

## Installing Water Softener FLECK 9000

Presented by
Glass Water Systems
5130 S. Dale Mabry
Tampa, Florida 33611
Toll Free 1-877-345-2770

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## Purchasing Installation Materials

This can be done before the unit arrives. This list is broken down for either a customer using copper or pvc pipe. Therefore, the list will vary depending on your plumbing material that you use for the connection. Also, this list may be added to and is based on installing the unit on 1" plumbing. If you are installing on 3/4" plumbing just substitute this for 1". The same applies for if you are using CPVC, Sch 80, or PVC. This is strictly a guide and you can purchase less or more of the supplies depending on your situation. Always feel free to call us with any questions about installation at **1-877-345-2770** 

#### **PVC** installation:

- 1. 20' 40' 1" or 3/4" PVC pipe
- 2. 20' 60' ½ PVC pipe or 5/8" Poly Tubing
- 3. 10 1" or ¾" 90s PVC
- 4. 4 1" or 3/4" 45s PVC
- 5. 5- 1" or 3/4"Couplings PVC
- 6. 2 1" or 3/4" Tees (Optional for Hard Water Faucet)
- 7. 2- 1" x ¾" Slip x Thr Bushing " X ¾" Slip x Thrd
- 8. 1- 3/4" Hose Bibb
- 9. 1-1" or 3/4" Ball Valve (Optional for shut-off on entire system
- 10. 2- 1/2" PVC Female Adapter
- 11. 10 ½" 90s PVC
- 12.  $5 \frac{1}{2}$  Couplings PVC
- 13. Rain & Shine Glue / CPVC Glue
- 14. Pipe Cleaner
- 15. Teflon Tape

If you have additional items you would recommend please call us – improvement and customer satisfaction is our goal.

#### Copper installation:

- 1. 10' 20' 1" or  $\frac{3}{4}"$  L hard copper pipe
- 2. 20' 60' 1/2" PVC pipe or 5/8" Poly Tubing
- 3. 6 1" or 3/4" 90s Copper
- 4. 4 − 1" or ¾" Female Adapters Copper
- 5. 2 1" or 3/4" 45s Copper
- 6. 5- 1" or 3/4" Couplings Copper
- 7. 2 1" or ¾" Tees (Optional for Hard Water Faucet)
- 8. 2- 1" x 3/4" Slip x Thr Bushing
- 9. 1- <sup>3</sup>/<sub>4</sub>" Hose Bibb
- 10. 1-1" or 3/4" Ball Valve (Optional for shut-off on entire system
- 11. 2- 1/2" PVC Female Adapter
- 12. 10 ½" 90s PVC
- 13.  $5 \frac{1}{2}$  Couplings PVC
- 14. Lead Free Soder
- 15. Flux and Brush
- 16. Sand Cloth

If you have additional items you would recommend please call us – improvement and customer satisfaction is our goal.

## **Inventory Contents**

It is probably the most important thing to do the day your receive your package. This unit will either be drop shipped from our main supply warehouse in Florida or from our numerous nation wide suppliers. We use this method to keep the cost of shipping low for the customers. The unit may come in numerous packages. The Glass Water Systems representative will inform you of the number of packages. Also, you need to keep all packages if the unit is damaged in shipping and call us immediately. We need this to file a claim with the shipping company.

- 1. 2- Fiberglass Media Tank (8x44, 9x48, 10x47,12x52) depends on the system you orderd
- 2. 2-Distributor Tube and Basket
- 3. High Capacity Resin-
  - 1. 24K Unit = 3/4 Cu Ft Bag
  - 2. 32K Unit = 1 Cu Ft Bag
  - 3. 40K Unit = Cu Ft Bag
  - 4. 48K Unit = 1-1/2 Cu Ft Bag
  - 5. 64K Unit = 2 Cu Ft Bag
- 4. Gravel (Optional)
- 5. Fleck 9000 Control Valve
- 6. Bypass- (Some Valves Have this other you need to build a three valve bypass.
  - Use 3 Ball Valves and 2 Tees
- 7. Installation Fitting Assemblies
  - 1. 3/4" or 1" NPT
  - 2. <sup>3</sup>/<sub>4</sub>" or 1" Female Piping Boss
  - 3. <sup>3</sup>/<sub>4</sub>" or 1" Brass Sweat
- 8. Brine Tank
- 9. 3/8" Brine Line













### Determining where to install the unit

This is the portion where you decide where to install you water softener. You need to make sure that you follow your local plumbing codes. This information will serve as a guide to help you with this process. We encourage you to call with any questions about placement **1-877-345-2770**.



