MODEL 2930

Downflow

Upflow

IMPORTANT: Fill in pertinent information on page 2 for future reference.

Job Specification Sheet

- JOB NO. ______________________________
- MODEL NO. ______________________________
- WATER TEST ______________________________
- CAPACITY PER UNIT__________MAX. __________PER REGENERATION
- MINERAL TANK SIZE DIA.________HEIGHT________
- BRINE TANK SIZE & SALT SETTING PER REGENERATION:

  ____

- 2930 CONTROL VALVE SPECIFICATIONS
  1) Type of Timer (see pages 28-32)
     A) 7 day or 12 day
     B) * 1,250 to 21,250 gallon meter or
        * 6,250 to 106,250 gallon meter
        * 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 (see pages 31 and 42)
     A) Backwash ____________________ min.
     B) Brine & Slow Rinse ____________________ min.
     C) Rapid Rinse ____________________ min.
     D) Brine Tank Refill ____________________ min.
  3) Drain Line Flow Controller ____________________ gpm
  4) Brine Line Flow Controller ____________________ gpm
  5) Injector Size # ____________________
  6) A) Hard Water By-Pass
     B) No Hard Water By-Pass

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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 110 volt, 60 Hertz current supply is required (other voltages available). 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 isolation and by-pass valves.

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 7 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 or larger than the drain line flow control connection. Water meters are to be installed on soft water outlets. Twin units with (1) one meter shall be installed on common soft water outlet of units. If possible, mimimize height of drain line above valve.
3. 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.
4. Make sure that the floor is clean beneath the salt storage tank and that it is level.
5. 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.
6. Close softener isolation valves and open the bypass valve. 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.
7. Open the softener inlet valves and close the bypass valve.
8. Manually index the softener control into “service” position and let water flow into the mineral tank. When water flow stops, open a cold water tap nearby and let run until air pressure is relieved.
9. Electrical: All electrical connections must be connected according to codes. Use electrical conduit if applicable. Remote meter systems and Twin meter system wiring diagrams are on pages 36–41.
10. Plug into power supply.

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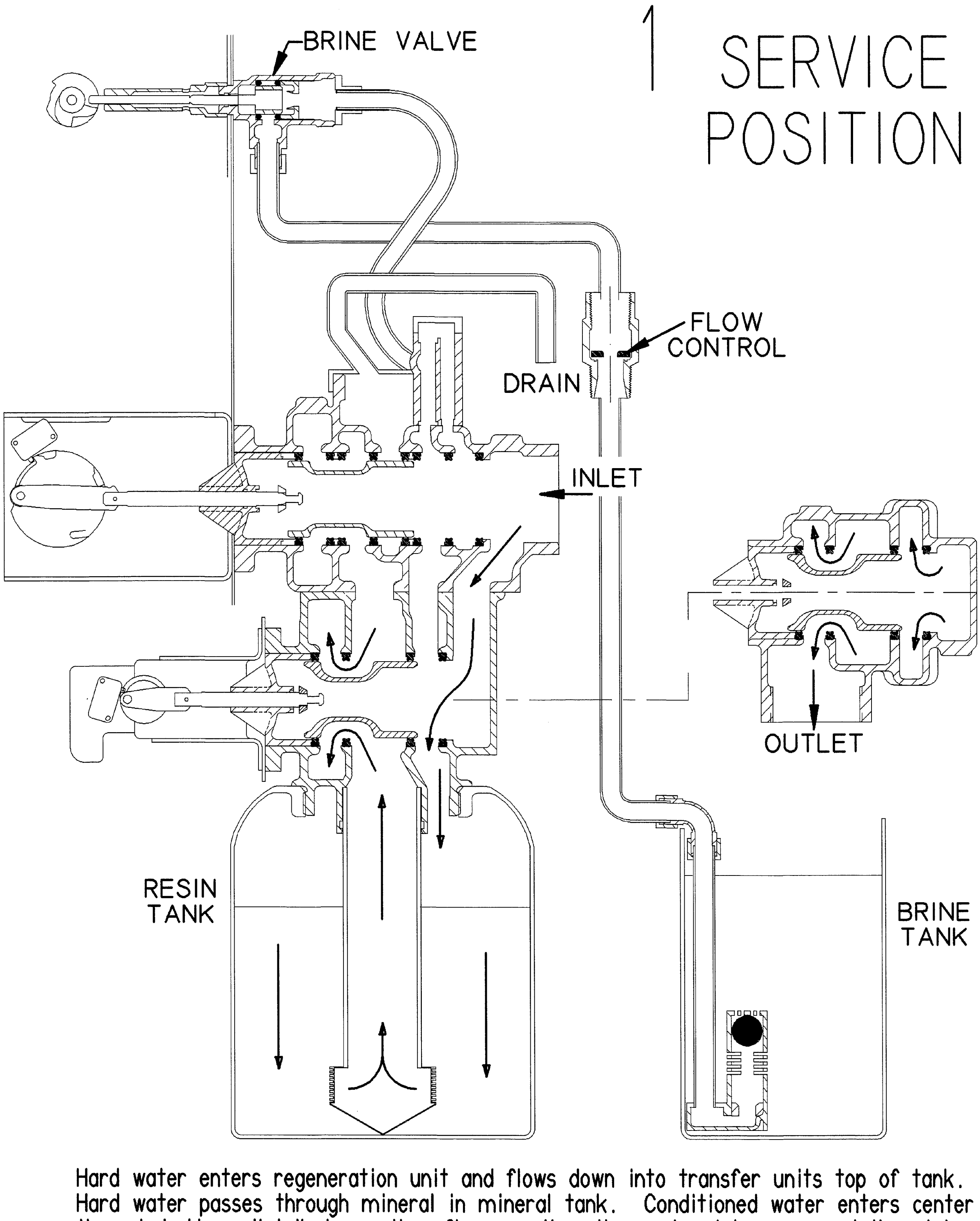
Water Conditioner Flow Diagrams



Hard water enters regeneration unit and flows down into transfer units top of tank. Hard water passes through mineral in mineral tank. Conditioned water enters center tube through bottom distributor - then flows up thru the center tube - around the piston and out the side outlet of the valve.

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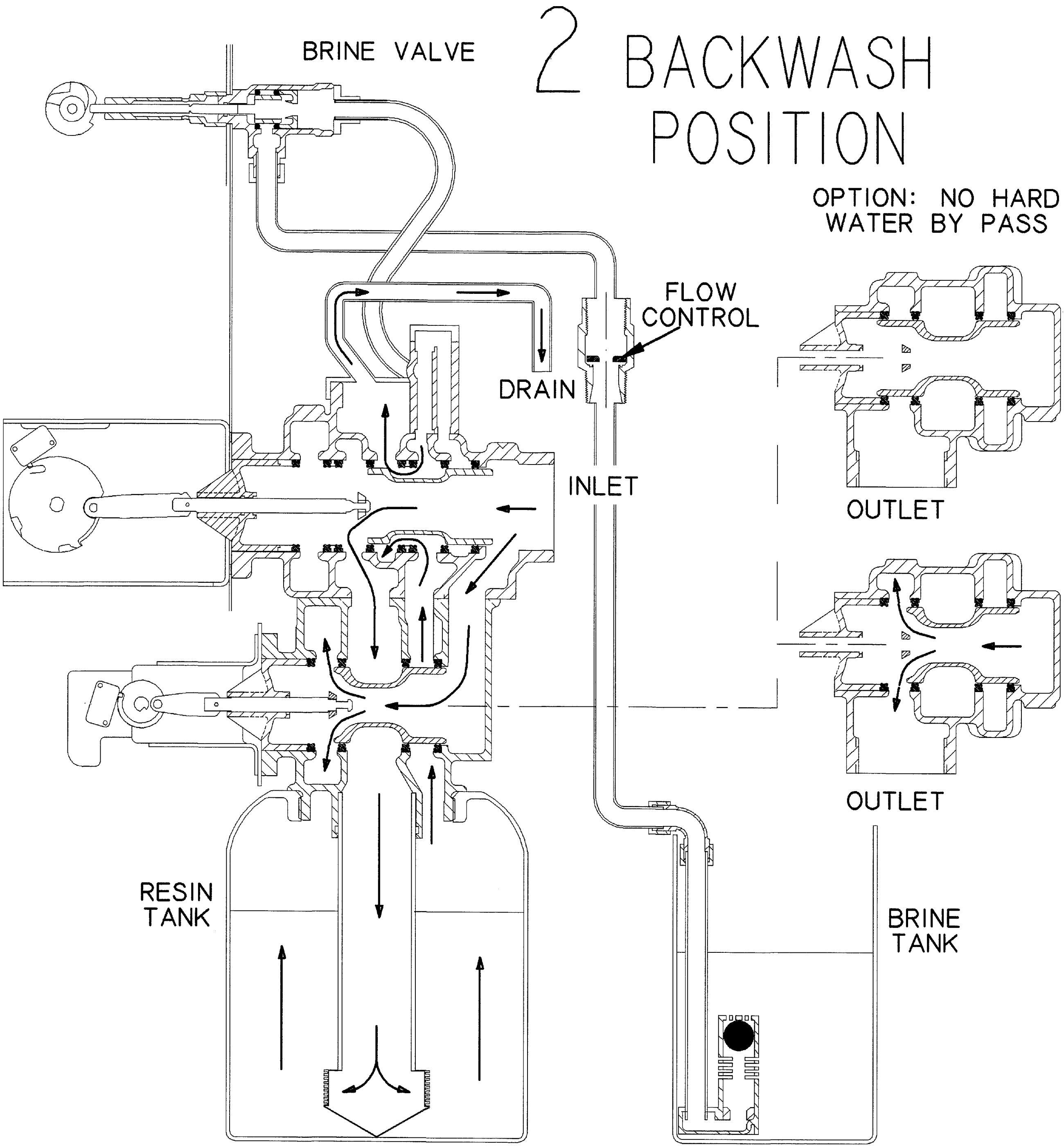
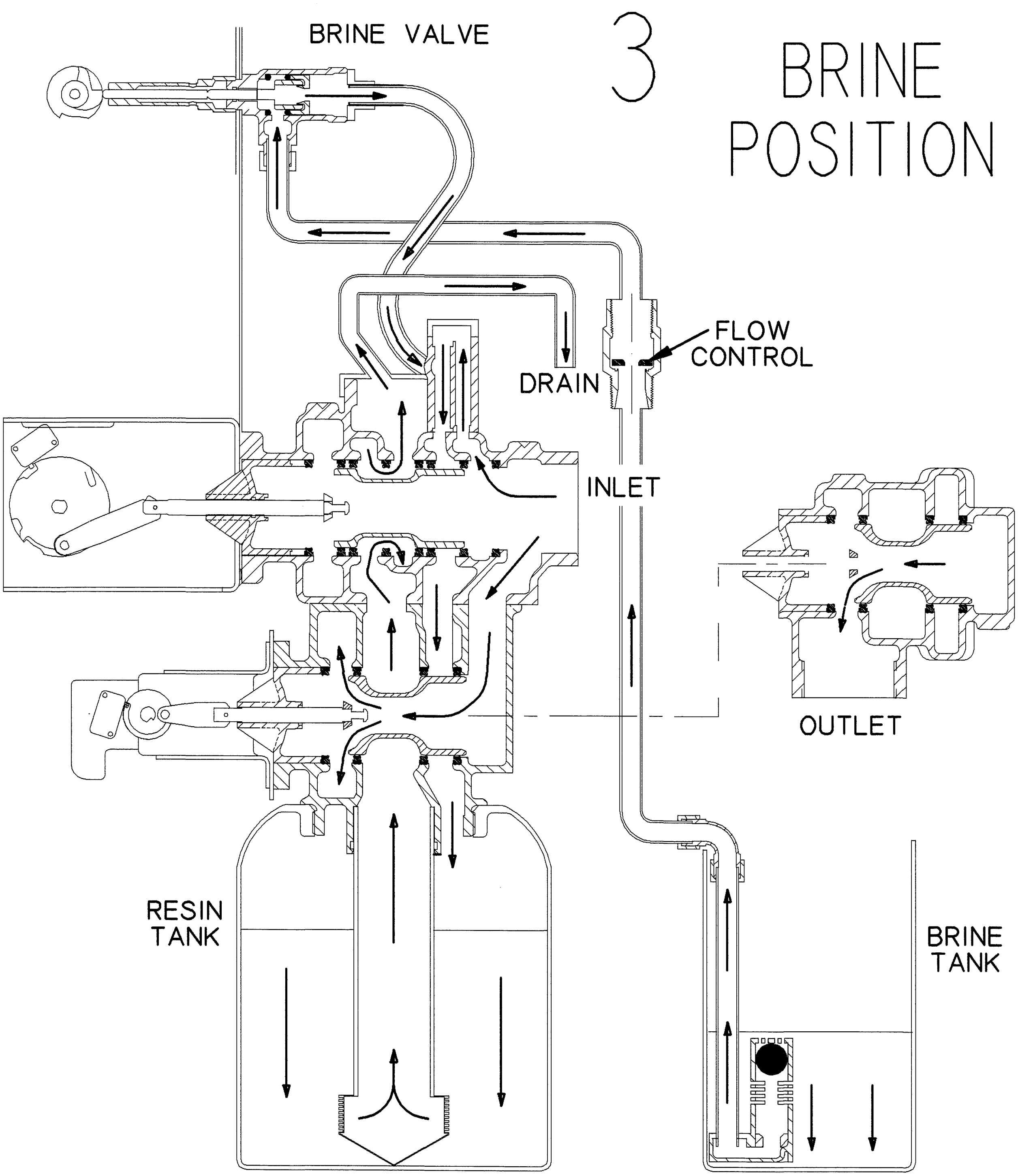


Hard water enters regeneration unit inlet - flows down thru service adapter for by pass, and thru regeneration piston - down the center tube - thru the bottom distributor and up thru the mineral - around the piston and out the drain line. If optional no hard water by pass piston is used, water flow to outlet is prevented by an extended section of the service piston which closes the outlet port from by pass water until the end of rapid rinse.

Water Conditioner Flow Diagrams (Cont'd.)



Hard water enters regeneration unit inlet - flows up into injector housing and down thru nozzle and throat to draw brine from brine tank - brine flows down thru mineral and enters the center tube thru bottom distributor - flows up thru center tube - around piston and out thru the drain line.

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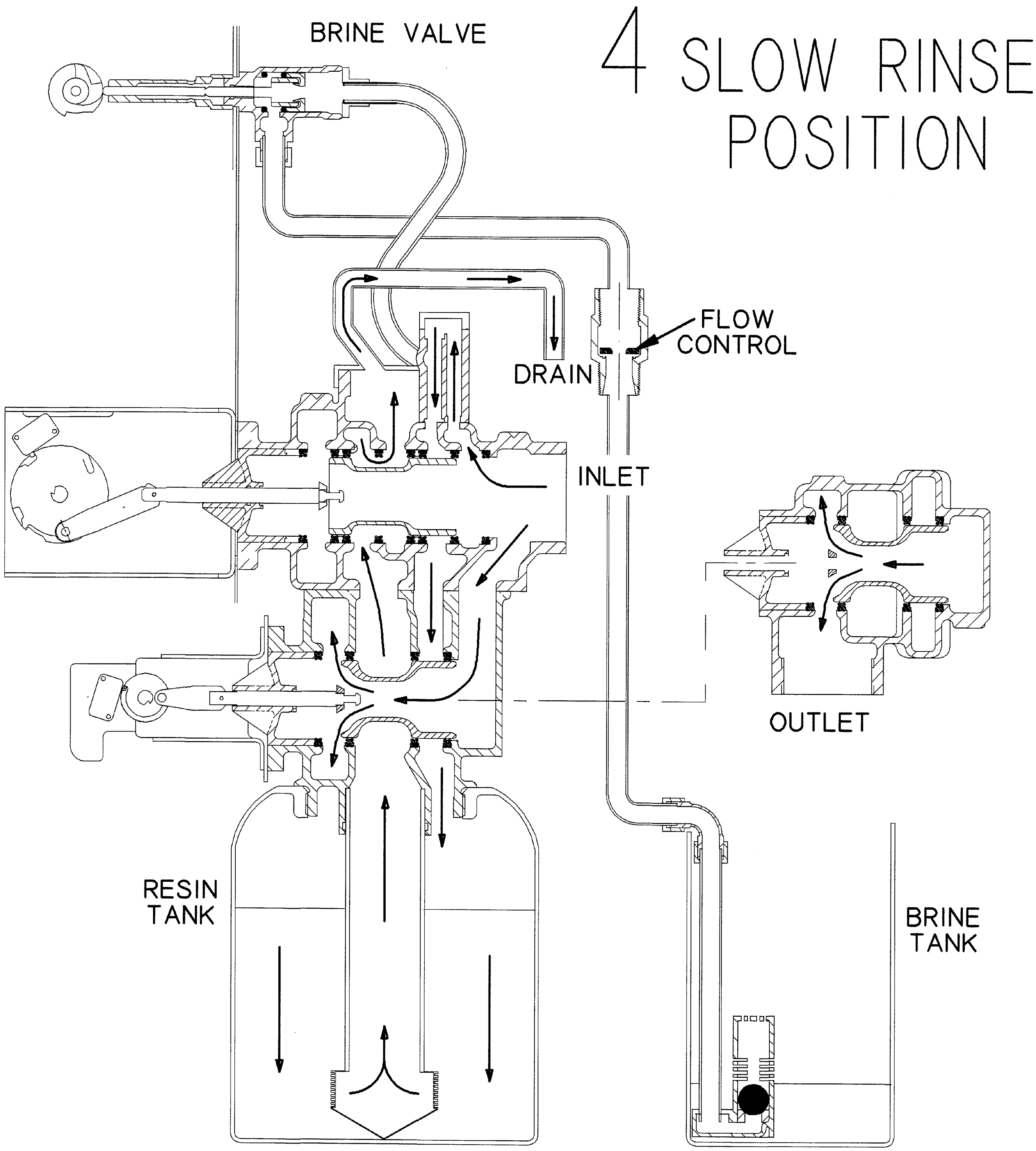
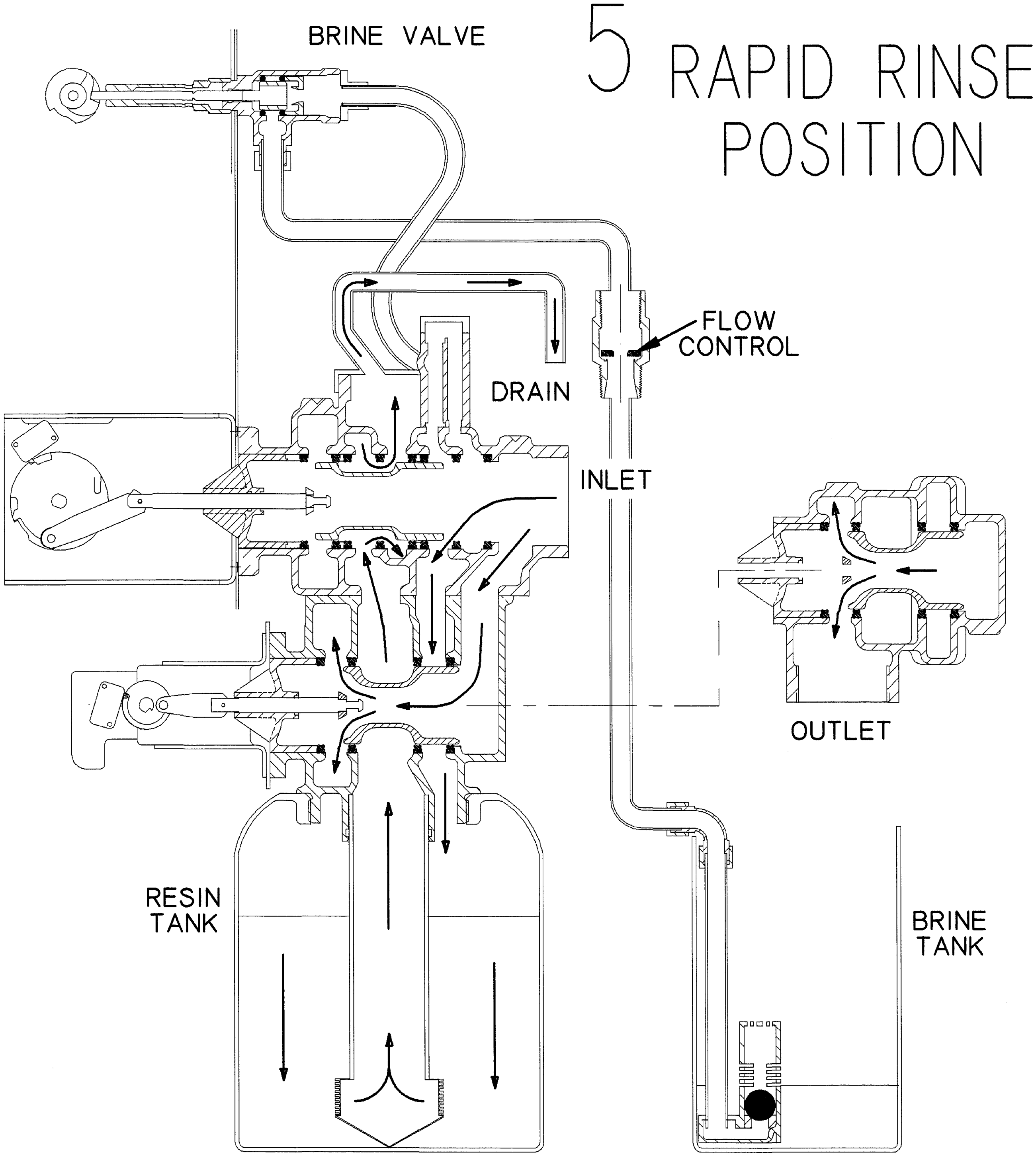


Hard water enters regeneration unit inlet - flows up into injector housing and down thru nozzle and throat - around the piston - down thru mineral - enters center tube thru bottom distributor - flows up thru center tube - around piston and out thru drain line.

