

# Model 5600 & 5600 Econominder®

## *Service Manual*



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## Job Specification Sheet

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Job Number \_\_\_\_\_

Model Number \_\_\_\_\_

Water Test \_\_\_\_\_

Capacity of Unit \_\_\_\_\_ Max. \_\_\_\_\_ Per Regeneration

Mineral Tank Size: Diameter \_\_\_\_\_ Height \_\_\_\_\_

Brine Tank Size and Salt Setting Per Regeneration: \_\_\_\_\_

### Control Valve Specifications

Type of Timer: \_\_\_\_ Std. \_\_\_\_ "L" \_\_\_\_ 7-day \_\_\_\_ 12-day \_\_\_\_ Meter, Std. \_\_\_\_ Meter, Ext.

Day/Time of Regeneration \_\_\_\_\_

Drain Line Flow Control \_\_\_\_\_ gpm

Brine Refill Rate \_\_\_\_\_ gpm

Injector Size \_\_\_\_\_

Meter Gallon Setting \_\_\_\_\_ gal

| Tank Size<br>(diameter) | Injector  | Slow Rinse<br>Rate (gpm)<br>@ 40 psi | Brine Draw<br>Rate (gpm)<br>@ 40 psi | BLFC <sup>1</sup> | BLFC <sup>2</sup> |
|-------------------------|-----------|--------------------------------------|--------------------------------------|-------------------|-------------------|
| 6"                      | #0 red    | .31 gpm                              | .28 gpm                              | .5 gpm            | 1.2 gpm           |
| 7"                      | #0 red    | .31 gpm                              | .28 gpm                              | .5 gpm            | 1.2 gpm           |
| 8"                      | #1 white  | .45 gpm                              | .38 gpm                              | .5 gpm            | 1.5 gpm           |
| 9"                      | #1 white  | .45 gpm                              | .38 gpm                              | .5 gpm            | 2.0 gpm           |
| 10"                     | #1 white  | .45 gpm                              | .38 gpm                              | .5 gpm            | 2.4 gpm           |
| 12"                     | #2 blue   | .84 gpm                              | .56 gpm                              | 1.0 gpm           | 3.5 gpm           |
| 13"                     | #2 blue   | .84 gpm                              | .56 gpm                              | 1.0 gpm           | 4.0 gpm           |
| 14"                     | #3 yellow | 1.0 gpm                              | .63 gpm                              | 1.0 gpm           | 5.0 gpm           |
| 16"                     | #3 yellow | 1.0 gpm                              | .63 gpm                              | 1.0 gpm           | 7.0 gpm           |

**NOTE:** Due to varying water conditions, tank sizes and water pressures, use the above settings as guidelines only.

<sup>1</sup>**BLFC** (Brine Line Flow Control), refill rate for filling brine tank.

<sup>2</sup>**DLFC** (Drain Line Flow Control), backwash and rapid rinse flow rates.

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# ***General Residential Installation Check List***

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## **Water Pressure**

A minimum of 25 psi (1.7 bar) of water pressure is required for regeneration valve to operate effectively.

## **Electrical Facilities**

An uninterrupted alternating current (A/C) supply is required. Please make sure voltage supply is compatible with unit before installation.

## **Existing Plumbing**

Condition of existing plumbing should be free from lime and iron buildup. Replace piping that has heavy lime and/or iron build-up. If piping is clogged with iron, install a separate iron filter unit ahead of the water softener.

## **Location of Softener and Drain**

Locate the softener close to a clean working drain and connect according to local plumbing codes.

## **Bypass Valves**

Always provide for the installation of a bypass valve if unit is not equipped with one.

|                                                                                   |                                                                                                                                                                                                                                       |
|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p><b>CAUTION</b></p> <ul style="list-style-type: none"><li>• Do not exceed 120 psi (8.2 bar) water pressure.</li><li>• Do not exceed 110°F (43°C) water temperature.</li><li>• Do not subject unit to freezing conditions.</li></ul> |
|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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## ***Valve Installation and Start-up Procedures***

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1. Place the softener tank where you want to install the unit.  
**NOTE:** Be sure the tank is level and on a firm base.
2. During cold weather it is recommended that the installer warm the valve to room temperature before operating.
3. Perform all plumbing according to local plumbing codes.
  - Use a 1/2" (13 mm) minimum pipe size for the drain.
  - Use a 3/4" (19 mm) drain line for backwash flow rates that exceed 7 gpm (25.6 Lpm) or length that exceeds 20' (6 m).
4. Cut the 1" (25 mm) distributor tube (1.050 O.D.) flush with top of each tank.  
**NOTE:** Only use silicone lubricant.
5. Lubricate the distributor O-ring seal and tank O-ring seal. Place the main control valve on tank.
6. Solder joints near the drain must be done before connecting the Drain Line Flow Control fitting (DLFC). Leave at least 6" (152 mm) between the DLFC and solder joints when soldering pipes that are connected on the DLFC. Failure to do this could cause interior damage to DLFC.
7. Use only **Teflon** tape on the drain fitting.
8. Be sure the floor under the salt storage tank is clean and level.
9. Place approximately 1" (25 mm) 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.
10. On units with a bypass, place in **Bypass** position.
  - Turn on the main water supply.
  - Open a cold soft water tap nearby and let water run a few minutes or until the system is free of foreign material (usually solder) resulting from the installation. Close the water tap when water runs clean.
11. Place the bypass in the **In Service** position and let water flow into the mineral tank. When water flow stops, slowly open a cold water tap nearby and let water run until air is purged from the unit. Then close tap.
12. Plug the valve into an approved power source. When the valve has power it drives to the **In Service** position.

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## ***Model 5600 Installation and Start-up Procedures***

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**NOTE:** Install the water softener with the inlet, outlet and drain connections made according to manufacturer's recommendations and to meet applicable plumbing codes.

1. Manually index the softener control into the **In Service** position and let water flow into the resin tank. When the water flow stops, open a softened water tap until all air is released from the lines. Then close tap.

**NOTE:** Manually dial the various regeneration positions by turning the knob on the front of the control until the indicator shows that the softener is in the desired position.

2. Manually index the control to the **Backwash** position and allow water to flow at the drain for 3 or 4 minutes.

# Model 5600 Backwash Filter Installation and Start-up Procedures

**NOTE:** Install the water softener with the inlet, outlet and drain connections made according to manufacturer's recommendations and to meet applicable plumbing codes.

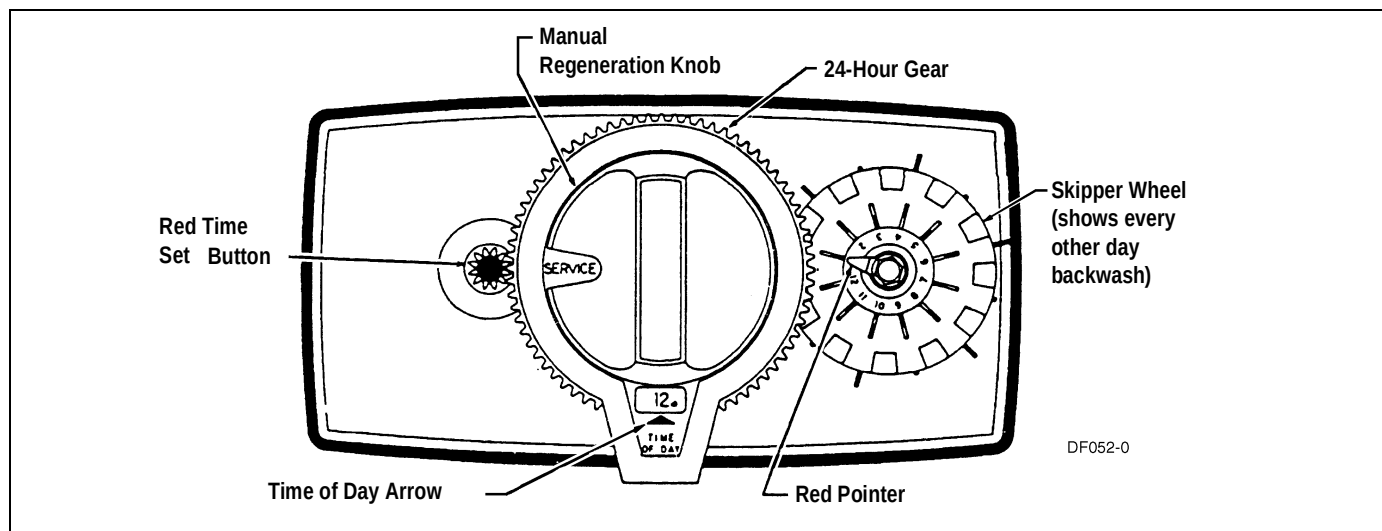


Figure 2: Model 5600 Backwash Filter Control

## Before Plugging in the Unit

1. Open a treated water tap down stream of the filter.
2. Manually index the filter to the **In Service** position and allow the mineral tank to fill by slowly opening the main water supply valve. Any bypass should be in the **In Service** position.

