

**Model 7000<sup>NXT</sup>XTR**

**Service Manual**



Search entire document for  
"XTR" → replace w/NXT if  
it makes sense

**IMPORTANT: Fill in Pertinent Information on Page 3 for Future Reference**

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**IMPORTANT PLEASE READ:**

- The information, specifications and illustrations in this manual are based on the latest information available at the time of printing. The manufacturer reserves the right to make changes at any time without notice.
- This manual is intended as a guide for service of the valve only. System installation requires information from a number of suppliers not known at the time of manufacture. This product should be installed by a plumbing professional.
- This unit is designed to be installed on potable water systems only.
- This product must be installed in compliance with all state and municipal plumbing and electrical codes. Permits may be required at the time of installation.
- It is established that when daytime water pressure is above 80 psi (5.5 bar), the maximum pressure rating of 125 psi (8.6 bar) can be exceeded. A pressure regulator must be installed on this system or warranty is voided.
- Do not install the unit where temperatures may drop below 32°F (0°C) or above 125°F (52°C).
- Do not place the unit in direct sunlight. Black units will absorb radiant heat increasing internal temperatures.
- Do not strike the valve or any of the components.
- Warranty of this product extends to manufacturing defects. Misapplication of this product may result in failure to properly condition water, or damage to product.
- A prefilter should be used on installations in which free solids are present.
- In some applications local municipalities treat water with Chloramines. High Chloramine levels may damage valve components.
- Correct and constant voltage must be supplied to the control valve to maintain proper function.

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## Job Specification Sheet

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**NOTE: Some options may not be available depending on valve model or other options chosen.**

**Circle and/or Fill in the Appropriate Data for Future Reference.**

**System Type:** Meter Immediate / Time Clock Delayed / Volume Override Delayed  
Volume Override Immediate / Meter Delayed Weekly Reserve  
Meter Delayed Variable Reserve / Meter Delayed Fixed Reserve

**Valve Type:** 7000XTR

**Regenerant Flow:** Down Flow / Filter / Downflow Fill First

**Display Format:** U.S. or Metric (French Degrees, German Degrees, or PPM)

**Unit Capacity:** \_\_\_\_\_ Grains/French Degrees/German Degrees/PPM

**Water Hardness:** \_\_\_\_\_ Grains/French Degrees/German Degrees/PPM

**Capacity Safety Factor:** Zero or \_\_\_\_\_ %

**Volume Override:** \_\_\_\_\_ (Gallons or M<sup>3</sup>)

**Regeneration Day Override:** Off or Every \_\_\_\_\_ Days

**Regeneration Time:** Delayed \_\_\_\_\_ AM/PM or \_\_\_\_\_ Immediate

**Regeneration Cycle Step #1:** \_\_\_\_ : \_\_\_\_ : \_\_\_\_  
**Regeneration Cycle Step #2:** \_\_\_\_ : \_\_\_\_ : \_\_\_\_  
**Regeneration Cycle Step #3:** \_\_\_\_ : \_\_\_\_ : \_\_\_\_  
**Regeneration Cycle Step #4:** \_\_\_\_ : \_\_\_\_ : \_\_\_\_  
**Regeneration Cycle Step #5:** \_\_\_\_ : \_\_\_\_ : \_\_\_\_  
**Regeneration Cycle Step #6:** \_\_\_\_ : \_\_\_\_ : \_\_\_\_

**Auxiliary Relay:** Enabled or Disabled

**Auxiliary Relay Start 1:** \_\_\_\_ : \_\_\_\_ : \_\_\_\_  
**Auxiliary Relay End 1:** \_\_\_\_ : \_\_\_\_ : \_\_\_\_  
**Auxiliary Relay Start 2:** \_\_\_\_ : \_\_\_\_ : \_\_\_\_  
**Auxiliary Relay End 2:** \_\_\_\_ : \_\_\_\_ : \_\_\_\_

