

# MODEL 2510 & 2510 ECONOMINDER

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*Service Manual*

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**IMPORTANT:** Fill in pertinent information on page 3 for future reference.



# MODEL 2510 & 2510 ECONOMINDER

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## *job specification sheet*

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- JOB NO. \_\_\_\_\_
  - \*MODEL NO. \_\_\_\_\_
  - WATER TEST \_\_\_\_\_
  - CAPACITY PER UNIT \_\_\_\_\_ MAX. \_\_\_\_\_ PER REGENERATION
  - MINERAL TANK SIZE DIA. \_\_\_\_\_ HEIGHT \_\_\_\_\_
  - BRINE TANK SIZE & SALT SETTING PER REGENERATION:
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- \* 2510 CONTROL VALVE SPECIFICATIONS:

1. Timer Program Used
  - A. Separate Time Fill Cams
  - B. Rapid Rinse Cams
2. Type of Meter (3/4")
  - A. \*Std. range 125 to 2,100 gal. setting
  - B. \*Ext. range 625 to 10,500 gal. setting
3. Meter Gallon Setting \_\_\_\_\_ gal.
4. Regeneration Program Setting (see page 6)
  - A. Backwash \_\_\_\_\_ min.
  - B. Brine & Slow Rinse \_\_\_\_\_ min.
  - C. Rapid Rinse \_\_\_\_\_ min.
  - D. Brine Tank Refill \_\_\_\_\_ min.
5. Drain Line Flow Control \_\_\_\_\_ gpm
6. Brine Refill Rate \_\_\_\_\_ gpm
7. Injector Size \_\_\_\_\_

# MODEL 2510 & 2510 ECONOMINDER

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## *installation instructions*

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**WATER PRESSURE:** A minimum of 20 pounds of water pressure is required for regeneration valve to operate effectively.

**ELECTRICAL FACILITIES:** An uninterrupted alternating current (A/C) supply is required. Note: Other voltages are available. Please make sure your voltage supply is compatible with your unit before installation.

**EXISTING PLUMBING:** Condition of existing plumbing should be free from lime and iron buildup. Piping that is built up heavily with lime and/or iron should be replaced. If piping is clogged with iron, a separate iron filter unit should be installed ahead of the water softener.

**LOCATION OF SOFTENER AND DRAIN:** The softener should be located close to a drain to prevent air breaks and back flow.

**BY-PASS VALVES:** Always provide for the installation of a by-pass valve if unit is not equipped with one.

**CAUTION:** Water pressure is not to exceed 120 p.s.i., water temperature is not to exceed 110°F, and the unit cannot be subjected to freezing conditions.

### INSTALLATION INSTRUCTIONS

1. Place the softener tank where you want to install the unit making sure the unit is level and on a firm base.
2. All plumbing should be done in accordance with local plumbing codes. The pipe size for the drain line should be a minimum of 1/2". Backwash flow rates in excess of 7 gpm or length in excess of 20' require 3/4" drain line.
3. The 1" distributor tube (1.050 O.D.) should be cut flush with top of each tank.
4. Lubricate the distributor o-ring seal and tank "o" ring seal. Place the main control valve on tank. Note: Only use silicone lubricant.
5. Solder joints near the drain must be done prior to connecting the Drain Line Flow Control fitting (DLFC). Leave at least 6" between the DLFC and solder joints when soldering pipes that are connected on the DLFC. Failure to do this could cause interior damage to the DLFC.
6. Teflon tape is the only sealant to be used on the drain fitting.
7. Make sure that the floor is clean beneath the salt storage tank and that it is level.
8. Place approximately 1" of water above the grid plate. If a grid is not utilized, fill to the top of the air check in the salt tank. Do not add salt to the brine tank at this time.
9. On units with a by-pass, place in by-pass position. Turn on the main water supply. Open a cold soft water tap nearby and let run a few minutes or until the system is free from foreign material (usually solder) that may have resulted from the installation. Once clean, close the water tap.
10. Slowly place the by-pass in service position and let water flow into the mineral tank. When water flow stops, slowly open a cold water tap nearby and let run until the air is purged from the unit.
11. Plug unit into an electrical outlet. Note: All electrical connections must be connected according to local codes. (Be certain the outlet is uninterrupted).

# MODEL 2510 & 2510 ECONOMINDER

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## *start-up instructions*

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

1. Remove control box cover.
2. Make "Time of Day" setting and set "Program Wheel". (See time control instructions). Rotate program wheel counter clockwise until it stops at regeneration position.
3. Observe regeneration cycle settings. Arrange cycle times as determined in "Item 4" on "Page 2".
4. Add three inches of water to brine tank.
5. **Note:** To set the control to the various positions noted below. Turn the manual regeneration knob slowly in a clockwise direction until the Program Micro Switch lifts on top of the first set of pins. Allow the drive motor to move the piston to the first regeneration step and stop. Each time the Program Switch position changes, the valve will advance to the next regeneration step. Always allow the motor to stop before moving to the next set of pins or spaces. (See "Timer Program" instructions).

### **Control Valve Positions:**

- |                       |  |
|-----------------------|--|
| a. Service            | Drive shaft out  |
| b. Backwash           | Drive shaft in   |
| c. Brine / Slow Rinse | Drive shaft 1/2 way out                                  |
| d. Rapid Rinse        | Drive shaft 3/4 way out                                  |
| e. Brine Tank Fill    | Drive shaft out but brine cam holds brine valve stem in. |
6. Position valve to backwash and check to make sure that drain line flow remains steady for ten (10) minutes or until clear (see above).
  7. Position valve to brine / slow rinse position and check to see that the unit is drawing water from brine tank (this step may need repeating).
  8. Position valve to rapid rinse and check the drain line flow, run for 5 min. or until the water is clear. (Note: Rapid rinse and backwash flow rates should be the same).
  9. Position valve to start of brine tank fill cycle. See that water goes into the brine tank at proper rate. Brine valve drive cam will hold valve in at this position to fill the brine tank for the first regeneration.
  10. Replace control box cover.
  11. Put salt in brine tank (do not use granulated or rock salt).

# MODEL 3200 TIMER

## *timer setting procedure*

### How To Set Days On Which Water Conditioner Is To Regenerate:

Rotate the skipper wheel until the number "1" is at the red pointer. Set the days that regeneration is to occur by sliding tabs on the skipper wheel outward to expose trip fingers. Each tab is one day. Finger at red pointer is tonight. Moving clockwise from the red pointer, extend or retract fingers to obtain the desired regeneration schedule.

### How To Set The Time Of Day:

Press and hold the red button in to disengage the drive gear. Turn the large gear until the actual time of day is at the time of day pointer.

Release the red button to again engage the drive gear.

### How To Manually Regenerate Your Water Conditioner At Any Time:

Turn the manual regeneration knob clockwise.

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

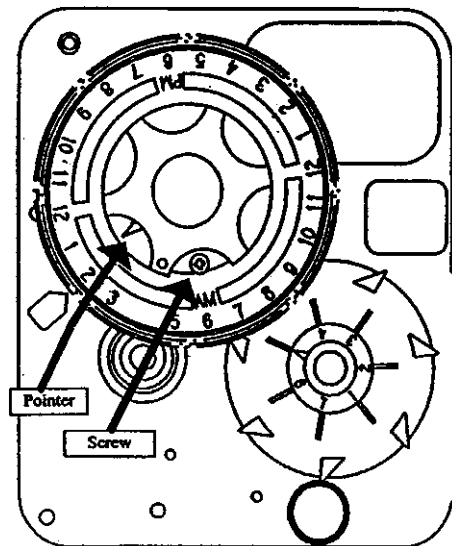
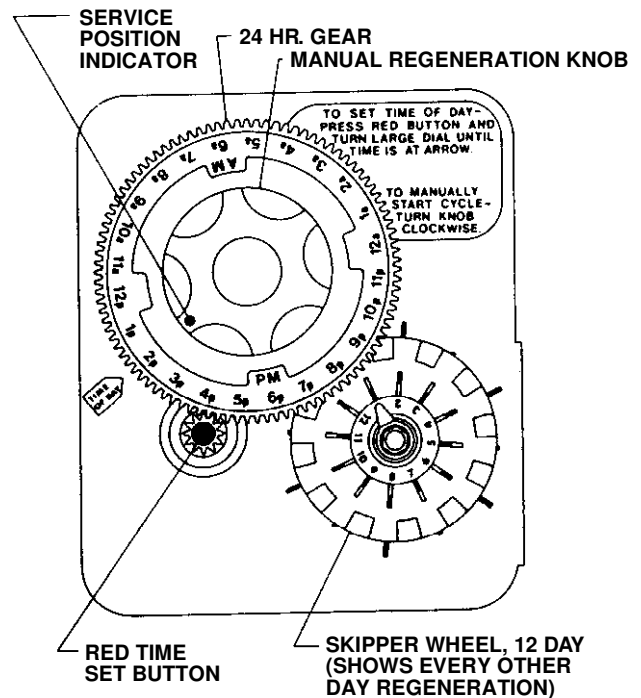
The black center knob will make one revolution in the following approximately three hours and stop in the position shown in the drawing.

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

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

### How to Adjust Regeneration Time:

1. Disconnect the power source.
2. Locate the three screws behind the manual regeneration knob by pushing the red button in and rotating the 24 hour dial until each screw appears in the cut out portion of the manual regeneration knob.
3. Loosen each screw slightly to release the pressure on the time plate from the 24 hour gear.
4. Locate the regeneration time pointer on the inside of the 24 hour dial in the cut out.
5. Turn the time plate so the desired regeneration time aligns next to the raised arrow.
6. Push the red button in and rotate the 24 hour dial. Tighten each of the three screws.
7. Push the red button and locate the pointer one more time to ensure the desired regeneration time is correct.
8. Reset the time of day and restore power to the unit.



3200 ADJUSTABLE REGENERATION TIMER

**IMPORTANT!**

**SALT LEVEL MUST ALWAYS BE ABOVE WATER LEVEL IN BRINE TANK.**

# MODEL 3200 TIMER

## *regeneration cycle program setting procedure*

*(brine tank refill separate from rapid rinse - stf) Black drive cam and brine valve cam*

### How To Set 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, grasp timer in upper left-hand corner and pull, releasing snap retainer and swinging timer to the right.

To change the regeneration cycle program, the program wheel must be removed. Grasp program wheel and squeeze protruding lugs towards center, lift program wheel off timer. (Switch arms may require movement to facilitate removal.)

