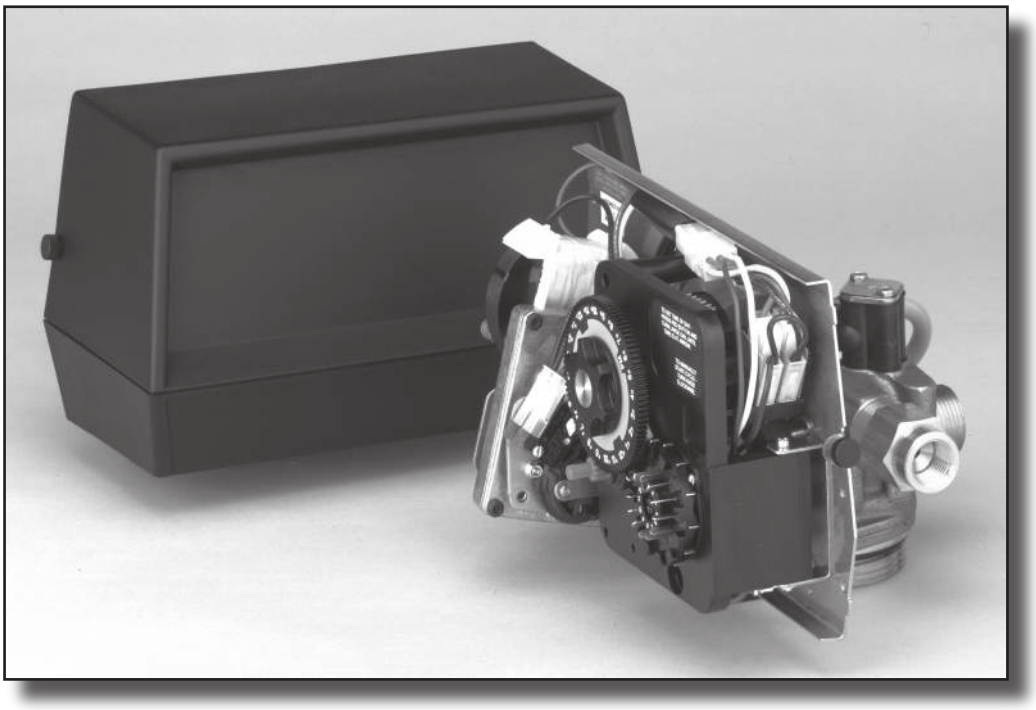
Model 2750 - Downflow & Upflow

Service Manual



IMPORTANT: Fill in Pertinent Information on Page 3 for Future Reference

Table of Contents

IMPORTANT: The information, specifications and illustrations in this manual are based on the latest information available at the time of printing. The manufacturer reserves the right to make changes at any time without notice.

Job Specification Sheet

Job No. _____

Model No. _____

Water Test _____

Capacity Per Unit _____

Mineral Tank Size _____ Diameter _____ Height

Brine Tank Size & Salt Setting per Regeneration _____

2750 Control Valve Specifications

1. Type of Timer
   - A. 7 Day or 12 Day
   - B. 310 to 5,270 Gallon Meter or
     1,550 to 26,350 Gallon Meter or
     Other _____
   - C. Meter Wiring Package
     1. System #4 - 1 Tank, 1 Meter, Immediate or Delayed Regeneration
     2. System #5 - 2 Tanks, 2 Meters, Interlock
     3. System #6 - 2 Tanks, 1 Meter, Series Regeneration
     4. System #7 - 2 Tanks, 1 Meter, Alternator
2. Timer Program Settings
   - A. Backwash _____ Minutes
   - B. Brine & Slow Rinse _____ Minutes
   - C. Rapid Rinse _____ Minutes
   - D. Brine Tank Refill _____ Minutes
3. Drain Line Flow Control _____ gpm
4. Brine Line Flow Controller _____ gpm
5. Injector Size # _____
6. Service Valve Operation Units (SVO)
   Size of Service Valve _____

General Commercial Pre-Installation Check List

WATER PRESSURE: A minimum of 25 pounds of water pressure is required for regeneration valve to operate effectively.

ELECTRICAL FACILITIES: A continuous 115 volt, 60 Hertz current supply is required. Make certain the current supply is always hot and cannot be turned off with another switch.

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

LOCATION OF SOFTENER AND DRAIN: The softener should be located close to a drain.

BY-PASS VALVES: Always provide for the installation of a by-pass valve.

CAUTION: Water pressure is not to exceed 120 p.s.i., water temperature is not to exceed 100° F, and the unit cannot be subjected to freezing conditions.

Installation Instructions

1. Place the softener tank where you want to install the unit making sure the unit is level and on a firm base. (Maximum 4 feet apart for twin units)
2. All plumbing should be done in accordance with local plumbing codes. The pipe size for the drain line should be the same size as the drain line flow control connection. Water meters are to be installed on soft water outlets. Twin units with 1 meter shall be installed on common soft water outlet of units.
3. Solder joints near the drain must be done prior to connecting the Drain Line Flow Control fitting. Leave at least 6” between the DLFC and solder joints when soldering when the pipes are connected on the DLFC. Failure to do this could cause interior damage to the DLFC.
4. Teflon tape is the only sealant to be used on the drain fitting. The drain from twin units may be run through a common line.
5. Make sure that the floor is clean beneath the salt storage tank and that it is level.

6 Place approximately 1” of water above the grid plate (if used) in your salt tank. Salt may be placed in the unit at this time.

7. Place in by-pass position. Turn on the main water supply. Open a cold soft water tap nearby and let run a few minutes or until the system is free from foreign material (usually solder) that may have resulted from the installation.

8. Place the by-pass in service position.
9. Manually index the softener control into “service” position and let water flow into the mineral tank. When water flow stops, close inlet valve, place control in “backwash” position to relieve head of air, then gradually open inlet valve to purge remaining air in tank. Return control to service position.
10. Electrical: All electrical connections must be connected according to codes. Use electrical conduit if applicable. Plug into power supply.

How To Set Days On Which Water Conditioner Is To Regenerate:

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

How To Set The Time Of Day:

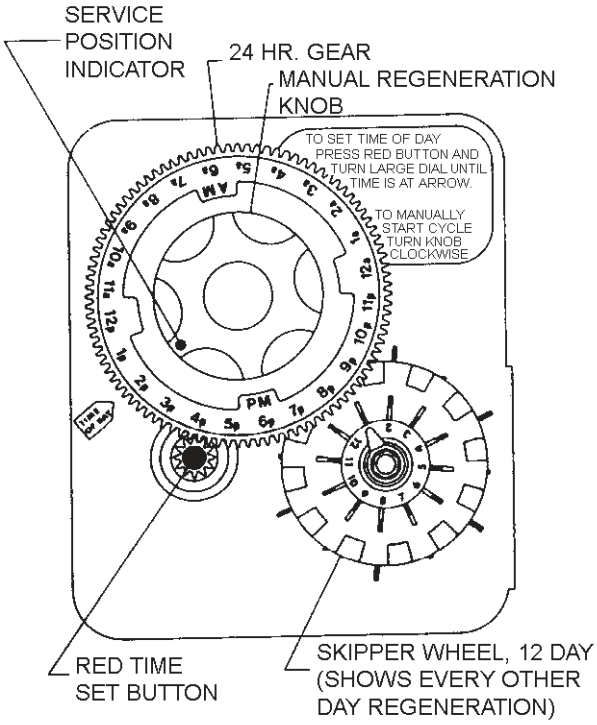
1. Press and hold the red button in to disengage the drive gear.
2. Turn the large gear until the actual time of day is at the time of day pointer.
3. Release the red button to again engage the drive gear.

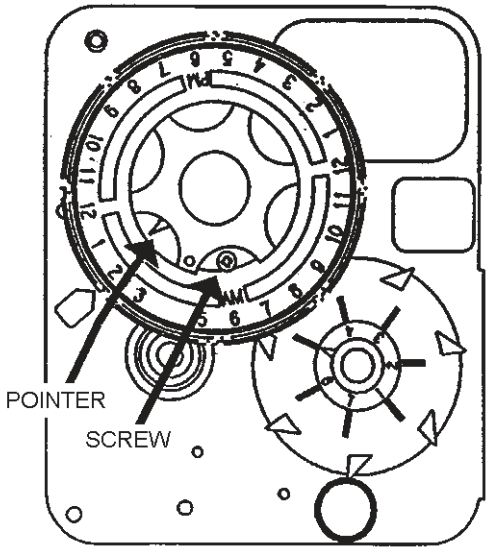
How To Manually Regenerate Your Water Conditioner At Any Time:

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

How to Adjust Regeneration Time:

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





3200 ADJUSTABLE REGENERATION TIMER

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

3210 Timer Settings

Typical Programming Procedure

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

NOTE: Drawing shows 8,750 gallon setting. The capacity (gallons) arrow denotes remaining gallons exclusive of fixed reserve.

How To Set The Time Of Day:

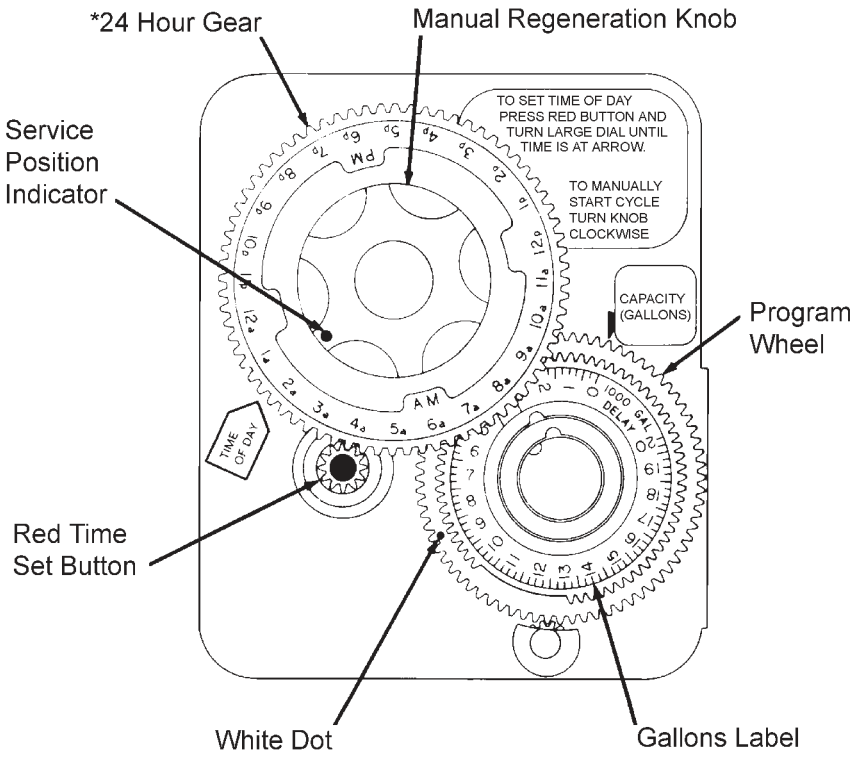
1. Press and hold the red button in to disengage the drive gear.
2. Turn the large gear until the actual time of day is opposite the time of day pointer.
3. Release the red button to again engage the drive gear.

How To Manually Regenerate Your Water Conditioner At Any Time:

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

Immediate Regeneration Timers:

These timers do not have a 24 hour gear. Setting the gallons on the program wheel and manual regeneration procedure are the same as previous instructions.



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

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

3200 & 3210 Timer Series

Regeneration Cycle Program Setting Procedure

(Brine Tank Refill Separate from Rapid Rinse)

How To Set The Regeneration Cycle Program:

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

3200 & 3210 Series Timers (Figure to Right)

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

Timer Setting Procedure for 3200 & 3210 Timer

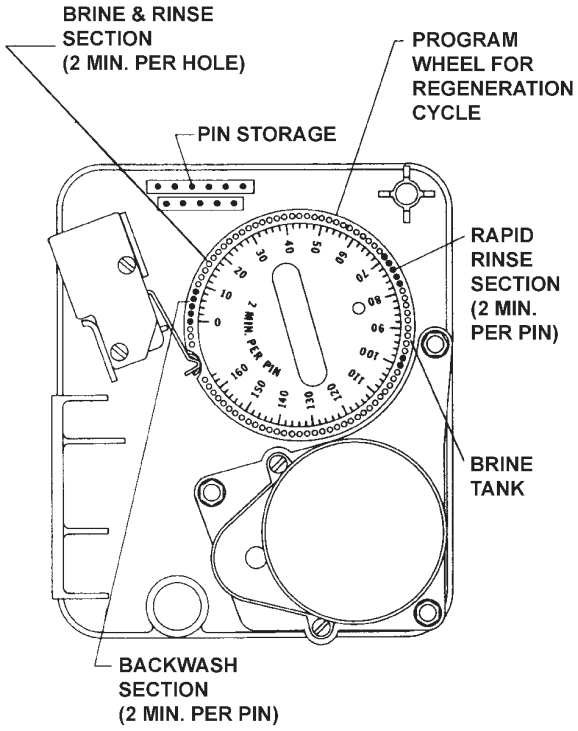
How To Change The Length Of The Backwash Time:

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

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

How To Change The Length Of Brine And Rinse Time:

