

OWNER'S MANUAL

Models

SFM-1

SFM-2

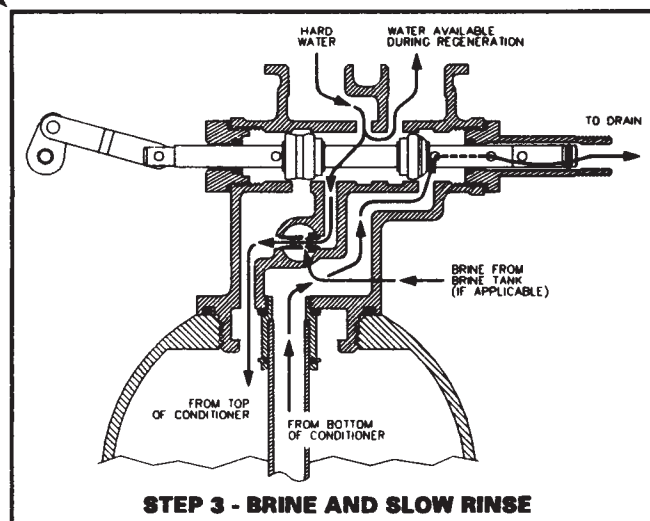
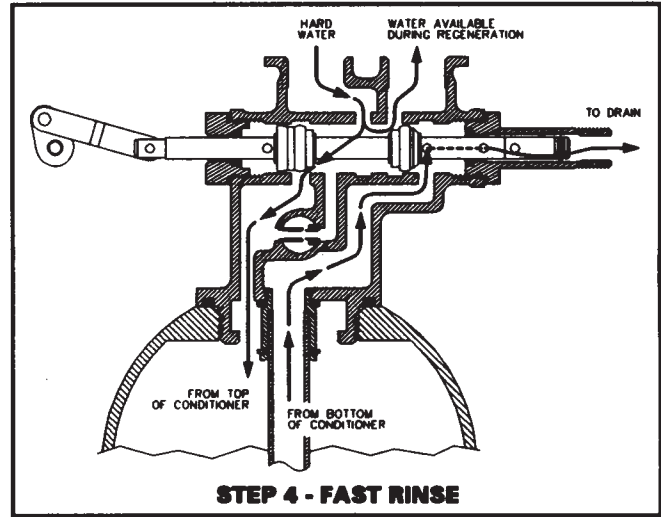
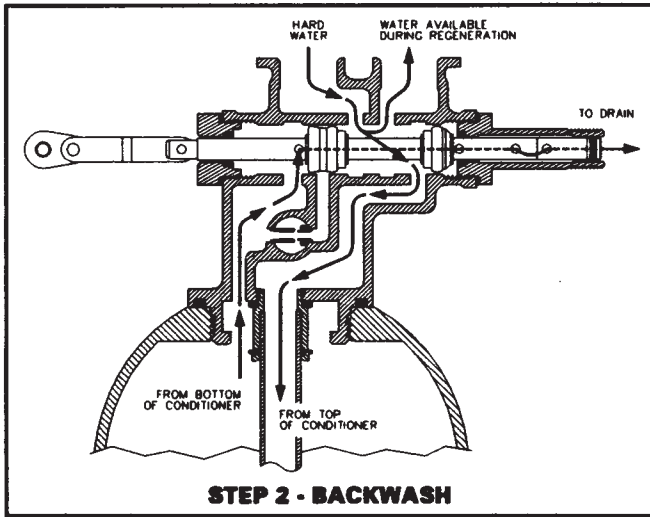
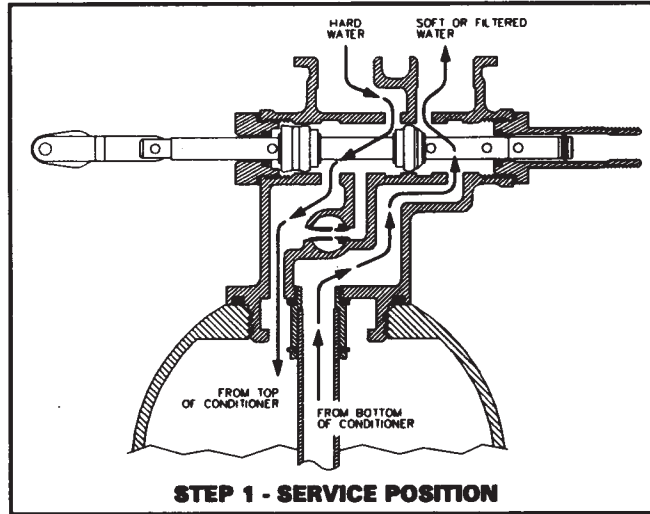
SFM-3