**NOTE:** The water flowing from the downstream tap is cloudy and/or contains media fines as well as air. Allow the water to run until it appears clean and free of air.

3. When a steady clean flow appears at the tap, close the tap and the main water supply valve and allow the filter media bed to settle for 15–20 minutes.
4. Manually index the filter to the **Backwash** position.
5. To prevent a sudden surge of water and air, partially open the main water supply valve so that the flow at the drain of the filter is approximately 1 gpm (3.7 Lpm). The water at the drain is cloudy again and/or contains media fines as well as air. Allow water to flow at the drain until it appears clean and free of air.
6. Continue to open the water supply valve until it is completely open. Allow water to flow at the drain until all media fines are washed out of the filter.
7. Manually index the filter to the **In Service** position, and again open the downstream tap. Check to be sure that the water flows clear. If necessary, allow water to flow until all media fines are gone. If the tap is equipped with an aerator check that is not plugged with media fines and pipe scale.
8. Plug in the electrical cord and look in the sight hole on the back of the timer motor to ensure that it is running. Set the days backwashing 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 red pointer, extend or retract fingers to obtain the desired backwash schedule.
9. Set time of day by pushing red button and spin the 24-hour gear until the present time of day is visible above the time of day arrow.

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## ***Model 5600 Backwash Filter Installation & Start-up Procedures (Cont'd.)***

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### **Cycle Times and Flow Diagrams**

1. **In Service** position. *See Figure 4, page 10.*
2. **Preliminary Rinse** position.
  - Same as *Figure 4, page 10* with standard piston (white end plug) or filter piston (black end plug).
  - Eliminated with low water piston (gray end plug).
3. **Backwash** position.
  - Same as *Figure 6, page 11* with standard piston.
  - 15 minutes with filter piston.
  - 7 minutes with low water piston.
4. **Brine Rinse** position.
  - Eliminated, resulting in a 50 minute pause, no water flows during this time.
5. **Slow Rinse** position.
  - Eliminated, resulting in a 50 minute pause, no water flows during this time.
6. **Second Backwash** position.
  - Same as *Figure 9, page 12* with standard piston.
  - 15 minutes with filter piston.
  - 7 minutes with low water piston.
7. **Settling Rinse** position.
  - Same as *Figure 10, page 13* with standard or filter piston.
  - Eliminate with low water piston.
8. **Brine Tank Refill** position.
  - Eliminated, filter is back in service at this time.



# Model 5600 Econominder Installation & Start-up Procedures

**NOTE:** Install the water softener with the inlet, outlet and drain connections made according to manufacturer's recommendations and to meet applicable plumbing codes.