Water Conditioner Flow Diagrams (Cont'd.)



Hard water enters regeneration unit inlet - water goes directly down thru top of tank - thru the mineral into the bottom distributor and up thru the center tube - around the piston and out the drain line.

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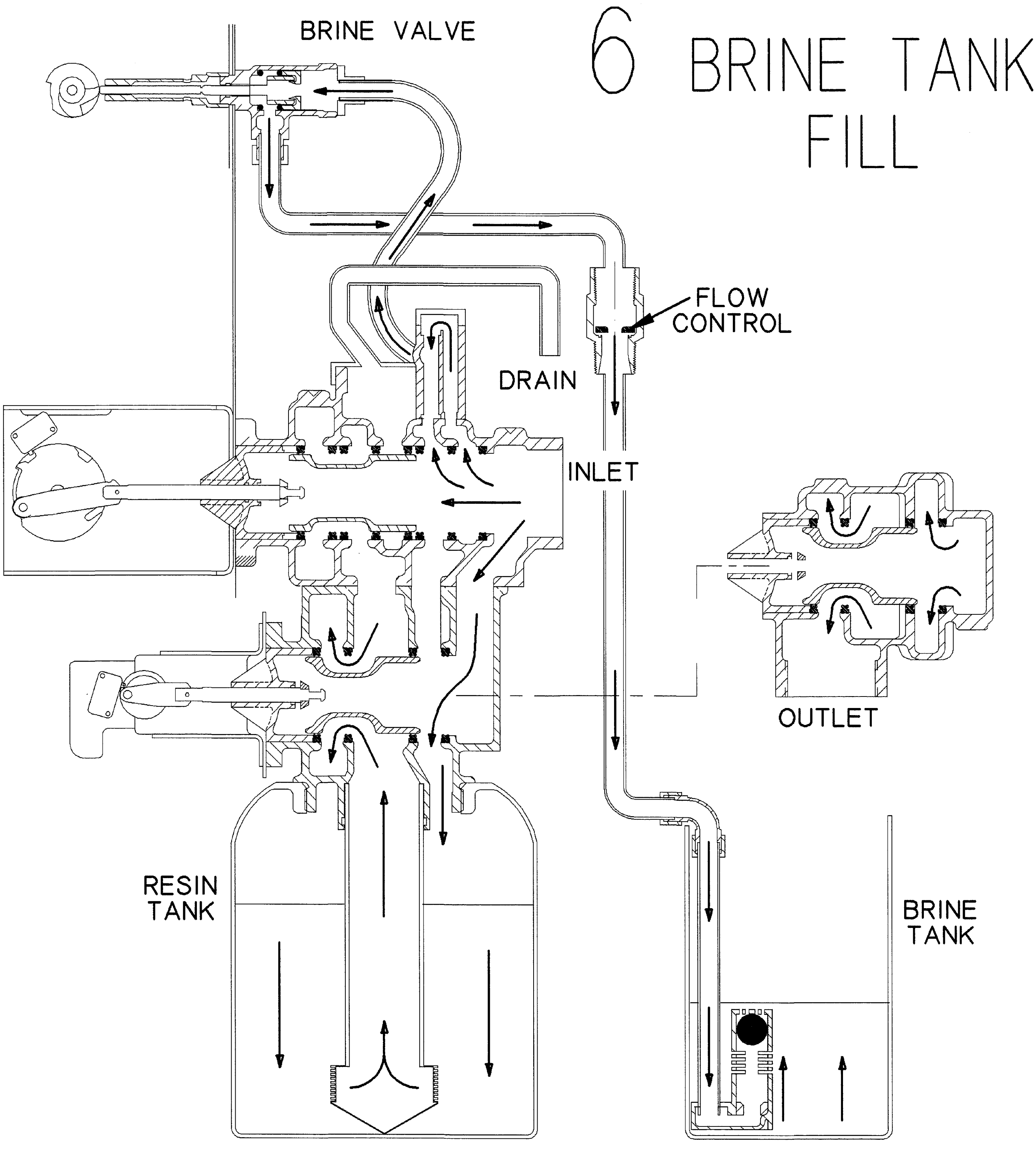
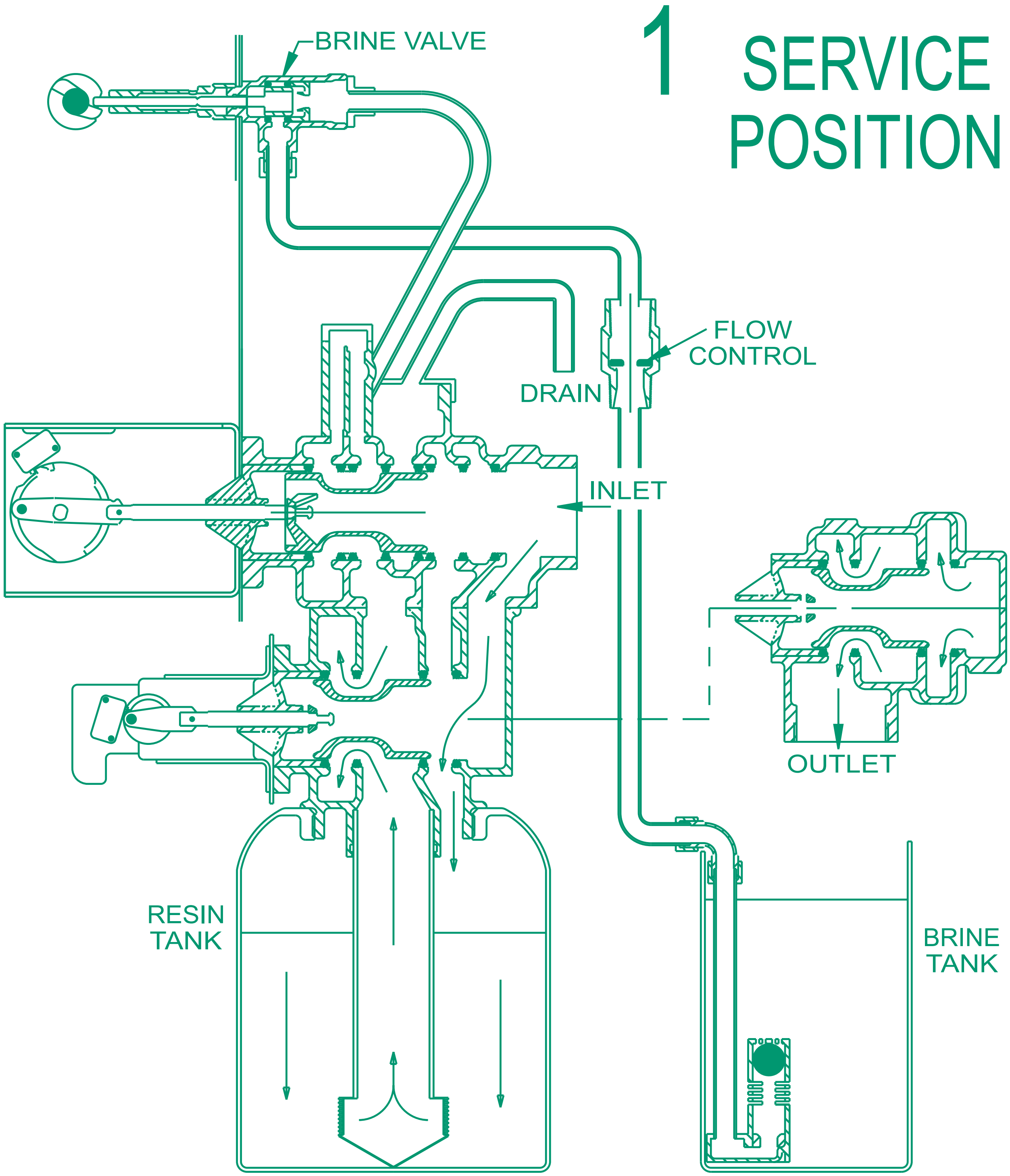
Water Conditioner Flow Diagrams (Cont'd.)

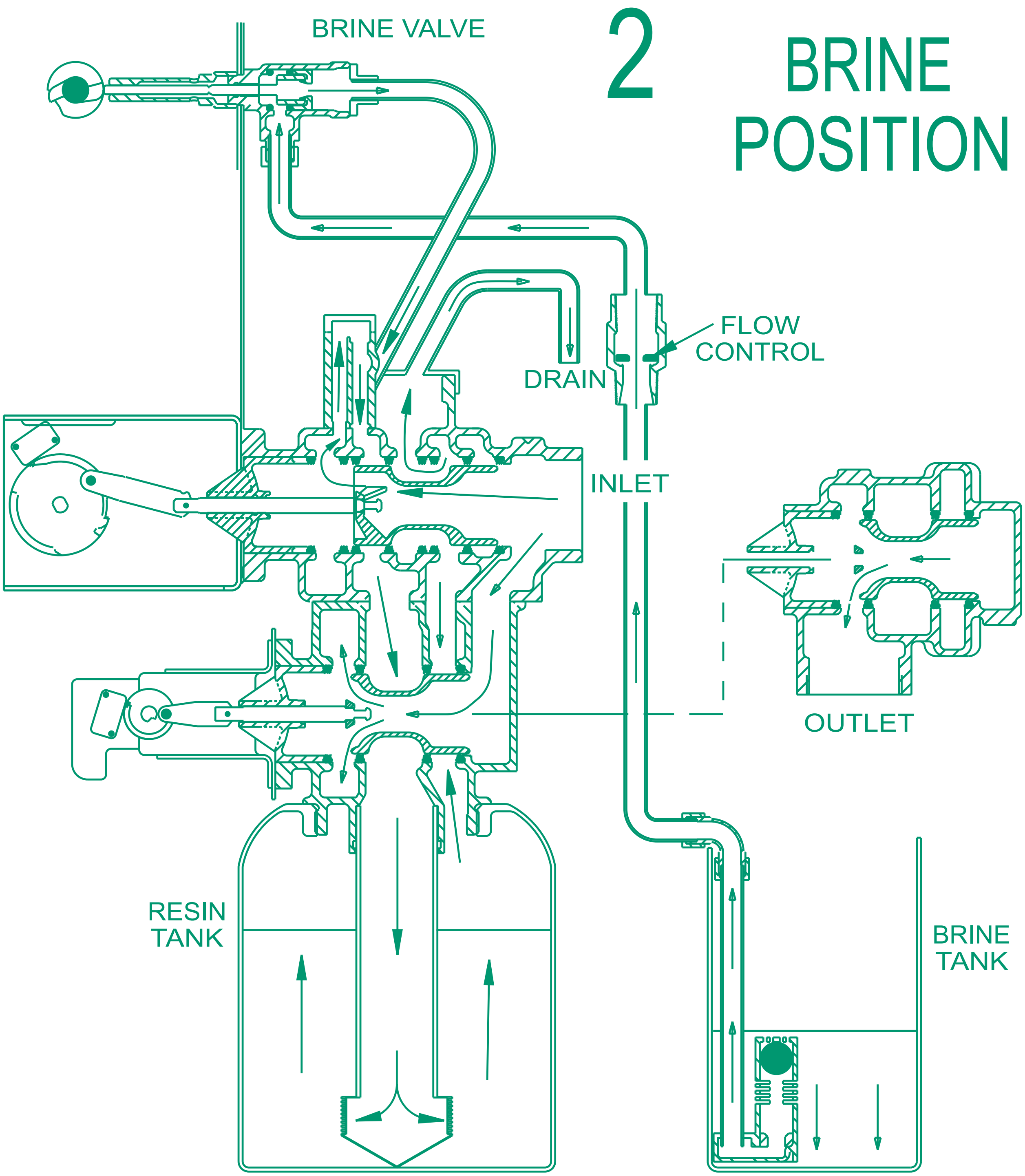


Hard water enters regeneration unit inlet - water flows down into transfer units top of tank - passes thru mineral. Conditioned water enters bottom distributor flows up thru center tube around the piston to the outlet. Hard water flows to the regeneration valve thru the injector housing and brine valve to fill the brine tank.

Water Conditioner Flow Diagrams (Cont'd.)



Hard water enters regeneration unit and flows down into transfer units top of tank.
Hard water passes through mineral in mineral tank. Conditioned water enters center tube through bottom distributor - then flows up thru the center tube - around the piston and out the side outlet of the valve.



Hard water enters regeneration unit inlet - flows thru piston up into injector housing and down thru nozzle and throat to draw brine from brine tank - brine flows thru distributor and up thru mineral and enters the top of tank port - around piston and out thru the drain line.

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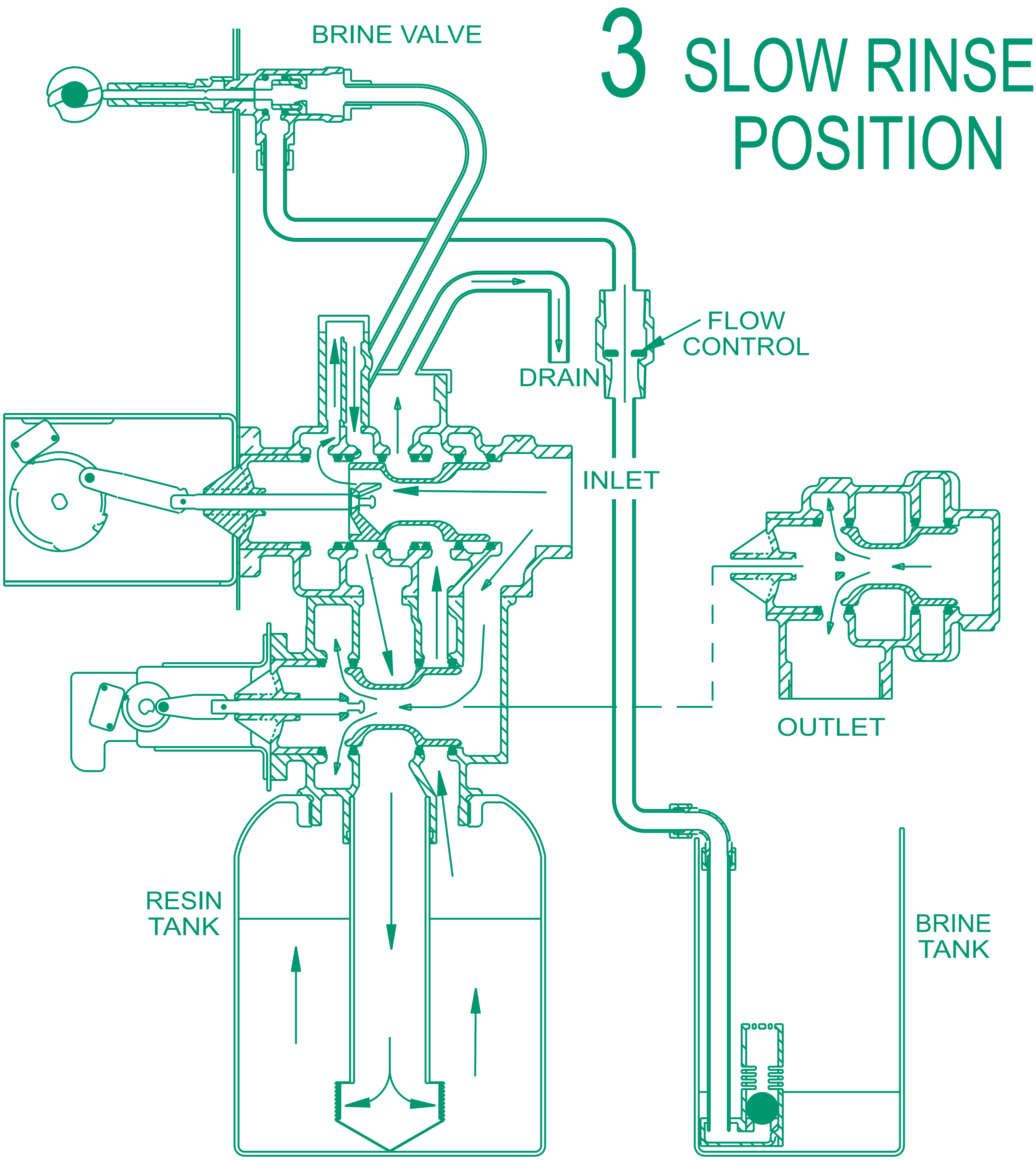
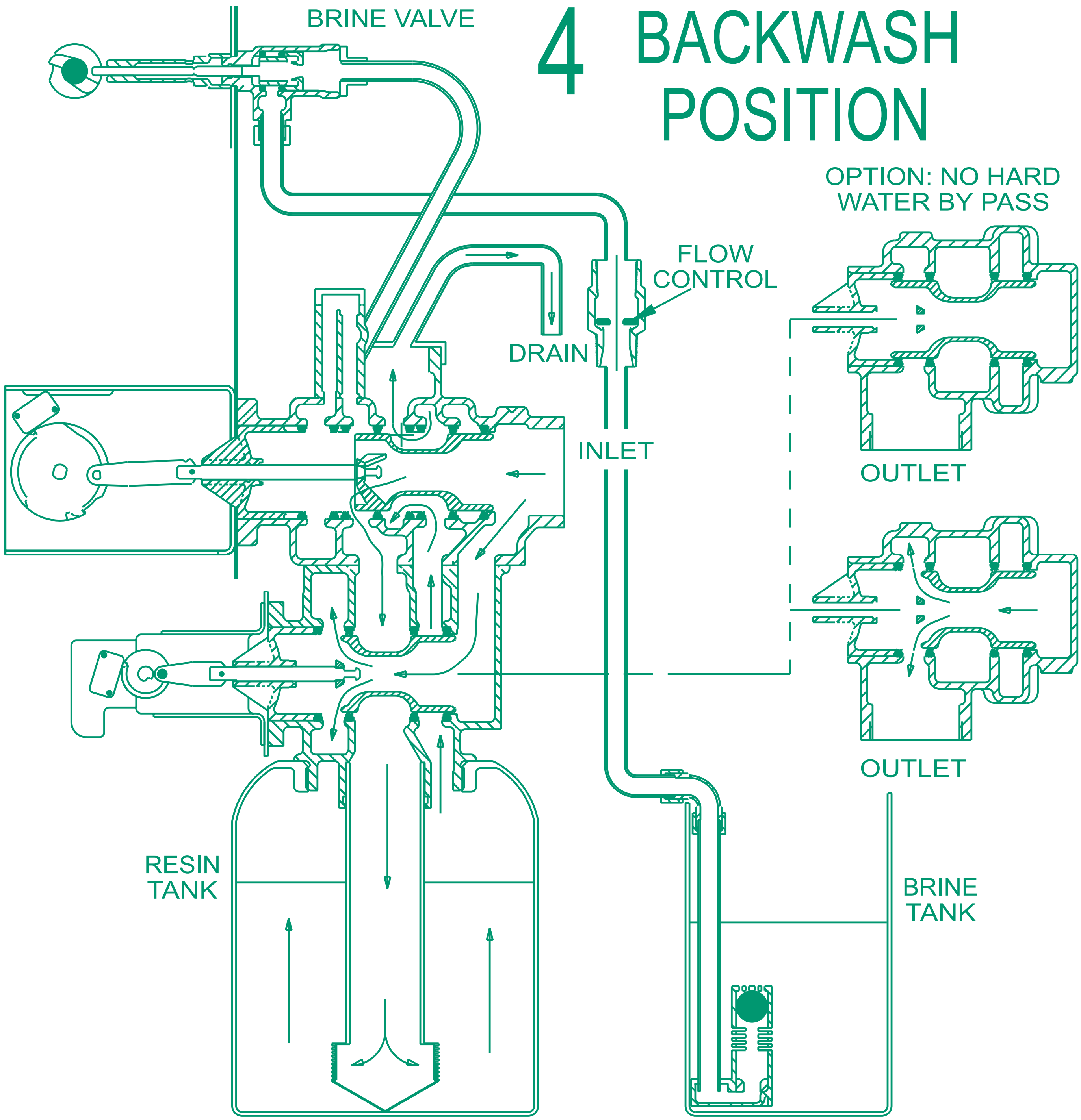
Water Conditioner Flow Diagrams (Cont'd.)



