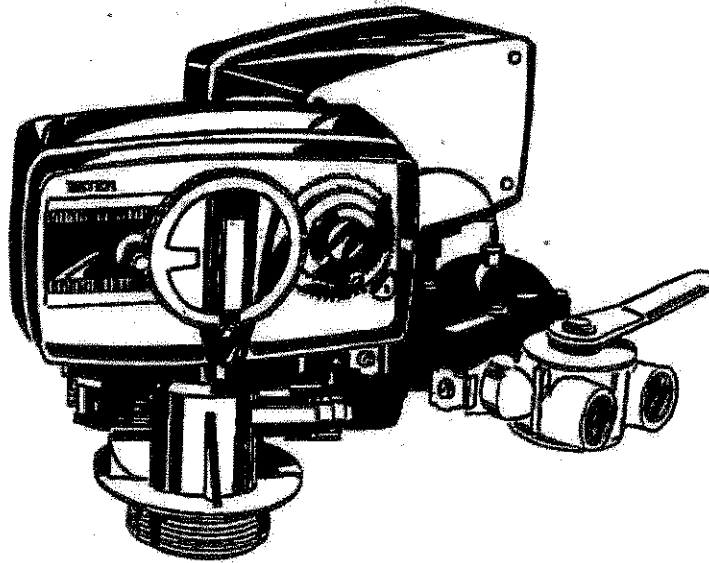


WATER TENDER®

Quality Water Treatment Products



WTFCDR Series Cabinet Residential Metered Softeners

Installation and Operation Manual

September 2015 Version

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**Installation and Operating Instructions for WTF
Top Mount Softeners**

Model #:

_____ WTF320CDRV 32,000 grain softener

Shipping Carton Description / unit:

# of cartons	Contents	Description
1	Cabinet	Mineral tank (distributor pipe installed), Note: the WTF control valve is shipped in the box for the cabinet
	WTF control valve	WTF control valve and bypass
	C-800	Pre-loaded @ factory

Filter Media is Packaged as Follows:

Model #	C-800 Cation Resin
WTF320CDRV	1.0 CF*

*Already installed at the factory

NOTE: THIS SOFTENER IS NOT INTENDED TO BE USED FOR TREATING WATER THAT IS MICROBIOLOGICALLY UNSAFE OR OF UNKNOWN QUALITY WITHOUT ADEQUATE DISINFECTION WHETHER BEFORE OR AFTER THE SYSTEM.

Water Softener Positioning:

1. Place water softener in desired position, far enough from walls and other obstructions to allow for servicing the unit.
2. Place the water softener within reasonable access to a grounded 115V/60 HZ circuit and a legal drain line connection.

WTF Control Valve:

1. Turn the control valve upside down and ensure that the control valve distributor o'ring is in place. Use silicone lubricant on the o'ring.
2. Place the control valve onto the distributor pipe and into the tank opening.
3. Thread the control valve hand tight . Do not overtighten.

