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DCO # 4625

Installation and
Operating
Instructions
with Parts List

**CULLIGAN
MEDALLIST SERIES™
AUTOMATIC
WATER CONDITIONER
MODELS FROM 2002**


Culligan®

Attention Culligan Customer:

The installation, service and maintenance of this equipment should be rendered by a qualified and trained service technician. Your local independently operated Culligan dealer employs trained service and maintenance personnel who are experienced in the installation, function and repair of Culligan equipment. This publication is written specifically for these individuals and is intended for their use.

We encourage Culligan users to learn about Culligan products, but we believe that product knowledge is best obtained by consulting with your Culligan dealer. Untrained individuals who use this manual assume the risk of any resulting property damage or personal injury.

 **WARNING - PRIOR TO SERVICING EQUIPMENT, DISCONNECT POWER SUPPLY TO PREVENT ELECTRICAL SHOCK.**

 **WARNING - IF INCORRECTLY INSTALLED, OPERATED OR MAINTAINED, THIS PRODUCT CAN CAUSE SEVERE INJURY. THOSE WHO INSTALL, OPERATE, OR MAINTAIN THIS PRODUCT SHOULD BE TRAINED IN ITS PROPER USE, WARNED OF ITS DANGERS, AND SHOULD READ THE ENTIRE MANUAL BEFORE ATTEMPTING TO INSTALL, OPERATE OR MAINTAIN THIS PRODUCT.**

IF THIS EQUIPMENT IS TO BE USED IN THE TREATMENT OF DRINKING WATER, THE WATER MUST BE MICROBIOLOGICALLY SAFE.

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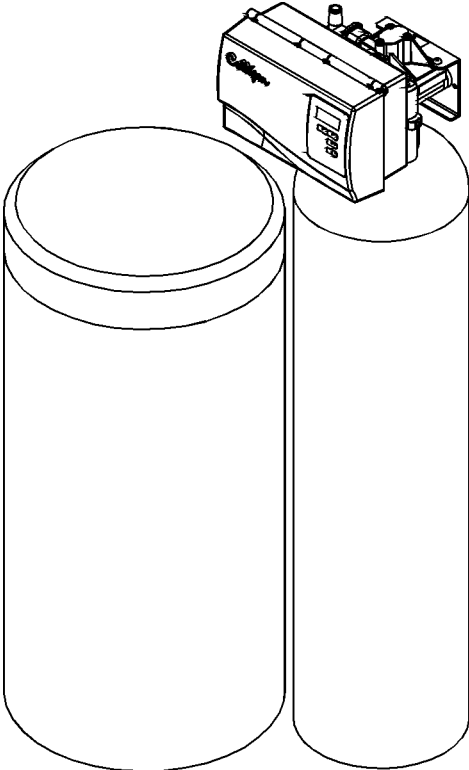


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Introduction

The Culligan Medallist Series™ Water Softeners are tested and validated by WQA and certified by UL against ANSI/NSF Standard 44 for the effective reduction of calcium and magnesium along with Barium and Radium 226/228*.



ANSI/NSF 44
Water Softener
81WN

Because the ability of the unit to remove barium and radium is based upon reducing hardness to less than 1.0 grains per gallon, effective hardness reduction should be periodically verified. Hardness sample kits are available through your Culligan dealer.

For installations in Massachusetts, Massachusetts Plumbing Code 248 CMR shall be adhered to. Consult your licensed plumber for installation of this system.

SAFE PRACTICES

Throughout this manual there are paragraphs set off by special headings.

NOTICE: Notice is used to emphasize installation, operation or maintenance information which is important, but does not present any hazard.

Example: NOTICE: *The nipple must extend no more than 1 inch above the cover plate.*

⚠ CAUTION: Caution is used when failure to follow directions could result in damage to equipment or property. Example:

⚠ CAUTION: *Disassembly while under water pressure can result in flooding.*

⚠ WARNING: Warning is used to indicate a hazard which could cause injury or death if ignored. Example:

⚠ WARNING! ELECTRICAL SHOCK HAZARD! UNPLUG THE UNIT BEFORE REMOVING THE COVER OR ACCESSING ANY INTERNAL CONTROL PARTS.

SERIAL NUMBERS

The control valve serial number is located on the back of the control.

The media tank serial number is located on the top surface of the tank.

NOTICE: *Do not remove or destroy the serial number. It must be referenced on request for warranty repair or replacement.*

This publication is based on information available when approved for printing. Continuing design refinement could cause changes that may not be included in this publication.

* Verified utilizing hardness surrogate per ANSI/NSF Standard 44.

CULLIGAN MEDALLIST SERIES™ WATER CONDITIONER WITH TIMECLOCK OR SOFT-MINDER® METER

	8" Model	30 Model	45 Model
Control Valve Type	5-cycle Reinforced Thermoplastic	5-cycle Reinforced Thermoplastic	5-cycle Reinforced Thermoplastic
Overall Conditioner Height	51 in. 1,295 mm	49 in. 1,245 mm	63 in. 1,600 mm
Media Tank Dimensions (Dia. x Ht.)	8 x 44 in. 203 x 1,118 mm	10 x 40 in. 254 x 1,016 mm	10 x 54 in. 254 x 1,372 mm
Salt Storage Tank Dimensions (Dia. x Ht.)	16 x 43 in. 457 x 1,092 mm	18 x 43 in. 457 x 1,092 mm	18 x 43 in. 457 x 1,092 mm
	18 x 43 in. 457 x 1,092 mm		
Exchange Media, Type & Quantity	Cullex [®] Media, 0.7 ft ³	Cullex Media, 1.0 ft ³	Cullex Media, 1.5 ft ³
Underbedding, Type & Quantity	Culsan [®] Underbedding, 6 lb.	Culsan Underbedding, 8 lb.	Culsan Underbedding, 8 lb.
Exchange Capacity @ Salt Dosage Per Recharge ¹	18,300 gr @ 4 lb.	20,200 gr @ 5 lb.	24,900 gr @ 6 lb.
	25,100 gr @ 9 lb.	29,400 gr @ 11 lb.	39,200 gr @ 14 lb.
	27,500 gr @ 12 lb.	35,000 gr @ 17 lb.	43,500 gr @ 20 lb.
Efficiency at Rated Salt Dosage ⁵	4 lb. salt dosage: 4570 gr./lb.	5 lb. salt dosage 4050 gr./lb.	6 lb. salt dosage 4150 gr./lb.
Freeboard to Media ²	20.5 - 21.5 in.	17 - 18 in.	19.75 - 21.75 in.
Freeboard to Underbedding ³	42.0 - 42.5 in.	39.6 - 40.1 in.	53.8 - 54.3 in.
Salt Storage Capacity	250 lb. or 375 lb.	375 lb.	375 lb.
Rated Service Flow @ Pressure Drop	5.9 gpm @ 12 psi	7.2 gpm @ 12 psi	7.0 gpm @ 13 psi
Total Hardness, Maximum	75 gpg	99 gpg	99 gpg
Total Iron, Maximum (dissolved)	5 ppm	5 ppm	5 ppm
Hardness to Iron Ratio, Minimum	8 gpg to 1 ppm 140 mg/L to 1 mg/L	8 gpg to 1 ppm 140 mg/L to 1 mg/L	8 gpg to 1 ppm 140 mg/L to 1 mg/L
Operating Pressure	20 - 125 psi 140 - 860 kPa	20 - 125 psi 140 - 860 kPa	20 - 125 psi 140 - 860 kPa
Operating Pressure (Canada)	20 - 90 psi 140 - 620 kPa	20 - 90 psi 140 - 620 kPa	20 - 90 psi 140 - 620 kPa
Operating Temperature	33 - 120°F 1 - 50°C	33 - 120°F 1 - 50°C	33 - 120°F 1 - 50°C
Electrical Requirements	24V/60 Hz	24V/60 Hz	24V/60 Hz
Electrical Power Consumption, Min./Max.	3 Watts/35 Watts	3 Watts/35 Watts	3 Watts/35 Watts
Drain Flow, Maximum ⁴	1.1 gpm	2.0 gpm	2.1 gpm
Recharge Time, Average	85 min.	64 min.	64 min.
Recharge Water Consumption	23.3 gal.	61 gal.	65 gal.

1 Capacities and corresponding salt dosages pertain to low hardness waters. Capacities given per recharge

2 Measured from top of media to top of inlet fitting (backwashed and drained)

3 Measured from top of underbedding to top of inlet fitting

4 Backwash at 120 psi (830 kPa)

5 Efficiency rating only valid at stated salt dosage on softminder models and is efficiency rated according to ANSI/NSF

Preparation

COMPONENT DESCRIPTION

The water conditioner is shipped from the factory in a minimum of four cartons. Remove all components from their cartons and inspect them before starting installation.

Control Valve Assembly - Includes the 5-cycle regeneration control valve and the Accusoft[®] Microprocessor. A small parts pack will contain additional installation hardware. An Owner's Guide is included.

Media Tank - Includes the media tank complete with Cullex[®] ion exchange resin, underbedding and outlet manifold.

Salt Storage Tank Assembly - Includes salt storage container with support plate and Dubl-Safe[™] brine refill valve and chamber.

Bypass Valve - Includes the Cul-Flo-Valv[®], interconnecting couplings, and the screws necessary for assembly.

TOOLS AND MATERIALS

The following tools and supplies will be needed, depending on installation method. **Observe all applicable codes.**

All Installations

- Safety glasses
- Phillips screwdrivers, small and medium tip.
- Gauge assembly (PN 00304450 or equivalent)
- Silicone lubricant (PN 00471507 or equivalent) - **DO NOT USE PETROLEUM-BASED LUBRICANTS**
- A bucket, preferably light-colored
- Towels

Special Tools

- Torch, solder and flux for sweat copper connections
- Threading tools, pipe wrenches and thread sealer for threaded connections.
- Saw, solvent and cement for plastic pipe connections.

Materials

- Brine line, 5/16" (PN 00303128 or equivalent)
- Drain line, 1/2" (PN 00303082, gray, semi-flexible; or PN 00-3319-46, black, semi-rigid; or equivalent)
- Thread sealing tape
- Pressure reducing valve (if pressure exceeds 125 psi [860 kPa], PN 00490900 or equivalent)
- Pipe and fittings suited to the type of installation
- Water softener salt (rock, solar or pellet salt formulated specifically for water softeners)

APPLICATION

Water quality - Verify that raw water hardness and iron are within limits. Note the hardness for setting the salt dosage and recharge frequency.