**Chemical Pump:** Enabled or Disabled

**CPO Aux Relay Volume:** \_\_\_\_\_ (Gallons or M<sup>3</sup>)

**CPO Aux Relay:** \_\_\_\_ : \_\_\_\_ : \_\_\_\_

**Flow Meter Size:** 1.25" Turbine

**Generic Flow Meter:** Maximum Flow Rate: Add \_\_ Gallons every \_\_ Pulses

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# Water Softener Control Valve

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## Water Pressure

A minimum of 20 psi (1.3 bar) inlet 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.

|   |   |
|---|---|
|  | <p><b>CAUTION</b></p> <ul style="list-style-type: none"><li>•Minimum water pressure 20psig.</li><li>•Maximum water pressure 125psig.</li><li>•Minimum water temperature 34° F.</li><li>•Maximum water temperature 110° F.</li><li>•Ambient temperature 34° to 122° F (1° to 50° C)</li><li>•Disconnect all power sources before servicing.</li><li>•Always operate with cover in place.</li></ul> |
|---|---|

## NOTE:

This product should be installed by qualified personnel.  
Comply with all plumbing codes when installing this product.  
Comply with all electrical codes when installing this product.

|   |   |
|---|---|
|  | <p><b>WARNING</b></p> <p>The system <b>MUST</b> be depressurized before removing any connections for servicing.</p> |
|---|---|

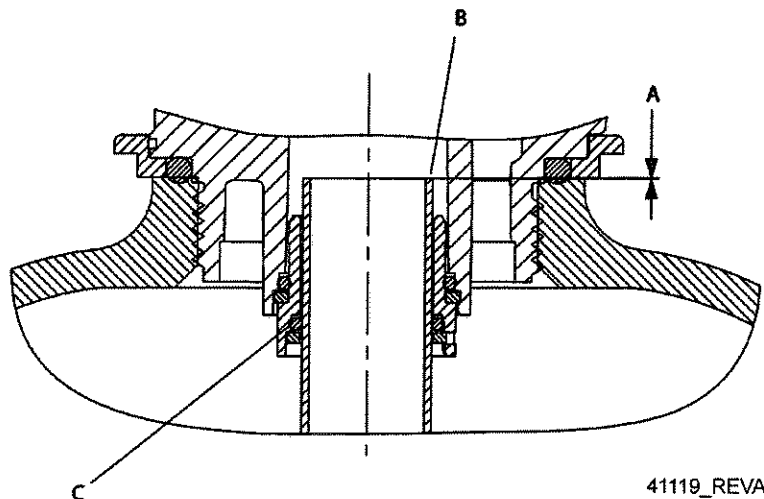
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## Valve Installation and Start-Up Procedures

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### Installation Instructions

1. Place the softener tank where you want to install the unit.  
**NOTE: Be sure the tank is level and on a firm, clean base.**
2. Perform all plumbing according to local plumbing codes.
3. Cut the 1.05" (2.6 cm) distributor tube flush with the top of the tank (A).
  - Deburr the outside of the tube (B) after cutting.
  - Lubricate the O-ring (C) with non-petroleum based grease.
4. Lubricate the distributor O-ring seal and tank O-ring seal.  
Use only non-aerosol silicone lubricant.
5. Load media and place the control valve on the tank.
6. All soldering **MUST** be done on any connections requiring soldering prior to connecting the main control valve.  
The main control valve will be damaged if it is connected at the time of soldering.
7. Apply Teflon tape to all threaded fittings.
8. 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.
9. Make plumbing connections to valve.
10. Plug the valve into an approved power source.  
**NOTE: Make all electrical connections according to codes.**
11. Place the bypass In Service position. Cycle the valve to the Backwash position, and let the water flow slowly into the mineral tank until the air is purged from the unit.
12. Add water to the brine tank until the top of the air check is covered. Manually step the valve to the Brine Draw Position, and allow the valve to draw water from the brine tank until it stops.  
**NOTE: The air check will check at approximately the midpoint of the screened intake area.**
13. Manually step the valve to the Brine Refill Position, and allow the valve to return to In Service automatically.
14. With the valve In Service, check that there is at least 1" (2.5 cm) of water above the grid in the brine tank, if used.
15. Fill the brine tank with salt.
16. Allow the control to run automatically. Setup is now complete.