Softener-Filter Combination

METER INITIATED

MODEL SFM 1 - 2 - 3

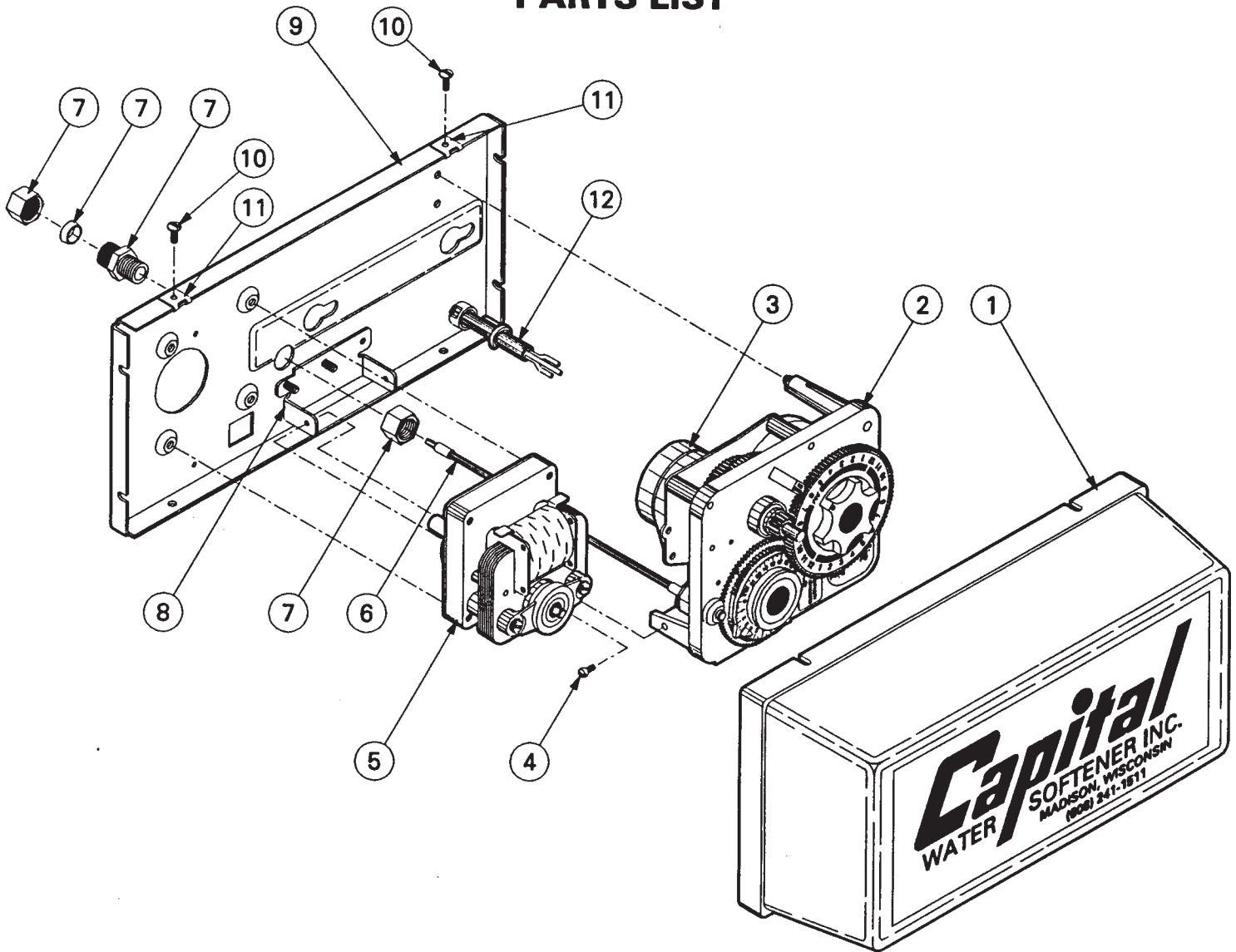
Water Conditioner Flow Diagrams



MODEL SFM 1-2-3

Control Valve Drive Assembly - Meter Initiated

PARTS LIST

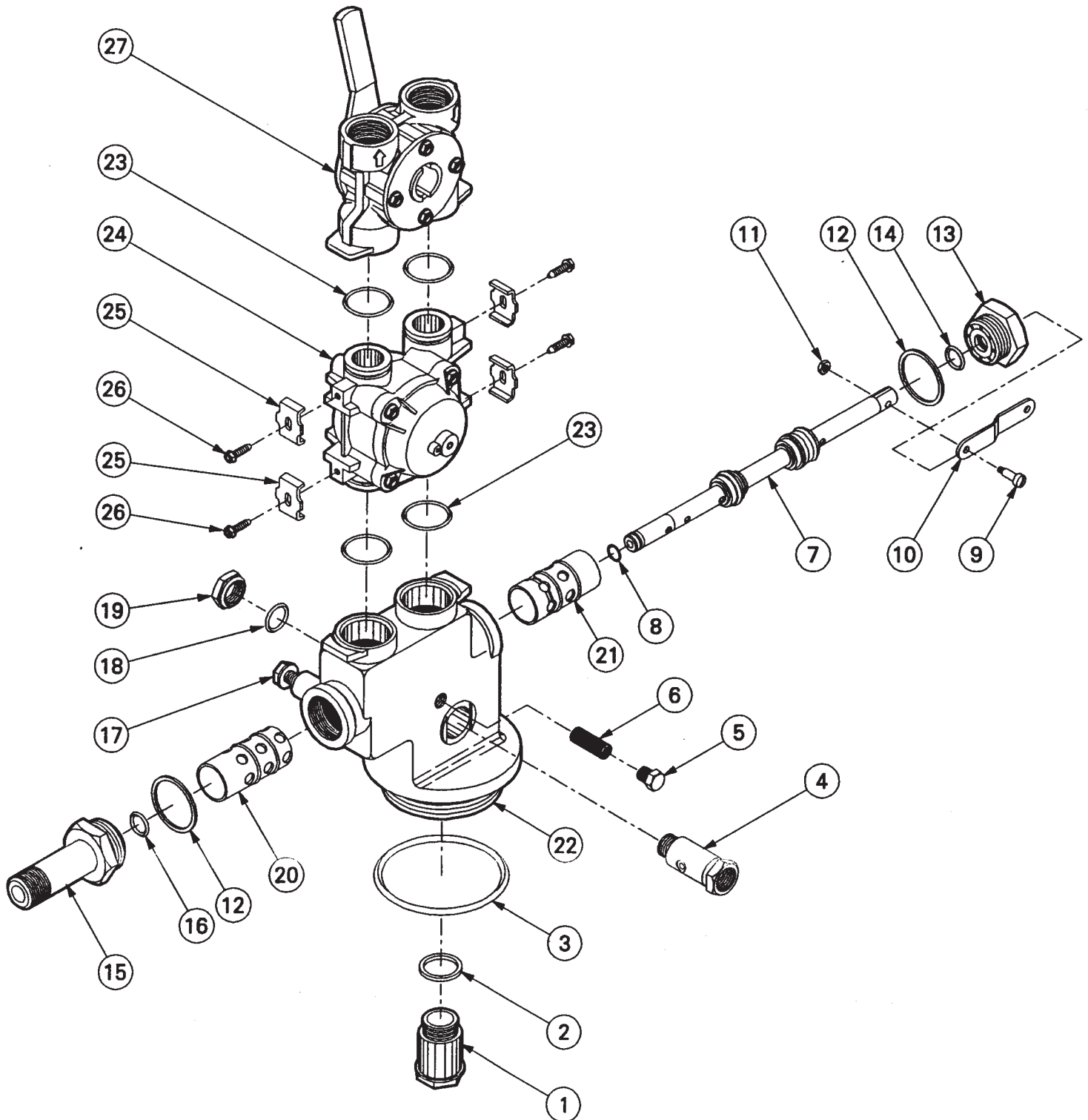


ITEM NO.	STOCK NO.	PART NO.	DESCRIPTION
1	610260	71 - 61	Cover
2	F60306-130	3210	Timer - Regular Range
	F60306-320	3210	Timer - Extended Range
3	F13944	3210	Timer Motor Only
4	F11384	3210	Timer Mounting Screw
5	610270	71 - 66	Drive Motor with Cam 125V
6	F1378	3210	Meter Cable
7	A68EC	3210	1/4 x 3/8 Fitting with 5/8 Lock Nut
8	F13881	3210	Timer Hinge Bracket
9	610430	71 - 60 3210	Frame Assembly Only
10	610290	71 - 67A	Cover Mounting Screw
11	610240	71 - 60A	Screw Retainer
12	610300	71 - 82	Cord with Strain Relief & Grommet

MODEL SFM -1-2-3

Control Valve Assembly

(See other page for Parts List)



MODEL SFM -1-2-3*Control Valve Assembly***PARTS LIST**

(See other page for Illustration)

ITEM NO.	STOCK NO.	PART NO.	DESCRIPTION
1	610050A	71 - 01DA	Riser Insert - 1.050"
2	610040	71 - 01C	Gasket
3	610020	71 - 01A	O-Ring 337