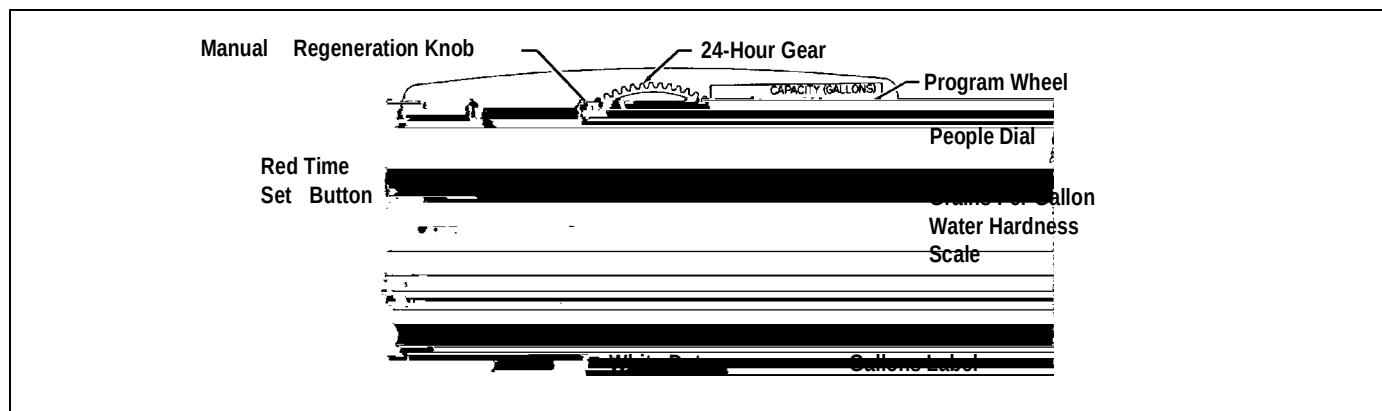


Figure 3: Model 5600 Econominder

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

# Water Conditioner Flow Diagrams

## Service Position

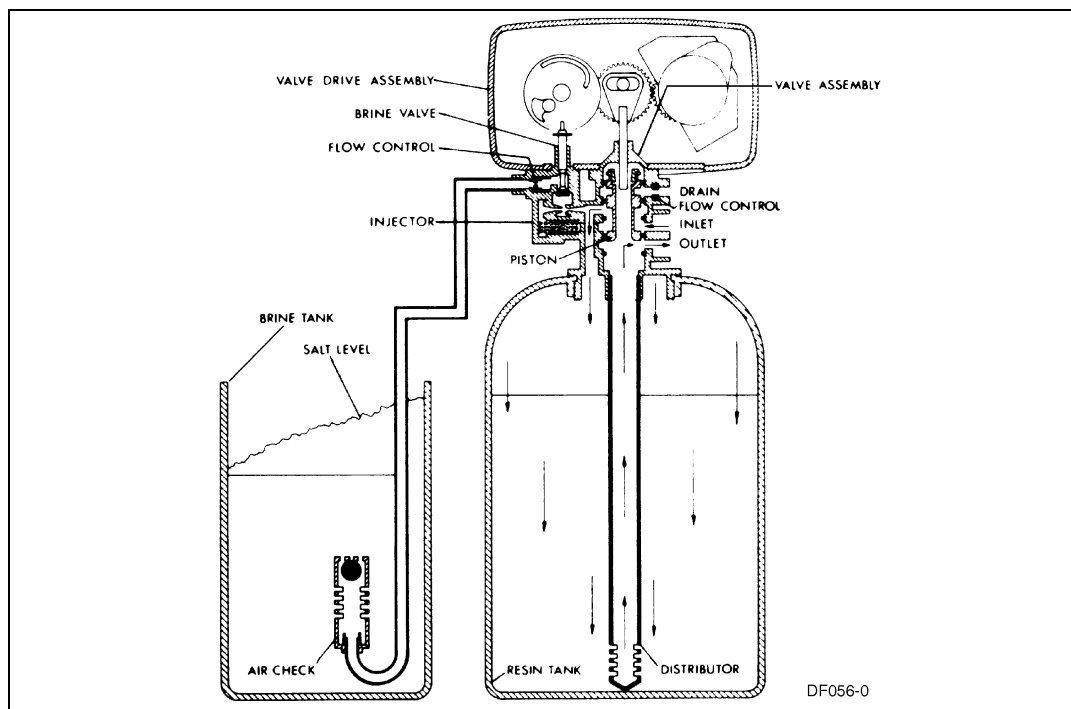


Figure 4: Service Position

## Preliminary Rinse Position

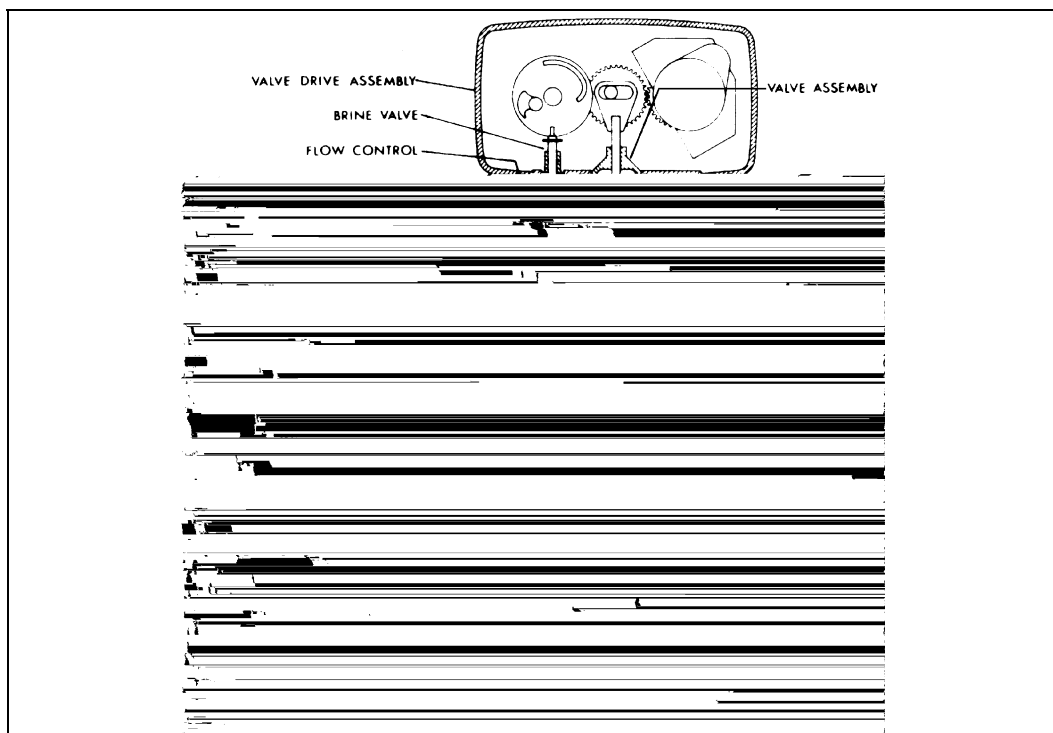


Figure 5: Preliminary Rinse Position

## Water Conditioner Flow Diagrams (Cont'd.)

### Backwash Position

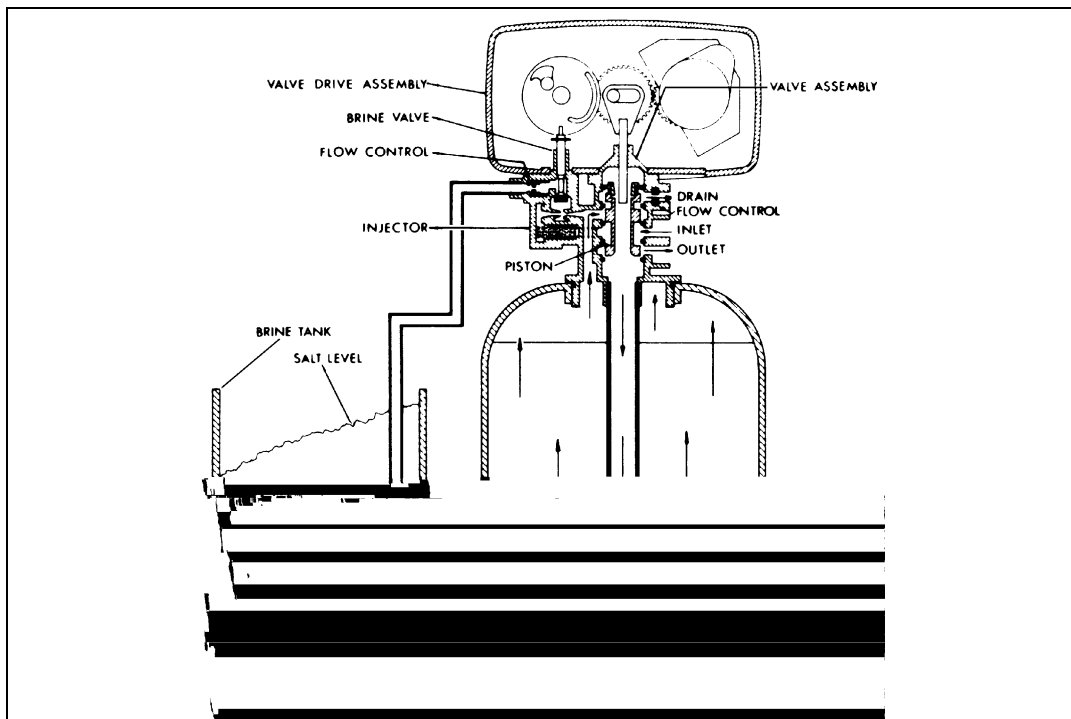


Figure 6: Backwash Position

### Brine Position

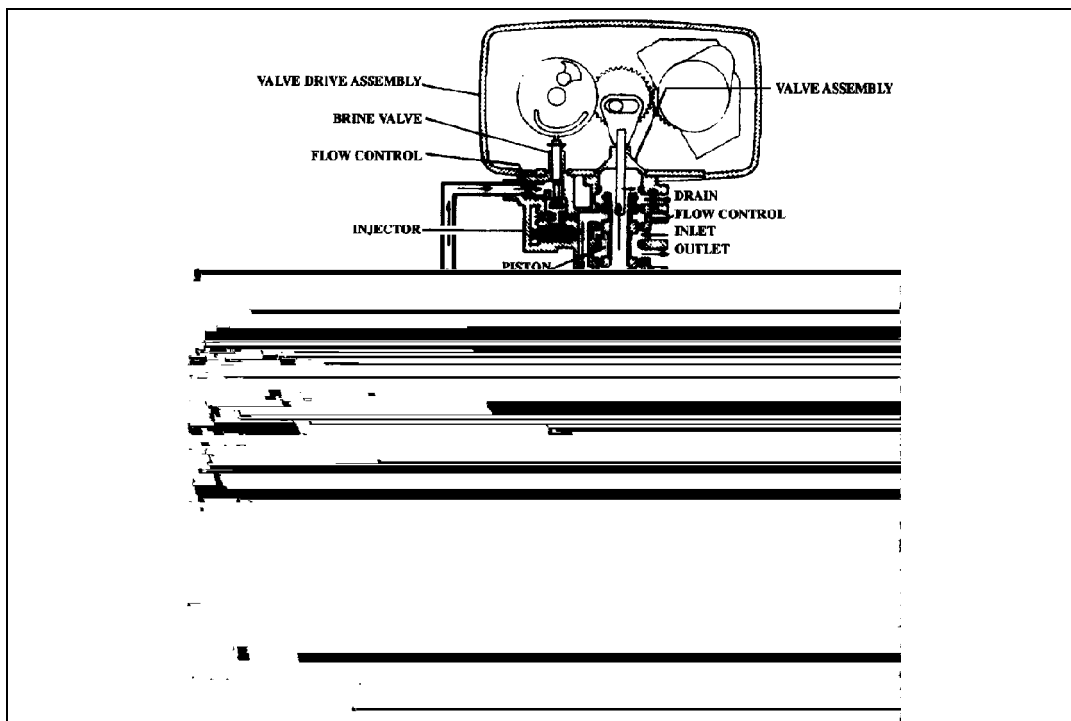


Figure 7: Brine Position

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## ***Water Conditioner Flow Diagrams (Cont'd.)***