From 3200NXT 42599 Rev D

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## Timer Operation

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### Timer Operation During Programming

The timer enters the Program Mode in standby or service mode as long as it is not in regeneration. While in the Program Mode the timer continues to operate normally monitoring water usage. Timer programming is stored in memory permanently.

### Timer Operation During A Power Failure

All program settings are stored in permanent memory. Current valve position, cycle step time elapsed, and time of day are stored during a power failure, and will be restored upon power re-application. Time is kept during a power failure, and time of day is adjusted upon power up (as long as power is restored within 12 hours).


**NOTE:** The time of day on the main display screen will flash for 5 minutes when there has been a power outage. The flashing of the time of day can be stopped by pressing any button on the display.

### Remote Lockout

The timer does not allow the unit/system to go into Regeneration until the Regeneration Lockout Input signal to the unit is cleared. This requires a contact closure to activate the unit. The recommended gauge wire is 20 with a maximum length of 500 feet. See P4 remote inputs in the wiring diagrams in the service manual.

### Regeneration Day Override Feature

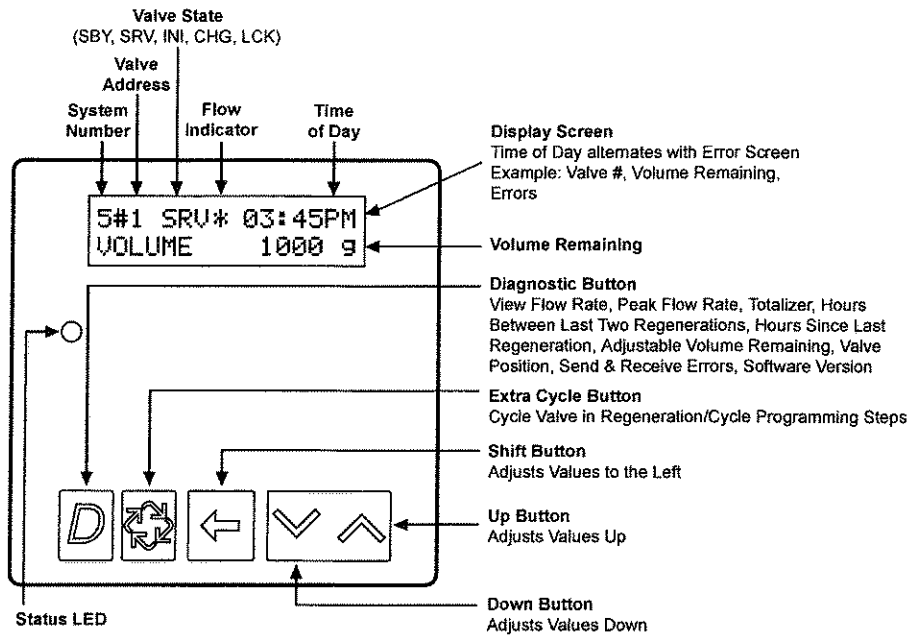
If the Day Override option is turned on and the valve reaches the set Regeneration Day Override value, the Regeneration Cycle starts if no other unit is in Regeneration. If other units are in regeneration, it is added to a regeneration queue. This occurs regardless of the remaining volume available.

|  |   |
|--|---|
|  | <p><b>WARNING</b><br/>Transformer must be grounded and ground wire must be terminated to the back plate where grounding label is located before installation.</p> |
|--|---|

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# Timer Display Features

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## Valve State:

### CHG (Change of State)

CHG will be displayed when the lower drive changes from one state to another in dual piston valves.

### INI (Initializing)

INI will display on the screen for 30 to 45 seconds when initializing after a power failure reset or programming.

### RGQ (Regeneration Queued)

RGQ indicates that the reserve has been entered in a delayed system and regeneration has been queued. When in the main screen, press the Extra Cycle button to toggle service (SRV) with RGQ.