4	610122	71 - 13A	Injector 50 SFM-1-2
	610123	71 - 13A	Injector 46 SFM-3
5	610330	71 - 84	Plug
6	610340	71 - 84A	Screen
7	610168	71 - 23T2	Plunger Assembly Comp. - 2.0 GPM BKW
	610173	71 - 23TI	Plunger Assembly Comp. - 2.5 GPM BKW
	610169	71 - 23T	Plunger Assembly Open End
8	610370	71 - 011	O-Ring 011
9	610100	71 - 10	Link Bolt
10	610090	71 - 09	Link
11	610110	71 - 10A	Link Bolt Nut
12	610200	71 - 31	Gasket
13	610180	71 - 26	Stem Seal
14	610190	71 - 26A	O-Ring 111
15	610070	71 - 05	Drain Seal
16	610060	71 - 05A	O-Ring 111
17	610230	71 - 51	Bolt with Washer
18	610140	71 - 13C	O-Ring 113
19	610130	71 - 13B	Lock Nut
20	610360	71 - 002	Drain Side Liner Assembly
21	610350	71 - 001	Stem Side Liner Assembly
22	110000	11 - 01	MTM8 Body Assembly
23	-	F13305	O-Ring 119
24	-	F60086	Meter - Regular Range - 300 to 2100 Gallons
	-	F60087	Meter - Extended Range - 1500 to 10,500 Gallons
25	-	F13255	Adapter Clip
26	-	F13314	Screw - Adapter Coupling
27	-	F60040 - 01	3/4" Bypass Assembly - Nickel Plated
	-	F60041 - 01	1" Bypass Assembly - Nickel Plated
28	6101694	71 - 834	Flow Control External SFM-3 (Not Shown)