Iron - Iron is a common water problem. The chemical/physical nature of iron found in natural water supplies is exhibited in four general types.

1. *Dissolved Iron* - Also called ferrous or "clear water" iron. Up to 5 ppm of this type of iron can be removed from the water by the same ion exchange principle that removes the hardness elements, calcium and magnesium. Dissolved iron is soluble in water and is detected by taking a sample of the water to be treated in a clear glass. The water in the glass is initially clear, but on standing exposed to the air, it may gradually turn cloudy or colored as it oxidizes.

2. *Particulate Iron* - Also called ferric or colloidal iron. This type of iron is an undissolved particle of iron. A softener

will remove larger particles, but they may not be washed out in regeneration effectively and will eventually foul the ion exchange resin. A filtering treatment will be required to remove this type of iron.

3. *Organic Bound Iron* - This type of iron is strongly attached to an organic compound in the water. The ion exchange process alone cannot break this attachment and the softener will not remove this type of iron.
4. *Bacterial Iron* - This type of iron is protected inside a bacteria cell. Like the organic bound iron, it is not removed by a water softener.

When using a softener to remove both hardness and up to 5 ppm of dissolved iron it is important that it regenerates more frequently than ordinarily would be calculated for hardness removal alone. Although many factors and formulas have been used to determine this frequency, it is recommended that the softener be regenerated when it has reached 50 - 75% of the calculated hardness alone capacity. This will minimize the potential for bed fouling.

If you are operating a water softener on clear water iron, regular resin bed cleaning is needed to keep the bed from coating with iron. Even when operating a softener on water with less than the maximum of dissolved iron, regular cleanings should be performed. Clean every six months or more often if iron appears in your conditioned water supply. Use resin bed cleaning compounds carefully following the directions on the container.

Pressure - If pressure exceeds 125 psi (860 kPa), install a pressure reducing valve (see materials checklist). On private water systems, make sure the minimum pressure (the pressure at which the pump starts) is greater than 20 psi (140 kPa). Adjust the pressure switch if necessary.

⚠ CAUTION: *The use of a pressure reducing valve may limit the flow of water in the household.*

Temperature - Do not install the unit where it might freeze, or next to a water heater or furnace or in direct sunlight.

LOCATION

Space requirements - Allow 6-12 inches (15-30 cm) behind the unit for plumbing and drain lines and 4 feet (1.3 meters) above for service access and filling the salt container.

Floor surface - Choose an area with solid, level floor free of bumps or irregularities. **Bumps, cracks, stones and other irregularities can cause the salt storage tank bottom to crack when filled with salt and water.**

Drain facilities - Choose a nearby drain that can handle the rated drain flow (floor drain, sink or stand pipe). Refer to the Drain Line Chart, Table 1 (page 10), for maximum drain line length.

NOTICE: Most codes require an anti-siphon device or airgap. Observe all local plumbing codes and drain restrictions. The system and installation must comply with all state and local laws and regulations.

Electrical facilities - A 10-foot cord and wall mount plug-in transformer are provided. The customer should provide a receptacle, preferably one not controlled by a switch that can be turned off accidentally. Observe local electrical codes.

NOTICE: The plug-in transformer is rated for indoor installations only.

Installation

PLACEMENT

Refer to Figure 1 for system placement.

- Set the media tank on a solid, level surface near water, drain and electrical facilities. Place the outlet (black coupling) of the tank on the left.
- Set the brine system on a flat, smooth, solid surface as near the media tank as possible.

MOUNT THE CONTROL VALVE

See Figure 2.

1. Remove the two plastic caps from the tank couplings and lubricate the coupling O-rings with silicone lubricant. **NOTICE:** *Do not use a petroleum base lubricant, for this will cause swelling of the rubber parts.*
2. **NOTICE:** *The black molded tank adapter is marked with "IN" and "OUT", corresponding to the inlet and outlet of the tank. Position the tank with the inlet coupling on the right and the outlet coupling on the left.*
3. The control valve is marked also with "IN" and "OUT". Place the control onto the tank with the inlet and outlet of the control corresponding with the inlet and outlet of the tank. Press firmly onto the couplings.
4. Remove the two u-clamps and screws from the parts pack. Install the clamps on both sides of the control as indicated in Figure 2 and secure them with the screws.
5. Peel off the protective film off the circuit board label.
6. Attach the appropriate Culligan Medallist Series data plate that's included in the small parts pack onto the back of the control (over the holes used for the solenoid valve).

TEN INCH SOFTENERS

As shipped from the factory, each control is equipped as a 8-inch unit. A 10-inch eductor nozzle and backwash flow control are included with each unit for conversion for use with the 10-inch tanks.

NOTICE: *To prevent injury, convert unit to a ten-inch configuration prior to installation.*

Refer to Figure 3 for a visual on changing the eductor nozzle and the backwash flow control.

Eductor Nozzle Replacement:

- Remove the three screws on the eductor cap and remove the cap.
- Remove the eductor assembly.
- Remove the eductor screen from the assembly
- Remove the blue nozzle and replace it with the beige nozzle. Make sure to put the o-ring on the beige nozzle.
- Reverse the procedure to reassemble. To prevent leaks, ensure that the gasket is in the proper position.

Backwash Flow Control Replacement:

- Remove the drain clip and pull the drain elbow straight off.
- Remove the backwash flow control located behind the elbow. Put the #2 restrictor in its place.

NOTICE: *The number on the flow control should face into the valve body.*

- Reverse the procedure to reassemble.

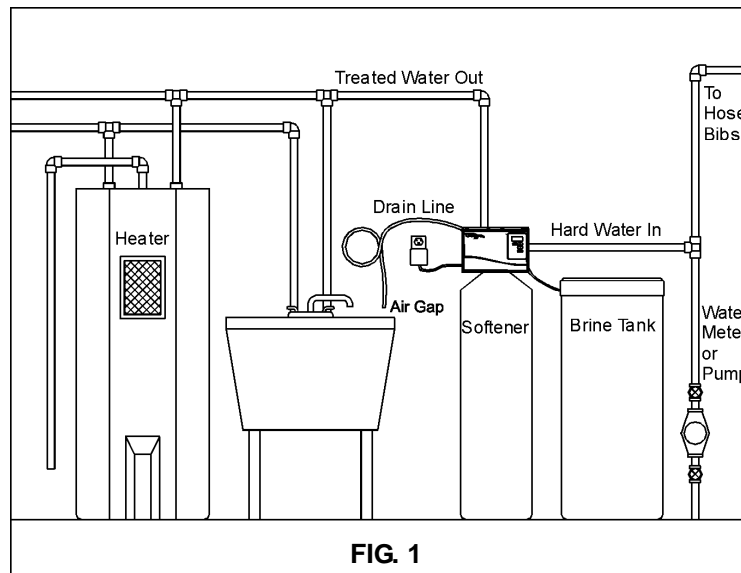


FIG. 1

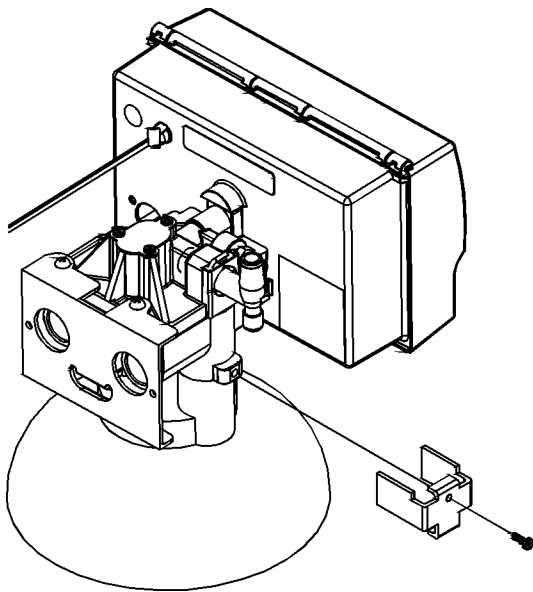


FIG. 2

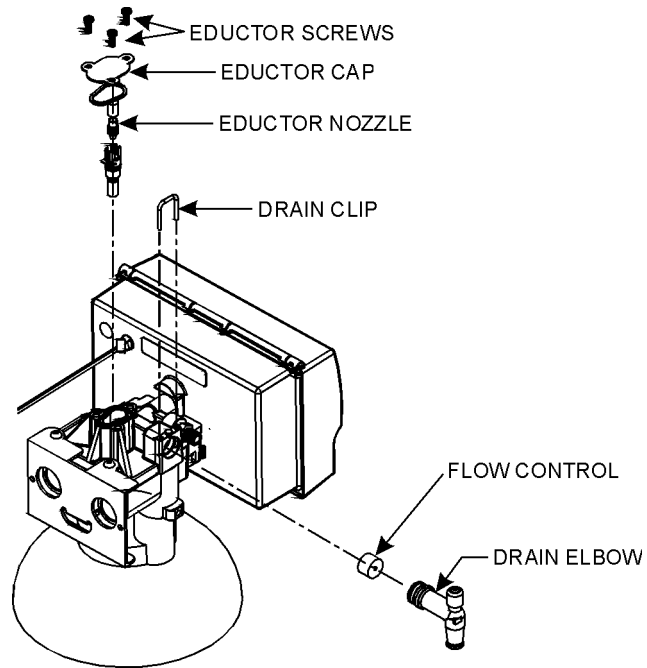


FIG. 3

PLUMBING CONNECTIONS

Two methods of connecting the water softener to the plumbing system are available. Shipped with each softener is a Culligan® Cul-Flo-Valv® bypass valve, either PN 01012488 (3/4" sweat) or 01010238 (3/4" NPT). If local conditions warrant, you may use the sweat adaptor kits, PN 00331444 or 00331445.

NOTICE: *The Soft-Minder® meter cannot be used with the sweat adaptors.*

⚠ CAUTION: Close the inlet supply line and relieve system pressure before cutting into the plumbing! Flooding could result!

⚠ CAUTION: When making sweat connections, remove all plastic and rubber components which contact brass or copper. Damage to these components may result otherwise.

