

**DX 500 Water Softener  
With SE Series Control  
Water Conditioning Control System  
Dealer Installation, Operation, and Maintenance Manual**



## Installation

All plumbing and electrical connections must conform to local codes. Inspect the unit carefully for carrier shortage or Shipping damage.

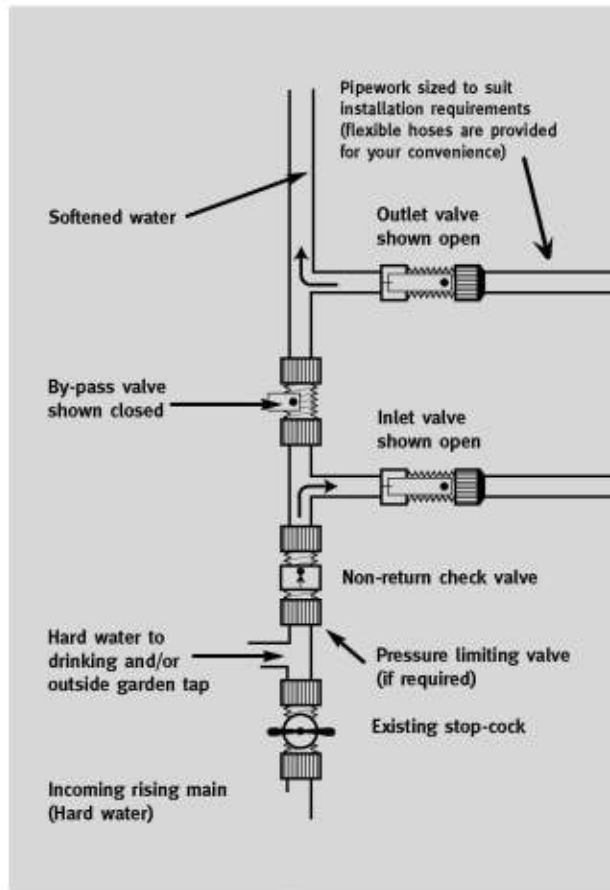


Fig 1

## Location Selection

1. The distance between the unit and a drain should be as short as possible.
2. If it is likely that supplementary water treatment equipment will be required. Make sure adequate additional space is available.
3. Since salt must be added periodically to the brine tank, the location must be easily accessible.
4. There should be at least 10 feet (3 m) of piping between the outlet of the conditioner and the inlet to the heater. Water heaters can sometimes overheat and transmit heat back down the cold pipe into the unit control valve. Hot water can severely damage the conditioner. A 10-foot (3-m) total pipe run, including bends, elbows, etc., is a reasonable distance to help prevent this from happening. To prevent hot water flowing from heat source to the conditioner, in the event of a negative pressure situation, install a check valve in the treated water piping from the Conditioner.

**If a check valve is installed, make sure the water heating unit is equipped with a properly rated temperature and pressure safety relief valve. Also, make sure that local codes are not violated.**

5. Do not locate the unit where it or its connections (including the drain and overflow lines) will ever be subjected to room temperatures under 34 ° F (1 ° C) or over 120 ° F (49 ° C).
6. Do not install the unit near acid or acid fumes.

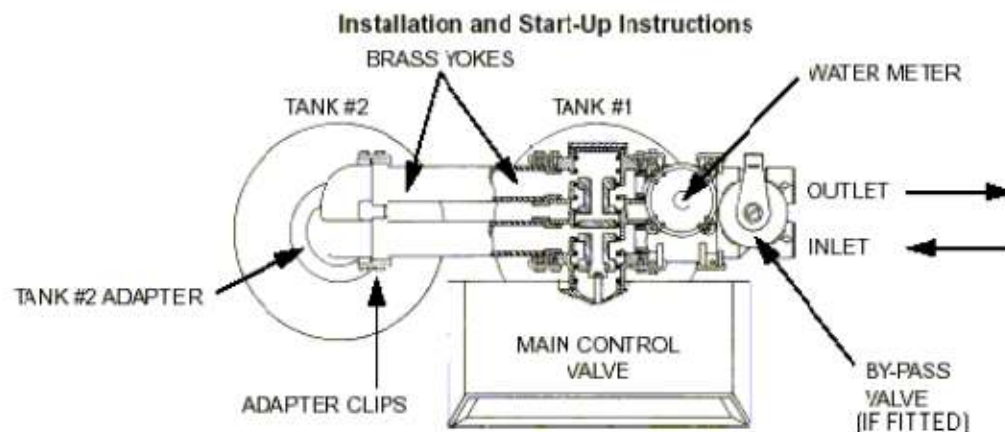


Fig 2

## Water Line Connection

The installation of a bypass valve system is recommended to provide for occasions when the water conditioner must be bypassed for untreated water or for servicing.

## Drain Line Connection

**Note:** Standard commercial practices are followed here. Local codes may require changes to the following suggestions.

1. Ideally located, the unit is above and not more than 20 feet (6.1 m) from the drain. For such installations, using an appropriate adapter fitting, connect 1/2-inch (1.3-cm) plastic tubing to the drain line connection of the control valve.
2. If the unit is located where the drain line must be elevated, you may elevate the line up to 6 feet (1.8 m) providing the run does not exceed 15 feet (4.6 m), and the water pressure at conditioner is not less than 40 PSI (2.76 bar). You may elevate an additional 2 feet (61 cm) for each additional 10 PSI (0.69 bar).

**IMPORTANT:** Never insert the drain line into a drain, sewer line, or trap. Always allow an air gap between the drain line and the wastewater to prevent the sewage from back siphoning into the conditioner.

## Overflow Line Connection

Do not elevate the overflow line higher than 3 inches (7.6 cm) below the bottom of the overflow fitting. Do not connect to the drain line of control unit. The overflow line must be a direct, separate line from the overflow fitting to the drain, sewer.

