Fleck 3900

Service Manual

TABLE OF CONTENTS

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.

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 fow.

5.

A. Backwash: _____ Minutes

B. Brine and Slow Rinse: _____ Minutes

C. Rapid Rinse: _____ Minutes

D. Brine Tank Refll: _____ Minutes

E. Pause Time: _____ Minutes

F. Second Backwash: _____ Minutes

6. _____ **gpm**

7. Brine Line Flow Controller: _____ **gpm**

8. Injector Size#: _____

9. Piston Type:

A. Hard Water Bypass

B. No Hard Water Bypass

INSTALLATION

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

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.

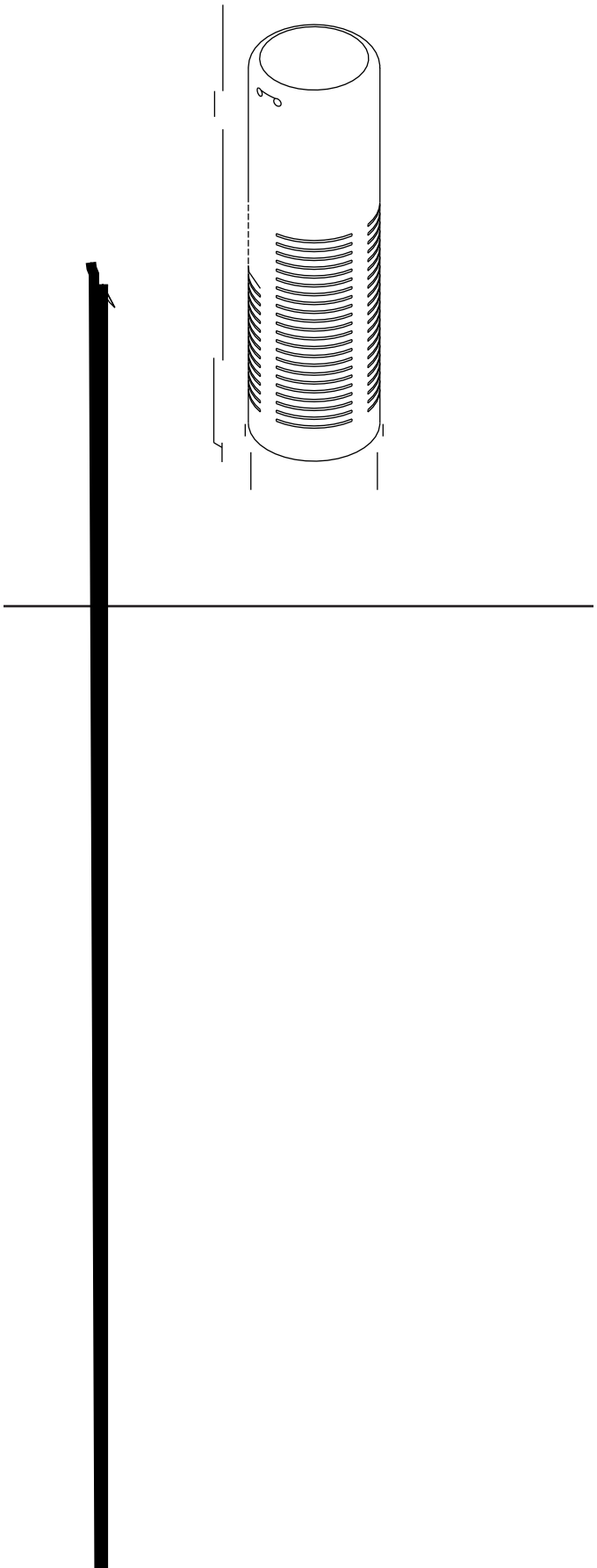
Condition of existing plumbing should be free from lime and iron buildup. Piping that is built up heavily with lime and/or iron should be replaced. If piping is clogged with iron, a separate iron filter unit should be installed ahead of the water softener.

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

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

CAUTION

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.



Rotate the skipper wheel until the number “1” is at the red

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.

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.

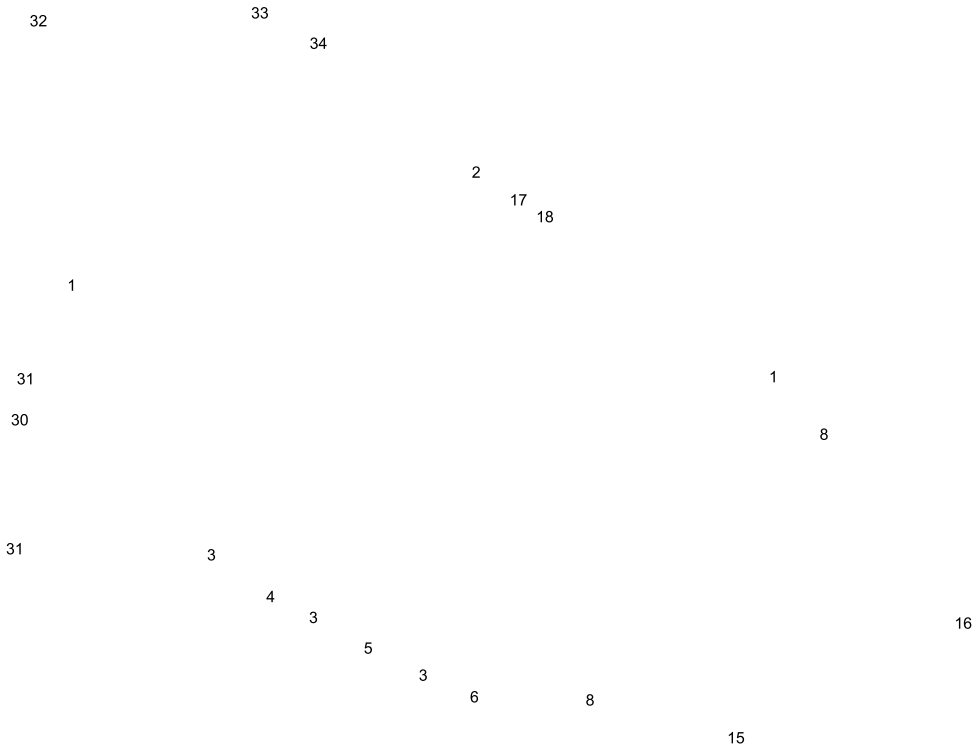
The program wheel as shown in the drawing is in the service position. As you look at the numbered side of the program wheel, the group of pins starting at zero determines the length of time your unit will backwash.

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.

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.

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.

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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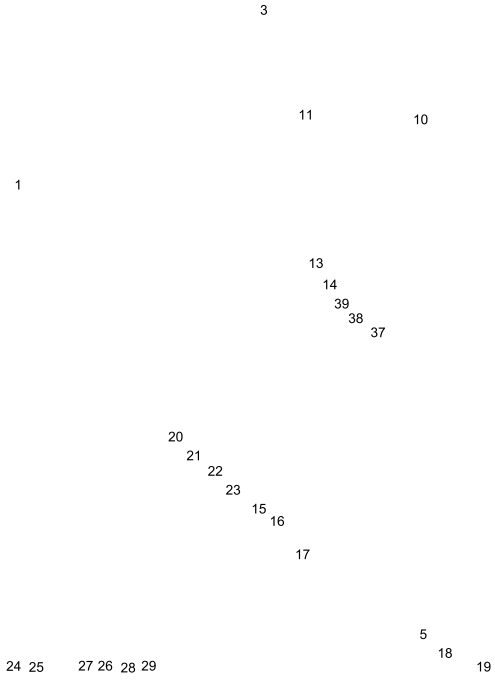
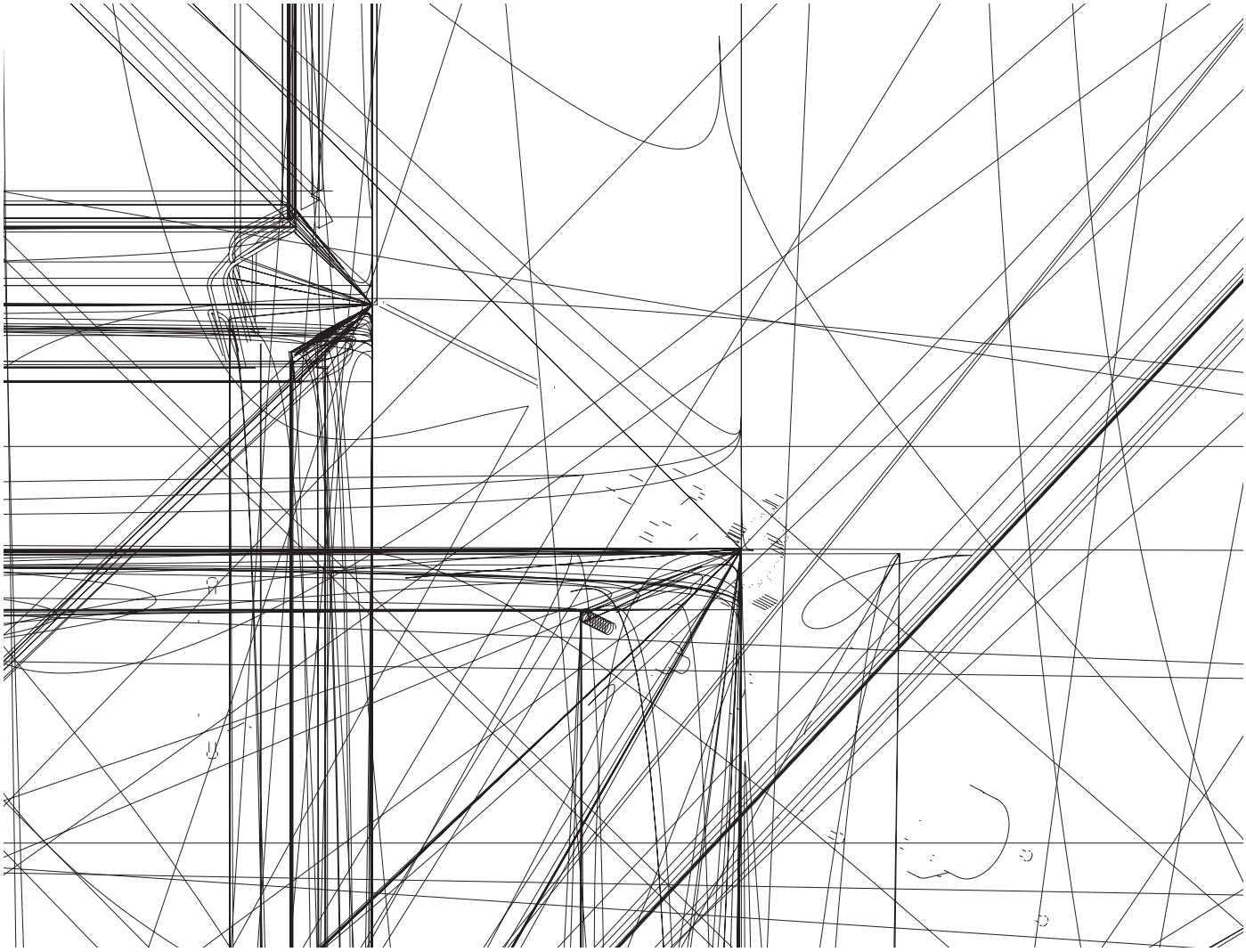
3210 METER DELAYED TIMER ASSEMBLY

