

Capital

Since 1936

OWNER'S MANUAL

Water Conditioner Models
FLM - METER INITIATED

Domestic

Capital Water Softener, Inc.

2096 Helena Street

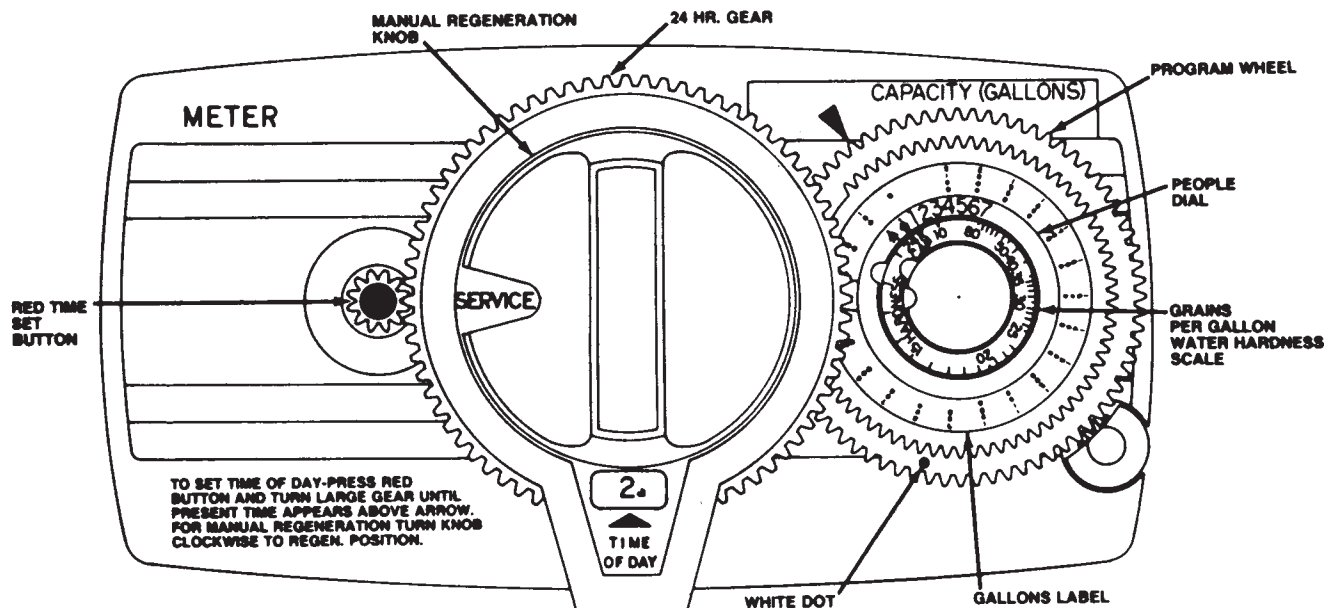
Madison, Wisconsin 53704

(608) 241-1511

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installation and start-up procedure

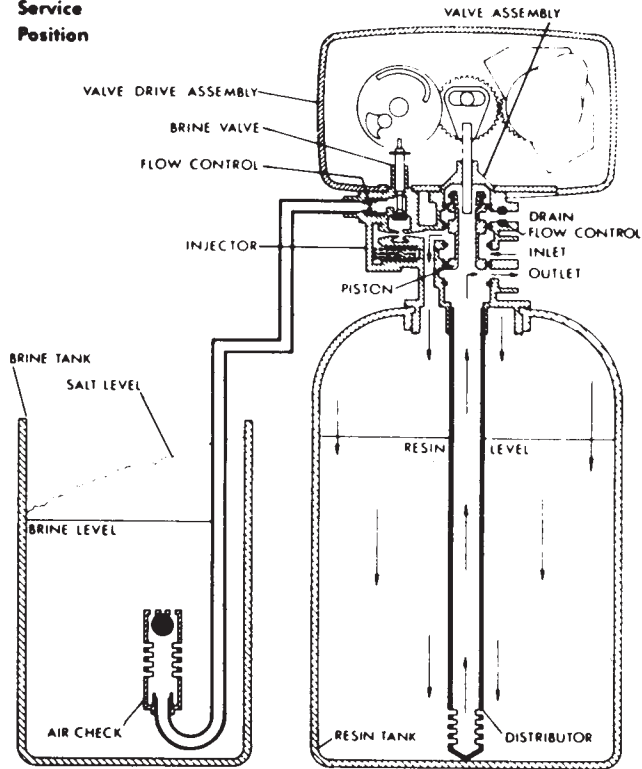
The water softener should be installed with the inlet, outlet and drain connections made in accordance with manufacturer's recommendations and to meet applicable plumbing codes.



1. Manually index the softener control into the service position and let water flow into the resin tank. When the water flow stops, open a softened water tap until all air is released from the lines, then close the tap.
NOTE: the various regeneration positions may be dialed manually by turning the knob on the front of the control until the indicator shows that the softener is in the desired position.
2. Set water usage program wheel using any one of the following procedures:
Typical Residential Application
To program, just set the time, set the hardness and it automatically monitors system needs and regenerates only when necessary. To set time of day press red time set button and turn 24 hour gear until present time of day is at "time of day". Set program wheel by lifting the "people" dial and rotating it so that the number of people in the household is aligned with the household grains per gallon water hardness. Release the dial and check for firm engagement at setting. (This method will provide reserve capacity based on 75 gallons per person.)
Optional Programming Procedures
Calculate the gallon capacity of the system, subtract the necessary reserve requirement and set the gallons available at the small white dot on program wheel gear. Note, drawing shows 850 gallon setting. The capacity (gallons) arrow denotes remaining gallons exclusive of fixed reserve.
3. Rotate the program wheel counterclockwise until it stops at regeneration position.
4. Manually index the control to the back-wash position and allow water to flow at the drain for 3 or 4 minutes.
5. Remove back cover plate.
6. Make sure than the salt dosage is set as recommended by the manufacturer. Manually index the control to the brine fill position and allow the brine tank to fill to the top of the air check.
7. Manually index the control to the brine draw position and allow the control to draw water from the brine tank until it stops.
8. Plug in the electrical cord and look in the sight hole in the back of the motor to see that it is running.
9. Manually advance the control to the beginning of the brine fill position and allow the control to return to the service position automatically.
10. Fill the brine tank with salt.
11. Replace back cover on the control. Be sure cable is not pinched between cover and housing.
12. Make sure that any by-pass valving is left in the normal service position.

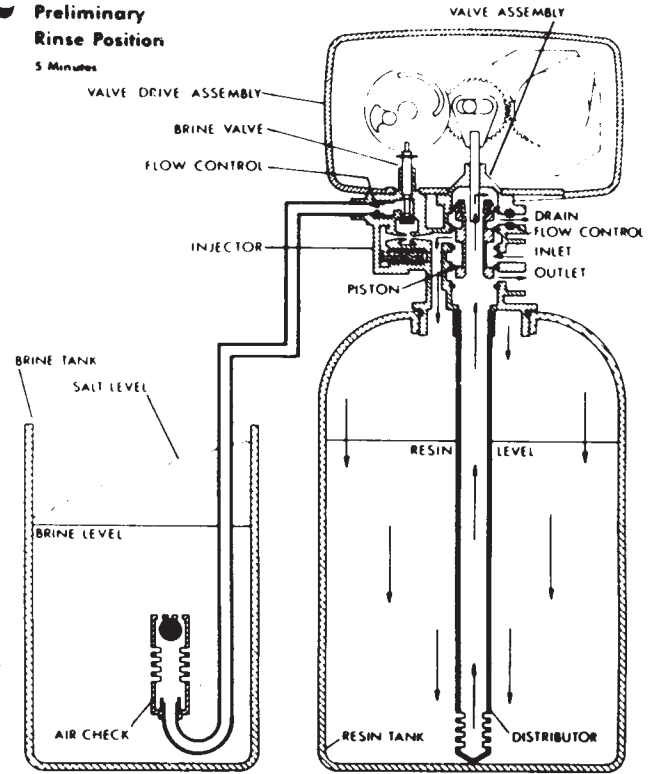
water conditioner flow diagrams

1 Service Position



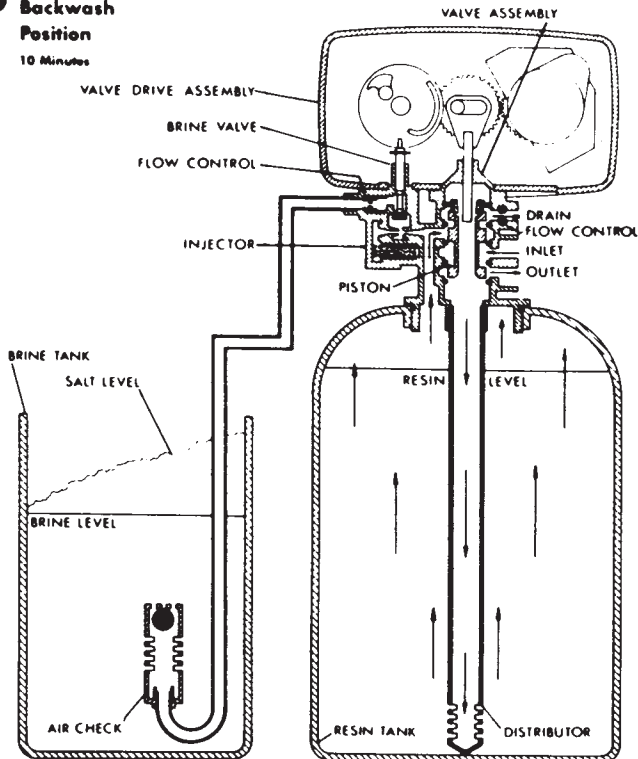
Hard water enters the unit at the valve inlet — flows around the lower piston groove — thru the passage to the top of tank — down thru the resin and enters the distributor as conditioned water. The conditioned water flows up thru the center tube to the valve out let.