MODEL SFM -1-2-3 - PROGRAMMING PROCEDURES

DEMAND REGENERATION CONTROL

To Set Time of Day:

Depress red time set button and turn 24 hr. gear to correct time of day. unit will regenerate as necessary at 2:00 A.M.

To Set Gallons Label:

While holding down program wheel lift gallons label dial and set white dot on program wheel to proper gallon setting. (Number times 100 gallons, 8 = 800 gallons, 12 = 1200 gallons.)

How to Calculate Proper Gallon Setting

You must know 3 (three) things to set the gallons label of your water conditioner.

1. Know the grains capacity of the water conditioner.
2. Know the hardness in grains per gallon of your water. (Can be tested by your local plumber or water conditioning dealer.)
3. Know the number of people living in the household at the present time. Reserve capacity will be determined by allowing 70 gallons reserve per person.

Example:

32,000 grains capacity water conditioner
30 grain water hardness
3 people in family

32,000 divided by 30 grain water = 1066 usable. gallons. 3 people x's 70 gallon reserve each person = 210 gallons. 1066 useable gallons minus 210 reserve gallons = 856 gallons, so set the white dot on program wheel at approx. 850 gallons (half way between 8 & 9 on gallons label wheel).

How to Manually Regenerate Your Water Conditioner At Any Time:

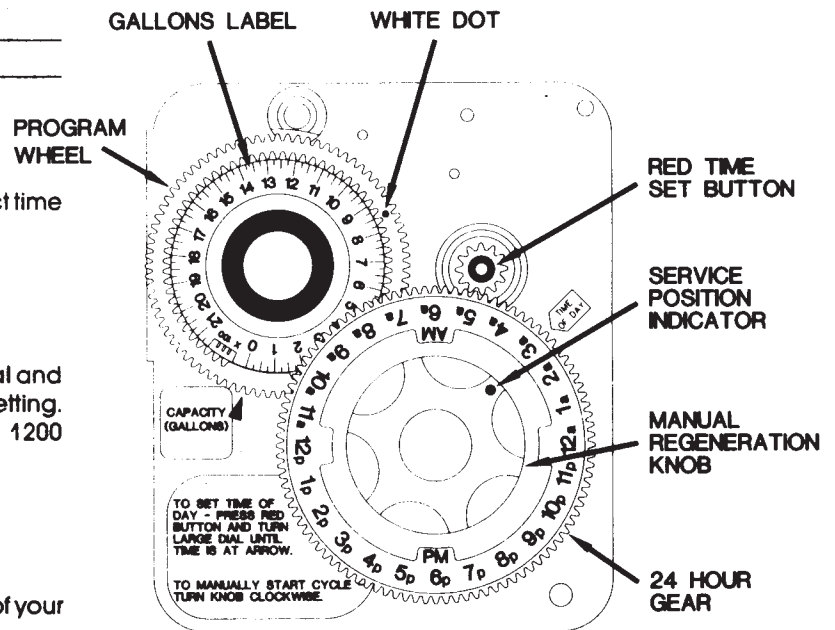
Turn the manual regeneration knob clockwise.

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 third of this time.

In any event, conditioned water may be drawn after rinse water stops flowing from the water conditioner drain line.



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.

To expose cycle program wheel, disconnect cable from meter-motor head, grasp timer in upper right hand corner and pull, releasing snap retainer and swinging timer down.

To change the regeneration cycle program, the program wheel must be removed. Grasp program wheel and squeeze protruding lugs towards 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.

How to Change the Length of the Backwash Time:

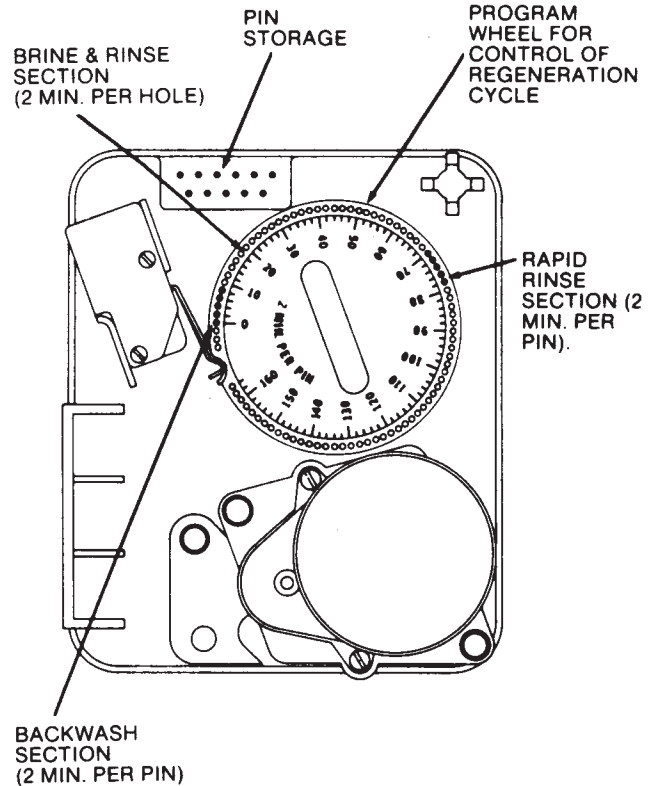
The program wheel as shown in the drawing is in the service position. As you look at the numbered side of the program wheel, the group of pins starting at zero determines the length of time that your unit will backwash.

FOR EXAMPLE: If there are 3 pins in this section, the time of backwash will be 6 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 Time:

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.)

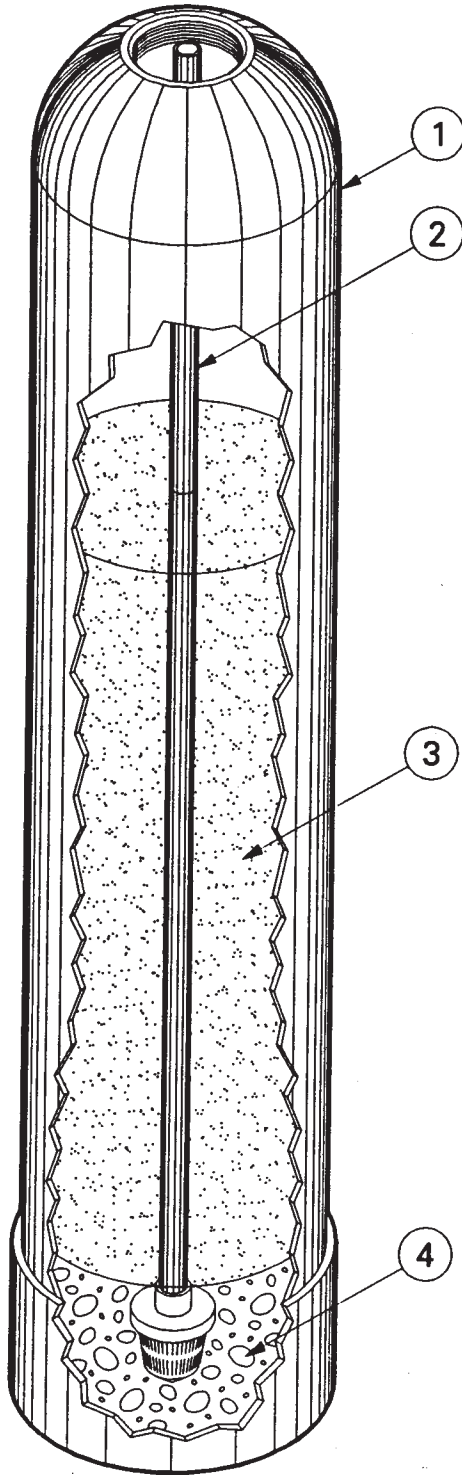
To change the length of rapid rinse time, add or remove pins at the higher numbered end of this section as required. The number of pins times two equals the rapid rinse time in minutes.

The regeneration cycle is complete when the outer micro-switch drops off the last pin in the rapid rinse group of pins. The program wheel, however, will continue to rotate until the inner micro-switch drops into the notch on the program wheel.