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### **Slow Rinse Position**

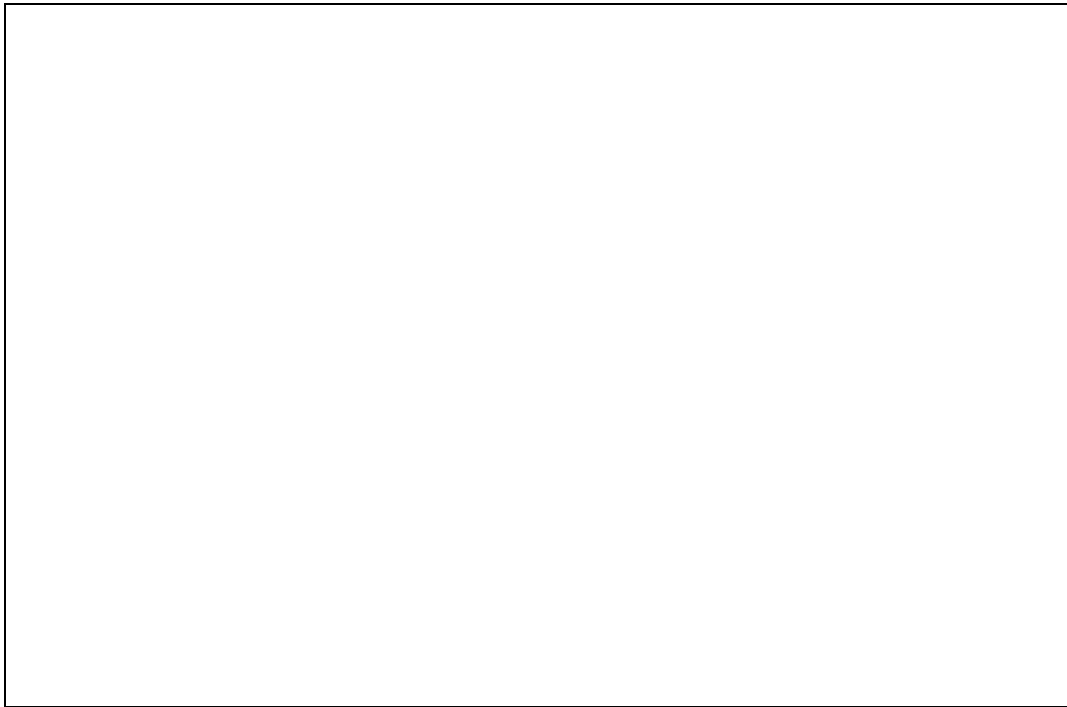


Figure 8: Slow Rinse Position

### **Second Backwash Position**

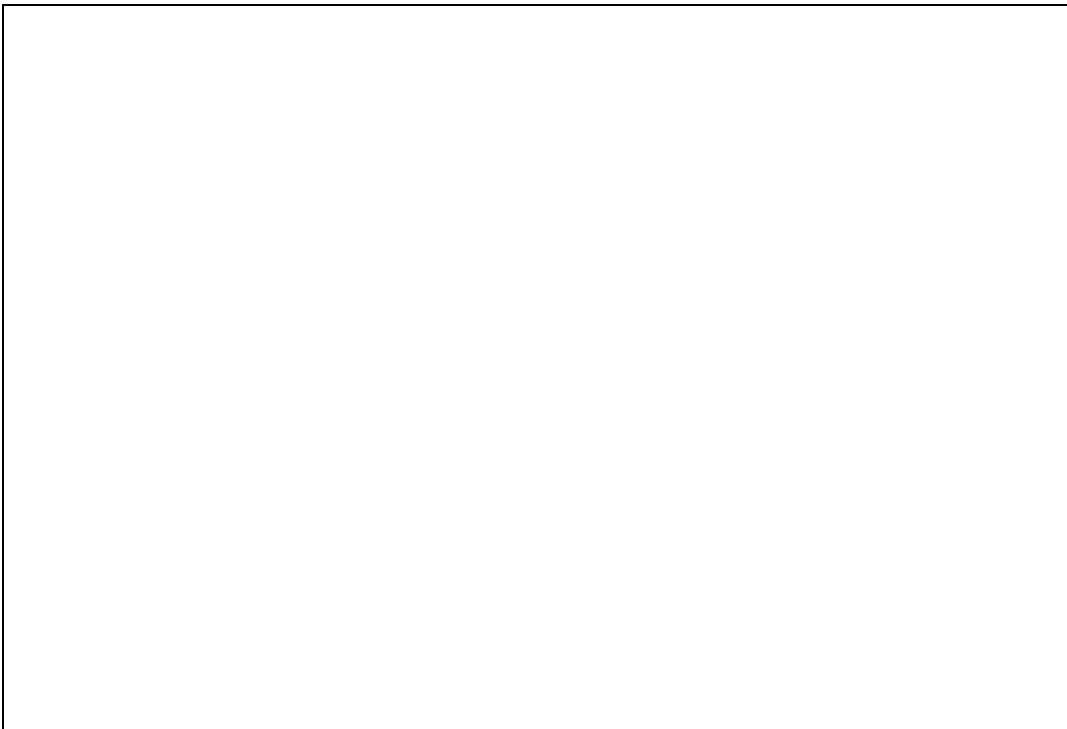


Figure 9: Second Backwash Position

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## Water Conditioner Flow Diagrams (Cont'd.)

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### Settling Rinse Position

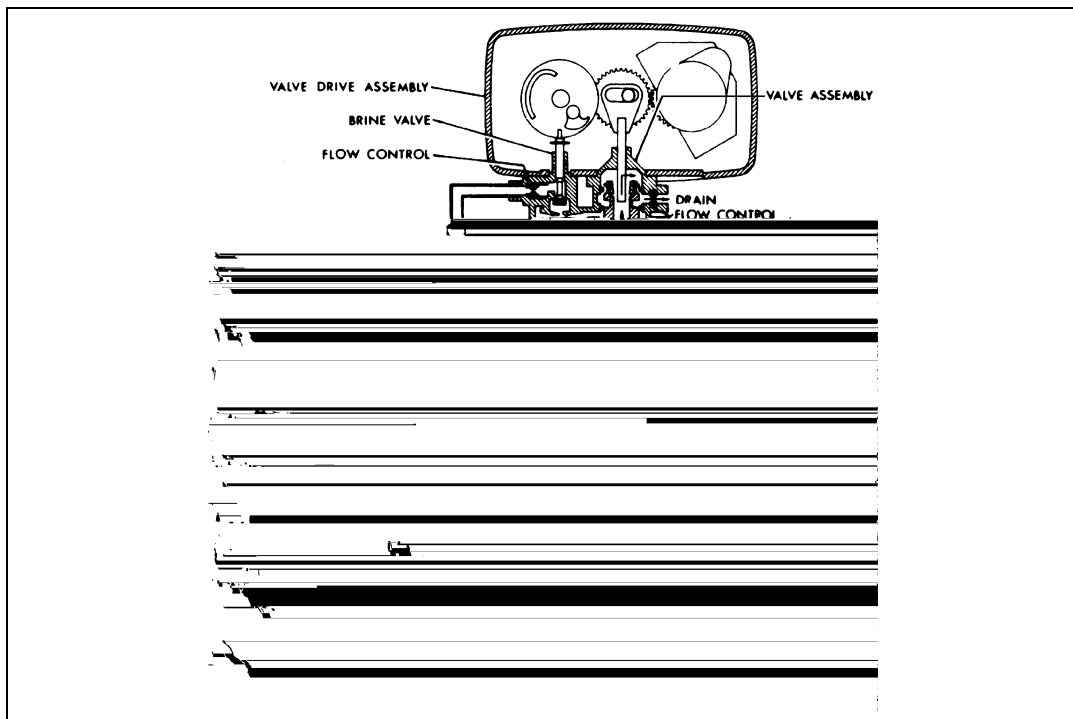


Figure 10: Settling Rinse Position

### Brine Tank Fill Position

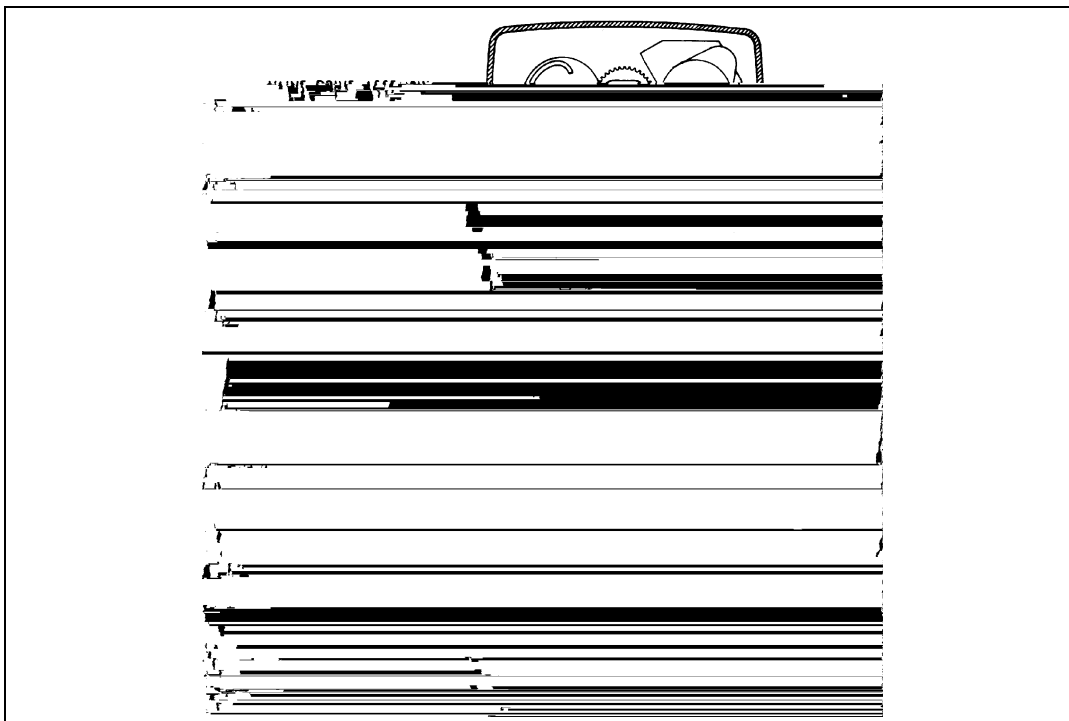


Figure 11: Brine Tank Fill Position

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## ***Model 5600 Control Valve Drive Assembly***