2 Preliminary Rinse Position 5 Minutes



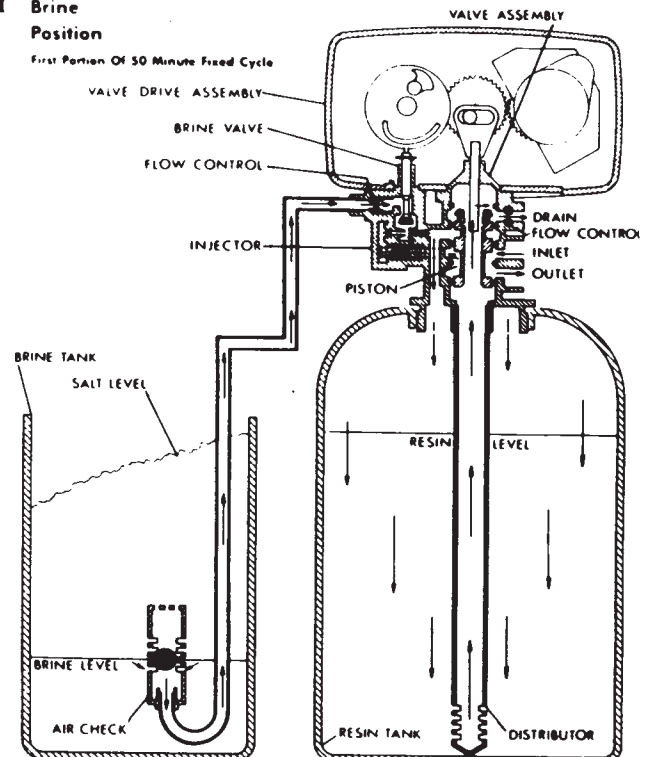
Hard water enters the unit at the valve inlet — flows around the lower piston groove — down thru the top of tank passage — downward thru the resin — up the distributor tube — thru the center hole in the piston — over the top edge of the piston and out the drain line.

3 Backwash Position 10 Minutes



Hard water enters the unit at the valve inlet — flows around the lower piston groove and lower piston land — down thru the center tube and out the distributor — up thru the resin — thru the top of tank passage — around the upper piston groove and out the drain line.

4 Brine Position First Portion Of 50 Minute Fixed Cycle

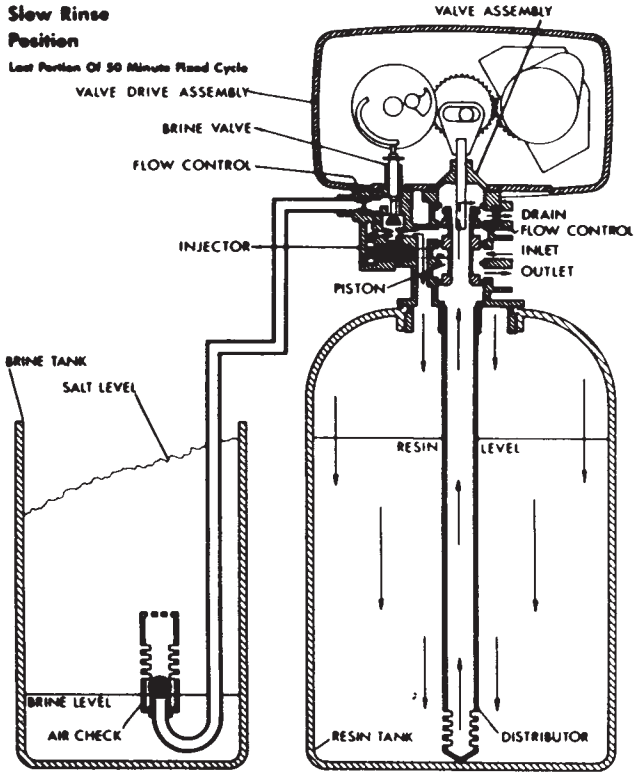


Hard water enters the unit at the valve inlet — flows around the lower piston groove — thru the injector nozzle and orifice to draw brine from the brine tank. The brine flows down thru the resin — into the distributor — up thru the center tube — thru the center hole in the piston and out the drain line.

5

Slow Rinse Position

Last Portion Of 50 Minute Flood Cycle

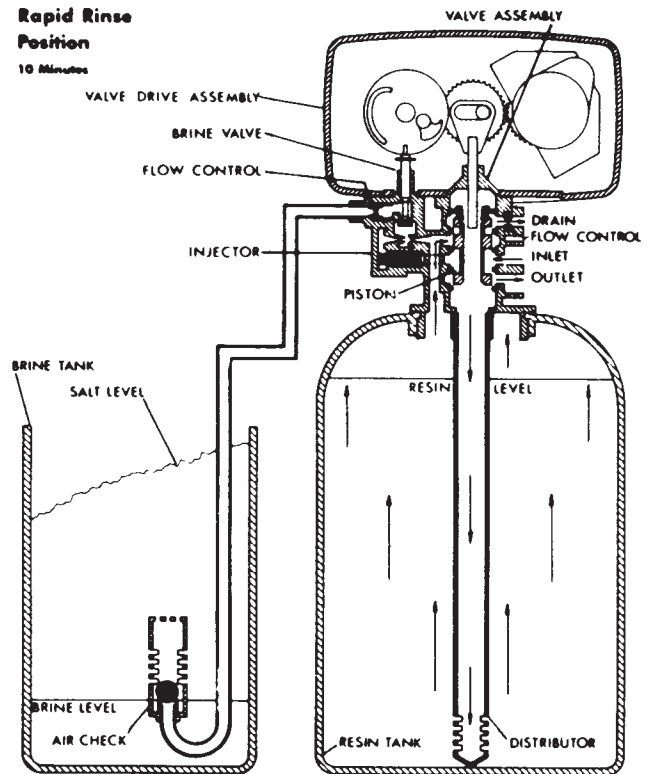


After all the brine has been drawn from the brine tank, hard water continues to enter thru the valve inlet — flows around the lower piston groove — thru the nozzle and orifice — down thru the resin and into the distributor — up thru the center tube — thru the center hole in the piston and out the drain line.

6

Rapid Rinse Position

10 Minutes

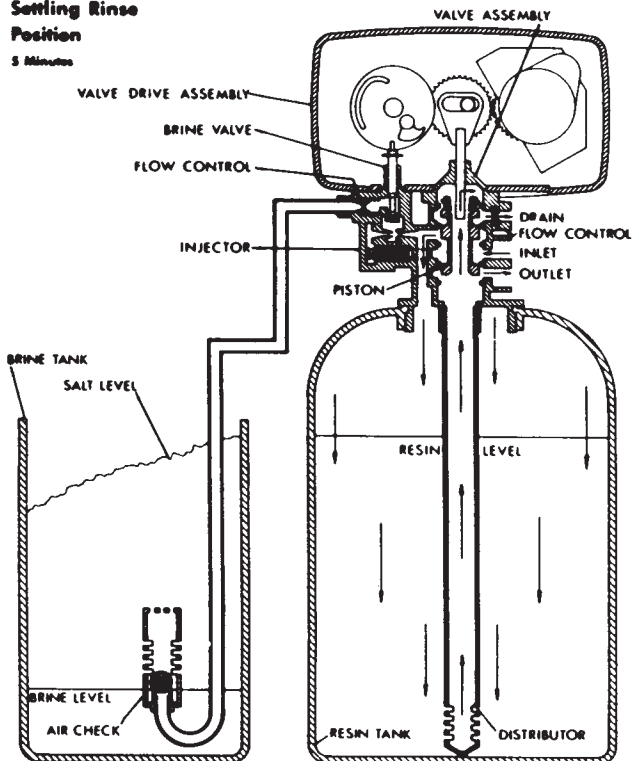


Hard water enters the unit at the valve inlet — flows around the lower piston groove and lower piston land — down thru the center tube and out the distributor — up thru the resin — thru the top of tank passage — around the upper piston groove and out the drain line.

7

Settling Rinse Position

5 Minutes

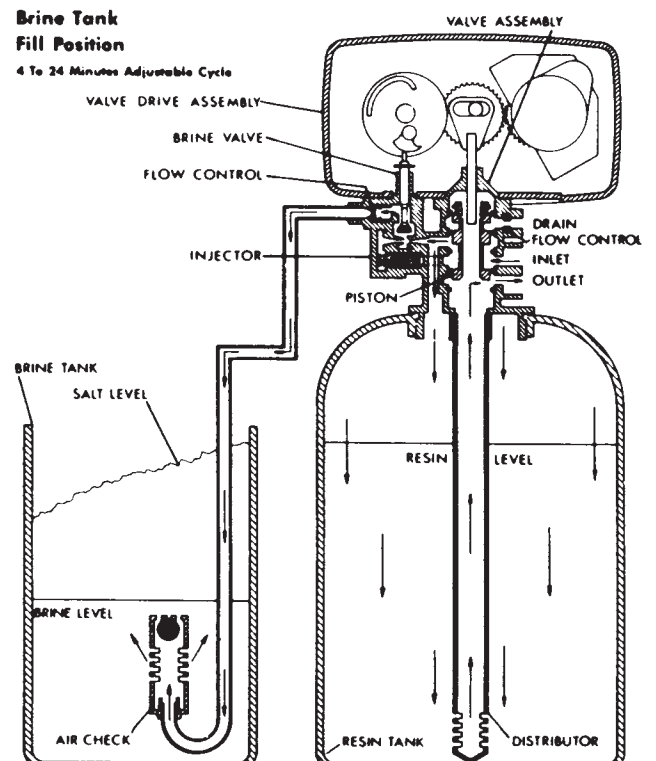


Hard water enters the unit at the valve inlet — flows around the lower piston groove — down thru the top of tank passage — downward thru the resin — up the distributor tube — thru the center hole in the piston — over the top edge of the piston and out the drain line.