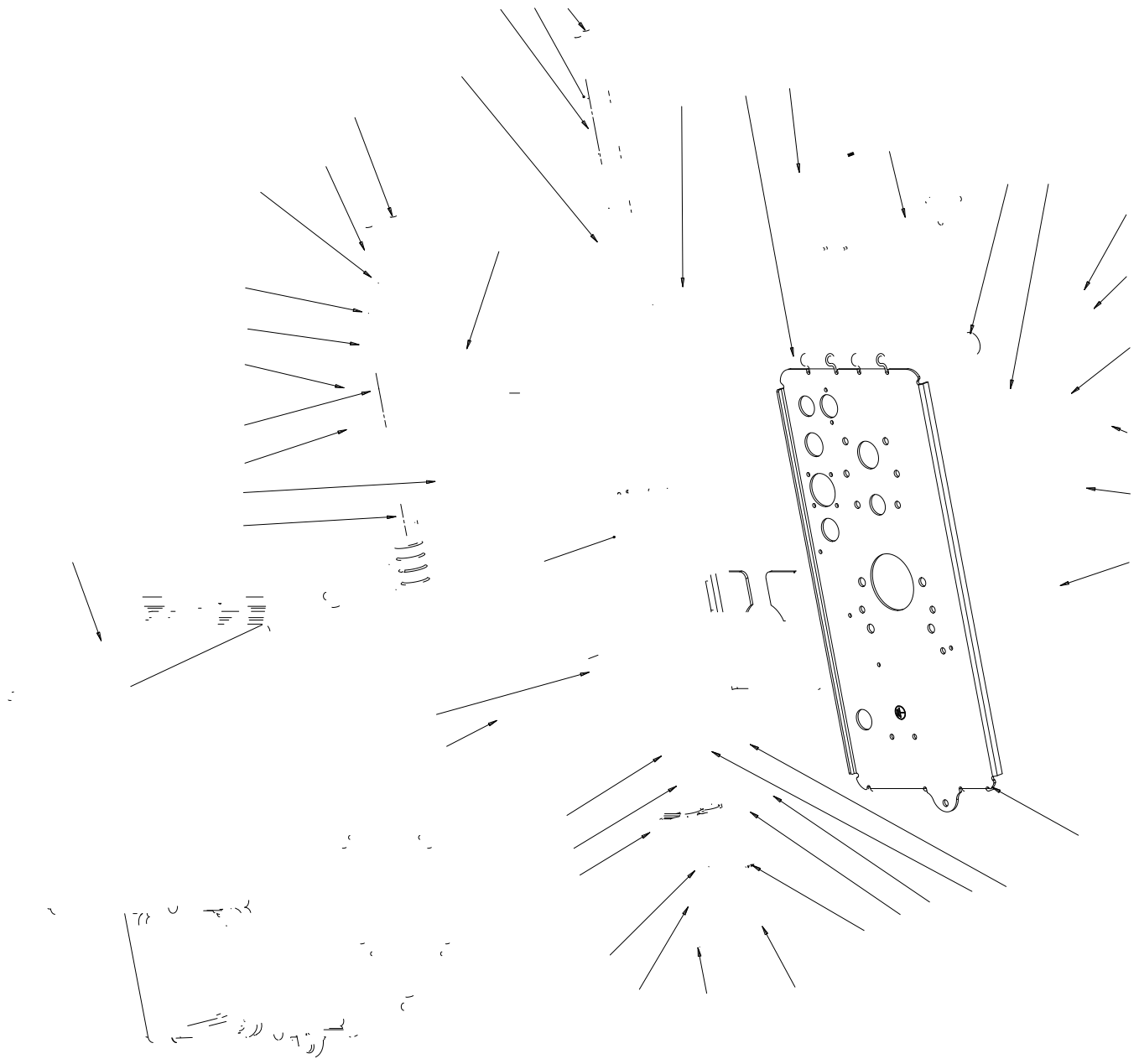


3220 METER IMMEDIATE TIMER ASSEMBLY

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, Sltd 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
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		60405-80	Program Wheel, w/3" STD Label 63,750 gal
		60405-90	Program Wheel, w/3" EXT Label 320,000 gal
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	TJEMC ETEMC /Span AMCID 1519 BDC BT/TT1

3230 REMOTE START TIMER ASSEMBLY

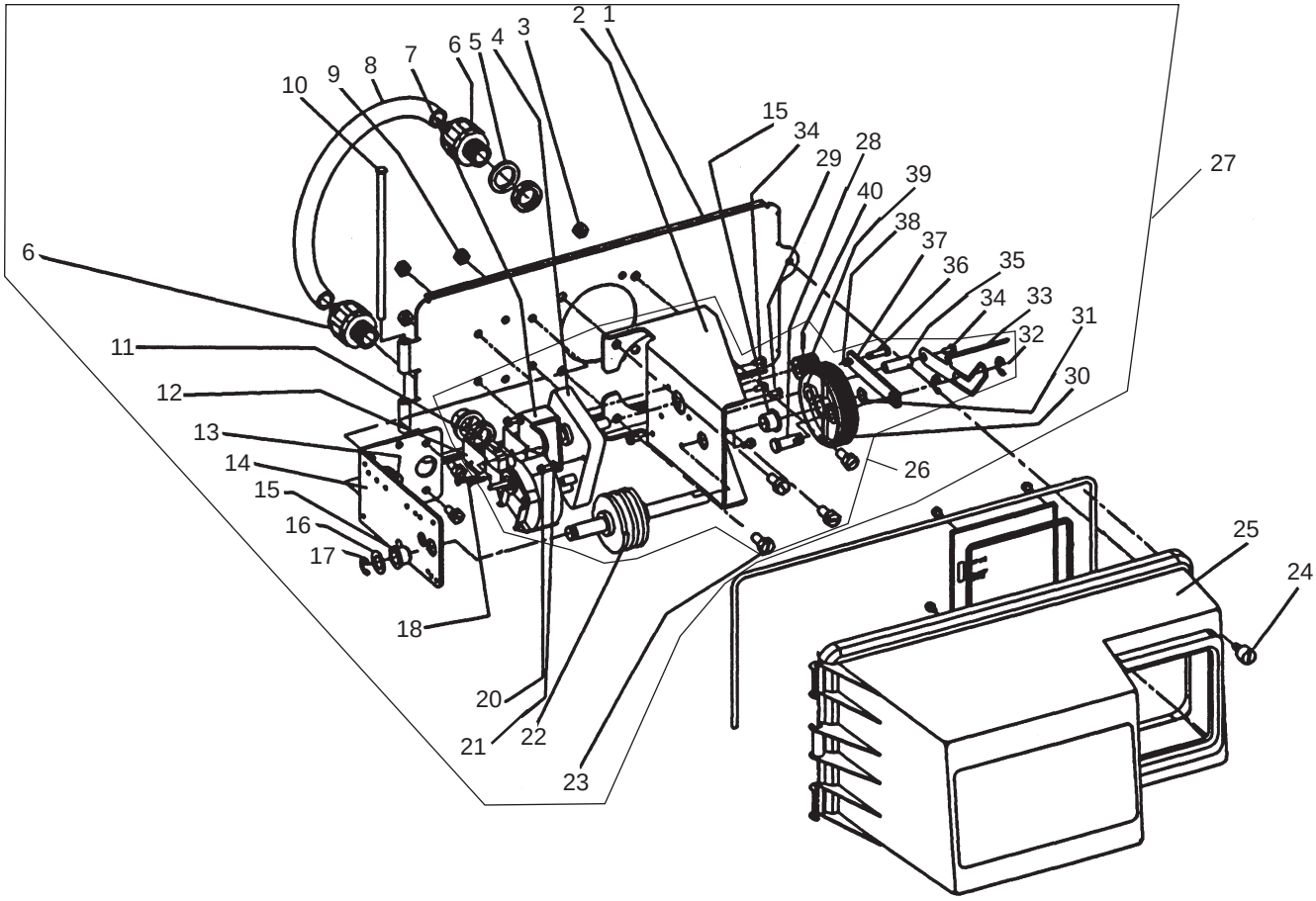




1	1	19304-04	Backplate, 3150/3900, Upper, NEMA 3R
2	1	15120-01	Bracket, Motor Mtg, 3150/3900 Environmental
3	2	16346	Nut, Hex, Jam, 5/16 - 18
4	1	40392	Motor, Drive, 115V, 50/60 Hz, Sp
		40390	Motor, Drive, 220V, 50 Hz, Sp, Fam 3
		42581	Motor, Drive, 24VAC/DC, 50-60 Hz, Fam 3
5	1	17797	Bracket, Switch 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	2	40133	Screw Pan HD, 4-40 x 1/4"
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	5	41084	Terminal Block, Segment, Gray
26	1	41085	Endplate, Terminal Bloack, 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
		40085-12	Power Cord, 12' US, Round, 240V
		11545	Power Cord, 4' European, Black
		19303	Power Cord, 8', Australian
		19885	Power Cord, Japanese, 110V/120V
40	1	17967	Fitting Assy, Liquid Tight, Blk
41	1	19691	Plug, .750 Dia, Recessed, Black
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
	1	17470	Cable Guide Assy, 2850/3150
	1	19856	Ring, Retaining (Used on Cover)
	1		Timer (See Timer Section)
	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"
	1	18585	Harness, 3900, Aux Switch