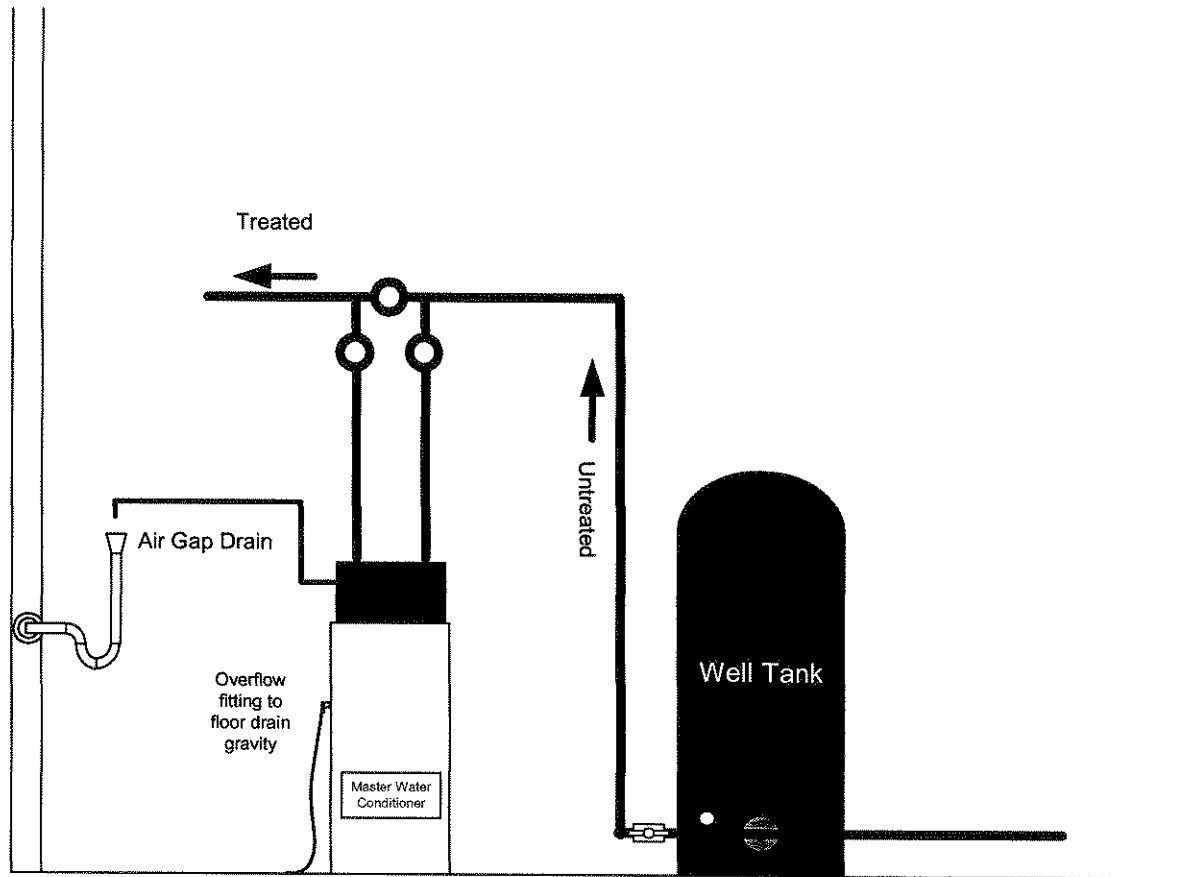
4. The control valve's drain connection is 1/2" npt and is located on the back right of the control valve.

Service and Drain Piping:

1. Pipe softener system into the service lines (see Figure 1) using the bypass valve assembly supplied with the unit. The inlet and outlet connections of the control valve are located on the back of the valve body. As you face the timer the inlet is on the right and the outlet is on the left. Always follow local plumbing codes when installing our water treatment equipment.
2. If sweat fittings are used, be sure soldering is done in such a manner as not to allow heat to reach the valve. If Schedule 80 PVC is used make sure to follow the proper primer and solvent instructions.
3. The drain line connection is located on the top of the valve body as you face the timer. The drain line must be of adequate size to allow for full regeneration flow.
 - The control valve drain connection is 1/2" npt.
 - Never decrease the drain piping size to below 5/8".
 - Maximum drain line length is 20 feet.
 - Maximum drain line height is 8 feet above the control valve.
 - The end of the drain line must be piped to an open drain.
 - Always follow local plumbing codes when piping drain lines to a waste pipe.

UNDER NO CIRCUMSTANCES SHOULD THERE BE A DIRECT CONNECTION WITH SANITARY SEWAGE FACILITIES.

Figure 1



NOTE: All water conditioners must be installed after the well tank or water meter if its public water supply.

Electrical Requirements:

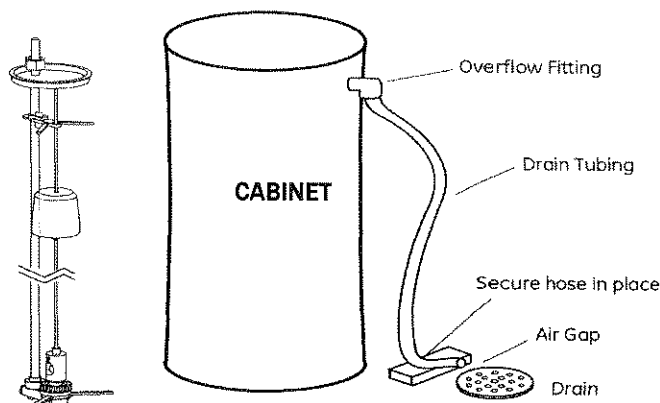
Always follow all local electrical codes when installing our water treatment equipment.