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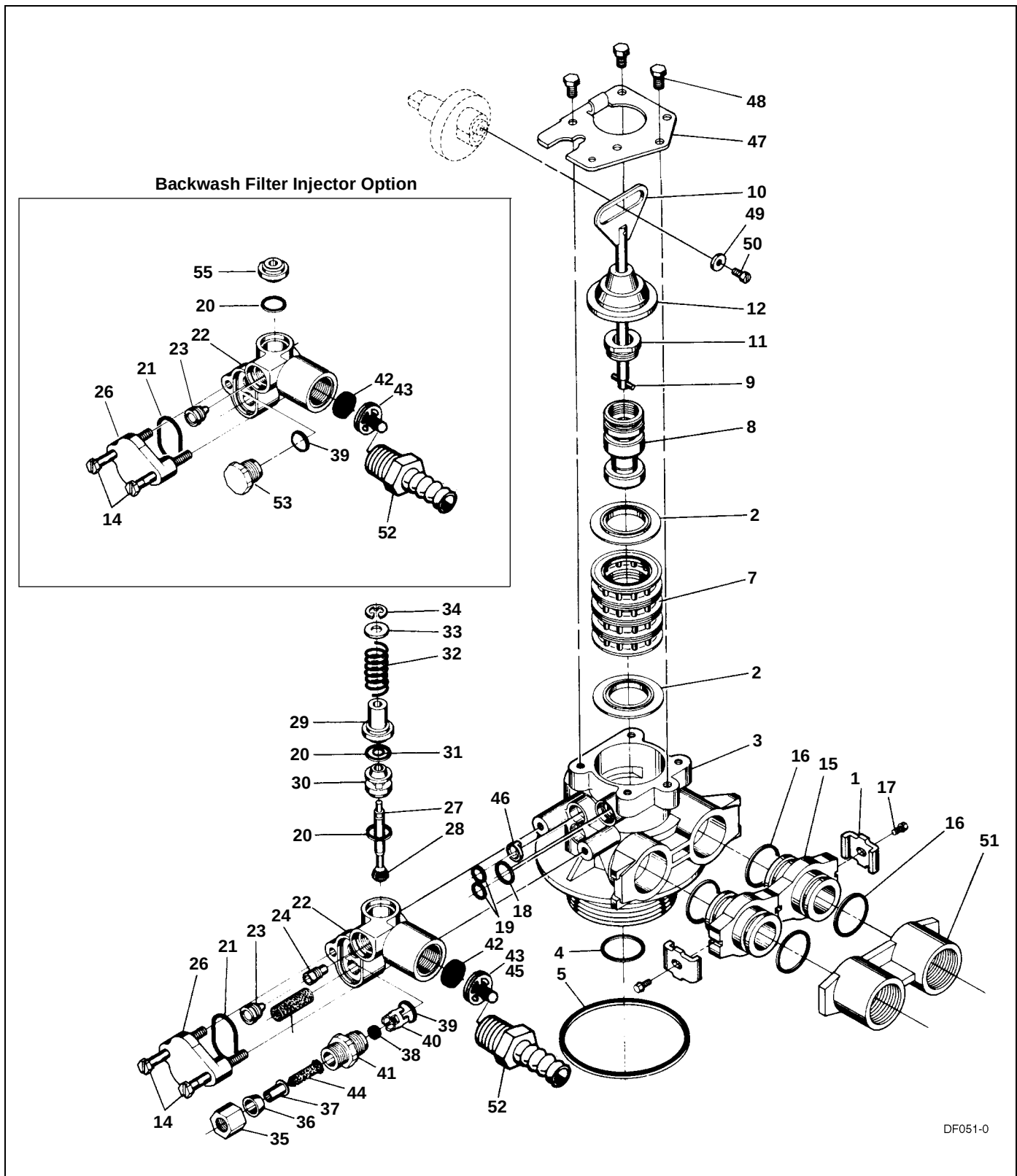
Figure 12: Model

## ***Model 5600 Control Valve Drive Assembly***

| <b>Item Number</b> | <b>No. Req'd</b> | <b>Part Number</b> | <b>Description</b>                         |
|--------------------|------------------|--------------------|--------------------------------------------|
| 1                  | 1                | 14448-001          | Drive Housing, with Pin Drilled for Cover  |
| 1A                 | 1                | 15494-01           | "L" Housing, with Pin                      |
|                    | 1                | 15494-03           | "L" Housing, with Pin Drilled for Designer |
| 2                  | 1                | 13175              | Motor Mounting Plate                       |
| 3                  | 1                | 18743              | Motor, 120V, 60 Hz                         |
|                    | 1                | 19659              | Motor, 24V, 60 Hz                          |
| 4                  | (2-3)            | 11384              | Screw, Motor Mtg. and Ground Wire          |
| 5                  | (3-5)            | 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 and Shaft                        |
| 12                 | 1                | 19205              | 24-hour Gear Assembly, Silver              |
|                    | 1                | 19205-01           | 24-hour Gear Assembly, Tan                 |
| 13                 | 1                | 13011              | Cycle Actuator Gear                        |
| 14                 | 1                | 14177              | Knob, Manual Regeneration                  |
| 15                 | 4                | 13300              | Ball, 1/4" Dia.                            |
| 16                 | 2                | 13311              | Spring, Detent, Skipper Wheel              |
| 19                 | 1                | 14381              | Skipper Wheel Assembly, 12-day             |
|                    | 1                | 14860              | Skipper Wheel Assembly, 7-day              |
| 20                 | 1                | 13864              | Skipper Wheel Ring                         |
| 21                 | 2                | 19080              | Spring, Compression, 6700                  |
| 22                 | 1                | 13014              | Regeneration Pointer                       |
| 23                 | 1                | 11842              | Electrical Cord, Standard                  |
| 24                 | 2                | 12681              | Wire Connector (not shown)                 |
| 25                 | 1                | 13547              | Strain Relief                              |
| 26                 | 1                | 13229              | Back Cover                                 |
| 27                 | 1                | 13309              | Front Label, Brown on Beige                |
|                    | 1                | 13437              | Front Label, Blue/Silver on Black          |
| 28                 | 1                | 13310              | Rear Label, Softener                       |
|                    | 1                | 18520              | Rear Label, Filter                         |
| 29                 | 1                | 13348              | Tape Stripe, Brown on Beige                |
|                    | 1                | 13436              | Tape Stripe, Blue on Silver                |
| 30s                | 1                | 60514              | Brine Cam Assembly, 3-18                   |
|                    | 1                | 60514-01           | Brine Cam Assembly, 6-36                   |
|                    | 1                | 60514-02           | Brine Cam Assembly, Minutes                |
| 34                 | 2                | 12473              | Screw-drive Mounting                       |
| 35s                | 1                | 12037              | Washer                                     |
| 37                 | 1                | 15151              | Screw, Knob                                |
| 38                 | 1                | 14176              | Valve Position Dial, Standard              |
|                    | 1                | 14278              | Valve Position Dial, Low Water             |
|                    | 1                | 15478              | Valve Position Dial, Chemical Filter       |
|                    | 1                | 16715              | Valve Position Dial, Filter                |
| 39                 | 1                | 14175              | Knob Label, Beige                          |
|                    | 1                | 14207              | Knob Label, Silver                         |
| 40s                | 1                | 40214              | Screw, Brine Cam                           |

