PENTAIR

FLECK® 3150 DOWNFLOW
SERVICE MANUAL

TABLE OF CONTENTS

IMPORTANT PLEASE READ:

- The information, specifications and illustrations in this manual are based on the latest information available at the time of release. The manufacturer reserves the right to make changes at any time without notice.
- This manual is intended as a guide for service of the valve only. System installation requires information from a number of suppliers not known at the time of manufacture. This product should be installed by a plumbing professional.
- This unit is designed to be installed on a potable water system only and is not intended to treat water that is microbiologically unsafe or of unknown quality without adequate disinfection before and after the system.
- This product must be installed in compliance with all state and municipal plumbing and electrical codes. Permits may be required at the time of installation.
- It is established that when daytime water pressure exceeds 80 psi (5.5 bar), the maximum pressure rating of 125 psi (8.6 bar) can be exceeded. A pressure regulator must be installed on this system or warranty is voided.
- Do not install the unit where temperatures may drop below 32°F (0°C) or above 120°F (52°C).
- Do not place the unit in direct sunlight. Black units will absorb radiant heat increasing internal temperatures.
- Do not strike the valve or any of the components.
- Warranty of this product extends to manufacturing defects. Misapplication of this product may result in failure to properly condition water, damage to product, or personal injury.
- A prefilter should be used on installations in which free solids are present.
- In some applications local municipalities treat water with Chloramines. High Chloramine levels may damage valve components.
- Correct and constant voltage must be supplied to the controller to maintain proper function.
- The system is intended to treat only potable quality water. It is not intended as the permanent primary treatment of water from a source that is contaminated, such as from radon, pesticides, insecticides, sewage or wastewater.
- This system is not intended for use by persons (including children) with reduced physical, sensory, or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
- Children shall not play with the system.
- Cleaning shall not be made by children without supervision.
- Periodic cleaning and maintenance may be required to function properly. See disinfection instructions on page 5.

CALIFORNIA PROPOSITION 65 WARNING

⚠ WARNING: This product contains chemicals known to the State of California to cause cancer or birth defects or other reproductive harm.

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 inch Std Range (125 - 2,100 gallon setting)

B. 3/4 inch Ext Range (625 - 10,625 gallon setting)

C. 1 inch Std Range (310 - 5,270 gallon setting)

D. 1 inch Ext Range (1,150 - 26,350 gallon setting)

E. 1 ½ inch Std Range (625 - 10,625 gallon setting)

F. 1 ½ inch Ext Range (3,125 - 53,125 gallon setting)

G. 2 inch Std Range (1,250 - 21,250 gallon setting)

H. 2 inch Ext Range (6,250 - 106,250 gallon setting)

I. 3 inch Std Range (3,750 - 63,750 gallon setting)

J. 3 inch 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. Valve Operating Parameters: 3150

Minimum operating pressure:	20 psi / 1.4 bar / 138 kPa
Maximum operating pressure:	125 psi / 8.61 bar / 861 kPa
Minimum water temperature:	34° F / 1° C
Maximum water temperature:	110° F / 43° C
Maximum Ambient temperature:	120° F / 52° C
Maximum humidity:	75%
Input Voltage:	120 Volts AC / 60 Hz
Maximum Watts:	39 watts
Maximum altitude:	2000 meters

6. Timer Program Settings:

A. Backwash: Minutes

B. Brine and Slow Rinse: _____ Minutes

C. Rapid Rinse: _____ Minutes

JOB SPECIFICATION SHEET *CONTINUED*

D. Brine Tank Refill: _____ Minutes

E. Pause Time: _____ Minutes

F. Second Backwash:_____ Minutes

7. Drain Line Flow Control: gpm

8. Brine Line Flow Controller: gpm

9. Injector Size#:

10. 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 Warnings & Caution Statement

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.

Grounding Instructions

This appliance must be grounded. In the event of a malfunction or breakdown, grounding will reduce the risk of electric shock by providing a path of least resistance for electric current. This appliance is equipped with a cord having an appliance-grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet that is installed and grounded in accordance with all local codes and ordinances.

⚠ WARNING: Improper connection of the appliance-grounding conductor can result in a risk of electric shock. Check with a qualified electrician or service representative if you are in doubt whether the appliance is properly grounded. Do not modify the plug provided with the appliance; if it will not fit the outlet, have a proper outlet installed by a qualified technician.

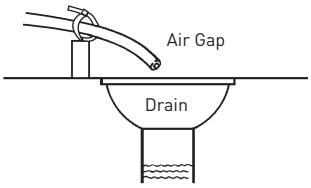
⚠ WARNING: Risk of electric shock. Disconnect power before servicing.

FOR DRY LOCATIONS USE ONLY.

The cover should only be removed during installation set-up and maintenance by a qualified service person.

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 the drain to prevent air breaks and back flow. You must have an air gap on the drain line to prevent back flow of drain water into the system. The air gap should be two (2) times the diameter of the drain line pipe but must be at least 1-inch.

INSTALLATION *CONTINUED*

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.**

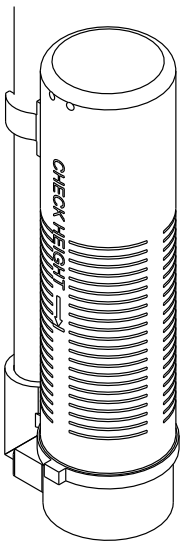
Installation Instructions

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 inch (13 mm). Backwash flow rates in excess of 7 gpm (26.5 Lpm) or length in excess of 20 feet (6 m) require 3/4 inch (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. **⚠ IMPORTANT:** For valves equipped with electromechanical timers and stainless steel meters, refer to the Meter Dome and Union Orientation section.
7. Solder joints near the drain must be done prior to connecting the Drain Line Flow Control fitting (DLFC). Leave at least 6 inch (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.
8. Plumber 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.
9. Make sure that the floor is clean beneath the salt storage tank and that it is level.
10. Place approximately 1 inch (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.
11. 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.
12. 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.
13. Plug unit into an electrical outlet.

NOTE: All electrical connections must be connected according to local codes. Be certain the outlet is uninterrupted.



60002 Rev E

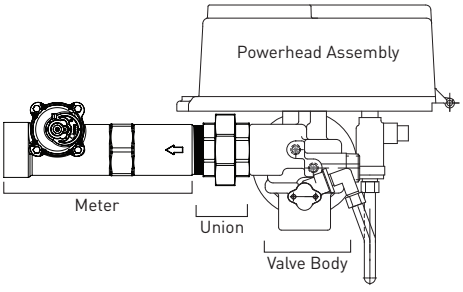
Figure 1 Residential Air Check Valve

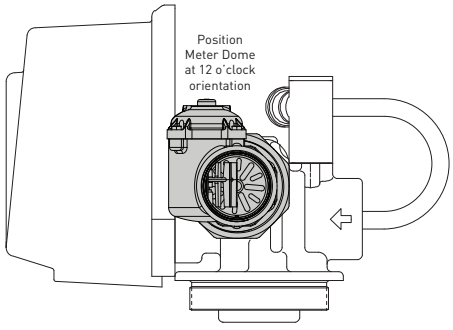
Meter Dome and Union Orientation

Control valves outfitted with an electromechanical timer and stainless steel water meter include a special male x female threaded stainless steel union to insure proper installation and operation of the water meter.

⚠ WARNING: **The location of this union in relation to the control valve and water meter is critical for proper operation. DO NOT omit or substitute this special union; it positions the meter dome at the correct distance from the control valve and allows re-positioning the water meter dome for proper operation.**

1. Apply a suitable thread sealant to the male threads of the union and meter body.
2. Thread the union into the OUTLET port of the control valve, then thread the meter into the union. See illustrations below.
3. Rotate the water meter body so the meter dome is at the 12 o'clock position. Loosen the nut on the union to facilitate this if required. Once in position, tighten the union nut.
4. Connect the meter cable to the open port in the center of the meter dome.
5. Continue with the installation of the control valve.





SYSTEM DISINFECTION

The system is not intended to be used for treating the water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.

Disinfection of Water Softeners

The materials of construction of the modern water softener will not support bacterial growth, nor will these materials contaminate a water supply. During normal use, a softener may become fouled with organic matter, or in some cases with bacteria from the water supply. This may result in an off-taste or odor in the water.

Some softeners may need to be disinfected after installation and some softeners will require periodic disinfection during their normal life.

Depending upon the conditions of use, the style of softener, the type of ion exchanger, and the disinfectant available, a choice can be made among the following methods.

Sodium or Calcium Hypochlorite

Application

These materials are satisfactory for use with polystyrene resins, synthetic gel zeolite, greensand and bentonites.

5.25% Sodium Hypochlorite

These solutions are available under brand names of household bleach. If stronger solutions are used, such as those sold for commercial laundries, adjust the dosage accordingly.

1. Dosage
   A. Polystyrene resin; 1.2 fluid ounce (35.5 ml) per cubic foot.
   B. Non-resinous exchangers; 0.8 fluid ounce (23.7 ml) per cubic foot.
2. Salt tank softeners
   A. Backwash the softener and add the required amount of hypochlorite solution to the well of the salt tank. The salt tank should have water in it to permit the solution to be carried into the softener.
   B. Proceed with the normal recharge.

Calcium Hypochlorite

Calcium hypochlorite, 70% available chlorine, is available in several forms including tablets and granules. These solid materials may be used directly without dissolving before use.

1. Dosage
   A. Two grains (approximately 0.1 ounce [3 ml]) per cubic foot.
2. Salt tank softeners
   A. Backwash the softener and add the required amount of hypochlorite to the well of the salt tank. The salt tank should have water in it to permit the chlorine solution to be carried into the softener.
   B. Proceed with the normal recharge.

START-UP INSTRUCTIONS

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

1. Turn the manual regeneration knob slowly in a clockwise direction until the program micro switch lifts on top of the first set of pins. Allow the drive motor to move the piston to the first regeneration step and stop. Each time the program switch position changes, the valve will advance to the next regeneration step. Always allow the motor to stop before moving to the next set of pins or spaces.

NOTE: For electronic valves, please refer to the manual regeneration part of the timer operation section. If the valve came with a separate electronic timer service manual, refer to the timer operation section of the electronic timer service manual.

2. Position the valve to backwash. Ensure the drain line flow remains steady for 10 minutes or until the water runs clear (see above).
3. Position the valve to the brine / slow rinse position. Ensure the unit is drawing water from the brine tank (this step may need to be repeated).
4. Position the valve to the rapid rinse position. Check the drain line flow, and run for 5 minutes or until the water runs clear.
5. Position the valve to the start of the brine tank fill cycle. Ensure water goes into the brine tank at the desired rate. The brine valve drive cam will hold the valve in this position to fill the brine tank for the first regeneration.
6. Replace control box cover.
7. Put salt in the brine tank.

NOTE: Do not use granulated or rock salt.

3200 TIMER SETTING PROCEDURE

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

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

How To Set The Time Of Day

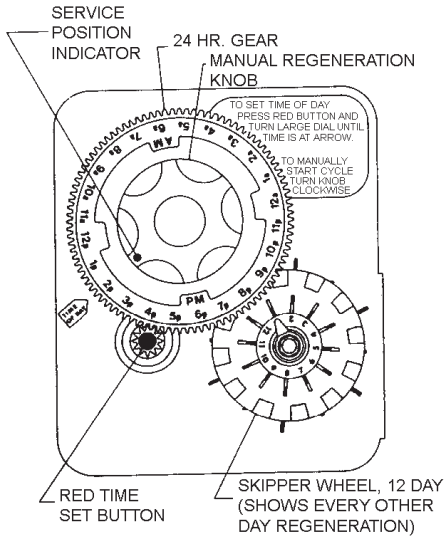
1. Press and hold the red button in to disengage the drive gear.
2. Turn the large gear until the actual time of day is at the time of day pointer.
3. Release the red button to again engage the drive gear.

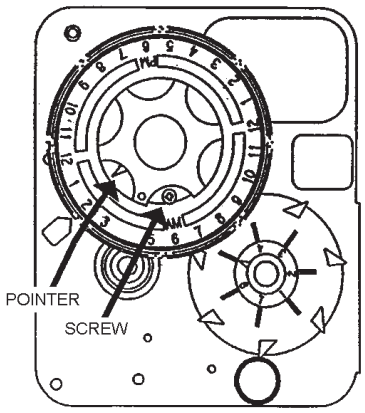
How To Manually Regenerate Your Water Conditioner At Any Time

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

How to Adjust Regeneration Time

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





3200 ADJUSTABLE REGENERATION TIMER

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

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Figure 2

3210 TIMER SETTING PROCEDURE

Typical Programming Procedure

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

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

How To Set The Time Of Day

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

How To Manually Regenerate Your Water Conditioner At Any Time

1. Turn the manual regeneration knob clockwise.
2. This slight movement of the manual regeneration knob engages the program wheel and starts the regeneration program.