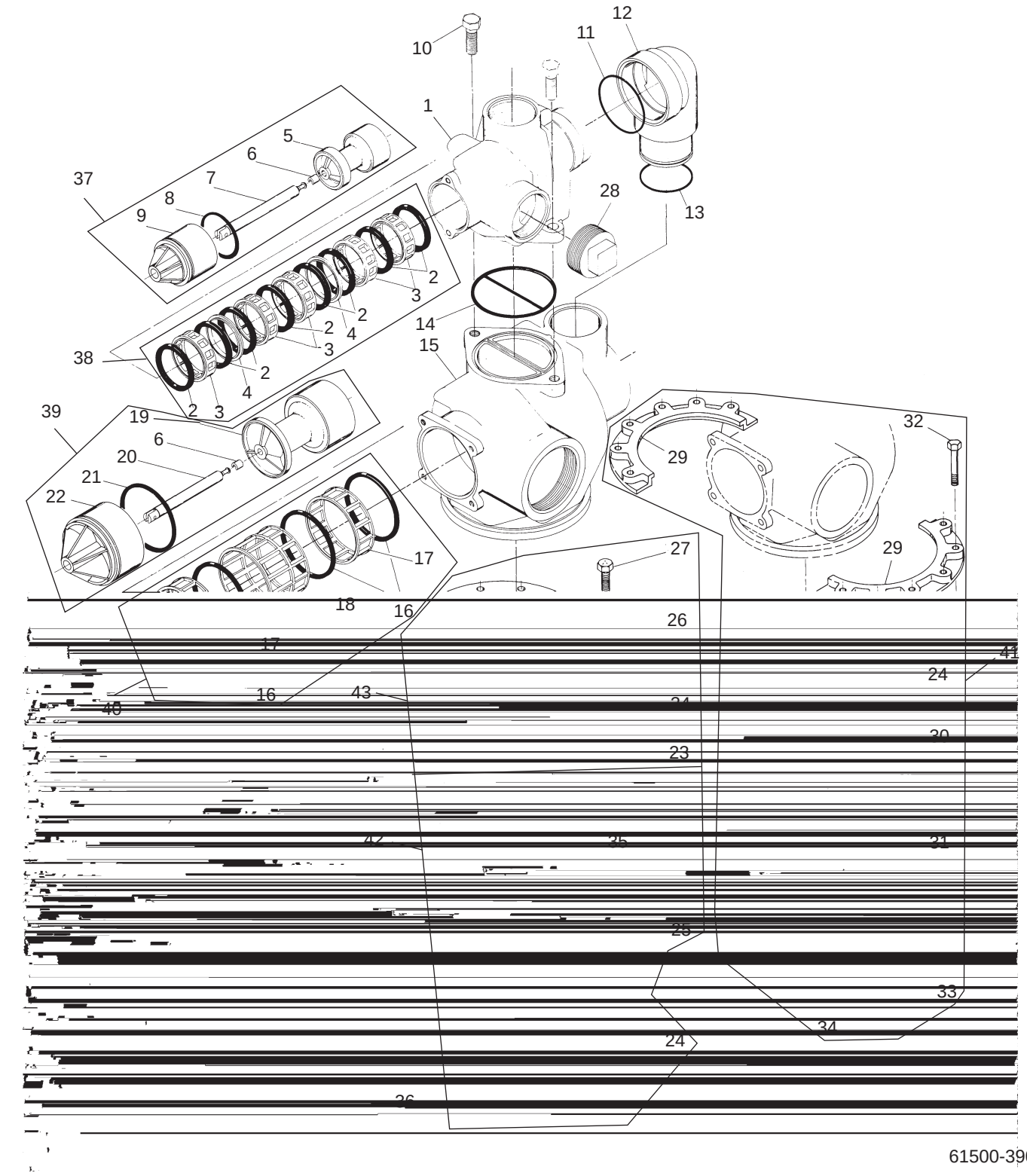
*Call your distributor for Part Number

POWERHEAD



1	1	19305	Back Plate, 3900 Lower, Enviromental
2	1	16086	Bracket - Motor Mounting
3	2	16346	Nut
4	1	40392	Drive Motor - 115 V. 50/60 Hz.
		40390	Drive Motor - 220 V. 50/60 Hz.
		42581	Drive Motor - 24 VAC/DC 50/60 Hz.
5	2	18692	Washer, Sealing
6	2	18691	Connector, Conduit
7	1	17797	Bracket - Switch Mounting
8	1	18693	Conduit, Interdrive
9	4	11235	Nut, 1/4-20
10	1	17845-03	Pin, Hinge
11	1	10218	Switch
12	2	10302	Insulator - Switch
13	4	10231	Screw - Hex Head, 1/4-20 x 1/2, 18-8 S.S.
14	1	16053	Bracket - Brine Side
15	2	16052	Bushing
16	1	16059	Washer
17	1	16051	Retaining Ring - Bowed “E”
18	2	11805	Screw, RD HD, 4-40 x 5/8", Type 1, Steel/Zinc
20	2	17567	Screw - Hex Head, WSH, 8 x 1/2, Type B, 18-8, S.S.
21	2	12288	Washer, Lock, Internal #8
22	1	16495	Cam Assembly
23	4	11224	Screw - Hex Head, 5/16-18 x 5/8, S.S.
24	1	19813/41536	Screw O-ring, Cover
25	1	60240-22	Cover, Black, Lower, Enviromental
26			Includes Item No: 2, 4, 7, 11, 12, 15, 18, 20, 21, 22, 23, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40
		60058-01	Lower Drive Assy, 3900, 120V
		60058-03	Lower Drive Mtr Assy, 3900, 24V
27	*		3900 Lower Powerhead Assy
28	1	16048-01	Bearing - Drive Link
29	2	11080	Screw - Flt HD Mach, 8-32 x 3/8, Steel Zinc
30	1	16046	Drive Gear
31	1	16050	Retaining Ring
32	2	11774	Retaining Ring - “E”
33	1	19315	Indicator
34	4	10872	Screw - Hex Head, 8-32 x 17/64, Steel/Trivalent Zinc
35	1	18726	Space, Indicator
36	1	11709	Pin - Drive Link
37	1	16047	Drive Link
38	1	11898	Clip
39	1	16045	Drive Pinion
40	1	11381	Roll Pin
	1	40405	Wire Harness, Enviromental, System 4, Lower

*Call your distributor for Part Number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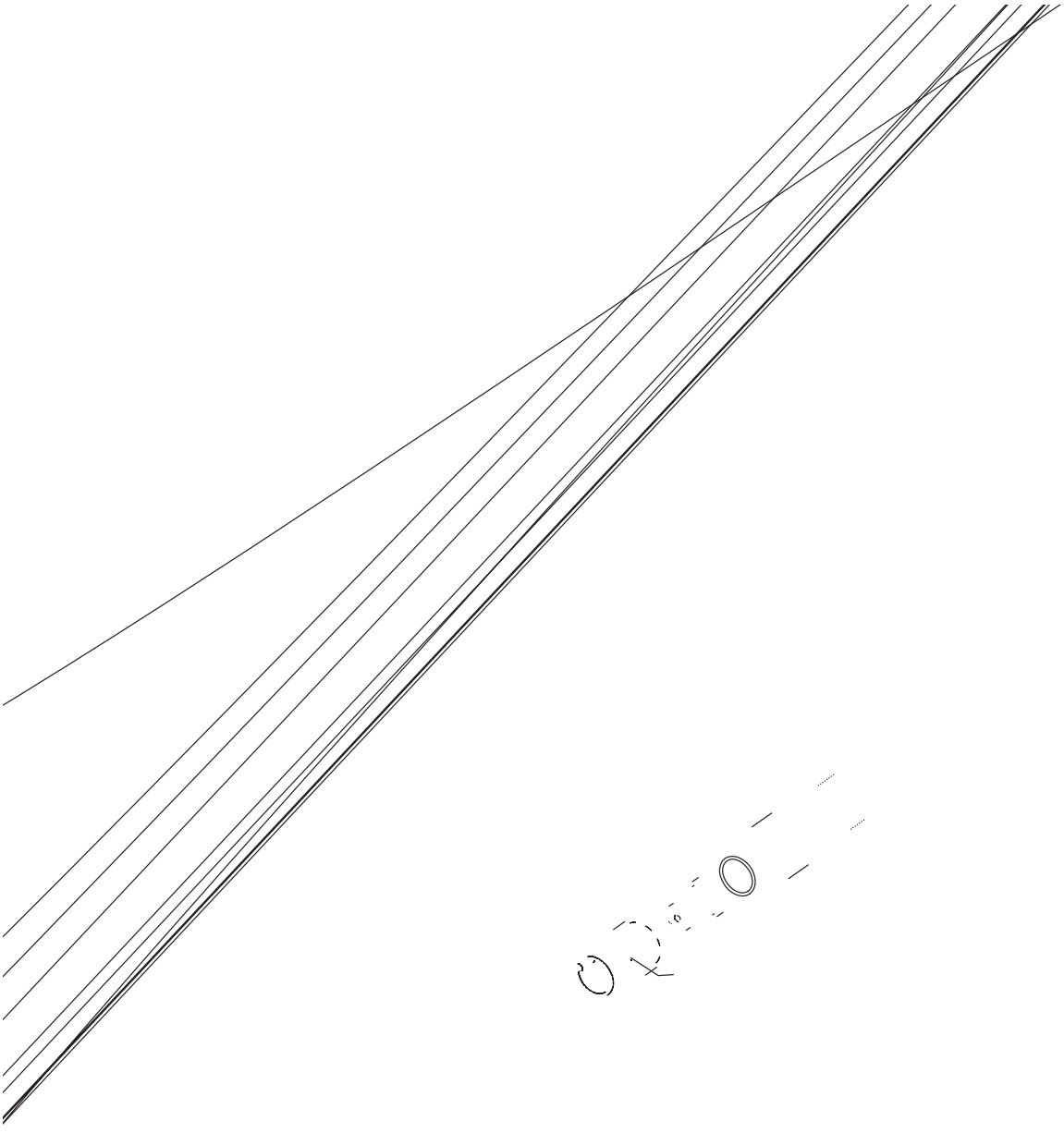
61500-3900