BYPASS VALVE INSTALLATION - TIME CLOCK UNITS ONLY

The bypass valve connects directly to the backplate of the valve with a pair of couplings and screws (Figure 4). To facilitate this connection, remove the plate by pulling up on the u-clip on the back of the valve. Lubricate all o-rings with silicone lubricant.

BYPASS VALVE INSTALLATION - SOFT-MINDER® METER ONLY

The Soft-Minder meter is placed between the bypass valve and the control in place of the couplings shipped with the Cul-Flo-Valv® (Figure 5). Make sure the meter is on the outlet port of the control and that it is installed with the arrow pointing in the direction of water flow. A pair of elongated bolts are packaged with the meter to hold the bypass valve to the back plate of the control. Lubricate all o-rings with silicone lubricant.

SWEAT ADAPTOR INSTALLATION

The sweat adaptors use a snap ring to hold them to the backplate of the control valve. The back plate will need to be removed from the valve for this connection. A pair of snap ring pliers, PN 00591609, are needed for this connection.

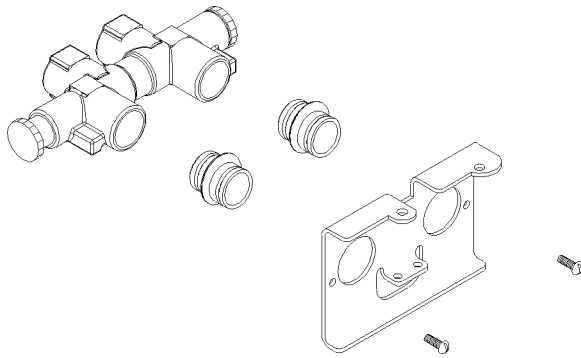


FIG. 4

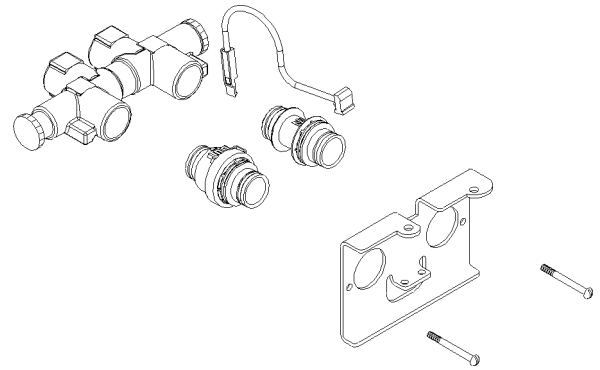


FIG. 5

⚠ CAUTION: *When reinstalling back plate to control valve, make sure the u-clip fully engages the two bottom holes of the bracket (Figure 6). Secure bracket from the top with the two mounting screws provided.*

CONNECT THE BRINE LINE

Refer to Figures 6 & 7.

- Measure a length of brine line sufficient to reach from the brine tank to the brine fitting, with no sharp bends. For easier access to the float it is recommended to add an extra four feet (1.3 meters) of length to the brine line. Cut both ends of the brine line squarely and cleanly.
- Remove the brine valve from the brine tank and then remove the white nut and insert from the float rod. Return float rod to its original position.
- Slip the white nut over one end of the tubing and press the plastic insert into the end of the tubing (Figure 7). Connect to the brine valve and tighten nut.
- Remove white nut and the plastic insert from the small parts pack.
- Slip the white nut over one end of the tubing and press the plastic insert into the end of the tubing (Figure 7). Connect to the brine connection on the valve and tighten nut (Figure 6).

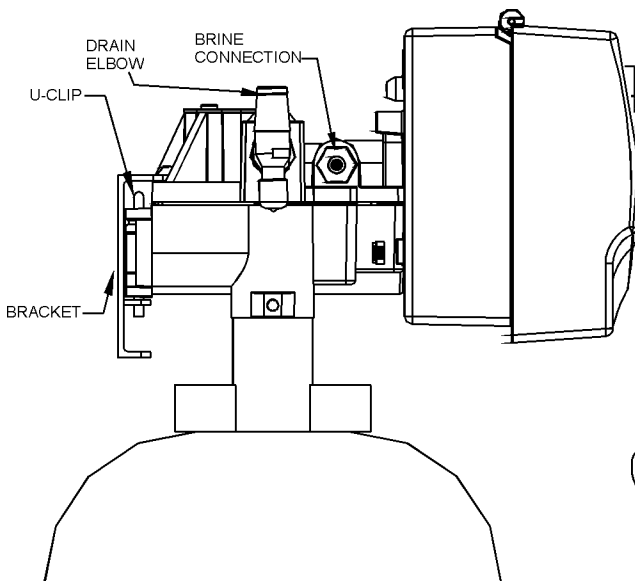


FIG. 6

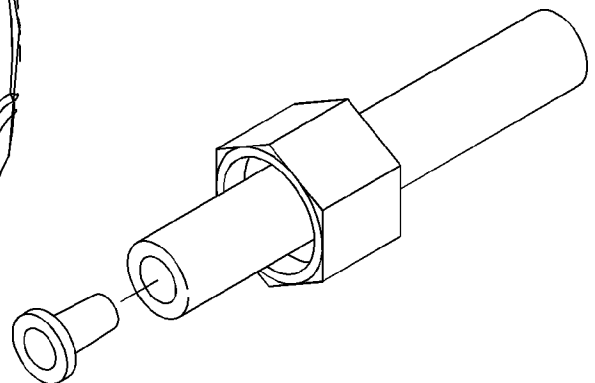


FIG. 7

DRAIN LINE CONNECTION

Refer to Table 1, page 11 under the applicable tank size for drain line length and height limitations, and to Figure 3.

- Remove 1/2" pipe clamp from the small parts pack included with the control.
- Route a length of 1/2" drain line from the drain elbow to the drain.
- Fasten the drain line to the elbow with the clamp.
- Secure the drain line to prevent its movement during regeneration. When discharging into a sink, or open floor drain, a loop in the end of the tube will keep it filled with water and will reduce splashing at the beginning of each regeneration.

NOTICE: Waste connections or drain outlets shall be designed and constructed to provide for connection to the sanitary waste system through an air gap of 2 pipe diameters or 1 inch, whichever is larger.

NOTICE: Observe all plumbing codes. Most codes require an anti-siphon device or air gap at the discharge point. The system and installation must comply with state and local laws and regulations.

FILL THE SALT STORAGE CONTAINER

Fill the salt storage container with water until the level reaches about 1 inch above the salt support plate. Pour salt into the container. Fill with salt to within a few inches of the top.

SOFT-MINDER® METER CONNECTION

To connect the meter leads refer to Figure 8 and proceed as follows:

- Lift up the timer case from the back plate.
- Remove the small plastic plug from the backplate.
- Slip the meter harness through the hole and toward the circuit board.
- Connect the harness to the circuit board. The Soft-Minder® meter terminal is labeled "FLOWMETER".
- Pull any excess cable wire back out of the enclosure, and route the wiring inside the enclosure to avoid any interference with moving parts.
- Locate the strain relief bushing in the parts pack. Place it on the cable at the point of entry to the rear of the timer plate and push it into the hole.

NOTICE: The wire connectors must be connected to the circuit board properly. The wires must exit the plug-in connector opposite of the raised white base of the circuit board connector. Failure to properly connect any of the connectors will result in a malfunction of the circuit board operation.

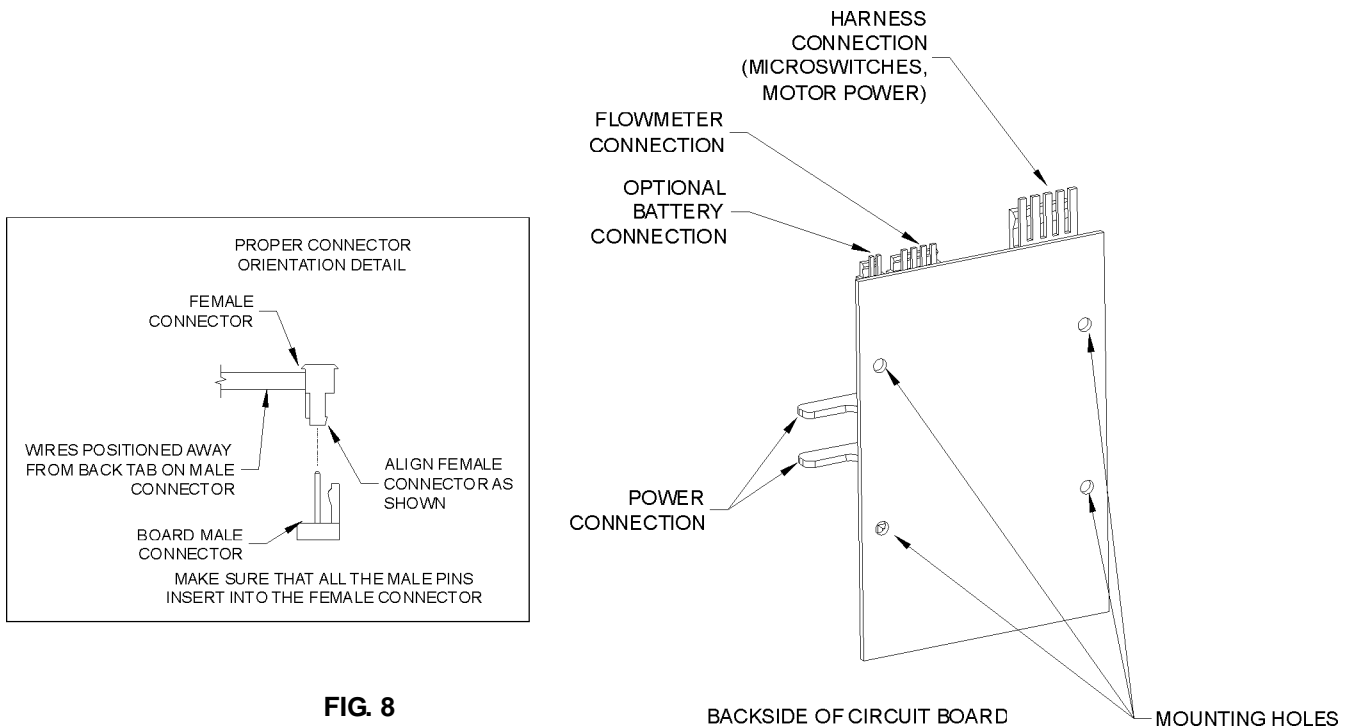


FIG. 8

ELECTRICAL CONNECTIONS

The power cord needs to be connected to the plug-in transformer, wire orientation is not critical. Figure 9 shows the cord attachment to the transformer.