### Service (SRV)

SRV will display when the unit is in service.

### LCK (Lock)

Lock will be displayed when the terminal/remote input block P4 on the circuit board is switched to "lock". See the "Network/Communication Cables & Connections" section of this manual.

## LED Status Lights:

### Blue LED:

Illuminates while the unit is in service and no errors exist. The unit will always be in service unless a regeneration trigger has occurred (green LED light will be displayed).

A **blinking blue light** indicates the timer is in service, and queued for regeneration.

### Green LED:

Illuminates when the unit is in Regeneration mode, unless an error condition exists.

A **blinking green light** indicates the timer is in standby, and not in regeneration.

### Red LED:

Illuminates when there is an error.

## Flow Indicator:

A rotating line (appearing as a rotating star shape) will display on the screen when flow is going through the meter.

---

## Timer Display - Screen Examples

---

```
4# SRV 03:45PM  
REGEN IN 07 DAYS
```

**Example:**

In Service:  
System 4 Time Clock

```
4# SRV* 03:45PM  
VOLUME 1000 g
```

**Example:**

In Service:  
1. System 4 Flow Meter Initiated  
or  
2. System 4 Flow Meter Delayed

```
5#1 SRV* 03:45PM  
VOLUME 1000 g
```

**Example:**

In Service:  
1. System 5 Flow Meter Initiated (Lead Unit)

```
5#3 SRV 03:45PM  
VOLUME 1000 g
```

**Example:**

In Service:  
1. System 5 Flow Meter Initiated (Lag Unit #3)

```
6#1 SRV* 03:45PM  
SYSVOL 4000 g
```

**Example:**

In Service:  
1. System 6 Flow Meter Initiated (Lead Unit)



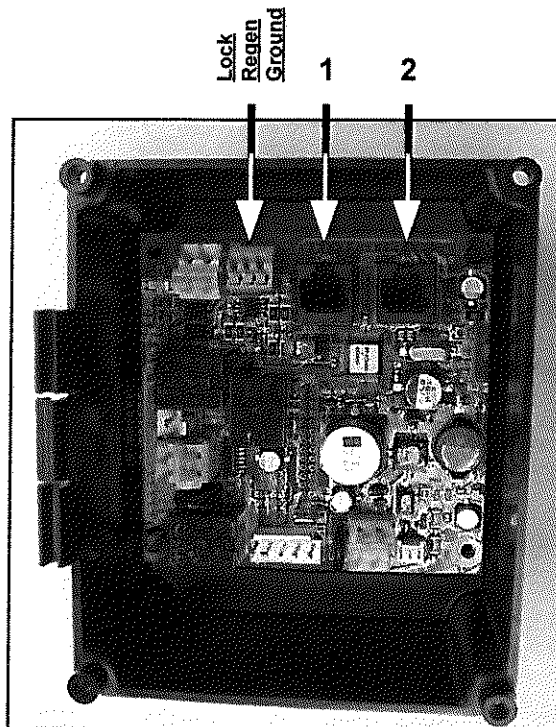
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## **Network/Communication Cables & Connections**

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Use either a CAT3 or CAT5 Network/Communication cable.

1. Connect the network/communication cable first before programming.
2. The maximum cable length between timers is 100 feet.
3. Connect each unit together from one communication port to the next communication port. It does not matter which one goes to the next one.



**3200NXT Circuit Board**

The number of network/communication cables needed for setup is one less than the total number of valves.