1	1	15114	Valve Body
2	8	11720	Seal
	8	11720-02	Seal, Silicone
3	5	10369	Spacer - Port
4	2	10368	Spacer
5	1	16130	Piston
6	2	14818	Clip - Piston Rod
7	1	15125	Piston Rod
8	1	14922	O-ring -035
9	1	16398-01	End Plug Assembly
10	2	40118	Screw - Hex Head
11	1	16078	O-ring - 149
12	1	16074	Coupling
13	1	16077	O-ring - 140
14	1	15112	Seal
15	1	16067-02	3" Adapter Body
16	4	16068	Seal
	4	41534	Seal, 3900, 558 BP
17	2	16069	Spacer - Narrow
18	1	16070	Spacer - Wide
19	1	16071	Piston
	1	16082	Piston - No Hard Water Bypass
20	1	16072	Piston Rod
21	1	16076	O-ring - 042
22	1	16399-01	End Plug Assy - White
	1	16399-11	End Plug Assy - Black, NHWB-P
23	1	16800	O-ring - 238
24	2	16345	O-ring - 362
25	1	16255	Tank Adapter - 6" -8
26	2	16257	Flange Segment
27	12	11238	Screw - Hex Head
28	1	16088	Pipe Plug - 2" NPT
35	1	16258	Flow Disperser
37		60106-00	Piston Assy, 3900/3150 STD
		60106-10	Piston Assy, 3150, Upfow
38		60131	Seal & Spacer Kit, 3900 Upper, 3150
		60131-10	Seal & Spacer Kit, Silicone, Chemical Resistent, 3900 Upper, 3150
39		60107-00	Piston Assy, 3900, HWBP, Lower
		60107-10	Piston Assy, 3900, NHWBP, Lower
40		60132	Seal & Spacer Kit, 3900, Lower
		60132-10	Seal & Spacer Kit, 3900, 558BP Chemical Resistent, Lower
41		60190	Flange Kit, Park & Structural, 09/05 and After
		60191	Flange Kit, Park, 08/05 and Prior
42		60193	Flange Kit, 6" Thread
43		60192	Flange Kit, Welded

Options

29	2	16482	Flange Segment
30	1	16483	Flange Ring
31	1	16484	O-Ring -442
32	12	16517	Screw, Park Tank
	12	19592	Screw, Structural Tank
33	12	18619	Washer
34	12	16346	Nut
36	1	18584	Adapter, Side Mount

1800 SERIES BRINE SYSTEM AND DRAIN LINE FLOW CONTROL ASSEMBLY



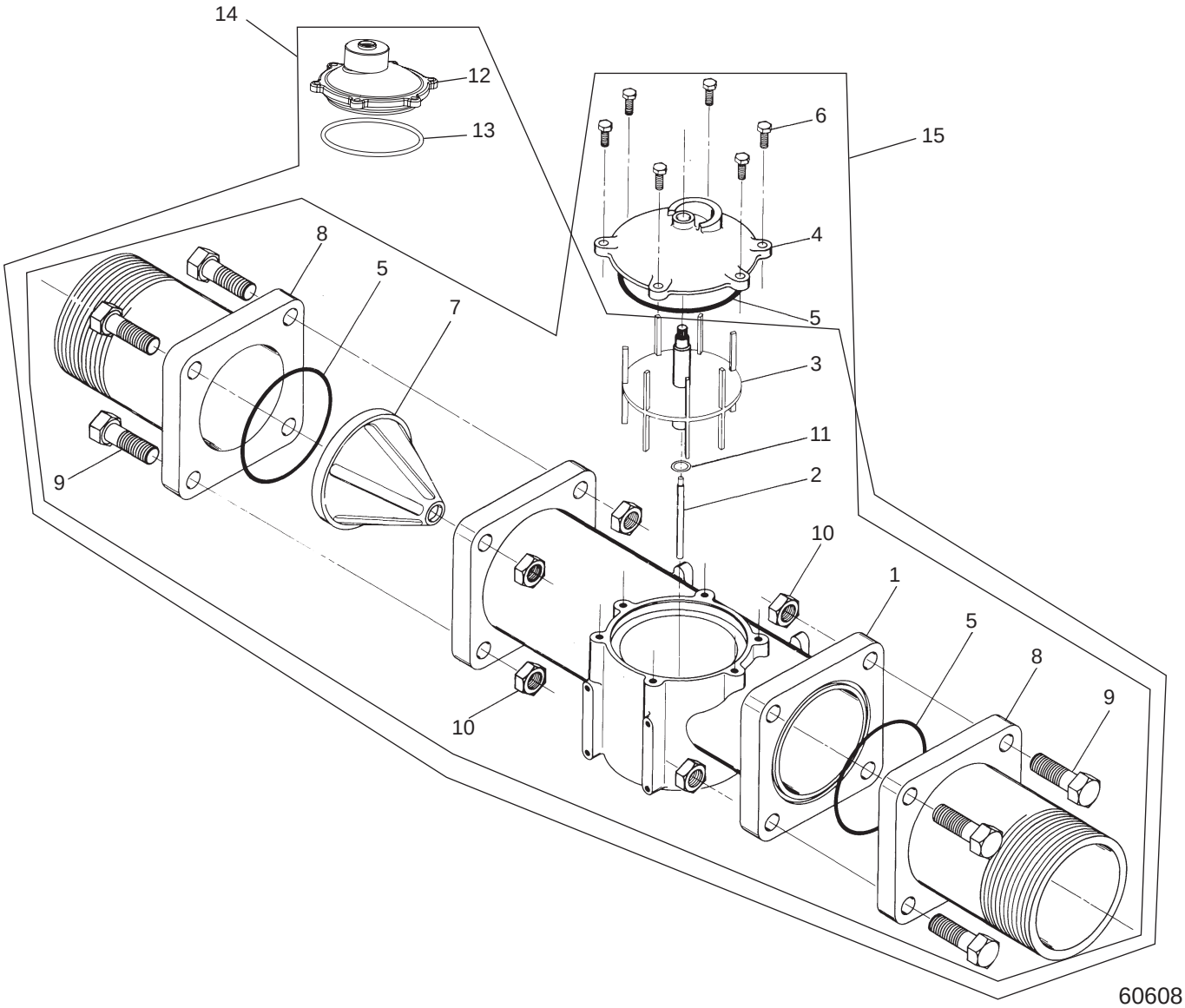
1800 SERIES BRINE SYSTEM AND DRAIN LINE FLOW CONTROL ASSEMBLY

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
18		60277-04	Injector Assy, 1800, #4, Downfow
		60272-04	Injectory Assy, 1800, #4, Upfow
		60277-05	Injectory 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	Injectory Assy, 1800 #9, Downfow
		60277-10	Injectory 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

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
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

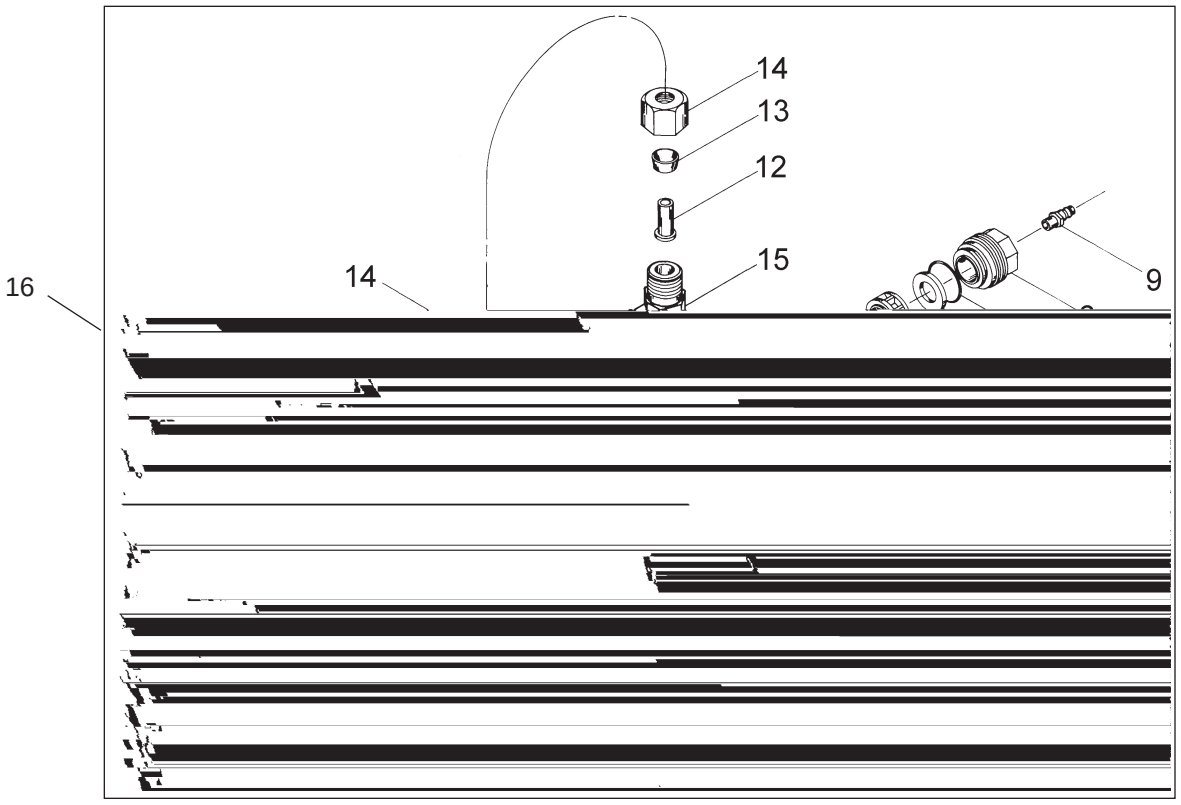
3" METER ASSEMBLY



1	1	16254	Meter Body
2	1	16279	Impeller Shaft
3	1	16575	Impeller Assembly
4	1	16400	Meter Cover Assembly - Standard
	1	16401	Meter Cover Assembly - Extended Range
5	3	15707	O-Ring - 236
6	6	12112	Screw - Hex Head
	6	15886	Screw - Hex Head (Metric)
7	1	16280	Flow Straightener
8	2	16328	Connecting Flange
9	8	40118	Screw - Hex Head
	8	17122	Screw - Hex Head (Metric)
10	8	16386	Nut - 1/2-13
11	1	16574	Stainless Steel Washer
12	1	16401	Meter Cap, 3", EXT, BRS, PDL
13	1	15707	O-ring - 236

