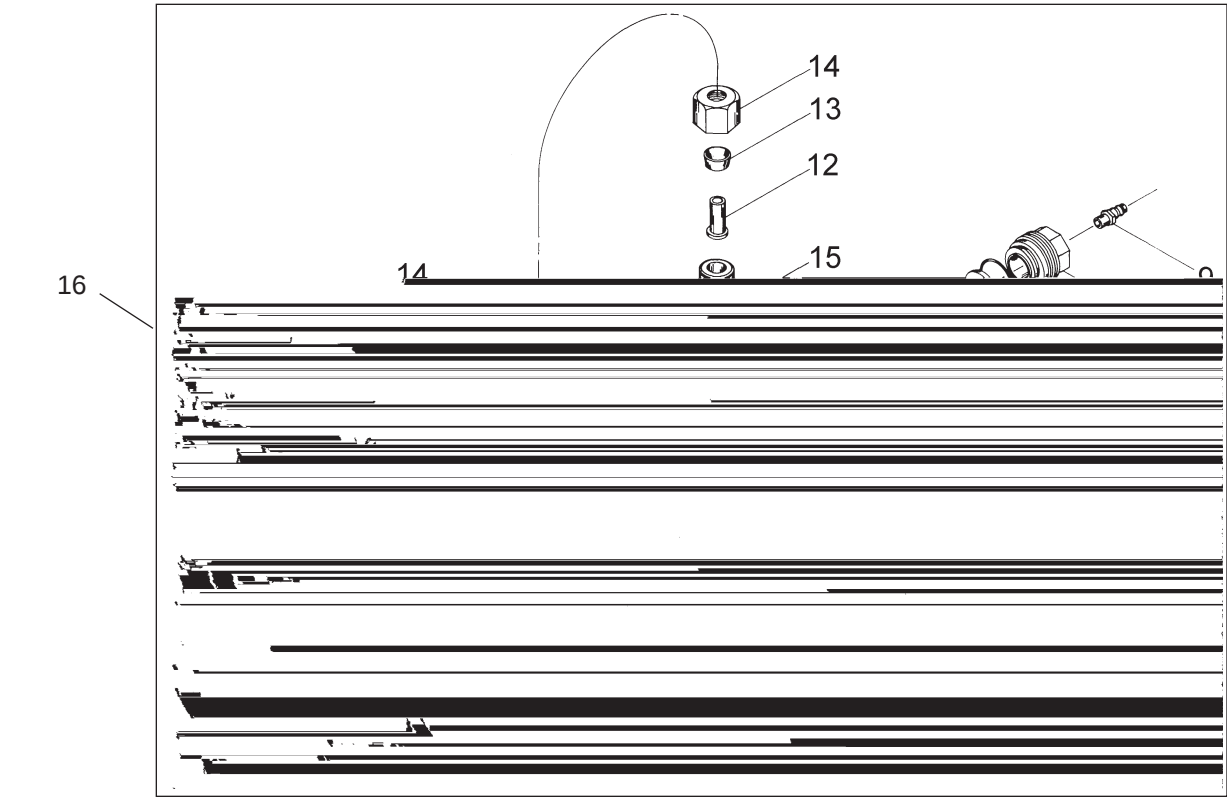
60393 Rev E

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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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.

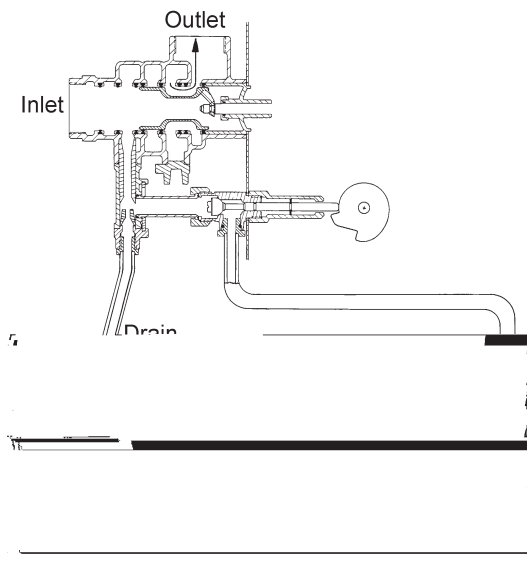
Correction: Check meter with meter checker.