3210 TIMER SETTING PROCEDURE

CONTINUED

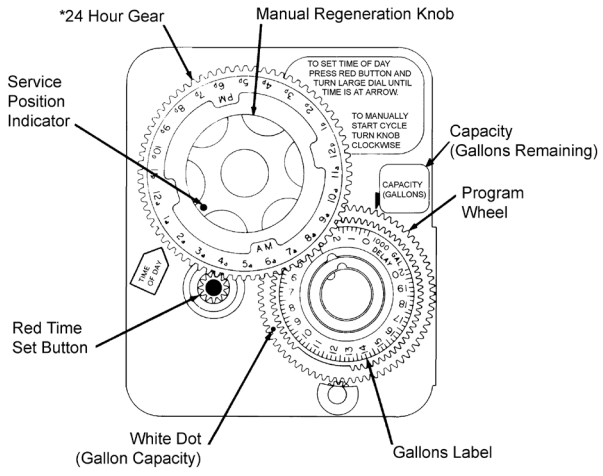
3. The black center knob will make one revolution in the following approximately three hours and stop in the position shown in the drawing.
4. Even though it takes three hours for this center knob to complete one revolution, the regeneration cycle of your unit might be set for only one half of this time.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

Immediate Regeneration Timers

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

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

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



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

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Figure 3

3200, 3210, 3220, 3230 REGENERATION CYCLE SETTING PROCEDURE

How To Set The Regeneration Cycle Program

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

3200 Series Timers (Figure 4)

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

Timer Setting Procedure

How To Change The Length Of The Backwash Time

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

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

How To Change The Length Of Brine And Rinse Time

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

How To Change The Length Of Rapid Rinse

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

How To Change The Length Of Brine Tank Refill Time

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

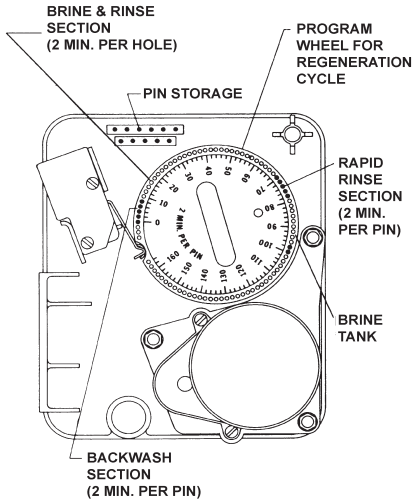

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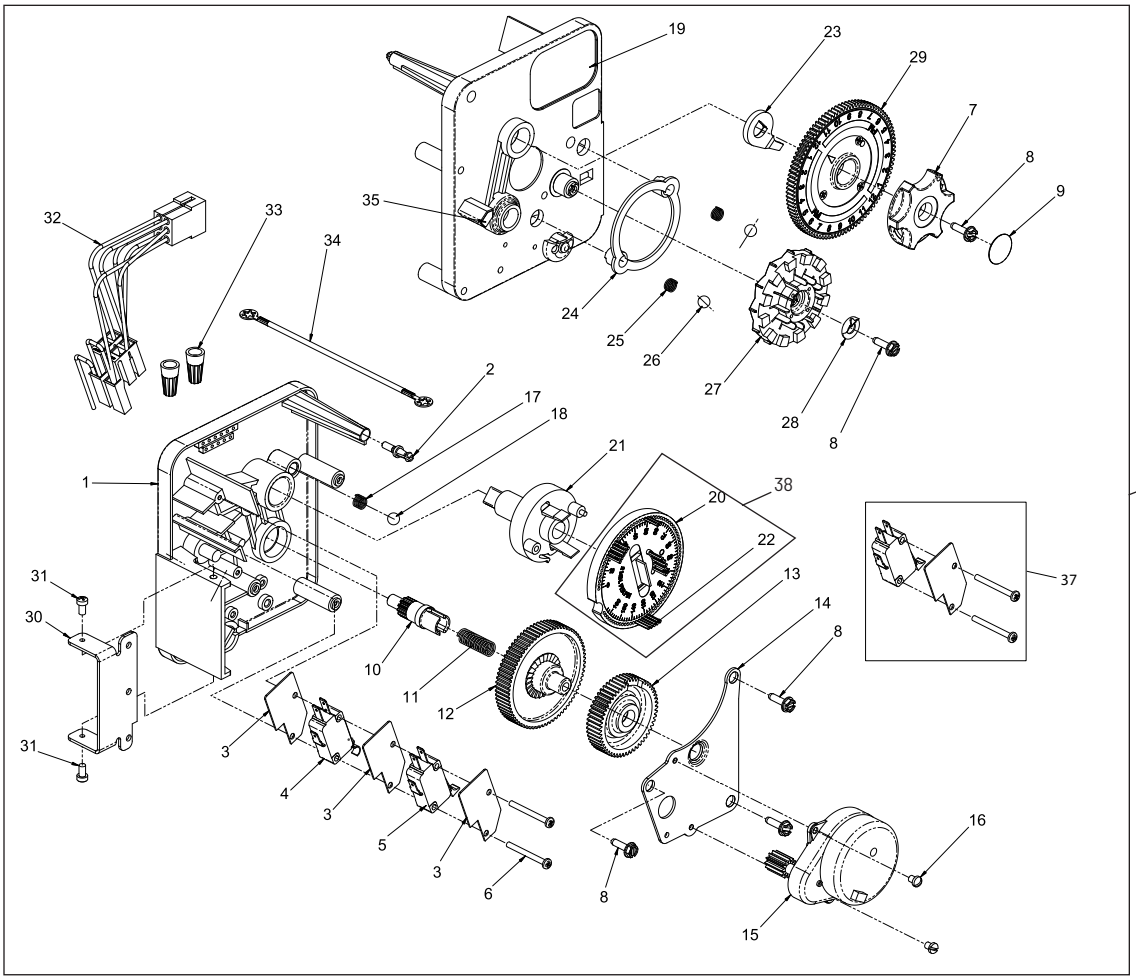
Figure 4

3200 TIME CLOCK TIMER ASSEMBLY



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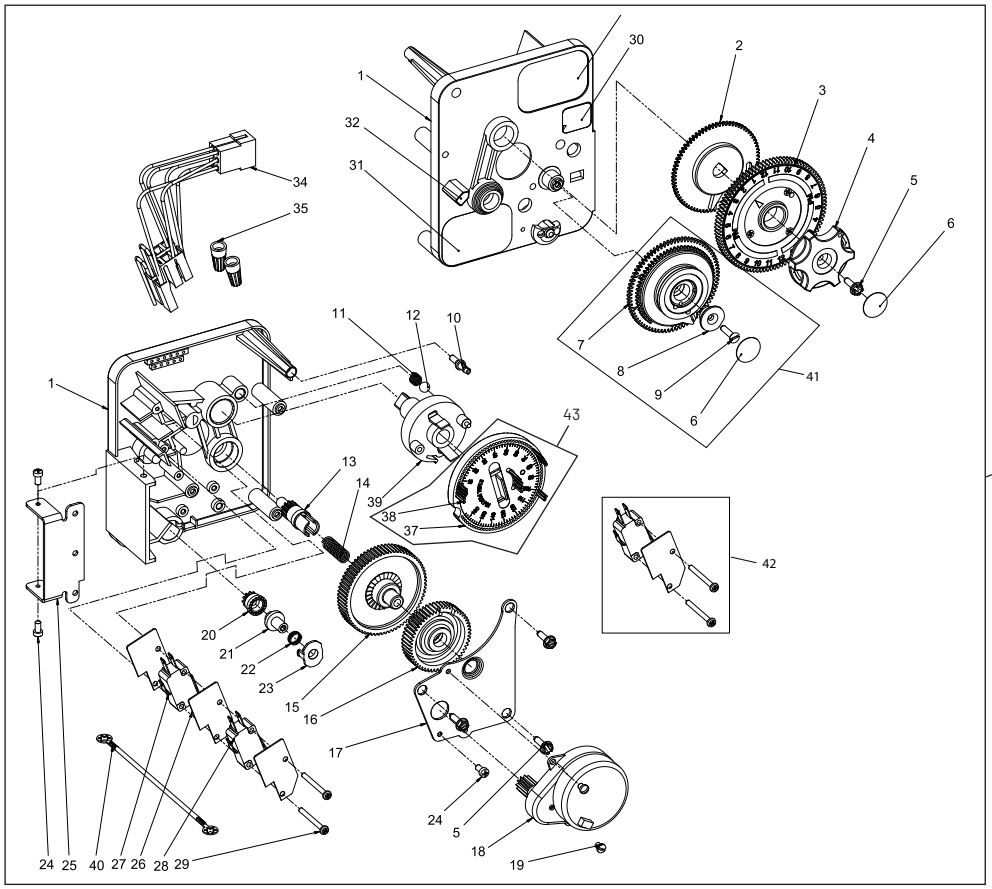
3200 TIME CLOCK TIMER ASSEMBLY *CONTINUED*

Item No.	QTY	Part No.	Description
1	1	13870	Housing, Timer, 3200
2	1	14265	Clip, Spring
3	3	14087	Insulator
4	1	10896	Switch, Micro
5	1	15320	Switch, Micro, Timer
6	2	11413	Screw, Pan Hd Mach, 4-40 x 1-1/8
7	1	13886	Knob, 3200
8	5	13296	Screw, Hex Wsh, 6-20 x 1/2
9	1	11999	Label, Button
10	1	13018	Pinion, Idler
11	1	13312	Spring, Idler Shaft
12	1	13017	Gear, Idler
13	1	13164	Gear, Drive
14	1	13887	Plate, Motor Mounting
15	1	18743-1	Motor, 120V, 60Hz, 1/30 RPM
	1	18752-1	Motor, 100V, 50Hz, 1/30 RPM
	1	18824-1	Motor, 230V, 50Hz, 1/30 RPM
	1	18826-1	Motor, 24V, 50Hz, 1/30 RPM
	1	19659-1	Motor, 24V, 60Hz, 1/30 RPM
	1	19660-1	Motor, 230V, 60Hz, 1/30 RPM
16	2	13278	Screw, Sltd Fillister Hd 6-32 x .156
17	1	15424	Spring, Detent, Timer
18	1	15066	Ball, 1/4-inch, Delrin
19	1	15465	Label, Caution
20	1	19210	Program Wheel Assy
21	1	13911	Gear, Main Drive, Timer
22	17	41754	Pin, Spring, 1/16 x 5/8 SS, Timer
23	1	13011	Arm, Cycle Actuator
24	1	13864	Ring, Skipper Wheel
25	2	13311	Spring, Detent, Timer
26	2	13300	Ball, 1/4-inch, SS
27	1	14381	Skipper Wheel Assy, 12 Day
	1	14860	Skipper Wheel Assy, 7 Day
28	1	13014	Pointer, Regeneration
29	1	40096-24	Dial, 12 AM Regen Assy, Black
	1	40096-02	Dial, 2 AM Regen Assy, Black
30	1	13881	Bracket, Hinger Timer
31	2	11384	Screw, Phil, 6-32 x 1/4 Zinc
32	1	13902	Harness, 3200
33	2	40422	Nut, Wire, Tan
34	1	15354-01	Wire, Ground, 4-inch
35	1	14007	Label, Time of Day
36	1	*	Complete 3200 Time Clock Timer Assembly
37		60320-02	Switch Kit, 3200/9000 Timer Auxiliary, Optional
38		61420-03	Program Wheel, Gear Assy, Filter 2 Min Per Pin
		61420-04	Program Wheel, Gear Assy, Softener, 2 Min Per Pin

*Call your distributor for Part Number

3210 METER DELAYED TIMER ASSEMBLY



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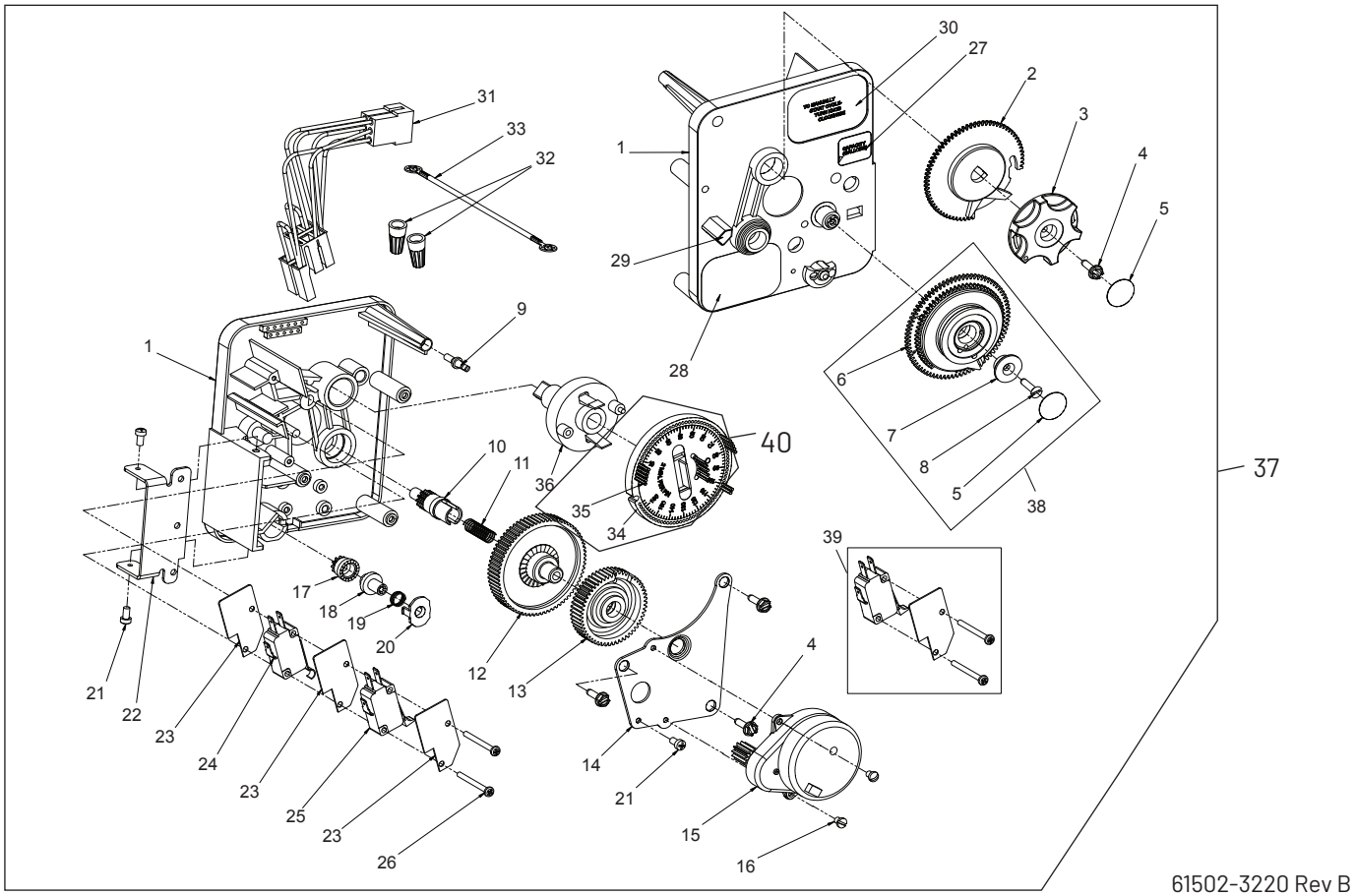
3210 METER DELAYED TIMER ASSEMBLY *CONTINUED*