8

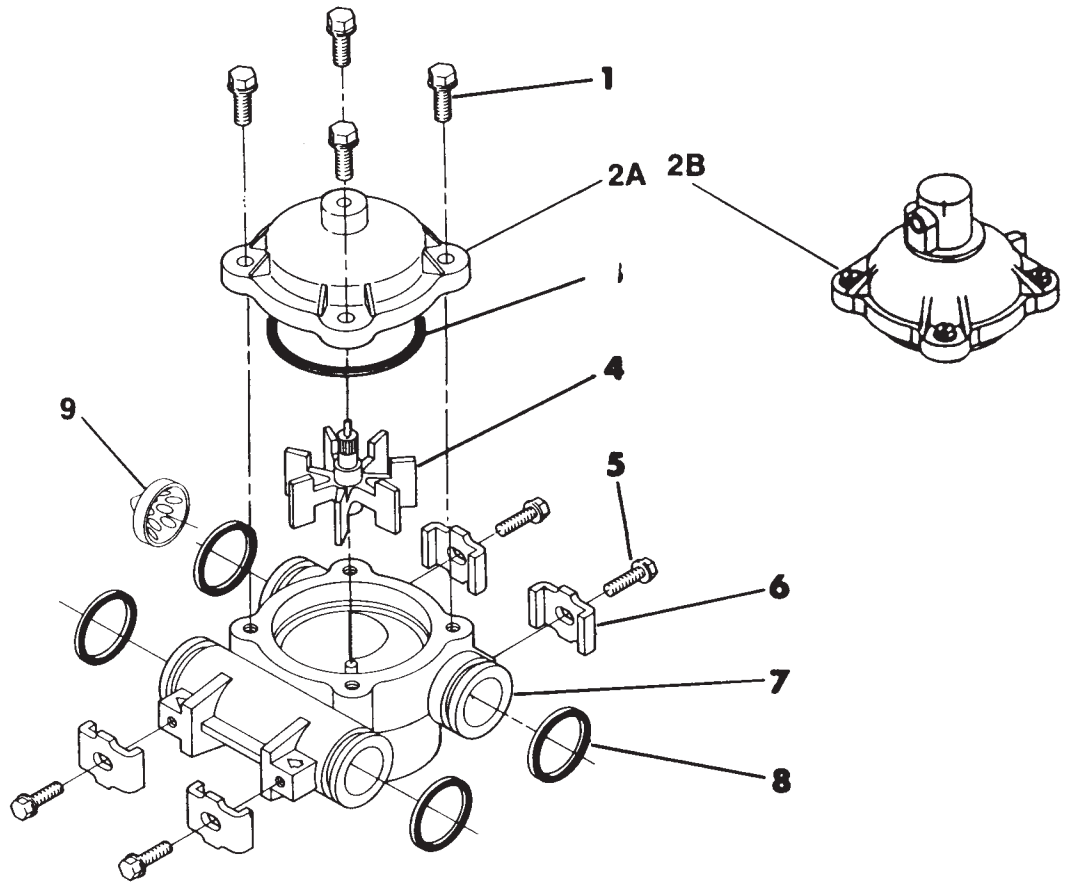
Brine Tank Fill Position

4 To 24 Minutes Adjustable Cycle



Hard water enters the unit at the valve inlet — flows around the lower piston groove — thru the injector throat — thru the brine valve and flow control to fill the brine tank. Hard water also flows around the lower piston groove — thru the passage to the top of tank — down thru the resin and enters the distributor as conditioned water. The conditioned water flows up thru the center tube to the valve outlet.

meter assembly

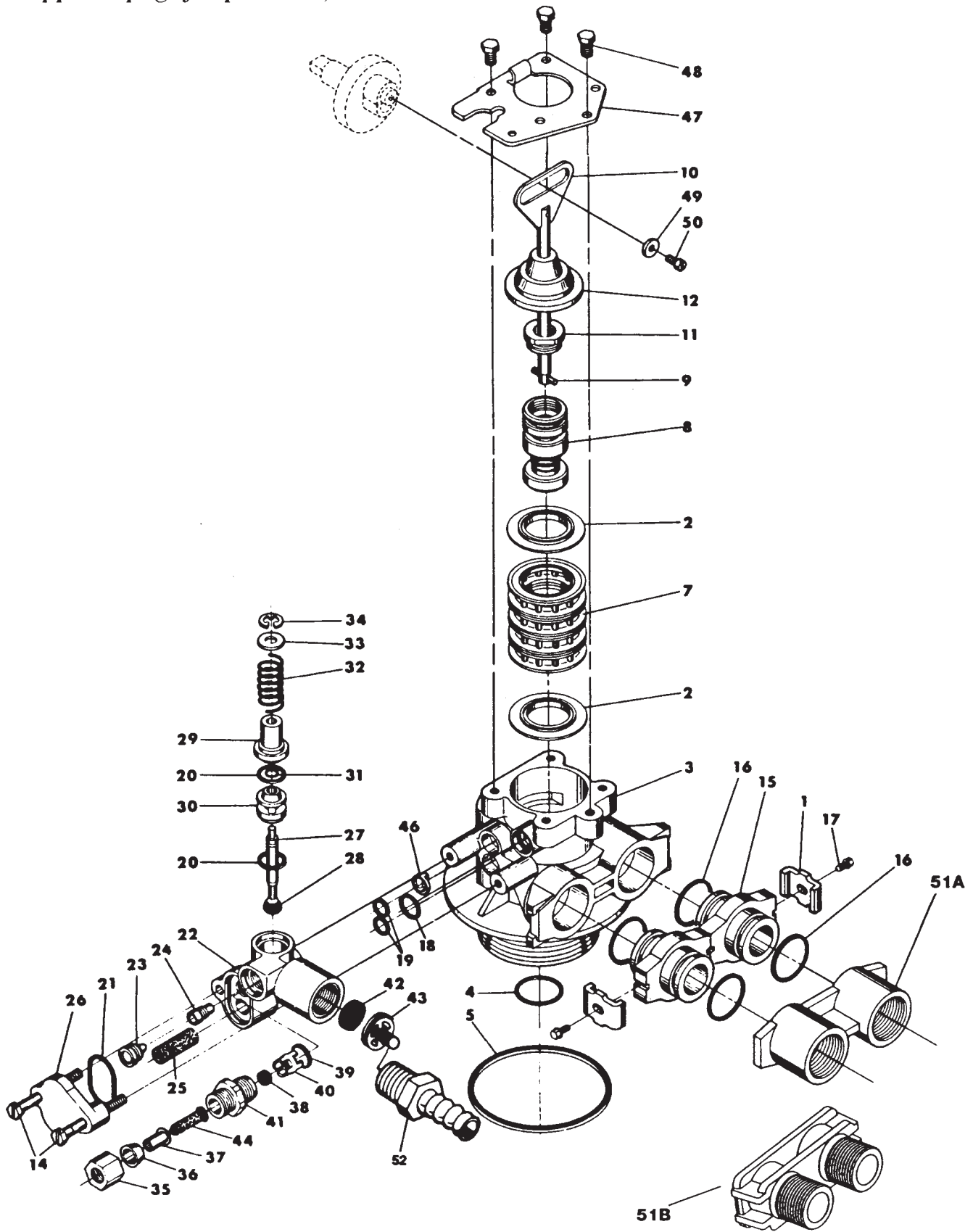


PARTS LIST

ITEM NO.	NO. REQ'D.	PART NO.	DESCRIPTION
1	4	12473	Screw — Meter Cover Assembly
2A	1	14038	Meter Cover Assembly - Standard
2B	1	15659-	Meter Cover Assembly - Extended Range, Right Angle
3	1	13847	"O" Ring — Meter Cover Assembly
4	1	13509	Impeller
5	4	13314	Screw — Adapter Clip
6	4	13255	Adapter Clip
7	1	13821	Meter Body
8	4	13305	"O" Ring — Meter Body
9	1	14613	Flow Straightener

control valve assembly

(see opposite page for parts list)