TROUBLESHOOTING

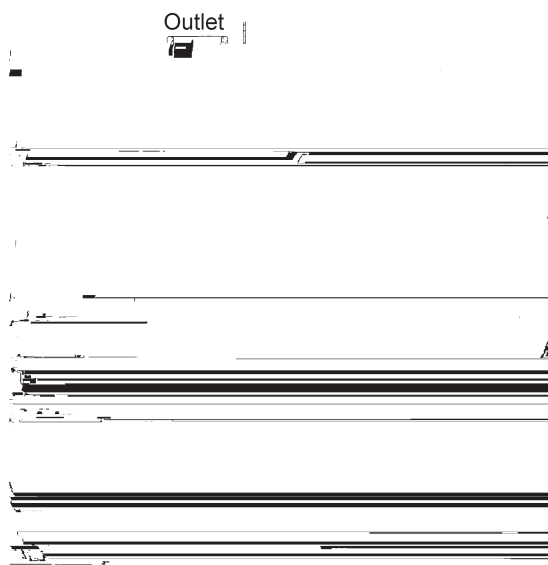
Problem	Cause	Correction
Water conditioner fails to regenerate.	Electrical service to unit has been interrupted	Assure permanent electrical service (check fuse, plug, pull chain, or switch)
	Timer is defective.	Replace timer.
	Power failure.	Reset time of day.
Hard water.	By-pass valve is open.	Close 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