### 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 a zero determines the length of time your unit will backwash.

FOR EXAMPLE: If there are six pins in this section, the time of backwash will be 12 min. (2 min. per pin). to change the length of backwash time, add or remove pins as required. The number of pins times two equals the backwash time in minutes. **(Note: Do not add pins before "0" minutes designation.)**

### How To Change The Length Of Brine and Rinse Time:

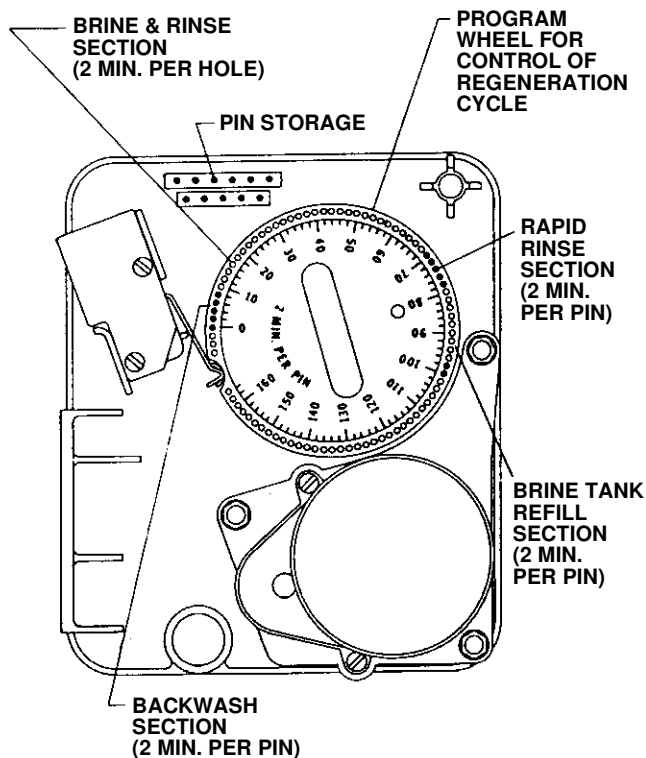
The group of holes between the last pin in the backwash section and the second group of pins determines the length of time that your unit will brine and rinse. (2 min. per hole.)

To change the length of brine and rinse time, move the rapid rinse group of pins to give more or fewer holes in the brine and rinse section. Number of holes times two equals brine and rinse time in minutes.

### How To Change The Length Of Rapid Rinse:

The second group of pins on the program wheel determines the length of time that your water conditioner will rapid rinse. (2 min. per pin.)

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



### How To Change The Length Of Brine Tank Refill Time:

The second group of holes on the program wheel determines the length of time that your water conditioner will refill the brine tank. (2 min. per hole.)

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

The regeneration cycle is complete when the outer micro-switch is tripped by the two pin set at end of the brine tank refill section. The program wheel, however, will continue to rotate until the inner micro-switch drops into the notch on the program wheel.

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

### IMPORTANT!

**SALT LEVEL MUST ALWAYS BE ABOVE WATER LEVEL IN BRINE TANK.**

# MODEL 3200 TIMER

## *regeneration cycle program setting procedure*

### *(rapid rinse) White drive cam and brine valve cam*

#### **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.

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

To change the regeneration cycle program, the program wheel must be removed. Grasp program wheel and squeeze protruding lugs towards center, lift program wheel off timer. (Switch arms may require movement to facilitate removal.)

#### **How To Change The Length Of The Backwash Time:**

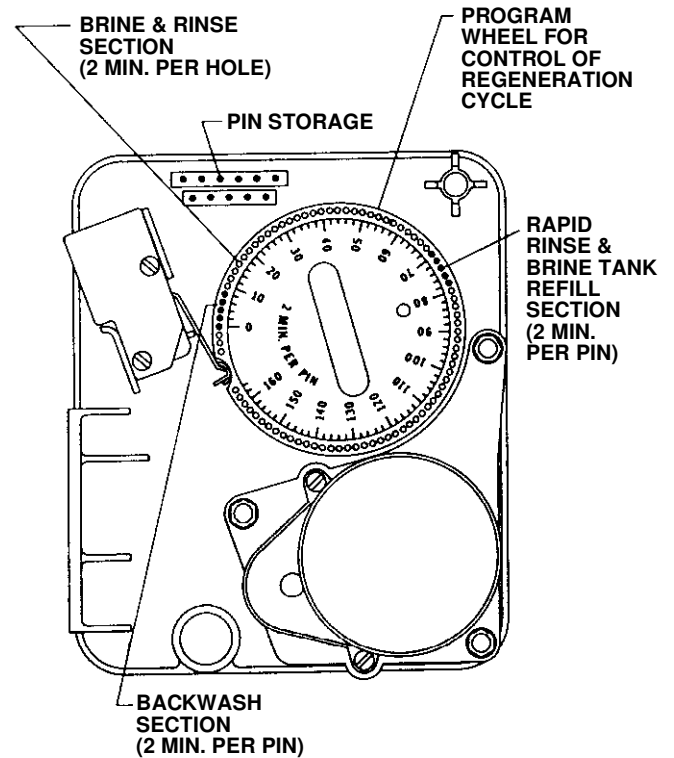
The program wheel as shown in the drawing is in the service position. As you look at the numbered side of the program wheel, the group of pins starting at zero determines the length of time your unit will backwash.

FOR EXAMPLE: If there are six pins in this section, the time of backwash will be 12 min. (2 min. per pin). to change the length of backwash time, add or remove pins as required. The number of pins times two equals the backwash time in minutes. **(Note: Do not add pins before "0" minutes designation)**

#### **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 And Brine Tank Fill Time:**

The second group of pins on the program wheel determines the length of time that your water conditioner will rapid rinse and brine tank fill. (2 min. per hole.)

To change the length of rapid rinse and brine tank fill 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 and brine tank fill time in minutes.

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

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

### **IMPORTANT!**

**SALT LEVEL MUST ALWAYS BE ABOVE WATER LEVEL IN BRINE TANK.**



*Notes*

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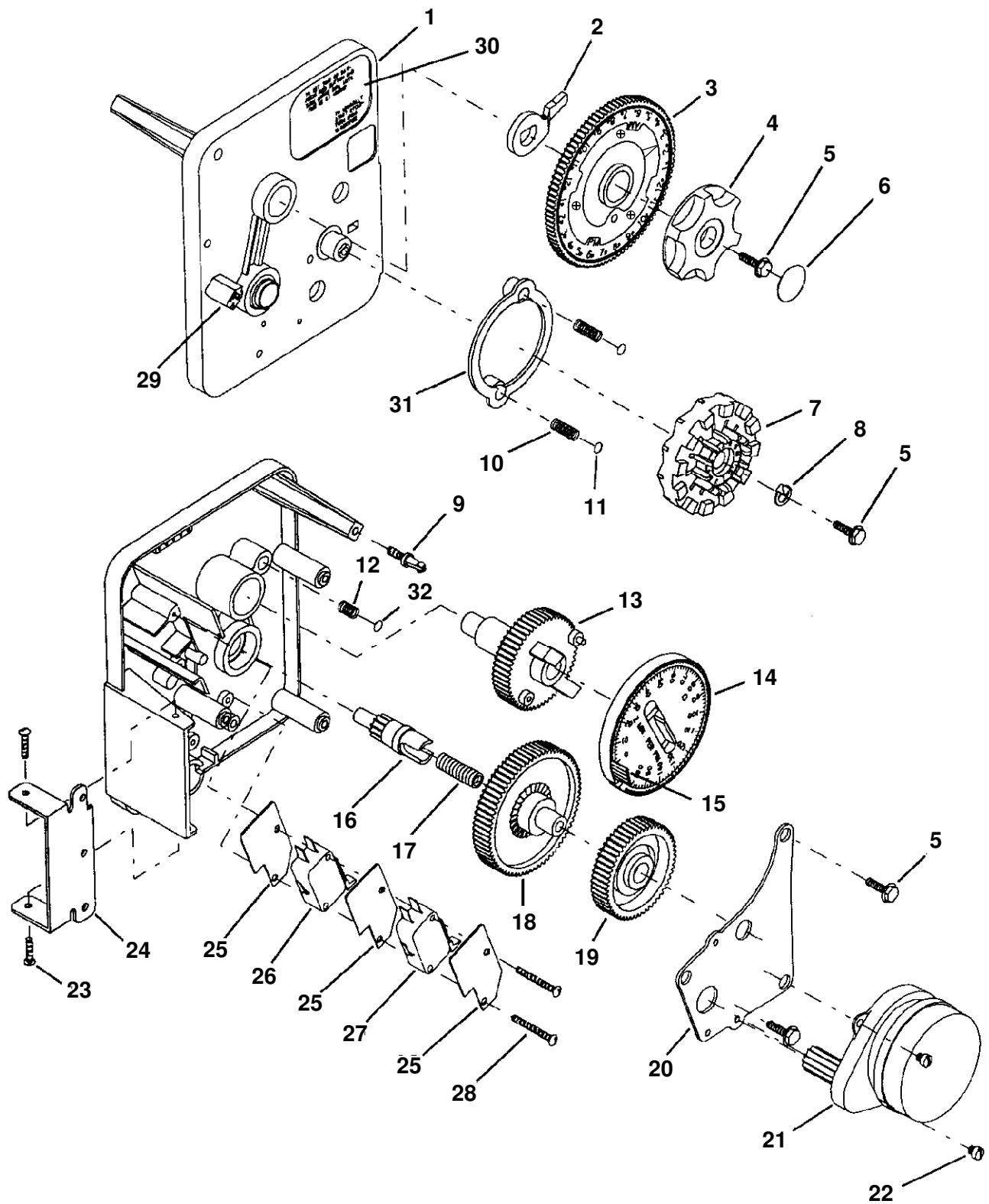
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# MODEL 3200 TIMER