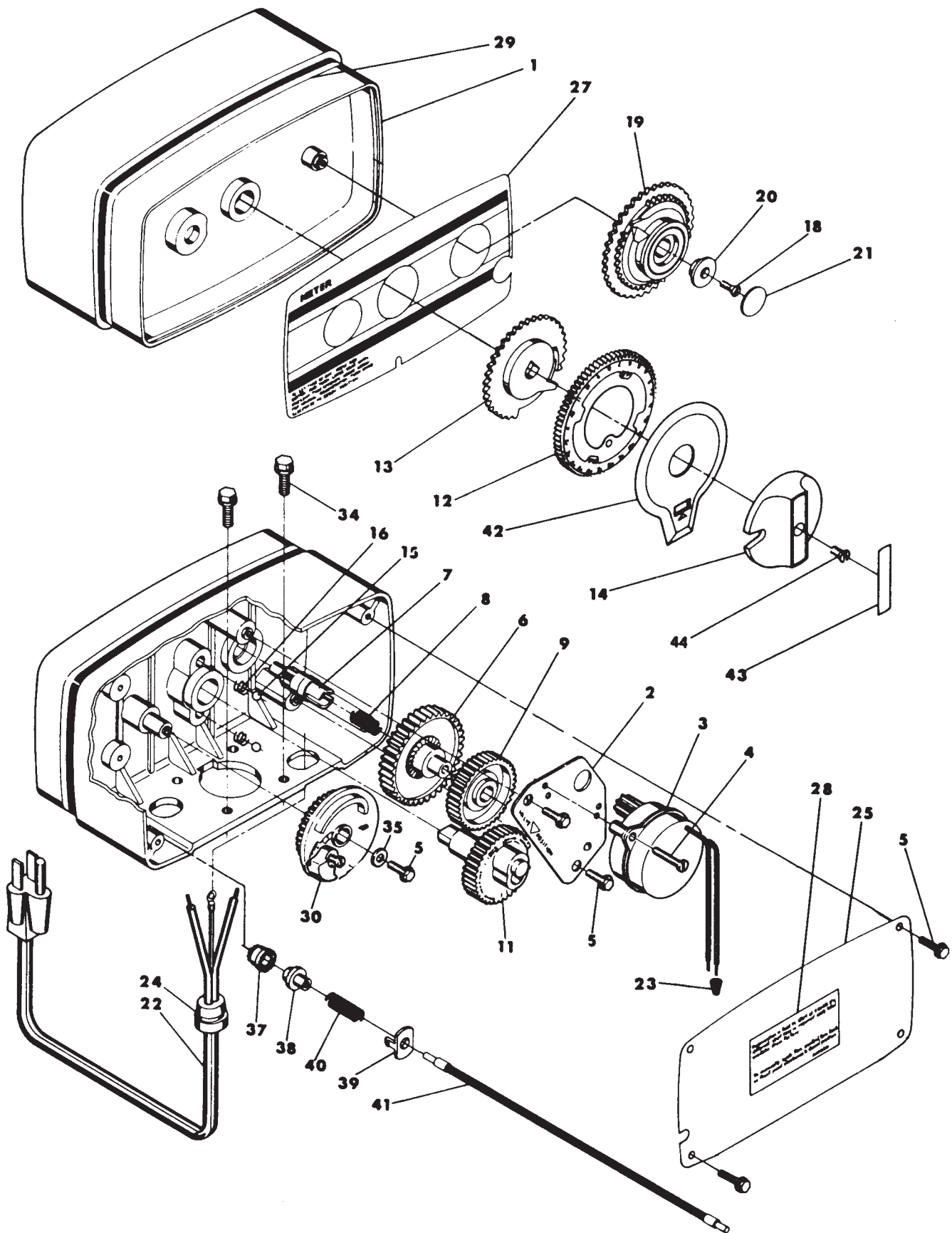
CONTROL VALVE ASSEMBLY PARTS LIST

ITEM NO.	NO. REQ'D.	PART NO.	DESCRIPTION
1		13255	Adapter Clip
2	5	13242	Seal
3	1	14449	Valve Body Assembly - 1" Dist.
	1	14450	Valve Body Assembly - 1 ³ / ₁₆ " Dist.
4	1	13304	"O" Ring - Distributor Tube - 1"
	1	10244	"O" Ring - Distributor Tube - 1 ³ / ₁₆ "
5	1	12281	"O" Ring - Top of Tank
6			Not Assigned
7	4	14241	Spacer
8	1	13247	Piston - Standard
	1	13781	Piston - Low Water
	1	13852	Piston - Filter
9	1	10696	Piston Pin
10	1	13001	Piston Rod Assembly
11	1	12953	Piston Retainer
12	1	13446	End Plug Assembly Std. - White
	1	13446-10	End Plug Assembly Filter - Black
	1	13446-20	End Plug Assembly Low Water - Gray
14	2	13315	Screw - Injector Mounting
*15	2	19228	Adapter Coupling
*16	4	13305	"O" Ring - Adapter Coupling
*17	2	13314	Screw - Adapter Coupling
18	1	12638	"O" Ring - Drain
19	2	13301	"O" Ring - Injector
20	2	13302	"O" Ring - Brine Spacer
21	1	13303	"O" Ring - Injector Cover
22	1	13163	Injector Body
23	1	10913	Injector Nozzle - Specify Size
24	1	10914	Injector Throat - Specify Size
25	1	10227	Injector Screen
26	1	13166	Injector Cover
27	1	13172	Brine Valve Stem
28	1	12626	Brine Valve Seat
29	1	13165	Brine Valve Cap
30	1	13167	Brine Valve Spacer
31	1	12550	Quad Ring
32	1	11973	Spring - Brine Valve
33	1	16098	Washer - Brine Valve
34	1	11981-01	Retaining Ring
35	1	10329	B.L.F.C. Fitting Nut
36	1	10330	B.L.F.C. Ferrule
37	1	10332	B.L.F.C. Tube Insert
38	1		B.L.F.C. Button - Specify Size
39	1	12977	"O" Ring - B.L.F.C.
40	1	13245	B.L.F.C. Button Retainer
41	1	13244	B.L.F.C. Fitting
42	1		D.L.F.C. Button - Specify Size
43	1	13173	D.L.F.C. Button Retainer
44	1	12767	Screen - Brine Line
45	1	15348	"O" Ring - D.L.F.C. (not shown)
46	1	13497	Air Disperser
47	1	13546	End Plug Retainer
48	3	12112	Screw
49	1	13363	Washer
50	1	13296	Screw
51A	1	13398	Yoke, Brass, 1" NPT
	1	13708	Yoke, Brass, 3/4" NPT
51B	1	18706	Yoke, Plastic, 1" NPT
	1	13706-02	Yoke, Plastic, 3/4" NPT
52	1	13308	Drain Hose Barb

*Not used with meter controls

control valve drive assembly

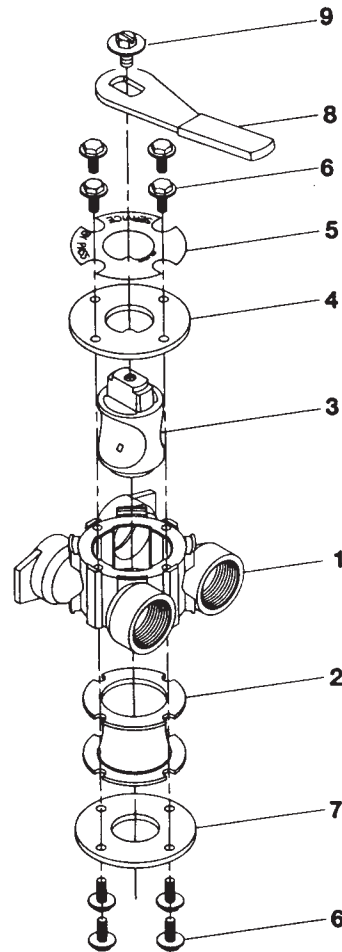
(see opposite page for parts list)



**MODEL 5600 ECONOMINDER®
TIMER - METER INITIATED
PARTS LIST**

ITEM NO.	NO. REQ'D.	PART NO.	DESCRIPTION
1	1	13162-010	Drive Housing Assembly
2	1	13175	Motor Mounting Plate
3	1	13400	Motor - 120V., 60 Hz.
	1	13494	Motor - 24V., 60 Hz.
4	3	11384	Screw - Motor Mtg. & Ground Wire
5	5	13296	Screw - Component Mounting
6	1	13017	Idler Gear
7	1	13018	Idler Pinion
8	1	13312	Spring - Idler
9	1	13164	Drive Gear
11	1	13170	Main Gear & Shaft
12	1	19205	24 Hour Gear Assembly, Silver
	1	19205-01	24 Hour Gear Assy, Tan
13	1	13802	Cycle Actuator Gear
14	1	14177	Knob - Manual Regeneration
15	2	13300	Ball - 1/4" Dia.
16	2	14457	Spring - Detent
18	1	13748	Screw - Program Wheel
19	1	60405-15	Program Skipper Wheel Assembly - Specify Hardness Capacity
20	1	13806	Program Wheel Retainer
21	1	13953	Cover Label - Program Wheel
22	1	11842	Electrical Cord
23	2	12681	Wire Connector
24	1	13547	Strain Relief
25	1	13229	Back Cover
26			Not Assigned
27	1	13955	Front Label - Beige
	1	13958	Front Label - Silver
28	1	13899	Rear Label
29	1	13957	Tape Stripe - Beige
	1	13960	Tape Stripe - Silver
30	1	60514	Brine Cam Assembly, 3-18
	1	60514-01	Brine Cam Assembly, 6-36
34	2	12473	Screw-Drive Mounting
35	1	12037	Washer
37	1	13830	Drive Pinion - Program Wheel
38	1	13831	Clutch - Drive Pinion
39	1	14253	Spring Retainer
40	1	14276	Spring
41	1	14043	Cable Assembly, Std
	1	14910	Cable Assembly, Ext
42	1	14176	Valve Position Dial - Standard
	1	14278	Valve Position Dial - Low Water
	1	15478	Valve Position Dial - Filter
43	1	14175	Knob Label - Beige
	1	14207	Knob Label - Silver
44	1	15151	Screw - Knob