## Commissioning

Upon completion of your installation the following procedure should be carried out to place the Softener into service mode.

The Softener is already in a position to flush the unit. This is necessary to ensure that any air and resin dye is removed before the Softener is returned to the service position.

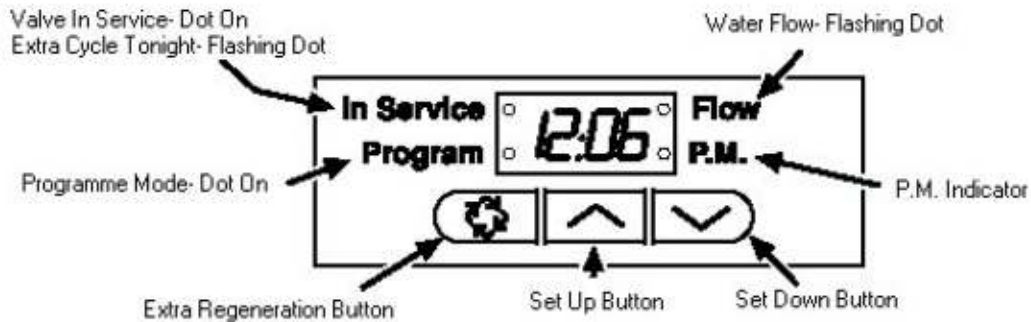
- 1) Partially open the inlet valve to allow water to slowly fill the vessel. The blue (resin) vessel should now be heard to fill with water and air will be purged to drain.
- 2) When water starts running from the drain hose, open the inlet valve fully and allow to run for 3 minutes.
- 3) Close the bypass valve and open up the outlet valve fully.
- 4) Place approximately 4 litres of water into the salt container.
- 5) Switch on the power supply and allow unit to finish the regeneration cycle automatically, this will take approximately 10 minutes.

The unit is now ready to provide softened water to service. Because the second vessel may still contain resin dye we strongly recommend that a manual regeneration is initiated now.

(See Programming)

Your Water Softener has been pre programmed to cope with average site conditions. However, the softener will not work efficiently unless programmed properly. By following the instructions below good performance will be obtained. (See Programming)

## PROGRAMMING THE TIMER



In normal operation the **Time Of Day** display alternates with **Volume Remaining** and **Tank in Service** displays.

As treated water is used, the **Volume Remaining** display counts down (in Litres) from a maximum value to zero or (---). Once this occurs a regeneration cycle initiates immediately. The flashing Flow Dot Indicator indicates water flowing through the valve.

TIME OF DAY

Service ● 12:00 ● Flow  
Program ○ P.M.

833 LITRES  
REMAINING

Service ● 833 ● Flow  
Program ○ P.M.

0 TREATED WATER  
REMAINING

Service ● --- ● Flow  
Program ○ P.M.

TANK # 1  
IN SERVICE

Service ● -U1- ● Flow  
Program ○ P.M.

## Set Time of Day



When the valve is **In Service**, push either the **Set Up** or **Set Down** button once to adjust the **Time Of Day** by one digit.

Push and hold to adjust by several digits.

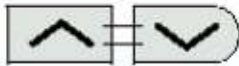
## Start an Extra Regeneration Cycle



Push the **Extra Regeneration** button to start an extra regeneration tonight. Push and hold the **Extra Regeneration** button for 5 seconds to start **Extra Regeneration** immediately.

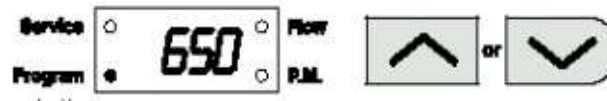
## Set Control Programming

1. Push and hold both the **Set Up** and **Set Down** buttons for 5 seconds.



2. Set the Treated Water Capacity. Using the **Set Up** or **Set Down** buttons set the amount of treated water to flow through the unit before regeneration is required. Use the chart in Fig 5 to determine how much water can be treated for your incoming water hardness.

650 LITRES  
CAPACITY



Establish the hardness by using the test kit provided or alternatively contact your local water authority for advice.

Depending upon the source of information the hardness will be either displayed in Parts Per Million (p.p.m.) or Degrees Clark (1 ° Clark is the equivalent of 14.3 p.p.m.).

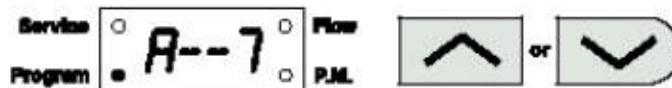
The chart below has been designed to assist you in setting your machine correctly.

Hardness p.p.m.	150	200	220	240	260	280	300	320	340	360	380	400	425	450	500
Hardness ° Clark	10	14	15	16	18	19	21	22	24	25	26	28	30	32	35
Capacity	1460	1095	995	910	840	780	730	680	640	600	575	545	515	485	435

3. Push the **Extra Regeneration** button.



4. Set **Regeneration Day Override**. Use the **Set Up** or **Set Down** buttons to set the maximum number of days before a regeneration cycle must occur.



UNIT WOULD REGENERATE EVERY 7 DAYS MINIMUM

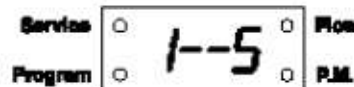
**This unit should be set to AOFF**

5. Push the **Extra Regeneration** button to exit the program.



### Control Operation During Regeneration

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



LESS THAN 6 MINUTES REMAINING IN REGEN STEP #1

Pushing the **Extra Cycle** button during a regeneration cycle immediately advances the valve to the next cycle step position and resumes normal step timing.

### 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 indication that a power outage has occurred is an inaccurate **Time Of Day** display.