NOTICE: *Observe all state and local electrical codes.*

NOTICE: *The plug-in transformer is rated for indoor installations only.*

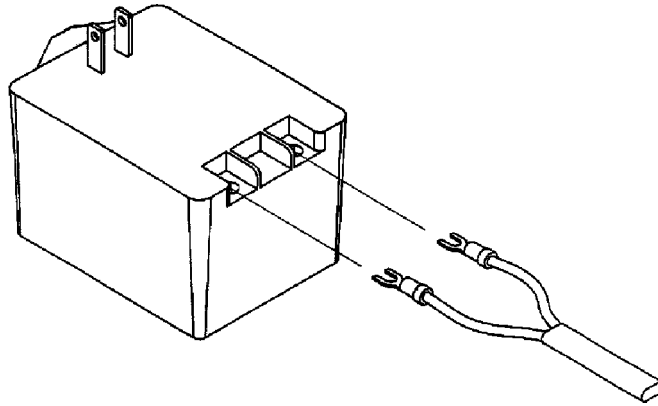


FIG. 9

TABLE 1 - DRAIN LINE LENGTH AND HEIGHT LIMITATIONS

8-INCH MODELS

Average Water Pressure	Height of Drain Discharge Above Floor Upon Which Softener Sets										
	4 in	1 ft	2 ft	3 ft	4 ft	5 ft	6 ft	7 ft	8 ft	9 ft	10 ft
psi	0.1 m	0.3 m	0.6 m	0.9 m	1.2 m	1.5 m	1.8 m	2.1 m	2.4 m	2.7 m	3.1 m
kPa											
30	56	50	40	30	20	10					
210	17.1	15.3	12.2	9.2	6.1	3.1					
50	112	106	96	86	76	66	56	46	36	26	16
350	34.2	32.3	29.3	26.2	23.2	20.1	17.1	14.0	11.0	7.9	4.9
70	143	137	127	117	107	97	87	77	67	57	47
480	43.6	41.8	38.7	35.7	32.6	29.6	26.5	23.5	20.4	17.4	14.3
90	153	147	137	127	117	107	97	87	77	67	57
620	46.7	44.8	41.8	38.7	35.7	32.6	29.6	26.5	23.5	20.4	17.4
120	159	153	143	133	123	113	103	93	83	73	63
830	48.5	46.7	43.6	40.6	37.5	34.5	31.4	28.4	25.3	22.3	19.2

10-INCH MODELS

Average Water Pressure	Height of Drain Discharge Above Floor Upon Which Softener Sets										
	4 in	1 ft	2 ft	3 ft	4 ft	5 ft	6 ft	7 ft	8 ft	9 ft	10 ft
psi	0.1 m	0.3 m	0.6 m	0.9 m	1.2 m	1.5 m	1.8 m	2.1 m	2.4 m	2.7 m	3.1 m
kPa											
30	44	38	28	18							
210	13.4	11.6	8.5	5.5							
50	103	97	87	77	67	57	47	37	27	17	7
350	31.4	29.6	26.5	23.5	20.4	17.4	14.3	11.3	8.2	5.2	2.1
70	129	123	113	103	93	83	73	63	53	43	33
480	39.3	37.5	34.5	31.4	28.4	25.3	22.3	19.2	16.2	13.1	10.1
90	145	139	129	119	109	99	89	79	69	59	49
620	44.2	42.4	39.3	36.3	33.2	30.2	27.1	24.1	21.0	18.0	14.9
120	153	147	137	127	117	107	97	87	77	67	57
830	46.7	44.8	41.8	38.7	35.7	32.6	29.6	26.5	23.5	20.4	17.4

Settings

The microprocessor can be set in two distinct operation modes, Soft-Minder[®] meter or Timeclock. As shipped from the factory, the control is set for 8" Timeclock operation.

SOFT-MINDER OPERATION

The Soft-Minder meter utilizes a turbine impeller to accurately monitor the customer's water usage. After a predetermined amount of water has passed through the system, the microprocessor will signal a regeneration. The "REG" enunciator will light at this point. The unit will perform a standard regeneration cycle at the preset time, unless the programming option "dip2" is changed from "DEL" to "Id". When programming option "dip2" is changed from "DEL" to "Id", a regeneration will begin immediately.

The programming of the Soft-Minder provides several settable variables, the Time-of-Day, Time-of-Regeneration, Salt Dosage, Backwash Time, Brine/Rinse Time, Gallons to Signal and Timeclock Backup, if active. Refer to the programming section for further information on programming the microprocessor.

TIME CLOCK OPERATION

When the microprocessor is set-up as a time clock unit, the Culligan Medallist Series[™] control will regenerate at fixed intervals. The regeneration interval can be set anywhere from 1 to 42 days.

The programming for the time clock models is limited to Time-of-Day, Time-of-Regeneration, Salt dosage, Backwash Time, Brine/Rinse Time, and the Regeneration Interval. Refer to the programming section for further information on programming the microprocessor.

CAPACITY AND SALT SETTINGS

As mentioned previously, the softener will regenerate once the amount of water equal to the treated water volume set point has passed through the turbine for meter models or after a fixed time interval for timeclock models. Regeneration is either delayed until the selected regeneration time or immediate depending on how the microprocessor is programmed. Before completing the programming, the following information must be determined:

1. Compensated Water Hardness.

If your water supply contains iron, compensate for it by the following procedure:

1. Multiply the iron by 0.1 and add the result to the hardness.
Example: (3 ppm of iron x 0.1) + 25 gpg of hardness = 25.3 gpg of total hardness
2. Choose the % capacity you want and refer to the table below for the appropriate multiplier.
Example: 67% capacity gives a multiplier of 1.5.

TABLE 2

% Capacity	50%	67%	75%
Multiplier	2	1.5	1.33

3. Multiply the result from Step 1 by the multiplier chosen in Step 2. This is the compensated hardness.
Example: 25.3 gpg total hardness x 1.5 = 38 gpg compensated hardness.
4. Use the effective hardness for sizing and to determine salt dosage and regeneration frequency.
5. The forced regeneration feature should be used for Soft-Minder meter operation to ensure the resin bed does not become iron fouled due to lack of water flow. See "Programming the Option Settings" for the forced regeneration feature.

2. Salt Dosage

From Table 3, select the salt dosage at which the softener will be operated.

- Low Setting — Maximum salt efficiency, more frequent regeneration, reduced overall softening capacity.
- Medium Setting — Good combination of efficiency and overall softening capacity.
- High Setting — Maximum softening capacity, less frequent regeneration, and reduced salt efficiency. Recommended whenever iron is present and for hardness levels above 30 Grains Per Gallon, or high volume water usage.

TABLE 3 - SALT DOSAGE

Salt Dosage	Capacity			160 lb. Brine Tank "A" Dimension Secondary (Only)		250 lb. Brine Tank "A" Dimension Secondary Primary				375 lb. Brine Tank "A" Dimension Secondary Primary			
	8"	30	45	in.	(cm)	in.	(cm)	in.	(cm)	in.	(cm)	in.	(cm)
4	18,300	X	X	7-3/4	19.7	6-5/8	16.8	4-5/8	11.7	5-1/2	14.0	3-1/2	8.9
5	20,000	20,000	20,000	9-1/2	24.1	8	20.3	6	15.2	6-1/2	16.5	4-1/2	11.4
6	22,000	22,500	23,500	11-1/4	28.6	9-3/8	23.8	7-3/8	18.7	7-1/2	19	5-1/2	14
7	23,200	24,400	26,500	13	33	10-7/8	27.6	8-7/8	22.5	8-1/2	21.6	6-1/2	16.5
8	24,100	25,700	29,000	14-3/4	37.5	12-1/4	31.1	10-1/4	26	9-1/2	24.1	7-1/2	19
9	25,100	27,000	31,300	16-1/2	42	13-5/8	34.6	11-5/8	29.5	10-1/2	26.7	8-1/2	21.6
10	26,100	28,300	33,300	18-1/4	46.3	15	38.1	13	33	11-1/2	29.2	9-1/2	24.1
11	26,800	29,400	35,000	20	51	16-3/8	41.6	14-3/8	36.5	12-1/2	31.7	10-1/2	26.7
12	27,500	30,500	36,500	21-3/4	55.2	17-3/4	45.1	15-3/4	40	13-1/2	34.3	11-1/2	29.2
13	X	31,500	38,400	21-1/2	59.7	19-1/8	48.6	17-1/8	43.5	14-1/2	36.8	12-1/2	31.7
14	X	32,500	39,200	25-1/4	64.1	20-1/2	52.1	18-1/2	47	15-1/2	39.4	13-1/2	34.3
15	X	33,300	40,400	—	—	21-7/8	55.5	19-7/8	50.5	16-1/2	42	14-1/2	36.8
16	X	34,100	41,200	—	—	23-1/4	59	21-1/4	54	17-1/2	44.5	15-1/2	39.4
17	X	35,000	41,800	—	—	24-5/8	62.5	22-5/8	57.5	18-1/2	47	16-1/2	42
18	X	X	42,400	—	—	26	66	24	61	19-1/2	49.5	17-1/2	44.5
19	X	X	42,900	—	—	27-3/8	69.5	25-3/8	64.5	20-1/2	52.1	18-1/2	47
20	X	X	43,500	—	—	28-3/4	73	26-3/4	68	21-1/2	54.6	19-1/2	49.5

3. Treated Water Volume Set Point

Calculate the treated water volume set point using the following information:

- Softening capacity — Grains (based upon salt dosage setting).
- Compensated hardness of water supply — Grains Per Gallon
- Estimated daily water usage — Gallons Per Day (refer to Table 4)

TABLE 4 - Daily Water Usage

Persons in Household	Gallons Per Day
2	150
3	225
4	300
5	375
6	450
7	525
8	600
9	675
10	750

Example - Meter: Softener Model Medallist 2M

Capacity @ 9 lb. Salt Dosage: 25,100 Grains
Compensated Water Hardness: 19 Grains Per Gallon
Estimated Daily Water Usage: 300 Gallons Per Day

$$\text{Treated Water Volume Set Point} = \frac{\text{Softener Capacity}}{\text{Compensated Hardness}} - \text{Water Usage}$$

Softening Capacity	25,100	Grains
Divide by Compensated Hardness	÷ 19	Grains per Gallon
Result is total number of gallons of soft water per regeneration	1,321	Gallons
Subtract daily Water Usage (needed as a reserve to ensure continuous soft water until regeneration occurs).	— 300	Daily Water Usage (One Day Supply)
	1,021	Gallons
Round down to nearest ten for Treated Water Volume Set Point	1,020	Gallon Setting

Set "CAPG" to 102

Example - Timeclock: Softener Model Medallist 2

Capacity @ 9 lb. Salt Dosage: 25,100 Grains
Compensated Water Hardness: 19 Grains Per Gallon
Estimated Daily Water Usage: 300 Gallons Per Day

$$\text{Treated Water Volume Set Point} = \frac{\text{Softener Capacity}}{\text{Compensated Hardness}} - \text{Water Usage}$$

Softening Capacity	25,100	Grains
Divide by Compensated Hardness	÷ 19	Grains per Gallon
Result is total number of gallons of soft water per regeneration	1,321	Gallons
Subtract daily Water Usage (needed as a reserve to ensure continuous soft water until regeneration occurs).	— 300	Daily Water Usage (One Day Supply)
	1,021	Gallons
Divide by daily water usage	÷ 300	
	3.4	Days
Round down to nearest day	3.0	Days

Set "CAP" to 3

Use the following worksheets to calculate and record the proper settings.