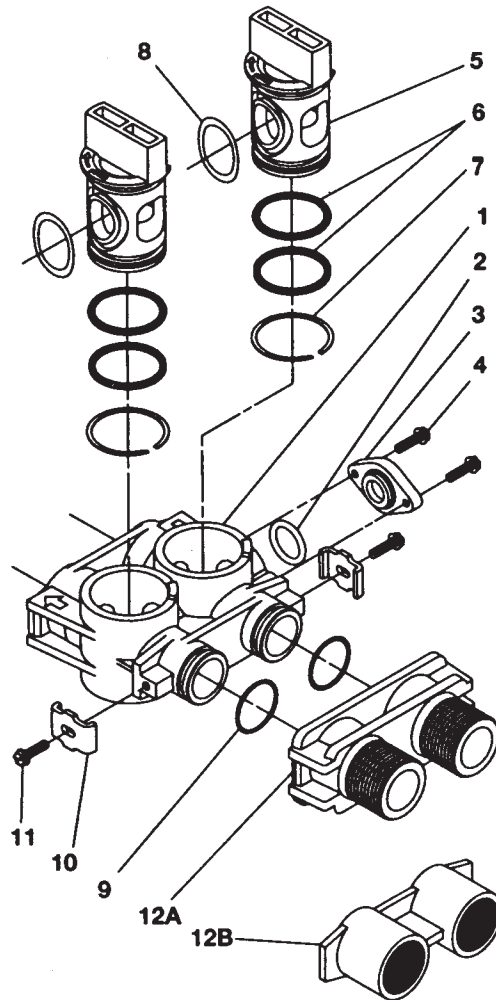
by-pass valve assembly



PARTS LIST

Item No.	Quantity	Part No.	Description
1	1	17290	By-Pass Valve Body, 3/4"
	1	17290NP	By-Pass Valve Body, 3/4" Nickel Plate
	1	13399	By-Pass Valve Body, 1"
	1	13399NP	By-Pass Valve Body, 1", Nickel Plate
2	1	11726	Seal, By-Pass
3	1	11972	Plug, By-Pass
4	1	11978	Side Cover
5	1	13604-01	Label
6	8	15727	Screw
7	1	11986	Side Cover
8	1	11979	Lever, By-Pass
9	1	11989	Screw, Hex Head, 1/4-14

by-pass valve assembly, plastic

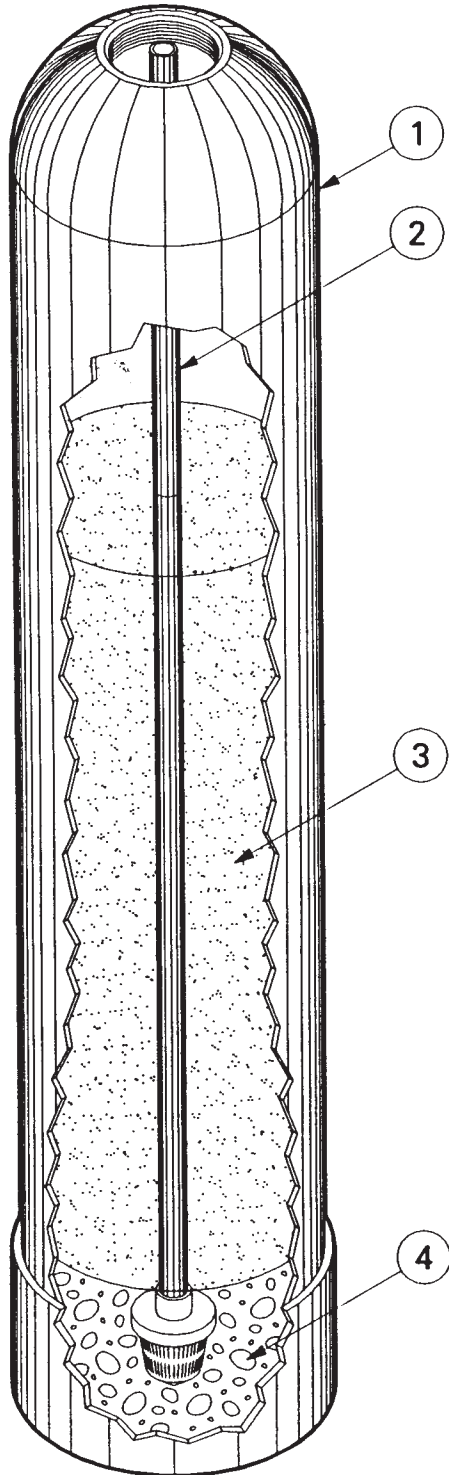


PARTS LIST

Item No.	Quantity	Part No.	Description
1	1	17819	By-Pass Valve Body, Plastic
2	1	11183	O Ring, -015
3	1	18582	Cap, By-Pass
4	2	17512	Screw, Hex Washer Head, #6-24 x 3
5	2	17820	Plug, By-Pass
6	4	18661	O Ring, -218
7	2	18662	Retaining Ring
8	2	18660	O Ring
9	2	13305	O Ring, -119
10	2	13255	Clip, Mounting
11	2	13314	Screw, Hex Washer Head, 8-18 x 5/8
12A	1	18706	Yoke, Plastic, 1" NPT
		18706-02	Yoke, Plastic, 3/4" NPT
12B	1	13708	Yoke, 3/4"
		13708NP	Yoke, 3/4" Nickel Plated
		13398	Yoke, 1"
		13398NP	Yoke, 1" Nickel Plated

Capital MODEL FLM 16 - 24 - 32 - 48 - 64 - 96

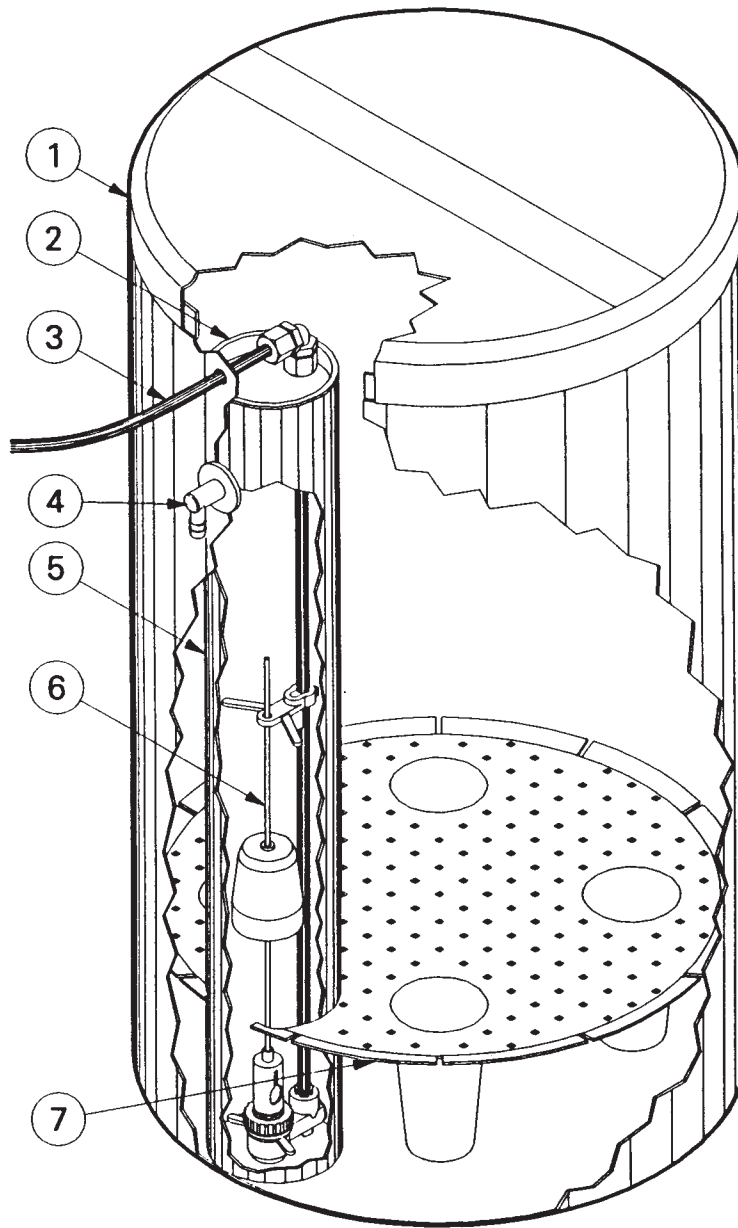
Mineral Tank & Components



ITEM NO.	PART NO.	DESCRIPTION
1	FLM010	Tank FLM-16
	FLM020	Tank FLM-24
	FLM031	Tank FLM-32
	FLM050	Tank FLM-48
	FLM061	Tank FLM-64
	FLM070	Tank FLM-96
2	FLM306	Distributor Tube FLM -16 -24
	FLM307	Distributor Tube FLM-48
	FLM308	Distributor Tube FLM -32 -64
	FLM309	Distributor Tube FLM-96
3	FLM120	Mineral FLM-16
	FLM130	Mineral FLM-24
	FLM140	Mineral FLM-32
	FLM160	Mineral FLM-48
	FLM170	Mineral FLM-64
	FLM180	Mineral FLM-96
4	FLM210	Underbedding FLM-16
	FLM220	Underbedding FLM-24
	FLM230	Underbedding FLM-32
	FLM250	Underbedding FLM-48
	FLM260	Underbedding FLM-64
	FLM270	Underbedding FLM-96