You need to first find the main coming into your home.

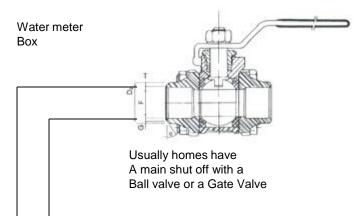
- Locate your water meter
- 2. This is usually the side of the house it comes in on
- 3. Most Homes have a L shaped pipe going into the side of the home.
- 4. Once you have found this you need to dig down and locate the pipe to tie into.

#### 1. Electric

- 1. Try and find an outside socket.
- 2. If you have to run a further distance than you have cord you can slice in and extend the line.
- 3. You can also drill a hole through the wall and fish it through.

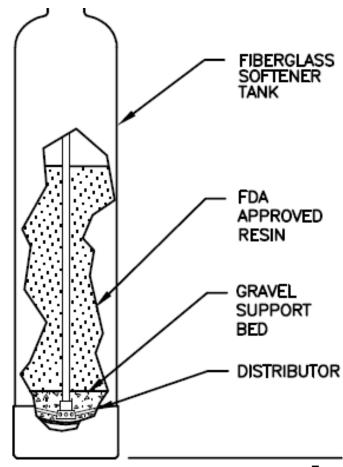
#### 2. Drain

You can either use a sink, an outside drain, or dig a hole approximately 24-36" and fill with rock The hole needs to be about 12-18" in diameter



# BEDDING THE UNIT AND PREPARING FOR INSTALLATION

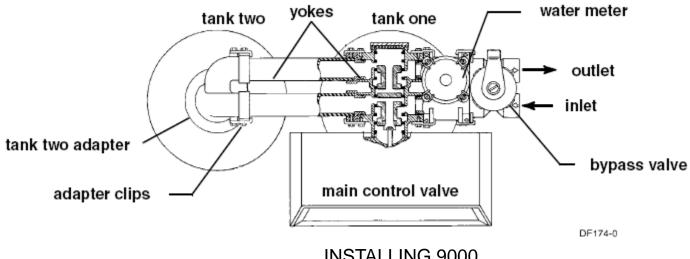
- 1. Put the Distributor Tube into the tank and tape the opening of the pipe. You cannot get resin or gravel inside the distributor tube.
- Get a bucket 5 gallon type and cut a hole that will fit over the tank – Tape the Sides. Or use the funnel provided with the package (optional)
- 3. Fill the tank with the large gravel first and then the fine gravel. You may have no gravel or just one bag of gravel. If you do not have gravel do not worry about it.
- 4. Put the ¾, 1, 1.25, 1.5, or 2 Cu Ft of Resin in the tank
- Remove the tape
- 6. Clean the threads of any resin etc. This will possibly make the valve not seat correctly
- 7. MAKE SURE YOU GO AHEAD AND FILL THE TANKS WITH WATER BEFORE YOU PUT THE HEAD ON IT -
- 8. Take the Valve and screw back on the tank be careful not to cross-thread the tank. We usually go backwards until it locks in and then tighten it down.
- After you have the valve on take it and place it where you want it.



## Installing the Inlet / Outlet

- Find the main line to your home to install the inlet and outlet. This is usually located on the same side of the 1. house as your water meter.
- 2. Once you have found the main line you need to cut it and install 2 90s.
- 3. Turn your water off at the meter or main shut off to the house. This has to be prior to where you are installing the water softener
- The first 90 will be the inlet to the water softener. You need sweat or glue this fitting. 4.
- 5. Run the pipe (copper or pvc) up to the sweat copper fitting or pvc fitting. The sweat fitting will require you use another 90 to put into the copper fitting adapter.
- 6. You need to either glue or sweat the fitting before connection to the fitting on the bypass
- 7. The brass connection fitting that has to be sweat or glued is item 1 in both drawing below.