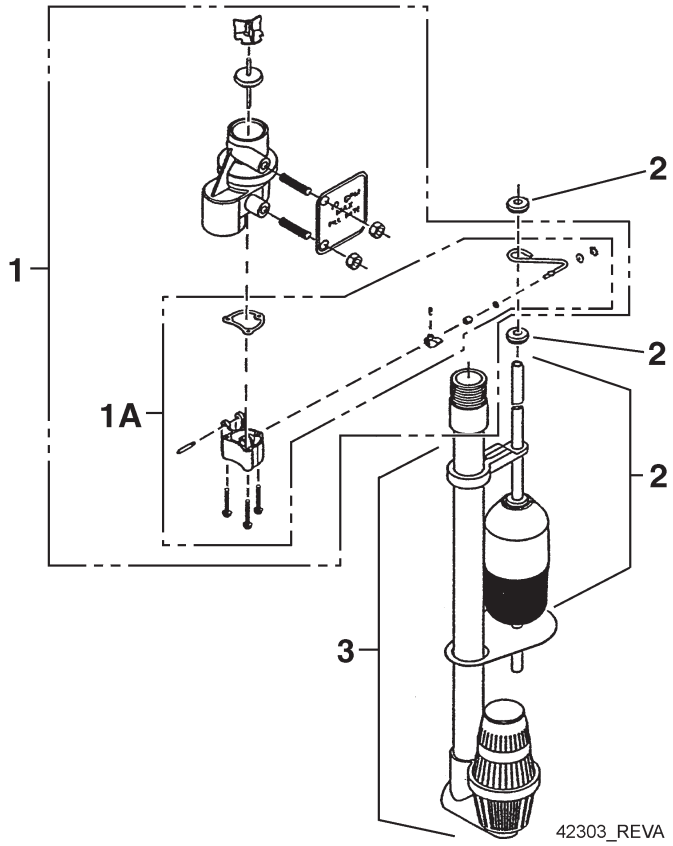
14	60608-02	Meter Assy, 3" Inline, NPT, EXT, Brass, Paddlewheel
	60608-22	Meter Assy, 3" Inline, BSP/ Metric, EXT, Paddlewheel
15	60608-01	Meter Assy, 3" Inline, NPT, STD, Brass, Paddlewheel
	60608-21	Meter Assy, 3" Inline, BSP/ Metric, STD, Paddlewheel

ASSEMBLY



BR60150-3150REVA

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)
	1	16511	Tube, 3150, PVC, SVO



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

		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.
	Insuffcient water fowing into brine tank.	Check brine tank fll time and clean brine line fow control if plugged.
	Hot water tank hardness.	Repeated fushings 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 fow control.	Check for proper drain rate.
Iron in conditioned water.	Fouled mineral bed.	Check backwash, brine draw, and brine tank fll. Increase frequency of regeneration. Increase backwash time.
Excessive water in brine tank.	Plugged drain line fow control.	Clean fow 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 fow control.	Clean brine line fow control.
Softener fails to draw brine.	Drain line fow control is plugged.	Clean drain line fow 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 fows 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.

CONTROL

Reserve capacity has been exceeded.

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

Program wheel is not rotating with meter output.

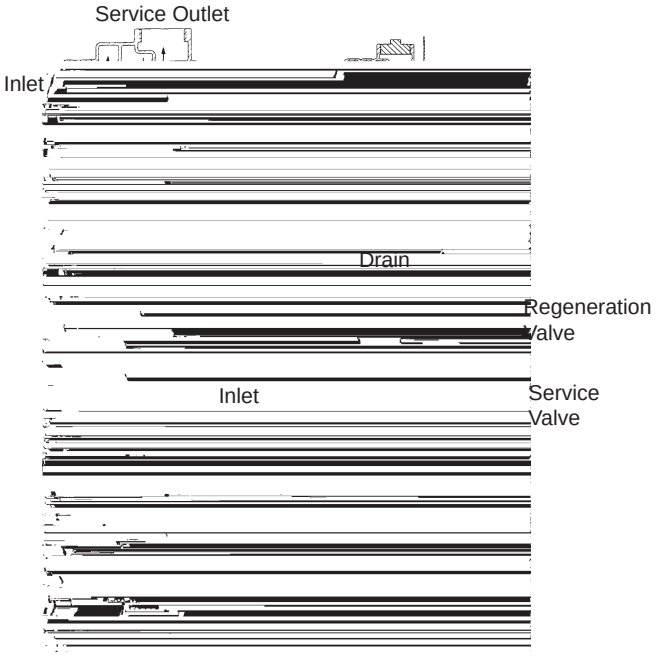
Correction: Pull cable out of meter cover and rotate manually. Program wheel must move without binding and clutch must give positive clicks when program wheel strikes regeneration stop. If it does not, replace timer.

Meter is not measuring flow.

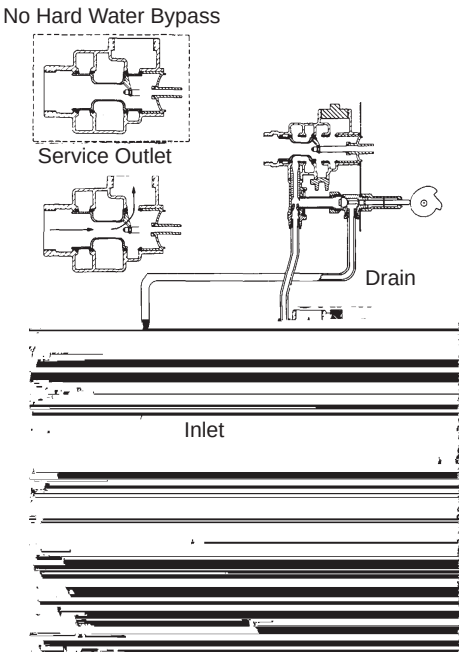
Correction: Check meter with meter checker.

WATER CONDITIONER FLOW DIAGRAMS

1 Service Position



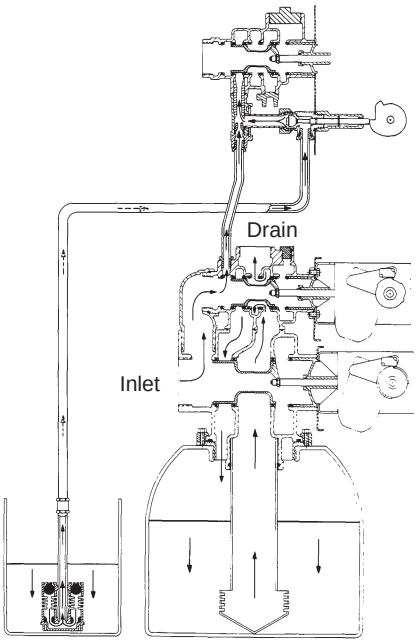
Hard water enters at valve inlet and flows down thru mineral to the bottom distributor. Conditioned water flows up thru the distributor tube, around the piston and out the outlet.



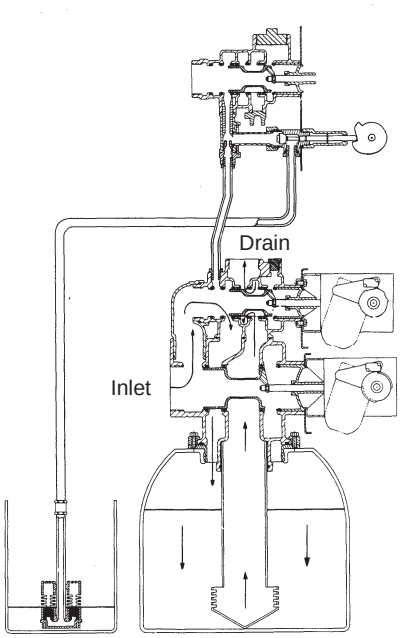
Hard water enters at valve inlet – flows thru service adapter piston for by-pass, and up thru coupling to regeneration valve inlet. Flow continues thru the regeneration valve piston – down the distributor tube – thru the bottom distributor and up thru the mineral – around the piston and out the drain. If optional no hard water by-pass piston is used, water flow to service outlet is prevented by an extension on the service outlet until the end of the rapid rinse cycle or brine tank refill cycle, depending on options chosen.

WATER CONDITIONER FLOW DIAGRAMS

3 Brine Position

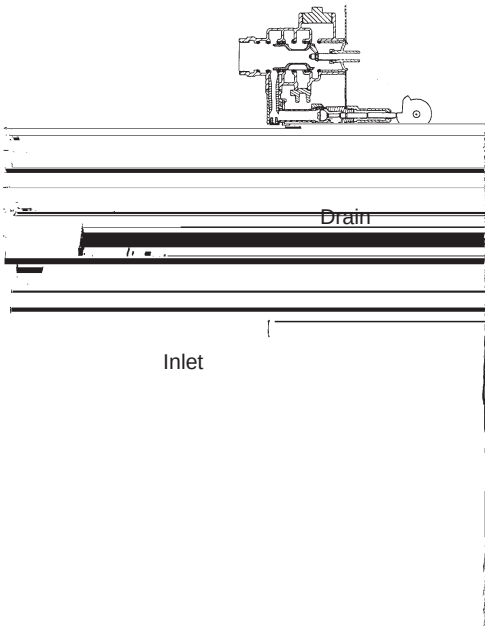


Hard water enters at valve inlet – fows thru injector nozzle and throat to draw brine from the brine tank. Brine fows down thru the mineral – into the bottom distributor – up the distributor tube – around the piston and out the drain.