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

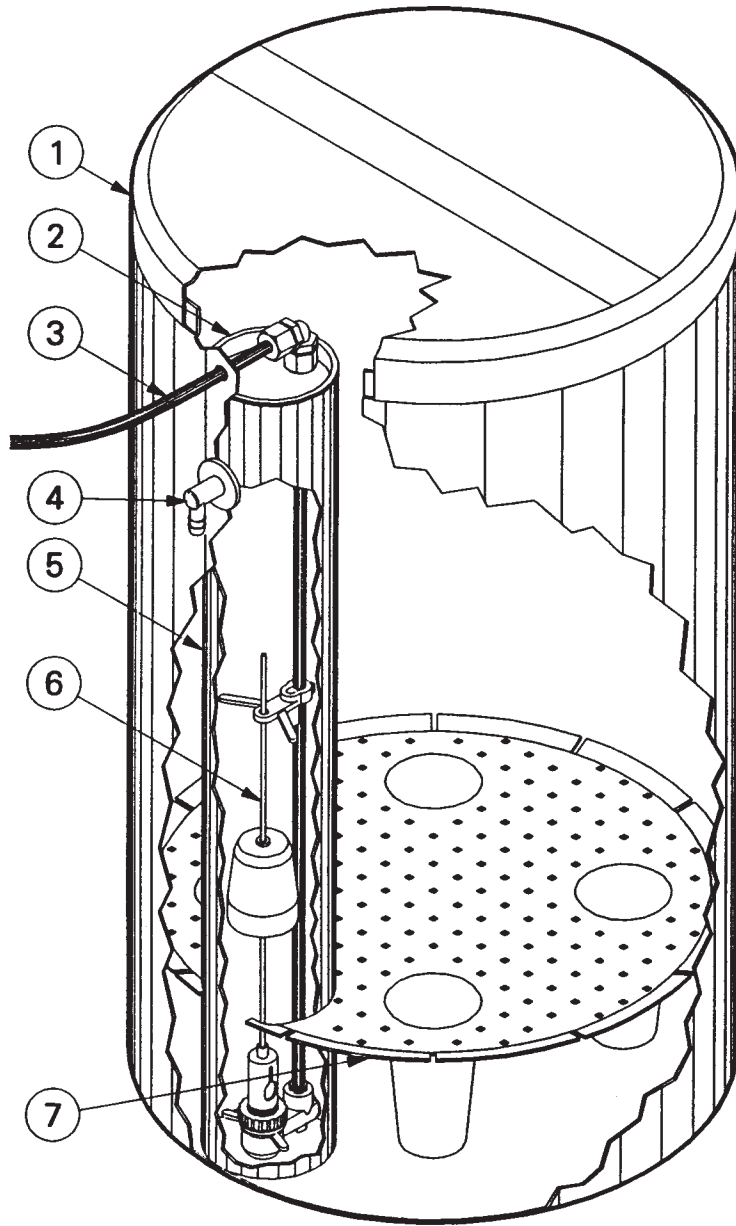
MODEL SFM 1 - 2 - 3

Mineral Tank & Components



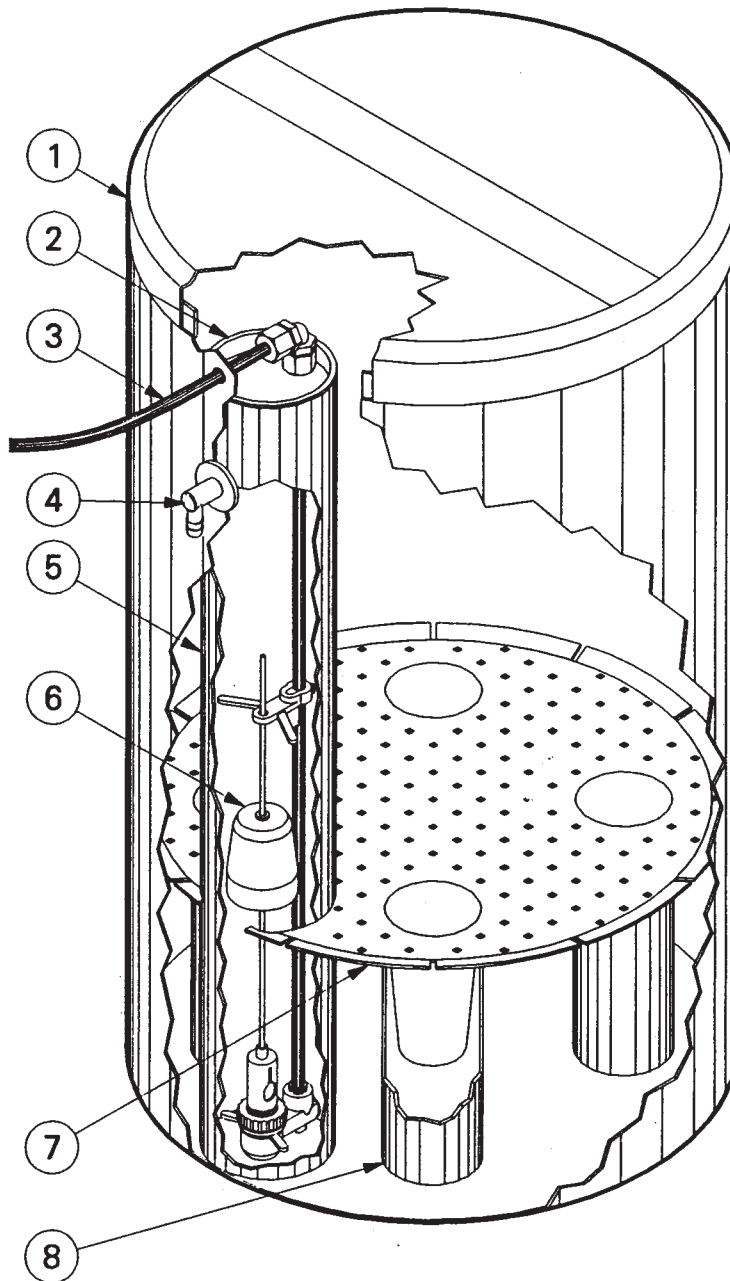
ITEM NO.	PART NO.	DESCRIPTION
1	SFM050	Tank SFM-1
	SFM060	Tank SFM-2
	SFM070	Tank SFM-3
2	SFM330	Distributor Tube SFM-1 & SFM-2
	SFM360	Distributor Tube SFM-3
3	SFM145	Mineral SFM-1
	SFM165	Mineral SFM-2
	SFM175	Mineral SFM-3
4	SFM255	Underbedding SFM-1
	SFM265	Underbedding SFM-2
	SFM275	Underbedding SFM-3