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

*Call your distributor for Part Number

3220 METER IMMEDIATE TIMER ASSEMBLY



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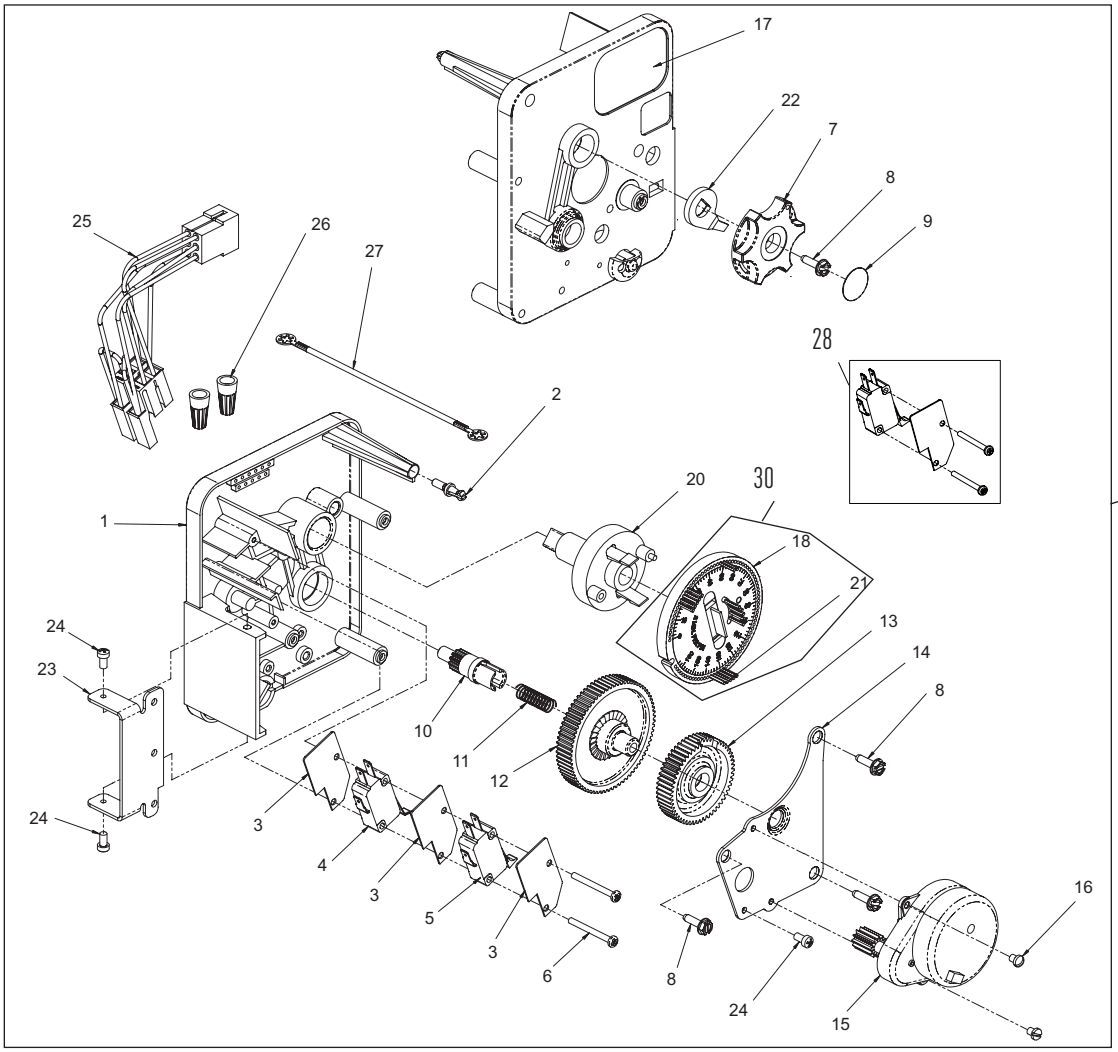
3220 METER IMMEDIATE TIMER ASSEMBLY *CONTINUED*

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
		18752-1	Motor, 100V, 50Hz, 1/30 RPM
		18824-1	Motor, 230V, 50Hz, 1/30 RPM
		18826-1	Motor, 24V, 50Hz, 1/30 RPM
		19659-1	Motor, 24V, 60Hz, 1/30 RPM
		19660-1	Motor, 230V, 60Hz, 1/30 RPM
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-inch
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-inch STD Label 0-2,100 gal
		60405-60	Program Wheel, w/2-inch EXT Label 0-10,000 gal
		60405-61	Program Wheel, w/2-inch EXT Range 375 m^3
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



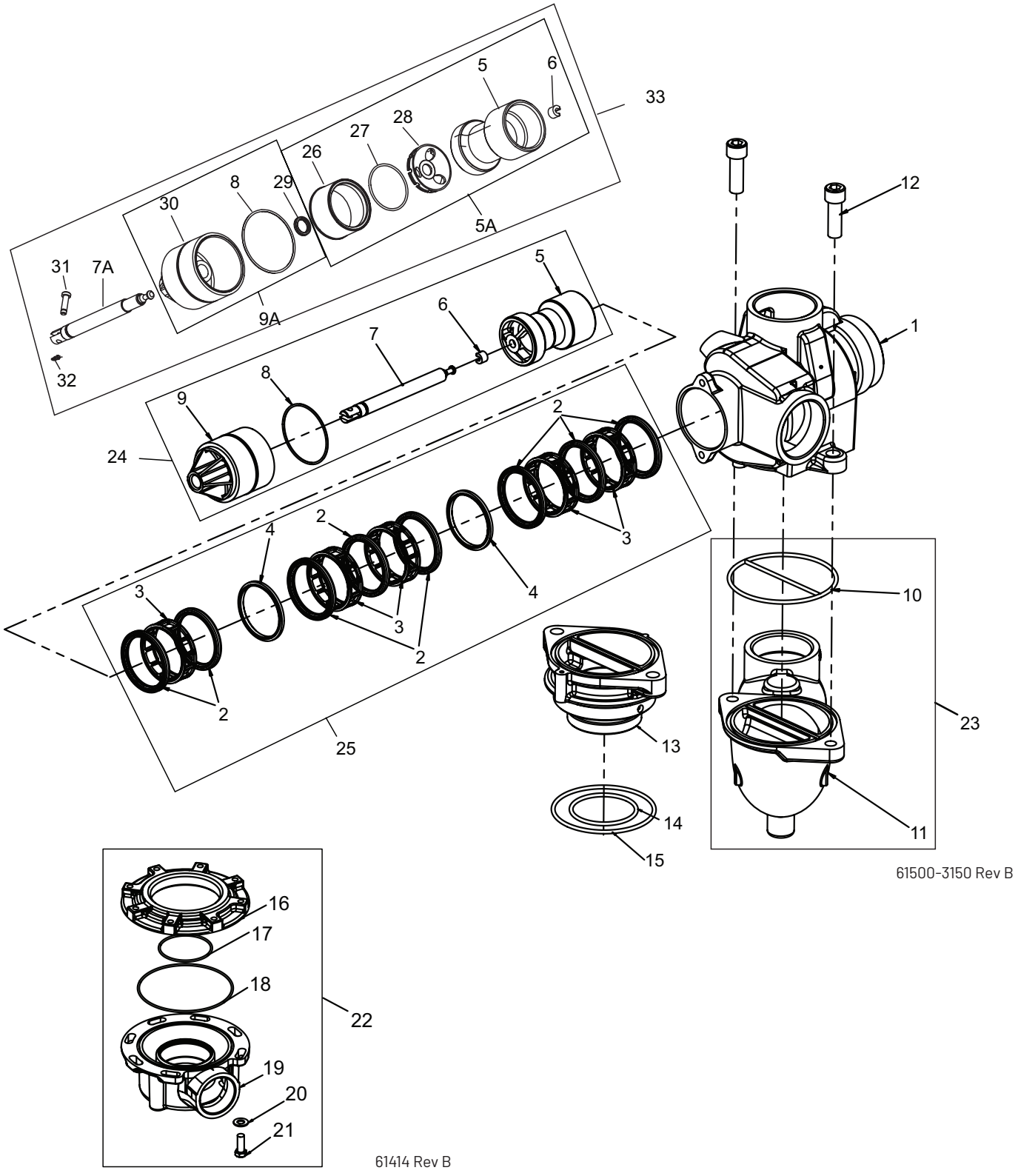
61502-3230R REV A

3230 REMOTE START TIMER ASSEMBLY *CONTINUED*

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

CONTROL VALVE ASSEMBLY

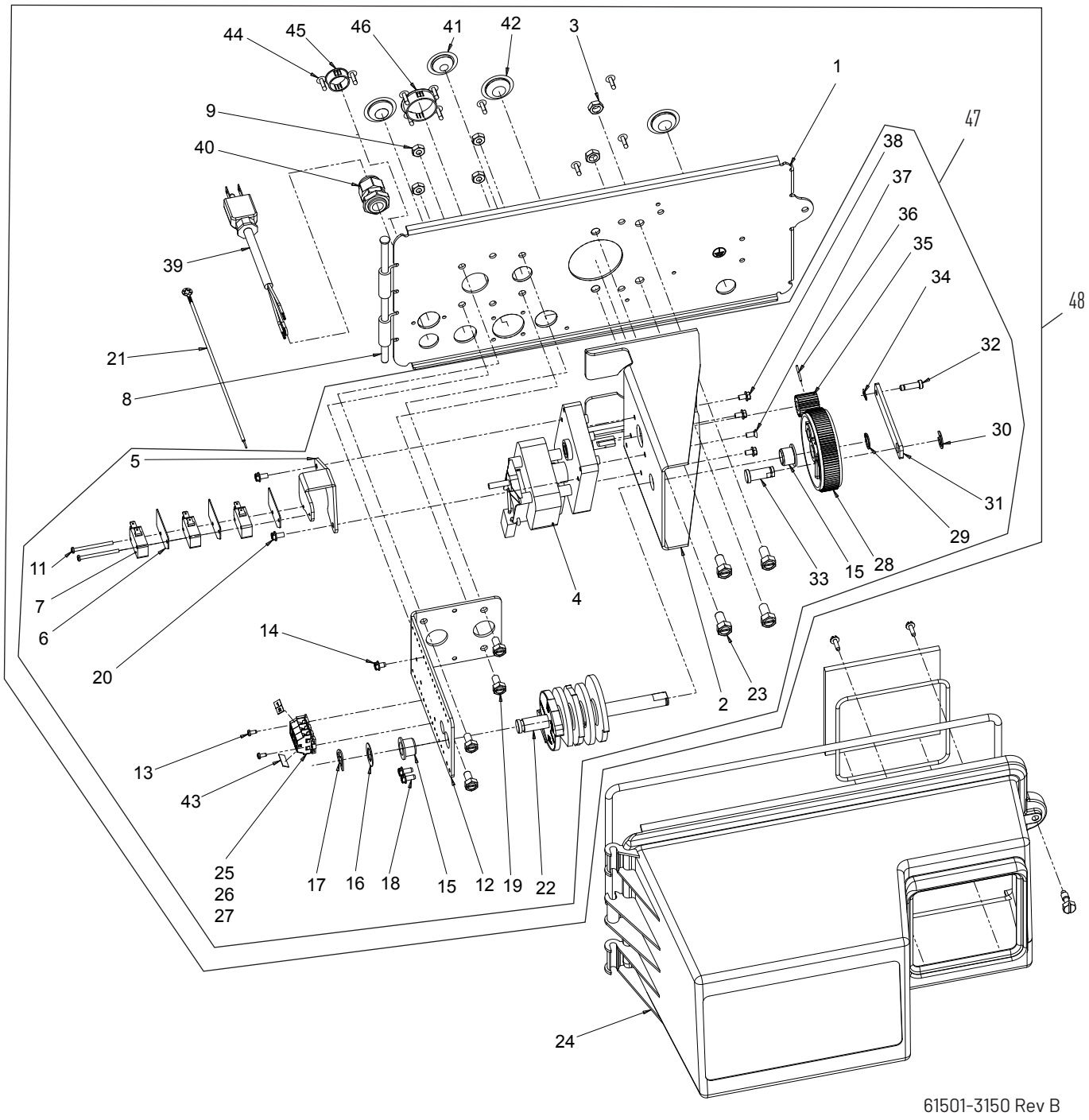


CONTROL VALVE ASSEMBLY *CONTINUED*

Item No.	QTY	Part No.	Description
1	1	15114	Valve Body, 3150
		15114NP	Valve Body, 3150, Nickel Plated
		15114-20	Valve Body, 3150, BSP/Metric
		15114-20NP	Valve Body, 3150, BSP/ Metric, Nickel Plated
2	8	11720	Seal, Piston, 2900/3150
		11720-02	Seal, 1-1/2 inch, Silicone
3	5	10369	Spacer, 2-inch, 2900/3150
		16141	Spacer, Port Ring, HW, 180°
4	2	10368	Spacer, Narrow, 3150/3900
		10368-01	Spacer, Quad Ring, Brass, HW, 180°
5	1	16130	Piston, High Backwash
5A	1	19611-01	Piston Assy, 3150, NHWBP, O-ring
6	1	14818	Ring, Piston Rod, Snap
7	1	15125	Rod, Piston, 3150
7A	1	19708	Rod, Piston, 3150 NHWBP
8	1	14922	O-ring, -035, Piston
9	1	16398-01	End Plug Assy, 3150, White, HWBP
9A		16398-11	End Plug Assy, 3150, Black, NHWBP
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

Item No.	QTY	Part No.	Description
16	1	19608-20	Disperser, Commercial, 2-inch, 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
22	1	61414	Adapter Assy, Sidemount, 3150, Rotating
		61414NP	Adapter Assy, SDMNT, 3150, Nickel Plated, Rotating
23	1	61418	Adapter Assy, Sidemount, 3150, Fixed
		61418-22	Adapter Assy, SDMNT, 3150, BSP/Metric
24	1	60106-00	Piston Assy, 3900/3150 STD
		60106-01	Piston Assy, 3900/3150, HWBP, Hot Water 180 degrees
		60106-10	Piston Assy 3900/3150, HWBP, Upflow
25		60131	Seal & Spacer Kit, 3900/3150, Upper
		60131-01	Seal & Spacer Kit, Hot Water, 180 Degrees, 3150
		60131-10	Seal & Spacer Kit, Silicone, 3150/3900 Upper
26	1	BR42008	Piston, 3150, NHWBP
27	1	BR40952	O-ring, -030
28	1	BR42009	Retainer, 3150 NWHBP O-ring
29	1	BR11242	Quad, Ring, -112, 560CD
30	1	BR15118-11	Plug, End, 3150, Black, Machined
31	1	BR11709	Pin, Connecting Rod
32	1	BR11898	0.35 M.B. Spring Wire
33	1	60113-01	Piston Assy, 3150, NHWBP, D/Flow Conversion/ Replacement