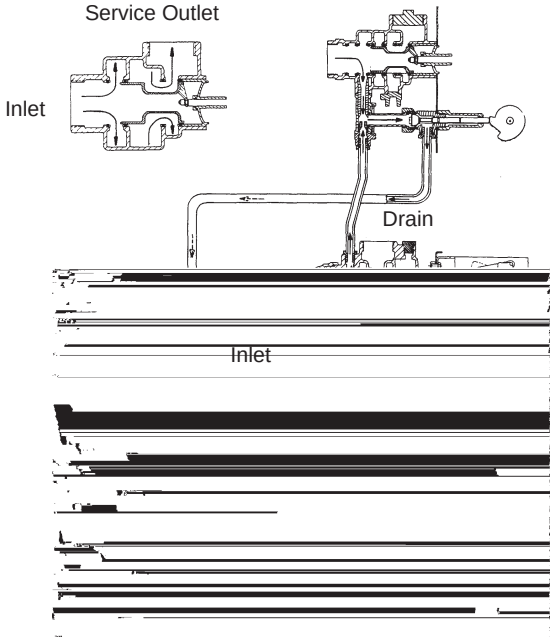


Hard water enters at valve inlet – fows thru the regeneration valve directly down thru the mineral – into the bottom distributor – up the distributor tube – around the piston and out the drain.

4 Slow Rinse Position

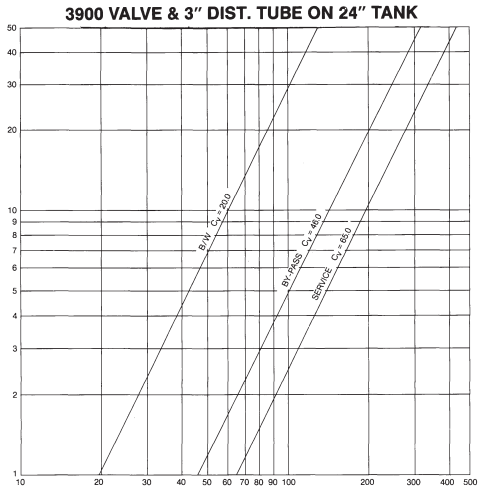


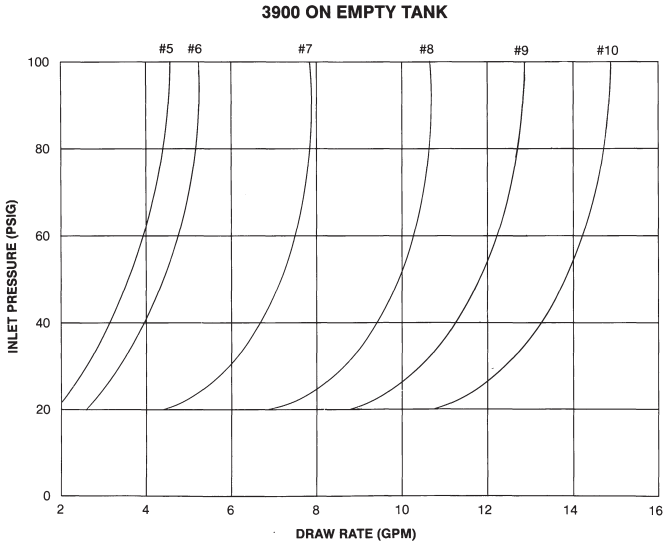
Hard water enters at valve inlet – fows thru injector nozzle and throat – down thru the mineral – into the bottom distributor – up the distributor tube – around the piston and out the drain.



Hard water enters at valve inlet – fows thru nozzle and thru throat to brine valve to refll the brine tank. Inlet fow also continues down thru mineral to the bottom distributor. Conditioned water fows up thru the distributor tube, around the piston and out the outlet. Note: An option is available to keep service valve in by-pass position until the end of brine tank refll cycle.