MODEL SFM-1
Brine Tank & Components



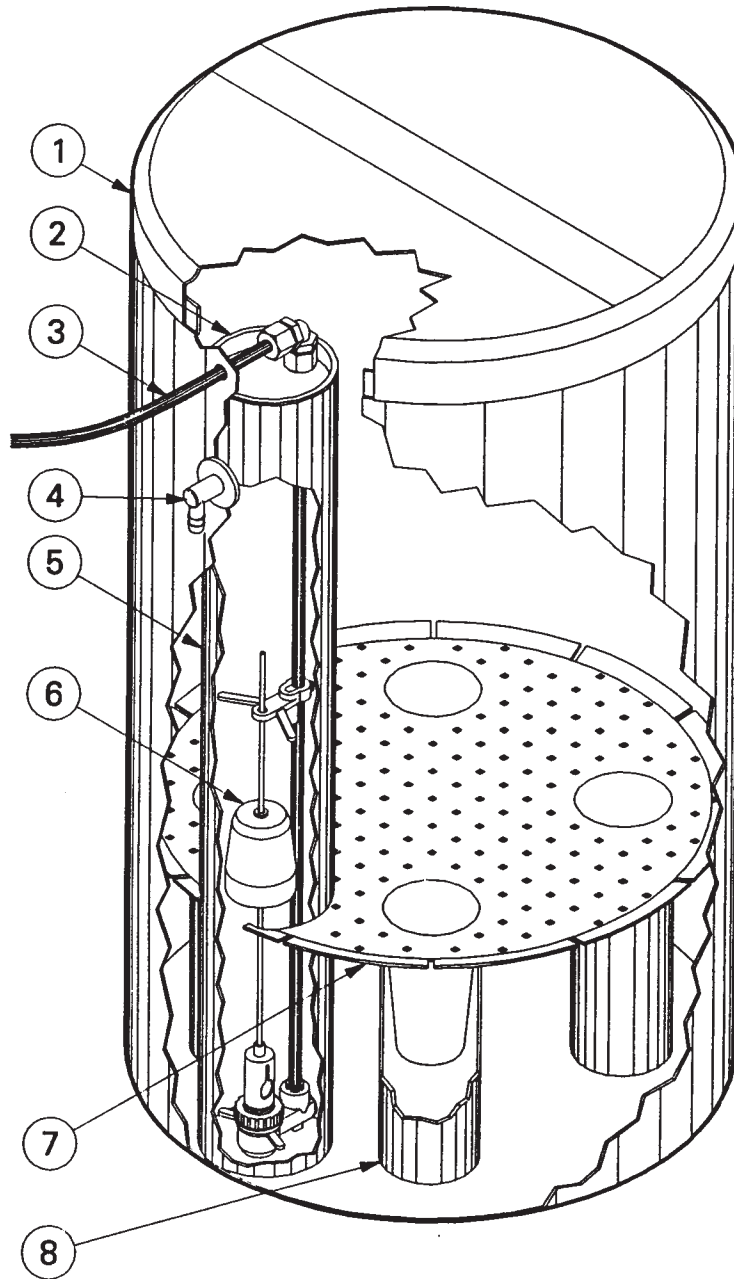
ITEM NO.	PART NO.	DESCRIPTION
1	SFM700	Brine Tank SFM-1
2	SFM1300	Brine Well Cover 4" All Models
3	SFM200	Brine Tube SFM-1
4	SFM800	Bushing - All Models
5	SFM900	Brine Well SFM-1
6	SFM11152	Brine Valve SFM-1
7	SFM1005	Grid Plate SFM-1

MODEL SFM-2
Brine Tank & Components



ITEM NO.	PART NO.	DESCRIPTION
1	SFM700	Brine Tank SFM-2
2	SFM1300	Brine Well Cover 4" All Models
3	SFM200	Brine Tube SFM-2
4	SFM800	Bushing - All Models
5	SFM900	Brine Well SFM-2
6	SFM11152	Brine Valve SFM-2
7	SFM1005	Grid Plate SFM-2
8	SFM1110	Support SFM-2 (4 Required)

MODEL SFM-3
Brine Tank & Components



ITEM NO.	PART NO.	DESCRIPTION
1	SFM705	Brine Tank SFM-3
2	SFM1300	Brine Well Cover 4' All Models
3	SFM210	Brine Tube SFM-3
4	SFM800	Bushing - All Models
5	SFM910	Brine Well SFM-3
6	SFM11152A	Brine Valve SFM-3
7	SFM1005	Grid Plate SFM-3
8	SFM1110	Support SFM-3 (4 Required)