Hard water enters regeneration unit inlet - flows thru piston up into injector housing and down thru nozzle and throat - thru distributor and up thru mineral and enters the top of tank port -around piston and out thru drain line.

Water Conditioner Flow Diagrams (Cont'd.)



Hard water enters regeneration unit inlet - flows down thru service adapter for by pass, and thru regeneration piston - down the center tube - thru the bottom distributor and up thru the mineral - around the piston and out the drain line. If optional no hard water by pass piston is used, water flow to outlet is prevented by an extended section of the service piston which closes the outlet port from by pass water until the end of rapid rinse.

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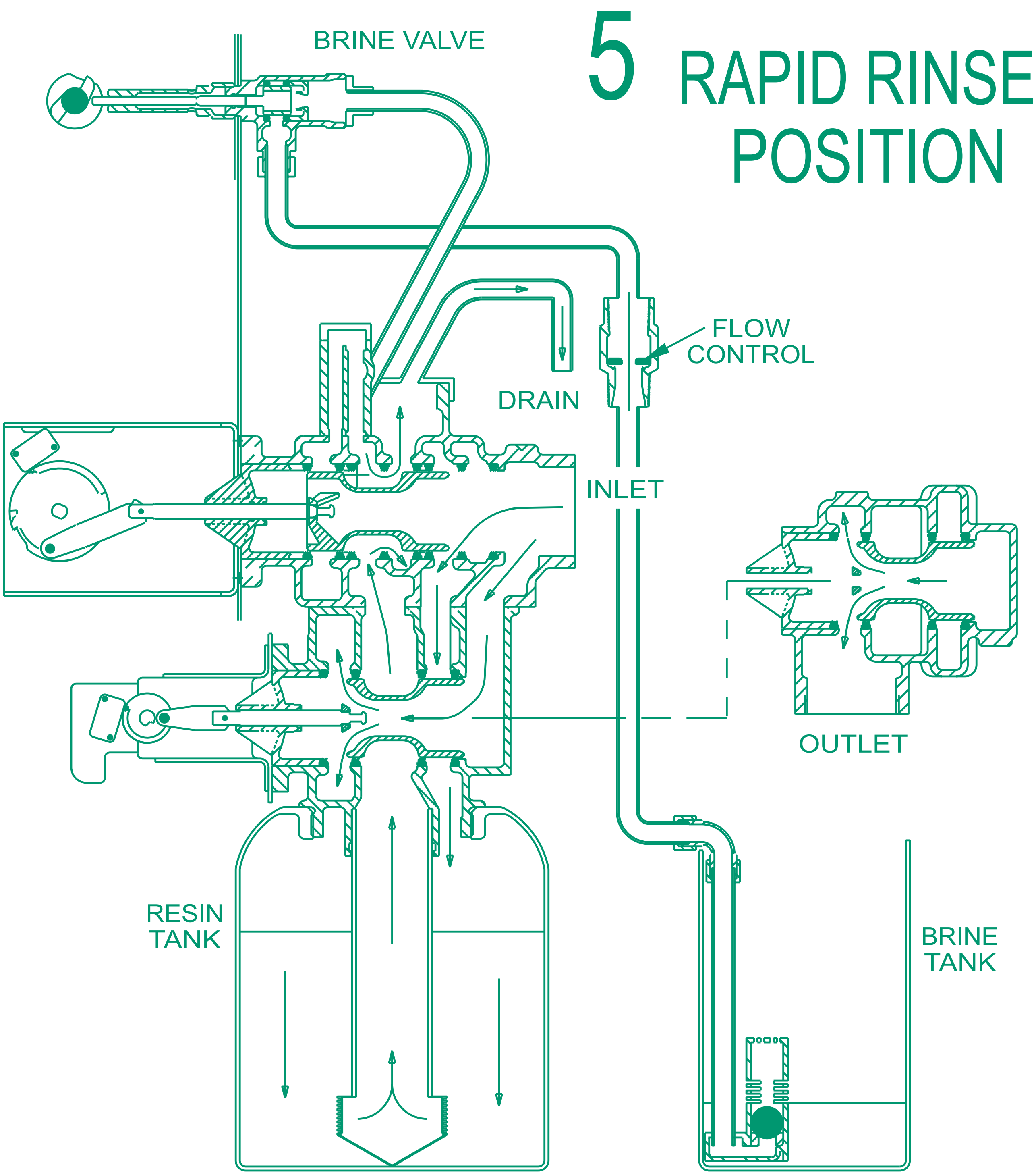
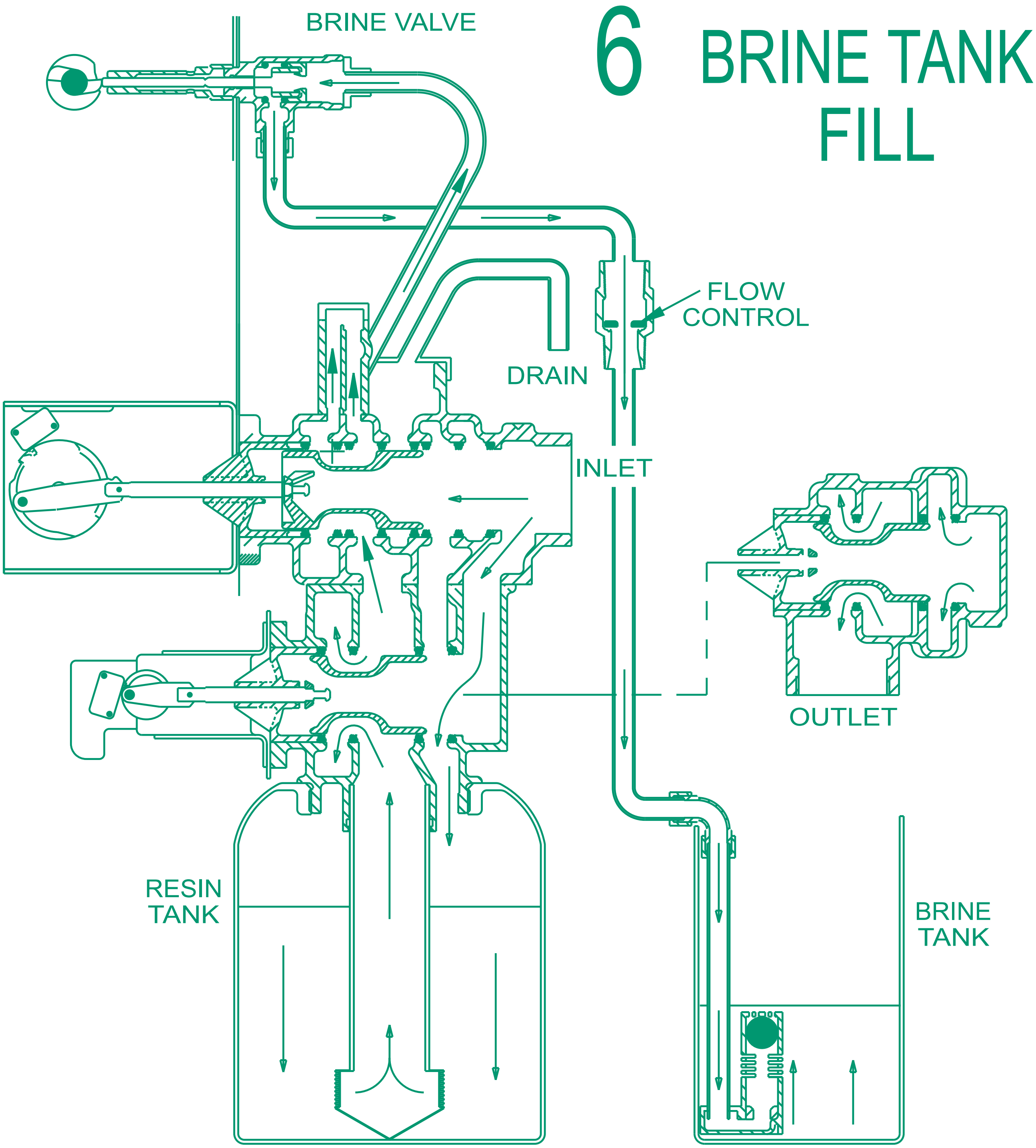
Water Conditioner Flow Diagrams (Cont'd.)



Hard water enters regeneration unit inlet - water goes directly down thru top of tank - thru the mineral into the bottom distributor and up thru the center tube - around the piston and out the drain line.

Water Conditioner Flow Diagrams (Cont'd.)



Hard water enters regeneration unit inlet - water flows down into transfer units top of tank - passes thru mineral. Conditioned water enters bottom distributor flows up thru center tube around the piston to the outlet. Conditioned water flows to the regeneration valve thru the injector housing and brine valve to fill the brine tank.

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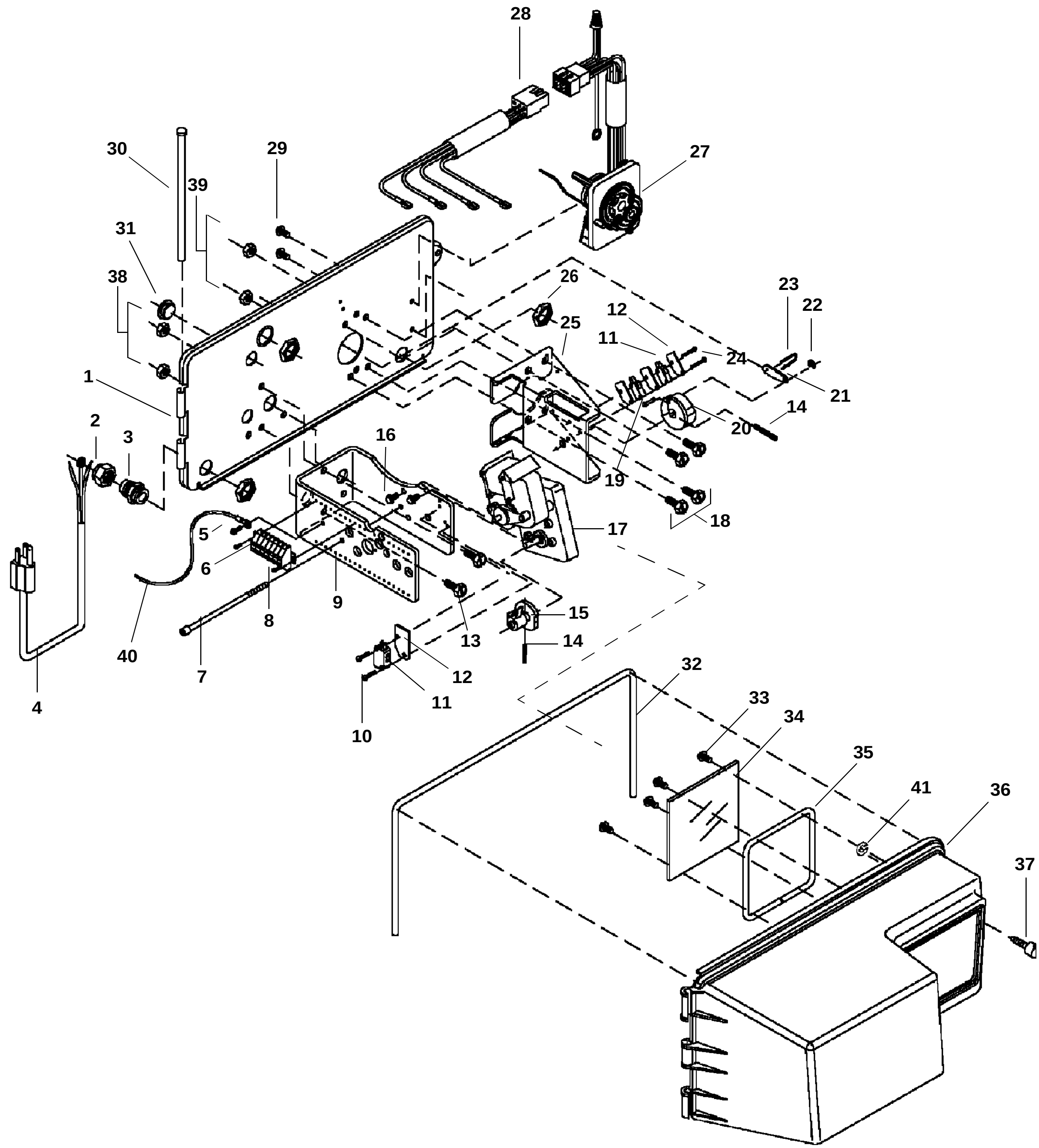
Control Drive Assembly

(See opposite page for parts list)



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Control Drive Assembly

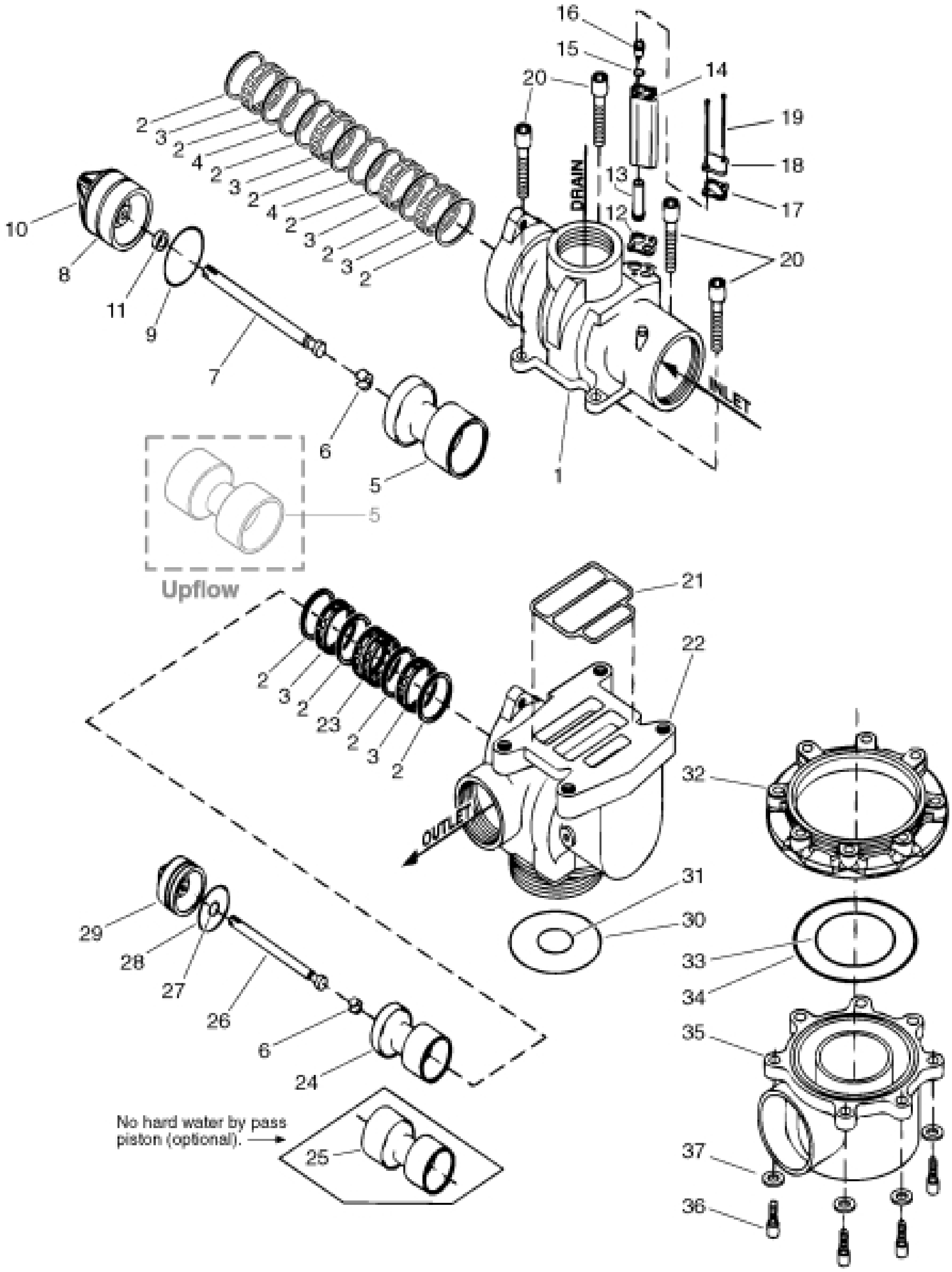
Parts List

Item No.	Quantity	Part No.	Description
1	1	40200-00	Backplate
2	1	17967	Strain Relief
3	1	14924	Strain Relief
4	1	40084-12	12 ft. Power Cord
5	1	40193	Ground Screw
6	1	15226-X	Terminal Strip (X denotes the number of terminals)
7	1	40349	Screw, Brine Deflection
8	2	40133	Screw, Term. Block
9	1	40201	Bracket, Brine
10	2	11805	Screw, Micro Switch
11	3	10218	Switch, Micro
12	3	10302	Insulator
13	2	10231	Screw, Brine Bracket
14	2	10338	Pin, Roll
15	1	12777	Cam, Brine Valve
		19459	Cam, Upflow Brine
16	5	10872	Screw, Motor
17	1	40190-1156	Motor, 115V 50/60 Hz
	1	40190-2305	Motor, 230V 50/60 Hz
	1	40190-245	Motor, 24V 50/60 Hz
18	4	11224	Screw, Motor Bracket
19	1	14784	Bearing, Cycle Cam Drive
20	1	40198	Cam, Cycle Downflow
		40236	Cam, Cycle Upflow
21	1	40197	Link, Drive
22	1	10250	Ring, Retaining
23	1	14813	Clip, Piston Rod
24	2	14923	Screw, Micro Switch
25	1	40202	Bracket, Motor
26	1	17967	Fitting, Liquid Tight
27	1		Timer Assembly
28	1	16430	Harness, Upper Timer
29	2	10300	Screw, Timer
30	1	17845-03	Pin, Hinge
31	2	19692	Plug, Knock Out
32	1	18716-03	Seal, Cover
33	4	19203	Screw, Window Cover
34	1	18745	Window
35	1	18615-02	Seal, Window
36	1	19277-020	Cover, Black
37	1	19813	Screw, Cover
38	2	11235	Nut, Brine Bracket
39	2	16346	Nut, Drive Bracket
40	1	40175-01	Wire, Ground
41	1	19856	Ring, Retaining