CONTROL DRIVE ASSEMBLY



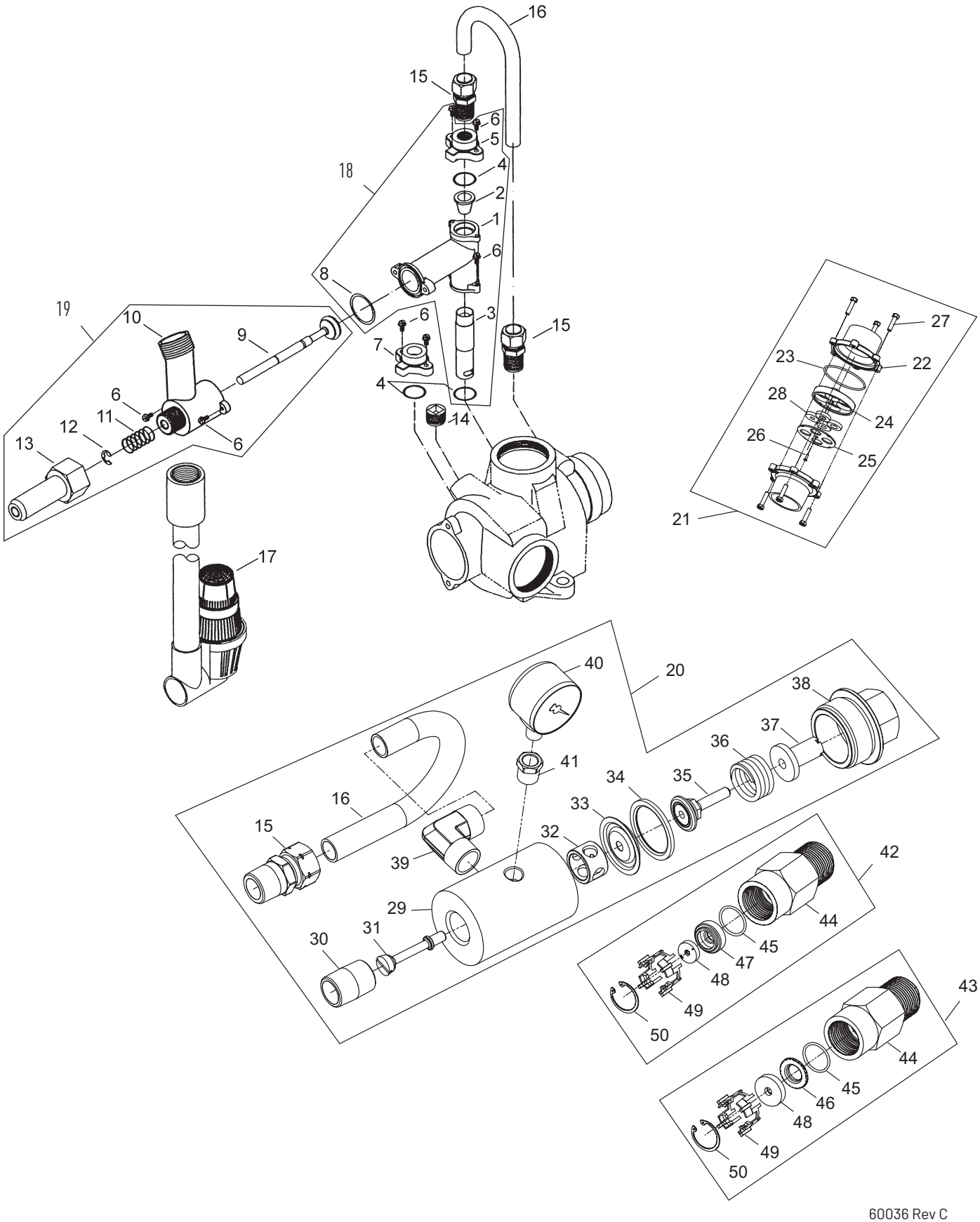
61501-3150 Rev B

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 inch
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, Upflow, Signal After Rapid Rinse
23	4	11224	Screw, Hex Hd, 5/16 - 18 x 5/8
24	1	60240-02	Cover Assy, 3150/3900 Env, Black, NEMA 3R
25	2	41084	Terminal Block, Segment, Gray
26	1	41085	Endplate, Terminal Black, 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-foot US, Round, 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, Upflow, 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-inch, White
	1	40396	Harness, Drive, Environmental
	1	14924	Strain Relief Heyco #1247
	1	15513	Meter Cable, 17.5 inch long, 2 inch Brass Meter
	1	17744	Meter Cable, 20.75 inch long, 2 inch Stainless Steel Meter
	1	15216	Meter Cable, 15.25 inch long, 1-1/2 inch Brass Meter

*Call your distributor for Part Number

1800 SERIES BRINE SYSTEM AND DRAIN LINE FLOW CONTROL ASSEMBLY



60036 Rev C

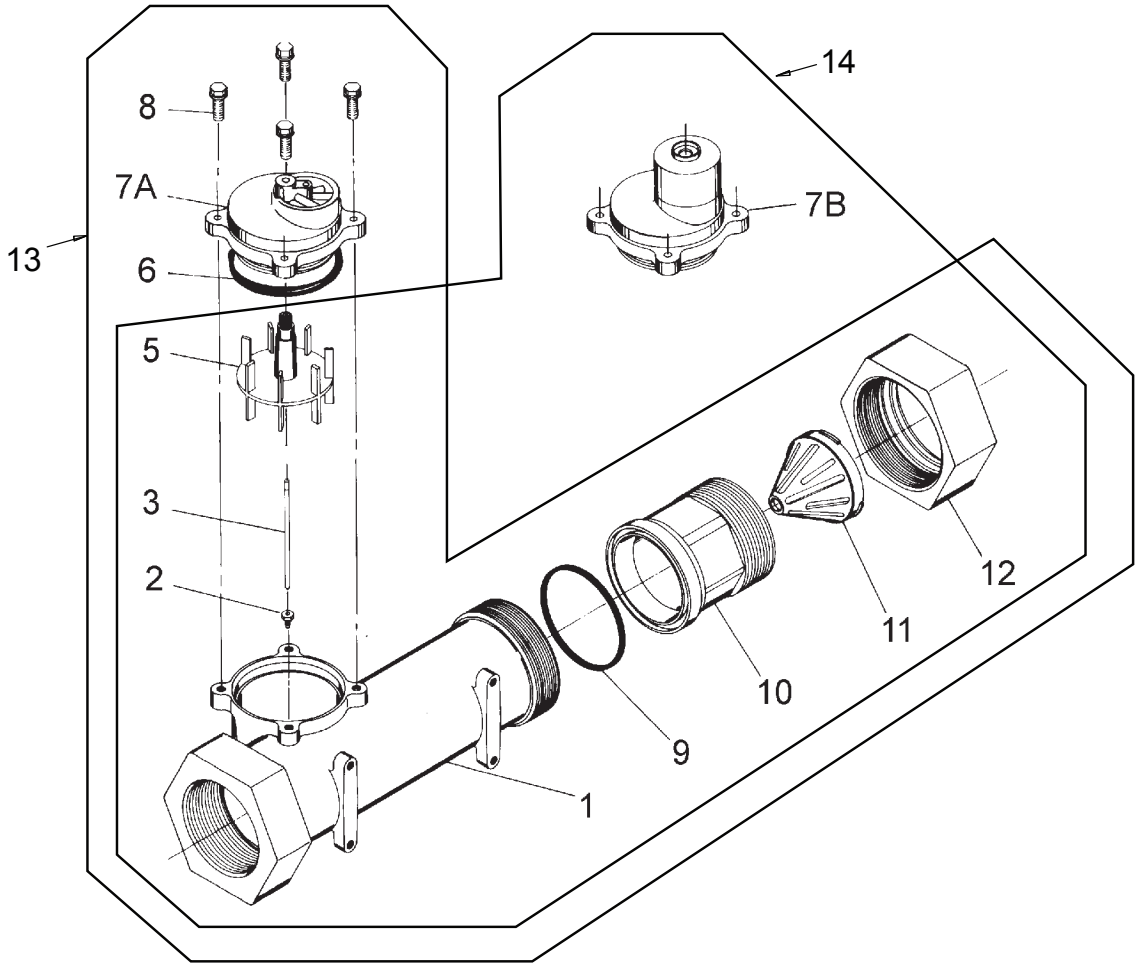
1800 SERIES BRINE SYSTEM AND DRAIN LINE FLOW CONTROL ASSEMBLY *CONTINUED*

Item No.	QTY	Part No.	Description
1	1	16340	Body, Injector, 1800 D/F
		16340-20	Body, Injector, 1800, Downflow, Metric
		16340-01	Body, Injector, 1800 Upflow
		16340-21	Body, Injector, 1800, Upflow, 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-inch NPT
15	2	18702	Fitting, Tube, 1/2 NPT 5/8
16	1	18703	Tube, Brine, 5/8 OD Annealed
		18703-01	Tube, Brine, 5/8 OD, Short, Upflow
17	1	60009-00	Air Check, #900, Commercial Less Fittings
		60009-01	Air Check, #900, Commercial, HW Less Fittings
18		60277-04	Injector Assy, 1800, #4, Downflow
		60272-04	Injectory Assy, 1800, #4, Upflow
		60277-05	Injectory Assy, 1800 #5, Downflow
		60272-05	Injector Assy, 1800, #5, Upflow
		60277-06	Injector Assy, 1800, #6, Downflow
		60277-07	Injector Assy, 1800, #7, Downflow
		60272-07	Injector Assy, 1800, #7, Upflow
		60277-08	Injector Assy, 1800, #8, Downflow
		60277-09	Injectory Assy, 1800 #9, Downflow
		60277-10	Injectory Assy, 1800 #10, Downflow
19		60036-02	Brine Valve, 1800, Design 3
		60276-01	Brine Valve, 1800, Retrofit Kit, Downflow 1800 Injector and Brine Valve, Update to Design 3
20		60734	Regulator, 3150/3900, Pressure, Upflow
21		60711-000	DLFC, 2-inch NPT, Less BTTNS, w/4 HLS
		60711-00	DLFC, 2-inch NPT, Less BTTNS, W/2 HLS
		60711-01	DLFC, 2-inch NPT, Less BTTNS, W/1 HLS
		60711-20	DLFC, 2-inch NPT, 20 gpm
		60711-25	DLFC, 2-inch NPT, 25 gpm
		60711-30	DLFC, 2-inch NPT, 30 gpm
		60711-35	DLFC, 2-inch NPT, 35 gpm
		60711-40	DLFC, 2-inch NPT, 40 gpm
		60711-45	DLFC, 2-inch NPT, 45 gpm
		60711-50	DLFC, 2-inch NPT, 50 gpm
		60711-55	DLFC, 2-inch NPT, 55 gpm
		60711-60	DLFC, 2-inch NPT, 60 gpm
		60711-65	DLFC, 2-inch NPT, 65 gpm
		60711-70	DLFC, 2-inch NPT, 70 gpm
		60711-75	DLFC, 2-inch NPT, 75 gpm
		60711-80	DLFC, 2-inch NPT, 80 gpm
		60711-85	DLFC, 2-inch NPT, 85 gpm
		60711-90	DLFC, 2-inch NPT, 90 gpm
		60711-95	DLFC, 2-inch NPT, 95 gpm
		60711-100	DLFC, 2-inch NPT, 100 gpm
		60812-30	DLFC, 2-inch BSP/Metric, 30 gpm
		60812-35	DLFC, 2-inch BSP/Metric, 35 gpm

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

Item No.	QTY	Part No.	Description
		60812-45	DLFC, 2-inch BSP/Metric, 45 gpm
		60812-50	DLFC, 2-inch BSP/Metric, 50 gpm
		60812-55	DLFC, 2-inch BSP/Metric, 55 gpm
		60812-70	DLFC, 2-inch BSP/Metric, 70 gpm
		60812-75	DLFC, 2-inch BSP/Metric, 75 gpm
		60812-80	DLFC, 2-inch BSP/Metric, 80 gpm
		60812-90	DLFC, 2-inch BSP/Metric, 90 gpm
		60812-95	DLFC, 2-inch BSP/Metric, 95 gpm
		60812-100	DLFC, 2-inch BSP/Metric, 100 gpm
22	2	27913-21	Housing, Flow Control, 2-inch 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-inch, 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-inch F x 1-inch M, NPT, 1.2 gpm
		60710-2.0	BLFC, 1-inch F x 1-inch M, NPT, 2.0 gpm
		60710-2.4	BLFC, 1-inch F x 1-inch M, NPT, 2.4 gpm
		60710-3.0	BLFC, 1-inch F x 1-inch M, NPT, 3.0 gpm
		60710-3.5	BLFC, 1-inch F x 1-inch M, NPT, 3.5 gpm
		60710-4.0	BLFC, 1-inch F x 1-inch M, NPT, 4.0 gpm
		60710-5.0	BLFC, 1-inch F x 1-inch M, NPT, 5.0 gpm
		60710-7.0	BLFC, 1-inch F x 1-inch M, NPT, 7.0 gpm
43		60710-9.0	BLFC, 1-inch F x 1-inch M, NPT, 9.0 gpm
		60710-10	BLFC, 1-inch F x 1-inch M, NPT, 10 gpm
		60710-12	BLFC, 1-inch F x 1-inch M, NPT, 12 gpm
		60710-15	BLFC, 1-inch F x 1-inch M, NPT, 15 gpm
		60710-20	BLFC, 1-inch F x 1-inch M, NPT, 20 gpm
		60710-25	BLFC, 1-inch F x 1-inch M, NPT, 25 gpm
44		16530	Housing, BLFC, 1-inch M x 1-inch 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, Flow, 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