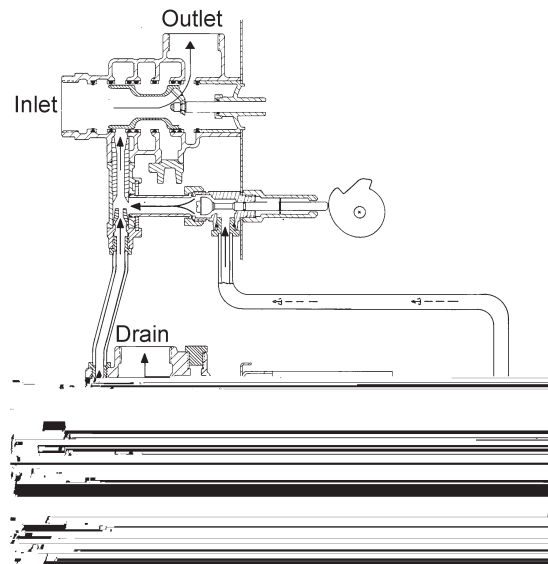
1 Service Position



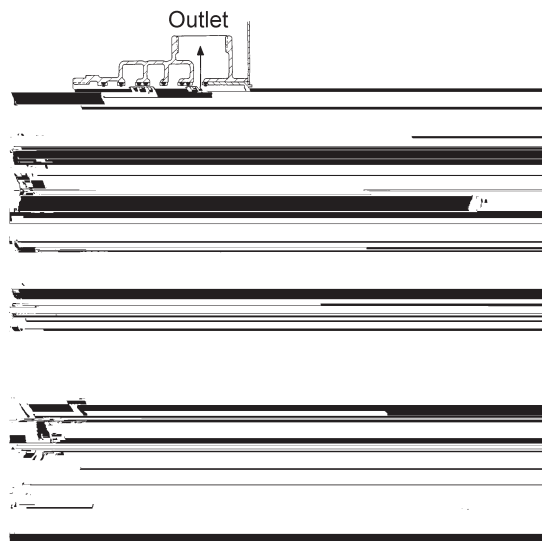
2 Backwash Position



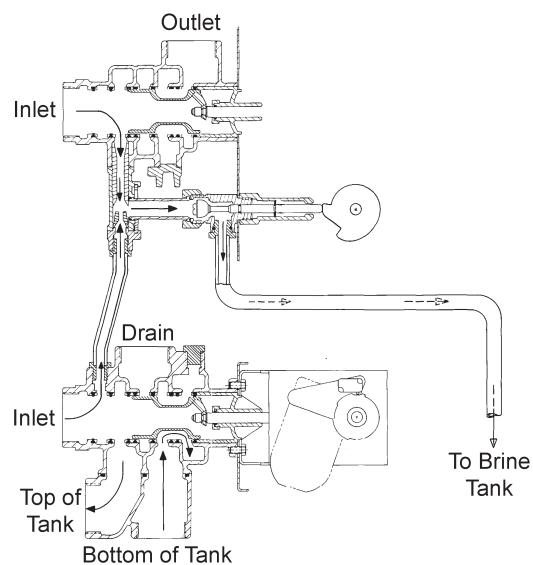
3 Brine and Slow Rinse Position



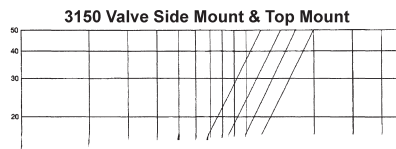
4 Rapid Rinse



5 Brine Tank Reyll Position



FLOW DATA & INJECTOR DRAW RATES

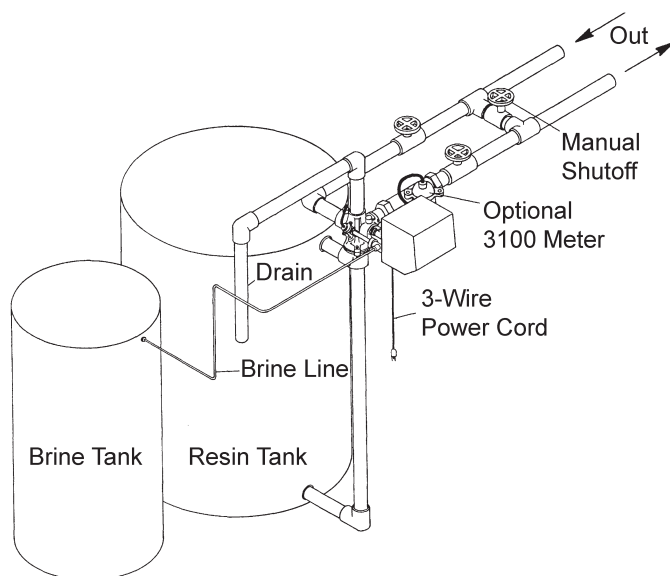