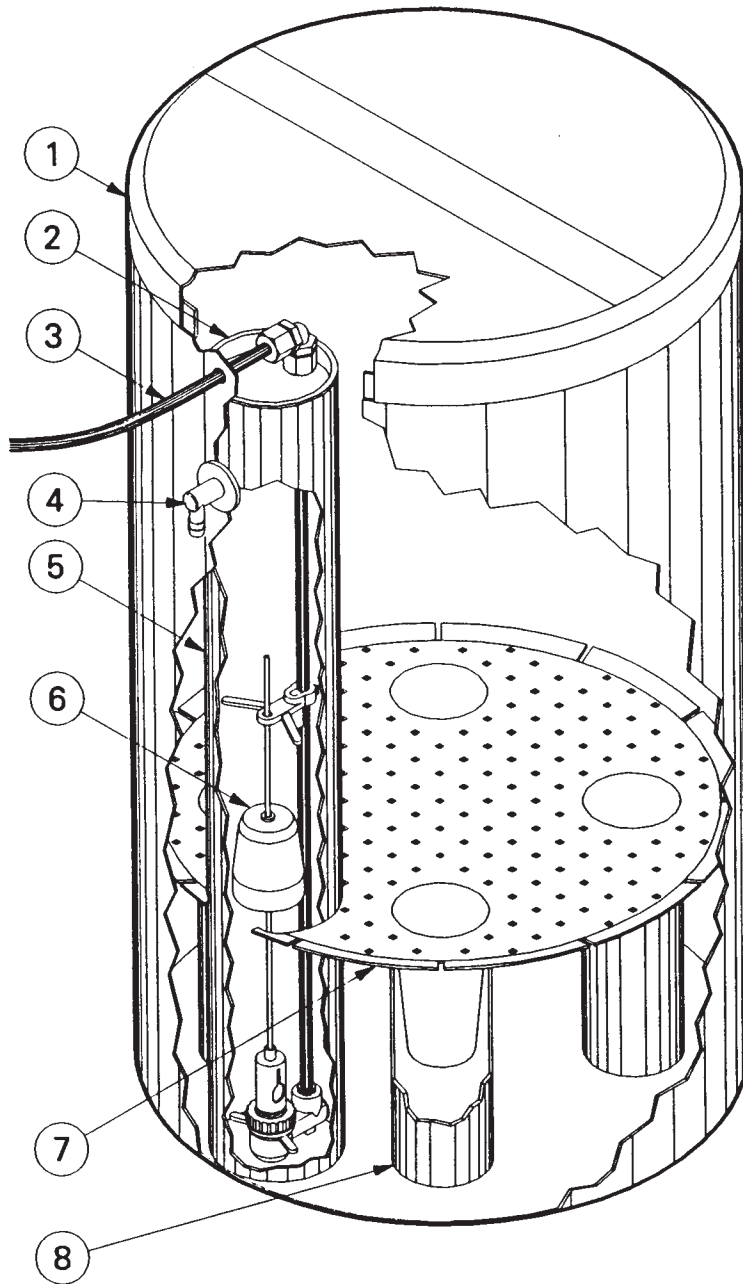
MODEL FLM 16 - 24 - 32

Brine Tank & Components



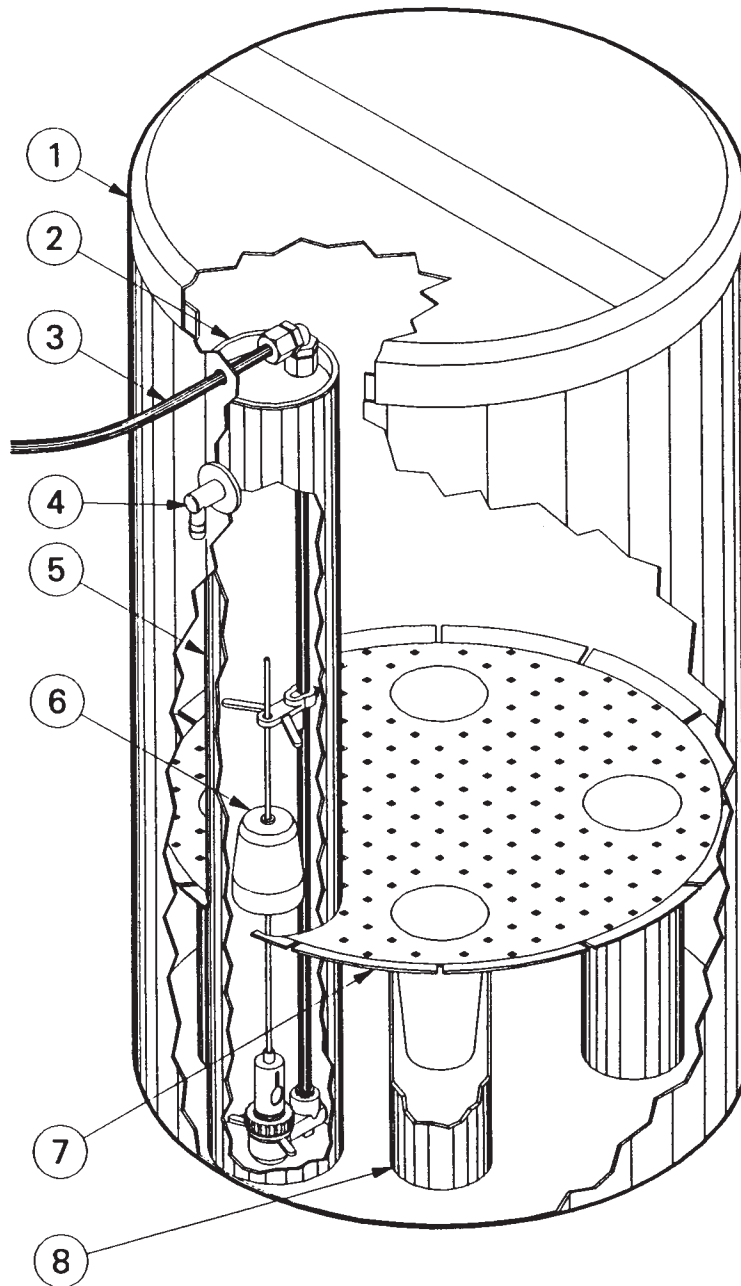
ITEM NO.	PART NO.	DESCRIPTION
1	FLM700	Brine Tank FLM 16 - 24 - 32
2	FLM1300	Brine Well Cover 4" All Models
3	FLM200	Brine Tube FLM 16 - 24 - 32
4	FLM800	Bushing - All Models
5	FLM900	Brine Well FLM 16 - 24 - 32
6	FLM11152	Brine Valve FLM 16 - 24 - 32
7	FLM1005	Grid Plate FLM 16 - 24 - 32

MODEL FLM-48
Brine Tank & Components



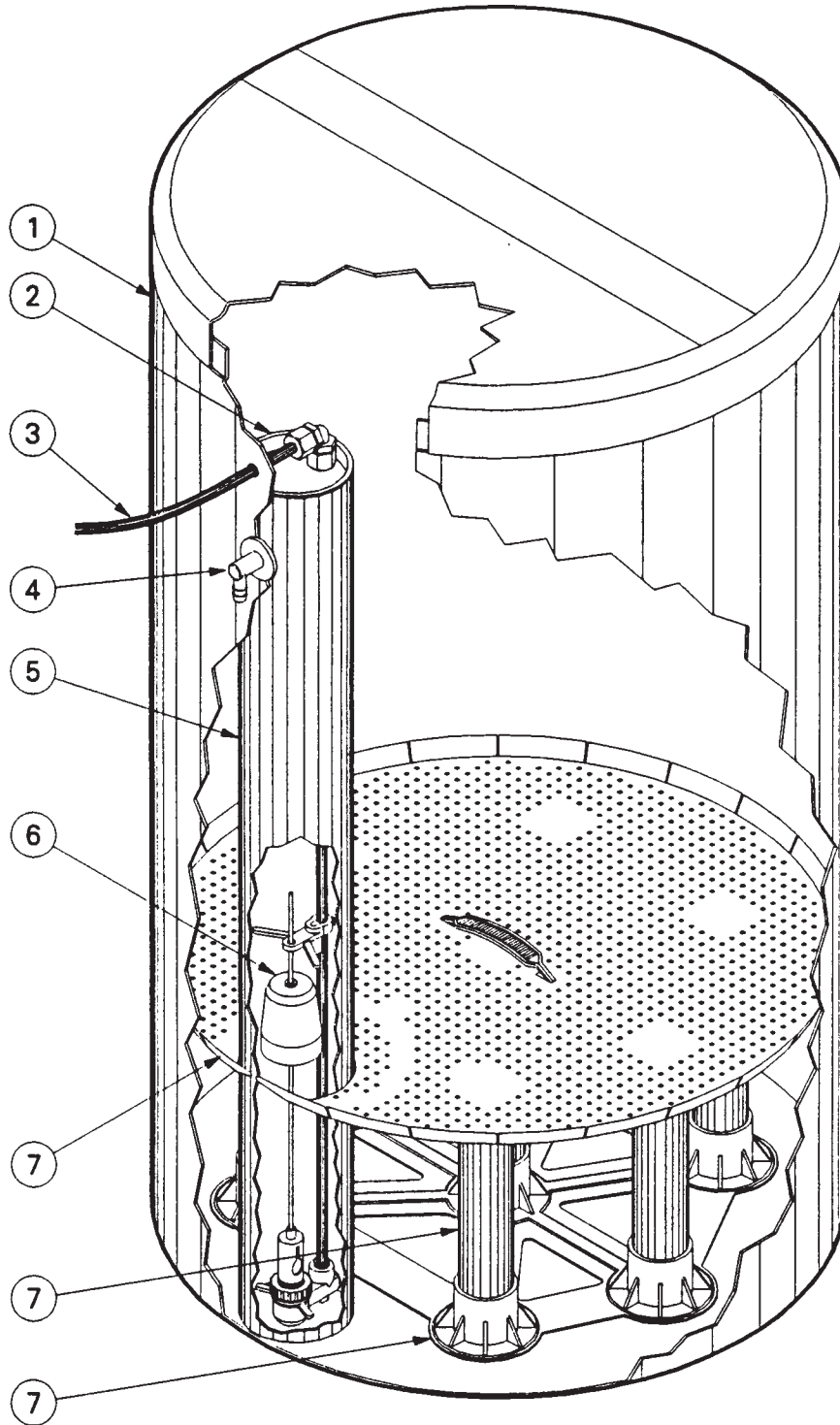
ITEM NO.	PART NO.	DESCRIPTION
1	FLM700	Brine Tank FLM-48
2	FLM1300	Brine Well Cover 4" All Models
3	FLM200	Brine Tube FLM-48
4	FLM800	Bushing - All Models
5	FLM900	Brine Well FLM-48
6	FLM11152	Brine Valve FLM-48
7	FLM1005	Grid Plate FLM-48
8	FLM1110	Support FLM-48 (4 Required)