Treated Water Volume Set Point Work Sheet - Meter Models

1. Enter Softening Capacity		
2. Divide by Compensation Hardness	÷	_____
Result is Total Gallons of Soft Water Per Regeneration	=	_____
3. Subtract Daily Water Usage (Reserve	—	_____
Result)	=	_____
Round down to nearest ten for Treated Water Volume Set Point		<input type="text" value="Gallons"/>

Treated Water Volume Set Point Work Sheet - Timeclock Models

1. Enter Softening Capacity		_____
2. Divide by Compensation Hardness	÷	_____
Result is Total Gallons of Soft Water Per Regeneration	=	_____
3. Subtract Daily Water Usage (Reserve)	—	_____
4. Divide by Daily Water Usage	÷	_____
Result	=	_____
Round down to nearest ten for days between regeneration set point		Days

Note: All Softening capacity is based on new resin and using sodium chloride as the regenerant. If potassium chloride is used reduce the rated softening capacity by 20%.

BRINE VALVE "A" DIMENSION

The brine valve contains a float-actuated safety shut-off device to prevent overflow of the brine tank in the unlikely case of an electrical or mechanical failure during the brine tank refill cycle.

It is recommended that the brine valve float be used as intended, that is, as a secondary, safety shut-off. Remember, the timer mechanism provides the primary refill shut-off. To use the float as a safety shut-off, refer to Table 4 for the salt dosage and brine tank size being used. The "A" dimension is the distance between the filter screen and the bottom of the float (Figure 11) when the float stem is in its fully raised position; adjust the float and rubber grommets accordingly.

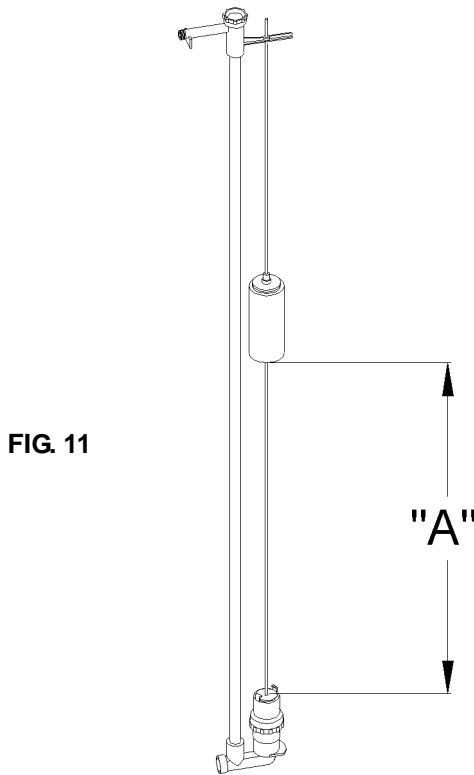


FIG. 11

Programming

Make sure the inlet water supply is turned off, then supply power to the timer. The display will power up flashing "12:00 PM" and the motor will energize and cycle the control, without stopping, to the home position. This is required to ensure that the control is in the home position.



FIG. 13 - Circuit Board Display

The timer uses four buttons:

1. STATUS: Advance timer through display options.
2. PLUS SIGN "+": Increase the setting.
3. MINUS SIGN "-": Decrease the setting.
4. REGEN.: Initiate a manual regeneration.

PROGRAMMING THE OPTION SETTINGS

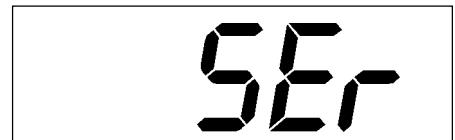
The microprocessor has several programming options that can be changed for various additional functions. Listed are the functions for the programming options used on the Culligan Medallist Series_™ control.

Dip Switch	Function	Default Position
1	Service or Test	Service
2	Delay or Immediate Regeneration	Delayed Regeneration
3	Softener or Filter	Softener
4	Time Clock Backup	OFF
5	English or Metric	English
6	3/4" or 1" Meter	3/4" Meter

1. Service or Test Mode

Press and hold the "STATUS" key until "dIP1" appears in the display. "dIP1" will blink for 3 seconds and then the display will show the status of this option (SEr or tES). Toggle the feature with the "+" or "-" key.

Note: Pressing "STATUS" after changing option to test mode will place the control in test mode. After testing is complete press and hold "STATUS" for 3 seconds to return to "dIP1" setting. Placing the unit in test mode will not change any of the programmed values (Refer to the service manual for test menu).



2. Delay or Immediate Regeneration

Press the "STATUS" key. The display will blink "dIP2" for 3 seconds and then show the current status. Toggle between "DEL" (Delay) and "Id" (Immediate) with the "+" or "-" key.

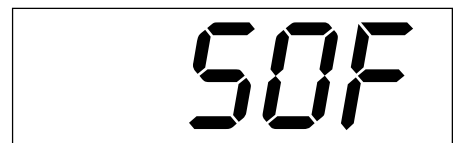
Note: Changing this setting will not change any of the programmed value with the exception that Step #2, time of regeneration will be ignored when set to immediate.



3. Softener or Filter

Press the "STATUS" key. The display will blink "dIP3" for 3 seconds and then show the current status. Toggle between "SOF" (Softener) and "FIL" (Filter) with the "+" or "-" key.

Note: Changing this setting will cause the unit to load the Filter or Softener defaults.



4. Timeclock Backup

Press the “STATUS” key. The display will blink “dIP4” for 3 seconds and then show the current status. Toggle between “OFF” (Timeclock backup is off) and “ON” (Timeclock backup is on) with the “+” or “-” key.

Note: *Changing this setting will not change any of the programmed values and will load the default Timeclock Backup value of 3 days. Programming step 7 will be activated when this is set to On.*

Note: *This option will only be available when the flowmeter is plugged into the control*



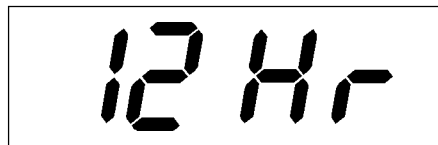
5. English or Metric

Press the “STATUS” key. The display will blink “dIP5” for 3 seconds and then show the current status. Toggle between “En” (English units) and “MET” (Metric units) with the “+” or “-” key.



6. 12 or 24 Hour Clock

Press the “STATUS” key. The display will blink “dIP6” for 3 seconds and then show the current status. Toggle between “12 Hr” (12 hour clock) and “24 Hr” (24 hour clock) with the “+” or “-” key.

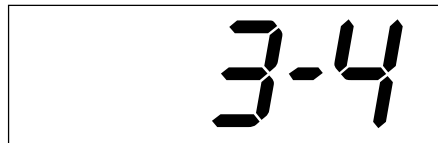


7. 3/4" or 1" Meter

Press the “STATUS” key. The display will blink “dIP7” for 3 seconds.

Do not change setting from “3-4”

Note: *The 3/4" meter setting is to be used with the Medallist Series softener. The 1" meter setting is for future models.*



SETTING THE MICROPROCESSOR

The microprocessor senses when it is installed as a Soft-Minder[®] control. **Adding or removing any connection to the board will automatically reset the microprocessor to the factory settings.**

Step 1 – Programming Time of Day

Press the “STATUS” key.

The display will blink “tod” for 3 seconds and then change to time of day with the “minutes” digits blinking.

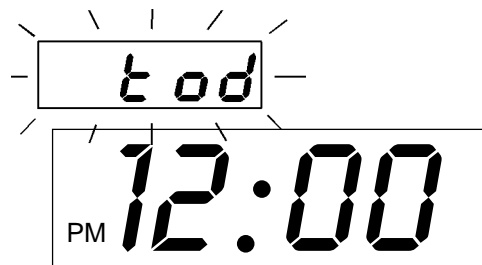
Adjust the “minutes” digits with the “+” or “-” keys.

Press the “REGEN” key to blink the “hours” digits.

Adjust the “hours” digits with the “+” or “-” keys.

Press the “REGEN” key to cycle back to “minutes”

Note: *The “hours” setting scrolls through 1-12 AM and 1-12 PM. Make sure the proper AM or PM indicator is shown when setting the time.*



Step 2 – Programming Regeneration Time

Press the “Status” key after setting the time of day.

The display will blink “tor” for 3 seconds and then change to the time setting with the “ones” digit blinking.

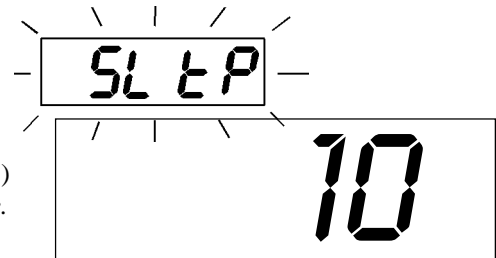
Adjust regeneration time as time of day above.