TR20395



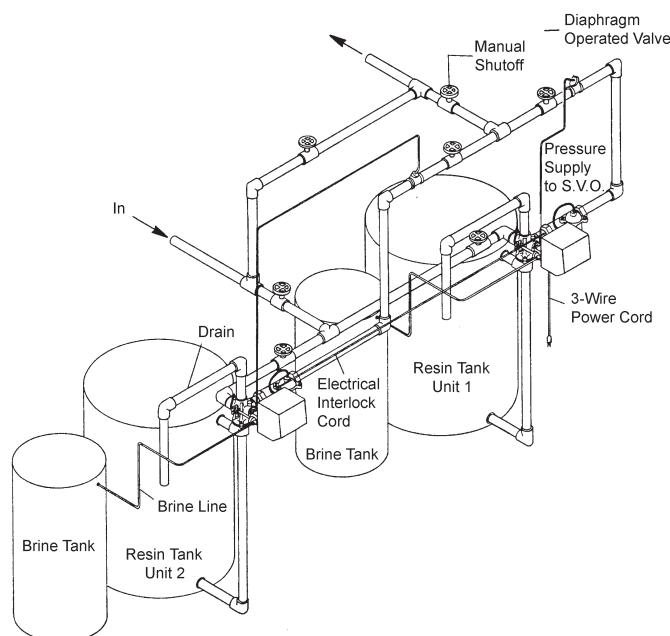
SYSTEM #4

Typical Single Tank Installation with Optional Meter



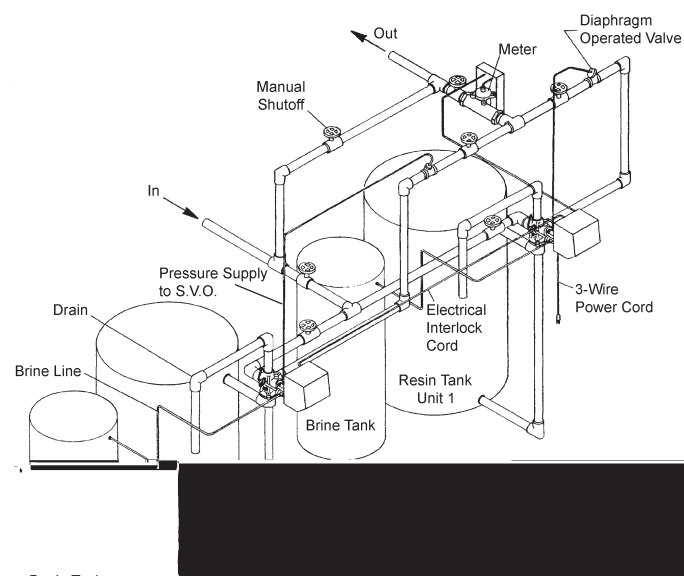
SYSTEM #5

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



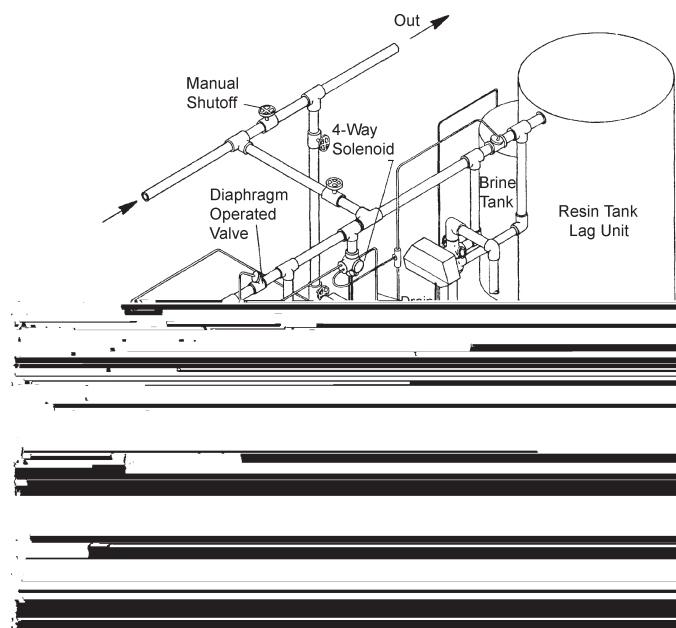
SYSTEM #6

Twin Series Regeneration Installation with a Remote Meter