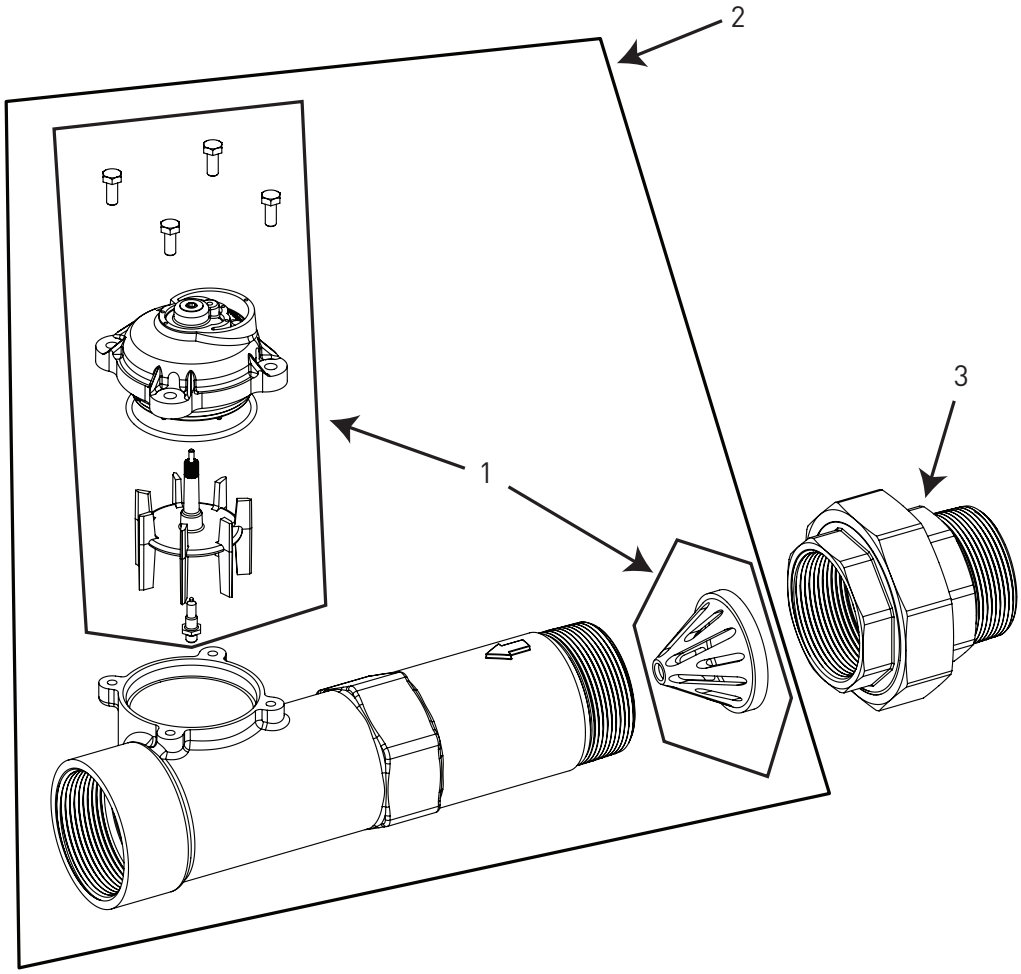
2-INCH BRASS METER ASSEMBLY



Item No.	QTY	Part No.	Description
1	1	14456	Body, Meter, 2-inch
		14456-20	Body, Meter, 2-inch, BSP, Metric
2	1	15532	Seat, Impeller Shaft, Hex
3	1	15432	Shaft
5	1	15374	Impeller Assy, 2-inch 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-inch to 2-inch, 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-inch
		14568-10	Fitting, Nipple, 2-inch BSP, Brass

Item No.	QTY	Part No.	Description
11	1	14680	Flow Straightener
12	1	14569	Nut, 2900 Meter
13			Meter Assy, 2-inch Inline, NPT, STD, Brass, Paddlewheel
			Meter Assy, 2-inch Inline, BSP, STD, Brass, Paddlewheel
14			Meter Assy, 2-inch Inline, NPT, EXT, Brass Paddlewheel
			Meter Assy, 2-inch Inline, BSP, EXT, Brass, Paddlewheel
Not Shown			
		61439	Meter Sleeve w/O-rings, 1-1/2 inch

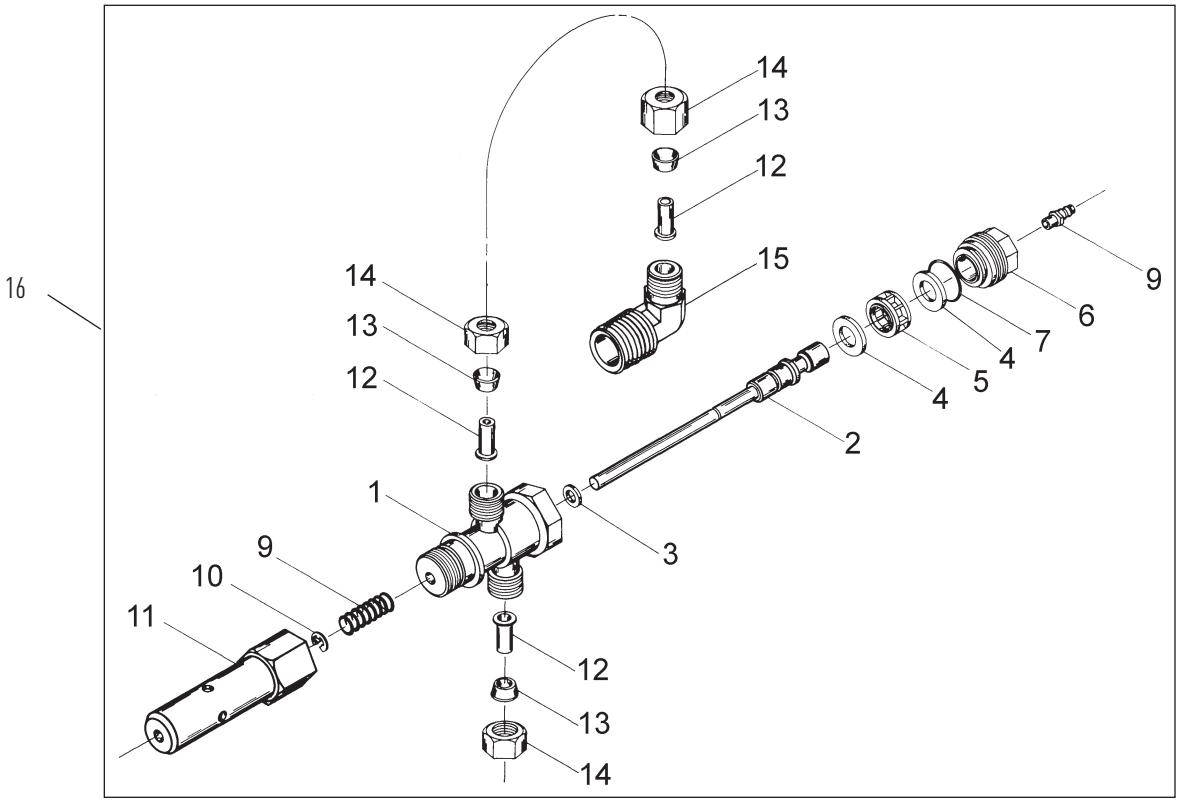
2-INCH STAINLESS STEEL METER ASSEMBLY



Item No.	QTY	Part No.	Description
1	1	62048-01	Service Kit, 2 inch Meter, Standard Range
	1	62048-02	Service Kit, 2 inch Meter, Extended Range
2	1	61934-10	Meter Assy, 2 inch, Inline, Stainless Steel, NPT Standard Range
	1	61934-11	Meter Assy, 2 inch, Inline, Stainless Steel, NPT Extended Range
	1	61934-20	Meter Assy, 2 inch, Inline, Stainless Steel, BSP Standard Range
	1	61934-21	Meter Assy, 2 inch, Inline, Stainless Steel, BSP Extended Range
3	1	44026	Union, 2 inch, NPT (Optional on models with electronic controls)
	1	44027	Union, 2 inch, BSP (Optional on models with electronic controls)
Not Shown (optional)			
	1	62073	Meter Sleeve , 2 inch to 1-1/2 inch (optional)

⚠ IMPORTANT: For valves equipped with electromechanical timers and stainless steel meters, refer to the Meter Dome and Union Orientation section.

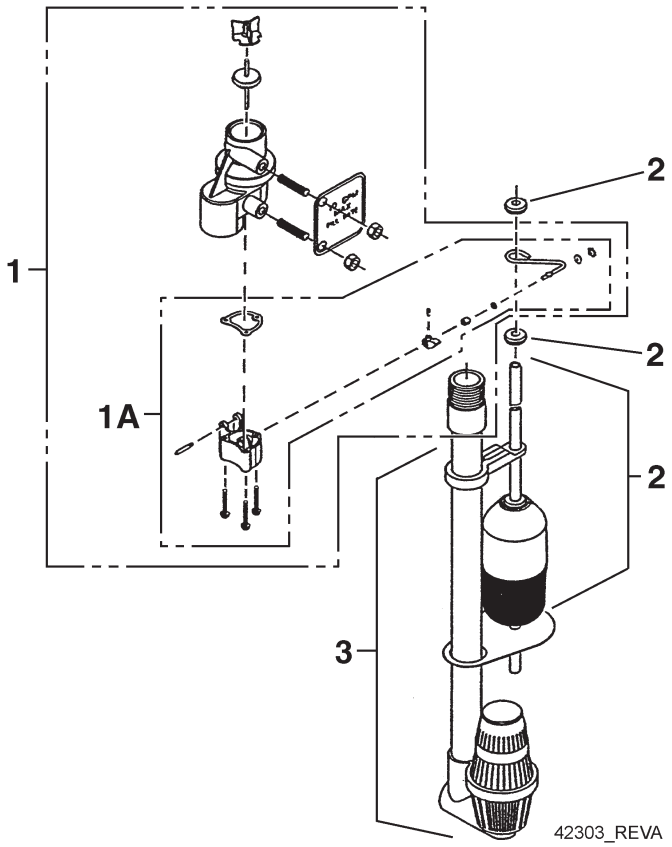
SERVICE VALVE OPERATOR ASSEMBLY



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

2350 SAFETY BRINE VALVE



Item No.	QTY	Part No.	Description
1	1	60038	Safety Brine Valve, 2350
1A	1	61024	Actuator Assy, 2350 Brine
2	1	60028-30	Float Assy, 2350, 30 inch Wht
	1	60026-30SAN	Float Assy, 2350, 30 inch Hot Water
3	1	60009-00	Air Check, #900, Commercial Less Fittings
	1	60009-01	Air Check, #900, Commercial, Hot Water Less Fittings
Not Shown			
	1	18603	Fitting Assy, 900 Air Check 2350
	1	18602	Fitting Assy, 900 Air Check

GENERAL SERVICE HINTS FOR METER CONTROL

Problem: Softener delivers hard water

Reason: Reserve capacity has been exceeded.

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

Reason: Program wheel is not rotating with meter output.

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

Reason: Meter is not measuring flow.

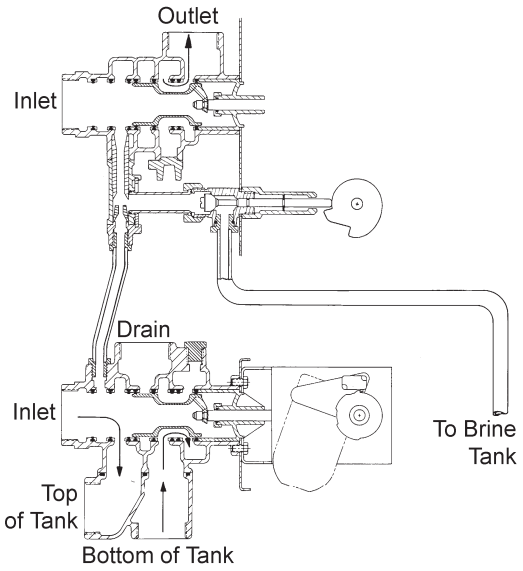
Correction: Check meter with meter checker.