Note: *This option will not show if the “dIP 2” option is set to immediate.*



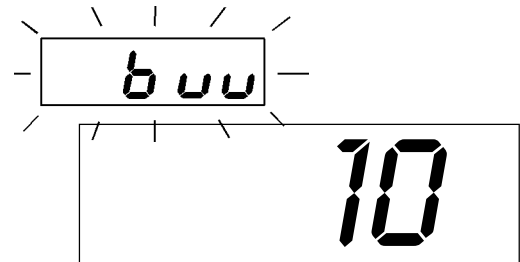
Step 3 – Programming Salt Dosage

Press the “Status” key after programming regeneration time.
The display will blink “SLtP” if set to English or “SLtG” if set to Metric for 3 seconds and then display the salt dosage.
Adjust the setting with the “+” or “-” key (3-24 lbs.)(.5, 1, 1.5, 2-10 kgs.)
Note: This option will not show if the control is set to Filter mode.



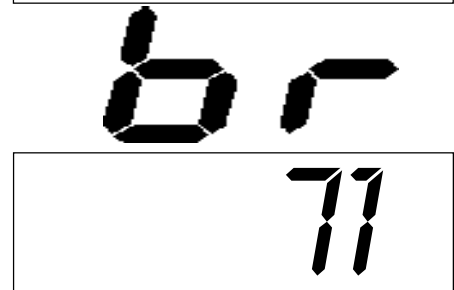
Step 4 – Programming Backwash Time

Press the “Status” key after programming salt dosage.
The display will blink “bw” for 3 seconds and then display the backwash time in minutes.
Adjust the setting with “+” or “-” key. (1-40 minutes)



Step 5 – Programming Brine Draw/Slow Rinse Time

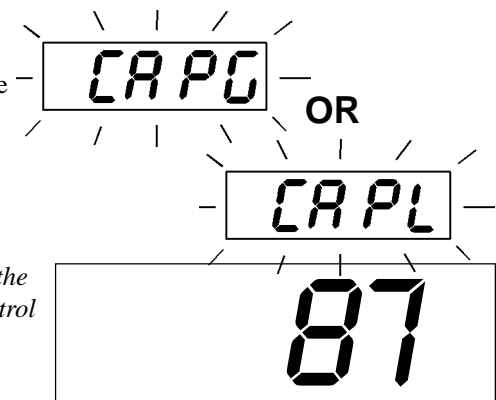
Press the “Status” key after programming the backwash time.
The display will blink “br” for 3 seconds and then display the brine draw/slow rinse time in minutes.
Adjust the setting with the “+” or “-” key. (35-99 minutes). See Table 5 for suggested brine draw/slow rinse times.
Note: This option will not show if the control is set to Filter mode.



Step 6 – Programming Gallons (Liters) or Days to Regeneration Meter Mode —

Press the “Status” key after programming the brine draw/slow rinse time.
The display will blink “CAPG” (“CAPL”) for 3 seconds and then display the gallons or liters set point.
Adjust the setting with the “+” or “-” key. (10-9990 Gallons)
(10-9990 Liters)

Note: The programmed value must be multiplied by 10 to obtain the actual setting. For example, if 87 is shown in the display, the control will regenerate after 870 gallons have passed through the meter.

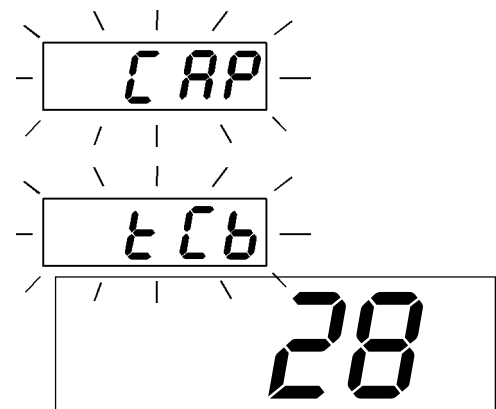


Timeclock Mode —

Press the “Status” key after programming the brine draw/slow rinse time.
The display will blink “CAP” for 3 seconds and then display the number of days between regenerations.
Adjust the setting with the “+” or “-” key. (1-42 days)

Step 7 – Programming Time Clock Backup

Press the “Status” key after programming the capacity.
The display will blink “tCb” for 3 seconds and then display the backup number of days between regenerations.
Adjust the setting with the “+” or “-” key. (1-42 days)
Note: This option will only show if a meter is plugged into the control and the timeclock backup option is turned on.



Exiting Program Mode

From Step 6 (or step 7 if it is active) press the “Status” key.

The display will go blank.

Press the “Status” key again to exit programming.

Note: *The control will exit the programming mode if no key press activity takes place within one minute.*

Locking the Programmed Menu

Press and hold the “+” key for 3 seconds while in the service mode.

The display will show the status of the lock feature. (“LoC” or “unL”)

Adjust with the “+” or “-“ key.

Press the “STATUS” key to return to the service mode.

Note: *While the programmed menu is locked (“LoC”) all of the programming menu items will display, however only the time of day can be changed.*



Note: *If programming times out, values will not be saved. The “Status” key must be pressed to save values.*

TABLE 5 - Suggested Brine Draw/Slow Rinse Times

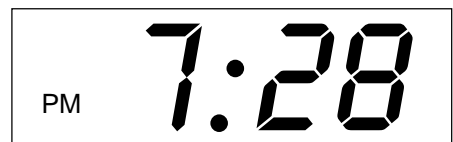
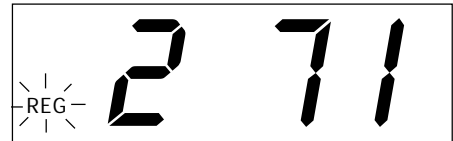
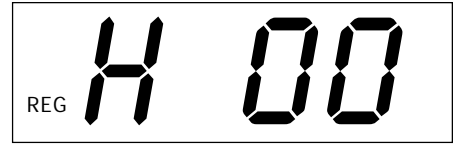
Salt Dosage	Brine Draw/Slow Rinse Time (Minutes)	
	8" Tank	10" Tank
3	53	—
4	55	—
5	57	40
6	59	42
7	62	44
8	65	46
9	68	48
10	71	50
11	74	52
12	76	53
13	78	55
14	80	56
15	82	58
16	—	59
17	—	61
18	—	62
19	—	64
20	—	65
21	—	67
22	—	68
23	—	70
24	—	71

Note: Values are for 50 psi pressure. Minutes should be adjusted for lower and higher pressures to ensure that the brine is fully rinsed out.

Manual Cycling

The Culligan® microprocessor can be indexed through the various regeneration stages. For all steps, the cycle numbers do not appear, or change, until the motor stops.

1. Press the status button to move past the programming steps until the display is blank. From blank display press the “+” key. An "H" will appear in the display. The control is in the HOME position.
2. Press and hold the regen button. The 'REG' icon will blink, and the motor will advance the control. A '1' will appear. The unit is now in the BACKWASH position. The numbers to the right indicates the time remaining for the cycle.
3. Press the “+” key. A '2' will appear in the display, along with the cycle time remaining. The control is in the BRINE DRAW/ SLOW RINSE cycle.
4. Press “+” key. A '3' will appear in the display, along with the cycle time remaining. The control is now in the FAST RINSE/ BRINE REFILL cycle.
5. Press the “+” key. An 'H' will appear in the display. The unit is in the HOME position. The 'REG' enunciator is no longer blinking.
6. Press the status key. Time-of-Day appears in the display.



Note: If the “+” key is pressed to cycle the value from position “3” to “Home”, the # regen counters will not be updated.

Service Check

The service mode allows one to view the instantaneous flow rate, the gallons remaining before the softener signals for regeneration, the number of regenerations in the past 14 days, the total number of regenerations the control has cycled through and the number of days since the last regeneration.

To enter the service check mode, follow these steps:

1. From the Blank display:
2. Press “-” key. The display will blink “FLO” for 3 seconds and then display the gallons per minute flow rate. This screen will update the current meter reading every 6 seconds.

Note: This display is only active if the flowmeter is connected to the valve.

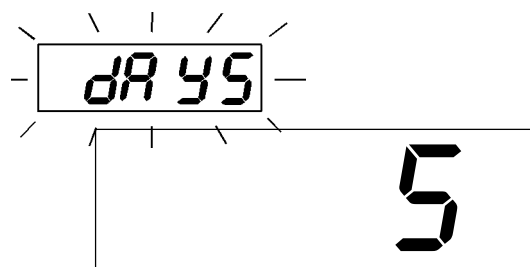
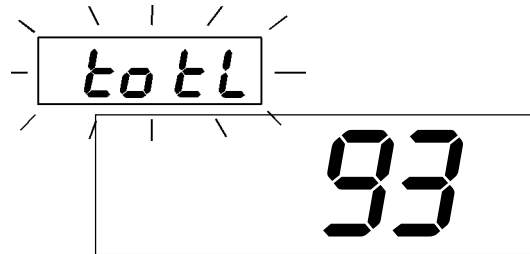
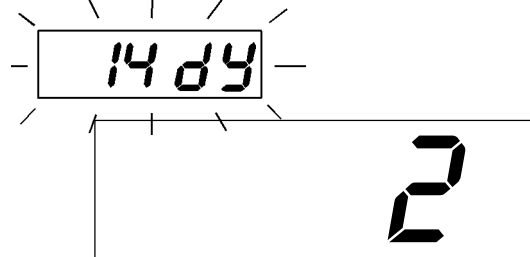
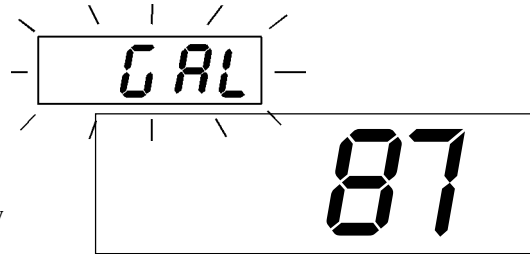
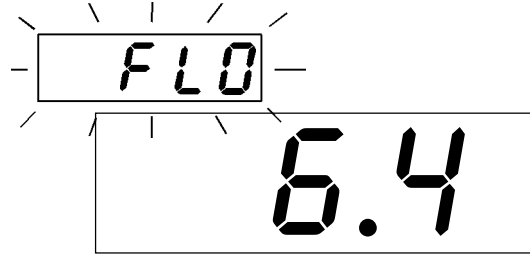
3. Press “-” key. The display will blink “GAL” for 3 seconds and then displays the gallons remaining before the unit signals for regeneration (multiply the displayed number by 10).