s Not used when a filter valve

# Model 5600 and 5600 Econominder Control Valve Drive Assembly



DF051-0



# **Model 5600 and 5600 Econominder Control Valve Drive Assembly**

| Item Number | No. Req'd | Part Number | Description                              |
|-------------|-----------|-------------|------------------------------------------|
| 1           | 2-4       | 13255       | Adapter Clip (Clock or Meter)            |
| 2           | 5         | 13242       | Seal                                     |
|             | 5         | 17772       | Silicone Seal                            |
| 3           | 1         | 61400-12    | Valve Body Assembly, 1" Dist.            |
|             | 1         | 61400-11    | Valve Body Assembly, 3/4" Dist.          |
| 4           | 1         | 13304       | O-ring, Distributor Tube, 1"             |
|             | 1         | 10244       | O-ring, Distributor Tube, 13/16"         |
| 5           | 1         | 12281       | O-ring, Top of Tank                      |
| 6           | 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 Standard, White        |
|             | 1         | 13446-10    | End Plug Assembly Filter, Black          |
| 13          | 1         | 13446-20    | End Plug Assembly Low Water, Gray        |
| 14          | 2         | 13315       | Screw, Injector Mounting                 |
| 15          | 2         | 19228       | Adapter Coupling                         |
| 16*         | 4         | 13305       | O-ring, Adapter Coupling                 |
| 17*         | 2-4       | 13314       | Screw, Adapter Coupling (Clock or Meter) |
| 18          | 1         | 12638       | O-ring, Drain                            |
| 19          | 2         | 13301       | O-ring, Injector                         |
| 20s         | 2         | 13302       | O-ring, Brine Spacer                     |
| 21          | 1         | 13303       | O-ring, Injector Cover                   |
| 22          | 1         | 13163       | Injector Body                            |
| 23s         | 1         | 10913U      | Injector Nozzle, Undrilled               |
| 24          | 1         | 10914       | Injector Throat, Specify Size            |
| 25          | 1         | 10227       | Injector Screen                          |
| 26          | 1         | 13166       | Injector Cover                           |
| 27          | 1         | 13172       | Brine Valve Stem                         |
| 28          | 1         | 12626       | Brine Valve Seat                         |
| 29          | 1         | 13165       | Brine Valve Cap                          |
| 30          | 1         | 13167       | Brine Valve Spacer                       |
| 31          | 1         | 12550       | Quad Ring                                |
| 32          | 1         | 11973       | Spring, Brine Valve                      |
| 33          | 1         | 16098       | Washer, Brine Valve                      |
| 34          | 1         | 11981-01    | Retaining Ring                           |
| 35          | 1         | 10329       | BLFC Fitting Nut                         |
| 36          | 1         | 10330       | BLFC Ferrule                             |
| 37          | 1         | 10332       | BLFC Tube Insert                         |
| 38          | 1         | 12094       | BLFC Button, .25 gpm                     |
|             | 1         | 12095       | BLFC Button, .50 gpm                     |
|             | 1         | 12097       | BLFC Button, 1.0 gpm                     |
| 39s         | 1         | 12977       | O-ring, BLFC                             |
| 40          | 1         | 13245       | BLFC Button Retainer                     |
| 41          | 1         | 13244       | BLFC Fitting, 3/8"                       |
| 42          | 1         |             | DLFC Button, Specify Size                |
| 43          | 1         | 13173       | DLFC Button Retainer                     |
| 44          | 1         | 12767       | Screen, Brine Line                       |
| 45          | 1         | 15348       | O-ring, DLFC (not shown)                 |
| 46          | 1         | 13497       | Air Disperser                            |
| 47          | 1         | 13546       | End Plug Retainer                        |
| 48          | 3         | 12112       | Screw                                    |
| 49          | 1         | 13363       | Washer                                   |
| 50          | 1         | 13296       | Screw                                    |
| 51A         | 1         | 13398       | Yoke, Brass, 1" NPT                      |
|             | 1         | 13708       | Yoke, Brass, 3/4" NPT                    |
| 51B         | 1         | 18706       | Yoke, Plastic, 1" NPT                    |
|             | 1         | 18706-02    | Yoke, Plastic 3/4" NPT                   |
| 52          | 1         | 13308       | Drain Hose Barb                          |
| 53          | 1         | 13918       | BLFC, Plug                               |
| 54s         | 1         | 13857       | Brine Valve, Plug                        |

\* not used with meter controls

S used in backwash filter

## Model 5600 Econominder Control Valve Drive Assembly

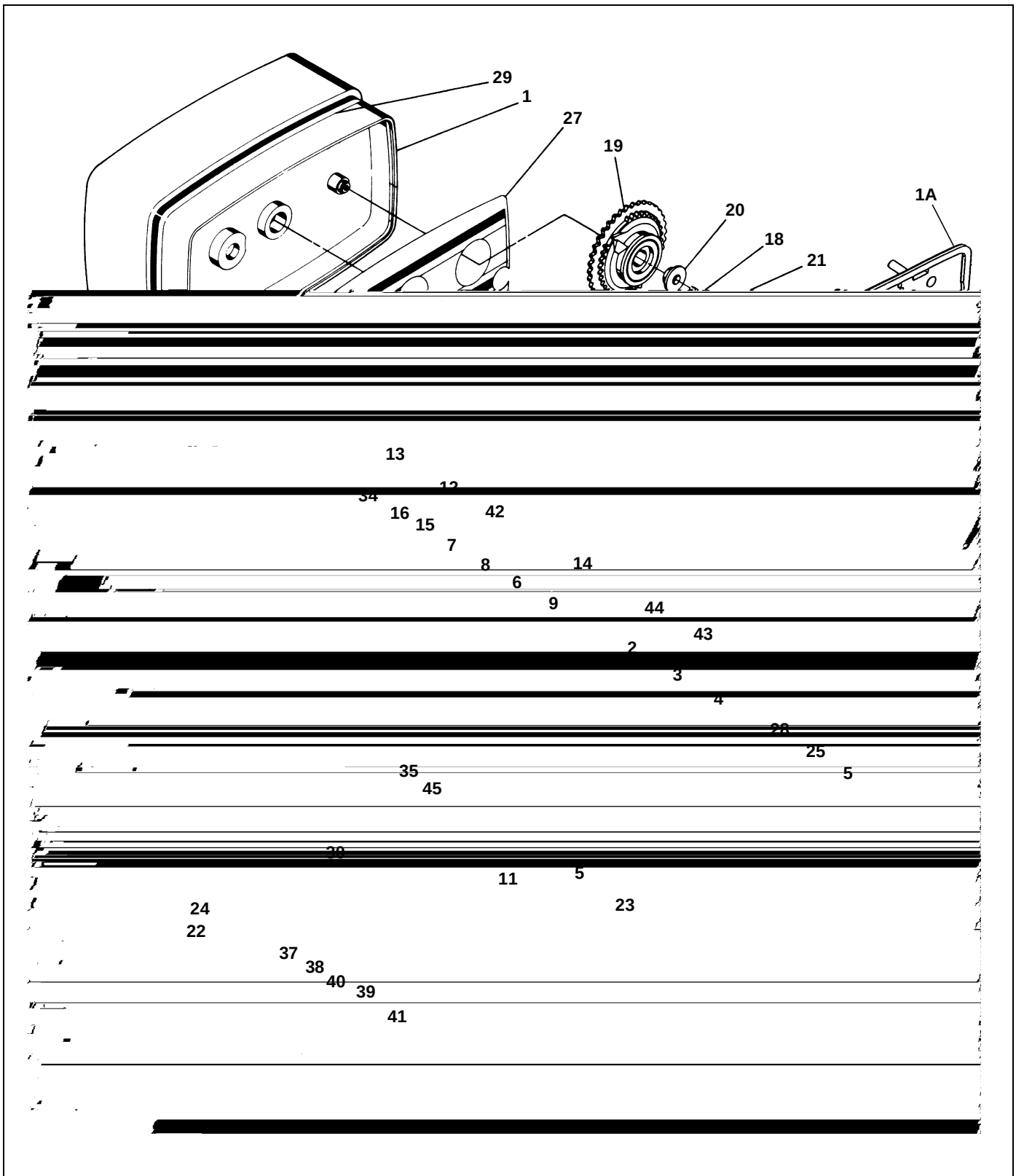


Figure 14: Model **5600 Econominder** Control Valve Drive Assembly

# **Model 5600 Econominder Control Valve Drive Assembly**

| <b>Item Number</b> | <b>No. Req'd</b> | <b>Part Number</b> | <b>Description</b>                                        |
|--------------------|------------------|--------------------|-----------------------------------------------------------|
| 1                  | 1                | 14488-001          | Drive Housing, with Pin Drilled for Cover                 |
| 1A                 | 1                | 15494-01           | "L" Housing, with Pin                                     |
|                    | 1                | 15494-03           | "L" Housing, with Pin Drilled for Designer                |
| 2                  | 1                | 13175              | Motor Mounting Plate                                      |
| 3                  | 1                | 18743              | Motor, 120V, 60 Hz                                        |
|                    | 1                | 13494              | Motor, 24V, 60 Hz                                         |
| 4                  | 2-3              | 11384              | Screw, Motor Mtg. and Ground Wire                         |
| 5                  | 2-4              | 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 and Shaft                                       |
| 12                 | 1                | 19205              | 24-hour Gear Assembly, Silver                             |
|                    | 1                | 19205-01           | 24-hour Gear Assembly, Tan                                |
| 13                 | 1                | 13802              | Cycle Actuator Gear                                       |
| 14                 | 1                | 14177              | Knob, Manual Regeneration                                 |
| 15                 | 2                | 13300              | Ball, 1/4" Dia.                                           |
| 16                 | 2                | 19080              | Spring, Compression, 6700                                 |
| 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, 6-36                                  |
|                    | 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, Standard                                  |
|                    | 1                | 14910              | Cable Assembly, Extended, Right 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                                               |
| 45                 | 1                | 40214              | Screw, Brine Cam                                          |

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## ***Bypass Valve Assembly, Plastic***

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Figure 15: Bypass Valve Assembly, Plastic

| <b>Item Number</b> | <b>No. Req'd</b> | <b>Part Number</b> | <b>Description</b>                   |
|--------------------|------------------|--------------------|--------------------------------------|
| 9                  | 2                | 13305              | O-ring, 119                          |
| 10                 | 2                | 13255              | Clip, Mounting                       |
| 11                 | 2                | 13314              | Screw, Hex Washer Head, #8-18 x 5/8" |
| 12A                | 1                | 18706              | Yoke, Plastic 1" NPT                 |
| 12B                | 1                | 18706-02           | Yoke, Plastic 3/4"                   |
|                    | 1                | 13708              | Yoke, 3/4"                           |
|                    | 1                | 13708NP            | Yoke, 3/4" (Nickel-plated)           |
|                    | 1                | 13398              | Yoke, 1"                             |
|                    | 1                | 13398NP            | Yoke, 1" (Nickel-plated)             |