MODEL 2930

Control Valve

(See opposite page for parts list)



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MODEL 2930

Control Valve

Parts List

Item No.	Quantity	Part No.	Description
1	1	40243	Valve Body, 2930 Regen.
2	12	11720	Seal
3	7	10369	Spacer
4	2	10368	Spacer
5	1	40204	Piston, 2930 Regen.
		40288	Piston, Upflow
6	2	14818	Clip, Piston Rod
7	1	40205	Rod, Piston
8	1	40203	Spacer, Endplug
9	1	14922	O-ring, Endplug
10	1	14754-01	Endplug, White
11	1	14926	Ring, Endplug Quad
12	1	19925	Gasket, Injector Body
13	1	14802-04C	Injector Throat #4 (Green)
		14802-05C	Injector Throat #5 (White)
		14802-06C	Injector Throat #6 (Red)
		14802-07C	Injector Throat #7 (Black)
14	1	17777-03	Injector Body
15	1	13771	O-Ring
16	1	14801-04C	Nozzle, Injector #4 (Green)
		14801-05C	Nozzle, Injector #5 (White)
		14801-06C	Nozzle, Injector #6 (Red)
		14801-07C	Nozzle, Injector #7 (Black)
17	1	10229	Gasket, Injector Cover
18	1	10228	Cap, Brass
19	2	14804	Screw, Injector Body
20	4	40118	Screw, Valve Mounting
21	1	40189	Seal, Base
22	1	40215	2″ Adapter Valve
23	1	14753	Spacer, Drain
24	1	14757	Piston, Hard Water Bypass
25	1	14752	Piston, No Hard Water Bypass
26	1	14758	Rod, Piston
27	1	14926	Quad, Endplug
28	1	14922	O-Ring, End Plug
29	1	14754-01	End Plug (White)
		14754-11	End Plug, No Hard Water Bypass (Black)
30	1	13575	O-Ring, Top of Tank
		15210	O-Ring, Top of Tank (Park)
*31	1	13577	O-Ring, Distributor
		Options	
32	1	40316	Adapter, 2930 Side Mount
33	1	40372	O-Ring, Side Mount -142
34	1	40368	O-Ring, Side Mount -160
35	1	40310	Base, 2930/3130 Side Mount
36	7	19768	Screw, SHCS
37	7	40375	Washer

* Do not use this O-ring if control is side mounted.

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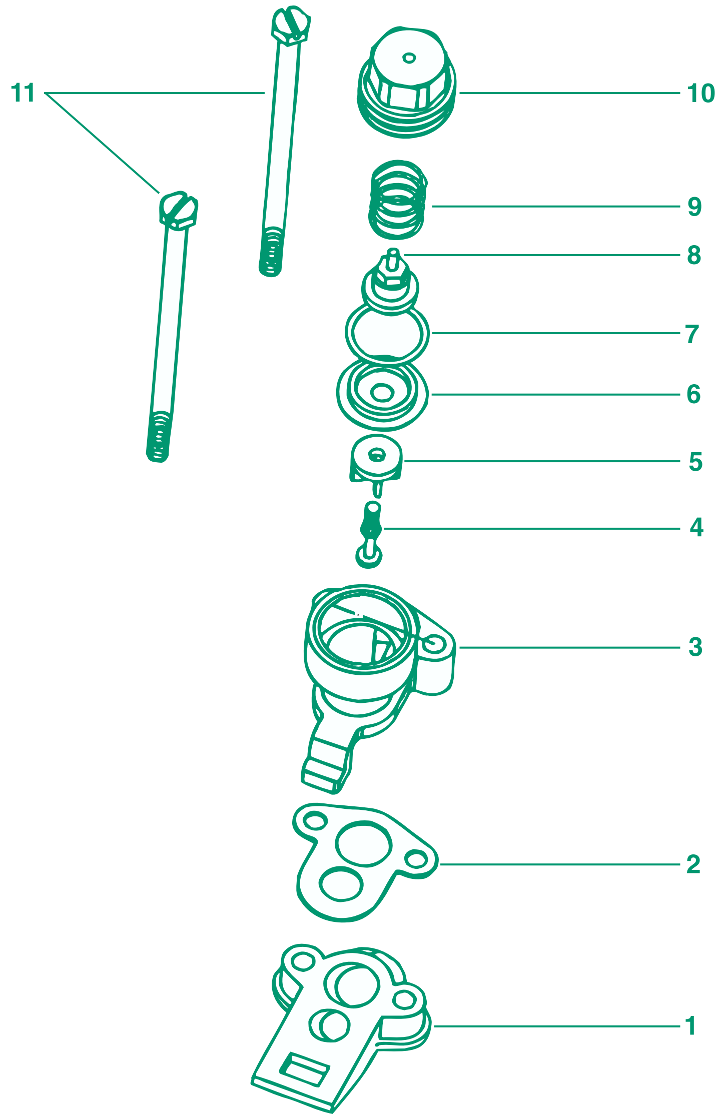
Regulator Assembly 1705



Regulator Assembly 1705

Parts List

Item No.	Quantity	Part No.	Description
1	1	19482-01	Adapter, Regulator, 1700
2	1	19925	Gasket, Regulator, 1700
3	1	19464-01	Body, Regulator, 1700
4	1	19924	Stem, Regulator, 1700
5	1	19463	Seat, Regulator
6	1	18568	Diaphragm, Regulator
7	1	14848	Washer, Regulator
8	1	18571	Retainer, Regulator
9	1	19917	Spring, Regulator, 1700
10	1	18570-30	Cap, 30 psi Regulator
11	2	19718	Screw
		26760	Screw, M5x90mm

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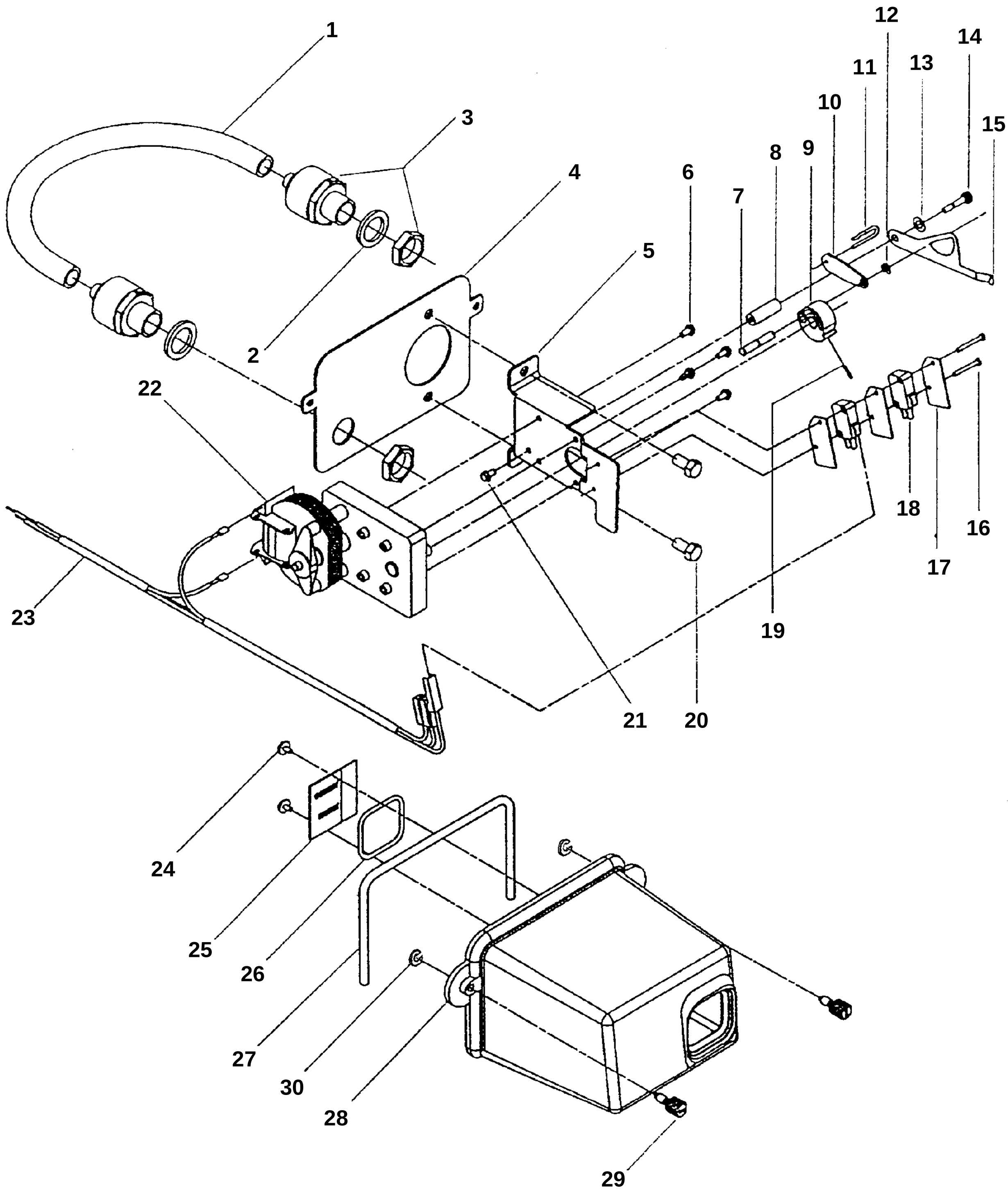
Lower Environmental Control Drive

(See opposite page for parts list)



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Lower Environmental Control Drive

Parts List

Item No.	Quantity	Part No.	Description
1	1	18693	Conduit, Interdrive
2	2	18692	Washer, Sealing
3	2	18691	Connector, Conduit
4	1	18709	Back Plate, Lower
5	1	14769	Bracket, Motor
6	4	10872	Screw, Motor
7	1	18746	Bearing, Connecting Rod
8	1	18726	Spacer, Indicator
9	1	14775	Cam, Drive
10	1	14759	Link, Piston Rod
11	1	14813	Pin, Spring
12	1	10250	Retaining Ring
13	1	18727	Washer, Curved Spring
14	1	10872	Screw, Indicator
15	1	18725	Indicator, Off Line / Service / On Line
16	2	11805	Screw, Switch, System 4
	2	14923	Insulator, Switch, Systems 5, 6 & 7
17	2	10302	Insulator, Switch, System 4
	3	14923	Insulator, Switch, Systems 5, 6 & 7
18	1	10218	Micro Switch, System 4
	2	10218	Micro Switch, Systems 5, 6 & 7
19	1	11381	Pin, Cam
20	2	11224	Screw, Motor Bracket
21	1	10872	Screw, Spacer
22	1	14772	Motor, 110V 50/60 Hz
	1	15305	Motor, 220V 50/60 Hz
	1	15651	Motor, 24V 50 Hz
	1	15653	Motor, 24V 60 Hz
23	1	19015	Wire Harness, System 4
	1	19016	Wire Harness, Systems 5 & 6
	1	19017	Wire Harness, System 7, Lead Valve
	1	19018	Wire Harness, System 7, Lag Valve
24	2	14430	Screw, Window
25	1	18724	Window
26	1	18615-03	Seal, Window
27	1	18716-02	Seal, Cover
28	1	18708-02	Cover, Lower, Black
29	2	19813	Screw, Cover
30	2	19856	Washer, Retaining

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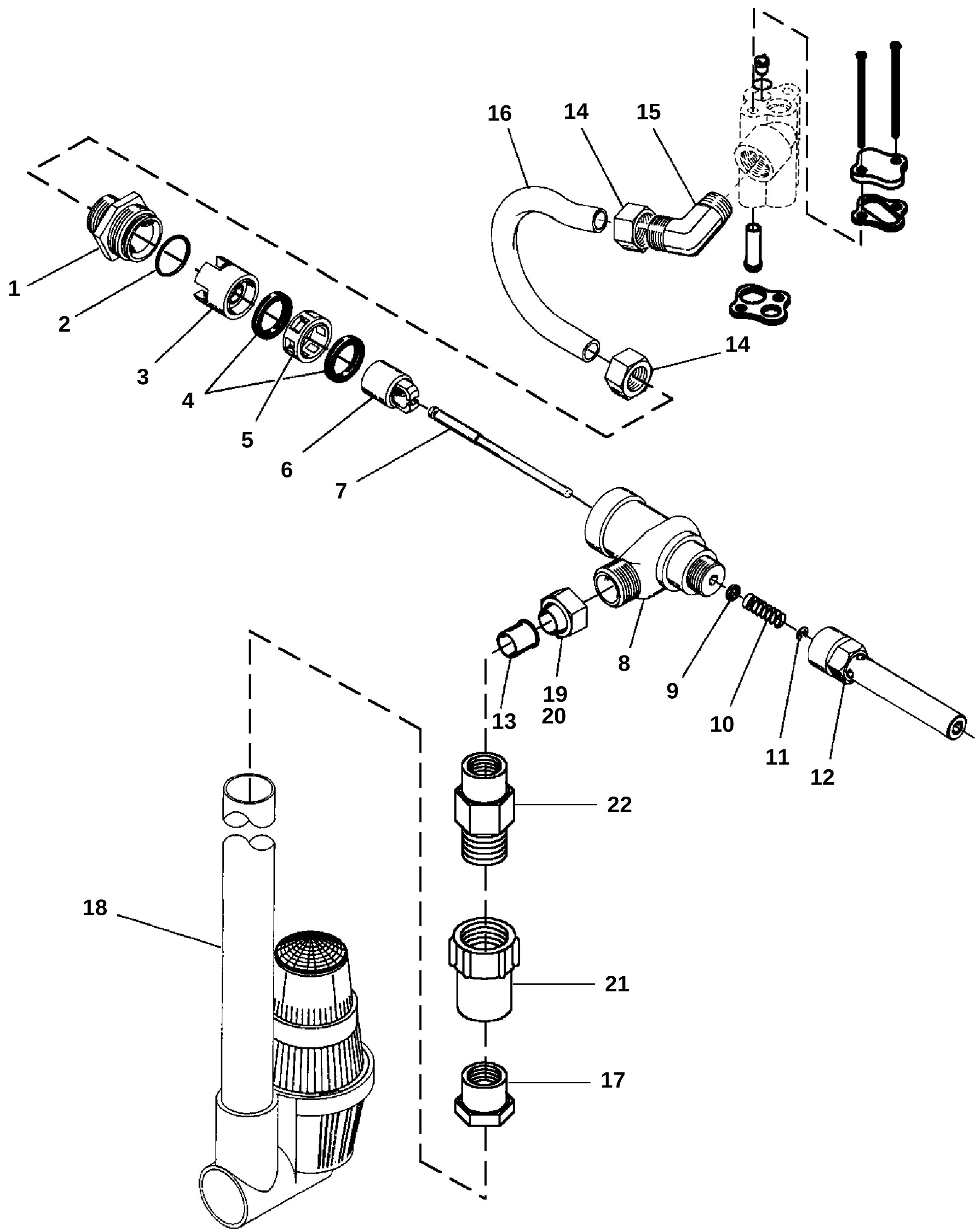
MODEL 2930

1705 Brine System

(See opposite page for parts list)



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MODEL 2930

1705 Brine System

Parts List

Item No.	Quantity	Part No.	Description
1	1	14792	End Plug
2	1	13201	O-Ring - End Plug
3	1	14785-01	Flow Control Retainer
4	2	14811	Piston Seals
5	1	14798	Spacer
6	1	14795	Brine Valve Piston
7	1	40199	Brine Valve Stem
8	1	14790	Brine Valve Body
9	1	12550	Quad Ring - Brine Stem
10	1	15310	Spring - Brine Valve
11	1	10250	Retaining Ring
12	1	40213	Stem Guide
13	2	15415	Insert
14	2	15414	Nut Ferrule 1/2″
15	1	15413	Elbow
16	1	40242	Brine Tube Downflow
		40366	Brine Tube Upflow
17	1	16976	1″ Slip to 3/4″ Reducer
18	1	60009	#900 Air Check Assembly
19	2	16123	Tube Nut 1/2″
20	2	16124	Ferrule 1/2″
21	1	16975	1″ Female NPT x 1″ Slip
22	1	16530	Housing, BLFC 1″ NPT Male x 1″ NPT Female
		16530-10	Housing, BLFC 1″ BSP Male x 1″ BSP Female

* Brine valve is not available with internal flow control. External flow control is required.