## *timer assembly*

*(see opposite page for parts list)*



# MODEL 3200 TIMER

## *timer assembly*

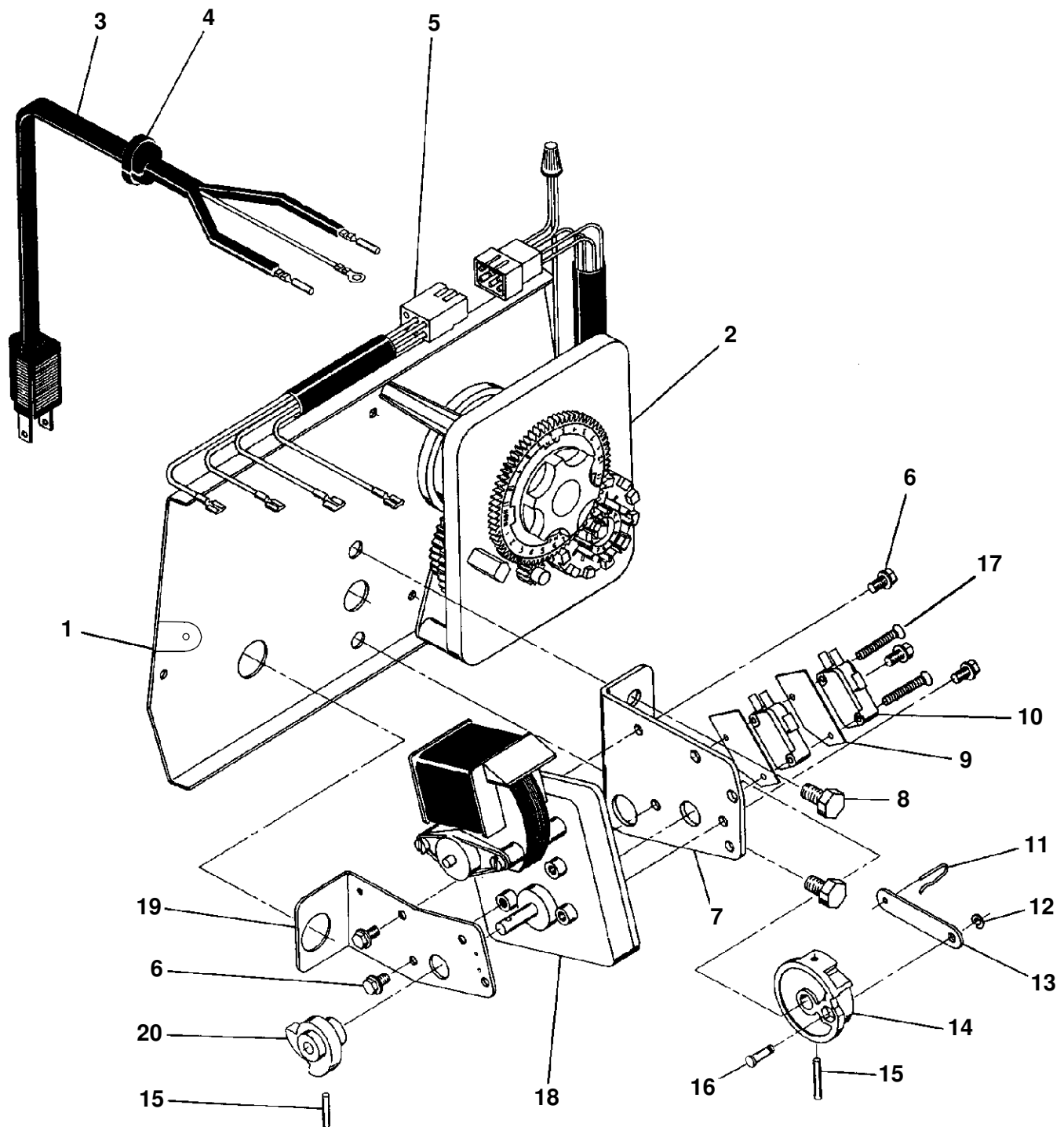
### *(parts list)*

Item No.	No. Req'd	Part No.	Description
1	1	13870	Timer Housing
2	1	13011	Cycle Actuator Arm
3	1	40096-24	24 Hour Gear Assembly, 12 Midnight
		40096-02	24 Hour Gear Assembly, 2 a.m.
4	1	13886-01	Knob
5	5	13296	Screw - Timer Knob and Motor Mtg. Plate
6	1	11999	Button Decal
7	1	14381	Skipper Wheel Assembly - 12 Day
		14860	Skipper Wheel Assembly - 7 Day
8	1	13014	Regeneration Pointer
9	1	14265	Spring Clip
10	2	13311	Spring - Skipper Wheel Detent
11	2	13300	Ball - 1/4 in. Dia. Skipper Wheel
12	1	15424	Spring - Main Gear Detent
13	1	13911	Main Drive Gear
14	1	19210	Program Wheel
15	21	15493	Roll Pin
16	1	13018	Idler Shaft
17	1	13312	Spring - Idler
18	1	13017	Idler Gear
19	1	13164	Drive Gear
20	1	13887	Motor Mounting Plate
21	1	18743	Motor - 120V., 60 Hz.
		19659	Motor - 24V., 60 Hz.
22	2	13278	Screw - Motor Mounting
23	3	11384	Screw - Timer Hinge & Ground Wire
24	1	13881	Hinge Bracket
25	3	14087	Insulator
26	1	10896	Switch
27	1	15320	Switch
28	2	11413	Screw - Switch Mounting
29	1	14007	Decal - Time of Day
30	1	14045	Decal - Instructions
31	1	13864	Skipper Wheel Ring
32	1	15066	Ball 1/4 in. Dia. Main Gear
Not Shown	1	13902	Harness
Not Shown	2	12681	Wire Connector
Not Shown	1	15354-01	Ground Wire

# MODEL 2510

## *control valve drive assembly*

*(see opposite page for parts list)*



# MODEL 2510

## *control valve drive assembly*

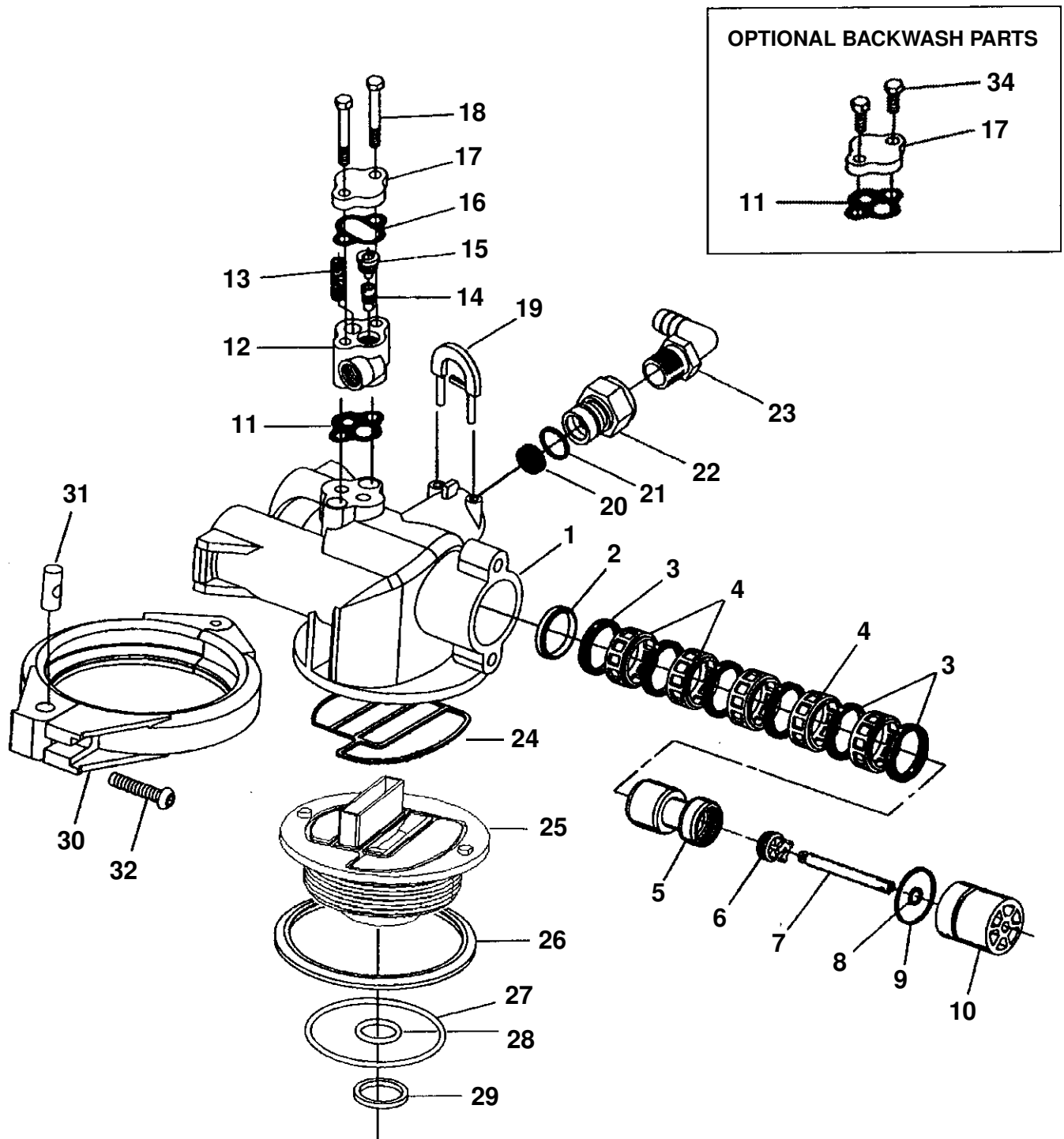
*(parts list)*

Item No.	No. Req'd	Part No.	Description
1	1	14884	Back Plate - Stainless Steel
2	1		3200, Timer 7 or 12 Day
3	1	11838	Power Cord
4	1	13547	Strain Relief
5	1	11667	Wire Harness
6	5	10872	Screw - Motor Mounting
7	1	10774	Bracket - Motor Mounting
8	2	10231	Screw - Drive Mounting
9	2	10302	Insulator
10	2	10218	Switch
11	1	10909	Connecting Link Pin
12	1	10250	Retaining Ring
13	1	10621	Connecting Link
14	1	12576	Drive Cam - STF (Black)
	1	12102	Drive Cam - RR (White)
15	2	10338	Roll Pin
16	1	13366	Drive Bearing
17	2	14923	Screw - Switch Mounting
18	1	10769	Motor
19	1	11826	Bracket - Brine Valve Side
20	1	12777	Brine Valve Cam - STF (Black)
	1	10815	Brine Valve Cam - RR (White)
Not Shown.	2	10300	Screw - Timer Mounting
Not Shown.	1	13741	Hole Plug
Not Shown.	1	17904	Hole Plug
Not Shown.	2	19367	Screw, Thumb