## Bypass Valve Assembly, Brass

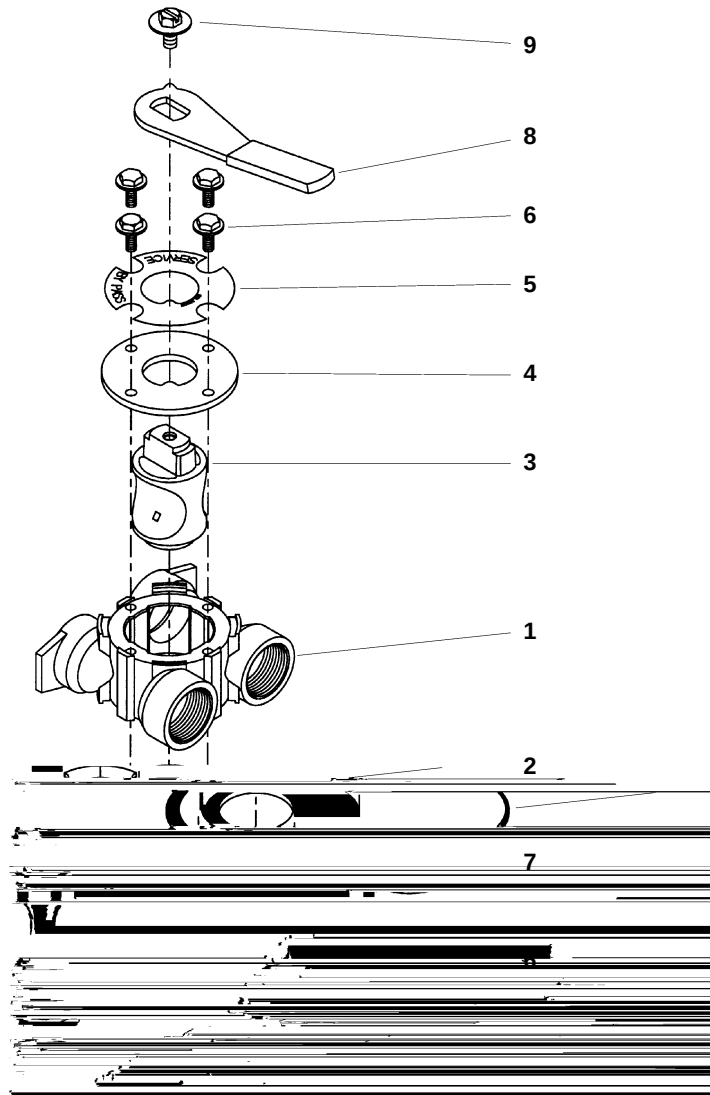


Figure 16: Bypass Valve Assembly, Brass

| Item Number | No. Req'd | Part Number | Description                           |
|-------------|-----------|-------------|---------------------------------------|
| 1           | 1         | 17290       | Bypass Valve Body, 3/4"               |
|             | 1         | 17290NP     | Bypass Valve Body, 3/4"               |
|             | 1         | 13399       | Bypass Valve Body, 1"                 |
|             | 1         | 13399NP     | Bypass Valve Body, 1" (Nickel-plated) |
| 2           | 1         | 11726       | Seal, Bypass                          |
| 3           | 1         | 11972       | Plug, Bypass                          |
| 4           | 1         | 11978       | Side Cover                            |
| 5           | 1         | 13604-01    | Label                                 |
| 6           | 8         | 15727       | Screw                                 |
| 7           | 1         | 11986       | Side Cover                            |
| 8           | 1         | 11979       | Lever, Bypass                         |
| 9           | 1         | 11989       | Screw, Hex Head, 1/4-14               |

## Model 5600 Econominder Meter Assembly



Figure 17: Model **5600 Econominder** Meter Assembly

| Item Number | No. Req'd | Part Number | Description                                        |
|-------------|-----------|-------------|----------------------------------------------------|
| 1           | 4         | 12473       | Screw, Meter Cover Assembly                        |
| 2A          | 1         | 14038       | Meter Cover Assembly, Standard                     |
| 2B          | 1         | 15659       | Meter Cover Assembly, Extended Range (Right Angle) |
| 3           | 1         | 13847       | O-ring, Meter Cover Assembly                       |
| 4           | 1         | 13509       | Impeller                                           |
| 5           | 4         | 13314       | Screw, Adapter Clip                                |
| 6           | 4         | 13255       | Adapter Clip                                       |
| 7           | 1         | 13821       | Meter Body                                         |
| 8           | 4         | 13305       | O-ring, Meter Body                                 |
| 9           | 1         | 14613       | Flow Straightener                                  |

### Replace Time Brine Valve, Injectors and Screen

1. Unplug electrical cord from outlet.
2. Turn off water supply to conditioner:
  - If the conditioner installation has a “three valve” bypass system, first open the valve in the bypass line, then close the valves at the conditioner inlet and outlet.
  - If the conditioner has an integral bypass valve, put it in the **Bypass** position.
  - If there is only a shut-off valve near the conditioner inlet, close it.
3. Relieve water pressure in the conditioner by putting the control in the **Backwash** position momentarily. Return the control to the **In Service** position.
4. Disconnect brine tube and drain line connections at the injector body.
5. Remove the two injector body mounting screws. The injector and brine module can now be removed from the control valve. Remove and discard valve body O-rings.
6. Replace brine valve.
  - Pull brine valve from injector body, also remove and discard O-ring at bottom of brine valve hole.
  - Apply silicone lubricant to new O-ring and reinstall at bottom of brine valve hole.
  - Apply silicone lubricant to O-ring on new valve assembly and press into brine valve hole, shoulder on bushing should be flush with injector body.
7. Replace injectors and screen.
  - Remove injector cap and screen, discard O-ring. Unscrew injector nozzle and throat from injector body.
  - Screw in new injector throat and nozzle, be sure they are seated tightly. Install a new screen.
  - Apply silicone lubricant to new O-ring and install around oval extension on injector cap.
8. Apply silicone lubricant to three new O-rings and install over three bosses on injector body.
9. Insert screws with washers through injector cap and injector. Place this assembly through hole in timer housing and into mating holes in the valve body. Tighten screws. (Be sure to reinstall brass spacers with injector on model **4600** valve.)
10. Reconnect brine tube and drain line.
11. Return bypass or inlet valving to normal **In Service** position. Water pressure automatically builds in the conditioner.

**NOTE:** Be sure to shut off any bypass line.
12. Check for leaks at all seal areas. Check drain seal with the control in the **Backwash** position.
13. Plug electrical cord into outlet.
14. Set time of day and cycle the control valve manually to assure proper function.
  - Make sure control valve is in the **In Service** position.
15. Make sure there is enough brine in the brine tank.
16. Rotate program wheel counterclockwise until it stops at **Regeneration** position.
17. Start regeneration cycle manually if water is hard.

### Replace Timer

1. Unplug electrical cord from outlet.
2. Turn off water supply to conditioner:
  - If the conditioner installation has a “three valve” bypass system, first open the valve in the bypass line, then close the valves at the conditioner inlet and outlet.
  - If the conditioner has an integral bypass valve, put it in the **Bypass** position.
  - If there is only a shut-off valve near the conditioner inlet, close it.
3. Relieve water pressure in the conditioner by putting the control in the **Backwash** position momentarily. Return the control to the **In Service** position.
4. Pull cable out of meter cover. Remove the control valve back cover.
5. Remove screw and washer at drive yoke. Remove timer mounting screws. The entire timer assembly now lifts off easily.
6. Put new timer on top of valve. Be sure drive pin on main gear engages slot in drive yoke (rotate control knob if necessary).
7. Replace timer mounting screws. Replace screw and washer at drive yoke.
8. Return bypass or inlet valving to normal **In Service** position. Water pressure automatically builds in the conditioner.

**NOTE:** Be sure to shut off any bypass line.
9. Plug electrical cord into outlet.
10. Set time of day, program wheel, and salt usage. Cycle the control valve manually to assure proper function. Be sure to return the control valve to the **In Service** position.
11. Replace the control valve back cover. Be sure grommet at cable hole is in place.
12. Make sure there is enough brine in the brine tank.
13. Rotate program wheel counterclockwise until it stops at **Regeneration** position.
14. Start regeneration cycle manually if water is hard.
15. Plug cable into meter cover, rotate cable to align drive flat if necessary.