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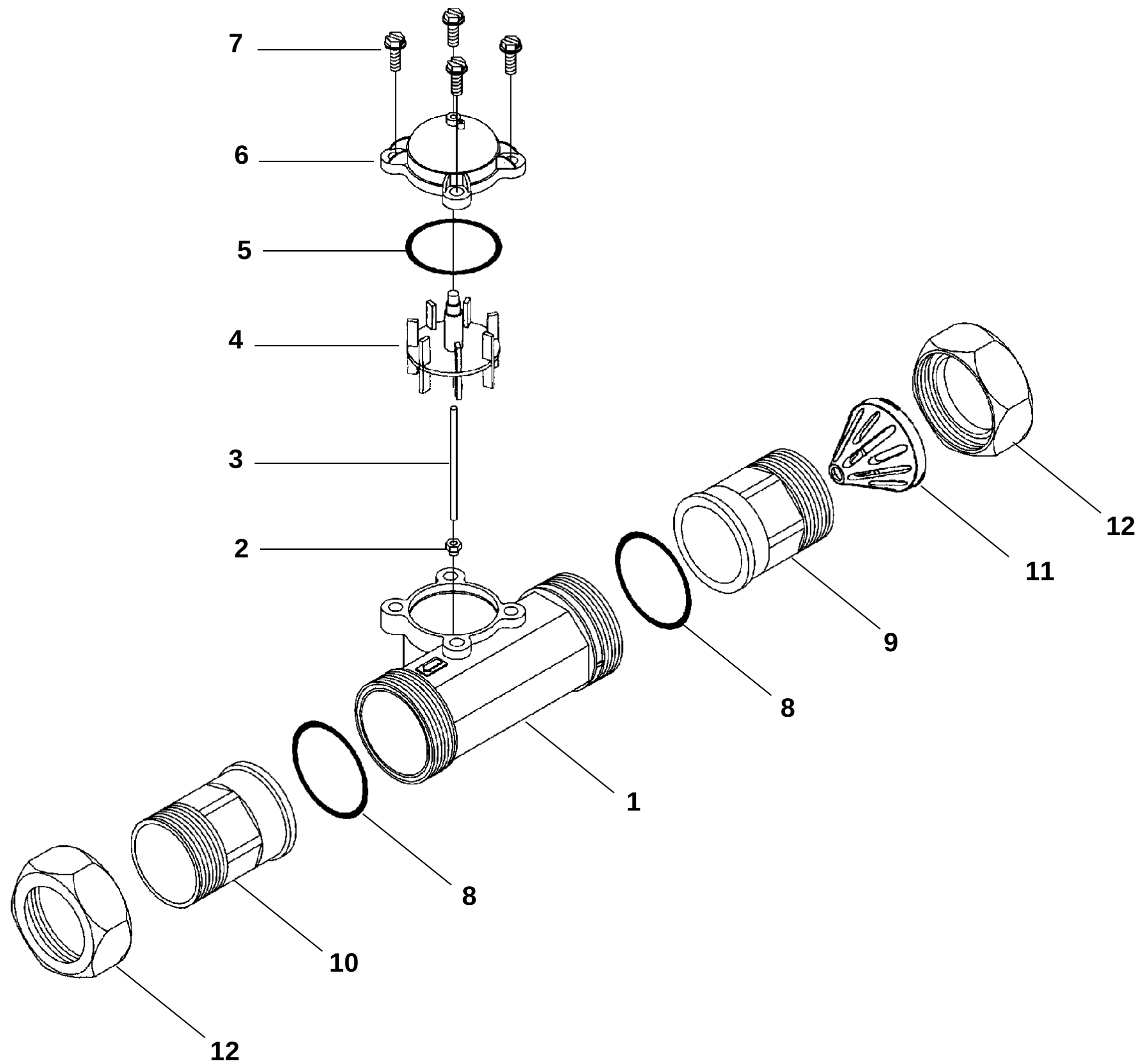
2″ Plastic Meter Assembly



Item No.	Quantity	Part No.	Description
1	1	17689	Body, Meter, 2″ Plastic
2	1	15532	Shaft, Impeller Seat
3	1	15432	Shaft, Impeller
4	1	15374	Impeller Assembly, 2″ Meter
5	1	13847	O-Ring, -137, Meter
6	1	14038	Meter Cap Assembly (Standard Range)
	1	15150	Meter Cap Assembly (Extended Range)
7	4	12473	Screw, Hex Washer, 10-24 x 5/8
8	2	19485	O-Ring, -141, Meter
9A	1	17987-001	Fitting, Nipple, 2″, Plastic, NPT, Machined
9B	1	17987-101	Fitting, Nipple, 2″, Plastic, BSP, Machined
10A	1	17987-000	Fitting, Nipple, 2″, Plastic, NPT
10B	1	17987-100	Fitting, Nipple, 2″, Plastic, BSP
11	1	14680	Flow Straightener
12	2	17988	Nut, 2″ Meter

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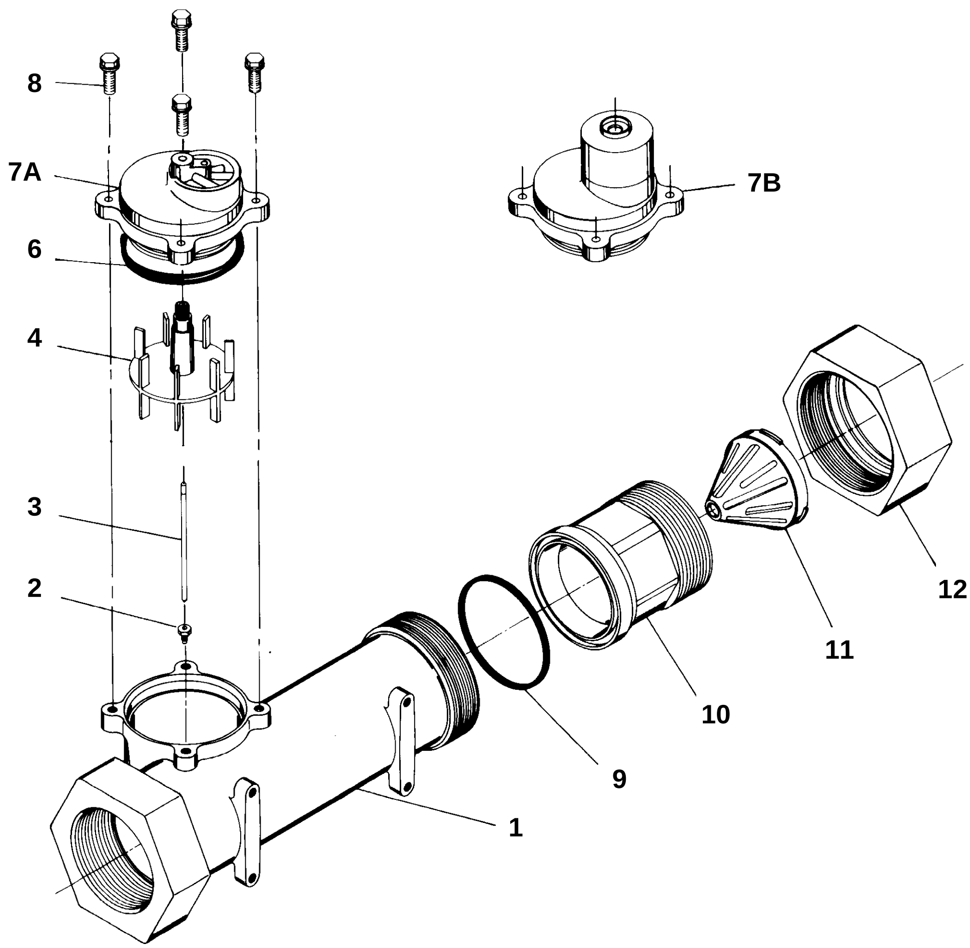
2″ Brass Meter Assembly

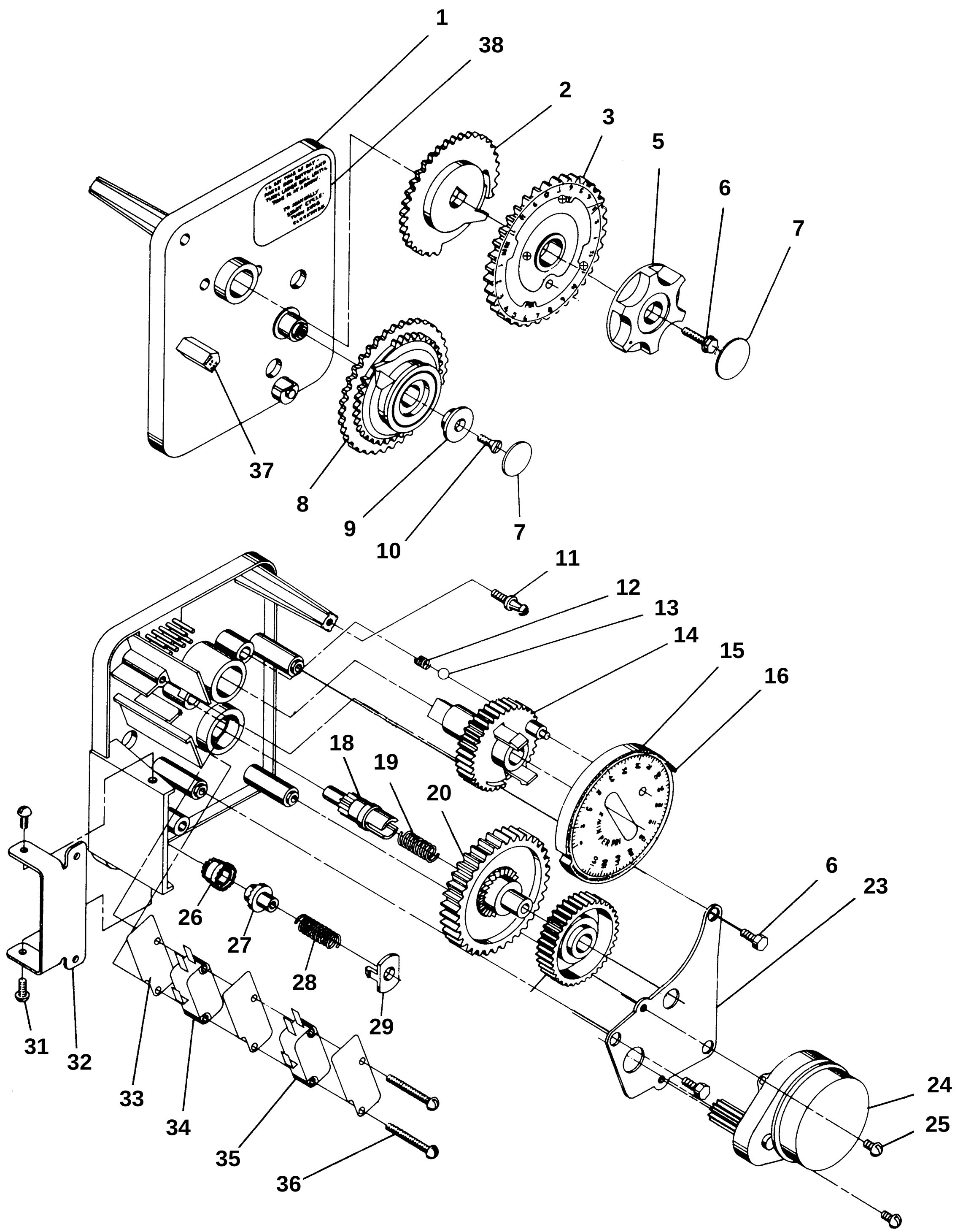


Item No.	Quantity	Part No.	Description
1	1	14456	Meter Body
2	1	15532	Impeller Shaft Retainer
3	1	15432	Impeller Shaft
4	1	15374	Impeller
6	1	13847	O-Ring - Meter Cover
7A	1	15218	Meter Cover Assembly (Standard)
7B	1	15237	Meter Cover Assembly (Extended Range)
8	4	12112	Screw - Meter Cover
9	1	14679	O-Ring - Quick Connect
10	1	14568	Nipple - Quick Connect
11	1	14680	Flow Straightener
12	1	14569	Nut - Quick Connect

MODEL 3210 ECONOMINDER®

Timer Assembly

(See opposite page for parts list)



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Timer Assembly

Parts List

Item No.	Quantity	Part No.	Description
1	1	13870-01	Timer Housing Assembly
2	1	13802	Cycle Actuator Gear
3	1	40096-24	24 Hour Gear Assembly, 12 Midnight
		40096-02	24 Hour Gear Assembly, 2 A.M.
5	1	13886-01	Knob
6	4	13296	Screw - Timer Knob & Motor Plate Mtg.
7	2	11999	Button Decal
8	1	60405-50	Program Wheel Assembly, 0-21,000
9	1	13806	Program Wheel Retainer
10	1	13748	Screw - Program Wheel Mtg.
11	1	14265	Spring Clip
12	1	15424	Spring-Detent
13	1	15066	Ball - 1/4 in. dia.
14	1	13911	Main Drive Gear
15	1	19210	Program Wheel Assembly
16	21	15493	Roll Pin
17			Not Assigned
18	1	13018	Idler Shaft
19	1	13312	Spring - Idler
20	1	13017	Idler Gear
21	1	13164	Drive Gear
23	1	13887	Motor Mounting Plate
24	1	18743	Motor - 110V., 60 Hz.
		19659	Motor - 24V., 60 Hz.
25	2	13278	Screw - Motor Mounting
26	1	13830	Drive Pinion - Program Wheel
27	1	13831	Clutch - Drive Pinion
28	1	14276	Spring
29	1	14253	Spring Retainer
30			Not Assigned
31	3	11384	Screw - Timer Hinge & Ground Wire
32	1	13881	Hinge Bracket
33	3	14087	Insulator
34	1	10896	Switch
35	1	15320	Switch
36	2	11413	Screw - Switch Mounting
37	1	14007	Decal - Time of Day
38	1	14045	Decal - Instructions
39	1	13902	Harness - Not Shown
40	2	12681	Wire Connector - Not Shown
41	1	15354-01	Ground Wire - Not Shown
42	1	15465	Caution Label - Not Shown
43	1	14198	Capacity Label - Not Shown

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2″ Commercial Demand Regeneration Control 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:

Press and hold the red button in to disengage the drive gear.

Turn the large gear until the actual time of day is opposite the time of day pointer.

Release the red button to again engage the drive gear.

How To Manually Regenerate Your Water Conditioner At Any Time:

Turn the manual regeneration knob clockwise.

This slight movement of the manual regeneration knob engages the program wheel and starts the regeneration program.

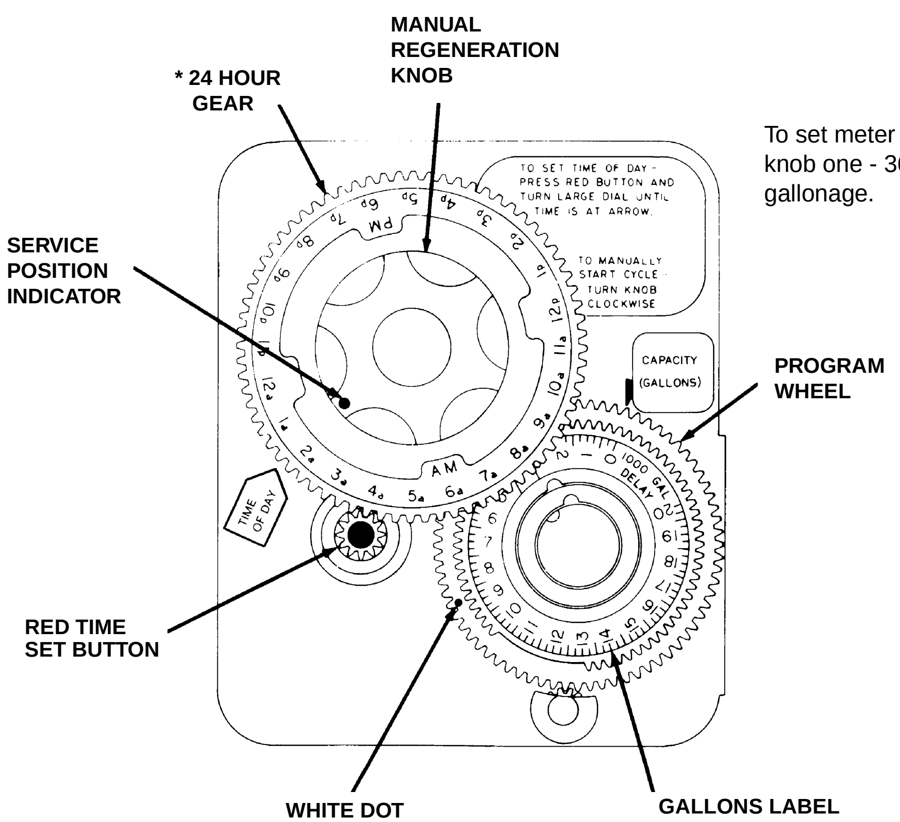
The black center knob will make one revolution in the following approximately three hours and stop in the position shown in the drawing.

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.

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 24 hour gear. No time of day can be set.

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Timer Setting Procedure

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:

Press and hold the red button in to disengage the drive gear.

Turn the large gear until the actual time of day is at the time of day pointer.

Release the red button to again engage the drive gear.

How To Manually Regenerate Your Water Conditioner At Any Time:

Turn the manual regeneration knob clockwise.

This slight movement of the manual regeneration knob engages the program wheel and starts the regeneration program.

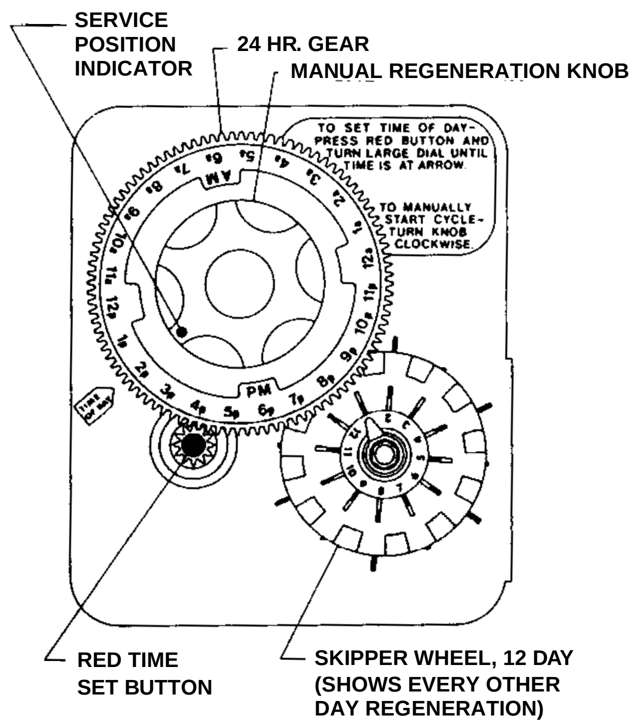
The black center knob will make one revolution in the following approximately three hours and stop in the position shown in the drawing.

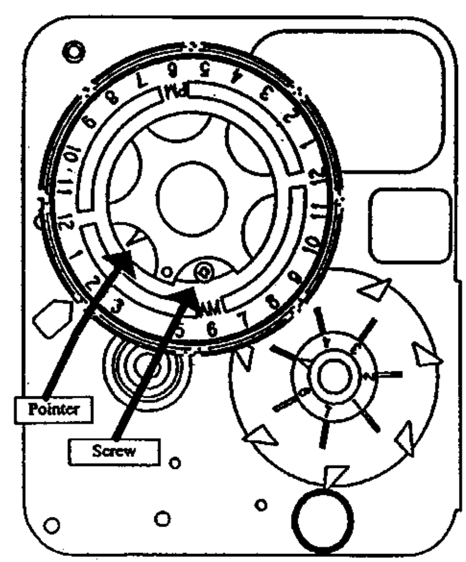
Even thought it takes three hours for this center knob to complete one revolution, the regeneration cycle of your unit might be set only one half of this time.

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

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)

To expose cycle program wheel, grasp timer in upper left-hand corner and pull, releasing snap retainer and swinging timer to the right

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.)