TROUBLESHOOTING

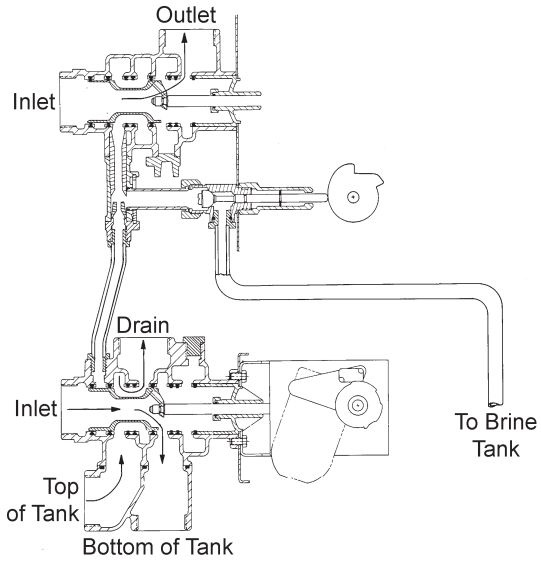
Problem	Cause	Correction
Water conditioner fails to regenerate.	Electrical service to unit has been interrupted	Assure permanent electrical service (check fuse, plug, pull chain, or switch)
	Timer is defective.	Replace timer.
	Power failure.	Reset time of day.
Hard water.	By-pass valve is open.	Close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