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



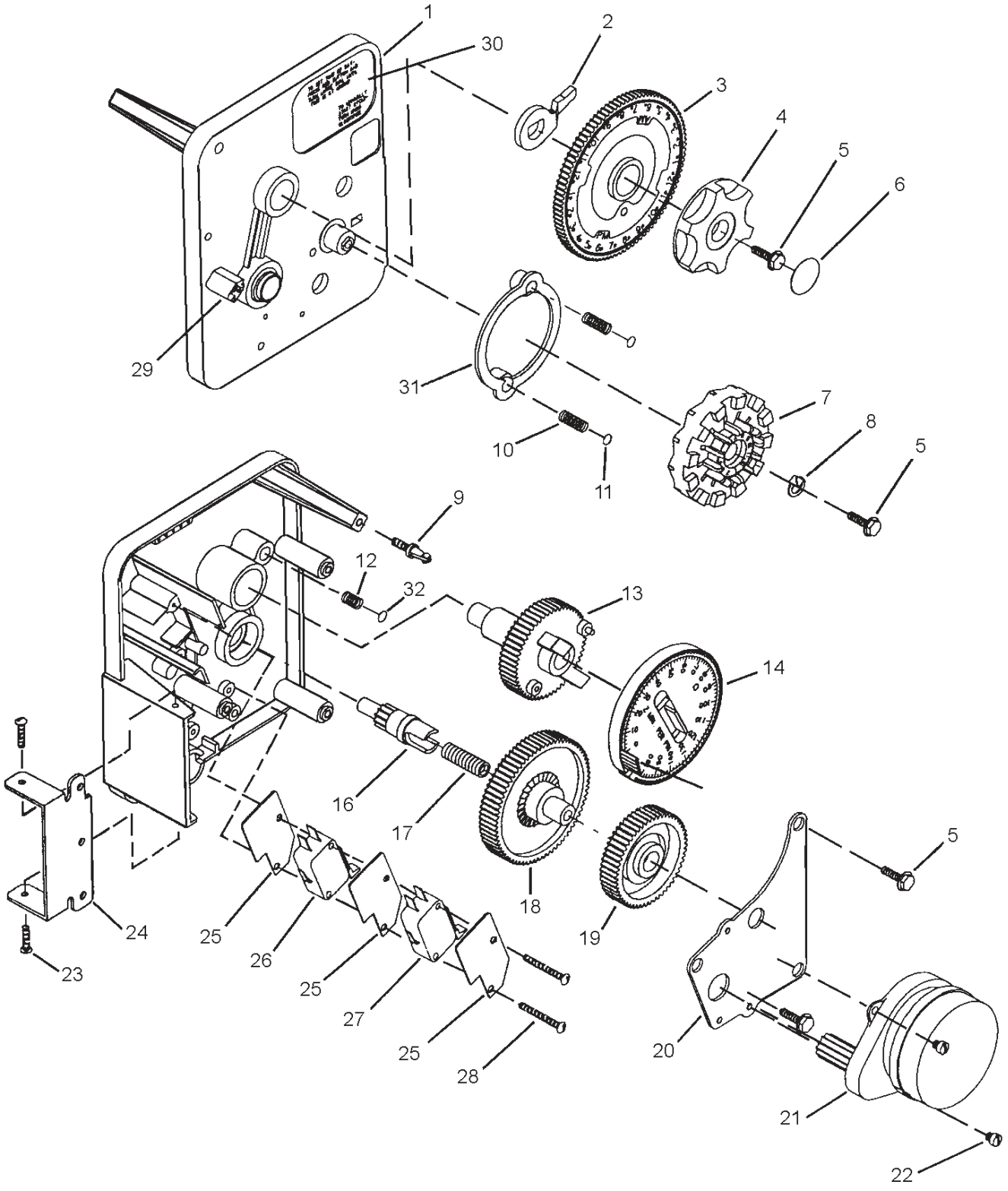
How To Change The Length Of Rapid Rinse:

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

How To Change The Length Of Brine Tank Refill Time:

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

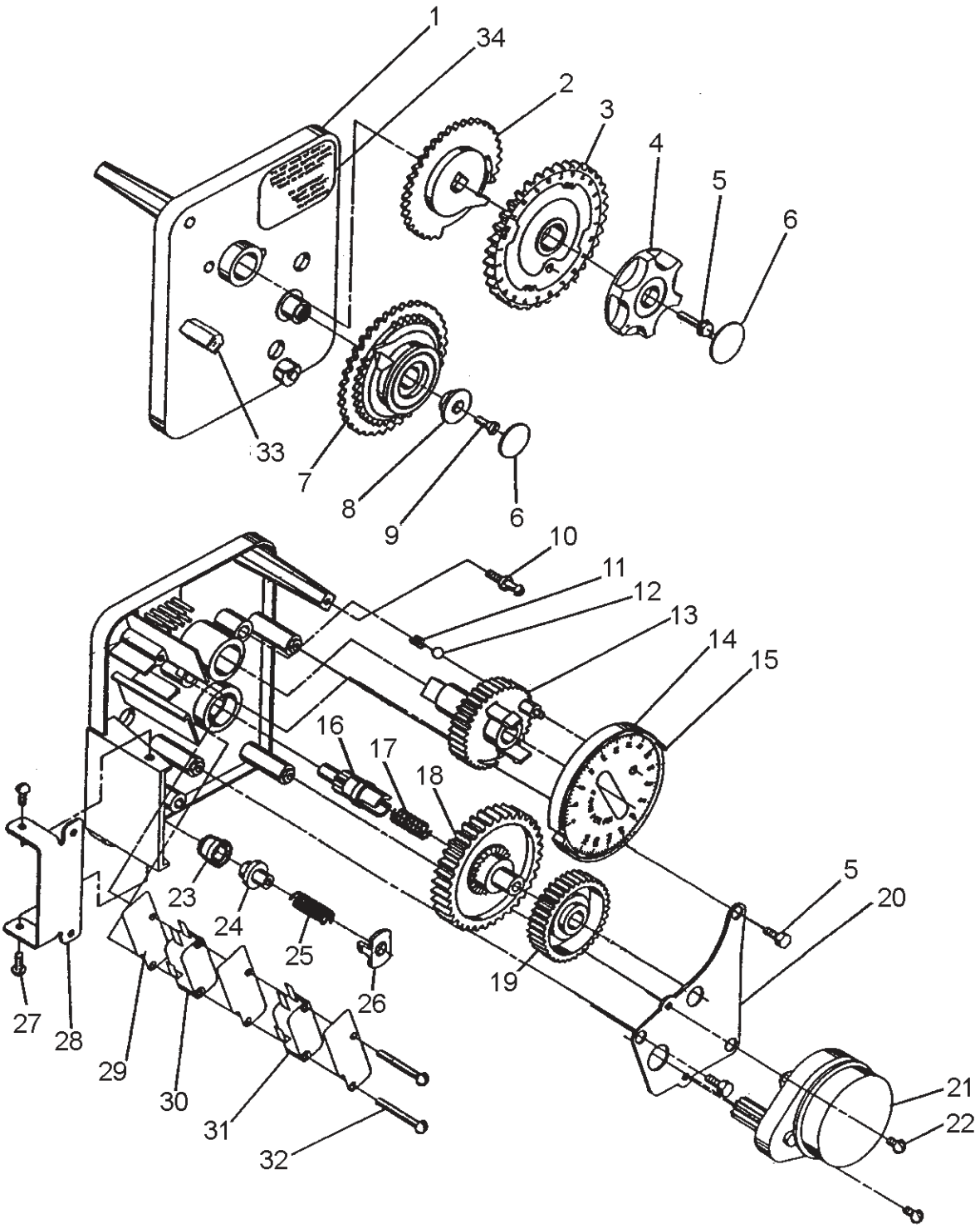
3200 Timer Assembly



3200 Timer Assembly Parts List

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

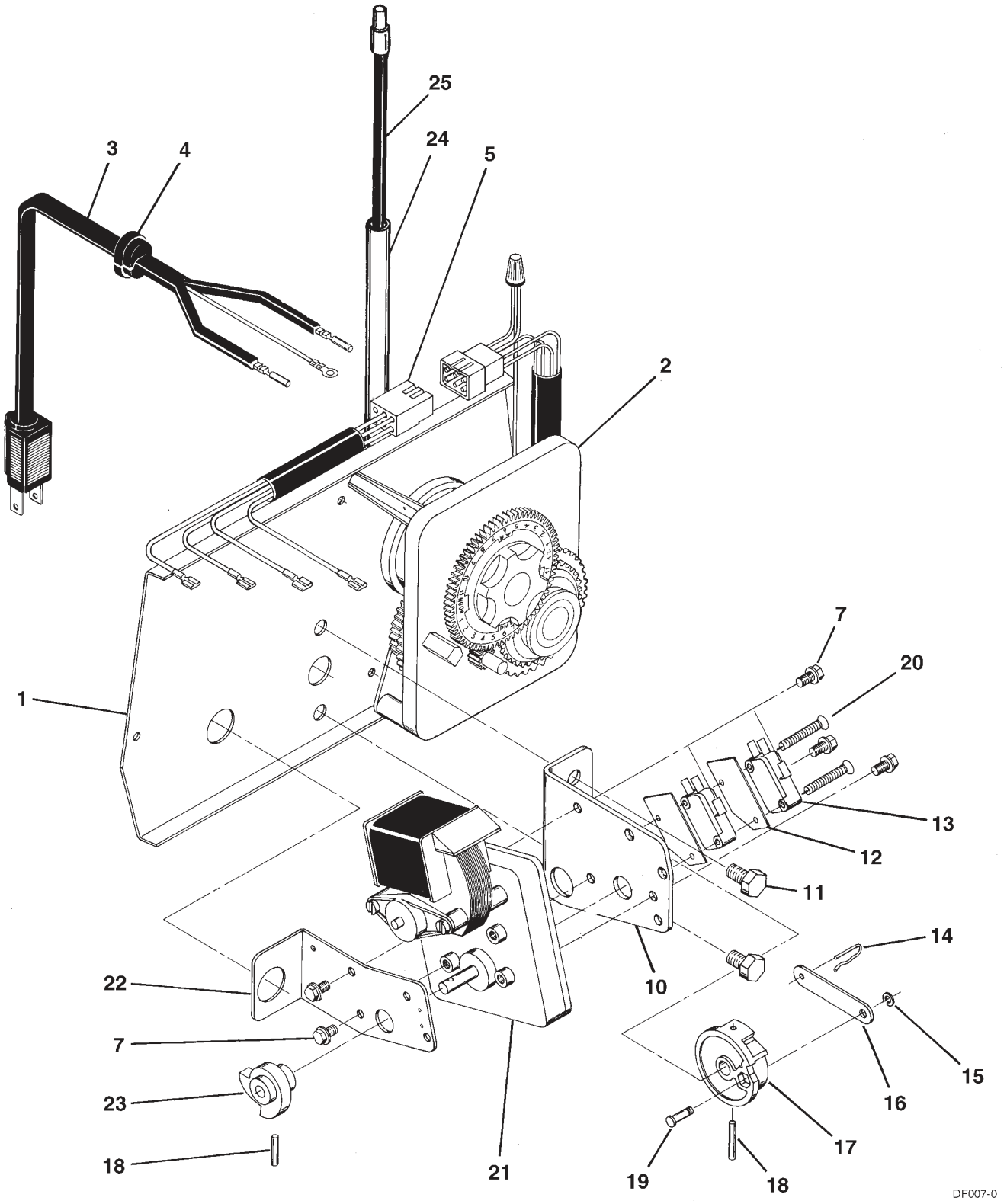
3210 Timer Assembly



3210 Timer Assembly Parts List

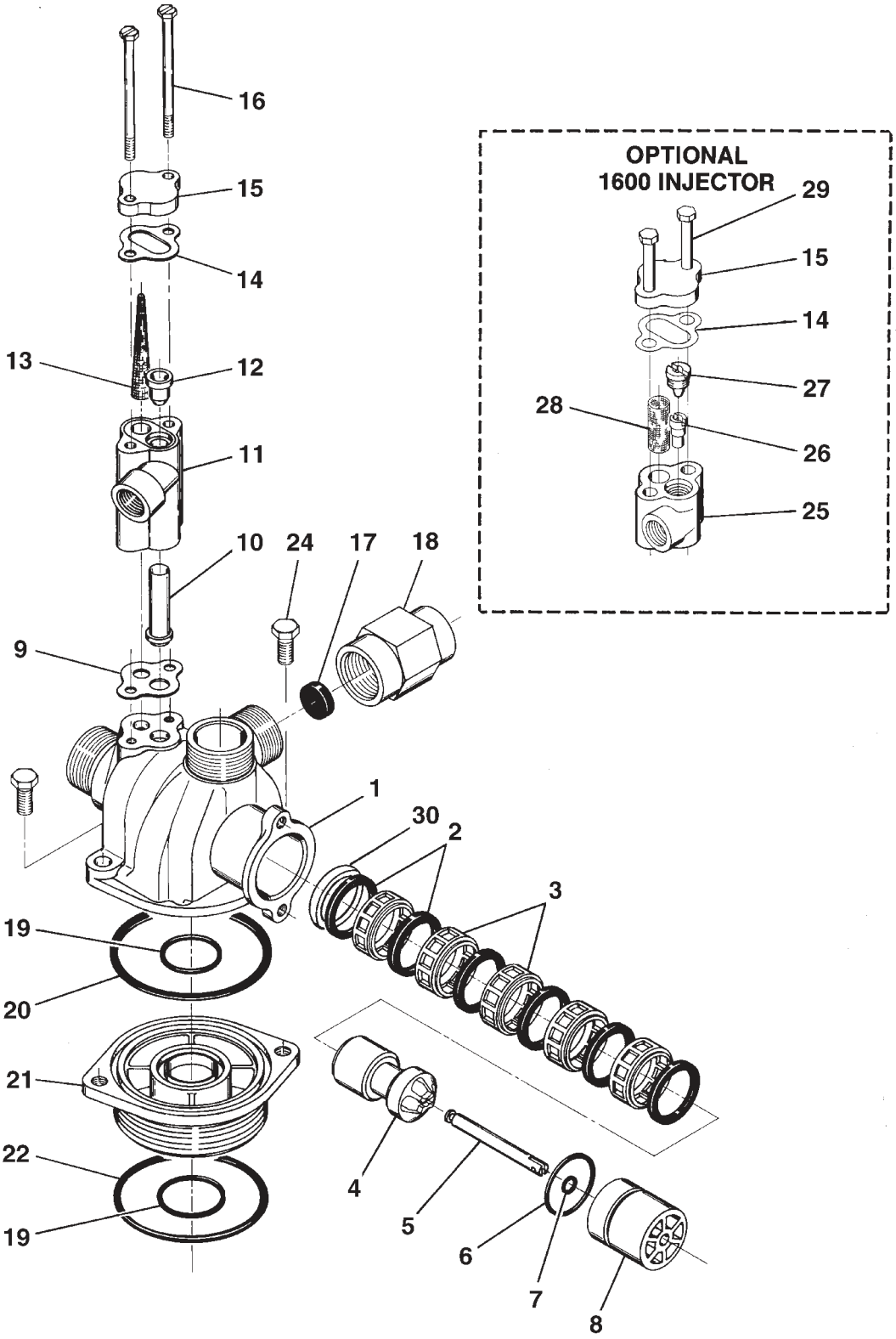
Item No.	Quantity	Part No.	Description
1	1	13870-01	Housing Assembly, Timer, 3210
2	1	13802	Gear, Cycle Actuator
3	1	40096-24	Dial 12AM Regen Assy, Black
		40096-02	Dial 2AM Regen Assy, Black
4	1	13886	Knob, 3200
5	4	13296	Screw, Hex Wsh, 6-20 x 1/2
6	2	11999	Label, Button
7	1	60405-15	Program Wheel, w/3/4” Std Label with People Label Set
		60405-50	Program Wheel, w/2” Std Label Set @ 21
8	1	13806	Retainer, Program Wheel
9	1	13748	Screw, Flt Hd St, 6-20 x 1/2
10	1	14265	Clip, Spring
11	1	15424	Spring, Detent, Timer
12	1	15066	Ball, 1/4” Delrin
13	1	13911	Gear, Main Drive, Timer
14	1	19210	Program Wheel Assy
15	21	15493	Pin, Spring, 1/16 x 5/8
16	1	13018	Pinion, Idler
17	1	13312	Spring, Shaft
18	1	13017	Gear, Idler
19	1	13164	Gear, Drive
20	1	13887	Plate, Motor Mounting
21	1	18743	Motor, 120V, 60Hz, 1/30 RPM, 5600
		19659-1	Motor, 24V, 60Hz, 1/30 RPM
22	2	13278	Screw, Phil Hd Mach, 6-32 x 1/8
23	1	13830	Pinion, Program Wheel Drive
24	1	13831	Clutch, Drive Pinion
25	1	14276	Spring, Meter Clutch
26	1	14253	Retainer, Clutch Spring
27	3	11384	Screw, Phil, 6-32 x 1/4
28	1	13881	Bracket, Hinge Timer
29	3	14087	Insulator
30	1	10896	Switch, Micro
31	1	15320	Switch, Micro, Timer
32	2	11413	Screw, Pan Hd Mach, 4-40 x 1 1/8
33	1	14007	Label, Time of Day
34	1	14045	Label, Instruction
Not Shown	1	13902	Harness, 3200
Not Shown	2	40422	Nut, Wire, Tan
Not Shown	1	15354-01	Wire, Ground 4”
Not Shown	1	15465	Label, Caution
Not Shown	1	14198	Label, Indicator

Control Drive Assembly



Item No.	Quantity	Part No.	Description
1	1	40264	Backplate, SS/SVO, w/T-Screws 2750, 2850, 2900
2	1		Timer: - 3200 7 Day - 3200 12 Day - 3210 Meter
3	1	11838	Power Cord, 6' Fleck
4	1	13547	Strain Relief, Flat Cord Heyco #30-1
5	1	11667	Harness, Drive, Designr/Envirmtl
11	2	10231	Screw, Slot Hex, 1/4 - 20 x 1/2
12	2	10302	Insulator, Limit Switch
13	2	10218	Switch, Micro
14	1	10909	Pin, Link
15	3	10250	Ring, Retaining
16	1	10621	Link
17	1	12102	Cam, Rapid Rinse
		12576	Cam, Drive STF
18	2	10338	Pin, Roll 3/32 x 7/8
19	1	13366	Bearing, Drive
20	2	14923	Screw, Pan Hd Mach, 4-40 x 1
21	1	41543	Motor, Drive, 115V, 50/60Hz
23	1	12777	Cam, Shut-Off Valve
		10815	Cam, Brine Valve, RR (Not Shown)
		12472	Cam Assy, Tri-Stack After RR (Not Shown)
24	1	15441	Cable Guide Assy, 2750
25	1	15513	Meter Cable, 17.5"
Not Shown	2	10300	Screw, Slot Hex Wsh, 18-8 x 3/8
Not Shown	2	15742	Screw, Cover
Not Shown	2	15833	Stand-Off
Not Shown	1	19291-020	Cover, Designer
Not Shown	2	19367	Screw, Designer Cover, Thumb 8-32 Black UV Stable Material

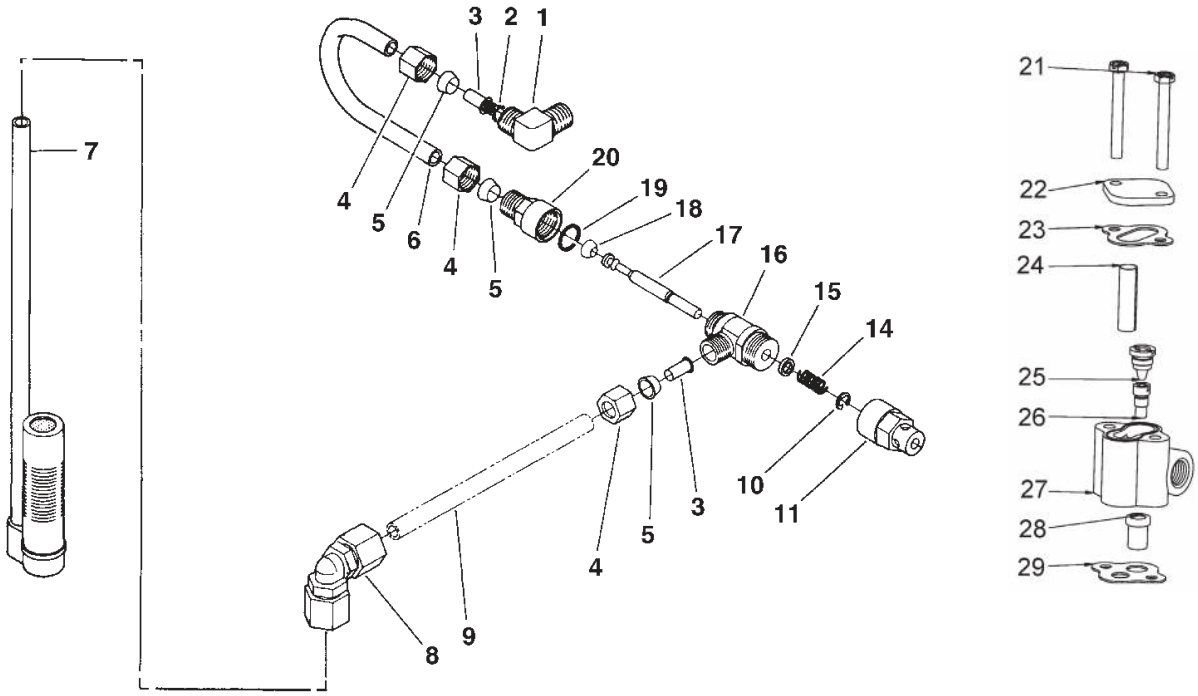
Control Valve with 1700 Injector



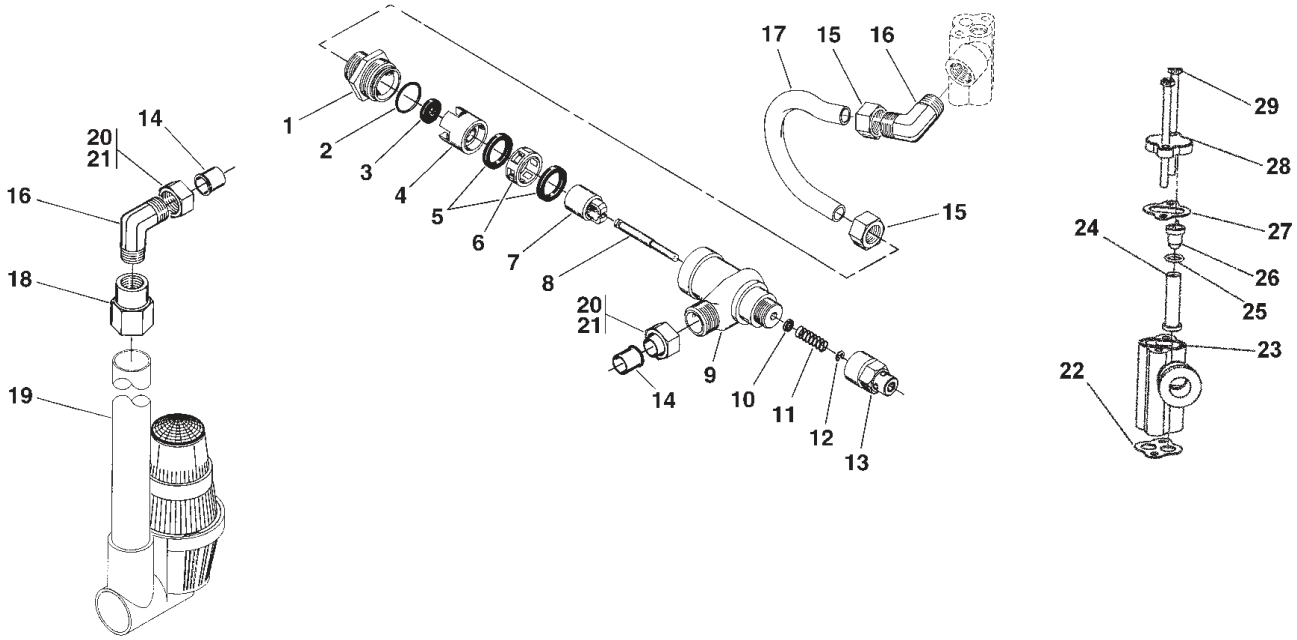
Control Valve with 1700 Injector Parts List

Item No.	Quantity	Part No.	Description
1	1	14749	Valve Body, 2750
2	6	10545	Seal, Piston
3	5	11451	Spacer, 12 Hole
		16589	Spacer, HW
4	1	14451	Piston, 2750
5	1	14452	Rod, Piston
6	1	10234-01	O-Ring, -024, 560CD
7	1	10209	Quad Ring, -010
8	1	10598	End Plug Assy
		10598-01	End Plug Assy, Hot Water
9	1	14805	Gasket, 2700 Flat Cap w/SVO
10	1	14802	Throat, Injector
11	1	17777	Body, Injector, 1700
12	1	14801	Nozzle, Injector
13	1	14803	Screen, Injector
14	1	10229	Gasket, Injector Cap, 1600
15	1	11893	Cap, Injector, SS
		10228	Cap, Injector
16	2	14804	Screw, Hex Hd Mach, 10-24 x 2 3/4
17	1		Washer - Flow Control (specify size)
18	1	15177	Housing, DLFC, 1/2”F x 3/4”F
19	2	11710	O-ring, -215
20	1	11208	O-ring, -232
21	1	12461	Adapter Base, 1” 2 1/2” - 8 QC
22	1	10381	O-ring, -231
24	2	11224	Screw, Hex Hd, 5/16 - 18 x 5/8
25	1	17776	Body, Injector
26	1	10914	Throat, Injector
27	1	10913	Nozzle, Injector
28	1	10227	Screen, Injector
29	2	10692	Screw, Slot Hex Hd, 10-24 x 18-8 S.S.
30	1	10757	Spacer, End
		10757B	Spacer, End, Brass
Not Shown	1	16221	Disperser, Air