Return timer to closed position engaging snap retainer in back plate. Make certain all electrical wires locate above snap retainer post

Timer Setting Procedure for 3200 & 3210 Timer

How To Change The Length Of The Backwash Time:

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

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

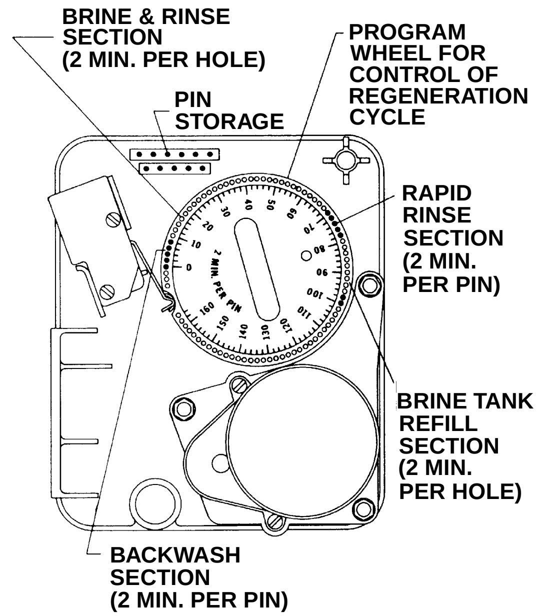
How To Change The Length Of Brine And Rinse Time:

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.)

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:

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.)



See Page 31 For Typical Timer Settings

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:

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.)

To change the length of refill time, move the two pins at the end of the second group of holes as required.

The regeneration cycle is complete when the outer microswitch is tripped by the two pin set at end of the brine tank refill section.

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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PROBLEM	CAUSE	CORRECTION
1. Softener 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 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.
	H. Service adapter did not return to service.	H. Check drive motor and switch.
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 No. 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.

(Continued on next page)

PROBLEM	CAUSE	CORRECTION
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.
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.

Cause could be that . . . Reserve Capacity Has Been Exceeded.

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

Cause could be that . . . 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.

Cause could be that . . . Meter Is Not Measuring Flow.

Correction: Check meter with meter checker.

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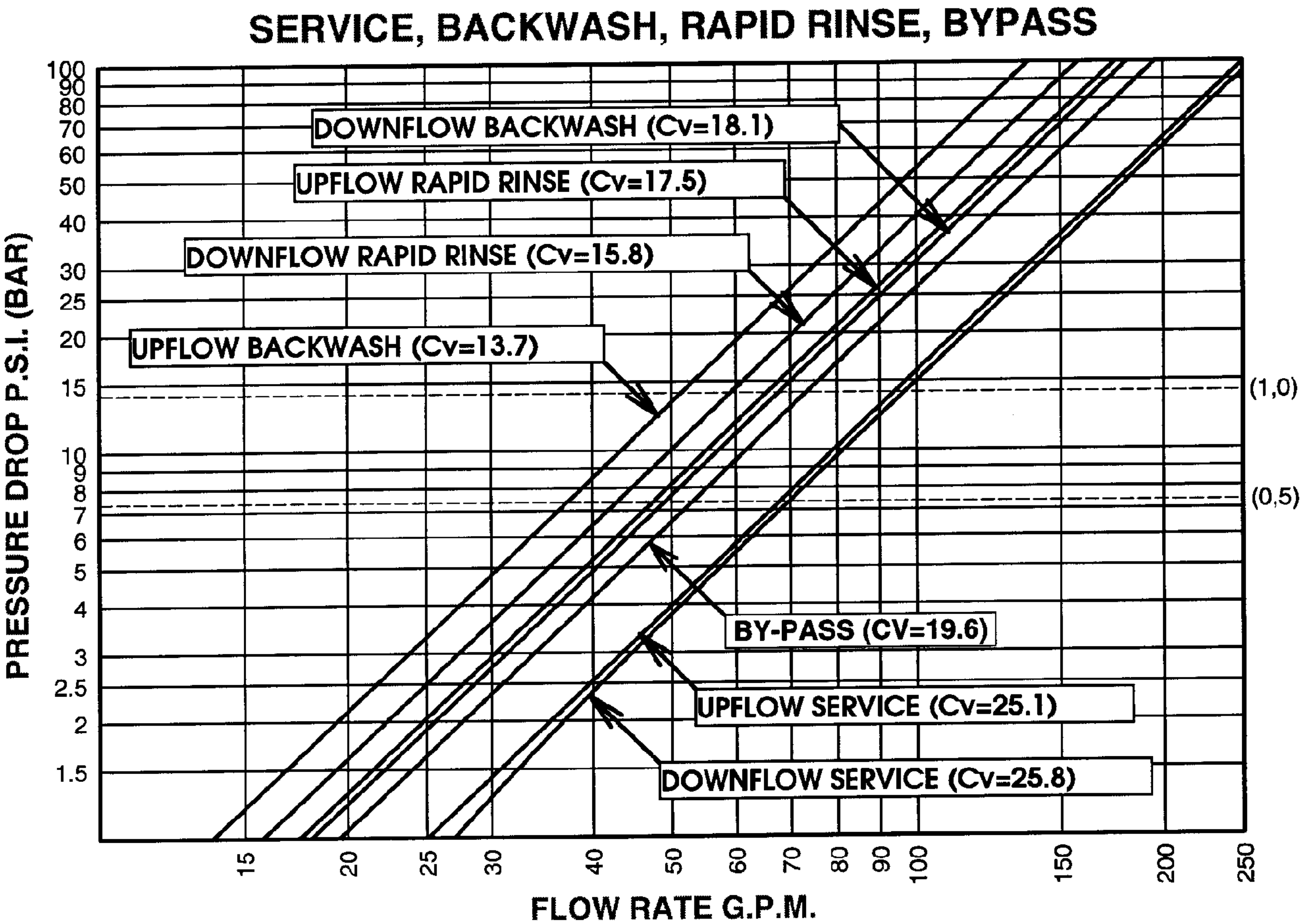
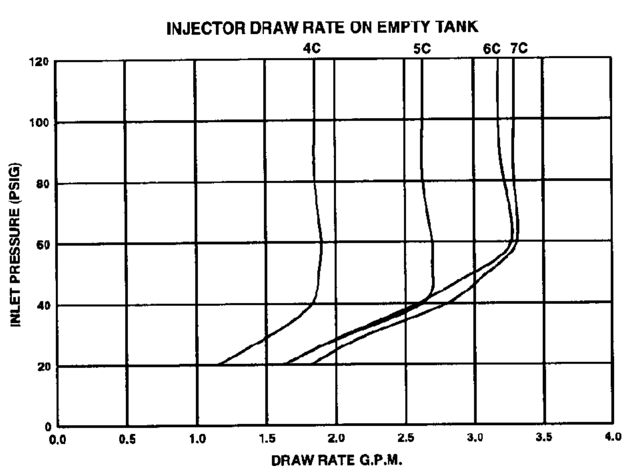
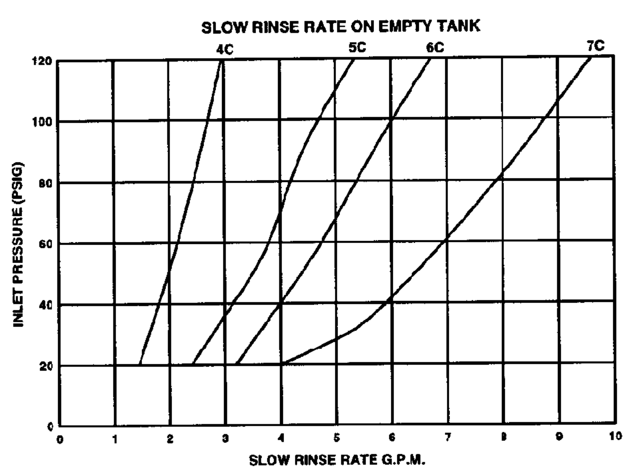
Flow Data & Injector Draw Rates



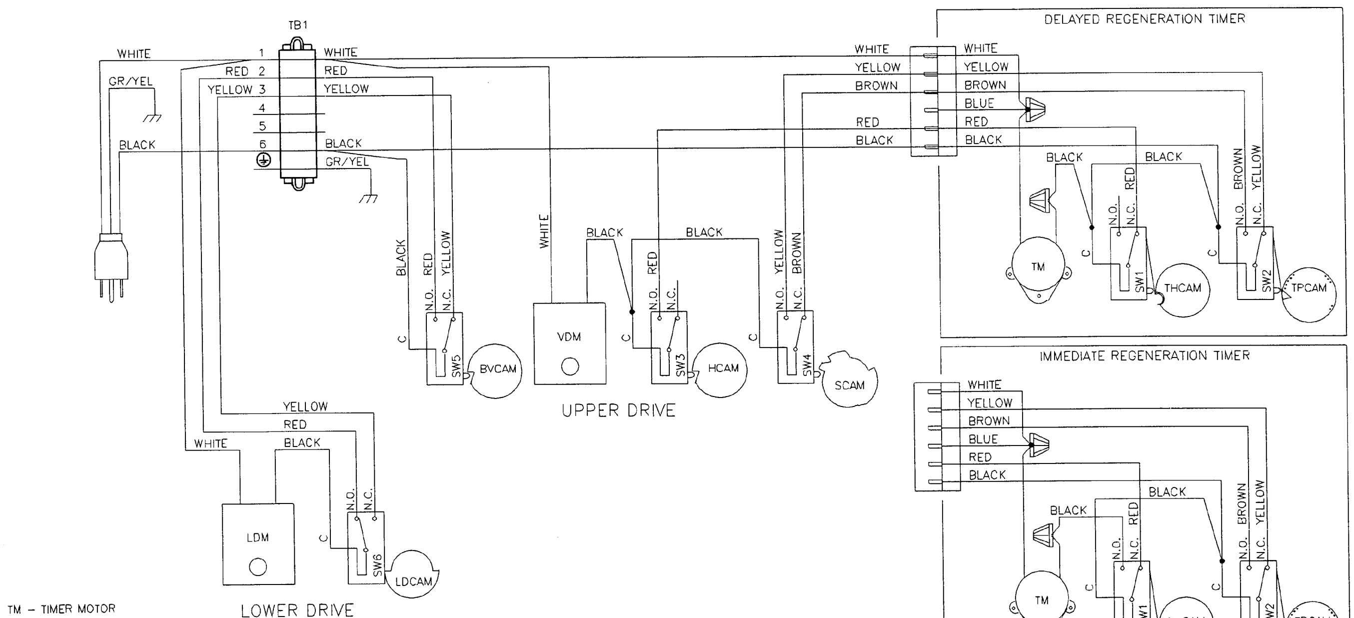
Confidential Property of Fleck Controls





Single Metered System Wiring Diagram

Immediate or Delayed Regeneration



TM – TIMER MOTOR
VDM – VALVE DRIVE MOTOR
LDM – LOWER DRIVE MOTOR
SW1 – TIMER HOMING SWITCH
SW2 – TIMER PROGRAM SWITCH
SW3 – VALVE HOMING SWITCH
SW4 – VALVE STEP SWITCH
SW5 – BRINE CAM SWITCH
SW6 – LOWER DRIVE SWITCH
THCAM – TIMER HOMING CAM
TPCAM – TIMER PROGRAM CAM
HCAM – VALVE HOMING CAM
SCAM – VALVE STEP CAM
BVCAM – BRINE VALVE CAM
LDCAM – LOWER DRIVE CAM

NOTE:
SINGLE TANK TIMECLOCK, METER DELAYED, OR METER IMMEDIATE REGENERATION

A. Delayed Regeneration: 1 tank; 1 meter system. When the meter zeroes out, the unit remains in service until 2:00 a.m. At that time it will regenerate automatically.

B. Immediate Regeneration: 1 tank; 1 meter. When the meter zeroes out, the unit goes immediately into a regeneration.

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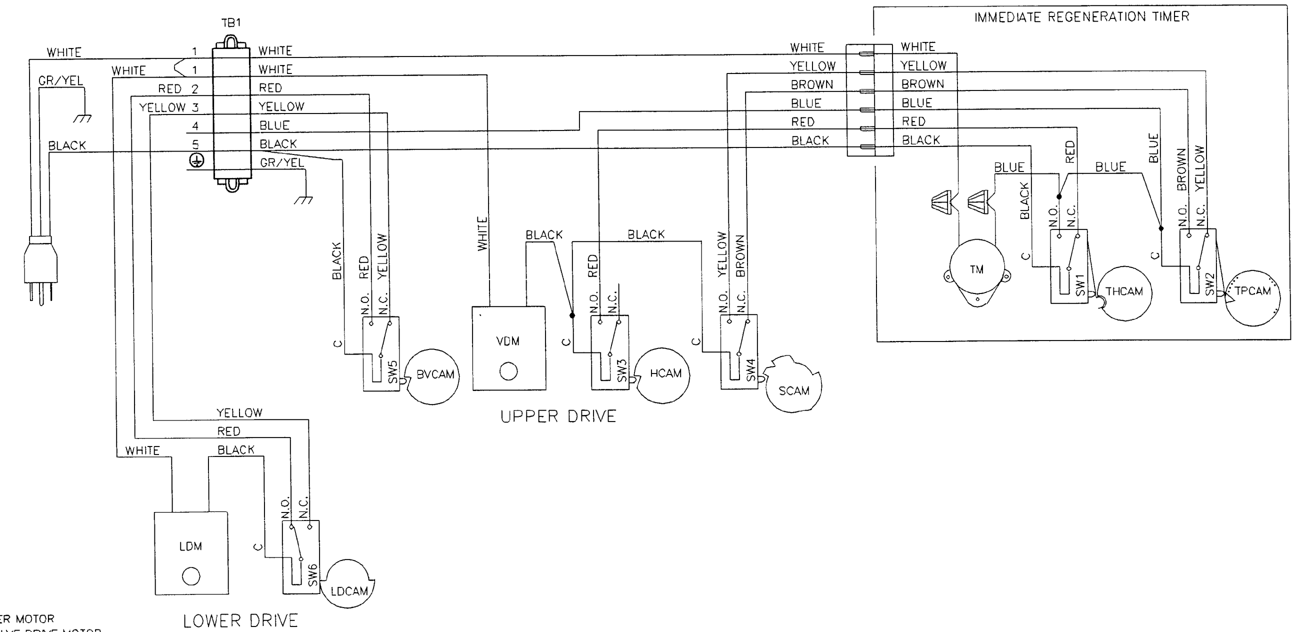
SYSTEM #4 WITH REMOTE METER

Single Metered System Wiring Diagram

Immediate or Delayed Regeneration



TM – TIMER MOTOR
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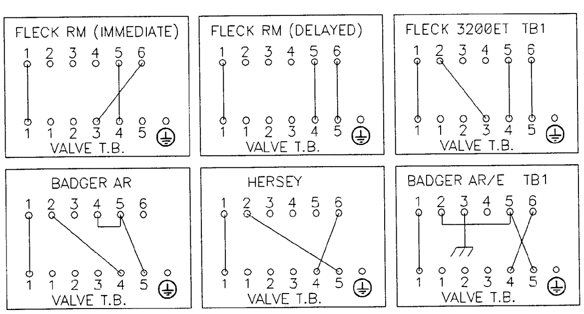
LDM – LOWER DRIVE MOTOR
SW1 – TIMER HOMING SWITCH
SW2 – TIMER PROGRAM SWITCH
SW3 – VALVE HOMING SWITCH
SW4 – VALVE STEP SWITCH
SW5 – BRINE CAM SWITCH
SW6 – LOWER DRIVE SWITCH
THCAM – TIMER HOMING CAM
TPCAM – TIMER PROGRAM CAM
HCAM – VALVE HOMING CAM
SCAM – VALVE STEP CAM
BVCAM – BRINE VALVE CAM
LDCAM – LOWER DRIVE CAM

NOTE:
SINGLE TANK REMOTE METER DELAYED, OR IMMEDIATE REGENERATION

REMOTE METER WIRING



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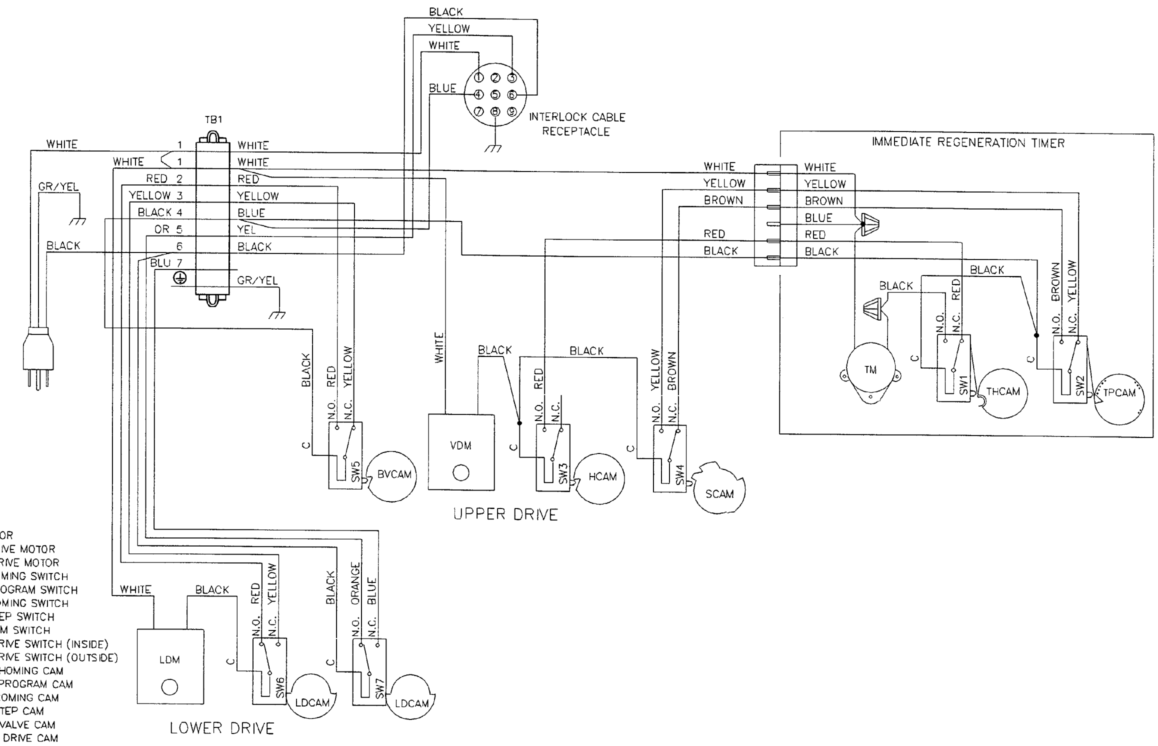
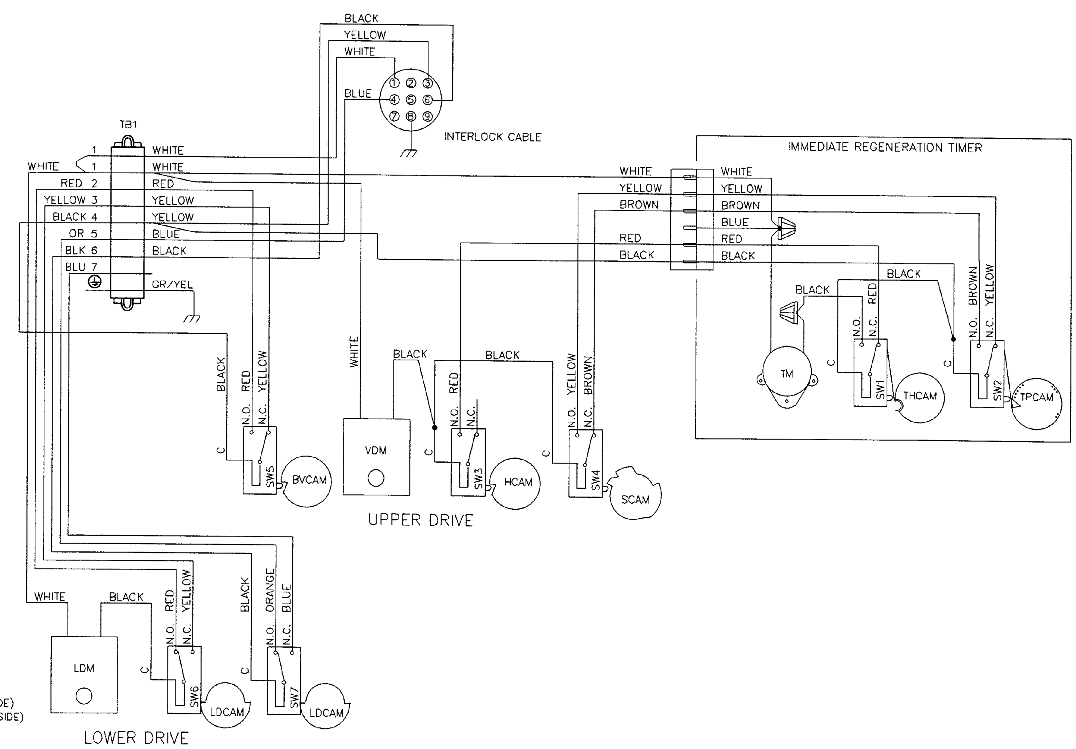
2 Meter Interlock Wiring Diagram



TM – TIMER MOTOR
VDM – VALVE DRIVE MOTOR
LDM – LOWER DRIVE MOTOR
SW1 – TIMER HOMING SWITCH
SW2 – TIMER PROGRAM SWITCH
SW3 – VALVE HOMING SWITCH
SW4 – VALVE STEP SWITCH
SW5 – BRINE CAM SWITCH
SW6 – LOWER DRIVE SWITCH (INSIDE)
SW7 – LOWER DRIVE SWITCH (OUTSIDE)
THCAM – TIMER HOMING CAM
TPCAM – TIMER PROGRAM CAM
HCAM – VALVE HOMING CAM
SCAM – VALVE STEP CAM
BVCAM – BRINE VALVE CAM
LDCAM – LOWER DRIVE CAM

NOTE:
TWO TANK INTERLOCKED, INDIVIDUAL METER, IMMEDIATE REGENERATION.
ONLY ONE TANK IN REGENERATION THE OTHER IN SERVICE.