MAINTENANCE AND TROUBLE SHOOTING

GENERAL

When problems develop with the water softener, locating the source of the trouble depends on observing small details. Also, there may be more than one source of trouble and all of these must be corrected in order to avoid return visits to fix the softener. Before doing any trouble-shooting, these items should be checked:

1. Make sure there is an uninterrupted source of electricity to the unit.
2. Check the Program Timer to see if it operates the valve properly and the length of time for each regeneration step is correct.
3. Check all regeneration flow rates to see if they meet the manufacturer's recommendations.
4. Check the water inlet pressure with a good gauge.
5. Check to see if there is enough salt in the brine tank to make a saturated brine solution.

The following are problems that may be encountered:

PROBLEM — NO SOFT WATER

1. Hard water bypass valve may be open.
2. The softener is not regenerated often enough. Check the soft water usage against the capacity of the softener and reset the frequency of regeneration if necessary. Check for leaky faucets.
3. Driving motor is not operating the valve.
 - a. There is no electricity to the control. In this case check for a blown fuse or check to see if control is connected to a circuit controlled by a light switch.
 - b. Program Timer is not operating the valve automatically. Control unit should be returned to factory for checking.
4. Faulty regeneration or Driving Motor is operating the valve but valve is not drawing brine.
 - a. There is no suction in the brine line when the valve is in the brining position. Measure flow rate of water coming from the drain and check against the following:
 - (1) If flow rate is less than 1/4 gpm, check for clogged injector, and check water pressure. Water pressure should be at least 20 psi.
 - (2) If flow rate is more than 3/4 gpm, check the following:
 - (a) Check the injector to see if it is the proper size or if jet opening has been corroded to a larger size.
 - (b) If injector looks alright, install a new plunger.
 - (3) If the flowrate is between above figures, check for the following:
 - (a) Obstruction in the drain line.
 - (b) Check to see if injector is correctly installed in the valve body. The indentation on the hex head of the nozzle match with the similar indentation on the valve body.
 - (c) Nozzle may have lost drawing efficiency. Remove nozzle and examine to see if corrosion has altered the jet and throat openings or if it is plugged with foreign matter.
 - b. There is suction in the brine line at the point where it is connected to the valve body, but the valve still does not draw brine.
 - (1) The brine line is clogged.
 - (2) The brine valve is not operating properly. Check the air shut-off float in the brine valve.

5. There is not enough salt used in each regeneration to properly regenerate the softener. Check the amount of salt required for regeneration and then check float setting of the brine valve.
6. Hot-cold water mixing valve is allowing hard cold water to enter soft water lines.

PROBLEM — SALT IN THE HOUSE LINES AFTER REGENERATION.

1. Not enough time allowed to rinse out brine. Check the length of rinse time on the Program Timer. For pressures of 40 psi or more, rinse time setting should be 40 minutes. For pressures below 40 psi, rinse time setting should be 60 minutes or more.
2. Brine injector has lost its efficiency, resulting in increased brine time and decreased rinsing time. Check points outlined under 4 - 1 of No Soft Water problem.
3. Install larger injector to give faster rinse flow rate, thus compensating for low water pressure.
4. Brine valve setting is such that too much brine is used in regeneration.

PROBLEM — WATER RUNNING FROM THE DRAIN .

1. If the valve plunger is in the service position and water is running from the drain, replace the drain nut if it is corroded, or replace the drain seal O-ring.
2. If the valve plunger is at a position other than service, the driving motor has been stalled by an obstruction to the travel of the plunger. The driving motor is protected by thermal cut-off, which prevents the coil from burning out. After freeing the plunger and allowing the motor to cool about five minutes, slowly turn the Circuit Timing Wheel in a clockwise direction until the driving motor begins to move the plunger. As soon as this happens, stop turning the Circuit Timing Wheel. The regeneration cycle will be completed by the Program Timer, or it can be completed by manually turning the Circuit Timing Wheel.
3. If the plunger is at a position other than service and the plunger travel is free, the Program Timer is not operating the valve properly. In this case the control unit should be returned to the factory for checking.

PROBLEM — AIR IN HOUSE LINES AFTER REGENERATION.

1. The air check in the brine valve is not operating properly. Check the seat of the air check, the air shut-off float, and for any foreign material in the air check.
2. Check to see if the stem of the brine valve is seating properly so as not to allow air to enter the brine valve at this point.

PROBLEM — BRINE VALVE WILL NOT REFILL.

This problem may be tied in with the problem of air in the house lines. If any air leaks into the brine valve and brine line after the brine draw is completed, this air will be compressed when the softener valve plunger is returned to the service position and the brine tank begins to refill. While the brine tank is refilling, this air expands rapidly after it passes the refill check and increases the velocity of the water in front of it to such an extent that it may cause the brine valve to blow shut.