1600 Series Brine System Assembly & Parts List

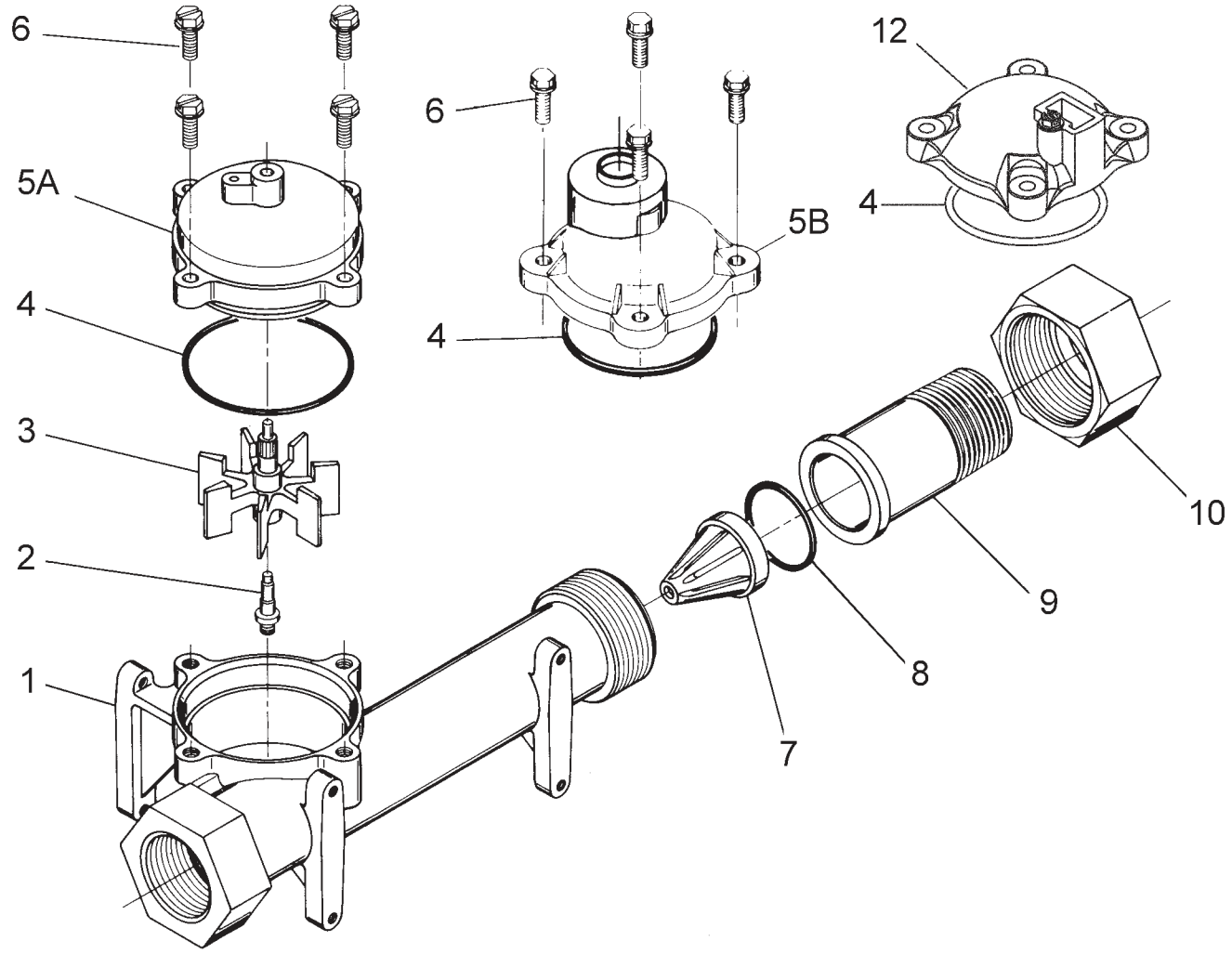


Item No.	Quantity	Part No.	Description
1	1	10328	Elbow, 90 Deg. 1/4 NPT x 3/8T
2	1	12767	Screen, Brine
3	2	10332	Fitting, Insert, 3/8
4	3	10329	Fitting, Tube, 3/8 Nut, Brass
5	3	10330	Fitting, Sleeve, 3/8 Celcon
6	1	15221	Tube, Brine Valve, Gray
7	1	60002	Air Check, #500
		60003	Air Check, #500, HW
8	1	12794	Fitting, Elbow, 90 Deg 3/8, White, Poly Tube
9	1	Not Supplied	Brine Line Tube (3/8” Flexible Tube)
10	1	10250	Ring, Retaining
11	1	11749	Guide, Brine Valve Stem
14	1	10249	Spring, Brine Valve
15	1	12550	Quad Ring, -009
16	1	12748	Brine Valve Body Assy, 1600 w/Quad Ring
17	1	12552	Brine Valve Stem, 1600
18	1	12626	Seat, Brine Valve
19	1	11982	O-ring, -016
20	1	60020-25	BLFC, .25 GPM, 1600
		60020-50	BLFC, .50 GPM, 1600
		60020-100	BLFC, 1.0 GPM, 1600
21	2	10692	Screw, Slot Hex Hd, 10-24 x 18-8
22	1	11893	Cap, Injector, SS
23	1	10229	Gasket, Injector Cap, 1600
24	1	10227	Screen, Injector
25	1	10913	Nozzle, Injector
26	1	10914	Throat, Injector
27	1	17776	Body, Injector, 1600
28	1	16221	Disperser, Air
29	1	14805	Gasket, Injector Body, 1600/1700

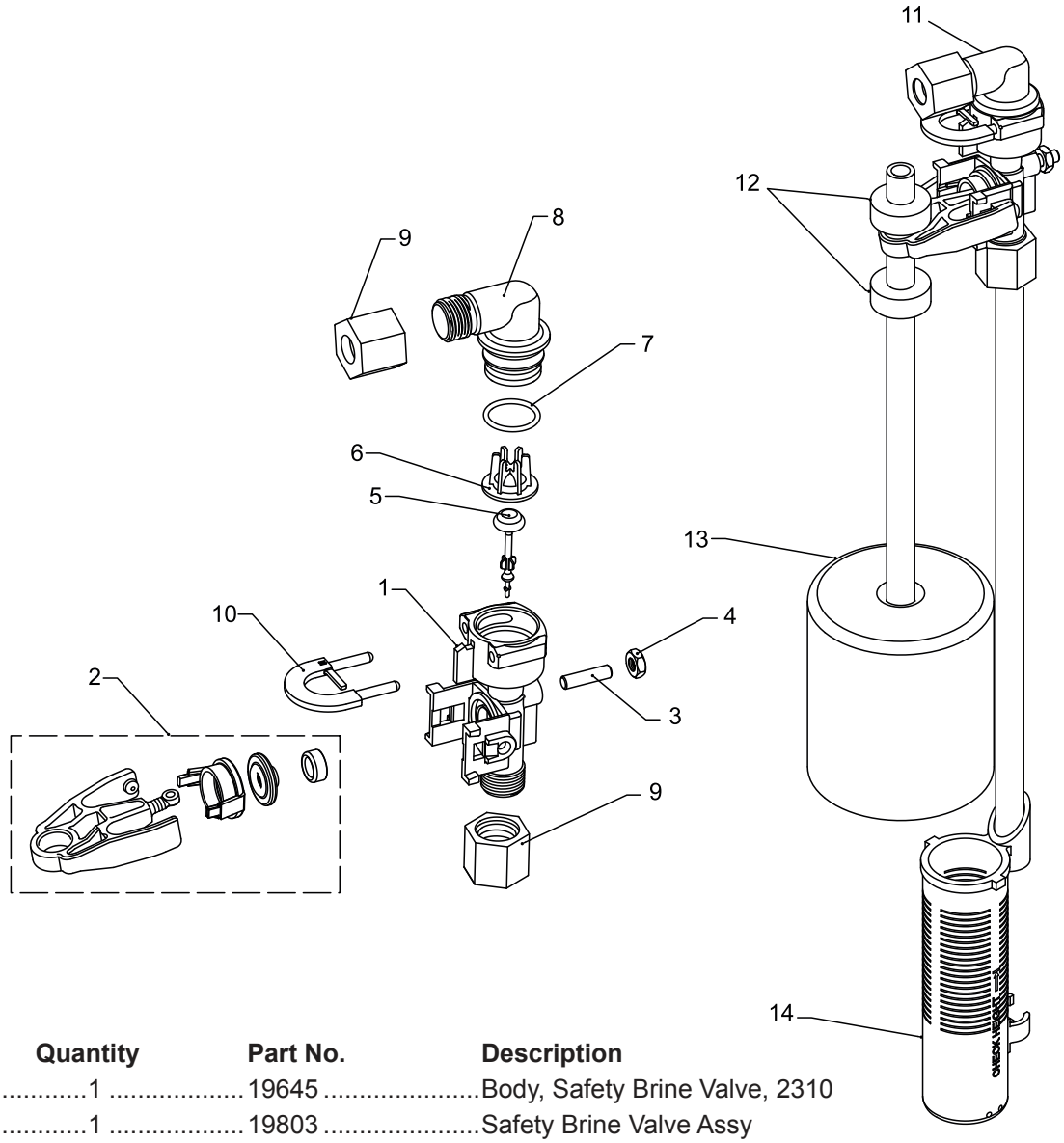


Item No.	Quantity	Part No.	Description
1	1	14792	Plug, End, Brine Valve
2	1	13201	Quad Ring, -020
3	1		Washer Flow Control (specify size)
4	1	14785	Retainer, Flow Control
5	2	14811	O-ring, -210, 560CD, Brine
6	1	14798	Spacer, 1700, Brine
7	1	14795	Piston, Brine Valve
8	1	14797	Brine Valve Stem
9	1	14790	Brine Valve Body
10	1	12550	Quad Ring, -009
11	1	15310	Spring, Brine Valve
12	1	10250	Ring, Retaining
13	1	15517	Guide, Stem
14	2	15415	Fitting, Insert, 1/2” Tube
15	2	15414	Nut, 2900, w/Sleeve
16	2	15413	Fitting, Elbow, Male, 1/2T x 3/8 NPT
17	1	15416	Tube, Brine, 2900, 8.671”
18	1	16977	Bushing, Reducer, 3/4” x 3/8”
19	1	60009-01	#900 Air Check Assembly, Hot Water
		60009-00	Air Check, #900, Commercial Less Fittings
20	2	16123	Nut, Brass
21	2	16124	Fitting, Sleeve, Delrin
22	1	16974	Fitting, Plstc, Female, 3/4 3/4 Slip
23	1	17777-03	Body, Injector, 1700
24	1	14802	Throat, Injector
25	1	17777	Body, Injector, 1700
26	1	14801	Nozzle, Injection
27	1	10229	Gasket, Injector Cap, 1600
28	1	11893	Cap, Injector, SS
		10228	Cap, Injector
29	2	14804	Screw, Hex Hd Mach, 10-24 x 2 3/4”

1” Meter Assembly

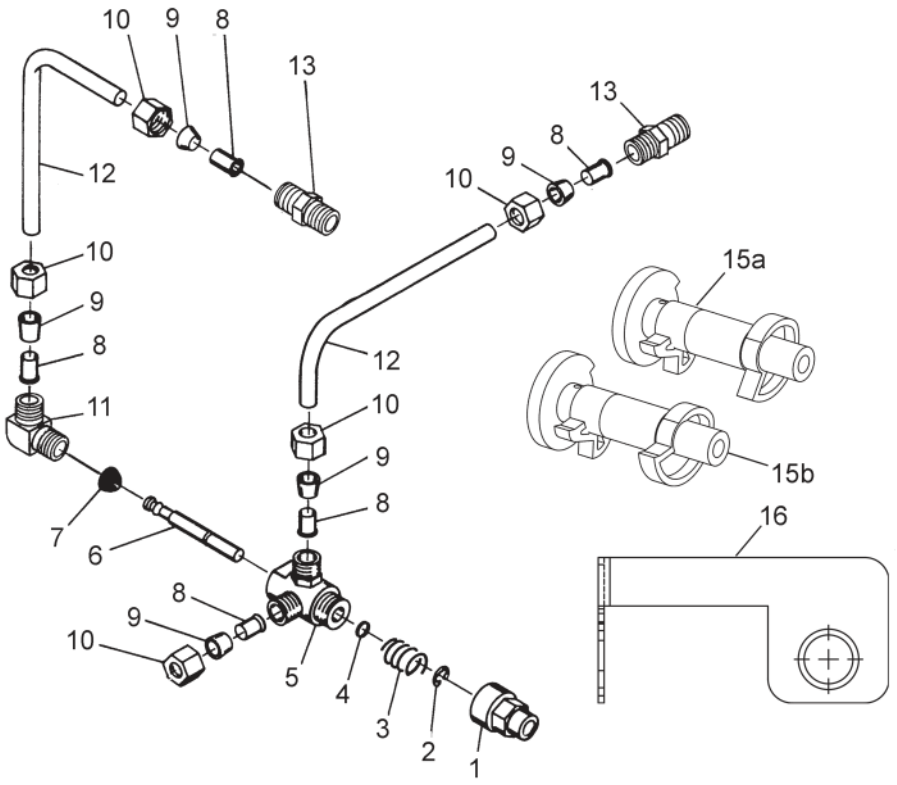


Item No.	Quantity	Part No.	Description
1	1	14959	Body, Meter, 2750
2	1	13882	Post, Meter Impeller
3	1	13509	Impeller, Meter
4	1	13847	O-ring, -137, Std/560CD, Meter
5A	1	15218	Meter Cap Assy
5B	1	15237	Meter Cap Assy, Ext
6	4	12112	Screw, Hex Hd Mach, 10-24 x 1/2
7	1	14960	Flow Straightener, 1”
8	1	13287	O-ring, -123
9	1	14961	Fitting, 1” Quick Connector
10	1	14962	Nut, 1” Meter, Q/C
12	1	14716	Meter Cap Assy, ET/NT
Not Shown	1	15308	Fitting, Coupling, 1”, Brass



Item No.	Quantity	Part No.	Description
1	1	19645	Body, Safety Brine Valve, 2310
2	1	19803	Safety Brine Valve Assy
3	1	19804	Screw, Sckt Hd, Set, 10-24 x .75
4	1	19805	Nut, Hex, 10-24, Nylon Black
5	1	19652-01	Poppet Assy, SBV w/O-Ring
6	1	19649	Flow Dispenser
7	1	11183	O-Ring, -017
8	1	19647	Elbow, Safety Brine Valve
9	2	19625	Nut Assy, 3/8” Plastic
10	1	18312	Retainer, Drain
11	1	60014	Safety Brine Valve Assy, 2310
12	2	10150	Grommet, .30 Dia
13	1	60068	Float Assy, 2310, w/30” Rod
14	1	60002	Air Check, #500

Service Valve Operator



Item No.	Quantity	Part No.	Description
1	1	11749	Guide, Brine Valve Stem
2	1	10250	Ring, Retaining
3	1	10249	Spring, Brine Valve
4	1	12550	Quad Ring, -009
5	2	10785	SVO Body Assy Brass Valves
6	1	12552	Brine Valve Stem, 1600
7	1	12626	Seat, Brine Valve
8	5	10332	Fitting, Insert, 3/8
9	5	10330	Fitting, Sleeve, 3/8” Celcon
10	5	10329	Fitting, Tube, 3/8 Nut, Brass
11	1	10328	Fitting, Elbow, 90 Deg 1/4 NPT x 3/8T
12	2	12897	Tube, Fitting, 3/8 x 9 3/4
13	1	16730	Fitting, Male, 1/4 x 1
14	2	15415	Fitting, Insert, 1/2” Tube
15a	1	12472	Cam Assy, Tri-Stack, After RR
15b	1	15770	Cam Assy, Special Tri-Stack After Brine Fill
16	1	12114	Bracket, Motor Outboard, Coated