#### 9000/9100



#### General and Commercial Installation Checklist

#### Water Pressure

A minimum of 25 lbs of water pressure is required for regeneration valve to operate effectively.

#### **Electrical Facilities**

An uninterrupted alternating current (A/C) supply is required. Make sure:

- Voltage supply is compatible with unit before installation.
- Current supply is always hot and cannot be turned off with another switch.

#### **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.

#### General and Commercial Installation Checklist

- 1. Place the softener tank where you want to install the unit.
  - NOTE: Be sure the tank is level and on a firm base.
- 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" minimum pipe size for the drain.
  - Use a 3/4" drain line for backwash flow rates that exceed 7 gpm or length that exceeds 20' (6 m).
- 4. Both tanks must be the same height and diameter and filled with equal amounts of media.
- The distributor tube must be flush with the top of each tank. Cut if necessary. Use only non-aerosol silicone lubricant.
- Lubricate the distributor o-ring seal and tank o-ring seal. Place the main control valve on one tank and the tank adapter on the second tank.
  - NOTE: If required, solder copper tubing for tank interconnection before assembling on the main control valve and tank adapter. Maintain a minimum of 1" distance between tanks on final assembly.
- 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.
- Use only Teflon tape on the drain fitting.
- Be sure the floor under the salt storage tank is clean and level.
- 10. 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.
- 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.
- 12. Place the bypass 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.

#### Electrical

- 13. Make all electrical connections according to codes. Plug the valve into an approved power source. Do not insert meter cable into the meter yet.
- 14. Tank one has control valve and tank two has adapter. See Figure 1, page 5 or Figure 2, page 5.
- 15. Look on the right side of the control valve, it has indicators showing which position the control valve is in during Regeneration and which tank is In Service.
  - Figure 3, page 7 shows the valve In Service position with tank one supplying conditioned water and tank two on standby.
  - **NOTE:** Make sure the meter cable is not inserted in the meter dome. Swing the timer out to expose the program wheel (to swing timer out) grab onto the lower right corner of timer face and pull outward. See *Figure 5*, page 8.

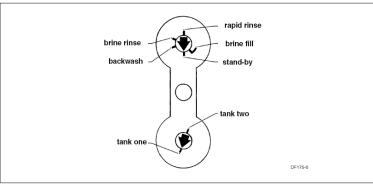


Figure 3: Control Valve Position Indicators

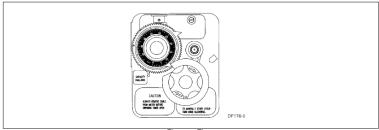


Figure 4: Timer

- 16. Cycle timer into backwash position. Turn manual knob so that the micro switch rides on the first set of pins.— In this position the tanks switch (lower piston) and the control valve moves to the backwash position (upper
- In this position the tanks switch (lower piston) and the control valve moves to the backwash position (upper piston).
- Wait until the positioning of upper and lower pistons stops before advancing the timer further. If advanced too fast the control will not home into the **In Service** position (it will not advance to any other position). To correct this, rotate the manual knob back to **In Service** and start again into backwash.
- **NOTE:** Once valve positions itself into the backwash cycle, the homing circuit locks in.
- 17. With all the air backwashed, slowly cycle the timer to the brine position; rapid rinse; and brine tank refill. Wait for the control drive motor to position itself in each cycle and stop, before advancing on to the next position.
- 18. Once back in the **In Service** position, cycle the control valve again into the backwash position. The tanks switch again, and air head backwashes out of the other tank. Cycle the control back to the **In Service** position. Leave the timer in the open position. DO NOT insert meter cable yet.