### **Replace Piston Assembly**

1. Unplug electrical cord from outlet.
2. Turn off water supply to conditioner:
  - If the conditioner installation has a “three valve” bypass system, first open the valve in the bypass line, then close the valves at the conditioner inlet and outlet.
  - If the conditioner has an integral bypass valve, put it in the **Bypass** position.
  - If there is only a shut-off valve near the conditioner inlet, close it.
3. Relieve water pressure in the conditioner by putting the control in the **Backwash** position momentarily. Return the control to the

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## ***Service Instructions (Cont'd.)***

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### **Replace Seals and Spacers**

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

### Replace Meter

1. Unplug electrical cord from outlet.
2. Turn off water supply to conditioner:
  - If the conditioner installation has a “three valve” bypass system, first open the valve in the bypass line, then close the valves at the conditioner inlet and outlet.
  - If the conditioner has an integral bypass valve, put it in the **Bypass** position.
  - If there is only a shut-off valve near the conditioner inlet, close it.
3. Relieve water pressure in the conditioner by putting the control in the **Backwash** position momentarily. Return the control to the **In Service** position.
4. Pull cable out of meter cover.
5. Remove two screws and clips at bypass valve or yoke. Pull resin tank away from plumbing connections.
6. Remove two screws and clips at control valve. Pull meter module out of control valve.
7. Apply silicone lubricant to four new O-rings and assemble to four ports on new meter module.
8. Assemble meter to control valve. Note, meter portion of module must be assembled at valve outlet.
9. Attach two clips and screws at control valve. Be sure clip legs are firmly engaged with lugs.
10. Push resin tank back to the plumbing connections and engage meter ports with bypass valve or yoke.
11. Attach two clips and screws at bypass valve or yoke. Be sure clip legs are firmly engaged with lugs.
12. Return bypass or inlet valving to normal **In Service** position. Water pressure automatically builds in the conditioner.

**NOTE:** Be sure to shut off any bypass line.
13. Check for leaks at all seal areas.
14. Plug electrical cord into outlet.
15. Set time of day.
  - Make sure control valve is in the **In Service** position.
16. Rotate program wheel counterclockwise until it stops at **Regeneration** position.
17. Start regeneration cycle manually if water is hard.
18. Plug cable into meter cover. Rotate cable to align drive flat if necessary.

### Replace Meter Cover and/or Impeller

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

## ***Model 5600 and 5600 Econominder Troubleshooting***

| <b>PROBLEM</b>                       | <b>CAUSE</b>                                                                                                                                                                                                                            | <b>CORRECTION</b>                                                                                                                                                                                                                                                                                                                                                                                          |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Softener fails to regenerate.     | A. Electrical service to unit has been interrupted.<br>B. Timer is defective.<br>C. Power failure.                                                                                                                                      | A. Assure permanent electrical service (check fuse, plug, pull chain or switch).<br>B. Replace timer.<br>C. Reset time of day.                                                                                                                                                                                                                                                                             |
| 2. Softener delivers hard water.     | A. Bypass valve is open.<br>B. No salt in brine tank.<br>C. Injectors or screen is plugged.<br>D. Insufficient water flowing into brine tank.<br>E. Hot water tank hardness.<br>F. Leak at distributor tube.<br>G. Internal valve leak. | A. Close bypass valve.<br>B. Add salt to brine tank and maintain salt level above water level.<br>C. Replace injectors and screen.<br>D. Check brine tank fill time and clean brine line flow control if plugged.<br>E. Repeated flushings of the hot water tank is required.<br>F. Make sure distributor tube is not cracked. Check O-ring and tube pilot.<br>G. Replace seals and spacers and/or piston. |
| 3. Unit uses too much salt.          | A. Improper salt setting.<br>B. Excess water in brine tank.                                                                                                                                                                             | A. Check salt usage and salt setting.<br>B. See problem number 7.                                                                                                                                                                                                                                                                                                                                          |
| 4. Loss of water pressure.           | A. Iron build-up in line to water conditioner.<br>B. Iron build-up in water conditioner.<br>C. Inlet of control plugged due to foreign material loose from pipes by recent work done on plumbing system.                                | A. Clean line to water conditioner.<br>B. Clean control and add resin cleaner to resin bed. Increase frequency of regeneration.<br>C. Remove piston and clean control.                                                                                                                                                                                                                                     |
| 5. Loss of resin through drain line. | A. Air in water system.                                                                                                                                                                                                                 | A. Assure that well system has proper air elimination control, check for dry well condition.                                                                                                                                                                                                                                                                                                               |
| 6. Iron in conditioned water.        | A. Fouled resin bed.                                                                                                                                                                                                                    | A. Check backwash, brine draw and brine tank fill, increase frequency of regeneration, increase backwash time.                                                                                                                                                                                                                                                                                             |
| 7. Excessive water in brine tank.    | A. Plugged drain line flow control.                                                                                                                                                                                                     | A. Clean flow control.                                                                                                                                                                                                                                                                                                                                                                                     |
| 8. Salt water in service line.       | A. Plugged injector system.<br>B. Timer not cycling.<br>C. Foreign material in brine valve.<br>D. Foreign material in brine line flow control.                                                                                          | A. Clean injector and replace screen.<br>B. Replace timer.<br>C. Clean or replace brine valve.<br>D. Clean brine line flow control.                                                                                                                                                                                                                                                                        |

***Model 5600 and 5600 Econominder Troubleshooting (Cont'd.)***

| PROBLEM | CAUSE | CORRECTION |
|---------|-------|------------|
|---------|-------|------------|

General Service Hints for Meter Control

## Model 5600SF Troubleshooting

| PROBLEM                                      | CAUSE                                                                                                                                                                                                         | CORRECTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Filter fails to backwash.                 | A. Electrical service to unit has been interrupted.<br>B. Timer is defective.<br>C. Power failure.                                                                                                            | A. Assure permanent electrical service (check fuse, plug, pull chain or switch).<br>B. Replace timer.<br>C. Reset time of day.                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 2. Filter "bleeds" iron.                     | A. Bypass valve is open.<br>B. Excessive water usage.<br><br>C. Hot water tank rusty.<br>D. Leak at distributor tube.<br><br>E. Defective or stripped filter medium bed.<br>F. Inadequate backwash flow rate. | A. Close bypass valve.<br>B. Reduce days between, backwashing (see timer instructions), make sure that there is not a leaking valve in the toilet bowl or sinks.<br>C. Repeated flushings of the hot water tank is required.<br>D. Make sure distributor tube is not cracked, check O-ring and tube pilot.<br>E. Replace bed.<br>F. Make sure filter has correct drain flow control, be sure flow control is not clogged or drain line restricted, be sure water pressure has not dropped, increase backwash flow rate according to specifications for your unit, see your dealer for recommendations. |
| 3. Loss of water pressure.                   | A. Iron or turbidity build-up in water filter.<br><br>B. Inlet plugged due to foreign material broken loose from pipes by recent work done on plumbing system.                                                | A. Reduce days between backwashing so filter backwashes more often, make sure filter is sized large enough to handle water usage.<br>B. Remove piston and clean control.                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 4. Loss of filter medium through drain line. | A. Broken or missing top screen.                                                                                                                                                                              | A. Replace top screen, must have 0.020" wide slots.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 5. Drain flows continuously.                 | A. Foreign material in control.<br><br>B. Internal control leak.<br><br>C. Control valve jammed in rinse or backwash.                                                                                         | A. Remove piston assembly and inspect bore, remove foreign material and check control in various cycle positions.<br>B. Replace seals and/or piston assembly.<br>C. Replace piston, seals and spacers (and drive motor if necessary).                                                                                                                                                                                                                                                                                                                                                                  |

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## ***Service Assemblies***

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| <b><i>Part Number</i></b> | <b>Description</b>             |
|---------------------------|--------------------------------|
| 60102-00                  | Piston, Softener               |
| 60102-10                  | Piston, Filter                 |
| 60102-20                  | Piston, Low Water              |
| 60125                     | Seal Kit                       |
| 60084-XX                  | Injector                       |
| 60032                     | Brine Valve                    |
| 60514                     | Brine Cam, 3-18                |
| 60514-01                  | Brine Cam, 6-36                |
| 60514-02                  | Brine Cam, Minutes             |
| 60510                     | Coupling, with Clip and Screws |
| 60040                     | Bypass, Brass 3/4" NPT         |
| 60041                     | Bypass, Brass 1" NPT           |
| 60049                     | Bypass, Plastic                |
| 60086                     | Meter, Standard                |
| 60087                     | Meter, Extended                |
| 160136-5600               | Service Kit, Meter             |
| 160135-5600               | Service Kit, Clock             |
| 14860                     | Skipper Wheel, 7-day           |
| 14381                     | Skipper Wheel, 12-day          |
| 60405-10                  | Meter Program Wheel, Standard  |
| 60405-20                  | Meter Program Wheel, Extended  |



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***Notes:***

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