BRINE VALVES

60029	1600 Brine Valve
60034-XX	1700 Brine Valve

BRINE LINE FLOW (BLFC)

60011-XX	Brine Valve, 1650, Short Stem
60710-XX	BLFC, 1"

PISTON ASSEMBLIES

60090-HF	Piston Assy, 2750/2900
60091-HF	Piston Assy, 2750, Hot Water
60190-UF	2750 Piston Assembly

BRINE VALVES

60029-XX	1600 Brine Valve
60034-XX	1700 Brine Valve

DRAIN LINE FLOW CONTROLS

60365-XX	Brass DLFC 3/4" NPT

CAM ASSEMBLY

60160-00	Drive Cam Assy, RR, White
60160-20	Drive Cam Assy, Std
60160-30	Drive Cam Assy, Upflow
60160-31	Drive Cam Assy, Upflow, Variable

24 HOUR GEAR ASSEMBLY

19205	Gear Assy, 24 Hour, Silver, 5600, 12 A.M.

DRIVE ASSEMBLIES

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

INJECTOR ASSEMBLIES COMPLETE

60080-XX	1600 Injector Assembly
60485-XX	1600 Injector Assembly
60381-XX	1700 Injector Assembly
60486-XX	1700 Injector Assembly

METERS

60391	2750 Meter Assy, STD
60391-005	Meter, 1" Std Range, Plastic Cap
60392	2750 Meter Assy, EXT
60392-005	Meter, 1" Ext Range, Plastic Cap
60621	Meter Assy, 2" Plastic, Std
60625	Meter Assy, 2" Plastic Electronic

PROGRAM WHEEL ASSEMBLIES

60405-20	Program Wheel, w/3/4" Ext Label 1 1/2" Std Set @ 100
60405-50	Program Wheel, w/2" Std Label Set @ 21

SALES AND SERVICE AIDS

40737	Literature, 2750 Spec Sheet
41762	Literature, 2750 D/F and U/F
40717	Literature, Catalog Assy, PWT Residential/Commercial

SEAL & SPACER KITS

60121	Seals & Spacers, 2750
60121-20	Seals & Spacers, 2750, U/F
60122	Seal & Spacer Kit, 2750 H/W

SKIPPER WHEEL ASEMBLIES

14860	Skipper Wheel Assy, 7 Day
14381	Skipper Wheel Assy, 12 Day

Troubleshooting

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

Problem	Cause	Correction
8. Softener fails to draw brine.	A. Drain line flow control is plugged.	A. Clean drain line flow control.
	B. Injector is plugged.	B. Clean injector
	C. Injector screen plugged.	C. Clean screen.
	D. Line pressure is too low.	D. Increase line pressure to 20 P.S.I.
	E. Internal control leak	E. Change seals, spacers, and piston assembly.
	F. Service adapter did not cycle.	F. Check drive motor and switches.
9. Control cycles continuously.	A. Misadjusted, broken, or shorted switch.	A. Determine if switch or timer is faulty and replace it, or replace complete power head.
10. Drain flows continuously.	A. Valve is not programming correctly.	A. Check timer program and positioning of control. Replace power head assembly if not positioning properly.
	B. Foreign material in control.	B. Remove power head assembly and inspect bore. Remove foreign material and check control in various regeneration positions.
	C. Internal control leak.	C. Replace seals and piston assembly.

General Service Hints For Meter Control

Problem: Softener delivers hard water

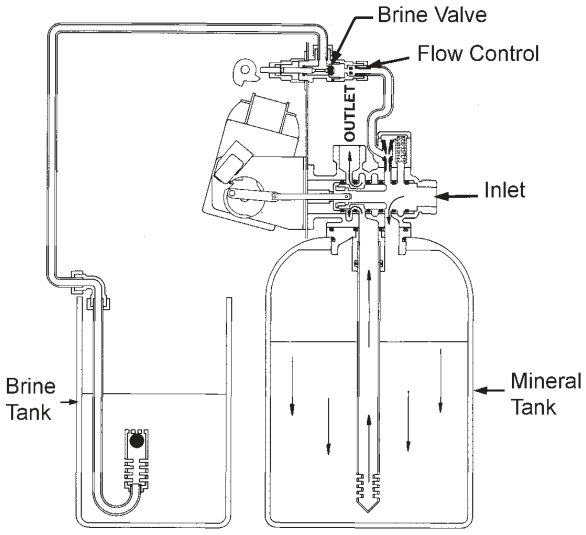
Reason: Reserve capacity has been exceeded.
Correction: Check salt dosage requirements and reset program wheel to provide additional reserve.

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

Reason: Meter is not measuring flow.
Correction: Check meter with meter checker.

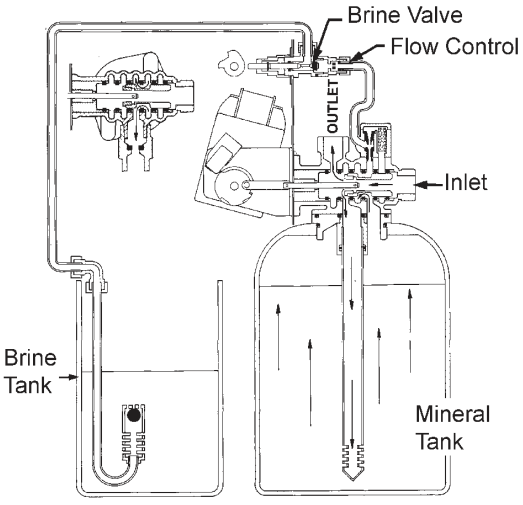
Water Conditioner Flow Diagrams

1 Service Position



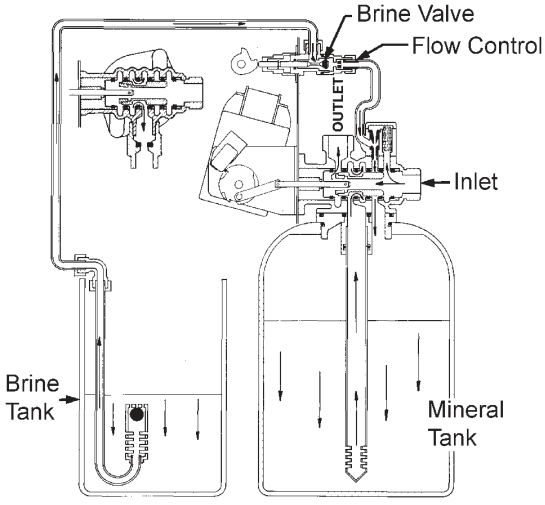
Hard water enters unit at valve inlet and flows down thru the mineral in the mineral tank. Conditioned water enters center tube thru the bottom distributor — then flows up thru the center tube — around the piston and out the top outlet of the valve.

2 Backwash Position



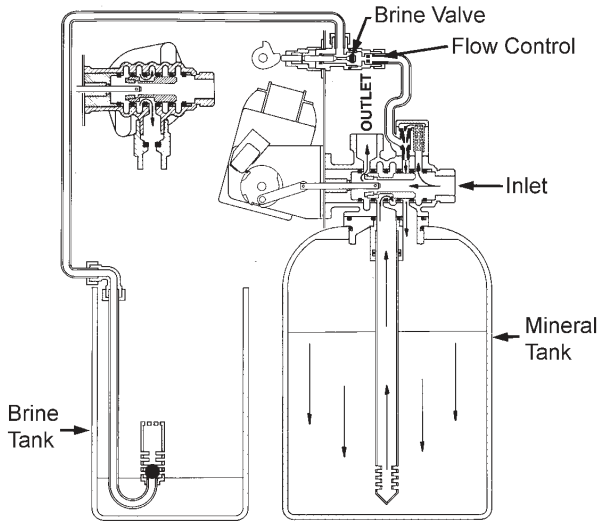
Hard water enters unit at valve inlet — flows thru piston — down center tube — thru bottom distributor and up thru the mineral — around the piston and out the drain line.

3 Brine Position



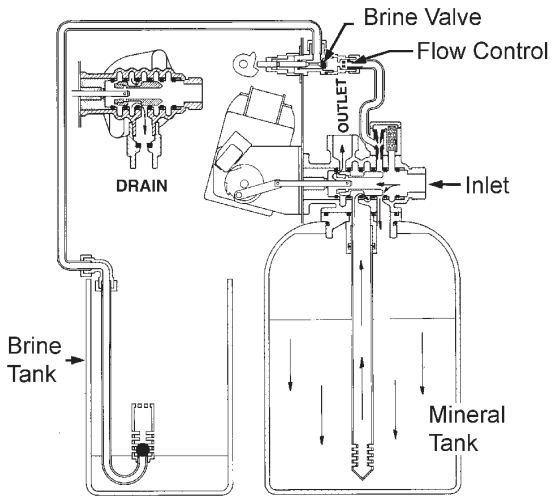
Hard water enters unit at valve inlet — flows up into injector housing and down thru nozzle and orifice to draw brine from the brine tank — brine flows down thru mineral and enters the center tube thru bottom distributor and out thru the drain line.

4 Slow Rinse Position



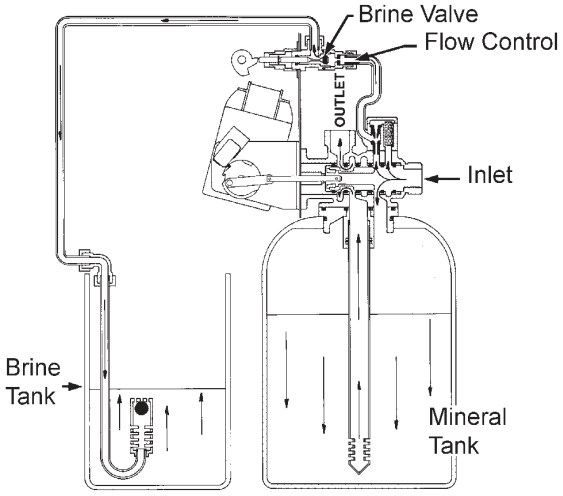
Hard water enters unit at valve inlet — flows up into injector housing and down thru nozzle and orifice — around the piston — down thru mineral — enters center tube thru bottom distributor — flows up thru center tube — around piston and out thru drain line.

5 Rapid Rinse



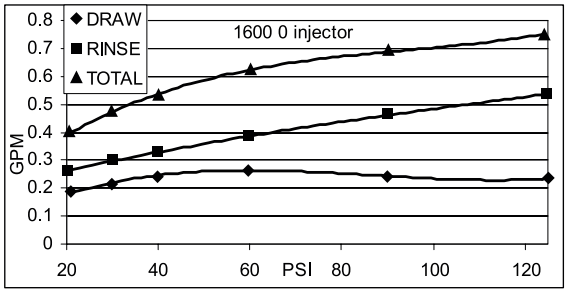
Hard water flows directly from inlet down thru mineral into center tube bottom distributor and up thru center tube — around piston and out thru the drain line.

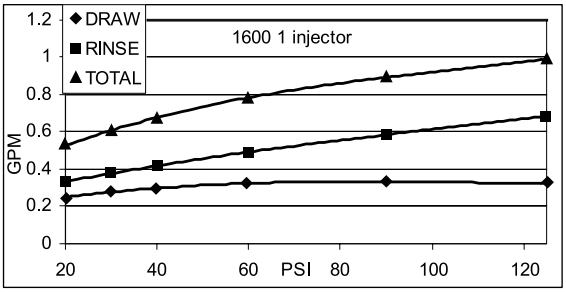
6 Brine Tank Fill Position

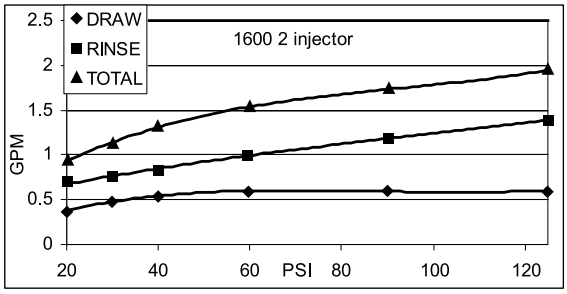


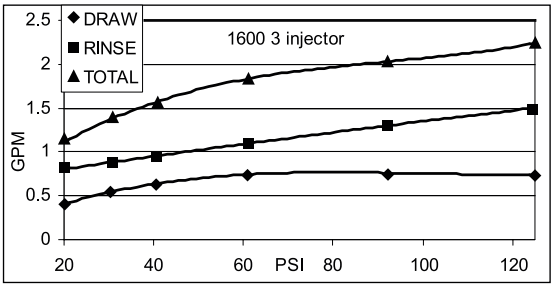
Hard water enters unit at valve inlet — flows up thru the injector housing — thru the brine valve to fill the brine tank.