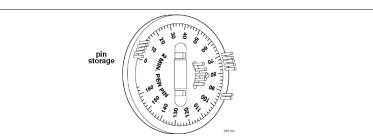


Figure 5: Program Wheel

NOTE: Two motors are available:

1/15 RPM has 82 minute **Regeneration Time**. 1/30 RPM has 164 minute **Regeneration Time**. See *Figure 5*.

#### Regeneration Cycle Program Setting Procedure

#### Setting the Regeneration Cycle Program

The **Regeneration** cycle program on the water conditioner is preset at the factory. However, portions of the cycle or program time may be lengthened or shortened for local conditions or system design.

- Expose cycle program wheel by grasping timer in lower right hand corner and pulling. This releases snap retainer and swings timer to the left
  - NOTE: Meter cable must be removed from meter dome before opening timer.
- Remove the program wheel by grasping program wheel and squeezing protruding lugs towards center. Lift program wheel off timer.
  - Switch arms may require movement to facilitate removal.
- 3. Return timer to closed position by engaging snap retainer in back plate.
  - Make certain all electrical wires locate above snap retainer post.

#### Changing Length of the Backwash Time

The program wheel in *Figure 5* is **In Service** position. Looking at the numbered side of the program wheel, the group of pins starting at zero determines the length of time the unit backwashes.

Example: If there are six pins in this section, the time of backwash is 12 minutes (2 minutes per pin). To change the length of backwash time, add or remove pins as required.

The number of pins multiplied by two equals minutes of backwash.

#### Changing 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 a unit will brine and rinse (2 minutes per hole).

To change the length of brine and rinse time, add or remove pins in the rapid rinse group of pins to increase or decrease the number of holes in the brine and rinse section.

The number of holes multiplied by two equals minutes of brine and rinse.

#### Changing Length Of Rapid Rinse

The second group of pins on the program wheel determines the length of time the water conditioner rapid rinses (2 minutes 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 multiplied by two equals minutes of rapid rinse.

**NOTE:** Program wheels with 0–82 minute cycle times, use one minute per pin or hole to set **Regeneration** times. The layout of pins and holes on the program wheel follow the same procedure as on this page.

#### Changing Length of Brine Tank Refill Time

The second group of holes on the program wheel determines the length of time the water conditioner refills the brine tank (2 minutes per hole).

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

The **Regeneration** cycle is complete when the two pin set at end of the brine tank refill section trips the outer micro-switch. The program wheel, however, continues to rotate until the inner micro-switch drops into the notch on the program wheel.

#### Time Brine Refill and Meter Setting Procedure

#### **Programming**

The control valve is set at the factory for backwash; brine and slow rinse; rapid rinse and brine tank fill times.
 Change any of these times by repositioning the pins and holes or adding more pins.

NOTE: Two speed timer motors are available

1/15 RPM has 82 minute Regeneration Time and each pin or hole equals one minute.

1/30 RPM has 164 minute Regeneration Time and each pin or hole equals two minutes.

- 2. The control valve has a separate brine tank fill cycle.
  - Calculate the desired salt setting using the brine line flow control rate of refill (in gpm) multiplied by the timer setting. Then, using one gallon of fresh water dissolving approximately 3 lbs salt, calculate the refill time.

Example: A desired 30 lbs salt setting:

The unit has a 1.0 gpm refill rate so a 10 gallon fill is required.

10 gallons x 3 lbs/gals = 30 lbs salt

Set the timer refill section at 10 minutes.

10 minutes x 1.0 gpm = 10 gallon fill

NOTE: There must always be two pins at the end of a refill time to stop the fill cycle.

With the **Regeneration** times set, place timer back to its original position, making sure the lower right hand corner snaps back into the backplate and the meter cable slides through the backplate and does not bind.

Setting the gallon wheel.

Knowing the amount of resin in each tank and the salt setting per **Regeneration**, calculate the gallons available, using the following capacities as a guide:

NOTE: Based on tank size:

More resin increases capacity, less resin decreases capacity.

More salt increases capacity, less salt decreases capacity.