MODEL FLM-64
Brine Tank & Components



ITEM NO.	PART NO.	DESCRIPTION
1	FLM705	Brine Tank FLM-64
2	FLM1300	Brine Well Cover 4" All Models
3	FLM200	Brine Tube FLM-64
4	FLM800	Bushing - All Models
5	FLM905	Brine Well FLM-64
6	FLM11152	Brine Valve FLM-64
7	FLM1005	Grid Plate FLM-64
8	FLM1110	Support FLM-64 (4 Required)

MODEL FLM-96
Brine Tank & Components



ITEM NO.	PART NO.	DESCRIPTION
1	FLM1131	Brine Tank FLM-96
2	FLM1300	Brine Well Cover 4" All Models
3	FLM210	Brine Tube FLM-96
4	FLM800	Bushing - All Models
5	FLM905	Brine Well FLM-96
6	FLM11152	Brine Valve FLM-96
7	FLM1080	Grid Plate Assembly FLM-96

service instructions

A. TO REPLACE TIME BRINE VALVE, INJECTORS, AND SCREEN

1. Unplug electrical cord from outlet.
2. Turn off water supply to conditioner:
 - a. If the conditioner installation has a "three valve" by-pass system, first open the valve in the by-pass line, then close the valves at the conditioner inlet and outlet.
 - b. If the conditioner has an integral by-pass valve, put it in the by-pass position.
 - c. If there is only a shut-off valve near the conditioner inlet, close it.
3. Relieve water pressure in the conditioner by putting the control in the backwash position momentarily. Return the control to the service position.
4. Disconnect brine tube and drain line connections at the injector body.
5. Remove the two injector body mounting screws. The injector and brine module can now be removed from the control valve. Remove and discard valve body "O" rings.
- 6A. To replace brine valve.
 1. Pull brine valve from injector body, also remove & discard "O" ring at bottom of brine valve hole.
 2. Apply silicone lubricant to new "O" ring and reinstall at bottom of brine valve hole.
 3. Apply silicone lubricant to "O" ring on new valve assembly and press into brine valve hole, shoulder on bushing should be flush with injector body.
- 6B. To replace injectors and screen.
 1. Remove injector cap and screen, discard "O" ring. Unscrew injector nozzle and throat from injector body.
 2. Screw in new injector throat and nozzle, be sure they are seated tightly. Install a new screen.
 3. Apply silicone lubricant to new "O" ring and install around oval extension on injector cap.
7. Apply silicone lubricant to three new "O" rings and install over three bosses on injector body.
8. Insert screws with washers thru injector cap and injector. Place this assembly thru hole in timer housing and into mating holes in the valve body. Tighten screws. (Be sure to reinstall brass spacers with injector on model 4600 valve.)
9. Reconnect brine tube and drain line.
10. Return by-pass or inlet valving to normal service position. Water pressure should now be applied to the conditioner, and any by-pass line shut off.
11. Check for leaks at all seal areas. Check drain seal with the control in the backwash position.
12. Plug electrical cord into outlet.
13. Set time of day and cycle the control valve manually to assure proper function. Make sure the control valve is returned to the service position.
14. Make sure there is enough brine in the brine tank.

15. Rotate program wheel counter-clockwise until it stops at regeneration position.
16. Start regeneration cycle manually if water is hard.

B. TO REPLACE TIMER

1. Unplug electrical cord from outlet.
2. Turn off water supply to conditioner:
 - a. If the conditioner installation has a "three valve" by-pass system, first open the valve in the by-pass line, then close the valves at the conditioner inlet and outlet.
 - b. If the conditioner has an integral by-pass valve, put it in the by-pass position.
 - c. If there is only a shut-off valve near the conditioner inlet, close it.
3. Relieve water pressure in the conditioner by putting the control in the backwash position momentarily. Return the control to the service position.
4. Pull cable out of meter cover. Remove the control valve back cover.
5. Remove screw and washer at drive yoke. Remove timer mounting screws. The entire timer assembly will now lift off easily.
6. Put new timer on top of valve. Be sure drive pin on main gear engages slot in drive yoke (rotate control knob if necessary).
7. Replace timer mounting screws. Replace screw and washer at drive yoke.
8. Return by-pass or inlet valving to normal service position. Water pressure should now be applied to the conditioner, and any by-pass line shut off.
9. Plug electrical cord into outlet.
10. Set time of day, program wheel, and salt usage. Cycle the control valve manually to assure proper function. Make sure the control valve is returned to the service position.
11. Replace the control valve back cover. Be sure grommet at cable hole is in place.
12. Make sure there is enough brine in the brine tank.
13. Rotate program wheel counter-clockwise until it stops at regeneration position.
14. Start regeneration cycle manually if water is hard.
15. Plug cable into meter cover, rotate cable to align drive flat if necessary.

C. TO REPLACE PISTON ASSEMBLY

1. Unplug electrical cord from outlet.
2. Turn off water supply to conditioner:
 - a. If the conditioner installation has a "three valve" by-pass system, first open the valve in the by-pass line, then close the valves at the conditioner inlet and outlet.
 - b. If the conditioner has an integral by-pass valve, put it in the by-pass position.
 - c. If there is only a shut-off valve near the conditioner inlet, close it.

service instructions

3. Relieve water pressure in the conditioner by putting the control in the backwash position momentarily. Return the control to the service position.
4. Pull cable out of meter cover. Remove the control valve back cover.
5. Remove screw and washer at drive yoke. Remove timer mounting screws. The entire timer assembly will now lift off easily. Remove end plug retainer plate.
6. Pull upward on end of piston yoke until assembly is out of valve.
7. Inspect the inside of the valve to make sure that all spacers and seals are in place, and that there is no foreign matter that would interfere with the valve operation.
8. Take new piston assembly as furnished and push piston into valve by means of the end plug. Twist yoke carefully in a clockwise direction to properly align it with drive gear. Replace end plug retainer plate.
9. Place timer on top of valve. Be sure drive pin on main gear engages slot in drive yoke (rotate control knob if necessary).
10. Replace timer mounting screws. Replace screw and washer at drive yoke.
11. Return by-pass or inlet valving to normal service position. Water pressure should now be applied to the conditioner, and any by-pass line shut off.
12. Plug electrical cord into outlet.
13. Set time of day. Cycle the control valve manually to assure proper function. Make sure the control valve is returned to the service position.
14. Replace the control valve back cover. Be sure grommet at cable hole is in place.
15. Make sure there is enough brine in the brine tank.
16. Rotate program wheel counter-clockwise until it stops at regeneration position.
17. Start regeneration cycle manually if water is hard.
18. Plug cable into meter cover. Rotate cable to align drive flat if necessary.

TO REPLACE SEALS AND SPACERS

1. Unplug electrical cord from outlet.
2. Turn off water supply to conditioner:
 - a. If the conditioner installation has a "three valve" by-pass system, first open the valve in the by-pass line, then close the valves at the conditioner inlet and outlet.
 - b. If the conditioner has an integral by-pass valve, put it in the by-pass position.
 - c. If there is only a shut-off valve near the conditioner inlet, close it.
3. Relieve water pressure in the conditioner by putting the control in the backwash position momentarily. Return the control to the service position.
4. Pull cable out of meter cover.
5. Remove screw and washer at drive yoke. Remove timer mounting screws. The entire timer assembly will now lift off easily. Remove end plug retainer plate.
6. Pull upward on end of piston rod yoke until assembly is out of valve. Remove and replace seals and spacers with fingers.

E. TO REPLACE METER

1. Unplug electrical cord from outlet.
2. Turn off water supply to conditioner:
 - a. If the conditioner installation has a "three valve" by-pass system, first open the valve in the by-pass line, then close the valves at the conditioner inlet and outlet.
 - b. If the conditioner has an integral by-pass valve, put it in the by-pass position.
 - c. If there is only a shut-off valve near the conditioner inlet, close it.
3. Relieve water pressure in the conditioner by putting the control in the backwash position momentarily. Return the control to the service position.
4. Pull cable out of meter cover.
5. Remove two screws and clips at by-pass valve or yoke. Pull resin tank away from plumbing connections.
6. Remove two screws and clips at control valve. Pull meter module out of control valve.
7. Apply silicone lubricant to four new "O" rings and assemble to four ports on new meter module.
8. Assemble meter to control valve. Note, meter portion of module must be assembled at valve outlet.
9. Attach two clips and screws at control valve. Be sure clip legs are firmly engaged with lugs.
10. Push resin tank back to the plumbing connections and engage meter ports with by-pass valve or yoke.
11. Attach two clips and screws at by-pass valve or yoke. Be sure clip legs are firmly engaged with lugs.
12. Return by-pass or inlet valving to normal service position. Water pressure should now be applied to the conditioner, and any by-pass line shut off.
13. Check for leaks at all seal areas.
14. Plug electrical cord into outlet.
15. Set time of day. Make sure the control valve is in the service position.
16. Rotate program wheel counter-clockwise until it stops at regeneration position.
17. Start regeneration cycle manually if water is hard.
18. Plug cable into meter cover. Rotate cable to align drive flat if necessary.