WATER CONDITIONER FLOW DIAGRAMS

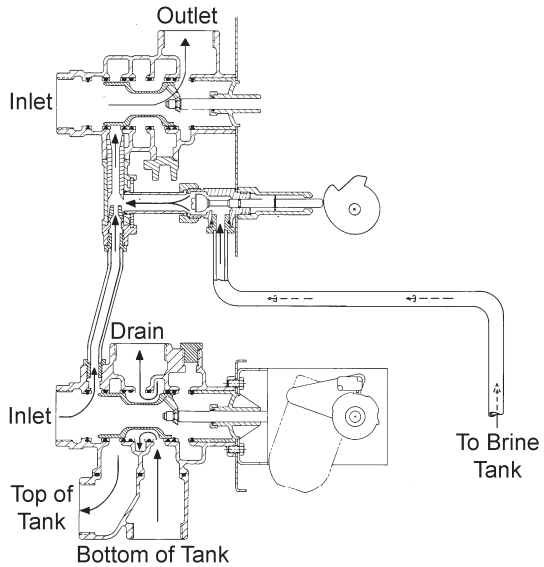
1 Service Position



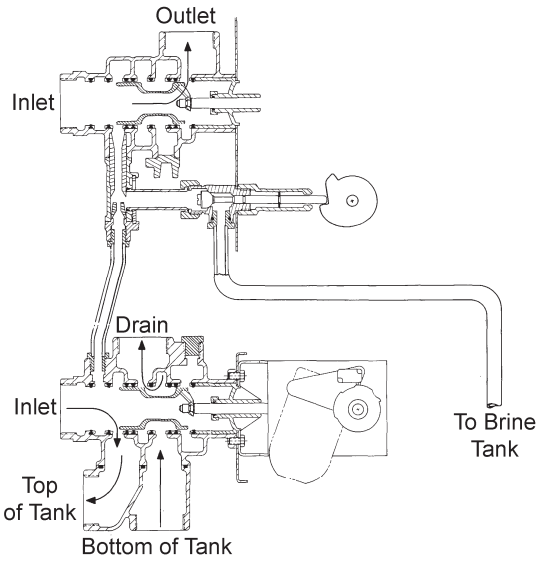
2 Backwash Position



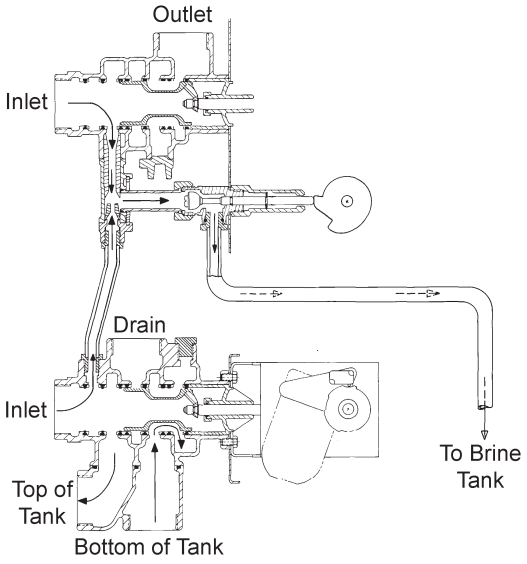
3 Brine and Slow Rinse Position



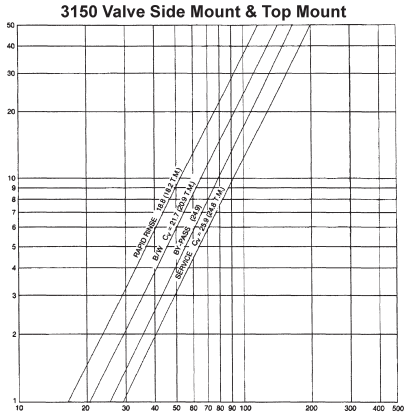
4 Rapid Rinse

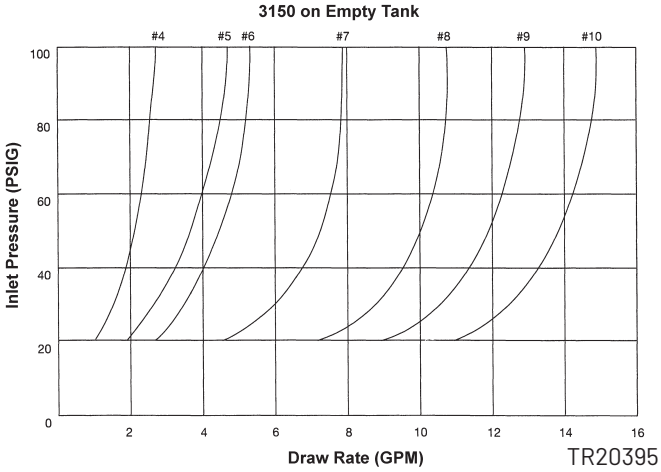


5 Brine Tank Refill Position

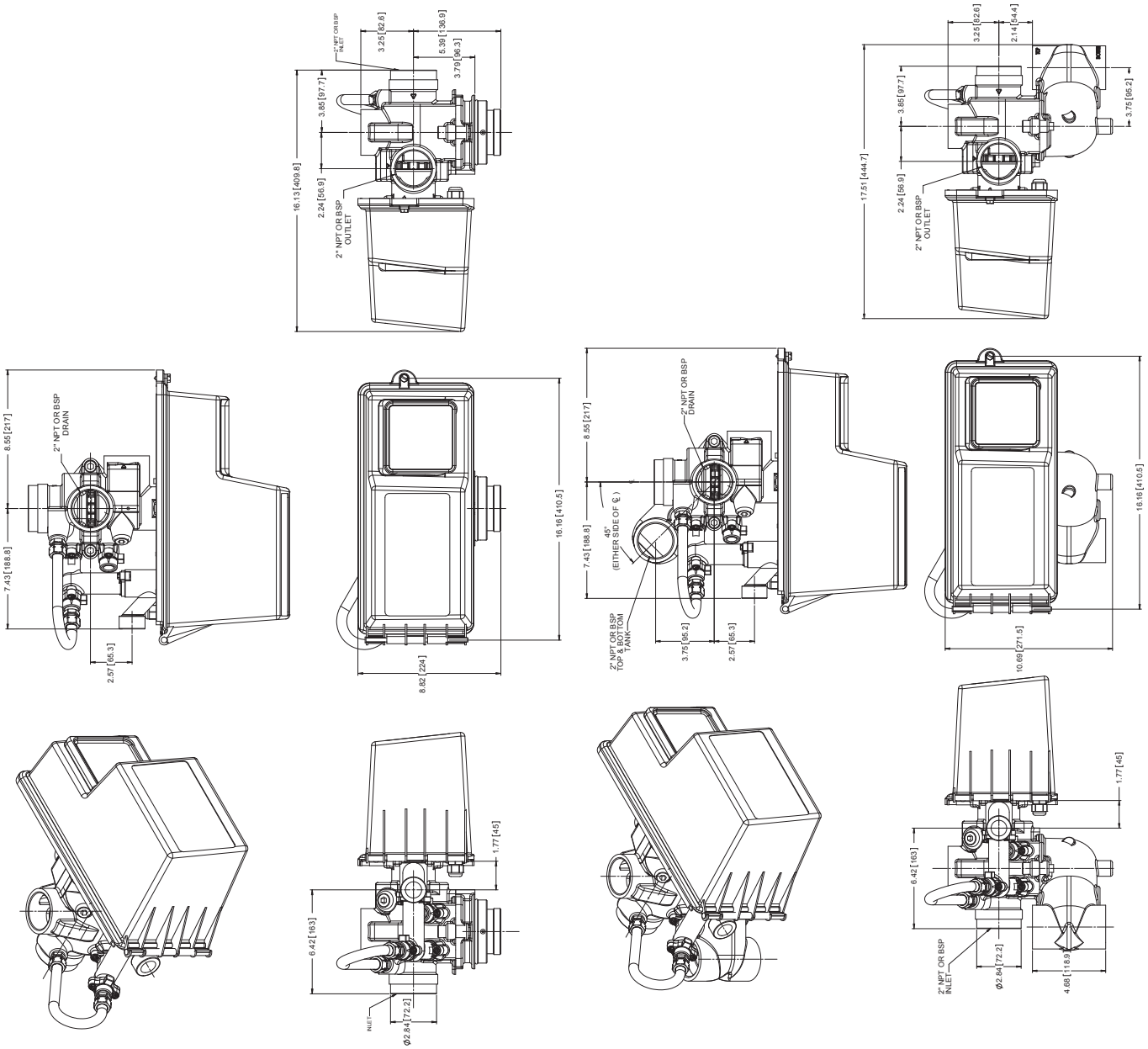


FLOW DATA & INJECTOR DRAW RATES



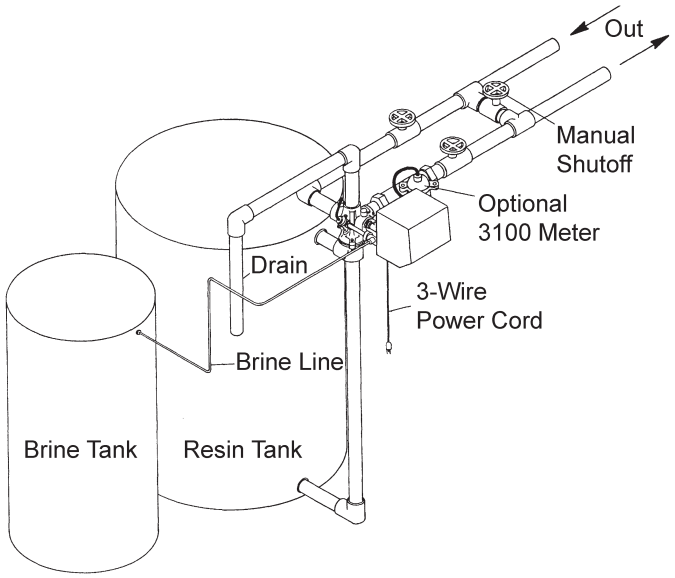


DIMENSIONAL DRAWING



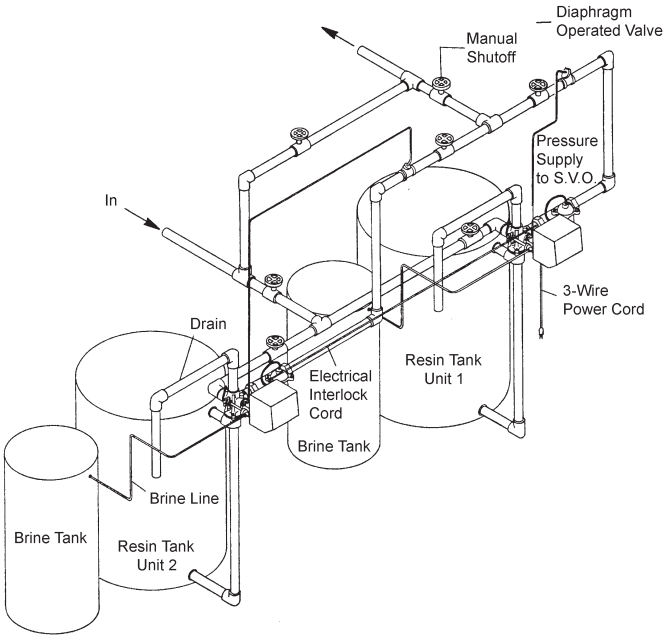
SYSTEM #4

Typical Single Tank Installation with Optional Meter



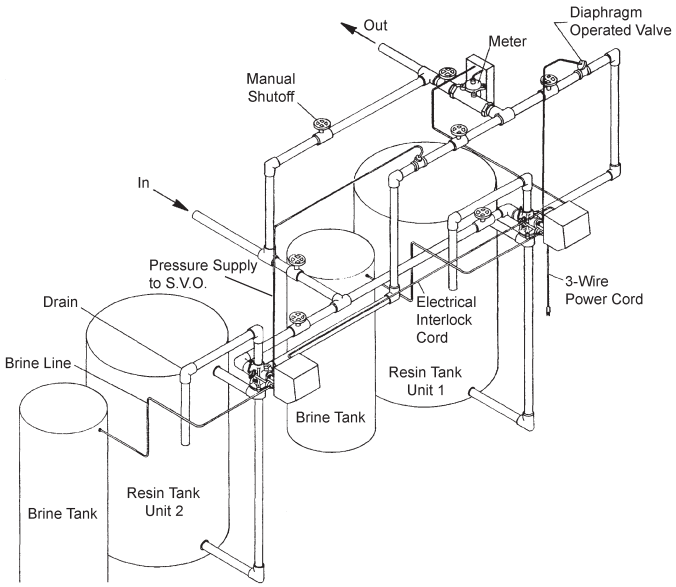
SYSTEM #5

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



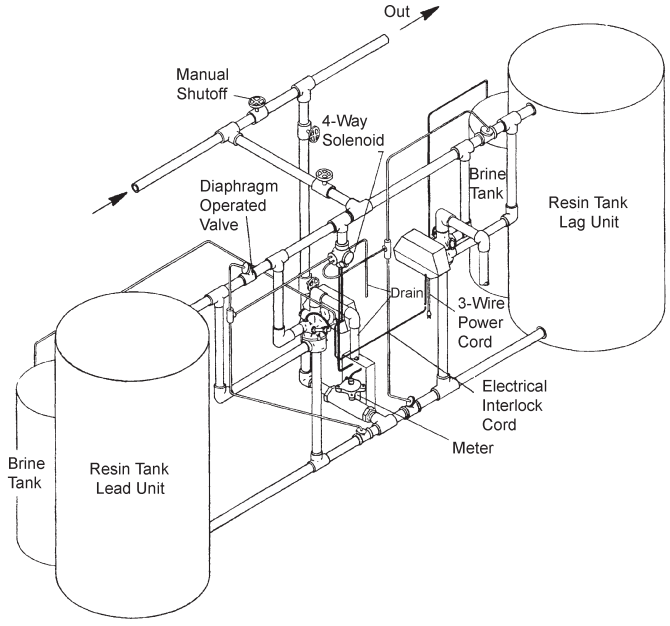
SYSTEM #6

Twin Series Regeneration Installation with a Remote Meter

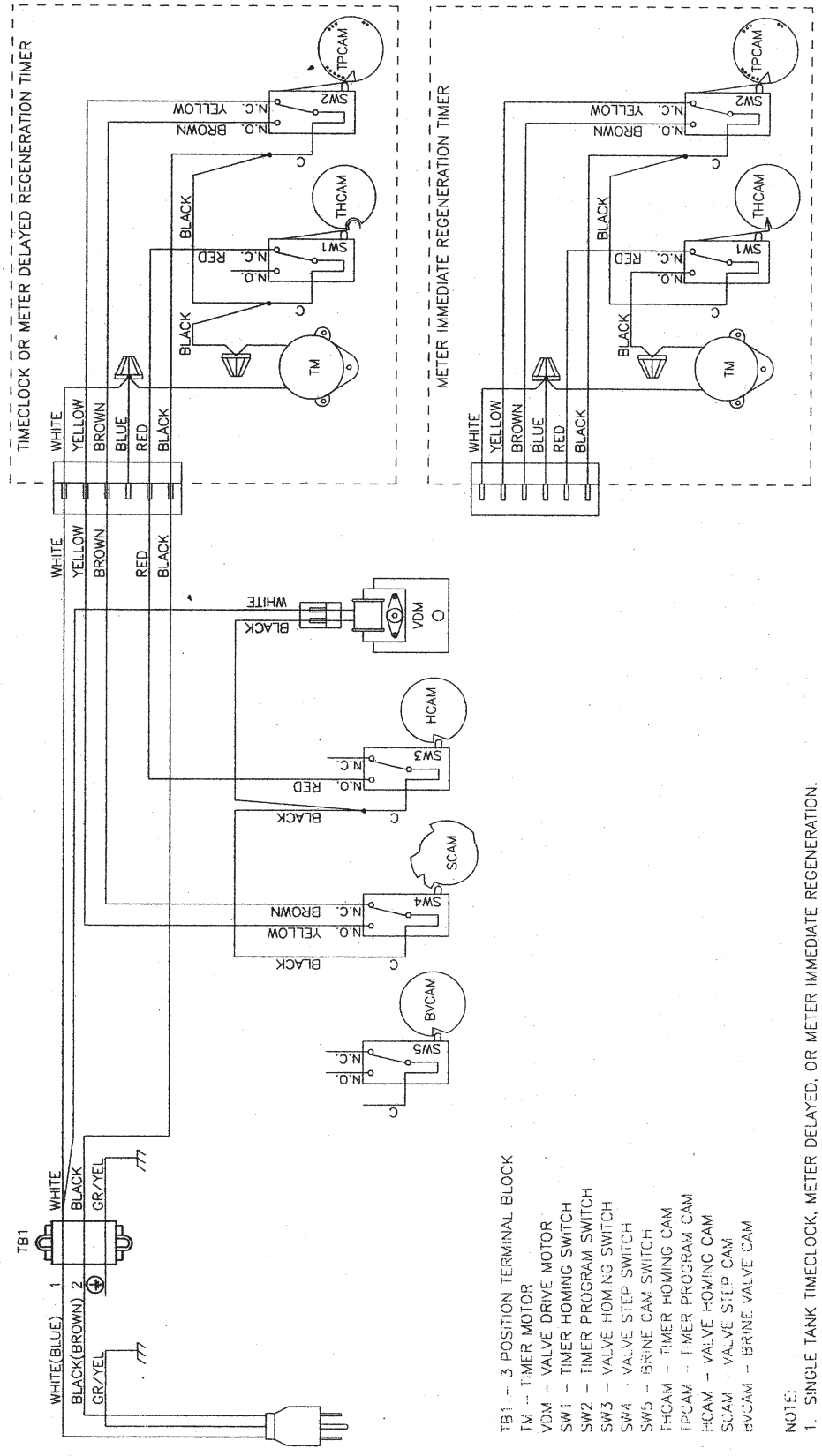


SYSTEM #7

Twin Alternator Installation with a Remote Meter

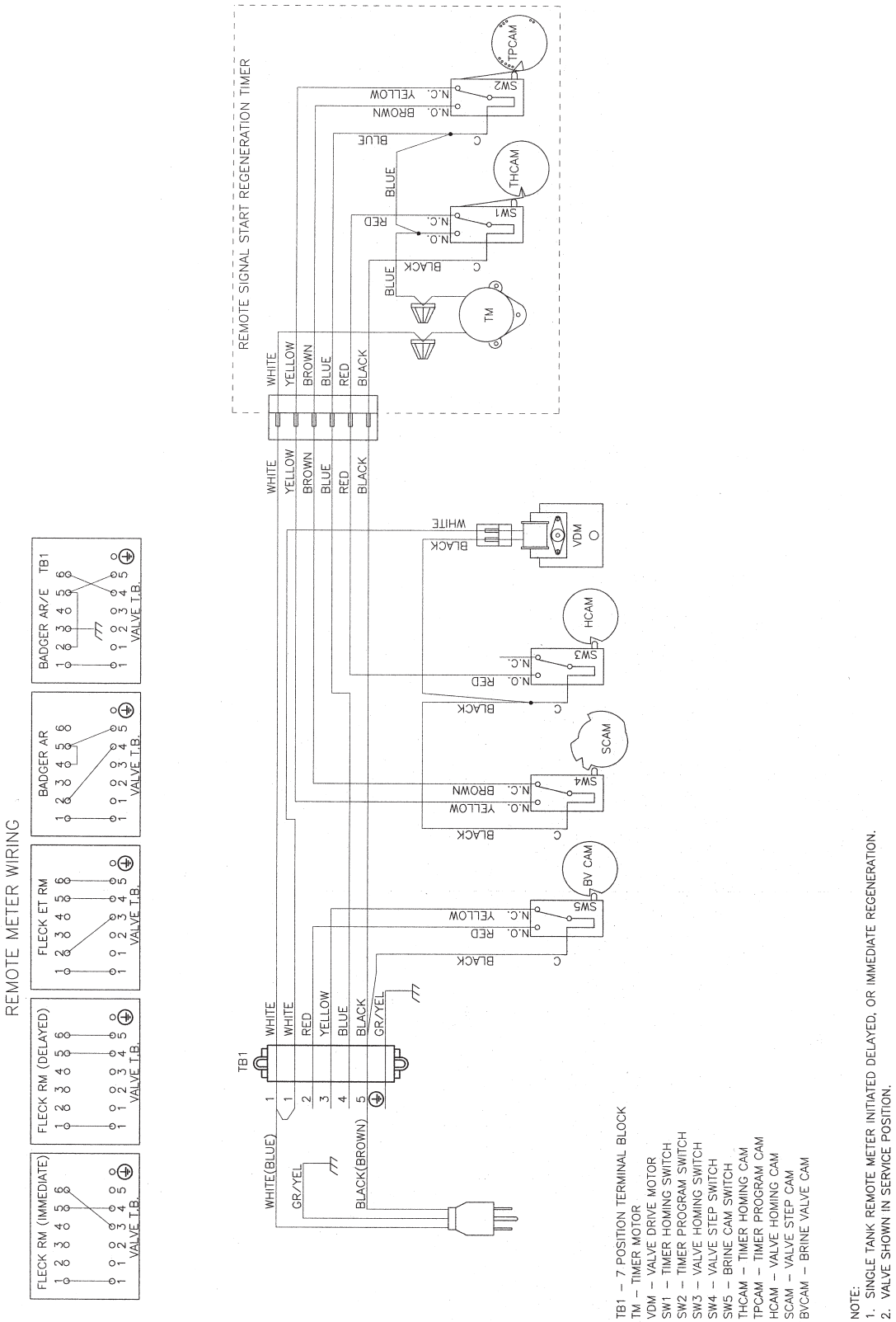


System #4 Immediate/Delayed Regeneration Valve Wiring



18669 Rev E

System #4 Remote Signal Start Valve Wiring

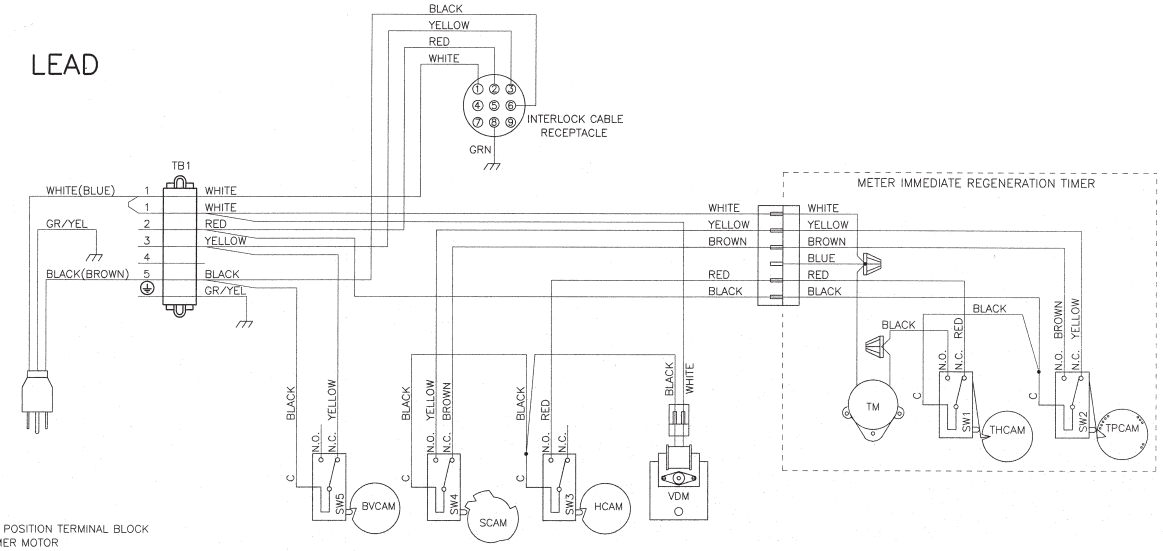


TB1 – 7 POSITION TERMINAL BLOCK
TM – TIMER MOTOR
VDM – VALVE DRIVE MOTOR
SW1 – TIMER HOMING SWITCH
SW2 – TIMER PROGRAM SWITCH
SW3 – VALVE HOMING SWITCH
SW4 – VALVE STEP SWITCH
SW5 – BRINE CAM SWITCH
THCAM – TIMER HOMING CAM
TPCAM – TIMER PROGRAM CAM
HCAM – VALVE HOMING CAM
SCAM – VALVE STEP CAM
BVCAM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

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

40500 Rev C

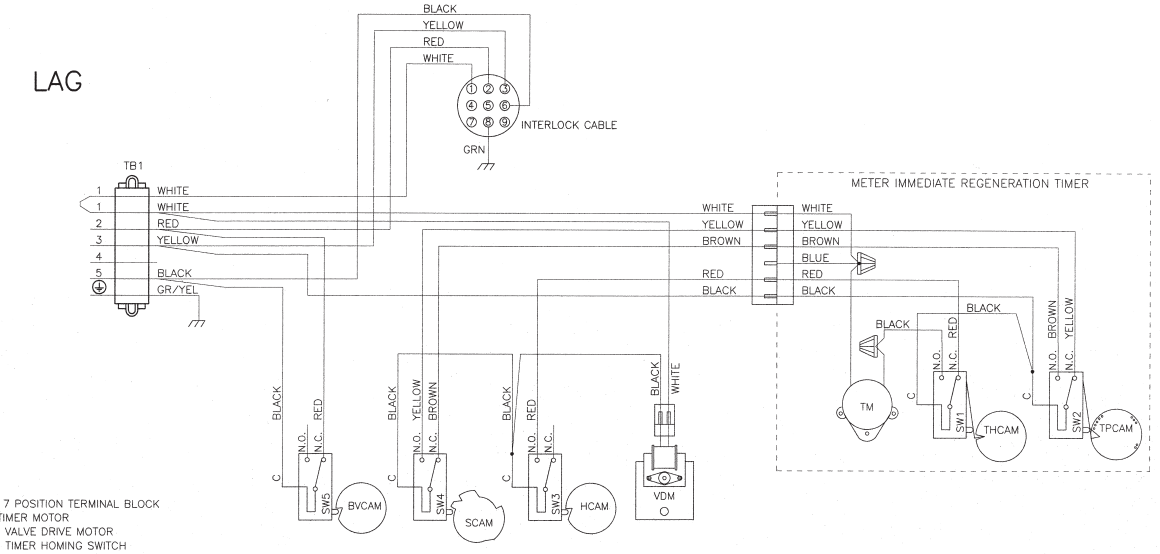
System #5 Duplex Valve Wiring



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

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

18690-01 Rev E

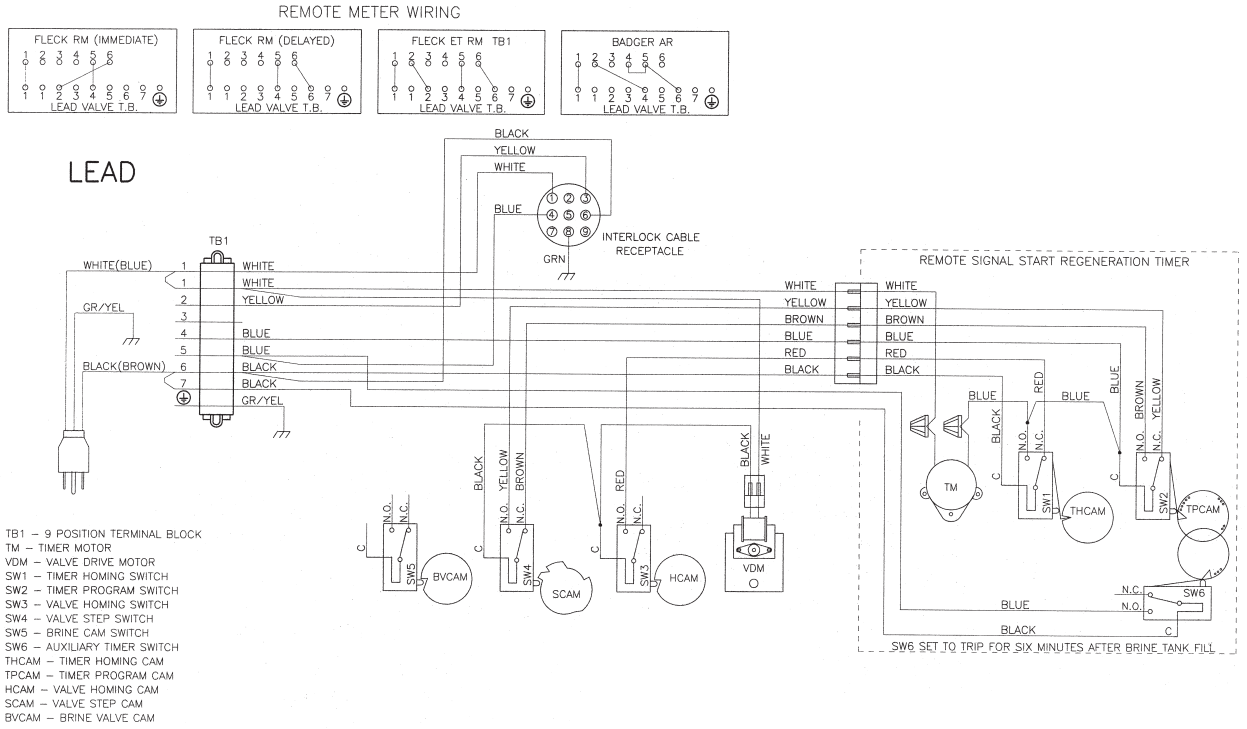


TB1 – 7 POSITION TERMINAL BLOCK
TM – TIMER MOTOR
VDM – VALVE DRIVE MOTOR
SW1 – TIMER HOMING SWITCH
SW2 – TIMER PROGRAM SWITCH
SW3 – VALVE HOMING SWITCH
SW4 – VALVE STEP SWITCH
SW5 – BRINE CAM SWITCH
THCAM – TIMER HOMING CAM
TPCAM – TIMER PROGRAM CAM
HCAM – VALVE HOMING CAM
SCAM – VALVE STEP CAM
BVCAM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