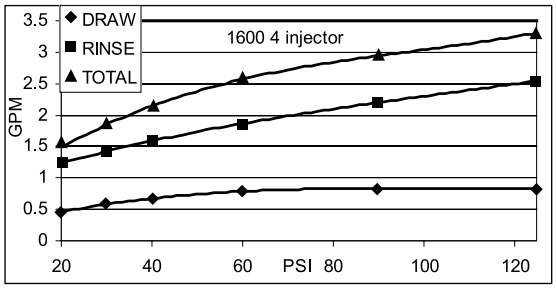
Flow Data & Injector Draw Rates

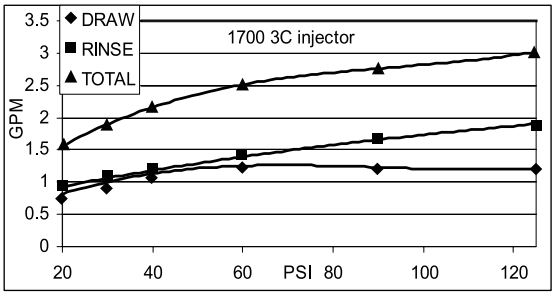


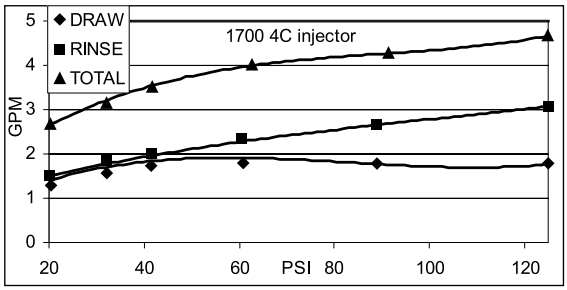


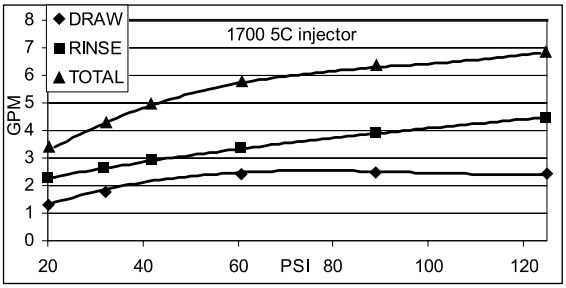


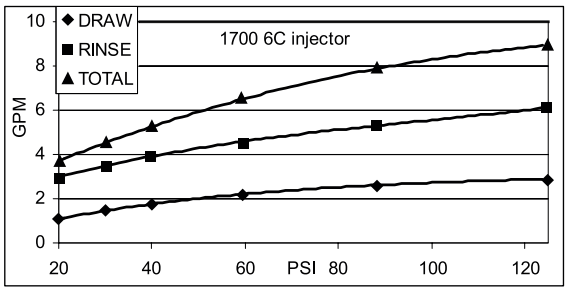




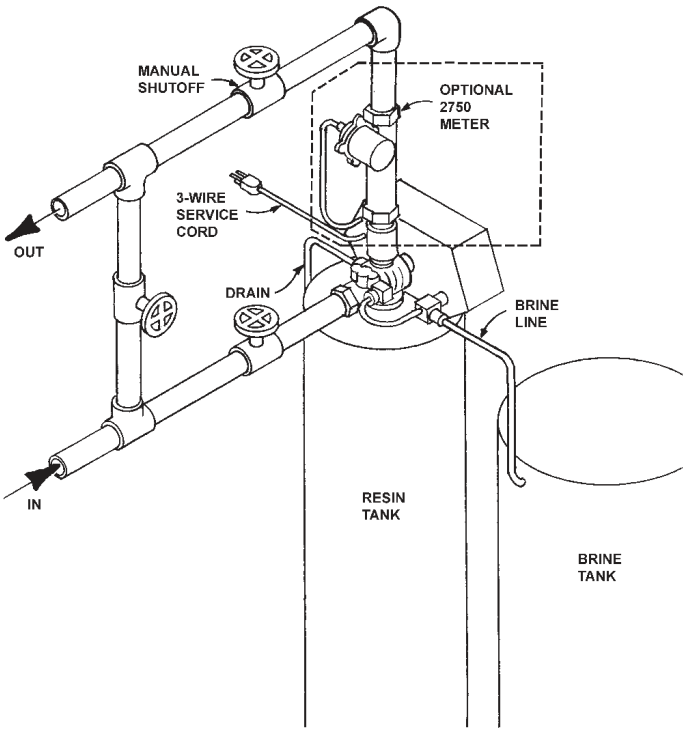




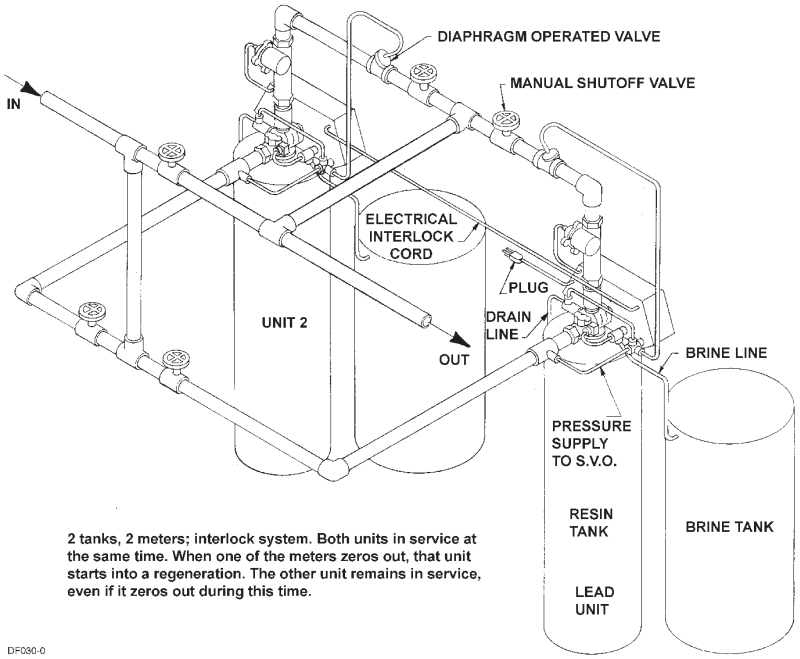




System #4 - Typical Tank Installation with Optional Meter



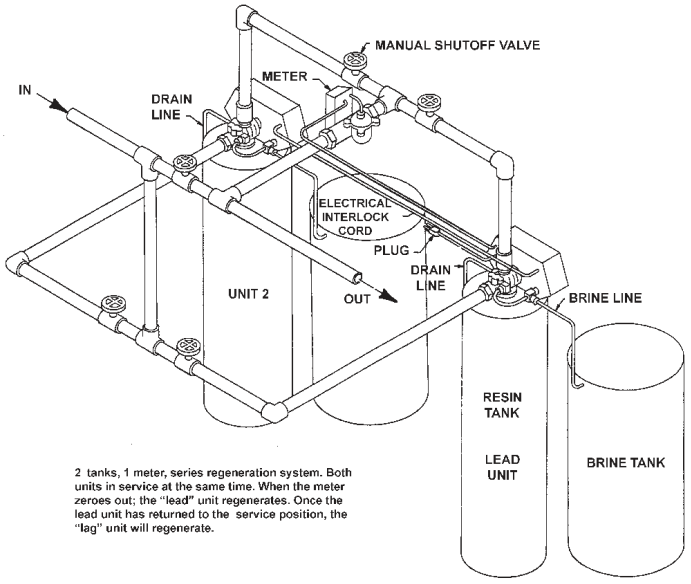
System #5 Interlock - Typical Twin Tank Installation with Optional 2 Meter Interlock and No Hard Water Bypass



2 tanks, 2 meters; interlock system. Both units in service at the same time. When one of the meters zeros out, that unit starts into a regeneration. The other unit remains in service, even if it zeros out during this time.

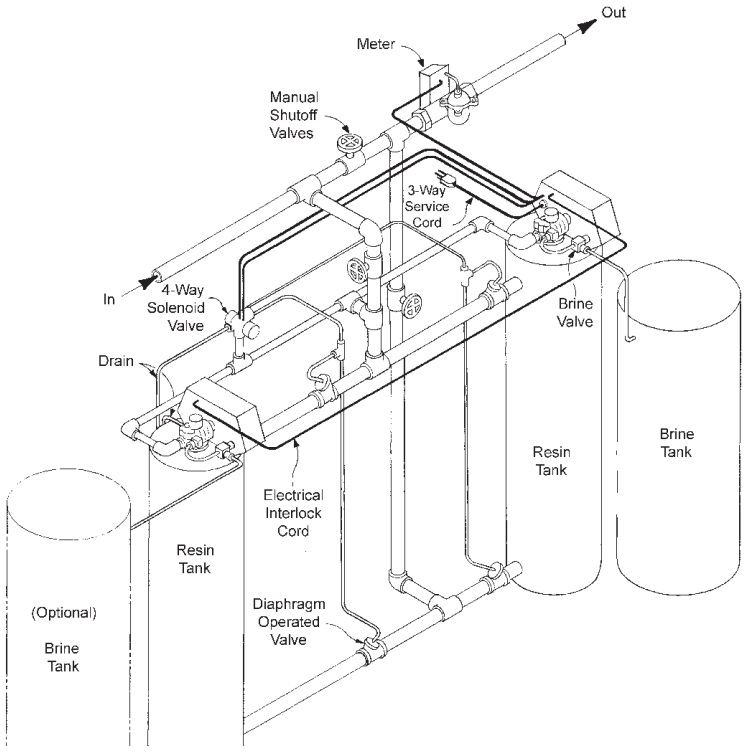
DF030-0

System #6 - Twin Series Regeneration Installation with a Remote Meter



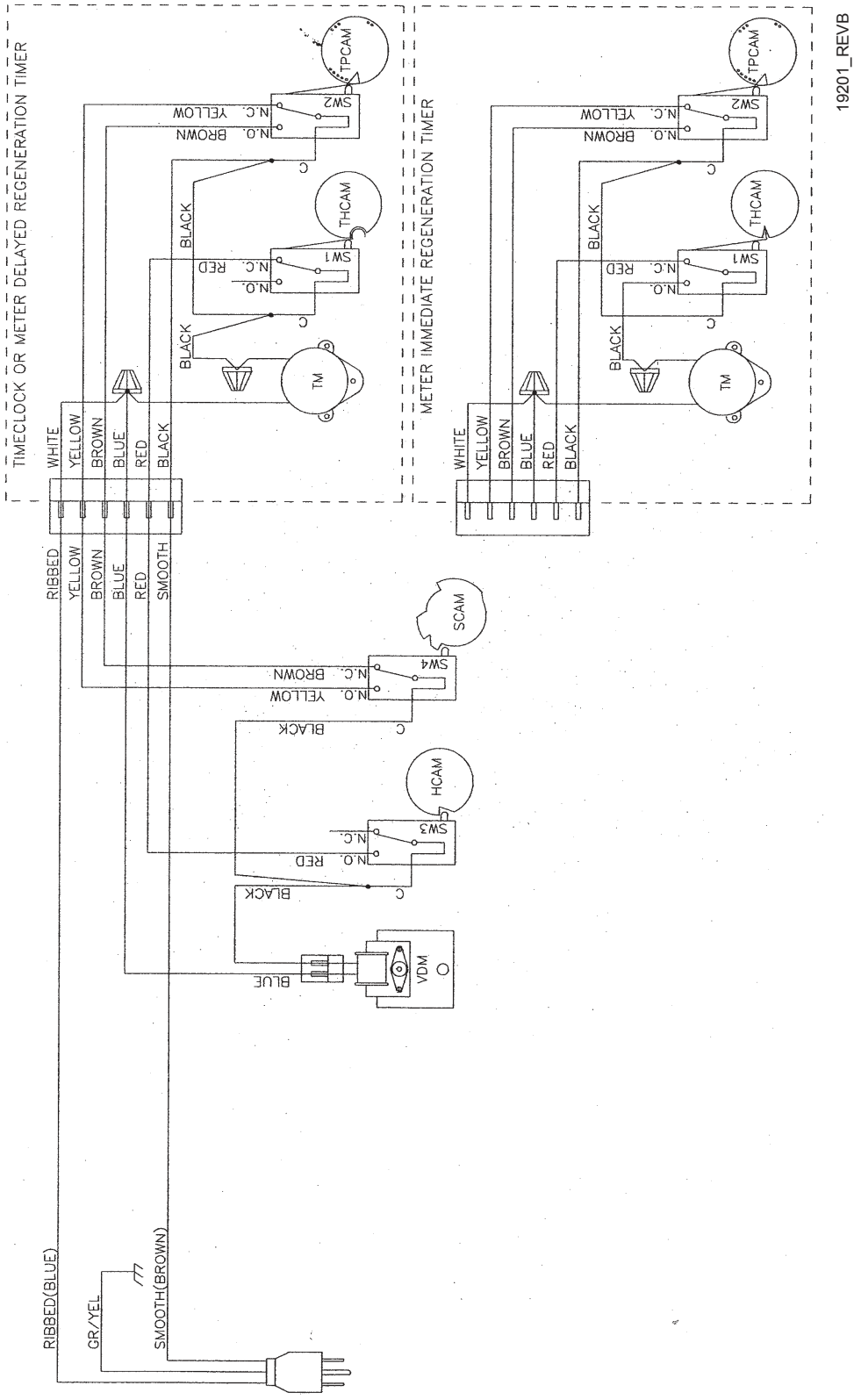
2 tanks, 1 meter, series regeneration system. Both units in service at the same time. When the meter zeroes out; the "lead" unit regenerates. Once the lead unit has returned to the service position, the "lag" unit will regenerate.