F. TO REPLACE METER COVER AND/OR IMPELLER

1. Unplug electrical cord from outlet.
2. Turn off water supply to conditioner:
 - a. If the conditioner installation has a "three valve" by-pass system, first open the valve in the by-pass line, then close the valves at the conditioner inlet and outlet.
 - b. If the conditioner has an integral by-pass valve, put it in the by-pass position.
 - c. If there is only a shut-off valve near the conditioner inlet, close it.
3. Relieve water pressure in the conditioner by putting the control in the backwash position momentarily. Return the control to the service position.
4. Pull cable out of meter cover.
5. Remove four screws on cover.
6. Lift cover off of meter module, discard "O" ring.
7. Remove and inspect impeller for gear or spindle damage, replace if necessary.
8. Apply silicone lubricant to new "O" ring and assemble to the smallest diameter on meter cover.
9. Assemble cover to meter module. Be sure impeller spindle enters freely into cover. Press firmly on cover and rotate if necessary to assist in assembly.
10. Replace four screws and tighten.
11. Return by-pass or inlet valving to normal service position. Water pressure should now be applied to the conditioner, and any by-pass line shut off.
12. Check for leaks at all seal areas.
13. Plug electrical cord into outlet.
14. Set time of day. Make sure the control valve is in the service position.
15. Rotate program wheel counter-clockwise until it stops at regeneration position.
16. Start regeneration cycle manually if water is hard.
17. Plug cable into meter cover. Rotate cable to align drive flat if necessary.

service instructions

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. Softener Delivers 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. Injectors Or Screen Plugged.

C. Replace Injectors and Screen.

D. Insufficient Water Flowing Into Brine Tank.

D. Check Brine Tank Fill Time And Clean Brine Line Flow Control If Plugged.

E. Hot Water Tank Hardness.

E. Repeated Flushings of the Hot Water Tank is Required.

F. Leak At Distributor Tube.

F. Make Sure Distributor Tube Is Not Cracked. Check "O" Ring And Tube Pilot.

G. Internal Valve Leak.

G. Replace Seals And Spacers And/Or Piston.

3. Unit Uses 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 Resin Cleaner To Resin 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 Resin Through Drain Line.

A. Air In Water System.

A. Assure That Well System Has Proper Air Eliminator Control. Check For Dry Well Condition.

6. Iron In Conditioned Water.

A. Fouled Resin Bed.

A. Check Backwash, Brine Draw And Brine Tank Fill, Increase Frequency of Regeneration. Increase Backwash Time.

7A. Excessive Water In Brine Tank.

A. Plugged Drain Line Flow Control.

A. Clean Flow Control.

PROBLEM	CAUSE	CORRECTION
7B. Salt Water In Service Line.	<ul style="list-style-type: none"> B. Plugged Injector System. C. Timer Not Cycling. D. Foreign Material In Brine Valve. E. Foreign Material In Brine Line Flow Control. 	<ul style="list-style-type: none"> B. Clean Injector And Replace Screen. C. Replace Timer. D. Clean Or Replace Brine Valve. E. Clean Brine Line Flow Control.
8. Softener Fails To Draw Brine.	<ul style="list-style-type: none"> A. Drain Line Flow Control Is Plugged. B. Injector Is Plugged. C. Injector Screen Plugged. D. Line Pressure Is Too Low. E. Internal Control Leak. 	<ul style="list-style-type: none"> A. Clean Drain Line Flow Control. B. Clean Or Replace Injectors. C. Replace Screen. D. Increase Line Pressure. (Line Pressure Must Be At Least 20 PSI At All Times.) E. Change Seals And Spacers and/or Piston Assembly.
9. Control Cycles Continuously.	<ul style="list-style-type: none"> A. Faulty Timer Mechanism 	<ul style="list-style-type: none"> A. Replace Timer.
10. Drain Flows Continuously.	<ul style="list-style-type: none"> A. Foreign Material In Control. B. Internal Control Leak. C. Control Valve Jammed In Brine Or Backwash Position. D. Timer Motor Stopped Or Jammed. 	<ul style="list-style-type: none"> A. Remove Piston Assembly And Inspect Bore, Remove Foreign Material & Check Control in Various Regeneration Positions. B. Replace Seals And/Or Piston Assembly. C. Replace Piston And Seals And Spacers. D. Replace Timer.

**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 output by observing rotation of small gear on front of timer (Note — program wheel must not be against regeneration stop for this check). Each tooth to tooth is approximately 30 gallons. If not performing properly, replace meter.

Service Assembly

Parts List

Part No.	Description
60102-00	Piston - Softener
60102-10	Piston - Filter
60102-20	Piston - Low Water
60125	Seal Kit
60084-XX	Injector
60032	Brine Valve
60514	Brine Cam, 3-18
60514-01	Brine Cam, 6-36
60514-02	Brine Cam, Minutes
60510	Coupling with Clip & Screws
60040	Bypass, Brass 3/4" NPT
60041	Bypass, Brass 1" NPT
60049	Bypass, Brass, Plastic
60086	Meter, Std.
60087	Meter, Ext.
60136-5600	Service Kit, Meter
60135-5600	Service Kit, Clock
14860	Skipper Wheel 7 Day
14381	Skipper Wheel 12 Day
60405-10	Meter Program Wheel, Std.
60405-20	Meter Program Wheel, Ext.

NOTES

SPECIFICATIONS

MODEL FL & FLM	Mineral Tank Inches	Brine Tank Inches	Salt Capacity Storage Lbs.	Shipping Weight Lbs.	FLM & CFLM Meter
16	7 x 44	18 x 33	200	75	3/4"
24	8 x 44	18 x 33	200	85	3/4"
32	9 x 48	18 x 33	200	105	3/4"
48	10 x 54	18 x 33	170	140	3/4"
64	12 x 48	18 x 40	300	240	3/4"
96	14 x 65	24 x 41	525	295	3/4"
MODEL CFL & CFLM					
16	8 x 35	13 x 21	160	105	3/4"
24	9 x 35	13 x 21	140	115	3/4"
32	10 x 35	13 x 21	140	130	3/4"

CAPACITY CHART

MODEL FL & FLM	Gravel In.	Resin Cu. Ft.	Rated Capacity Low Salt Grains @ Lbs.	Rated Capacity Medium Salt Grains @ Lbs.	Rated Capacity High Salt Grains @ Lbs.	Flow Rate Cont.	PSI Drop	Flow Rate Peak	PSI Drop	BKW GPM
16	4	.50	9,800 @ 3.0	14,100 @ 5.0	16,600 @ 7.5	6.1	7.4	10.5	15	1.2
24	4	.75	14,700 @ 4.5	21,200 @ 7.5	24,900 @ 11.3	8.0	9.6	11.4	15	1.5
32	4	1.00	19,600 @ 6.0	28,200 @ 10.0	33,200 @ 15.0	10.0	11.6	12.3	15	2.0
48	4	1.50	29,400 @ 9.0	42,300 @ 15.0	49,800 @ 22.5	10.0	11.8	11.8	15	2.4
64	4	2.00	39,200 @ 12.0	56,400 @ 20.0	66,400 @ 30.0	10.7	10.0	13.6	15	3.0
96	4	3.00	58,800 @ 18.0	84,600 @ 30.0	99,600 @ 45.0	11.5	10.6	14.0	15	5.0
MODEL CFL & CFLM										
16	4	.50	9,800 @ 3.0	14,100 @ 5.0	16,600 @ 7.5	8.0	7.8	12.4	15	1.2
24	4	.75	14,700 @ 4.5	21,200 @ 7.5	24,900 @ 11.3	9.0	8.7	12.7	15	1.5
32	4	1.00	19,600 @ 6.0	28,200 @ 10.0	33,200 @ 15.0	10.4	10.0	13.5	15	2.0

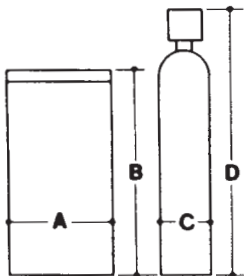
FL — Models Two (2) Tank System with 12-Day Time Clock.
 FLM — Models Two (2) Tank System Meter Initiated.
 CFL — Models One (1) Piece Cabinet with 12-Day Time Clock.
 CFLM — Models One (1) Piece Cabinet Meter Initiated.

OPERATING CONDITIONS

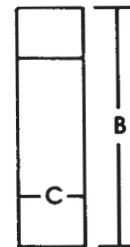
1. Temperature not to exceed 100°F and should not be subject to freezing.
2. Water pressure, minimum 25 PSI and maximum 120 PSI.
3. The drain line should not be smaller than 1/2" not to exceed 8 ft. in height or over 20 feet in length.
4. The brine tank should not be placed more than 10 ft. away.
5. Always provide a three (3) way by-pass system.

WARRANTY

- 3 YEARS — ALL PARTS
- 5 YEARS — MINERAL TANK
- 5 YEARS — BRINE TANK



MODEL FL-FLM	DIMENSIONS				MODEL CFL-CFLM			
	A	B	C	D		A	B	C
16	18	33	7	54	16	21	44	13
24	18	33	8	54	24	21	44	13
32	18	33	9	58	32	21	44	13
48	18	33	10	64				
64	18	40	12	58				
96	24	41	14	75				



Form No. 90 FL-FLM CFL-CFLM Series

DEALER



"SINCE 1936"



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