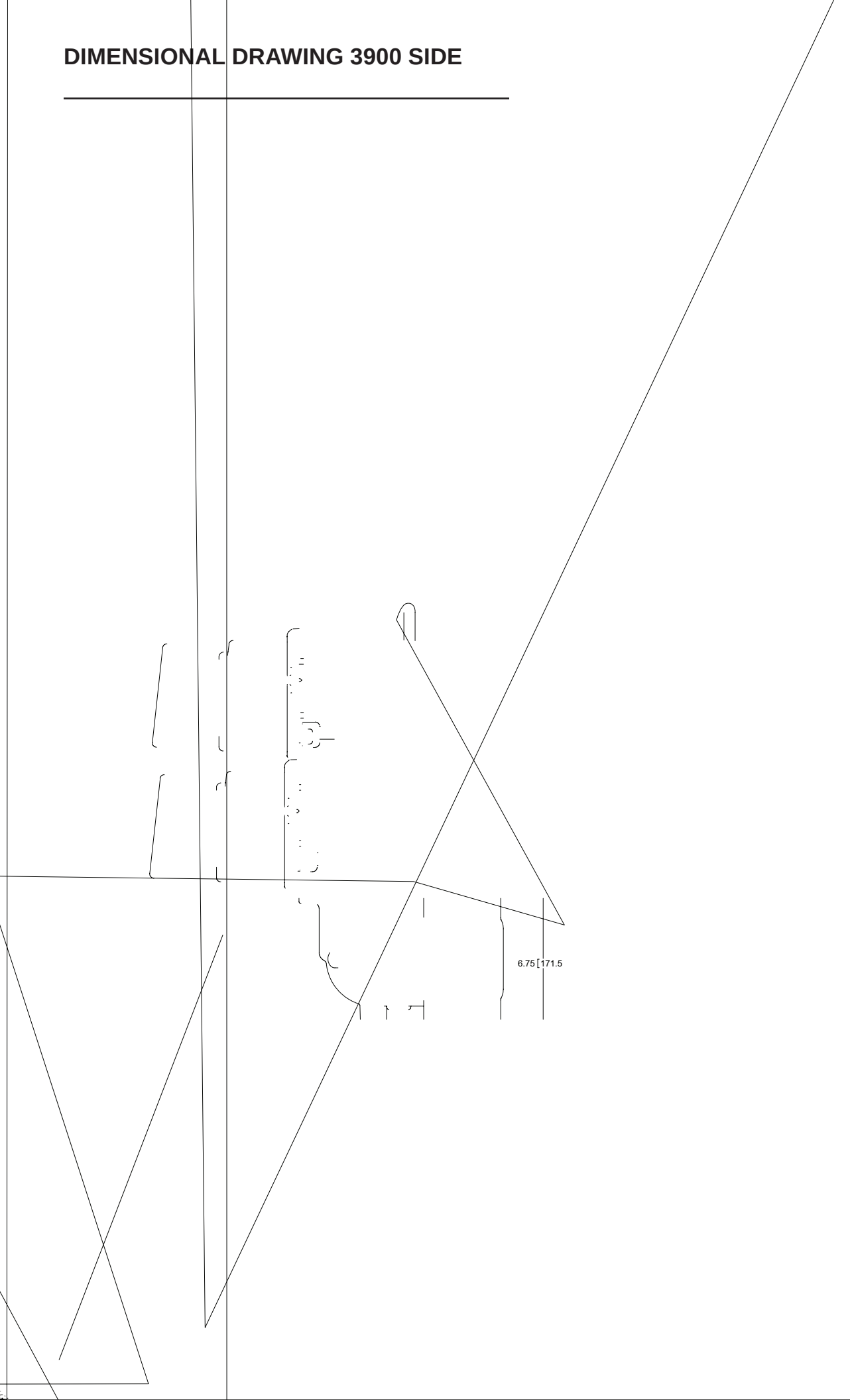
FLOW DATA & INJECTOR DRAW RATES



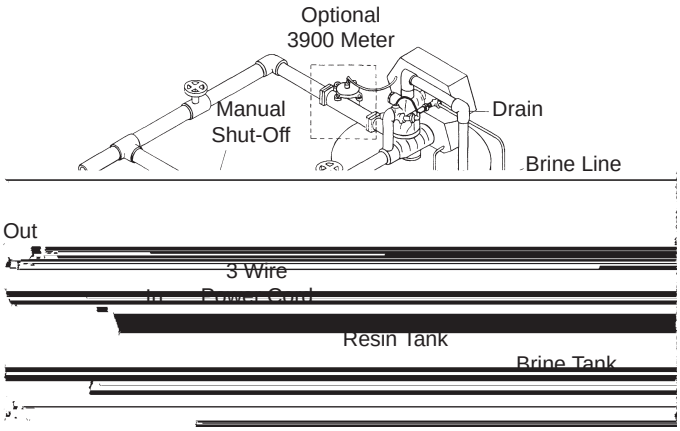


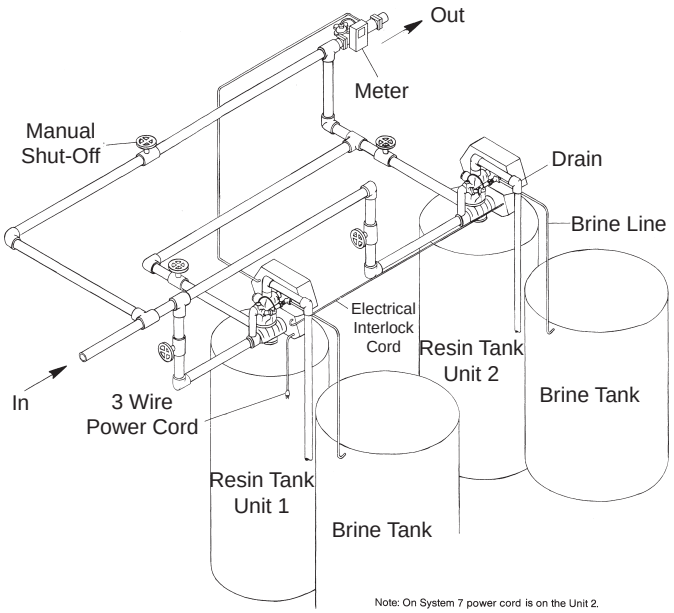
DIMENSIONAL DRAWING 3900 TOP

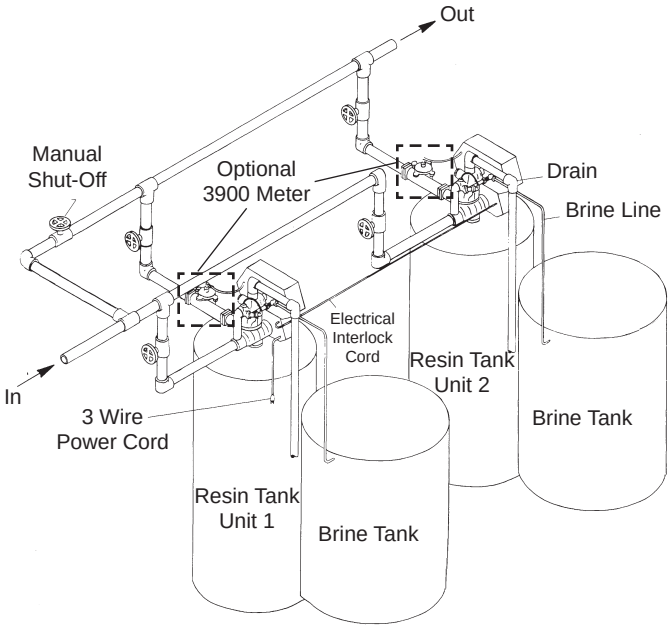
DIMENSIONAL DRAWING 3900 SIDE



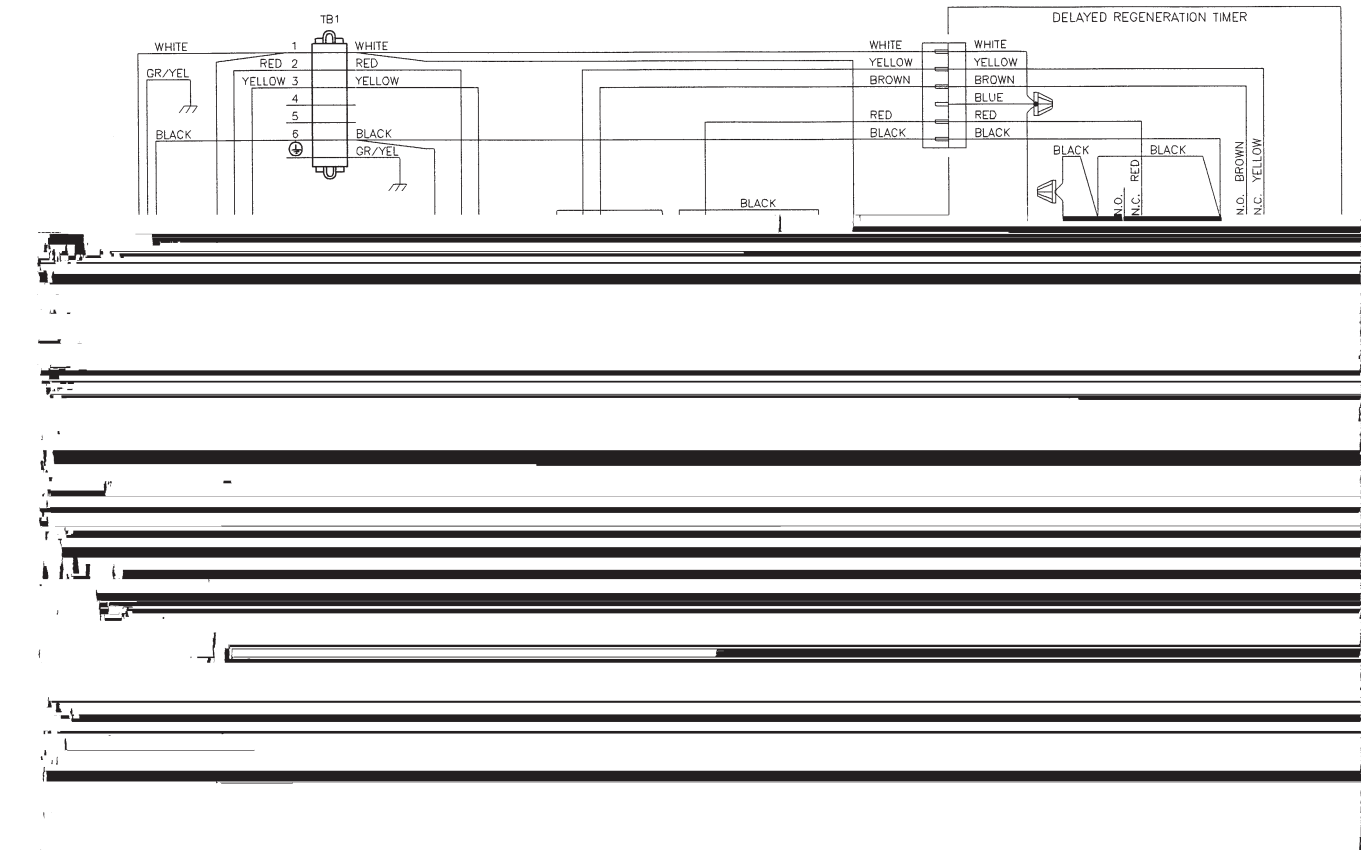
TYPICAL INSTALLATIONS





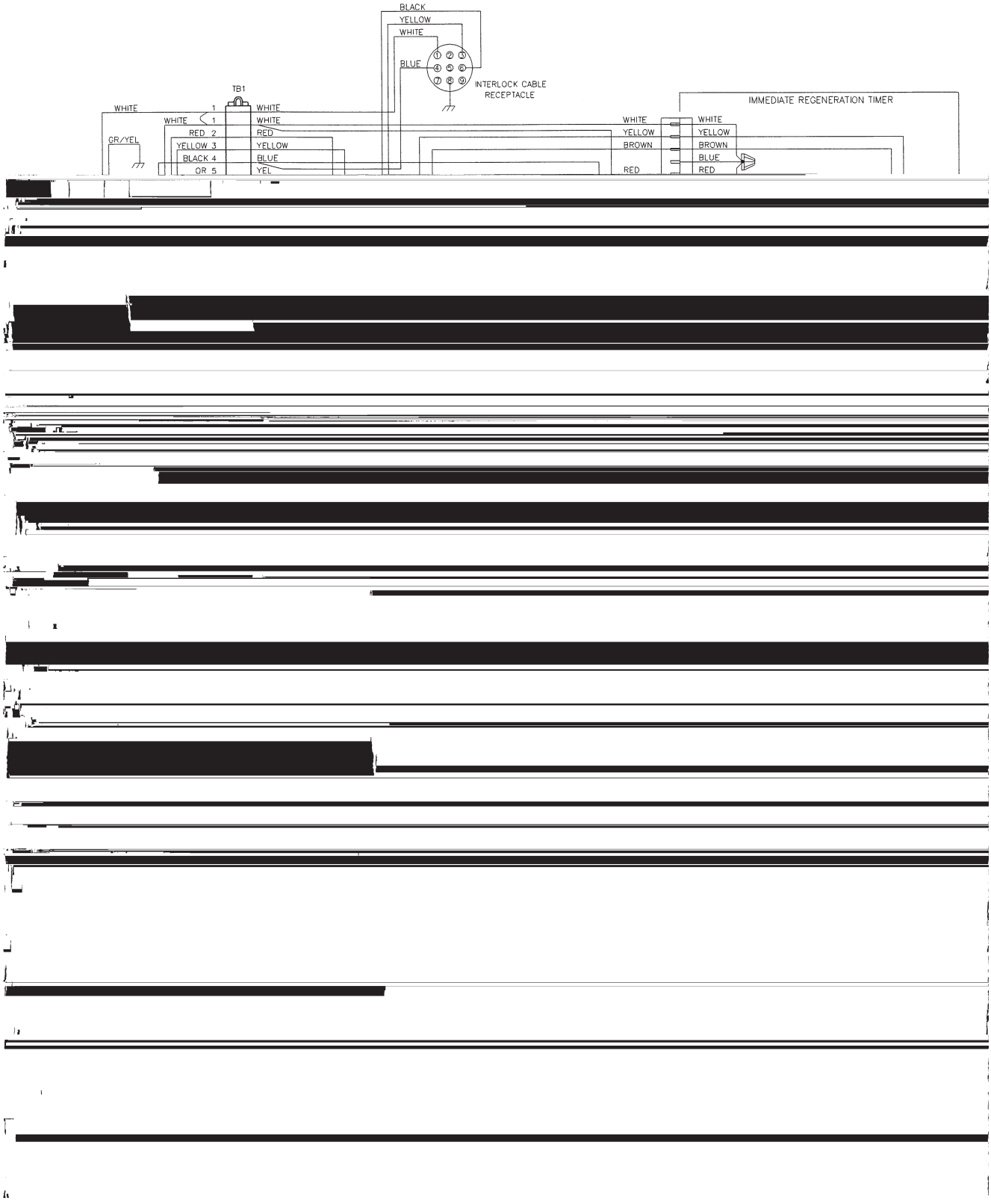


System #4

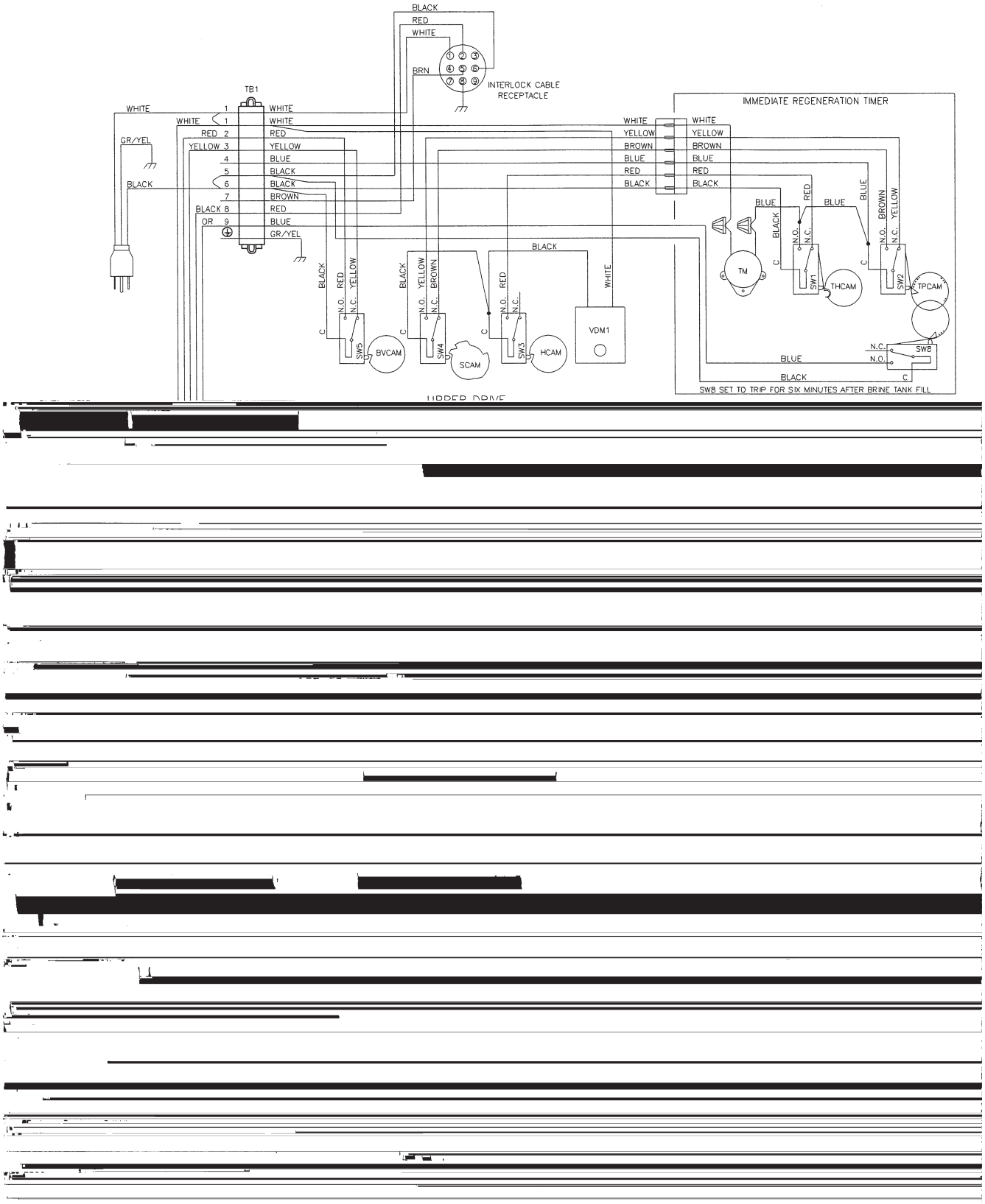

TB1
DELAYED REGENERATION TIMER
WHITE
GR/YEL
BLACK
RED
YELLOW
1
2
3
4
5
6
WHITE
RED
YELLOW
BLACK
GR/YEL
WHITE
YELLOW
BROWN
RED
BLACK
BLUE
BLACK
BLACK
N.O.
N.C.
RED
N.O. BROWN
N.C. YELLOW


TB1
IMMEDIATE REGENERATION TIMER

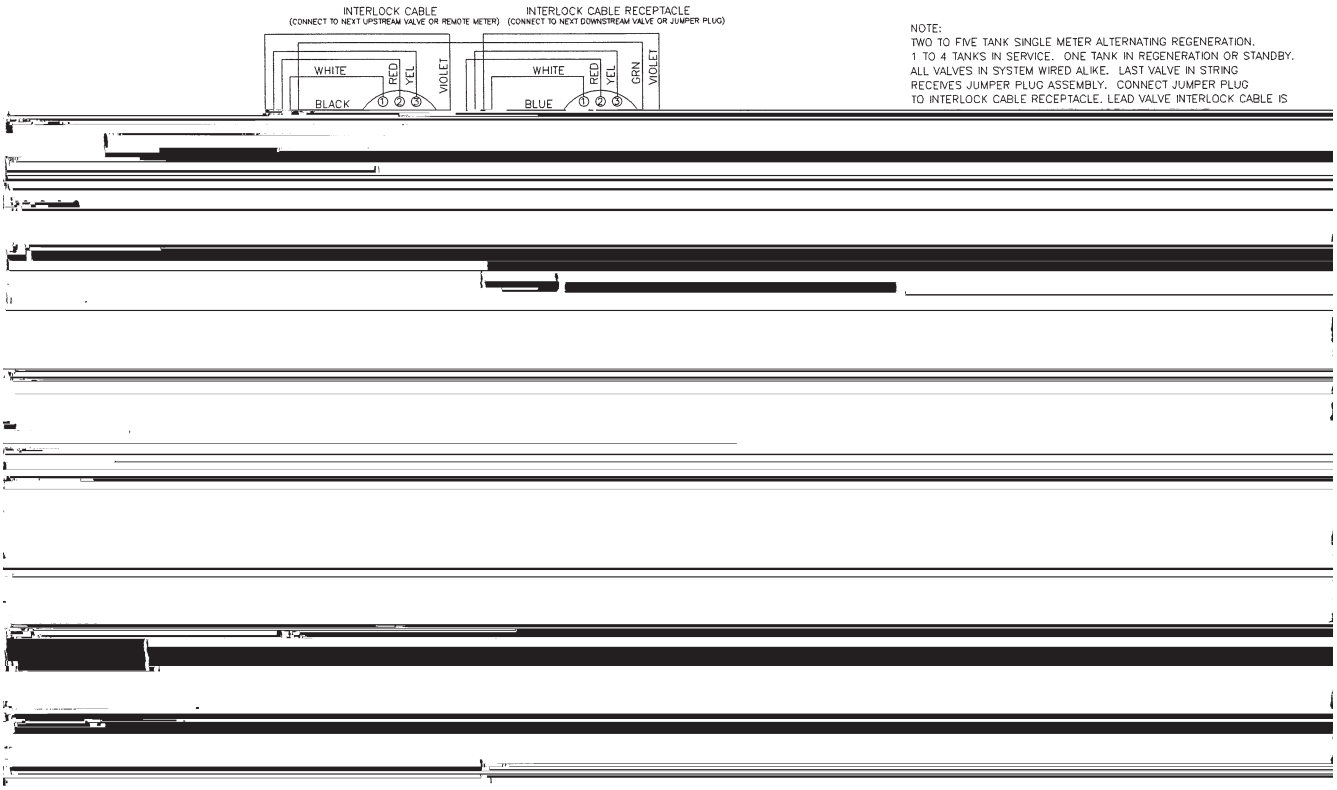
System #5


BLACK
YELLOW
WHITE
BLUE
INTERLOCK CABLE
RECEPTACLE
TB1
WHITE
WHITE 1
RED 2
YELLOW 3
BLACK 4
OR 5
GR/YEL
WHITE
WHITE
RED
YELLOW
BLUE
YEL
IMMEDIATE REGENERATION TIMER
WHITE
YELLOW
BROWN
RED
WHITE
YELLOW
BROWN
BLUE
RED

System #6


BLACK
RED
WHITE
BRN
INTERLOCK CABLE RECEPTACLE
TB1
IMMEDIATE REGENERATION TIMER
WHITE
GR/YEL
BLACK
YELLOW 3
BLACK 8
OR 9
RED 2
BROWN 7
BLUE 4
BLACK 5
BLACK 6
GR/YEL
WHITE
YELLOW
BROWN
BLUE
RED
BLACK
TM
SW1
SW2
THCAM
TPCAM
BVCAM
SCAM
HCAM
SW3
SW4
SW5
VDM1
SW8
N.O.
N.C.
C
SW8 SET TO TRIP FOR SIX MINUTES AFTER BRINE TANK FILL
UPPER DRIVE

System #7


INTERLOCK CABLE
(CONNECT TO NEXT UPSTREAM VALVE OR REMOTE METER)
INTERLOCK CABLE RECEPTACLE
(CONNECT TO NEXT DOWNSTREAM VALVE OR JUMPER PLUG)
WHITE
RED
YEL
VIOLET
BLACK
1 2 3
WHITE
RED
YEL
GRN
VIOLET
BLUE
1 2 3
NOTE:
TWO TO FIVE TANK SINGLE METER ALTERNATING REGENERATION.
1 TO 4 TANKS IN SERVICE. ONE TANK IN REGENERATION OR STANDBY.
ALL VALVES IN SYSTEM WIRED ALIKE. LAST VALVE IN STRING