Note: This display is only active if the flowmeter is connected to the valve.

4. Press the “-” key. The display will blink “14dY” for 3 seconds and then display the number of regenerations that have occurred in the last 14 days.

5. Press the “-” key. The display will blink “totL” for 3 seconds and then display the total number of regenerations this control has cycled through.

6. Press the “-” key. The display will blink “daYS” for 3 seconds and then display the number of days since last regeneration.



Note: Pressing the “+” key at any time brings back to manual cycling. Pressing “Status” will Exit the programming menu.

Operation

REGENERATION

There are several conditions that will cause the control to trip a regeneration. The “REG” enunciator will light when the control has signaled for a regeneration. The “REG” enunciator will flash while the control is in regeneration. The following are conditions that will call for regeneration:

- 1 When the Soft-Minder[®] meter has recorded the passage of a predetermined number of gallons.
- 2 When the time clock has counted past the set number of days.
- 3 At the preset time, when the number of days without a regeneration is equal to the Timeclock Backup setting.
- 4 At the preset time, when the “REGEN” button is depressed once. “REG” will light.
- 5 Immediately, when the “REGEN” button is depressed for three seconds. “REG” will light and blink.
- 6 Immediately, if power to the unit has been off for more than 3 hours and time of day has been restored.

If “dIP 2” is set to “Id”, the unit will begin a regeneration immediately for instances 1 and 2. With “dIP 2” set to “del”, the regeneration will not begin until the preset regeneration time.

Note: If set to immediate mode as timeclock or timeclock backup, the unit will initiate regeneration at 12:00 AM. In the delay mode, “REG” indicator will light at 12:00 AM and regeneration will occur at delayed time.

START-UP

NOTICE: A sanitizing agent is added to the softener at the factory. Flush the tank to drain with a minimum of 40 gallons of water, or initiate a full regeneration cycle, prior to putting the unit into service.

- Close the main water supply valve.
- Set the Cul-Flo-Valv[®] to the bypass position.
- Ensure that all faucets at the installation site are closed.
- Direct the drain line discharge into a bucket where flow can be observed.
- Plug the transformer into a 120 Volt, 60 Hz, single-phase receptacle.
- Wait for the control to energize the motor and home itself.
- Set the timer to the correct time of day.
- Open the main supply valve.
- Initiate an immediate regeneration to move the control into the backwash position.
- Refer to the section on manual cycling for information on cycling the control through its positions.
- When in the backwash position, **slowly** shift the bypass to the soft water position until water flows.
- Allow the tank to fill slowly until water flows from the drain line.
- When flow to drain is established, open the bypass fully. Watch the drain line discharge for signs of resin. If signs of resin particles appear, reduce the flow. Increase the flow again when resin no longer appears in the discharge.
- When the unit is filled with water, return the timer to the service position and proceed with setting the microprocessor. Refer to the programming section.

Note: Unplugging the Culligan[®] Medallist Series water softener will not affect any of the control settings. Once programmed in, the settings will be stored indefinitely. In the event of a power failure the time-of-day setting will be stored for 1-2 days. If longer time storage is necessary, a battery backup is available. Refer to the Service Manual for additional information.

BEFORE LEAVING THE INSTALLATION SITE

Flush the sanitizing solution from the unit by initiating a full recharge cycle (by pushing and holding the 'REGEN.' button for three seconds).

Ensure that the brine tank has water to the level of the float. Add water to the tank with a hose or put the unit into a full recharge so that the brine refill cycle will fill the tank with the proper amount of water.

The water heater will hold hard water for several days. Advise the customer that the existing water volume in the tank will need to be used before the hot water is soft. If soft hot water is required immediately, refer to the water heater owner's manual for the proper method of draining the water heater.

Explain the operation of the softener to the customer. Make sure the customer knows that there will be new sounds associated with the recharging of the unit. Advise the customer to periodically check and replenish the salt supply.

Check the appropriate softener model box on page 1 of the Owner's Guide. Fill in the hardness and number of people, and then sign and date the corresponding performance data sheet. Leave the Owner's Guide with the customer.

Clean up the unit and installation site, removing any soldering, or pipe threading, residues from the equipment and surrounding area with a damp towel.

Sanitizing Instructions

A water softener in daily use on a potable water supply generally requires no special attention other than keeping the salt tank filled. Occasionally, however, a unit may require sanitation under one of the following conditions:

- The unit has stood idle for a week or more (the premises vacant or the residents on vacation).
- On private supplies, the appearance of off-tastes and odors, particularly a musty or "rotten egg" odor .

For occasional occurrences, the softener can be sanitized with household bleach as follows.

NOTICE: *If the water supply contains iron, regenerate the softener before sanitizing to remove accumulated iron from the Culler[®] resin.*

 **WARNING: HAZARD FROM TOXIC FUMES! CHLORINE BLEACH AND COMMON IRON CONTROL CHEMICALS MAY GENERATE TOXIC FUMES WHEN MIXED.**

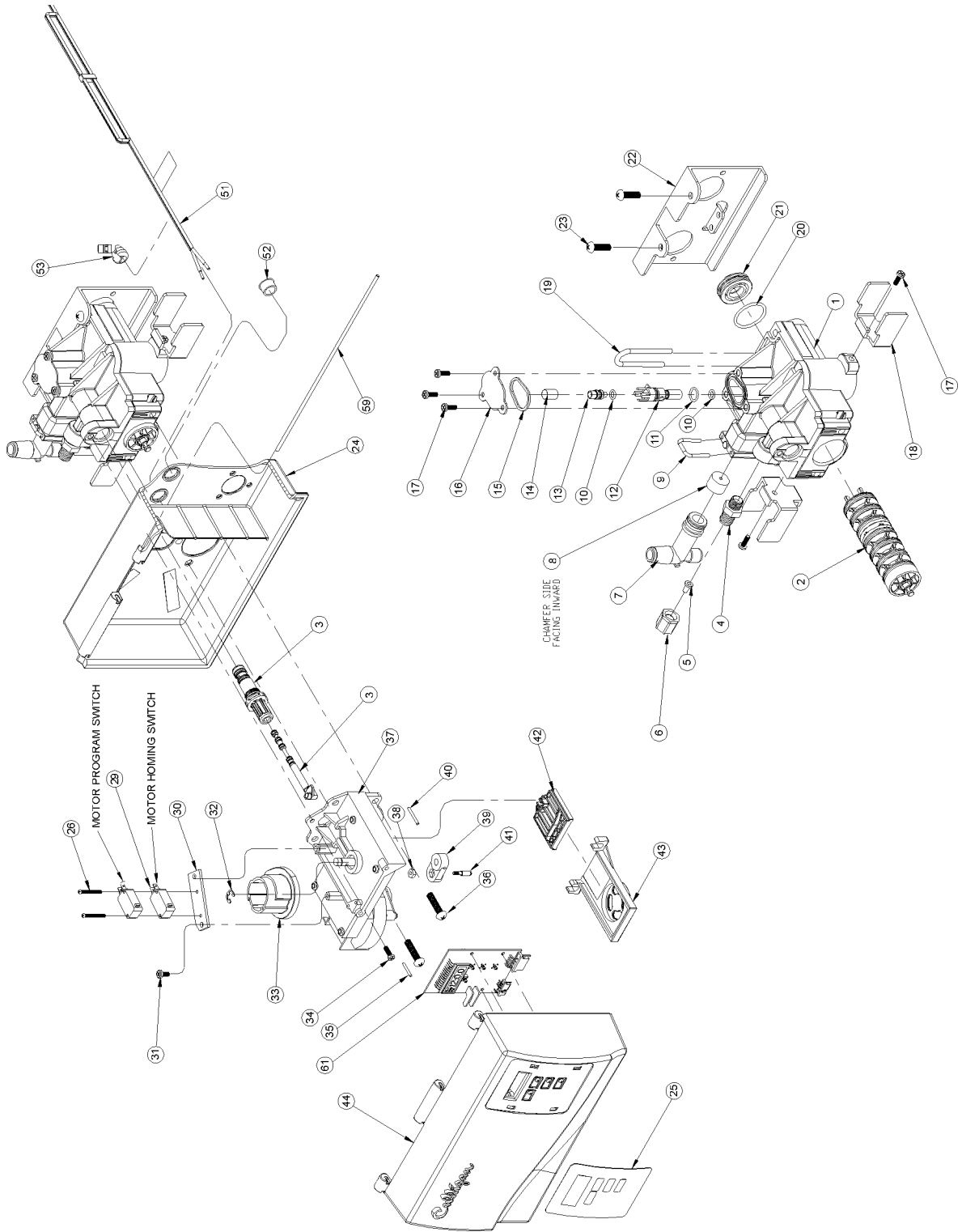
- **IF THE UNIT USES CULLIGAN[®] SOFNER-GARD[™] CHEMICAL OR OTHER COMPOUNDS CONTAINING SODIUM HYDROSULFITE OR SODIUM BISULFITE, OR ANY OTHER REDUCING AGENT, DISCONNECT THE DEVICE AND MANUALLY REGENERATE THE UNIT BEFORE SANITIZING.**
 - **DO NOT USE THIS PROCEDURE IF THE SOFTENER SALT CONTAINS IRON CONTROL ADDITIVES.**
1. Remove the brine tank cover and the small cover on the brine valve chamber.
 2. Pour directly into the brine chamber 1 cup (8-inch units) or 2 cups (10-inch units) of common household bleach (5-1/4% sodium hypochlorite).

NOTICE: *Do not use lemon scented bleaches, or similar bleaches that contain perfumes.*

3. Manually start a recharge cycle. Allow the unit to complete the recharge cycle automatically.

If tastes and odors return frequently, even after sanitization, additional equipment may be required. Have a laboratory analysis performed to determine the possible cause of the odor. Contact Household Application Engineering for assistance. Also, have the consumer send a sample to a qualified laboratory for bacterial analysis.