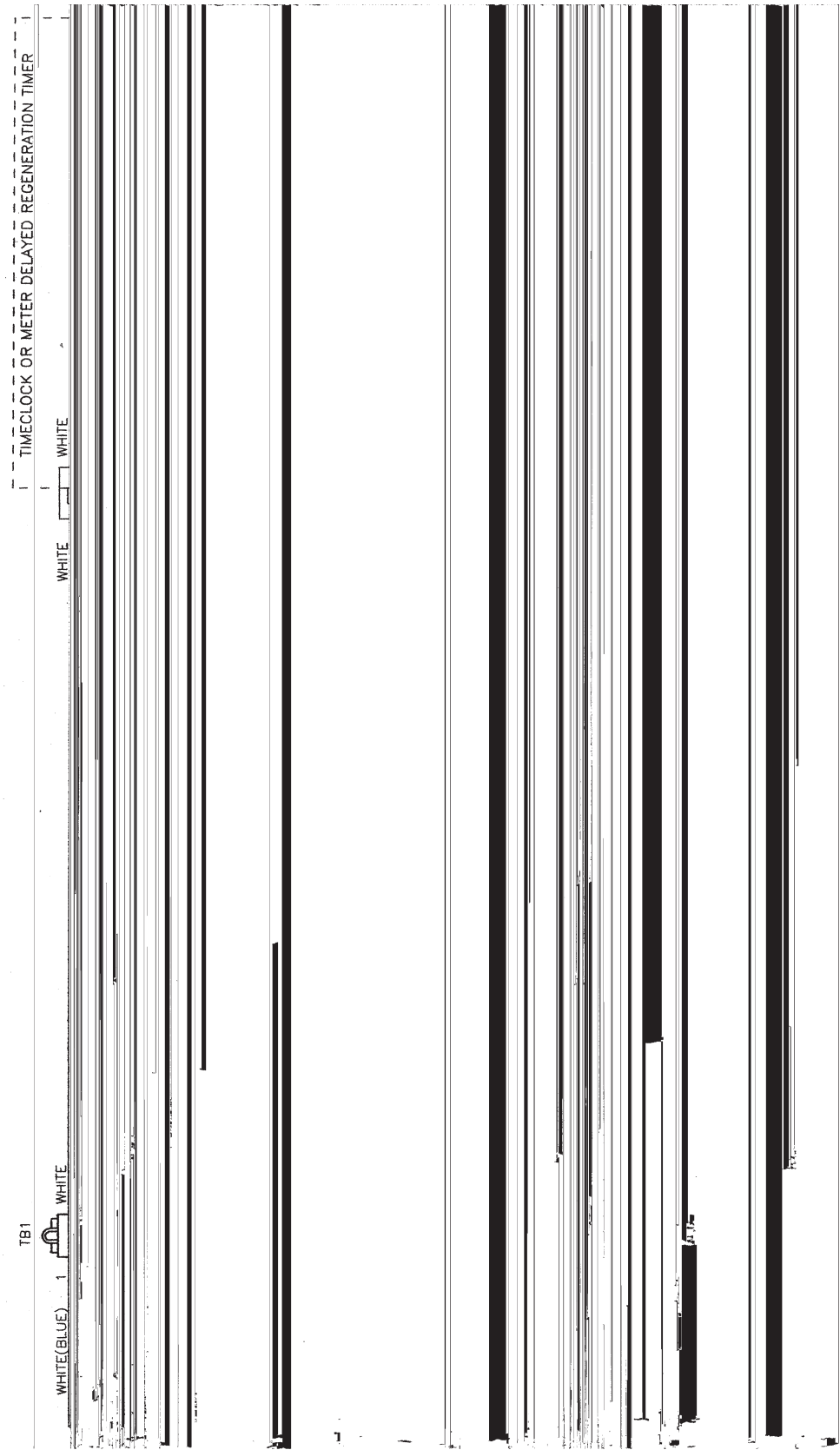
SYSTEM #7

Twin Alternator Installation with a Remote Meter



VALVE WIRING

System #4 Immediate/Delayed Regeneration
Valve Wiring

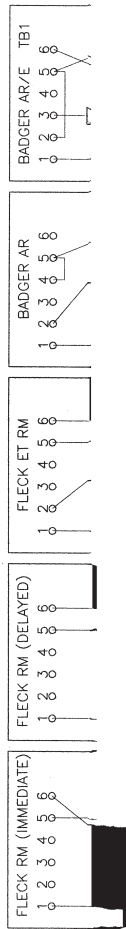


18669 Rev E

VALVE WIRING *continued*

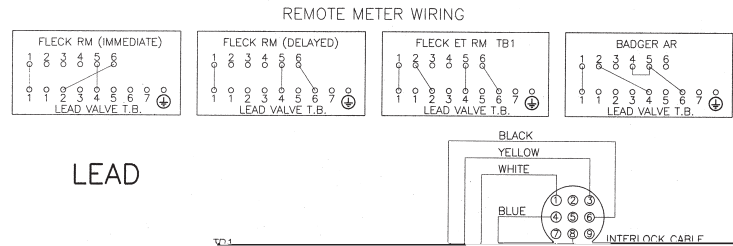
System #4 Remote Signal Start Valve Wiring