1. Provide a properly grounded 115V/60 HZ electrical outlet.
2. Maximum amperage required is 3 amps.
3. Make sure the electrical service provides power 24 hours per day. Avoid using outlets that are switch controlled.
4. Follow all local electrical codes when installing our water treatment equipment.

Cabinet Tank:

1. The mineral tank should be located inside the cabinet tank.
2. Connect the 3/8" poly tubing to the 3/8" brass compression fitting located on the right side of the control valve.

The cabinet is equipped with a shutoff valve, the float height was preset at the factory.

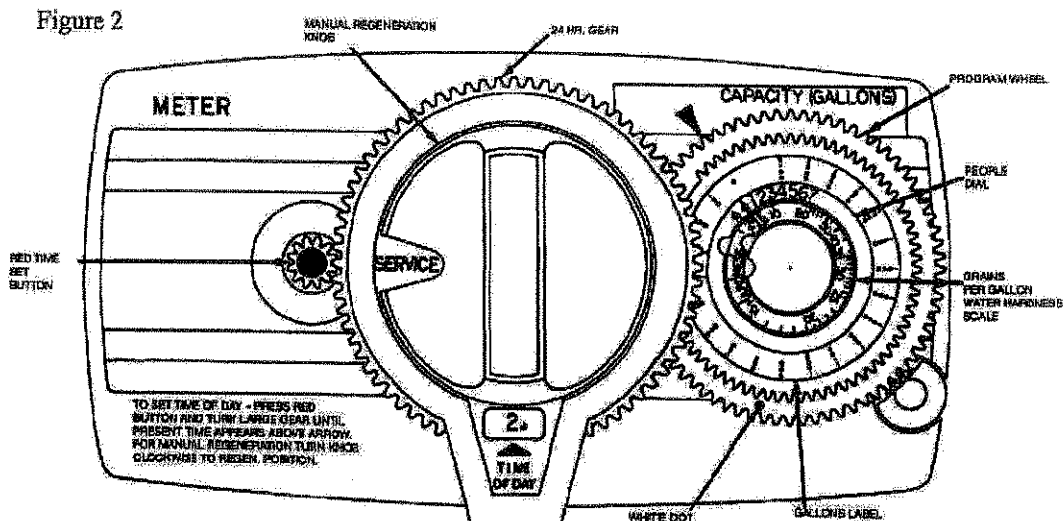


Filling Water Softener with Water:

1. Close inlet and outlet ball valves.
2. Turn Manual Regeneration Knob in a clockwise direction until you reach the Backwash position.
3. Open inlet ball valve 1/4 turn and allow water to fill tank slowly for approximately 10 minutes. After all air has been purged from tank, fully open inlet ball valve and allow water to run in this position for 15 minutes.
4. Turn the Manual Regeneration Knob in a clockwise direction until you reach the Rapid Rinse position. Allow the unit to stay in this position for approximately 10 minutes to purge the media fines to drain.
5. Plug the timer into the electrical outlet. The timer will automatically advance to the service position after completing the Rapid Rinse cycle. If water runs dirty to service, place unit in backwash position and allow the timer to go through a complete regeneration. The total

regeneration will take approximately 2 hours. The unit will be in the service position after regeneration is complete.

WTF Control Valve Timer Settings:



Cycles

- 1.) Preliminary Rinse (Downflow)
- 2.) Backwash (Upflow)
- 3.) Brine and Slow Rinse (Downflow)
- 4.) Rapid Rinse (Upflow)
- 5.) Settling Rinse (Downflow) and Brine Tank Refill
- 6.) Service (Downflow)

Time of Day Setting

- 1) To set the proper time of day, depress the Red Time Set Button and turn the 24 Hour Gear until the correct time of day is aligned with the Time of Day Arrow. **Note whether the time is A.M. or P.M.**
- 2) The timer is preset to regenerate at 2:00 AM.