TM – TIMER MOTOR
VDM – VALVE DRIVE MOTOR
LDM – LOWER DRIVE MOTOR
SW1 – TIMER HOMING SWITCH
SW2 – TIMER PROGRAM SWITCH
SW3 – VALVE HOMING SWITCH
SW4 – VALVE STEP SWITCH
SW5 – BRINE CAM SWITCH
SW6 – LOWER DRIVE SWITCH (INSIDE)
SW7 – LOWER DRIVE SWITCH (OUTSIDE)
THCAM – TIMER HOMING CAM
TPCAM – TIMER PROGRAM CAM
HCAM – VALVE HOMING CAM
SCAM – VALVE STEP CAM
BVCAM – BRINE VALVE CAM
LDCAM – LOWER DRIVE CAM

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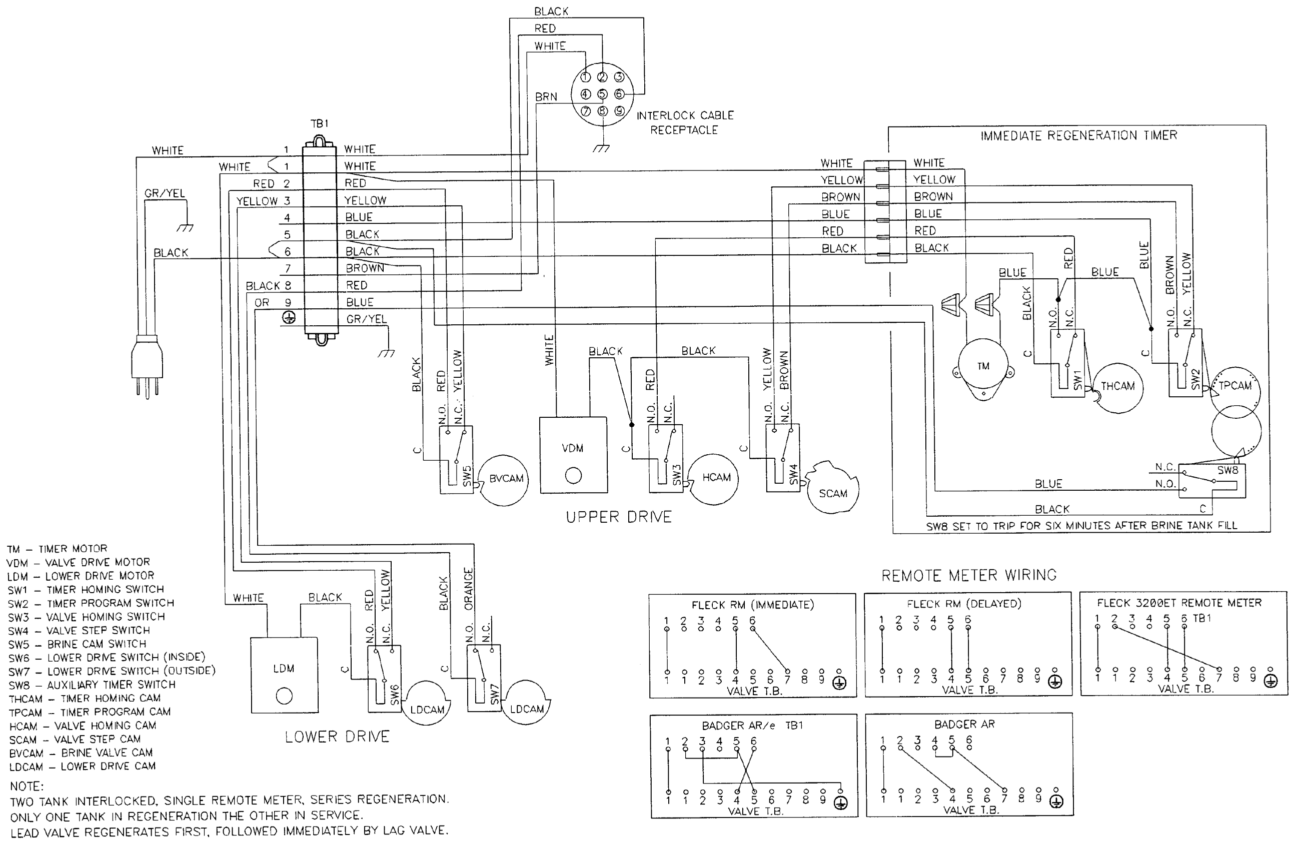
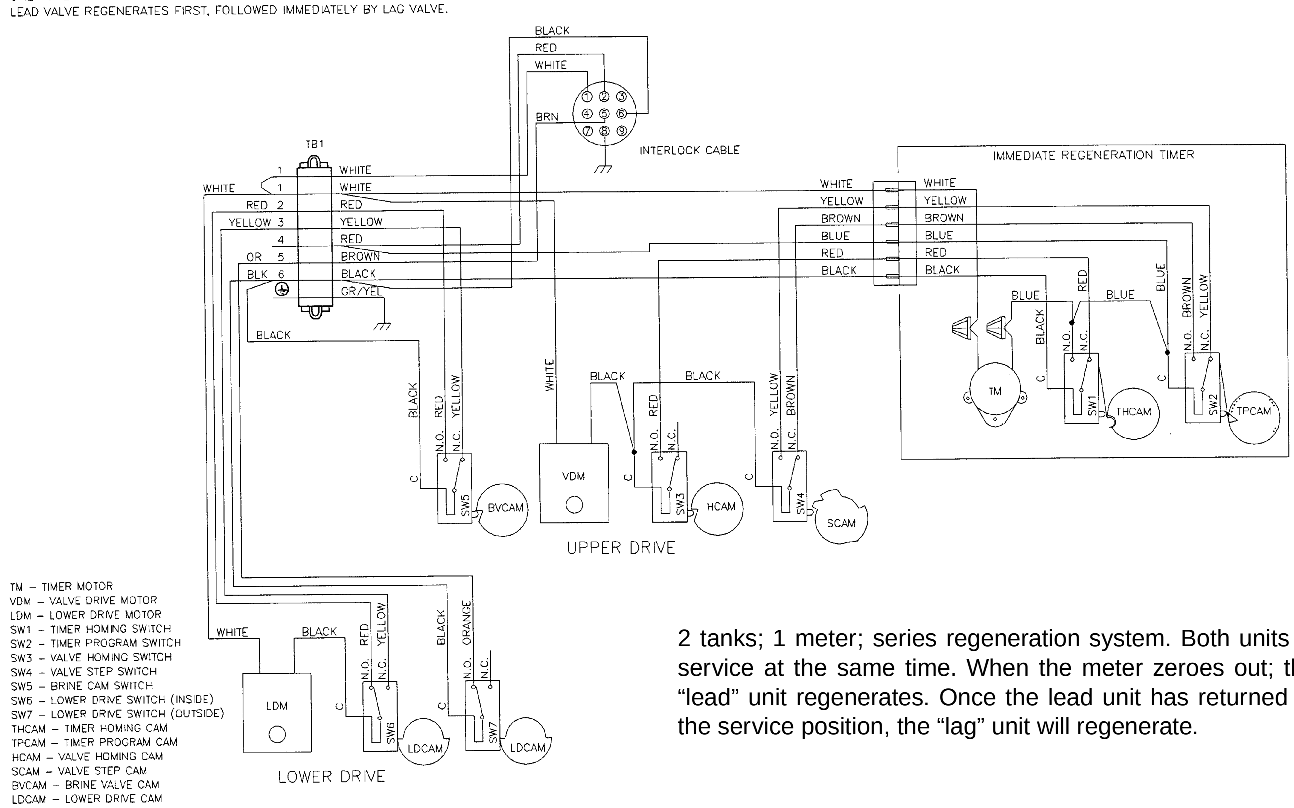
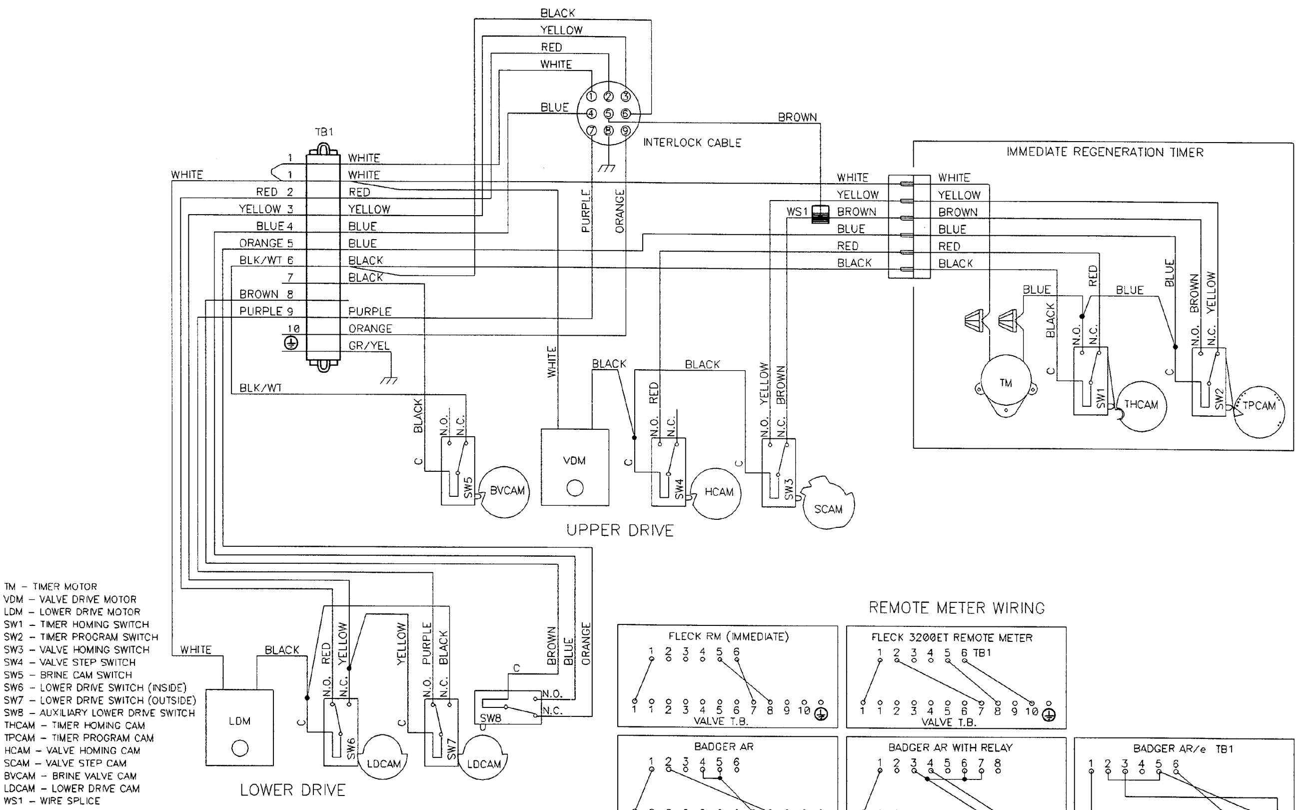
Series Regeneration Wiring Diagram



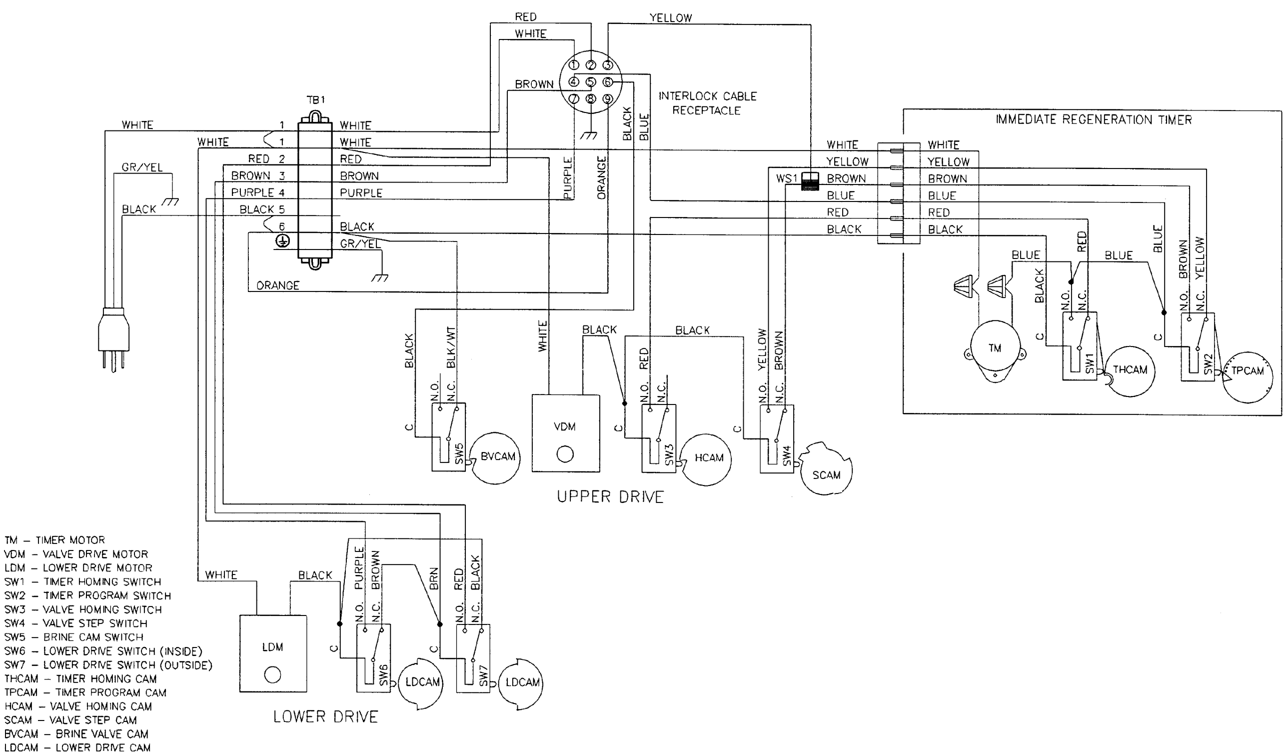


2 tanks; 1 meter; series regeneration system. Both units in service at the same time. When the meter zeroes out; the “lead” unit regenerates. Once the lead unit has returned to the service position, the “lag” unit will regenerate.

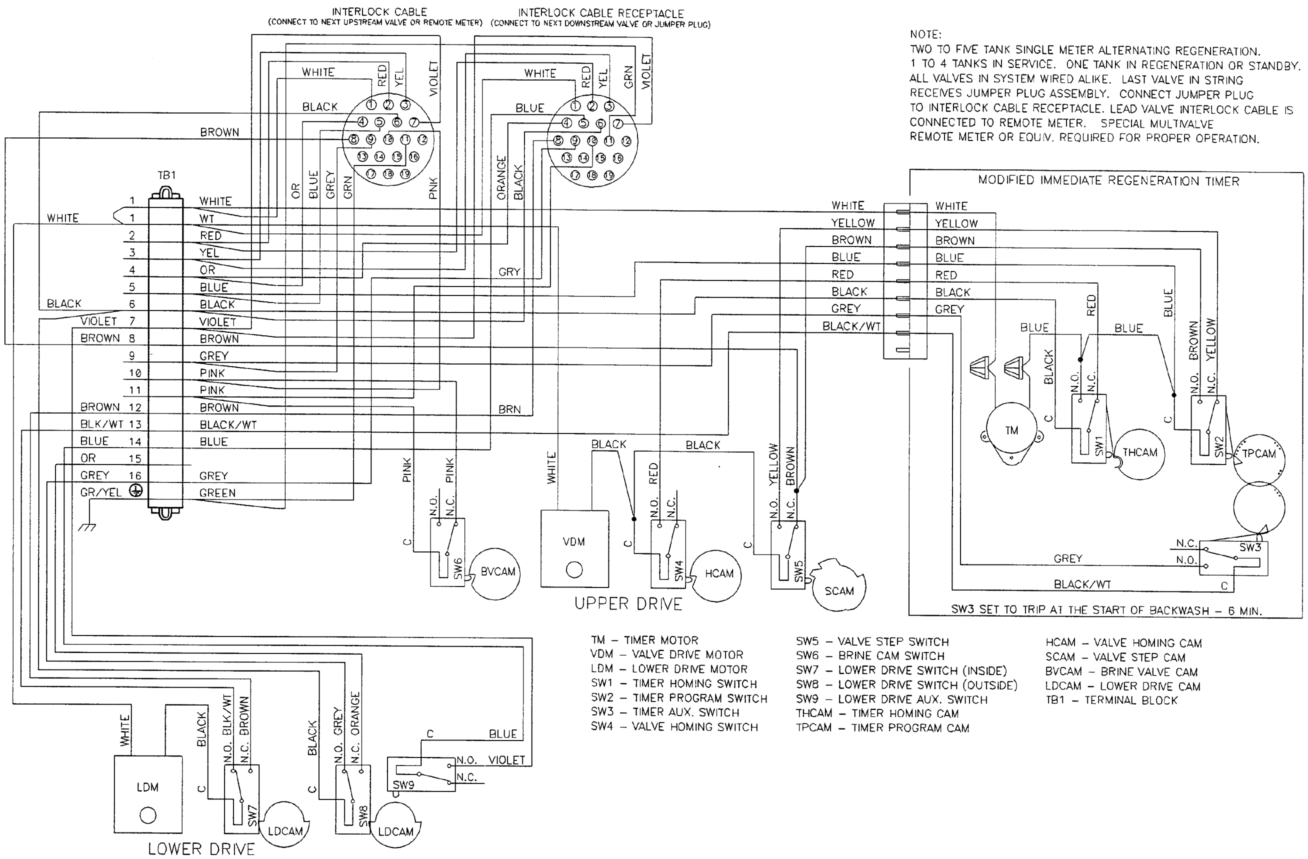
Alternator Wiring Diagram



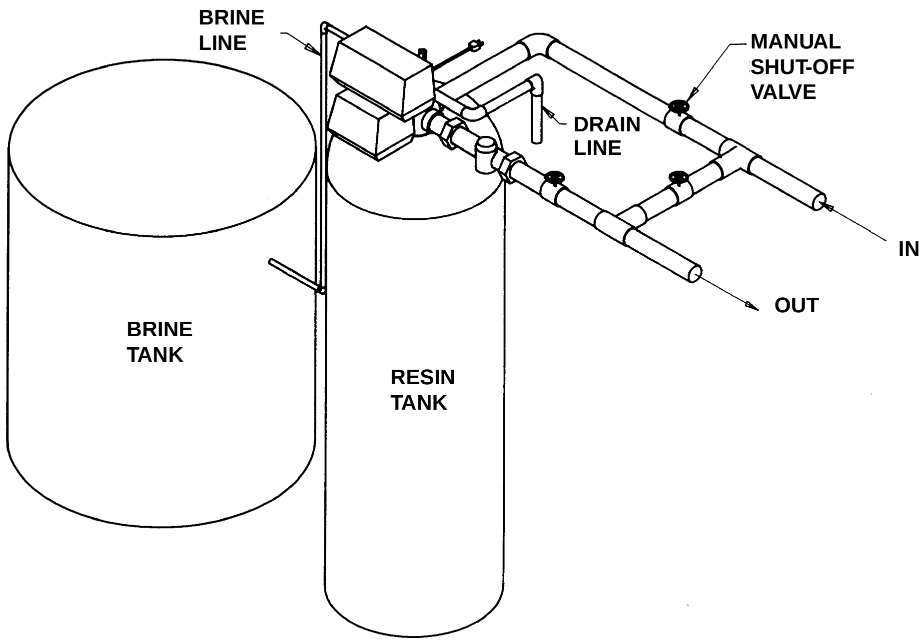
NOTE:
TWO TANK SINGLE METER ALTERNATING REGENERATION.
ONLY ONE TANK IN SERVICE, THE OTHER IN REGENERATION OR STANDBY.