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

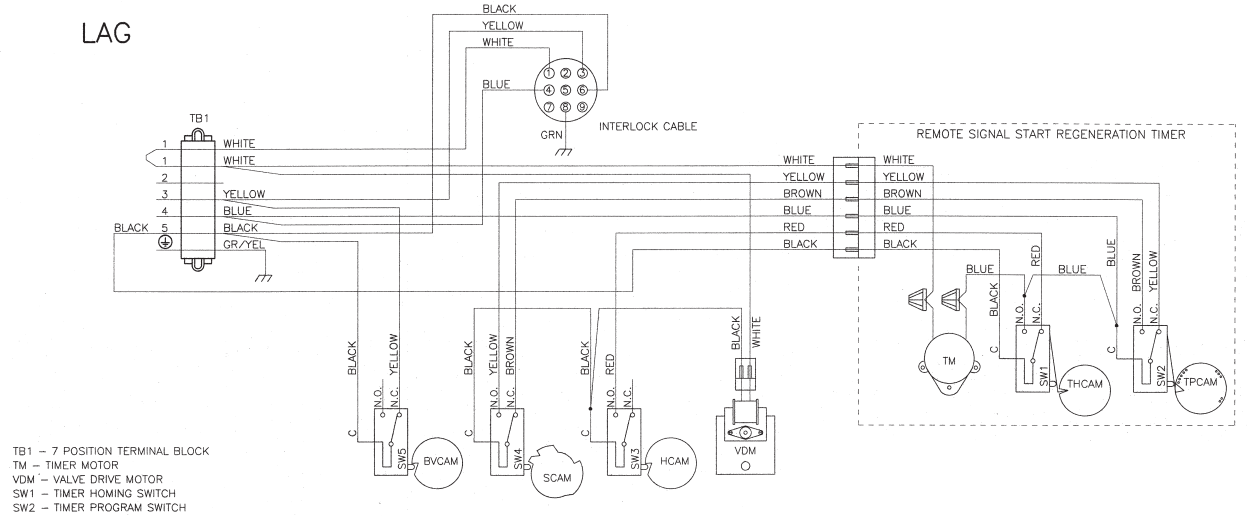
18690-02 Rev E

System #6 Duplex Valve Wiring



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

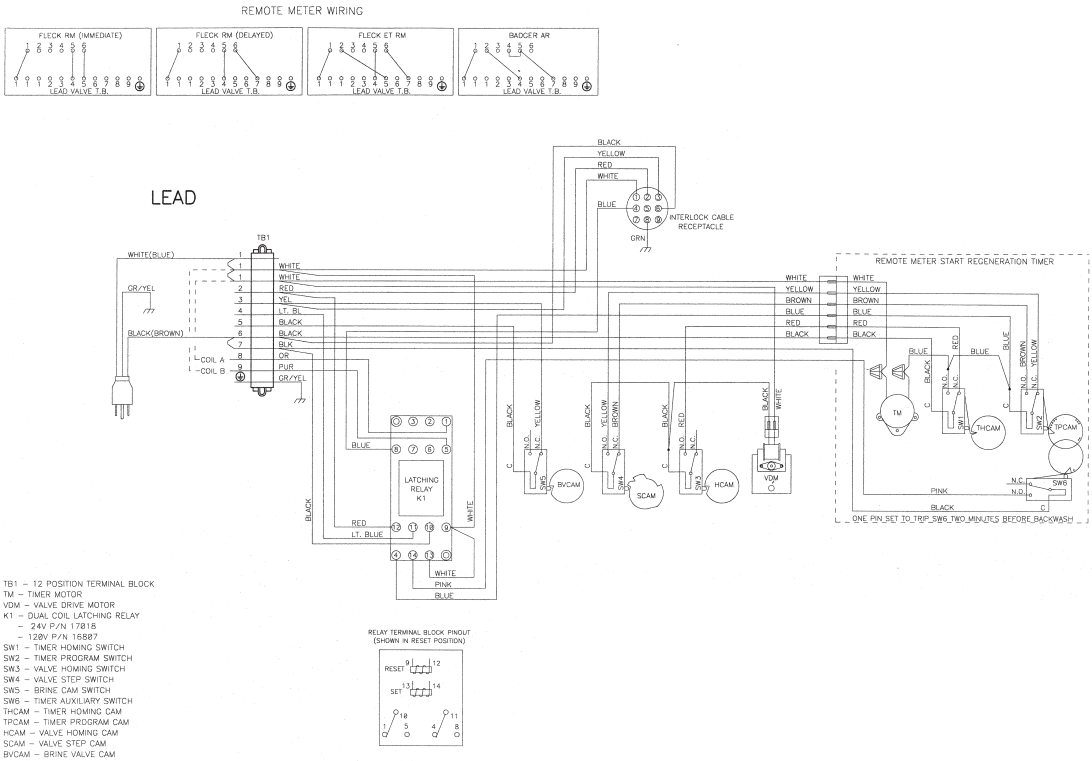
18671-01 Rev E



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

18671-02 Rev E

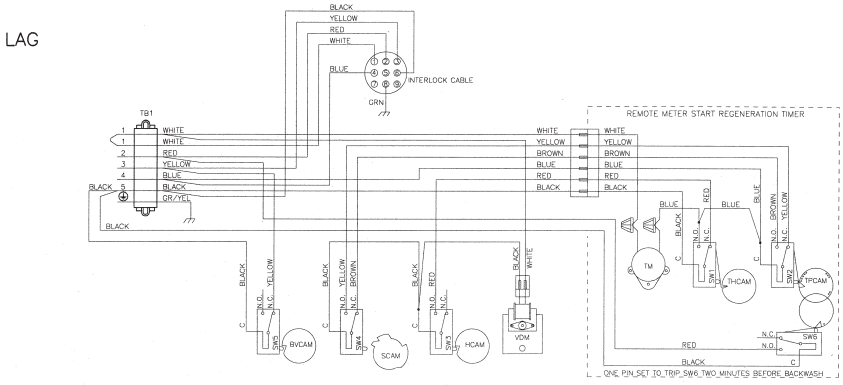
System #7 Duplex 24V / 120V 3-Way Valve Wiring



TB1 – 12 POSITION TERMINAL BLOCK
TM – TIMER MOTOR
VDM – VALVE DRIVE MOTOR
K1 – DUAL COIL LATCHING RELAY
– 24V P/N 17818
– 120V P/N 16887
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.

40503-01 Rev C

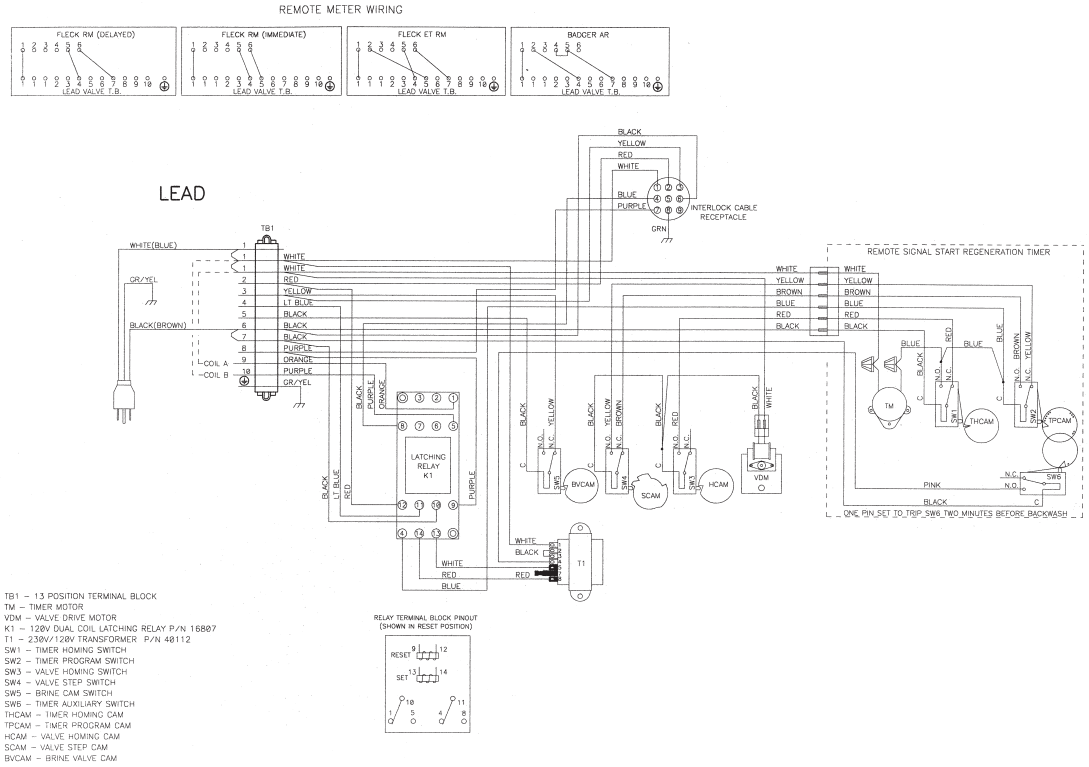


TB1 – 7 POSITION TERMINAL BLOCK
TM – TIMER MOTOR
VDM – VALVE DRIVE MOTOR
SW1 – TIMER HOMING SWITCH
SW2 – TIMER PROGRAM SWITCH
SW3 – VALVE HOMING SWITCH
SW4 – VALVE STEP SWITCH
SW5 – BRINE CAM SWITCH
SW6 – TIMER AUXILIARY SWITCH
THCAM – TIMER HOMING CAM
TPCAM – TIMER PROGRAM CAM
HCAM – VALVE HOMING CAM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

40503-02 Rev C

System #7 Duplex 230V 3-Way Valve Wiring

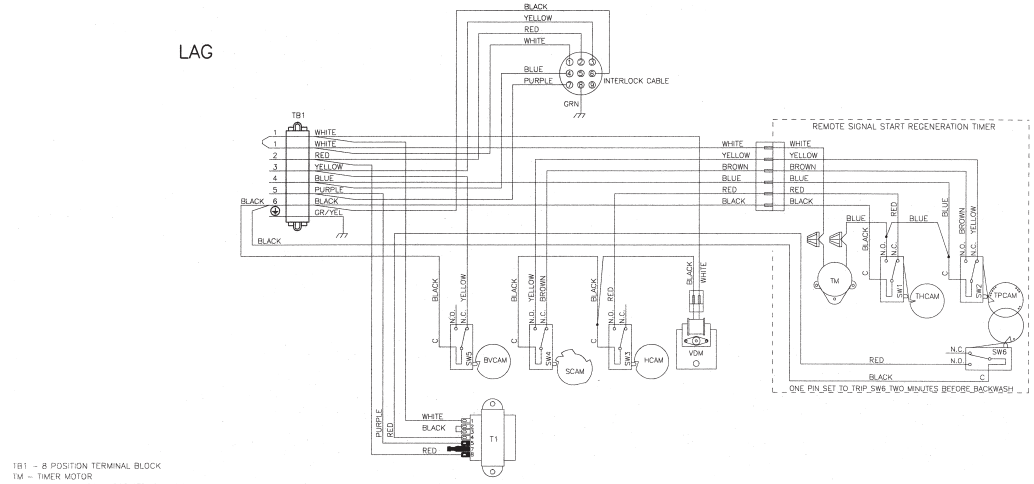


TB1 – 13 POSITION TERMINAL BLOCK
TM – TIMER MOTOR
VDM – VALVE DRIVE MOTOR
K1 – 120V DUAL COIL LATCHING RELAY P/N 16807
T1 – 230V/120V TRANSFORMER P/N 40112
SW1 – TIMER HOMING SWITCH
SW2 – TIMER PROGRAM SWITCH
SW3 – VALVE HOMING SWITCH
SW4 – VALVE STEP SWITCH
SW5 – BRINE CAM SWITCH
SW6 – TIMER AUXILIARY 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.

40504-01_REVC



TB1 – 8 POSITION TERMINAL BLOCK
TM – TIMER MOTOR
T1 – 230V/120V TRANSFORMER P/N 40112
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.

40504-02_REVC

SERVICE ASSEMBLIES

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

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

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

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

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

60057-01 Drive Assy, 3150, 120V, B/Fill 3900 Upper Sys #5 or Sys # 7

60057-11 Drive Assy, 3150, 120V, 3900 Upper Sys #4 or Sys #6

60150-3150 SVO Assy, 3150

60393 Meter Assy, 2900, 2 inch Std

60394 Meter Assy, 2900, 2 inch Ext

61394-10 Meter Assy, 2 inch SS NPT Std
61394-11 Meter Assy, 2 inch SS NPT Ext
61394-20 Meter Assy, 2 inch SS BSP Std
61394-21 Meter Assy, 2 inch SS BSP Ext

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

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

For Pentair Fleck Product Warranties visit: **pentair.com/assets/residential-filtration-warranty**

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