System #7 - Twin Alternator Installation with a Remote Meter

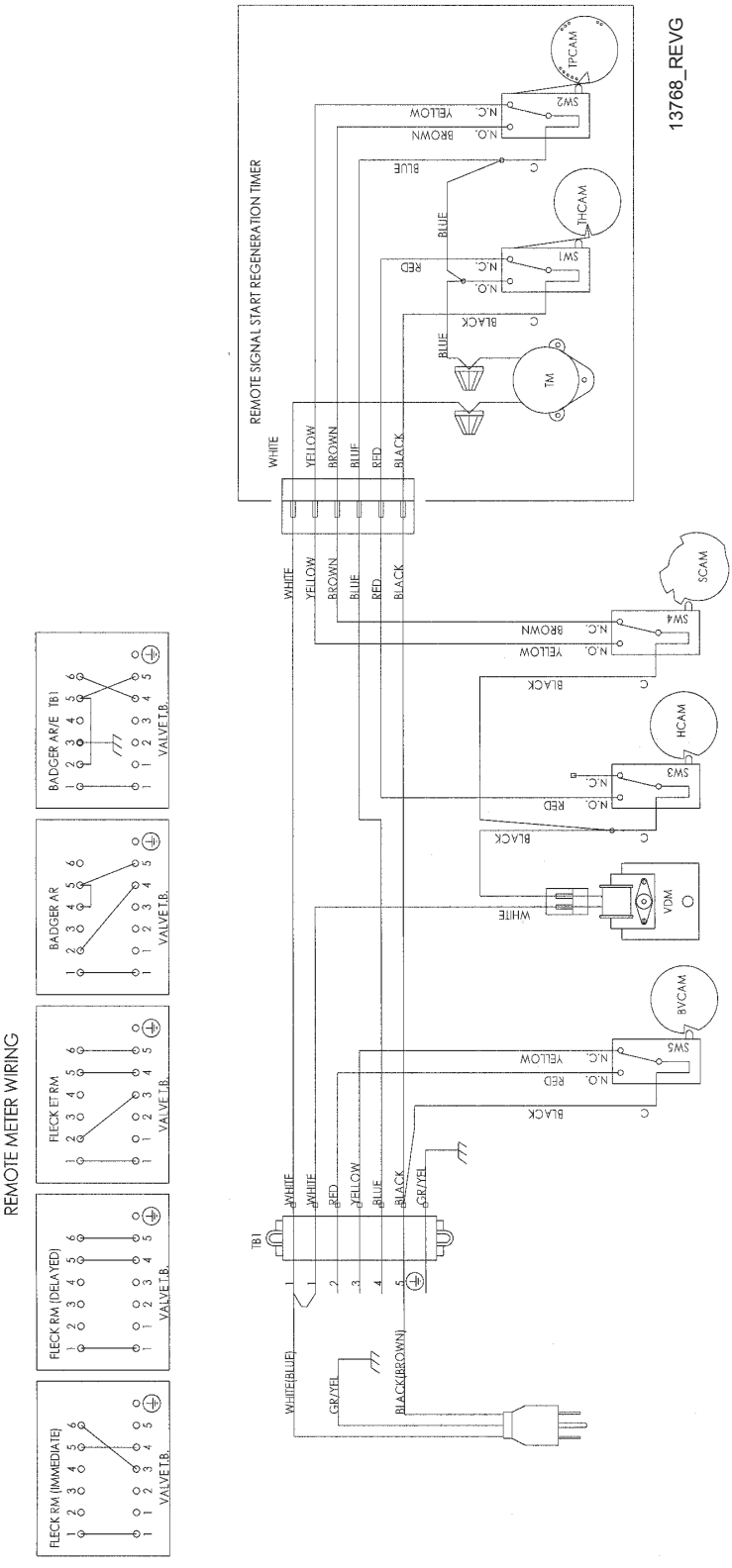


2 tanks, 1 meter; alternator system. One unit in service, the other is on standby. When the meter zeroes out the unit in service goes into a regeneration cycle, the standby unit, goes into service.

System #4 Immediate & Delayed Valve Wiring

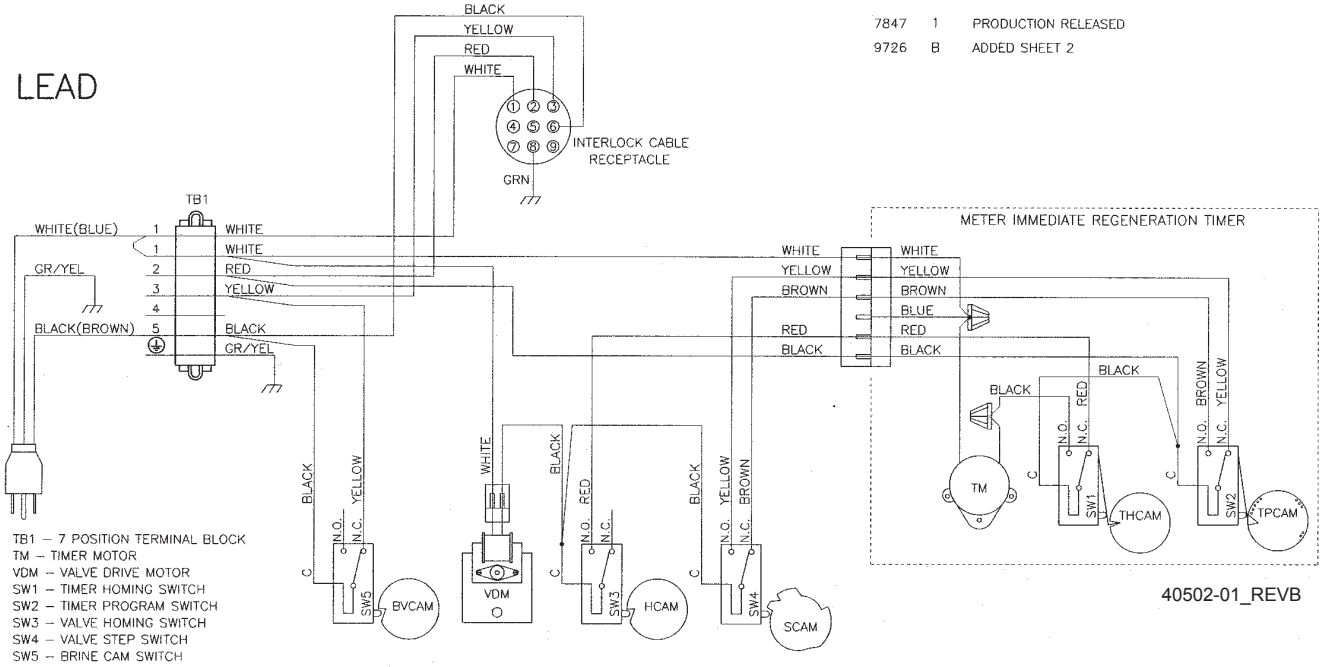


System #4 Remote Signal Start Valve Wiring



7847	1	PRODUCTION RELEASED
9726	B	ADDED SHEET 2

LEAD

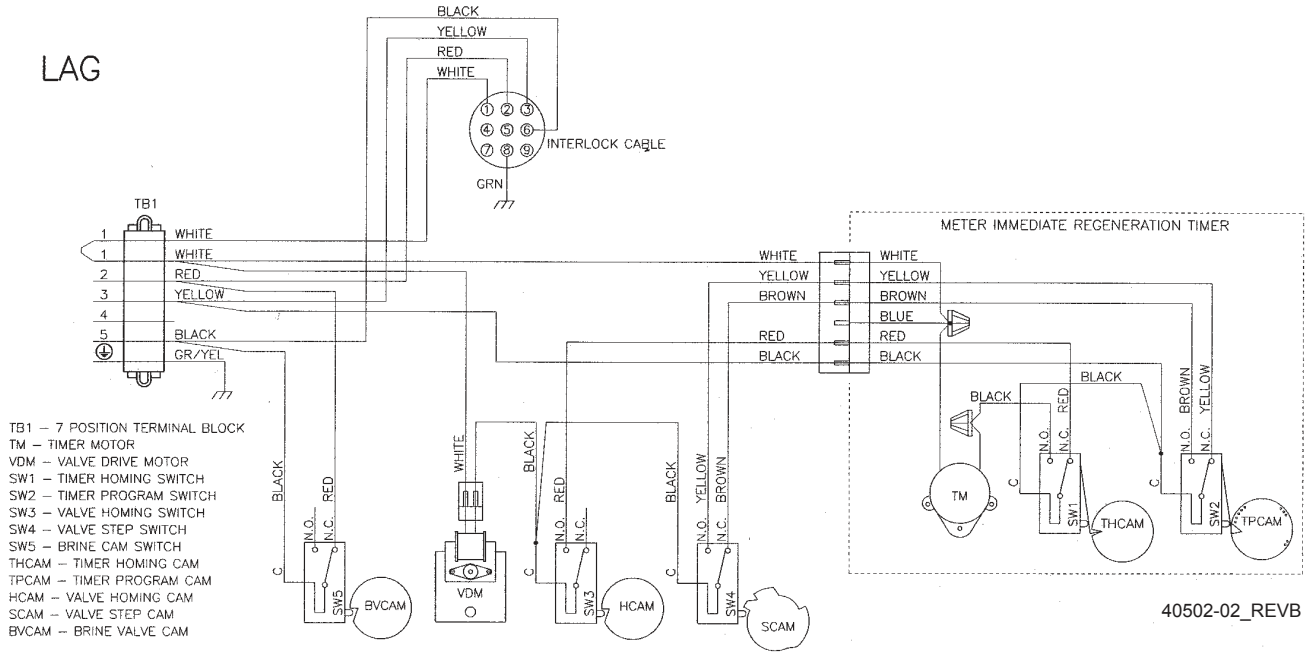


40502-01_REVB

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. BOTH VALVES IN SERVICE, ONLY ONE VALVE IN REGENERATION AT A TIME.
2. INDIVIDUAL LOCAL METER REGENERATION.
3. VALVE SHOWN IN SERVICE.

LAG

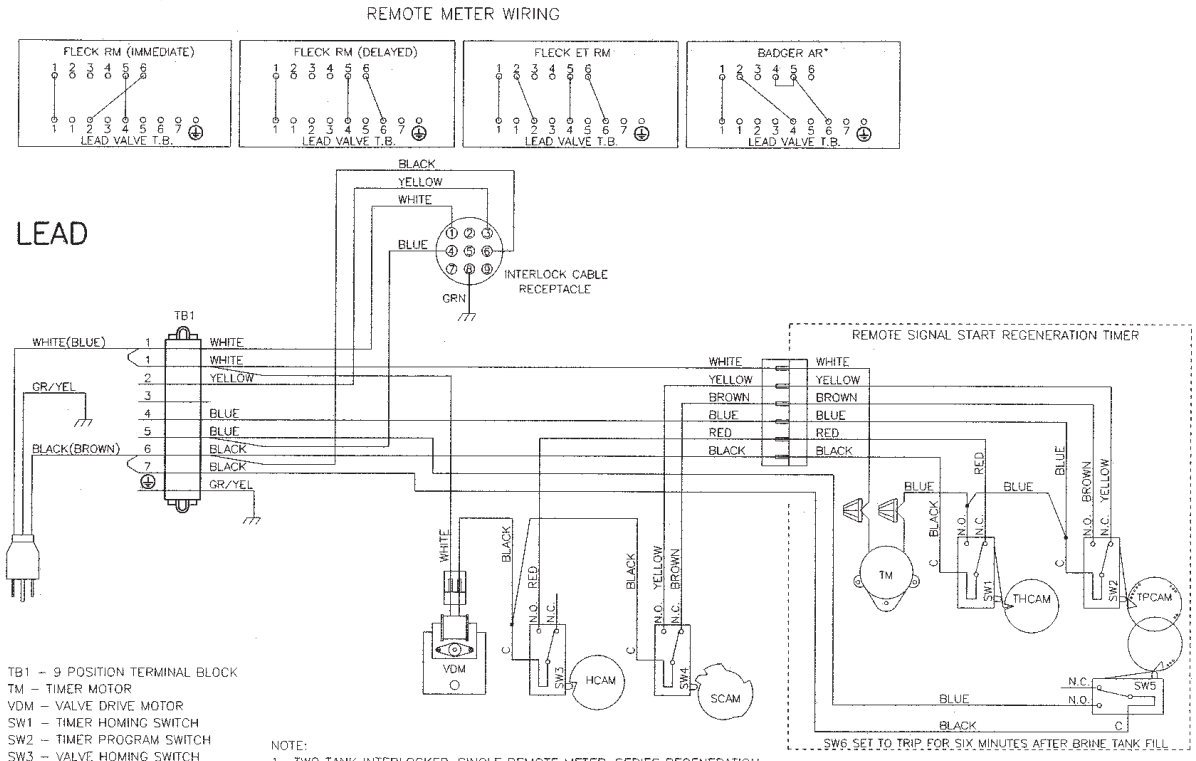


40502-02_REVB

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. BOTH VALVES IN SERVICE, ONLY ONE VALVE IN REGENERATION AT A TIME.
2. INDIVIDUAL LOCAL METER REGENERATION.
3. VALVE SHOWN IN SERVICE.

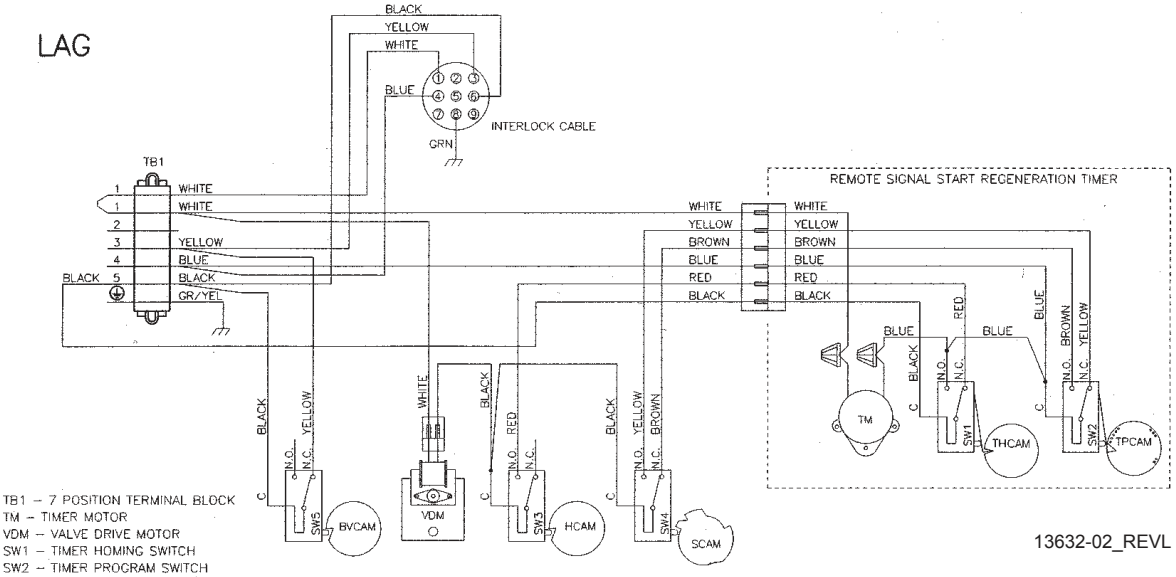
System #6 Duplex Valve Wiring



TB1 – 9 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 – AUXILIARY TIMER SWITCH
THCAM – TIMER HOMING CAM
TPCAM – TIMER PROGRAM CAM
HCAM – VALVE HOMING CAM
SCAM – VALVE STEP CAM

NOTE:
1. TWO TANK INTERLOCKED, SINGLE REMOTE METER, SERIES REGENERATION.
2. BOTH TANKS NORMALLY IN SERVICE.
3. ONLY ONE TANK IN REGENERATION, THE OTHER REMAINS IN SERVICE.
4. LEAD VALVE REGENERATES FIRST, FOLLOWED IMMEDIATELY BY LAG VALVE.
5. WITH 24V VALVES THE POWER CORD IS REPLACED WITH BLUE AND WHITE WIRES (WIRE BLUE TO TB1 #6, WHITE TO TB1 #1).
6. VALVE SHOWN IN SERVICE POSITION.