# MODEL 2510

## control valve assembly

(see opposite page for parts list)



# MODEL 2510

## *control valve assembly*

### *(parts list)*

Item No.	No. Req'd	Part No.	Description
1	1	19328	Valve Body
2	1	10757	End Spacer
3	6	10545	Seal Ring
4	5	11451	Spacer
5	1	15168	Piston
6	1	14309	Piston Rod Retainer
7	1	14452	Piston Rod
8	1	10209	Seal Quad Ring
9	1	40078	Seal "O" Ring - End Plug
10	1	10598	End Plug Assembly
11	1	11475	Injector Body Gasket
12	1	17776	Injector Body - Plastic
13	1	10227	Injector Screen
14	1	10914	Injector Throat (Specify Size)
15	1	10913	Injector Nozzle (Specify Size)
16	1	10229	Injector Cover Gasket
17	1	11893	Injector Cap (Plastic Body)
18	2	10692	Injector Body Screw
19	1	18312	Drain Retainer
20	1		Flow Control Washer (Specify Flow Rate in GPM)
21	1	11183	Seal "O" Ring
22	1	11385	Flow Control Housing
23	1	12338	1/2 Pipe x 1/2 Hose x 90° Drain Fitting
24	1	19936	Base Seal
25	1	19322	Adapter Base (2 1/2-8 Thd)
26	1	19197	Slip Ring
27	1	18303	Tank O-Ring
28	1	13304	Distributor O-Ring
29	1	13030	Retainer, Distributor Tube O-Ring
30	1	60503	Clamp Assembly
31	1	19998	Clamp Pivot
32	1	40057	Clamp Screw
	1	40000	Pin Hinge (not shown)
NOTE: FOR BACKWASH FILTER VALVE - REPLACE ITEMS 12-18			
17	1	11893	Injector Cap
34	2	15137	Screw Flat Cap
11	1	11475	Injector Body Gasket

# MODEL 2510 ECONOMINDER

## *demand regeneration control*

### Typical Residential Application

To program, just set the time, set the hardness and it automatically monitors system needs and regenerates only when necessary. To set time of day press red time set button and turn 24 hour gear until present time of day is opposite "time of day arrow." Set program wheel by lifting the "people" dial and rotating it so that the number of people in the household is aligned with the grains per gallon water hardness scale. Release the dial and check for firm engagement at setting. (This method will provide reserve capacity based on 75 gallons per person.)

### Optional Programming Procedure

Calculate the gallon capacity of the system, subtract the necessary reserve requirement and set the gallons available opposite the small white dot on the program wheel gear. Note, drawing shows 850 gallon setting. The capacity (gallons) arrow denotes remaining gallons exclusive of fixed reserve.

**ie: Calculated gallon capacity of system is 1000 gallons. Number of people using the system is 4. Use 75 gallons per person for a safe reserve capacity - 300 gallons reserve = 700 gallons available. This number should be set opposite the white dot on program wheel.**

### How To Set The Time Of Day:

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

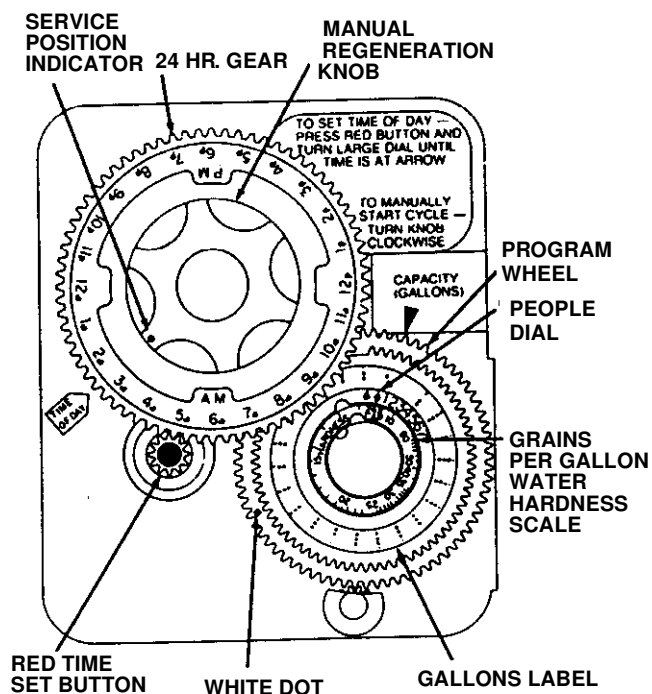
Turn the large gear until the actual time of day is at the time of day pointer.

Release the red button to again engage the drive gear.

### How To Manually Regenerate Your Water Conditioner At Any Time:

Turn the manual regeneration knob clockwise.

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



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

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

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

**IMPORTANT!**

**SALT LEVEL MUST ALWAYS BE ABOVE WATER LEVEL IN BRINE TANK.**



# MODEL 3210

## *regeneration cycle program setting procedure*

### **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.

### **If unit has a meter, disconnect meter cable from meter at this time.**

To expose cycle program wheel, grasp timer in upper left-hand corner and pull, releasing snap retainer and swinging timer to the right. **(meter cable must be disconnected)**

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.)

### **How To Change The Length Of The Backwash Time:**

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

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

### **How To Change The Length of Brine and Rinse Time:**

The group of holes between the last pin in the backwash section and the second group of pins determines the length of time that your unit will brine and rinse. (2 min. per hole.)

To change the length of brine and rinse time, move the rapid rinse group of pins to give more or fewer holes in the brine and rinse section. Number of holes times two equals brine and rinse time in minutes.

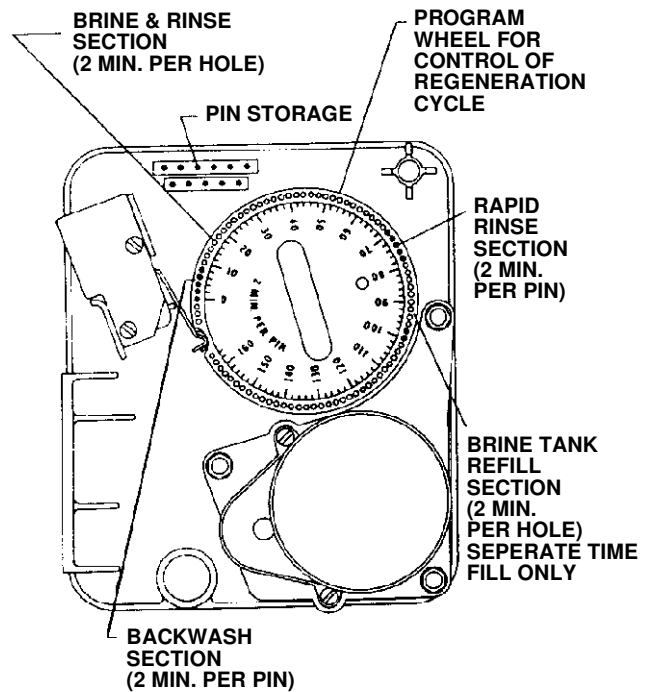
### **How To Change The Length Of Brine Tank Refill Separate From Rapid Rinse: STF Black Cams**

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.

### **How To Change The Length Of Brine Tank Refill Time:**

The second group of holes on the program wheel determines the length of time that your water conditioner will refill the brine tank. (2 min. per hole.)



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

The regeneration cycle is complete when the outer micro-switch is tripped by the two pinset at end of the brine tank refill section. The program wheel, however, will continue to rotate until the inner micro-switch drops into the notch on the program wheel.

### **How To Change The Length Of Rapid Rinse And Brine Tank Fill Time: RR White Cams**

The second group of pins on the program wheel determines the length of time that your water conditioner will rapid rinse and brine tank fill. (2 min. per pin.)

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

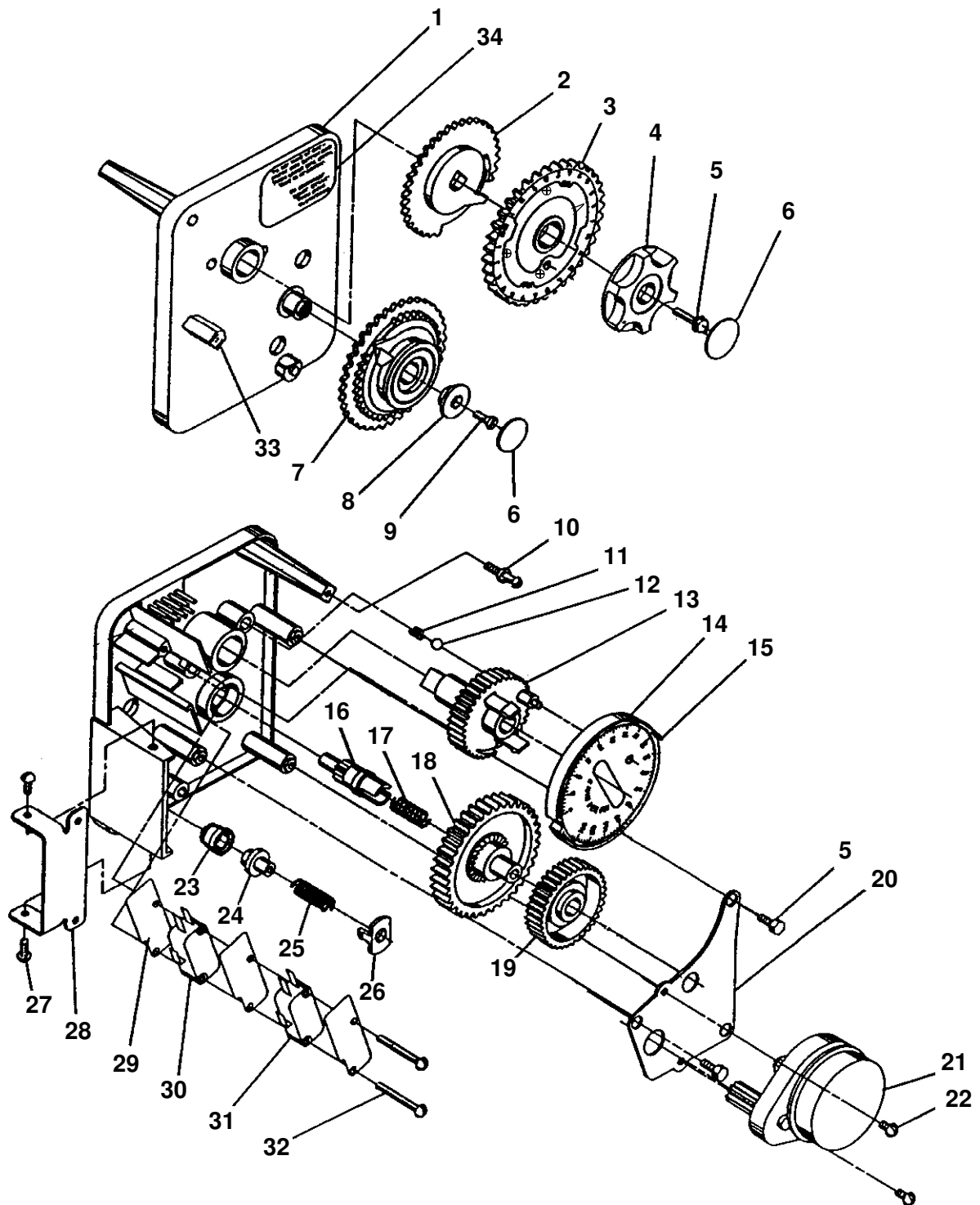
The regeneration cycle is complete when the outer micro-switch drops off the last pin in the rapid rinse and brine tank fill group of pins. The program wheel, however, will continue to rotate until the inner micro-switch drop into the notch on the program wheel.