RECEIVES JUMPER PLUG ASSEMBLY. CONNECT JUMPER PLUG
TO INTERLOCK CABLE RECEPTACLE. LEAD VALVE INTERLOCK CABLE IS

11772.....Spring
11774.....Retaining Ring
18713.....Brine Valve Body
16497-01 .....Brine Stem Assembly
16498-01 .....Stem Guide Assembly

12473.....Screw - Hex Head
15127-xx.....Injector Throat
15128-xx.....Injector Nozzle
15246.....O-ring -116
16340.....Injector Body
16341-01 .....Injector Cover
-xx Specify Size

14818.....Clip Piston Rod
14922.....O-ring -035
15125.....Piston Rod
16130.....Piston
16389-0 .....End Plug Assembly

14818.....Clip Piston Rod
16071.....Piston
16072.....Piston Rod
16076.....O-ring -042
16399-01 .....End Plug Assembly - White

14818.....Clip Piston Rod
16082.....Piston - No Hard Water Bypass
16072.....Piston Rod
16076.....O-ring -042
16399-11.....End Plug Assembly - Black

10368.....Spacer
10369.....Spacer - Port
11720.....Seal

16068.....Seal
16069.....Spacer - Narrow
16070.....Spacer - Wide

10302.....Insulator - Switch
10872.....Screw - Hex Head
11080.....Screw - Flat Head
10218.....Switch
10300.....Screw - Hex Head
15120.....Bracket - Motor Mounting
40392.....Drive Motor - 115 V. 50/60 Hz
16052.....Blushing
17797.....Bracket - Switch Mounting
12624.....Screw - Pan Head

10302.....Insulator - Switch
10872.....Screw - Hex Head
11080.....Screw - Flat Head
10218.....Switch
10300.....Screw - Hex Head
11805.....Screw - Pan Head
40392.....Drive Motor - 115V. 50/60 Hz
17797.....Bracket - Switch Mounting
16086.....Bracket - Motor Mounting

10368.....Spacer
10369.....Spacer
11720-02.....Seal, 1-1/2", Silicone

41534

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