#### Example:

tank diameter = 16"

compensated hardness = 35 grains per gal (tested sample)

 $ft^3$  resin (based on flow rate) = 4 lbs of salt = 8 capacity per  $ft^3$  = 24,000

(24,000 x 4 ft<sup>3</sup> of resin per tank) = 2740 gallons available before regeneration

#### DO NOT SET THIS FIGURE - GO TO STEP 4

 Because the control valve regenerates with soft water from the other tank, subtract the water used for Regeneration. Take each Regeneration cycle and calculate the water used. Example: Unit is set for a 16" diameter tank with 4 ft<sup>3</sup> of resin and salted at 8 lbs. per ft<sup>3</sup>, 7 gpm backwash, #3 injector, 1.0 gpm brine refill, and 60 psi and timer set for 10 min. backwash, 60 min. brine and rinse, 10 min. rapid rinse, 10 min. brine tank fill.

```
Backwash 10 minutes x 7.0 gpm = 70.0 gallons
Brine and Rinse 60 minutes x 1.0 gpm = 60.0 gallons
Rapid Rinse 10 minutes x 7.0 gpm = 70.0 gallons
Brine Tank Fill 10 minutes x 1.0 gpm = 10.0 gallons
Total Regeneration Water = 210.0 gallons
```

With the 2740 gallons available calculated in Step 3, subtract the **Regeneration** water used from the total water available.

```
2740 gallons available - 210 gallons used = 2530 gallons (in Regeneration, Step 4)
```

 Set meter wheel at approximately 2530 gallons. Lift the inner dial of the meter program wheel so that you can rotate it freely. Position the white dot opposite the 2530 gallon setting.

NOTE: There is a slight delay between the time the meter zeros out and the cycle starts. Units using the: 1/15 RPM motor, 82 minute Regeneration Time has a 9 minute delay 1/30 RPM motor, 180 minute Regeneration Time has an 18 minute delay.

This delay period is not critical on residential equipment. However, take this factor into consideration for commercial applications by subtracting continuous flows for 9 minutes or 18 minutes from water available.

- Insert meter cable into meter.
- Check bypass.
- 7. Plug in unit.

#### ET Timer Installation And Start-Up Procedures

 In Normal Operation the Time Of Day and, if flow meter equipped, the Volume Remaining displays appear alternately. Set the Time Of Day display. Press the Up or Down set button to display the correct time.



Figure 6

Flow Meter Equipped Valves Only: The Volume Remaining Display displays the volume of water in gallons
(including any reserve capacity) remaining prior to Regeneration. When there is no water usage the Meter
arrow should not appear or not change. Open a soft water tap. The Meter arrow begins flashing at a rate that
varies with flow rate. Close the tap after 3–5 gallons of water flow.

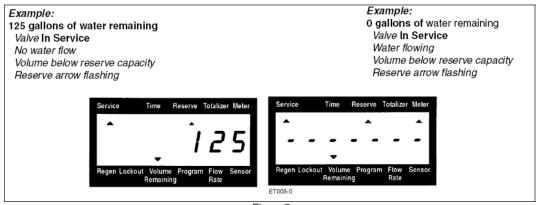


Figure 7

- 3. Manually initiate a Regeneration cycle and allow water to run to drain for 3 to 4 minutes. Press and release the Extra Cycle button. With Immediate Regeneration timers the control goes into Regeneration immediately. With Delayed Regeneration timers the In Service arrow flashes immediately and a Regeneration occurs at the preset Regeneration Time. Press and hold the Extra Cycle button for 5 seconds. The control goes into Regeneration immediately.
- 4. Manually step the valve through a Regeneration cycle, checking valve operation in each step. During Regeneration the control displays the Regeneration step number to which the valve is advancing or has reached and the time remaining in that step.

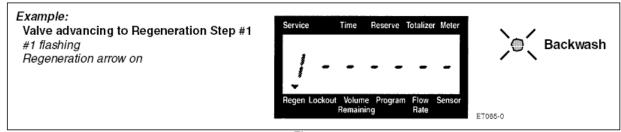


Figure 8

When the first cycle step is reached, a red LED turns on indicating the current Regeneration cycle step.