Time of Regeneration Setting (1-99 Days Between Regeneration Option) (the factory default is 2 AM)

- 1) Locate the Program Wheel on the timer. (See Figure 2 on page 5). **NOTE: On 48,000 gr & 64,000 gr softeners, just lift dial and set gallons between regenerations. (ie: Capacity divided by compensated hardness.)**
- 2) The Program Wheel has a top dial with number of people. Lift this dial and rotate until you align the amount of people in the household with the grains of hardness in the untreated water.

le: Setting the timer for a (4) person household with 20 gpg of hardness in the untreated water. Align the #4 on the people dial with the #20 on the hardness decal.

- 3) Plug the meter cable, extending from the back of the timer assembly, into the top of the meter housing.

Note: If iron*, use compensated hardness as calculated below

Compensated Hardness (gpg) = Total Hardness (gpg) + [3 x Iron (ppm)]

*Clear water iron

Please contact the installer for assistance.

Final Check:

1. Make sure the drain line connection meets all plumbing codes and that the drain line size can handle the backwash flow rate of the softener.
2. Make sure the Inlet and Outlet ball valves are open and the Bypass ball valve is closed. If using a 5600 brass bypass valve, make sure it's in the service position.
3. Make sure the 5600 control valve timer is plugged into an electrical outlet with power 24 hours per day.
4. Check all piping for leaks.
5. Check timer regeneration frequency and time of day settings.

Troubleshooting

Symptom: Unit Fails to Regenerate

Cause	Solution
Faulty electrical supply	Verify that electrical power is getting to the outlet
Low inlet water pressure	Verify a minimum 20 psi inlet water pressure
Drain line is restricted	Insure that the drain line is free of blockage
Defective timer motor	Replace the timer motor
Plugged backwash flow control	Clean or replace the backwash flow control
All skipper pins are slid inward	Slide the desired number of pins outward
The injector is plugged	Clean the injector

Symptom: Hard Water When Unit is in Service Position

Cause	Solution
The bypass valve is open or defective	Insure that the bypass valve is in the service position
No salt in the brine tank	Add solar salt to the brine tank
Not enough water in the brine tank	Verify that the 5600 timer is set for the proper amount of salt usage
Unit fails to draw brine (salt water)	See symptom: Unit fails to draw brine
Excessive water usage	Set the timer to regenerate more often
Loss of cation resin	See symptom: Loss of cation resin
Change in raw water hardness level	Test the raw water hardness level and adjust regeneration frequency
Leak at the distributor tube	Verify that the distributor is flush with the top of the tank

Symptom: Unit uses too Much Salt

Cause	Solution
Improper salt usage timer setting	Verify that salt usage setting on the back of the timer is set according to the Specification Reference Table
Excessive water in the brine tank	See symptom: Excessive water in Brine Tank

Symptom: Loss of Cation Resin

Cause	Solution
Backwash flow control is missing or is the incorrect size	Verify that the proper backwash flow control is installed
Air in the system	Verify that the well system is operating properly

Symptom: Excessive Water in the Brine Tank

Cause	Solution
Injector is plugged	Clean or replace the injector
Defective or damaged piston/spacers assembly	Replace the piston/spacers assembly
The brine float assembly seals on the 464 brine tank shutoff are dirty or worn	Replace the 464 brine float assembly
Salt setting at the back of the timer assembly is set incorrectly	Verify that the salt setting on the timer assembly corresponds with the reference table
Drain line is restricted	Insure that there are no restrictions in the drain line piping
Plugged backwash control	Clean the backwash flow control (BWFC)

Symptom: Unit Fails to Draw Brine

Cause	Solution
Injector is plugged	Clean or replace the injector
Loose suction line connection	Verify that all suction line connections are tight
Drain line is restricted	Insure that there are no restrictions in the drain line piping
Low inlet water pressure	Verify a minimum 20 psi inlet water pressure
Improper installation of distributor pipe	Verify that the distributor is flush with the top of the tank