**Return timer to closed position** engaging snap retainer in back plate. Make certain all electrical wires locate above snap retainer post and the meter cable slides though the backplate and does not bind. Reconnect meter cable.

# MODEL 3210

## timer assembly

(see opposite page for parts list)



# MODEL 3210

## *timer assembly*

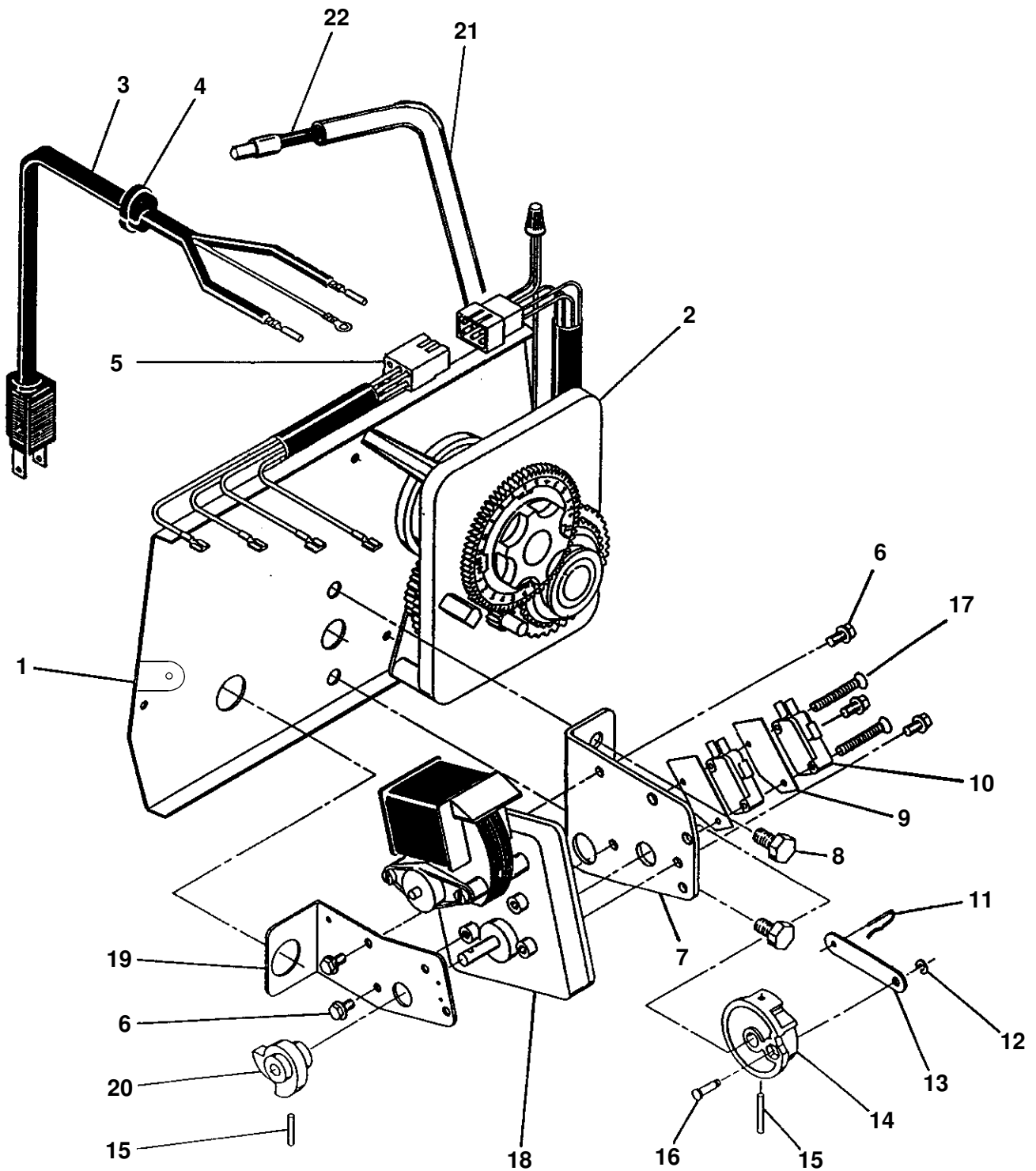
### *(parts list)*

Item No.	No. Req'd	Part No.	Description
1	1	13870-01	Timer Housing Assembly
2	1	13802	Cycle Actuator Gear
3	1	40096-24	24 Hour Gear Assembly, 12 Midnight
		40096-02	24 Hour Gear Assembly, 2 a.m.
4	1	13886-01	Knob
5	4	13296	Screw - Timer Knob and Motor Plate Mtg.
6	2	11999	Button Decal
7	1	60405-15	Program Wheel Assy. (Specify Hardness Capacity)
8	1	13806	Program Wheel Retainer
9	1	13748	Screw - Program Wheel Mtg.
10	1	14265	Spring Clip
11	1	15424	Spring - Detent
12	1	15066	Ball - 1/4 in. Dia.
13	1	13911	Main Drive Gear
14	1	19210	Program Wheel
15	21	15493	Roll Pin
16	1	13018	Idler Shaft
17	1	13312	Spring - Idler
18	1	13017	Idler Gear
19	1	13164	Drive Gear
20	1	13887	Motor Mounting Plate
21	1	18743	Motor - 120V., 60 Hz.
		19659	Motor - 24V., 60 Hz.
22	2	13278	Screw, Motor Mounting
23	1	13830	Drive Pinion - Program Wheel
24	1	13831	Clutch - Drive Pinion
25	1	14276	Spring
26	1	14253	Spring Retainer
27	3	11384	Screw - Timer Hinge and Ground Wire
28	1	13881	Hinge Bracket
29	3	14087	Insulator
30	1	10896	Switch
31	1	15320	Switch
32	2	11413	Screw - Switch Mounting
33	1	14007	Decal - Time of Day
34	1	14045	Decal - Instructions
Not Shown	1	13902	Harness
Not Shown	2	12681	Wire Connector
Not Shown	1	15354-01	Ground Wire 17748-01 F.E

# MODEL 2510 ECONOMINDER

## *control valve drive assembly*

*(see opposite page for parts list)*



# MODEL 2510 ECONOMINDER

## *control valve drive assembly*

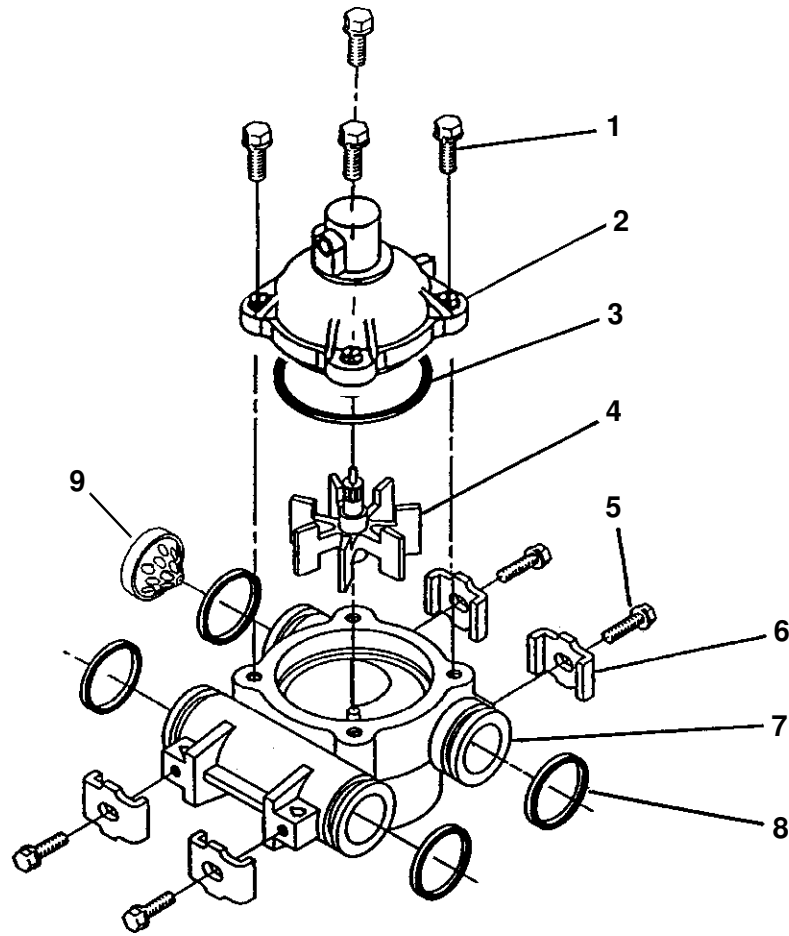
*(parts list)*

Item No.	No. Req'd	Part No.	Description
1	1	14884	Back Plate - Stainless Steel
2	1	60306-13	3210 Delay Timer, STF, 120V/60
	1	60306-03	3210 Delay Timer, STF, 120V/60
3	1	11838	Power Cord
4	1	13547	Strain Relief
5	1	11667	Wire Harness
6	5	10872	Screw - Motor Mounting
7	1	10774	Bracket - Motor Mounting
8	2	10231	Screw - Drive Mounting
9	2	10302	Insulator
10	2	10218	Switch
11	1	10909	Connecting Link Pin
12	1	10250	Retaining Ring
13	1	10621	Connecting Link
14	1	12576	Drive Cam - STF (Black)
	1	12102	Drive Cam - RR (White)
15	2	10338	Roll Pin
16	1	13366	Drive Bearing
17	2	14923	Screw - Switch Mounting
18	1	10769	Motor
19	1	11826	Bracket - Brine Valve Side
20	1	12777	Brine Valve Cam - STF (Black) - (shown)
	1	10815	Brine Valve Cam - RR (White)
21	1	15441	Meter Cable Guide Ass'y
22	1	15495	Meter Cable, 13" Std./Ext., Rt. Angle
Not Shown	2	10300	Screw - Timer Mounting
Not Shown	1	13741	Hole Plug
Not Shown	1	17904	Hole Plug
Not Shown	2	19367	Screw, Thumb