REMOTE METER WIRING



VALVE WIRING *continued*

System #6 Duplex Valve Wiring

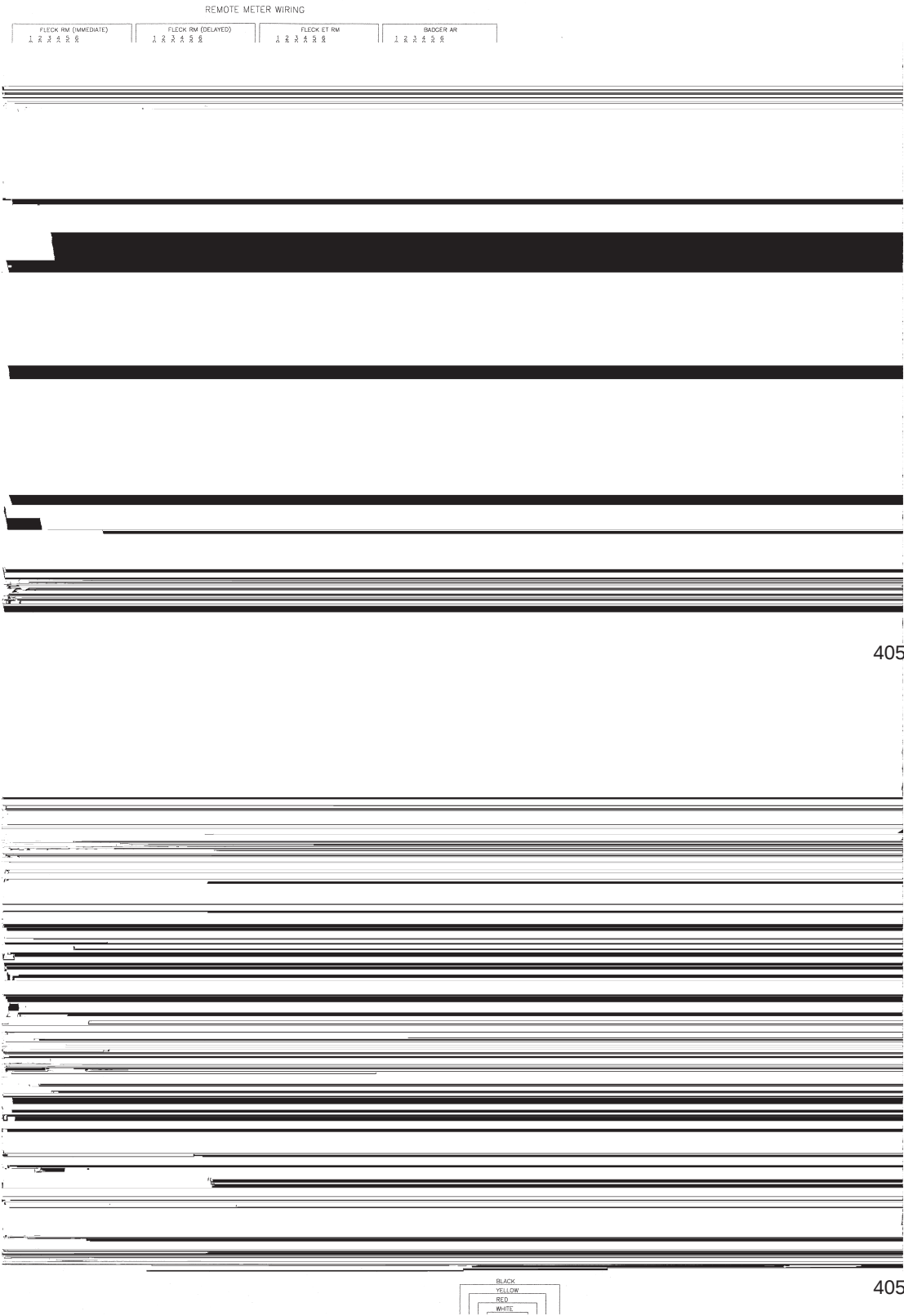


10071-01 Rev E

10071-02 Rev E

VALVE WIRING *continued*

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



40503-01 Rev C

40503-02 Rev C

VALVE WIRING *continued*

System #7 Duplex 230V 3-Way Valve Wiring



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, NHWP, D-Flow Conversion/Replacement
16398-01.....	End Plug Assy, 3150, White
19611-01.....	Piston Assy, 3150, NHWP, O-ring
19708.....	Rod, Piston, 3150 NHWP
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:
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