Symptom: Continuous Flow to Drain

Cause	Solution
Defective or damaged piston/spacers assembly	Replace the piston/spacers assembly
Piston rod assembly is damaged	Replace piston rod assembly
Drive motor failure	Replace the drive motor

Symptom: Loss of Water Pressure

Cause	Solution
Dirt build-up in softener tank	Clean or replace the Cation Resin
Dirt build-up in the inlet piping to the Water Softener Unit	Clean or replace the inlet piping
Distributor pipe is plugged	Clean or replace the distributor pipe

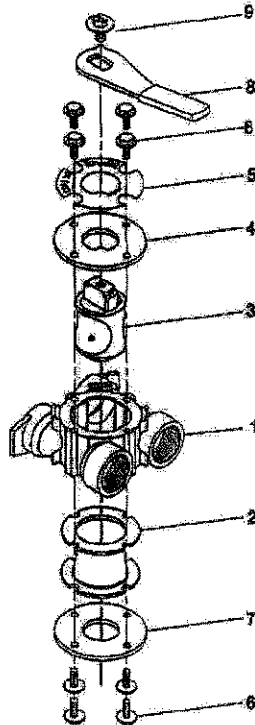
Symptom: Control Valve Cycles Continuously

Cause	Solution
Defective timer assembly	Replace the timer assembly

WTF SOFTENER CONTROL VALVE & PARTS

MODEL 5600

by-pass valve assembly



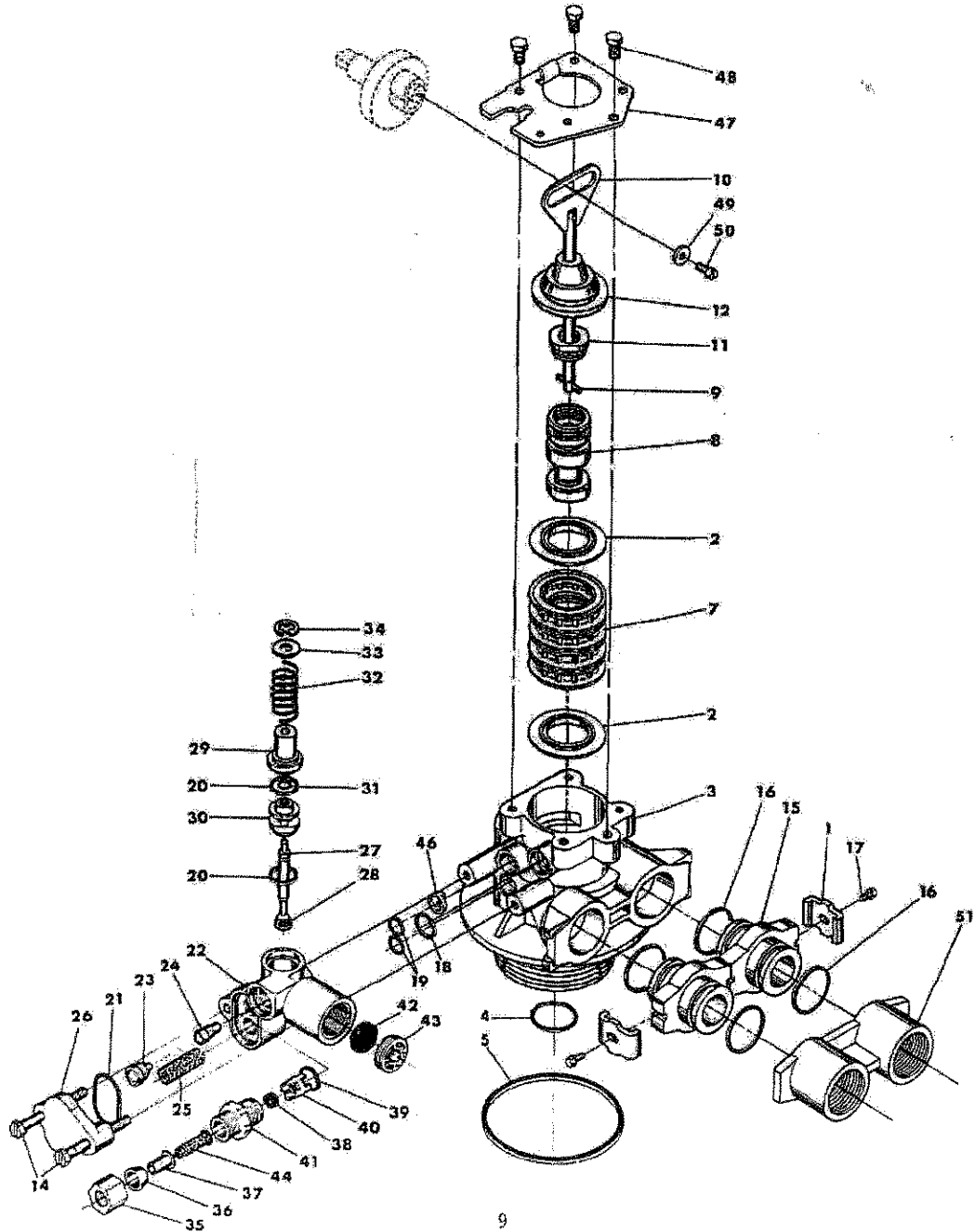
PARTS LIST

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

MODEL 5600

control valve assembly

(see opposite page for parts list)



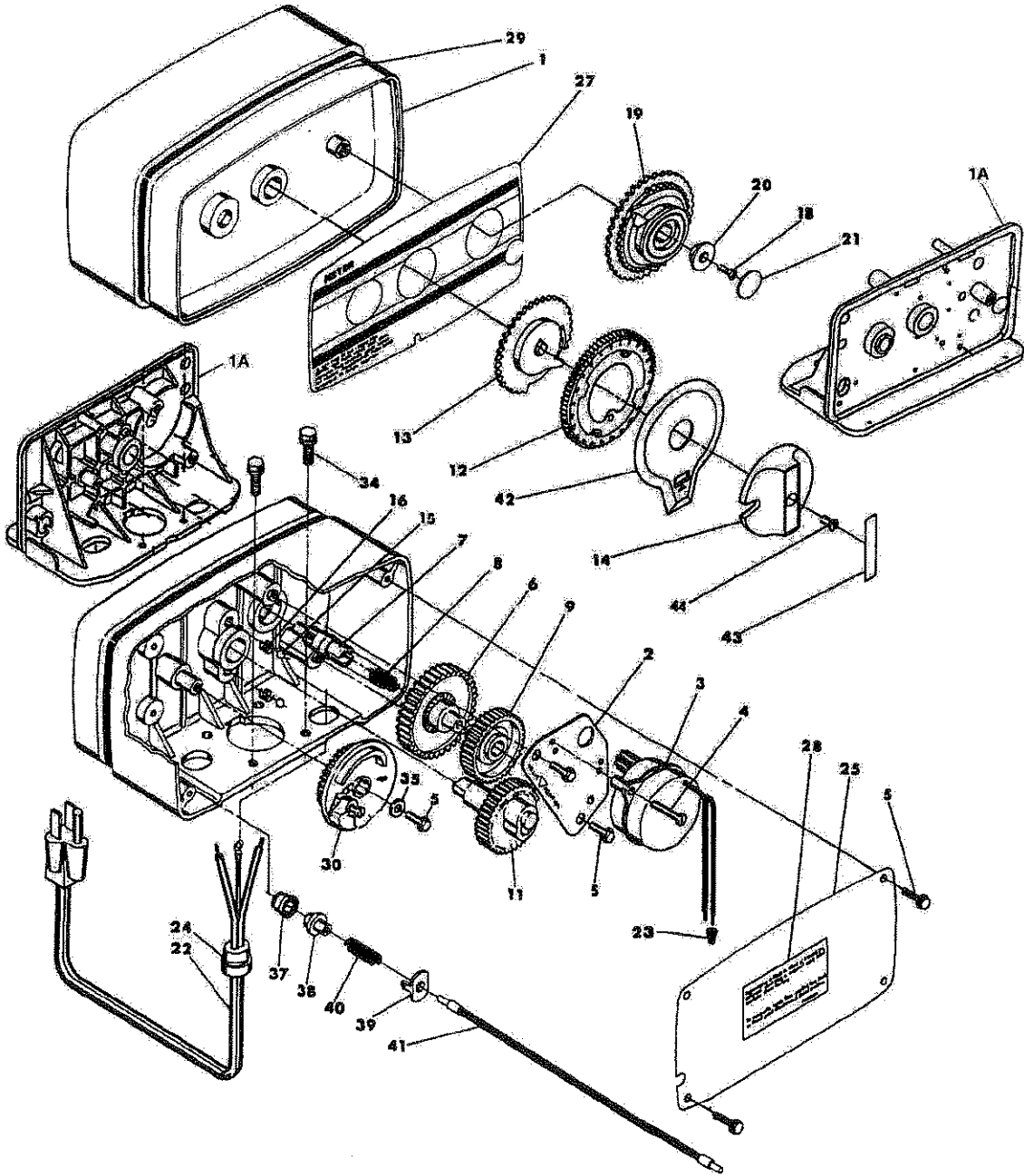
**MODEL 5600
CONTROL VALVE ASSEMBLY
PARTS LIST**