# MODEL 2510 ECONOMINDER

*meter assembly*

*(see opposite page for parts list)*



# MODEL 2510 ECONOMINDER

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## *meter assembly*

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### *(parts list)*

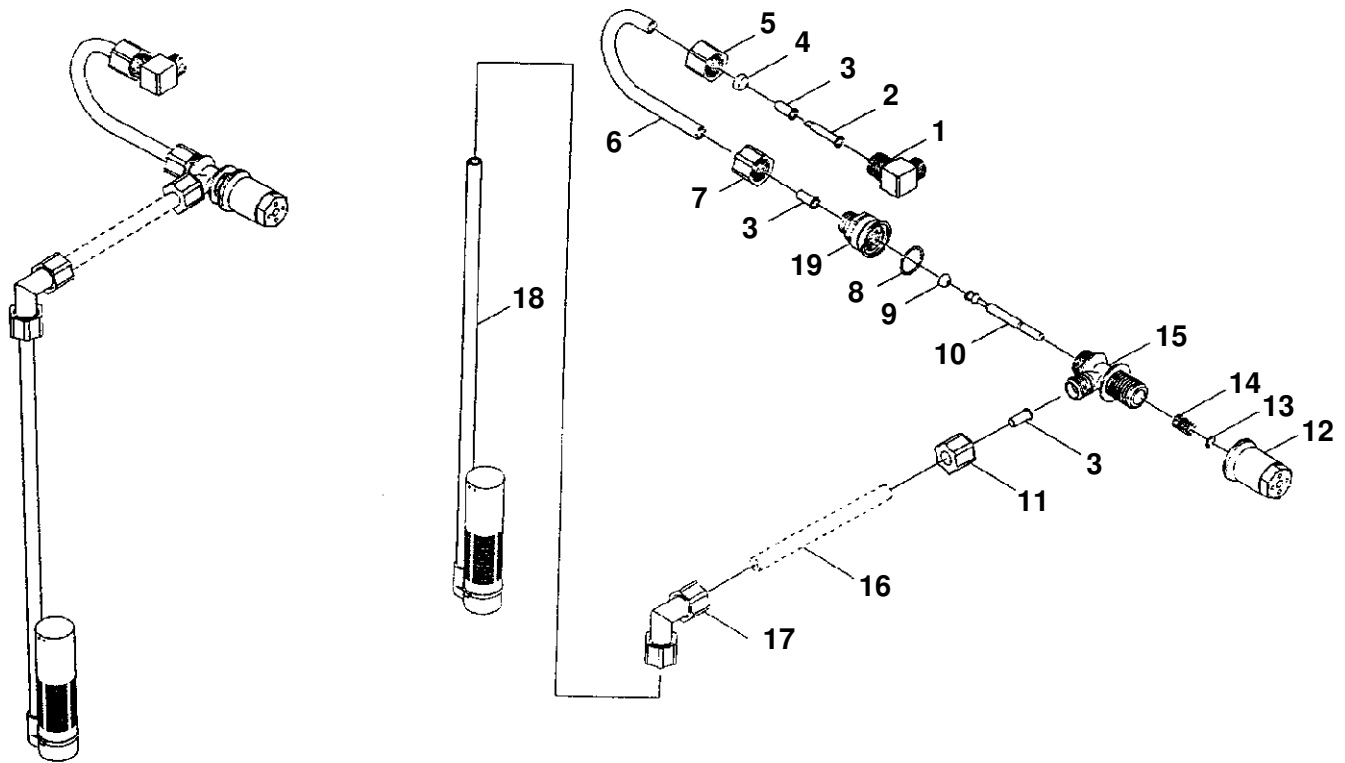
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Item No.	No. Req'd	Part No.	Description
1	4	12473	Screw - Meter Cover Assembly
2	1	15659	Meter Cover Assy. - Ext., Rt. Angle (Not Shown)
	1	15452-90	Meter Cover Assy., Std., Rt. Angle
3	1	13847	"O" Ring - Meter Cover Assembly
4	1	13509	Impeller
5	4	13314	Screw - Adapter Clip
6	4	13255	Adapter Clip
7	1	13821	Meter Body
8	4	13305	"O" Ring - Meter Body
9	1	14613	Flow Straightener

# MODEL 1650

*plastic brine system for 2510 and 2510 econominder*

*(see opposite page for parts list)*





# MODEL 1650

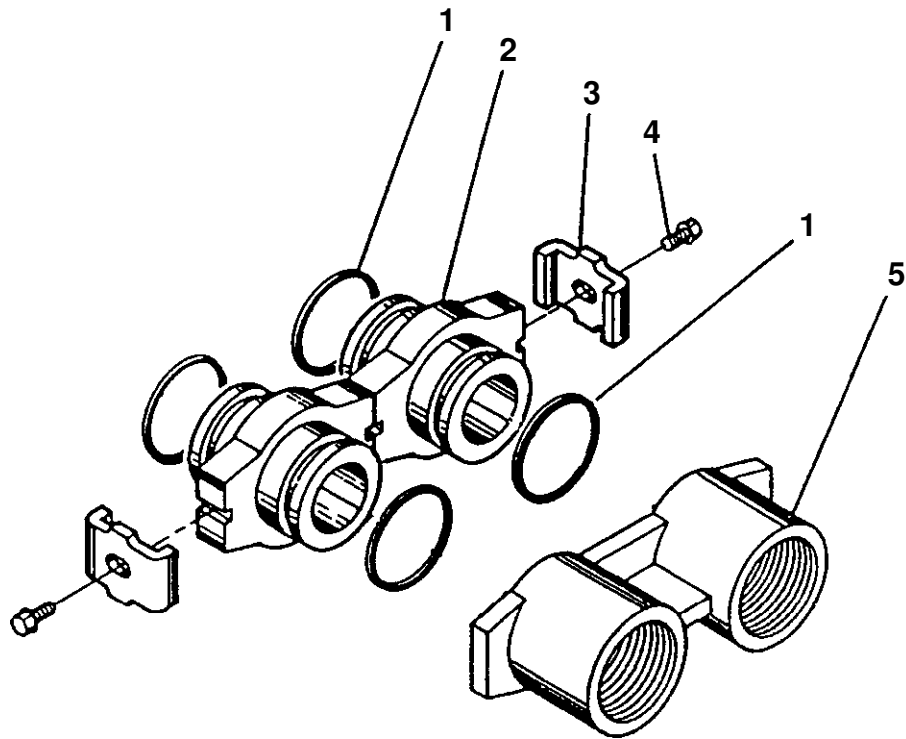
## *plastic brine system for 2510 and 2510 econominder*

### *(parts list)*

Item No.	No. Req'd	Part No.	Description
<b>60011 Brine Valve Assembly, Includes Items 3-15 (Less BLFC 60010-)</b>			
1	1	10328	Elbow, 90 1/4 NPT x 3/8
2	1	12767	Screen, Brine Line
3	3	10332	Insert, 3/8
4	1	10330	Sleeve, 3/8 Nut Brine
5	1	10329	Tube Fitting, 3/8 Nut Brine
6	1	40027	Tube, Brine Valve
7	1	19625	Assy., GFN Nut
8	1	16924	O-Ring
9	1	12626	Seat, Brine Valve
10	1	12552	Brine Valve Stem, 1600
11	1	19625	Assy., GFN Nut
12	1	17906	Guide, Brine Valve Stem
13	1	10250	Retaining Ring
14	1	10249	Spring, Brine Valve
15	1	17884	Brine Valve Body Assy., Plastic
16	1		Not Supplied
17	1	12794	Elbow, 3/8 Tube Poly, White
18	1	60002	#500 Air Check
19	1	60010-xx	BLFC Assy.
<b>60010-25 BLFC Assy. (Parts)</b>			
	1	17907	Housing
	1	12128	.25 GPM Label
	1	12094	.25 Flow Washer
	1	12098	Retainer
<b>60010-50 BLFC Assy. (Parts)</b>			
	1	17907	Housing
	1	10759	.50 GPM Label
	1	12095	.50 Flow Washer
	1	12098	Retainer
<b>60010-100 BLFC Assy. (Parts)</b>			
	1	17907	Housing
	1	10760	1.0 GPM Label
	1	12097	1.0 Flow Washer
	1	12098	Retainer
		<b>Part No.</b>	<b>Description</b>
		60080-XX	Injector Assembly (For Illustration and Parts, See Page 12)

# MODEL 2510

## *coupling assembly with yoke*



### PARTS LIST

Item No.	No. Req'd	Part No.	Description
1	4	13305	O-Ring, Adapter Coupling
2	2	19228	Adapter Coupling
3	2	13255	Clip, Adapter Coupling
4	2	13314	Screw, Adapter Coupling
5	1	13708	Adapter, 3/4" Yoke NPT