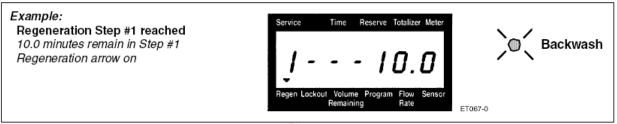


Figure 9

- Press the Extra Cycle button during a Regeneration step to immediately advance the valve to the next Regeneration step position.
- Press the Up or Down set buttons during a Regeneration step to adjust the time remaining in the current Regeneration step. Programmed Regeneration step times are not changed.
- Once all Regeneration cycle steps are complete, the valve returns to In Service and resumes normal
  operation.
- Manually step the valve to the Brine Draw position (see Step #15) and allow the valve to draw water from the brine tank until it stops.
  - \*NOTE: The air check checks at approximately the midpoint of the screened intake area.
- 6. Manually step the valve to the Brine Refill position and allow the valve to return to In Service automatically.
- Make sure the brine refill time (salt dosage) is set as recommended by the manufacturer.
- 8. With the valve In Service, check that there is about 1" of water above the grid in the brine tank, if one is used.
- Fill the brine tank with salt.

**NOTE:** It is recommended a **9V Alkaline Battery** be installed at all times for proper valve operation. The Low Battery LED turns on when the battery needs to be replaced.

#### ET Timer Control Start-Up Procedure

#### Display ET

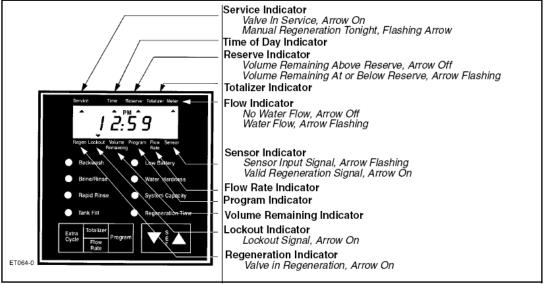


Figure 10: ET Timer Display

In Normal operation the **Time Of Day** display alternates with the **Volume Remaining** display. The meter arrow flashes in direct relation to the water flow rate through the unit. As treated water is used, the **Volume Remaining** display counts down from a maximum value to the calculated reserve capacity. The Reserve arrow flashes when the reserve capacity is being used. At the preset **Regeneration Time**, a **Regeneration** cycle initiates.

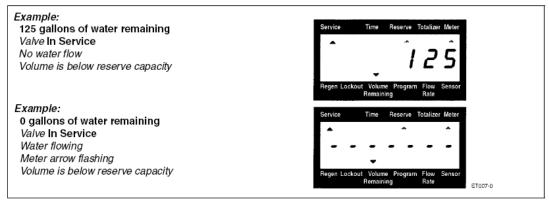


Figure 11

#### ET Timer Control Operation

#### **Timeclock Regeneration Valves**

When the number days since the last **Regeneration** reaches the preset number of days, a **Regeneration** cycles initiates at the preset **Regeneration Time**.

#### Flow Meter Equipped Immediate Regeneration Valves

The **Time Of Day** display alternates with the **Volume Remaining** display. The Meter arrow flashes in direct relation to the water flow rate through the unit. As treated water is used, the **Volume Remaining** display counts down from a maximum value to zero and initiates a **Regeneration** cycle.



Figure 12

#### Sensor Immediate Regeneration Valves

When the control receives a valid sensor input signal, a **Regeneration** cycle initiates. The Sensor Input arrow flashes until the signal is determined to be valid.

#### Sensor Delayed Regeneration Valves

When the control receives a valid sensor input signal, a **Regeneration** cycle initiates at the preset **Regeneration Time**. The Sensor Input arrow flashes until the signal is determined to be valid. The Reserve arrow flashes when the reserve capacity is being used.