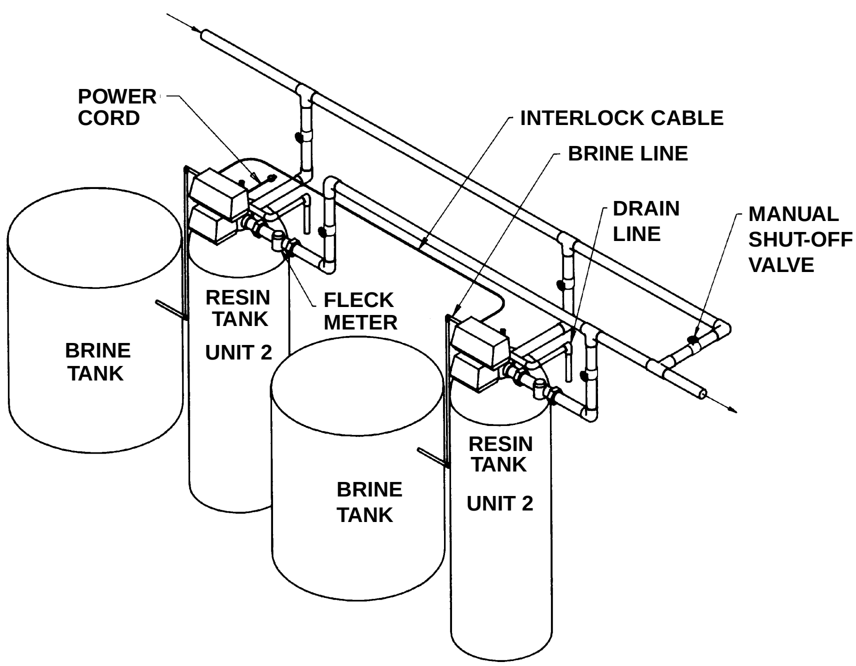
Alternator Wiring Diagram



System #4 - Typical Single Tank Installation With Optional Meter

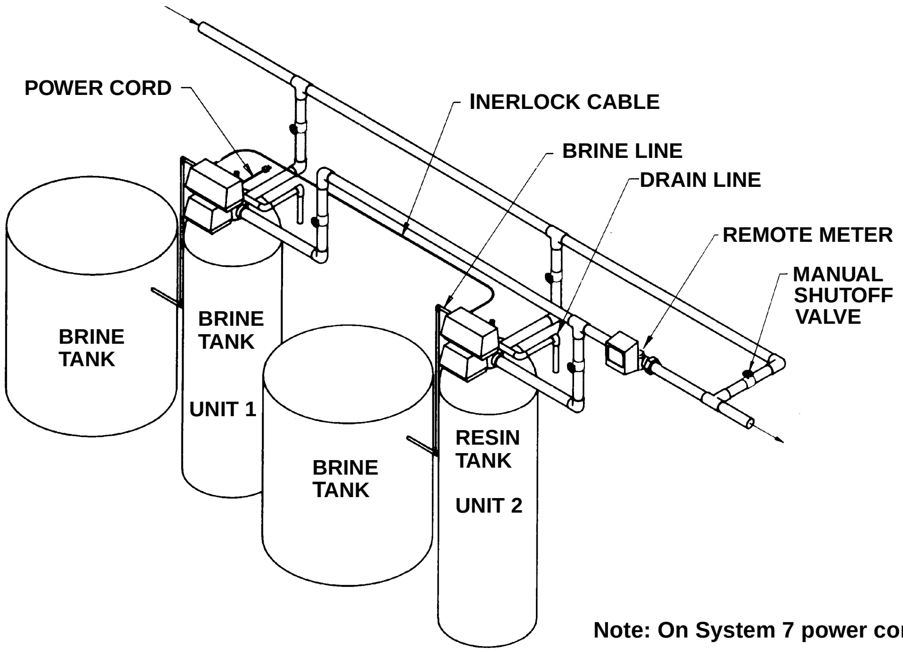


System #5 Interlock - Typical Twin Tank Installation With Optional Meter Interlock And No Hard Water Bypass



System #6 - Twin Series Regeneration

System #7 - Twin Alternator Installation



Note: On System 7 power cord is on Unit 2.

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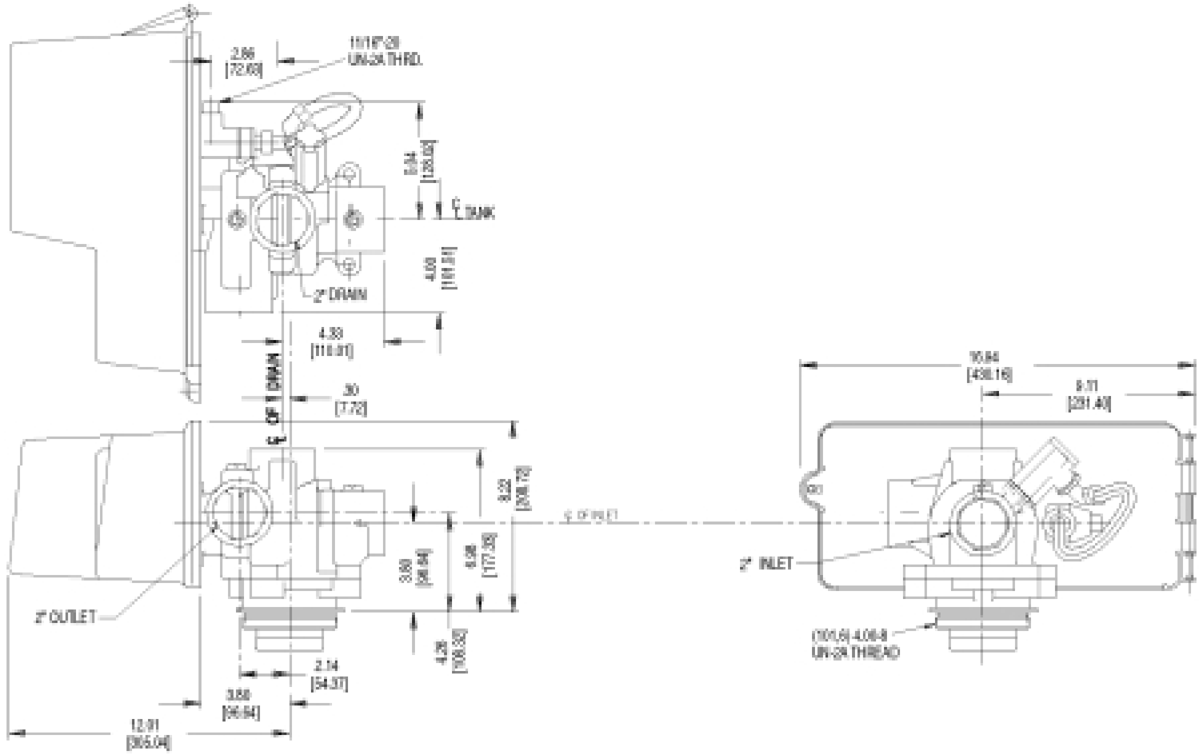
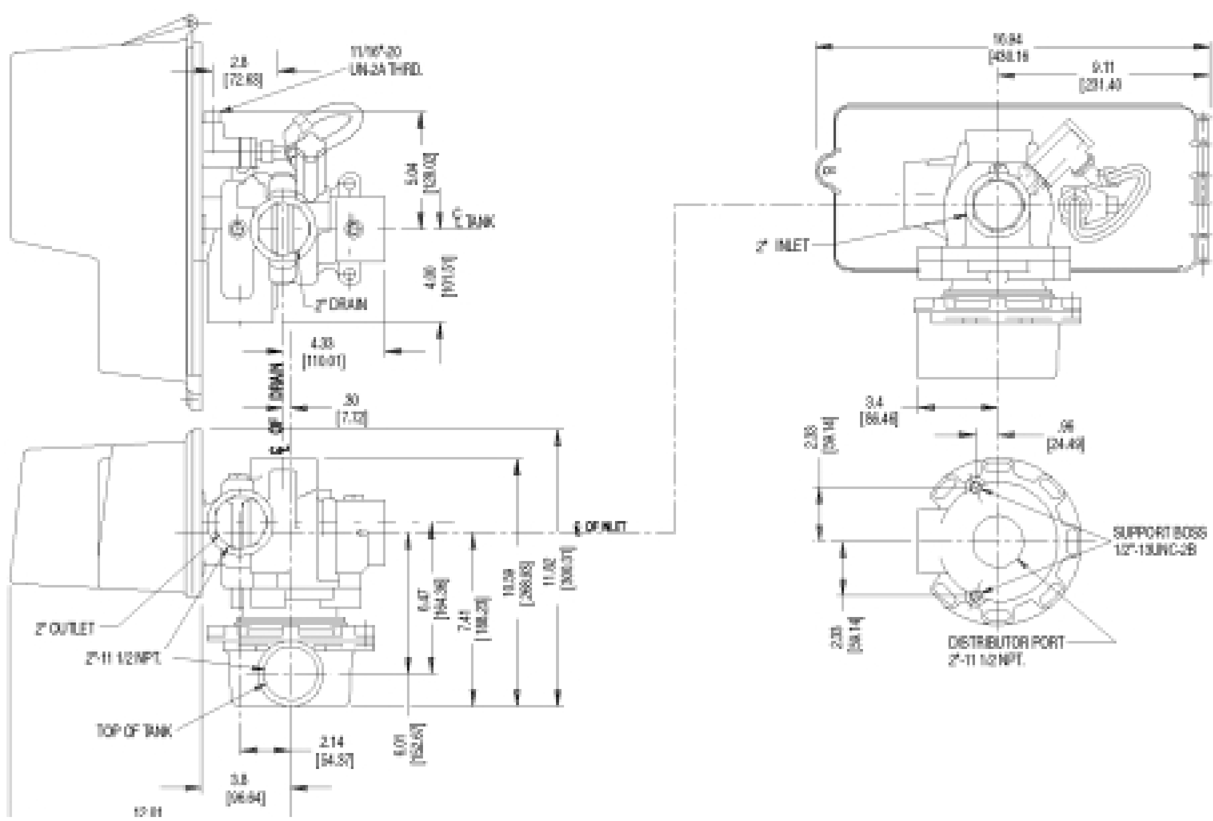
MODEL 2930

Model 2930 Outline





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60034-790 1705 Brine Valve
For Illustration, See Page 24

1 . . . . 10250 . . . . Brine Valve Spring Clip
1 . . . . 12550 . . . . Quad Ring
1 . . . . 13201 . . . . Quad Ring
1 . . . . 14785-01 . . . . . . Flow Control Retainer
1 . . . . 14790 . . . . Brine Valve Body
1 . . . . 14792 . . . . Brine Valve End Plug
1 . . . . 14795 . . . . Brine Valve Piston
1 . . . . 40199 . . . . Brine Valve Stem
1 . . . . 14798 . . . . Spacer
2 . . . . 14811 . . . . Piston Seal
1 . . . . 15310 . . . . Brine Valve Spring
1 . . . . 40213 . . . . Stem Guide
1 . . . . 16123 . . . . Nut 1/2″
1 . . . . 16124 . . . . Ferrule 1/2″

60483-OXC 1705 Injector Assembly
For Illustration, See Page 18

1 . . . . 10228 . . . . Injector Cap
1 . . . . 10229 . . . . Injector Cover Gasket
1 . . . . 17777-03 . . . . . . Injector Body
1 . . . . 14801-x . . . . Injector Nozzle
1 . . . . 14802-x . . . . Injector Throat
1 . . . . 13771 . . . . O-Ring
2 . . . . 14804 . . . . Screw
1 . . . . 19925 . . . . Injector Body Gasket

60166-10 2930 Piston Assembly, Upper Upflow
For Illustration, See Page 18

60166 2930 Piston Assembly, Upper
For Illustration, See Page 18

1 . . . . 14296 . . . . Quad Ring, -012
1 . . . . 14922 . . . . O-Ring, -035
1 . . . . 14754-01 . . . . . . End Plug
1 . . . . 14818 . . . . Clip, Piston Rod
1 . . . . 40203 . . . . Spacer, Endplug
1 . . . . 40204 . . . . Piston, 2930 Downflow
. . . . 40288 . . . . Piston, 2930 Upflow
1 . . . . 40205 . . . . Piston Rod, 2930/3130

60103 2900/2930 Piston Assembly,
Hard Water By-Pass
For Illustration, See Page 18

1 . . . . 14754-01 . . . . . . End Plug, 2930
1 . . . . 14757 . . . . Piston, Hard Water By-Pass
1 . . . . 14758 . . . . Piston Rod, 2930
1 . . . . 14818 . . . . Ring, Piston Rod Snap
1 . . . . 14922 . . . . O-Ring, -035
1 . . . . 14926 . . . . Quad Ring, -012

60104 2900/2930 Piston Assembly,
No Hard Water By-Pass
For Illustration, See Page 18

1 . . . . 14752 . . . . Piston, No Hard Water By-Pass
1 . . . . 14754-11 . . . . . . End Plug, 2930
No Hard Water By-Pass
1 . . . . 14758 . . . . Piston Rod,2930
1 . . . . 14818 . . . . Ring, Piston Rod Snap
1 . . . . 14922 . . . . O-Ring, -035
1 . . . . 14926 . . . . Quad Ring, -012

60131 2930/3130/3150 Upper Seal and Spacer Kit
For Illustration, See Page 18

8 . . . . 11720 . . . . Seal, Piston
2 . . . . 10368 . . . . Spacer
5 . . . . 10369 . . . . End Spacer, Noryl

60128 2900/2930 Lower Seal & Spacer Kit
For Illustration, See Page 18

2 . . . . 10369 . . . . Spacer
4 . . . . 11720 . . . . Seal, Piston 2930/3150
1 . . . . 14753 . . . . Spacer

60050 -91 Drive Motor Assembly, 24V, STF
-92 Drive Motor Assembly, 115V, STF
-93 Drive Motor Assembly, 230V, STF
-94 Drive Motor Assembly, 24V, STF
-95 Drive Motor Assembly, 115V, STF
-96 Drive Motor Assembly, 230V, STF
For Illustration, See Page 16

3 . . . . 10218 . . . . MicroSwitch
2 . . . . 14923 . . . . Screw #4 x 1 1/13
3 . . . . 10302 . . . . Insulator
2 . . . . 10338 . . . . Roll Pin 3/22 x 7/8
1 . . . . 40190 -1156 . . . . Drive Motor 110V 50/60 Hz
-245 . . . . . Drive Motor 24V 50/60 Hz
-2305 . . . . Drive Motor 230V 50/60 Hz
1 . . . . 40202 . . . . Motor Bracket - Drive Side
5 . . . . 10872 . . . . Screw #8 x 5/16
1 . . . . 16430 . . . . Wire Harness
1 . . . . 40175-01 . . . . . . Motor Lead Wire
1 . . . . 40201 . . . . Motor Bracket BN Side
1 . . . . 40198 . . . . Drive Cam - STF
. . . . 40236 . . . . Drive Cam, Upflow
1 . . . . 12777 . . . . Brine Valve Cam
. . . . 19459 . . . . Brine Cam, Upflow
1 . . . . 14784 . . . . Drive Bearing
1 . . . . 10250 . . . . Retaining Ring
1 . . . . 40197 . . . . Connecting Link
1 . . . . 40349 . . . . Screw, Brine Deflection
1 . . . . 40193 . . . . Screw, Ground
2 . . . . 11805 . . . . Screw, Micro Switch Brine

(Continued)

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Service Assemblies (Cont'd.)

60055 -51 2930 Lower Drive Assembly, 115V
-52 2930 Lower Drive Assembly, 230V
-53 2930 Lower Drive Assembly, 24V
For Illustration, See page 6

1	10218	Micro Switch
1	10250	Retaining Ring
1	10302	Insulator, Limit Switch
4	10872	Screw, Hex Washer 8-32 x 5/16
1	10876	Wire, Red 12″
1	11381	Pin, Roll 1/16 x 5/8 Lg
2	14203	Screw, Rd Hd 4-40 x 9/16
1	14759	Link, Piston Rod
1	14769	Bracket, Motor
1	14772	Motor, 110V/60 Hz
1	14775	Cam, Drive
1	14784	Bearing, Connecting Rod
1	15926	Wire Harness, System 4
1	16103	Insulator, Micro Switch

60393 2″ Meter Assembly - Std. Range
For Parts Breakdown See Page 27

60394 2″ Meter Assembly - Ext. Range

60620 2″ Plastic Meter Assembly - Std. Range

60621 2″ Plastic Meter Assembly - Ext. Range
For Parts Breakdown See Page 27

Side Mount Adapter

61415	NPT/US
61415NP	NPT/US/NICKEL
61415-20	BSP/METRIC
61415-20NP	BSP/METRIC/NICKEL

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