# MODEL 2510

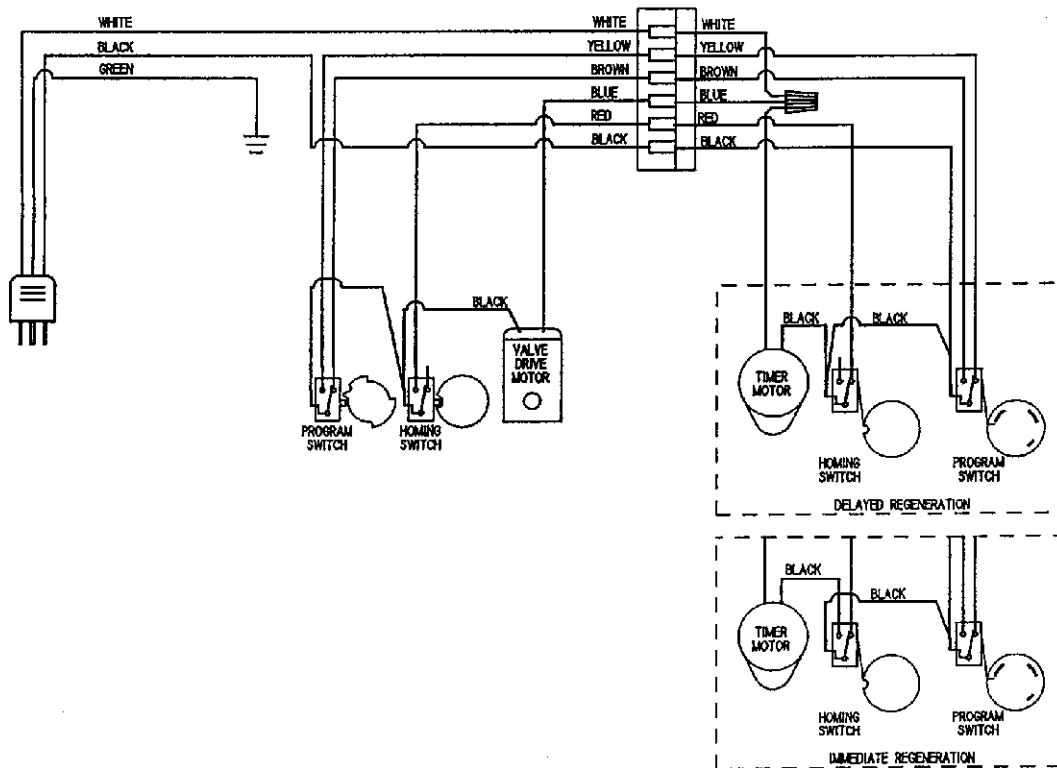
## *service assemblies*

### *(parts list)*

60090	Piston Assembly (For Illustration and Parts, See Page 12)
60050-21	2510/2750 Drive Motor Assembly - STF (For Illustration and Parts, See Pages 10 & 18)
60050-11	2510/2750 Drive Motor Assembly - RR
60306-13	Timer, 3210 Delay - STF (For Illustration and Parts, See Pages 16 & 17)
60307-03	Timer, 3210 Delay - RR
60307-13	Timer, 3220 Delay - STF
60307-03	Timer, 3220 Delay - RR
60303-13	Timer, 3220 / 7 Day - STF
60304-13	Timer, 3220 / 12 Day - STF
60303-03	Timer, 3220 / 7 Day - RR
60304-04	Timer, 3220 / 12 Day - RR
60088-180	Meter, Std., Rt. Angle (For Illustration and Parts, See Pages 20 & 21)
60089-180	Meter, Ext. Range, Rt. Angle
60510	Coupling Assembly
60001	1650 Brine Valve (For Illustration and Parts, See Pages 22 & 23)
60503	Clamp Assembly (For Illustration and Parts, See Page 12)
60010-25	BLFC Assembly (.25 gpm) For 1650 (For Parts, See Page 23)
60010-50	BLFC Assembly (.50 gpm) For 1650 (For Parts, See Page 23)
60010-100	BLFC Assembly (1.0 gpm) For 1650 (For Parts, See Page 23)
60121	Seal and Spacer Kit (For Illustration and Parts, See Pages 12 & 13)
60040	3/4" Bypass NPT
60040NP	3/4" Bypass NPT Nickel
60041	1" Bypass NPT
60041NP	1" Bypass NPT Nickel
60049	Bypass, Plastic

# MODEL 2510 & 2510 ECONOMINDER

## wiring diagram for valve drive motor and timer



### 2510 downflow

Tank Dia.	Resin Load	Injector	Inj. Color	Draw / Slow Rinse Rate (GPM)*	BLFC**	DLFC***	Timer Settings****	Total Capacity
6"	.35 Cu Ft	#000	Brown	.11 gpm / .19 gpm	.25 gpm	.8 gpm	8-50-5-6	9,450 Grains
7"	.56 Cu Ft	#00	Violet	.21 gpm / .32 gpm	.25 gpm	1.2 gpm	8-50-8-8	15,120 Grains
8"	.8 Cu Ft	#00	Violet	.21 gpm / .32 gpm	.25 gpm	1.5 gpm	8-50-8-12	21,600 Grains
9"	1.0 Cu Ft	#0	Red	.26 gpm / .52 gpm	.25 gpm	2.0 gpm	10-50-10-14	27,000 Grains
10"	1.25	#1	White	.35 gpm / .7 gpm	.5 gpm	2.4 gpm	10-50-10-8	33,750 Grains
12"	2.0 Cu Ft	#2	Blue	.48 gpm / .9 gpm	.5 gpm	3.5 gpm	5-8-50-14	54,000 Grains
13"	2.5 Cu Ft	#3	Yellow	.63 gpm / 1.13 gpm	1.0 gpm	4.0 gpm	5-8-50-8	67,500 Grains
14"	3.0 Cu Ft	#3	Yellow	.63 gpm / 1.13 gpm	1.0 gpm	4.5 gpm	5-8-50-10	81,000 Grains

1 cubic foot of resin will have 27,000 grains of softening capacity when regenerated with 10 lbs. of salt.

\* All listed flows at 60 PSI and will vary at different pressures.

\*\* B.L.F.C. (Brine Line Flow Control) Refill rate for filling the brine tank.

\*\*\* D.L.F.C. (Drain Line Flow Control) All flows calculated at 4.5 GPM Per SQ FT of bed area.

The above chart to only be used as a guide. Water Conditions and resin loads may vary. Always consult OEM for details.

*Notes*

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# MODEL 2510 & 2510 ECONOMINDER

## *service instructions*

PROBLEM	CAUSE	CORRECTION
1. Softener Fails to Regenerate	A. Electrical Service To Unit Has Been Interrupted. B. Timer is Defective C. Power Failure.	A. Assure Permanent electrical Service (Check Fuse, Plug, Pull chain or Switch). B. Replace Timer. C. Reset Time of Day.
2. Hard Water	A. By-Pass Valve is Open. B. No Salt in Brine Tank. C. Injector Screen Plugged. D. Insufficient Water Flowing Into Brine Tank. E. Hot Water Tank Hardness. F. Leak At Distributor Tube. G. Internal Valve Leak.	A. Close By-Pass Valve. B. Add Salt To Brine Tank and Maintain Salt Level Above Water Level. C. Clean Injector Screen. D. Check Brine Tank Fill Time and Clean Brine Line Flow Control if Plugged. E. Repeat Flushings of the Hot Water Tank is Required. F. Make Sure Distributor Tube is Not Cracked. Check "O" Ring and Tube Pilot. G. Replace Seals and Spacers and/or Piston.
3. Unit Used Too Much Salt.	A. Improper Salt Setting. B. Excessive Water in Brine Tank.	A. Check Salt Usage and Salt Setting. B. See Problem No. 7.
4. Loss of Water Pressure	A. Iron Buildup in Line to Water Conditioner. B. Iron Buildup in Water Conditioner. C. Inlet of Control Plugged Due to Foreign Material Broken Loose From Pipes by Recent Work Done on Plumbing System.	A. Clean Line to Water Conditioner. B. Clean Control and Add Mineral Cleaner to Mineral Bed. Increase Frequency of Regeneration. C. Remove Piston and Clean Control.
5. Loss of Mineral Through Drain Line.	A. Air in Water System.	A. Assure that Well System has Proper Air Eliminator Control. Check for Dry Well Condition.
6. Iron in Conditioned Water.	A. Fouled Mineral Bed.	A. Check Backwash, Brine Draw and Brine Tank Fill. Increase Frequency of Regeneration. Increase Backwash Time.
7. Excessive Water in Brine Tank.	A. Plugged Drain Line Flow Control. B. Plugged Injector System.	A. Clean Flow Control. B. Clean Injector and Screen.

## *Delayed Regeneration Timer Assembly (continued)*

PROBLEM	CAUSE	CORRECTION
7. Excessive Water in Brine Tank (continued)	C. Timer Not Cycling.	C. Replace timer.
	D. Foreign Material in Brine Valve.	D. Replace Brine Valve Seat and Clean Valve.
	E. Foreign Material in Brine Line Flow Control.	E. Clean Brine Line Flow Control.
8. Softener Fails to Draw brine.	A. Drain Line Flow Control is Plugged.	A. Clean Drain Line Flow Control.
	B. Injector is Plugged.	B. Clean Injector.
	C. Injector Screen Plugged.	C. Clean Screen.
	D. Line Pressure is too Low.	D. Increase Line Pressure to 20 P.S.I.
	E. Internal Control Leak.	E. Change Seals, Spacers and Piston Assembly.
9. Control Cycles Continuously.	A. Broken or Shorted Switch.	A. Determine if Switch or Timer is Faulty and Replace it, or Replace Complete Power Head.
10. Drain Flows Continuously.	A. Valve is not Programing Correctly.	A. Check Timer Program and Positioning of Control. Replace Power Head Assembly if not Positioning Properly.
	B. Foreign Material in Control.	B. Remove Power Head Assembly and Inspect Bore. Remove Foreign Material and Check Control in Various Regeneration Positions.
	C. Internal Control Leak.	C. Replace Seals and Piston Assembly.

### GENERAL SERVICE HINTS FOR METER CONTROL

#### **Problem: Softener Delivers Hard Water**

Cause could be that . . . Reserve capacity has been exceeded.

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

Cause could be that . . . Program wheel is not rotating with meter output.