ITEM NO.	NO. REQ'D.	PART NO.	DESCRIPTION
1	2	13255	Adapter Clip
2	5	13242	Seal
3	1	14449	Valve Body Assembly - 1" Dist.
	1	14450	Valve Body Assembly - 3/8" Dist.
4	1	13304	"O" Ring - Distributor Tube - 1"
	1	10244	"O" Ring - Distributor Tube - 3/8"
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
13			Not Assigned
14	2	13315	Screw - Injector Mounting
15	2	13709	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	18098	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	12094	B.L.F.C. Button - .25 GPM
	1	12095	B.L.F.C. Button - .50 GPM
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 Dispenser
47	1	13546	End Plug Retainer
48	3	12112	Screw
49	1	13363	Washer
50	1	13296	Screw
51	1	13708	Adapter - 3/4" N.P.T.
	1	13398	Adapter - 1" N.P.T.

MODEL 5600 ECONOMINDER®

control valve drive assembly

(see opposite page for parts list)

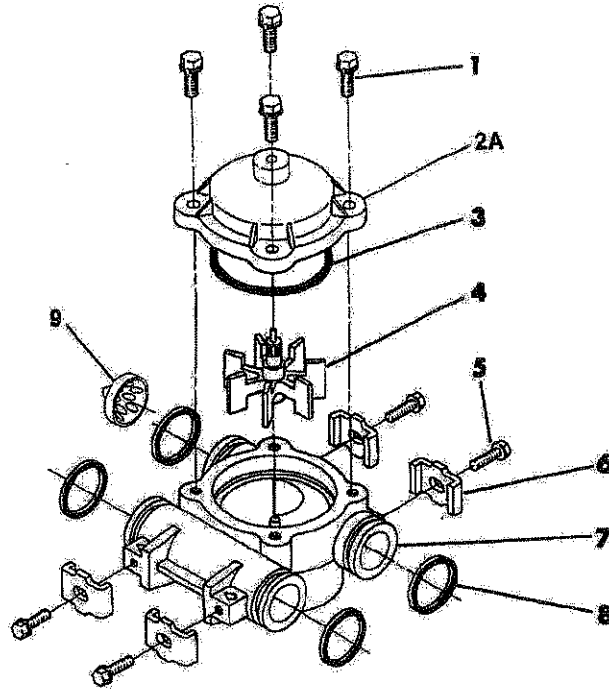


**MODEL 5600 ECONOMINDER
TIMER - METER INITIATED
PARTS LIST**

ITEM NO.	NO. REQ'D.	PART NO.	DESCRIPTION
1	1	14448-000	Housing - with Roll Pin
	1	14448-001	Housing - w/Pin Drilled for Screw
	1	14448-0	Housing - w/Pin Drilled for Thumb Screw
1a	1	15494-01	"L" Housing - w/Pin
	1	15494-03	"L" Housing - w/Pin Drilled for Designer
2	1	13175	Motor Mounting Plate
3	1	18743	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	13310	Rear Label - Softener
	1	18520	Rear Label - Filter
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, 8-36
	1	60514-02	Brine Cam Assembly - Minutes
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, Rt Angle
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