Control Valve Parts List



Control Valve Parts List

Item	Part No.	Description	Item	Part No.	Description
—	01014042	Control Valve Assembly - Medallist	26	P0448686	Screw (25/Kit)
1	00449865	Control Valve	‡	01003244	Switch
‡	01013083	Seal Pack Assembly	30	00401040	Switch Bracket
‡	01013606	Eductor Sleeve and Eductor Piston Assembly	31	P0318455	Screw (25/Kit)
‡	P0447986	O-Ring, Eductor Sleeve, Small O-Ring (25/Kit)	32	P1013043	Retaining E-Ring (10/Kit)
‡	P0308407	O-Ring, Eductor Sleeve, Large O-Ring (25/Kit)	33	01013031	Cam
‡	P0448750	Screen, Eductor Sleeve (10/Kit)	34	P1001784	Screw (25/Kit)
‡	P0447987	O-Ring, Eductor Piston (10/Kit)	35	00443559	Roll Pin
4	P0443291	Connector Brine Line (25/Kit)	36	P0318452	Screw (25/Kit)
5	P0303192	Insert, PP, 0.312" (25/Kit)	37	01014179	Drive Motor & Bracket Assembly 24V/60Hz
6	P0-3031-93	Nut, PP, 0.312" (25/Kit)	38	00318354	Nut
7	00446835	Drain Elbow Assembly w/O-Ring	39	00445221	Bellcrank
8	P0331634	Backwash Restrictor, #1, 8" Tanks (10/Kit)	40	00445246	Roll Pin
	P0331635	Backwash Restrictor, #2, 10" Tanks (10/Kit)	41	01012649	Follower
9	P0447387	Retainer, Drain Elbow (25/Kit)	42	01012648	Yoke
‡	P0308438	O-Ring, Eductor Nozzle and Throat (10/Kit)	43	01012647	Bracket
‡	P0308437	O-Ring, Eductor Throat (25/Kit)	44	01014037	Cover
‡	00401248	Eductor Throat w/O-Rings	51	01014083	Power Cord (Quick Disconnect)
‡	00446038	Eductor Nozzle - Blue, 8" Tanks	01014734	Power Cord (Direct to Circuit Board)	
	00446039	Eductor Nozzle - Beige, 10" Tanks	52	01006498	Plug, Snap-In
14	P0445269	Eductor Screen (10/Kit)	53	P1000372	Strain Relief (25/Kit)
‡	00445797	Gasket	59	01014038	Hinge, Circuit Board Plate
16	00401022	Eductor Port Cover	60	00441410	Screw
17	P0448687	Screw (25/Kit)	61	01014172	Circuit Board
18	01005130	Bracket	*	01012956	Wall Mount Transformer
19	00448128	Retainer, Rear Body Plug	*	01012905	Flow Meter Assembly
‡	P0444914	O-Ring, Rear Seal (10/Kit)	*	01014076	Wire Harness, Switches & Motor (Quick Disconnect)
21	00448126	Rear Body Plug	*	01014074	Wire Harness, Circuit Board (Quick Disconnect)
22	01004689	Cul-Flo Bracket	*	01014787	Harness (Motor & Switches to Circuit Board)
23	P0318383	Screw (10/Kit)	*	P0451701	Hose Clamp, Drain (25/Kit)
24	01014036	Back Plate	*	01013839	Back-up Battery
25	01882288	Timer Label			

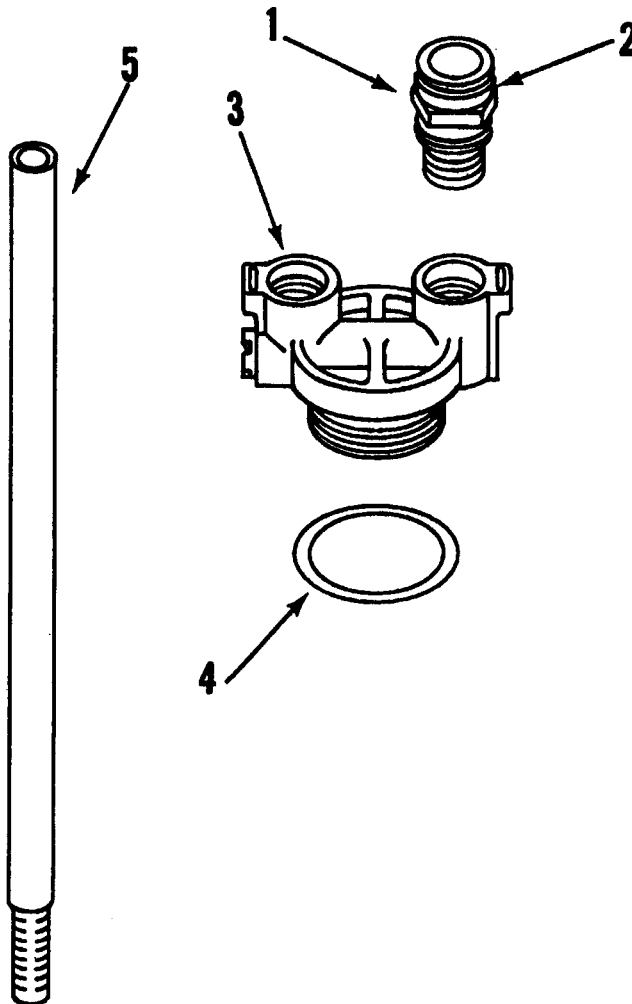
‡ Recommended Spare Parts

* Not Illustrated

Conditioner Tank Parts List

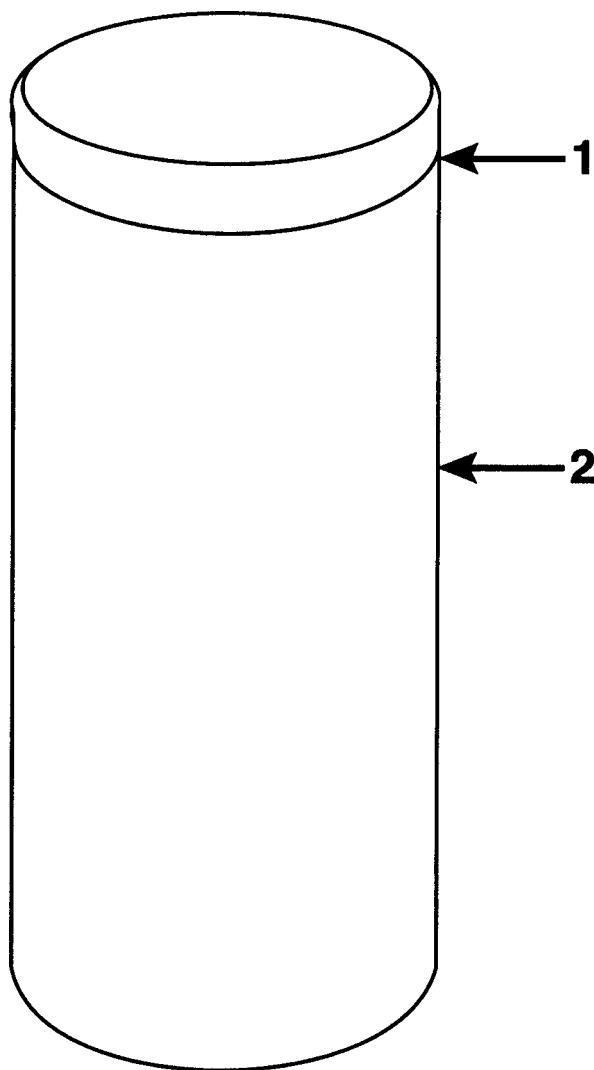
Item	Part No.	Description
	00440821	Tank Assembly, 8", Complete
	01014889	Tank Assembly, 10" x 40", Complete
	01014890	Tank Assembly, 10" x 54", Complete
	00441897	Replacement Tank, 8", Empty
	01014891	Replacement Tank, 10" x 40", Empty
	01014892	Replacement Tank, 10" x 54", Empty
1	00443282	Coupling (less O-rings)
±2	P0333957	O-ring (4 required)
3	00444808	Adapter
±4	00440052	O-ring
5	01000819	Outlet manifold, 8"
	01012828	Outlet manifold, 10" x 40"
	01012829	Outlet manifold, 10" x 54"
*	P0308427	O-ring (outlet manifold)

* Not Illustrated



Salt Storage Tank Parts List

Item	Part No.	Description
—	00441390	Brine System, 160 lb. Replacement
—	00441886	Brine System, 250 lb. Replacement
—	01014940	Brine System, 250 lb. Replacement Less Salt Plate
—	00441887	Brine System, 375 lb. Replacement
—	01014942	Brine System, 375 lb. Replacement Less Salt Plate
1	00303993	Cover 250 lb.
1	01014941	Cover 250 lb. Less Gold Band
	00401042	Cover 160 lb.
	00303980	Cover 375 lb.
	01014943	Cover 375 lb. Less Gold Band
2	00304010	Tank Only, 250 lb.
	00441391	Tank Only, 160 lb.
	00303975	Tank Only, 375 lb.



Brine Valve Parts List

Item	Part No.	Description
—	00441888	Brine Valve Assembly
—	00401141	Brine Valve Assy., Brine Tank, 160 lb.
1	00303193	Plastic Nut, 5/16-inch
2	00303192	Plastic Insert
3	00440796	Refill Cap
‡4	00308407	O-ring
‡5	00401622	Flow Restrictor, No. 5, 0.45 gpm (170 lpm)
6	00340014	Stem Seat Assy., 250 lb. (114 kg) & 375 lb. (170 kg)
7	00440795	Refill Body
‡8	00332528	Hat Screen
9	00223435	Plastic Pipe, 1/4-inch NPT x 35 inches long, 250 lb. (114 kg) & 375 lb. (170 kg)
10	00304703	Float Retainer (2 required)
11	00304718	Float Weight, Stainless Steel (2)
12	00444873	Float
13	00332072	Screen Top Seal
14	00444664	Filter Screen Cap
‡15	00444496	Stem Seat
16	00447392	Insert
17	00447781	Air Eliminator Ball
‡18	00304804	Ball Seat
19	00541821	Float Valve Body with Ball Seat
	00541834	Float Valve Body with Ball Seat, 150 lb.
20	01004901	Brine Valve Chamber, 250 lb. (114 kg) & 375 lb. (170 kg) Salt Storage Tank
	00-4413-92	Brine Valve Chamber, 160 lb.
21	00-3046-06	Cap, Brine Valve Chamber
*	00-4463-88	Screw, St. Steel, Brine Valve Chamber
*	00-4463-89	Nut, St. Steel, Brine Valve Chamber

* Not Illustrated

‡ Recommended Spare Parts