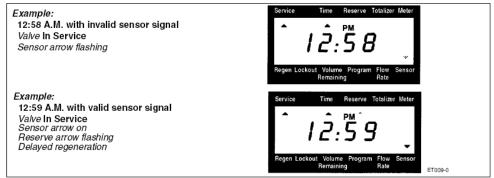


Figure 13

#### **Lockout Input Operation**

The lockout arrow turns on whenever the control sends a lockout signal. Any requests for **Regeneration** are delayed until this signal is removed. **Regeneration** then proceeds normally.

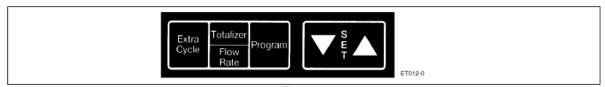


Figure 14

#### Start an Extra Cycle

Press the Extra Cycle button to start an Extra Regeneration tonight. Press and hold the Extra Cycle button for 5 seconds to start an Extra Cycle immediately.

#### Totalizer/Flow Rate

Press the Totalizer Flow Rate button to display the flow rate.

Press the button a second time to display the total accumulation of water flow through the valve since the last reset.

Press the button a third time to return the display to Time Of Day or Volume Remaining.

 Press and hold the button for 25 seconds to reset the Totalizer display. During the 25 seconds, the Totalizer arrow flashes indicating that the display is resetting properly.

#### Low Battery Indicator



Figure 15

The red Low Battery LED turns on whenever the 9V Alkaline Battery (not included) requires replacement. The battery is used for memory backup and is stored against the valve backplate. In the event of a power outage, the battery maintains the current operating displays for approximately 24 hours at maximum battery capacity.

#### Immediate Regeneration Valves With Days Between Regeneration Override Set

When the valve reaches its set **Days Since Regeneration Override** value, a **Regeneration** cycle initiates immediately. This event occurs regardless of the **Volume Remaining** display reaching zero gallons.

#### Delayed Regeneration Valves With Days Between Regeneration Override Set

When the valve reaches its set **Days Since Regeneration Override** value, a **Regeneration** cycle initiates at the preset **Regeneration Time**. This event occurs regardless of the Volume Remaining display reaching the calculated reserve capacity.

#### Control Operation During Regeneration

In Regeneration the control displays a special Regeneration display. The control shows the current Regeneration step number to which the valve is advancing or has reached, and the time remaining in that step. The displayed step number flashes until the valve completes driving to the Regeneration step position. Once all Regeneration steps are complete the valve returns to In Service and resumes normal operation.

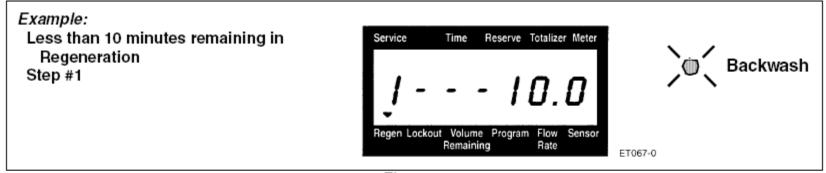


Figure 16

Press the Extra Cycle button during a **Regeneration** cycle to immediately advances the valve to the next cycle step position and resume normal step timing.

#### Control Operation During Programming

The control enters Program Mode with the valve **In Service**. While in Program Mode the control continues to operate normally, monitoring water usage and keeping all displays up to date. Control programming is stored in memory permanently. There is no need for battery backup power.

#### **Control Operation During A Power Failure**

During a power failure all control displays and programming are stored for use upon power re-application. The control retains these values for years, if necessary, without loss. The control is fully inoperative and any calls for **Regeneration** are delayed. The control, upon power re-application, resumes normal operation from the point that it was interrupted. An inaccurate or flashing **Time of Day** display indicates that a power outage has occurred.

## Starting up the system

- 1. Once all this is installed let the glue dry
- 2. CHECK FOR LEAKS
- 3. Open the inlet side valve and slowly let water in
- 4. Once pressurized open the outlet valve
- 5. Go inside and start running your hot water this will let you have immediate soft water
- 6. Once you have done that follow the instruction on page 17 19 for setting up the valve.
- 7. After doing the instructions go ahead and hit regenerate and let the water softener completely go through all the cycles.
- 8. Please call us with any questions 1-877-345-2770