13632-01_REVK

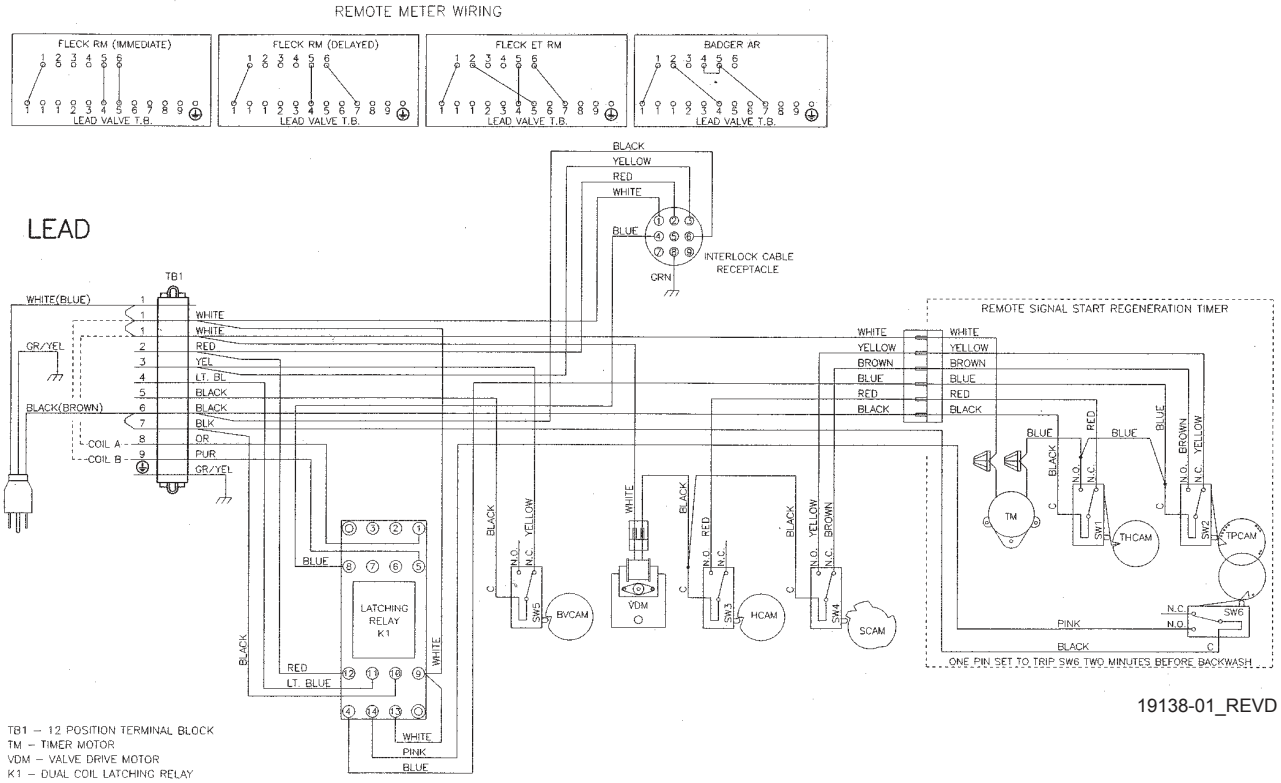


TB1 – 7 POSITION TERMINAL BLOCK
TM – TIMER MOTOR
VDM – VALVE DRIVE MOTOR
SW1 – TIMER HOMING SWITCH
SW2 – TIMER PROGRAM SWITCH
SW3 – VALVE HOMING SWITCH
SW4 – VALVE STEP SWITCH
SW5 – BRINE CAM SWITCH
THCAM – TIMER HOMING CAM
TPCAM – TIMER PROGRAM CAM
HCAM – VALVE HOMING CAM
SCAM – VALVE STEP CAM
BVCAM – 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. WITH 24V VALVES, THE POWER CORD IS REPLACED WITH BLUE AND WHITE WIRES (WIRE BLUE TO TB1 #6, WHITE TO TB1 #1).
6. VALVE SHOWN IN SERVICE POSITION.

13632-02_REVL

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

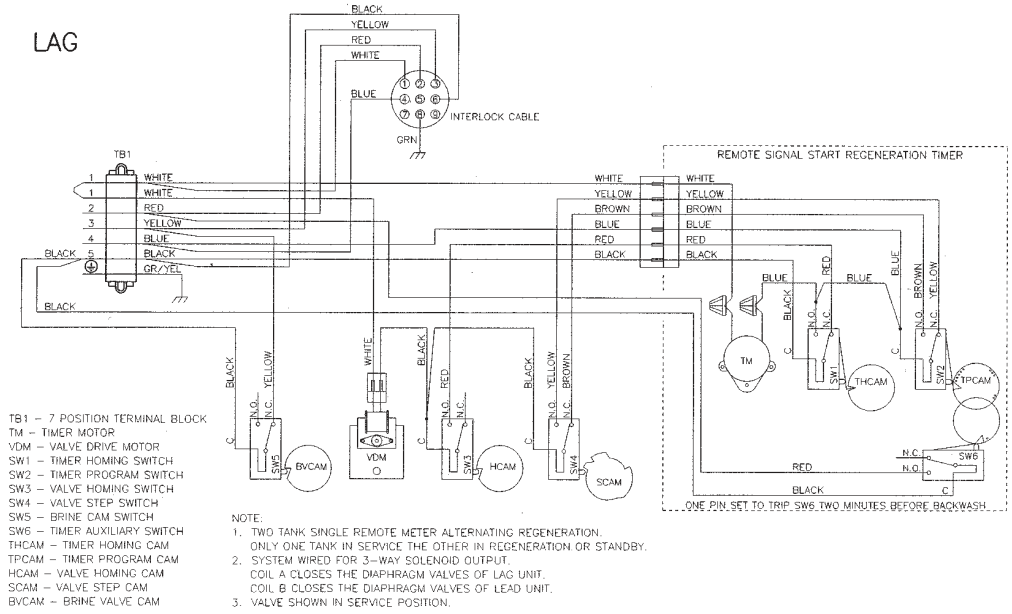


19138-01_REVD

TB1 – 12 POSITION TERMINAL BLOCK
TM – TIMER MOTOR
VDM – VALVE DRIVE MOTOR
K1 – DUAL COIL LATCHING RELAY
- 24V P/N 17018
- 120V P/N 16807
SW1 – TIMER HOMING SWITCH
SW2 – TIMER PROGRAM SWITCH
SW3 – VALVE HOMING SWITCH
SW4 – VALVE STEP SWITCH
SW5 – BRINE CAM SWITCH
SW6 – TIMER AUXILIARY SWITCH
THCAM – TIMER HOMING CAM
TPCAM – TIMER PROGRAM CAM
HCAM – VALVE HOMING CAM
SCAM – VALVE STEP CAM
BVCAM – BRINE VALVE CAM

RELAY TERMINAL BLOCK PINOUT (SHOWN IN RESET POSITION)

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

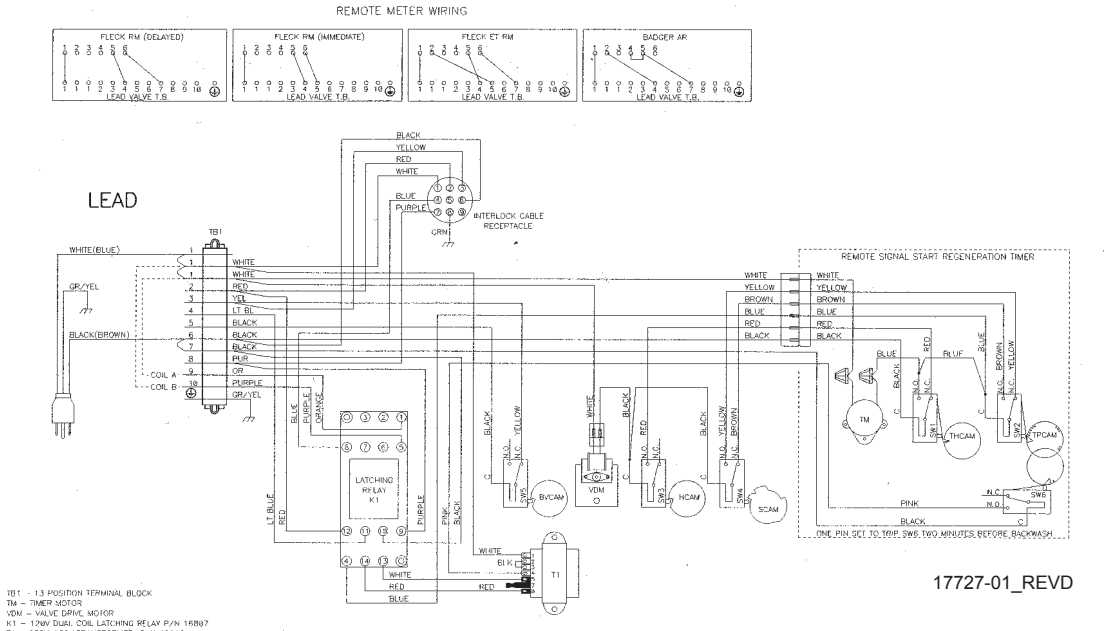


19138-02_REVD

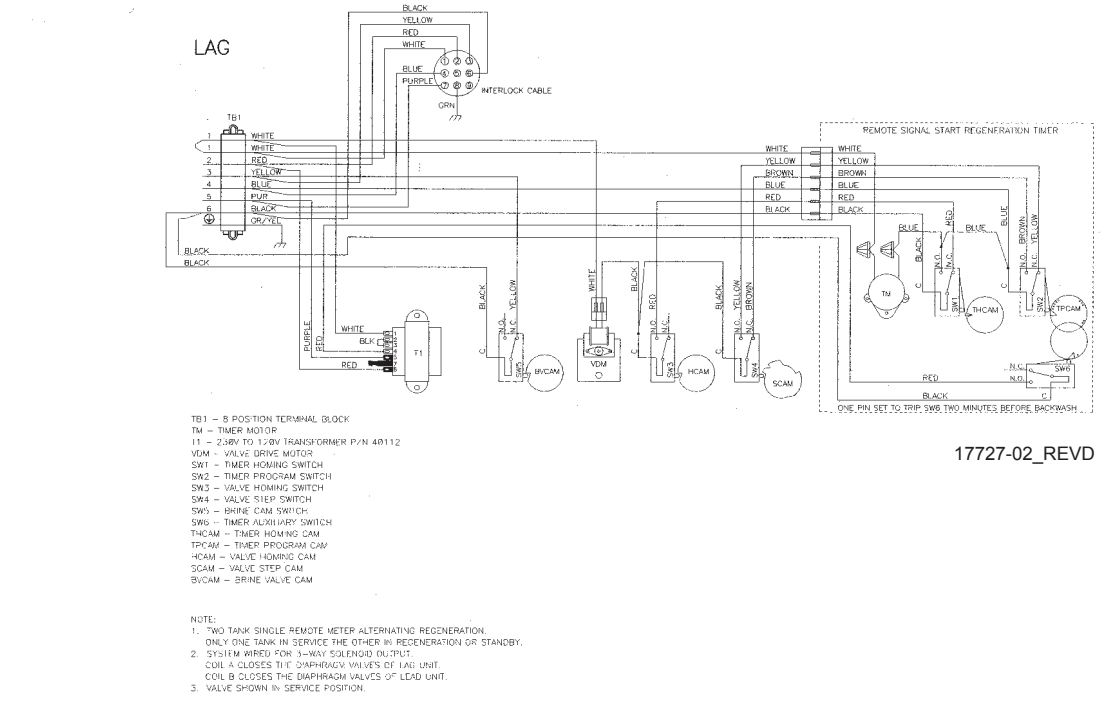
TB1 – 7 POSITION TERMINAL BLOCK
TM – TIMER MOTOR
VDM – VALVE DRIVE MOTOR
SW1 – TIMER HOMING SWITCH
SW2 – TIMER PROGRAM SWITCH
SW3 – VALVE HOMING SWITCH
SW4 – VALVE STEP SWITCH
SW5 – BRINE CAM SWITCH
SW6 – TIMER AUXILIARY SWITCH
THCAM – TIMER HOMING CAM
TPCAM – TIMER PROGRAM CAM
HCAM – VALVE HOMING CAM
SCAM – VALVE STEP CAM
BVCAM – BRINE VALVE CAM

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

System #7 Duplex 230V 3-Way Valve Wiring



17727-01_REVD



17727-02_REVD

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