MODEL 5600 ECONOMINDER®

meter assembly



PARTS LIST

Item No.	No. Required	Part No.	Description
1	4	.12473	Screw — Meter Cover Assembly
2	1	.14038	Meter Cover Assembly - Standard
	1	.15659-90	Meter Cover Assembly - Extended Range, Rt. Angle (Not Shown)
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



QUALITY WATER TREATMENT SYSTEMS

LIMITED WARRANTY

This **LIMITED WARRANTY** applies to original purchasers of water conditioners and filters ("Unit" or "Units") distributed by the Milby Company. The Units are made from the finest materials available and are warranted for the periods shown below so long as the Units are operated in conformity with the specified Physical Properties and only in residential applications.

Any component part of a purchased Unit identified in the attached Warranty Registration Card by model and serial number that is installed by a licensed contractor according to the applicable installation manual and local plumbing and electrical codes will be repaired or replaced, at Milby's option, if a failure occurs due to defective material or workmanship. Any accident to the Unit, misuse, abuse or alteration of the Unit, or any unauthorized attempt to repair the Unit will void this warranty. Modifications or repairs by anyone other than an authorized Milby dealer are not covered by this warranty.

PHYSICAL PROPERTIES		COMPONENT PART	WARRANTY PERIOD
Max. Pressure	75 PSI	Media Tank	10 yrs. From Date of Purchase
Max. Temperature	100 Degrees Fahrenheit	Salt Storage Tank	5 yrs From Date of Purchase
Min. Temperature	32 Degrees Fahrenheit	Control Valve	3 yrs From Date of Purchase
		Media Performance due to misapplication, faulty installation, or clogging	None

Under this warranty, Milby will only repair or replace a Unit or component part with an identical or similar Unit or component part distributed by Milby. A replacement Unit or component part shall be warranted only for the remainder of the warranty period of the original purchased Unit or part. The purchaser is responsible for all other costs, including, but not limited to (1) labor charges for service, removal, repair or reinstallation of the Unit or component part, (2) shipping, delivery, handling and administrative charges for necessary or incidental costs for any materials required for installation of the replacement Unit or component parts.

THERE ARE NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES FOR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WHATSOEVER WITH RESPECT TO THE INSTALLATION, OPERATION, REPAIR OR REPLACEMENT OF A UNIT AND/OR ITS COMPONENT PARTS THAT EXTEND BEYOND THE APPLICABLE LIMITED WARRANTY HEREIN. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

UNDER NO CIRCUMSTANCES SHALL MILBY BE LIABLE TO THE PURCHASER OR ANY OTHER PERSON FOR WATER DAMAGE, LOSS OF USE OF THE UNIT, INCONVENIENCE, LOSS OR DAMAGE TO PERSONAL PROPERTY, OR ANY OTHER SPECIAL OR CONSEQUENTIAL DAMAGES, WHETHER ARISING OUT OF BREACH OF WARRANTY, BREACH OF CONTRACT, TORT, OR OTHERWISE. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.

To obtain coverage under this warranty, the consumer must complete and return the attached Warranty Registration Card within thirty (30) days from the date of purchase to Milby at: Attn: Customer Service, Milby Company, 6201 South Hanover Road, Elkridge, Maryland 21075-5651. Any claim under this warranty should be initiated with the dealer who sold the Unit to the purchaser. If this is not practicable, the purchaser should contact Milby directly at 410-796-7700.

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■ WARRANTY REGISTRATION CARD

■ Purchaser Name: _____

■ and Address _____

■ Model # _____ Date of Purchase: _____

■ Dealer Name: _____

■ and Address _____

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MILBY COMPANY
 6201 South Hanover Road
 Elkridge, MD 21075-5651

Phone: 410- 796-7700
 Fax: 410- 796-7739