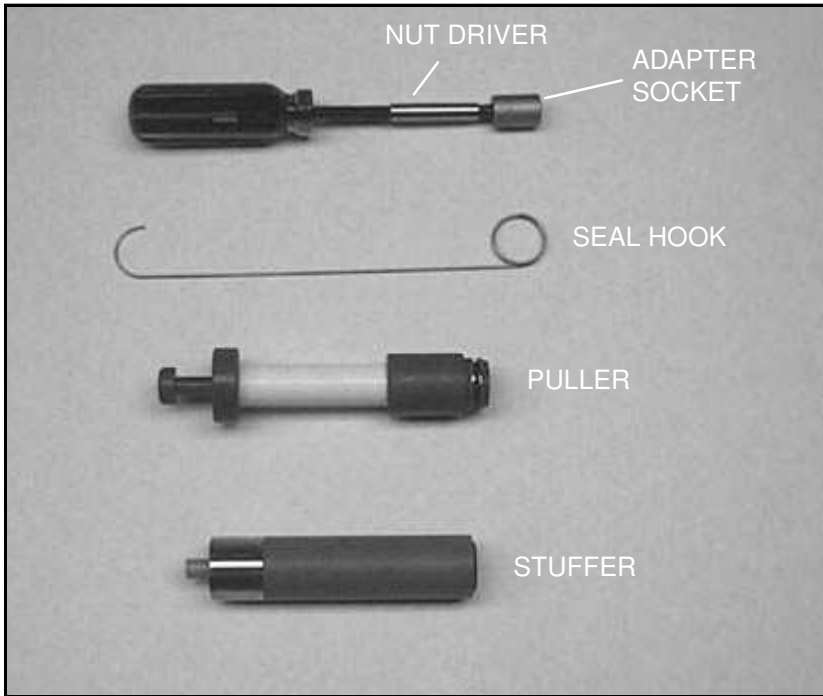
**Correction:** Pull cable out of meter cover and rotate manually. Program wheel must move without binding and clutch must give positive "clicks" when program wheel strikes regeneration stop. If it does not, replace timer.

Cause could be that . . . Meter is not measuring flow.

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

# MODEL 2510 & 2510 ECONOMINDER

## *service instructions*



### **Tools Used in the Seal and Spacer Replacement**

Nut Driver	#12664
Socket Adapter	#16906
Socket 7/16"	#12665
Seal Hook	#12874
Puller	#13061
Stuffer	#11098

All tools are a part of  
the Service Repair Kit #60135-2510



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## ***Delayed Regeneration Timer Assembly (continued)***

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1. Turn off water supply to valve. Next, cycle valve to backwash position, then to service. Now remove electrical plug from outlet.
2. Remove control box cover.
3. Disconnect the brine line from the injector housing to the brine valve (if your unit has timed brine tank fill).
4. Remove the two capscrews that hold the back plate to the valve.
5. Grasp the back plate on both sides and slowly pull end plug and piston assembly out of the valve body, (see Fig. 1) and lay aside.
6. Remove the seal first using the wire hook with the finger loop (see Fig.2).
7. The spacer tool (use only for removing the spacers) has three retractable pins, retained by a rubber ring, at one end; they are retracted or pushed out by pulling or pushing the center button the opposite end.
8. Insert the pin end of the spacer tool into the valve body with the pins retracted (button pulled back). Push the tool tight against the spacer and push the button in, (see Fig. 3). When the button is pushed in, the pins are pushed out to engage the 1/4 dia. holes in the spacer. Remove the tool from the valve body. The spacer will be on the end. Pull the center button back, the pins will be retracted and the spacer can be removed from the spacer tool.

# MODEL 2510 & 2510 ECONOMINDER

## *seal and spacer replacment*

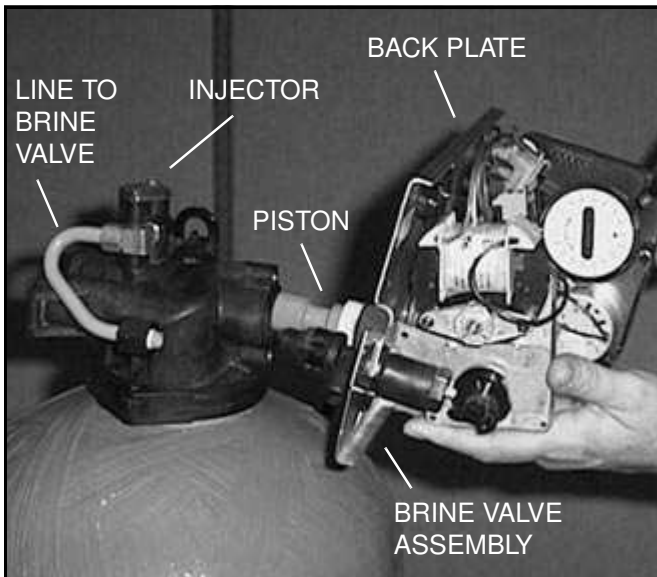


Figure 1 *Removing Power Head And Piston Assembly*

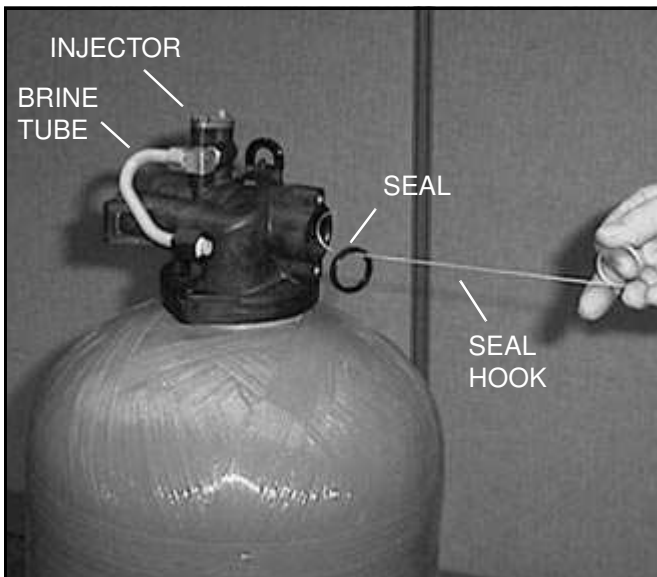


Figure 2 *Removing Special Tool From Valve Body After Inserting Seal*

9. Alternately remove the remaining seals and spacers in accordance with steps No. 6 and 8.
10. The last or end spacer does not have any holes for the pins of the spacer tool to engage, therefore if the end spacer does not come out on the first try, try again using the wire hook with the finger loop.
11. To replace seals, spacers and end ring, use special tool with the brass sleeve on one end. This is a double-purpose tool., (See Fig. 4). The male end acts as a pilot to hold the spacers as they are pushed into the valve body and the brass female end is used to insert the seals into the valve body.
12. To restuff a valve body, first take the end ring (the plastic or brass ring without holes), then with your thumb press the button on the brass sleeve end, the large dia. inner portion is now exposed (See Fig. 4). Place the end ring on this pilot with the lip on the end ring facing the tool, and push the tool into the valve body bore until it bottoms. While the tool is in the valve body, take a seal and press it into the inside diameter of the exposed brass female end (See Fig. 5).
13. Remove the tool, turn it end for end and insert it into the valve body bore. While holding the large dia. of the tool, slide it all the way into the valve body bore until it bottoms, then push the center button to push the seal of the tool and leave it in place in the valve body (See Fig. 6).
14. Remove the tool from the valve body and push the center on the brass female end to expose the pilot on the opposite end. Place a spacer on this end and insert the spacer and tool into the valve.

# MODEL 2510 & 2510 ECONOMINDER

## seal and spacer replacement (continued)

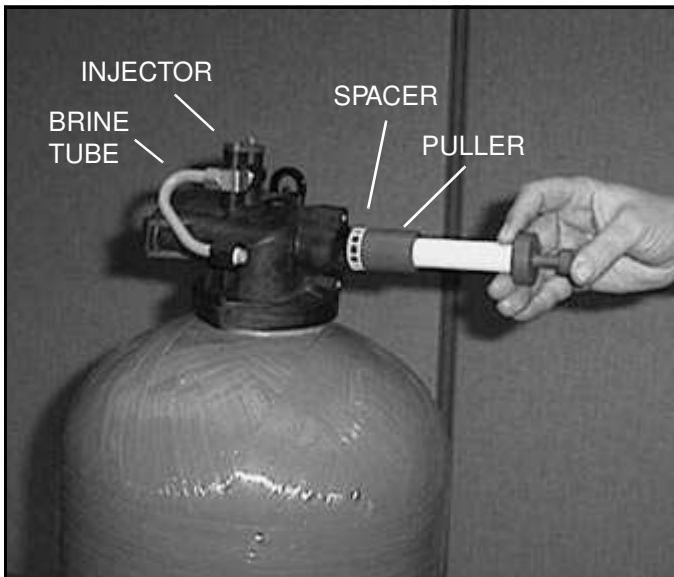


Figure 3 Removing Spacer From Valve Body

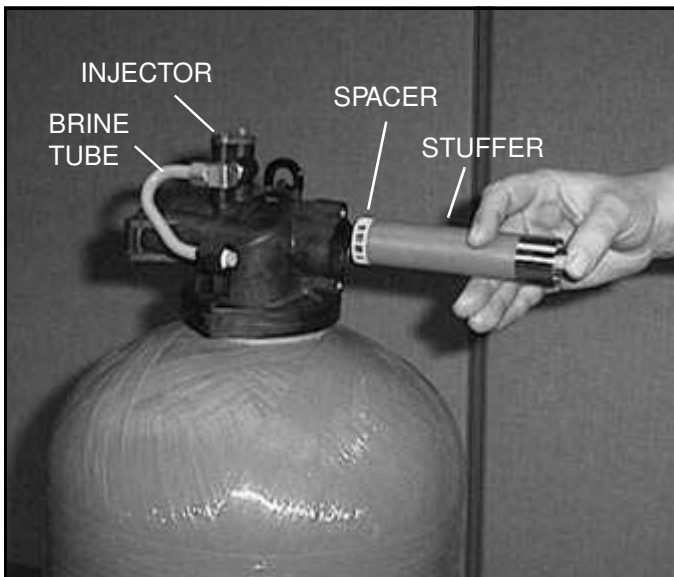


Figure 4 Replacing Spacer In Valve Body

15. While the tool is still in the valve, press another seal into the inside diameter of the exposed brass sleeve end.
16. Remove the stuffer, turn it end for end, and insert it into the valve body bore.
17. Alternately repeat steps No. 13 and 14 until all seals and spacers have been pushed into the valve (See valve cross section of your valve).
18. Place recommended silicone lubricant on the piston and inside the valve.
19. Hold the back plate with one hand and guide the piston into the valve body with the other hand, then grasp the back plate on both sides and slowly push the piston assembly and end plug assembly into the valve (See Fig. 1).
20. Replace the two PH screws to hold the back plate to the valve and tighten securely.
21. Connect the brine line from the injector housing to the brine valve (if your unit has timed brine tank fill).
22. Set the time of day dial to the correct time.
23. Replace the electrical plug in the outlet.
24. Turn on water supply.
25. Cycle control and check for proper function.
26. Check by-pass valve.