**Two-Unit System:** One network/communication cable  
**Three-Unit System:** Two network/communication cables  
**Four-Unit Systems:** Three network/communication cables

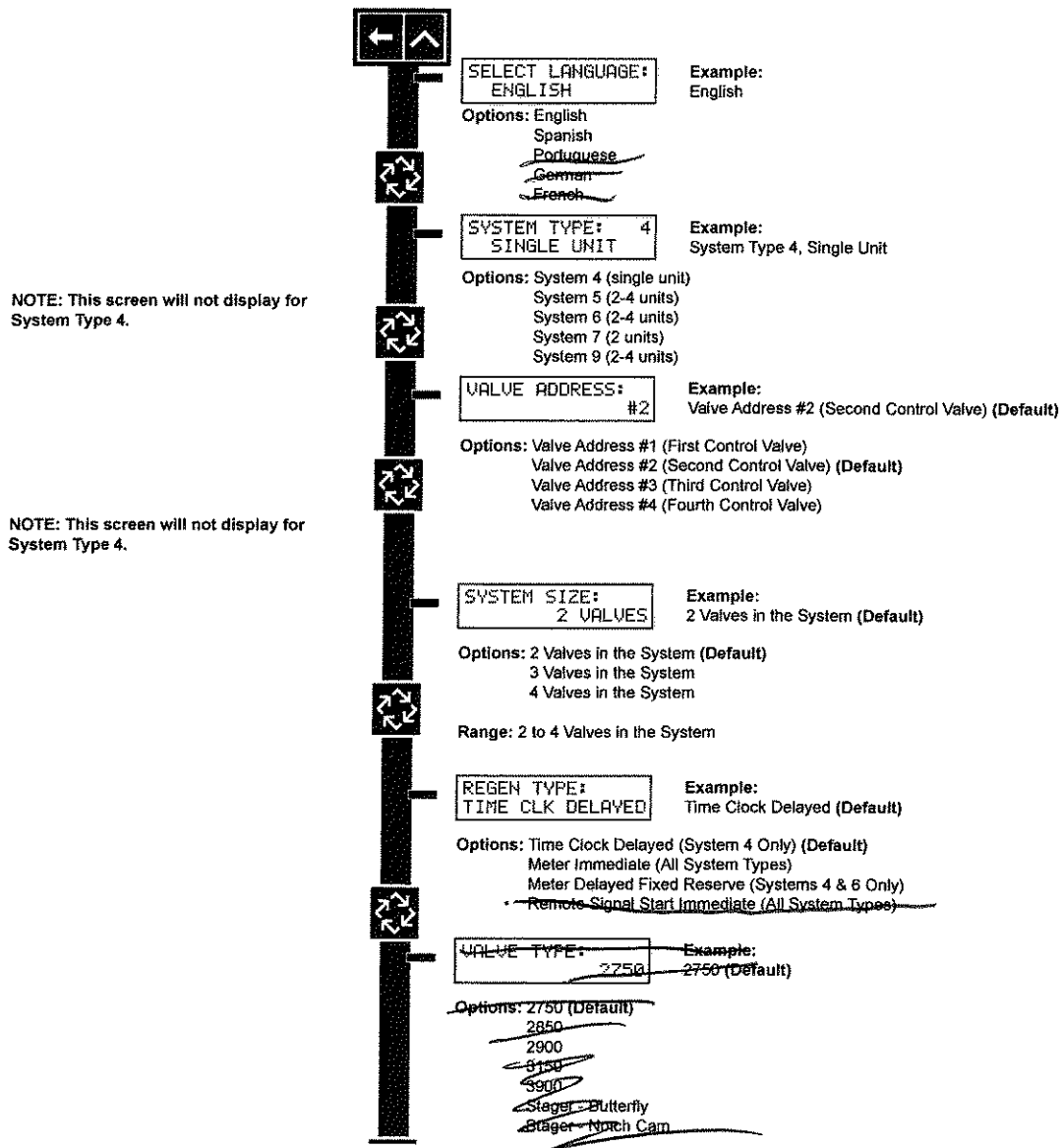
# Master Programming Mode Flow Chart

**NOTE:** Depending on current option settings, some displays cannot be viewed or set.

## Entering Master Programming Mode:

1. Press and hold the Shift and Up buttons for 5 seconds.  
Press the Extra Cycle button once per display until all displays are viewed and Normal Display is resumed. Option setting displays may be changed as required by pressing either the Up or Down button. Use the Shift button to move one space to the left.
2. Depending on current valve programming, certain displays may not be viewed or set.

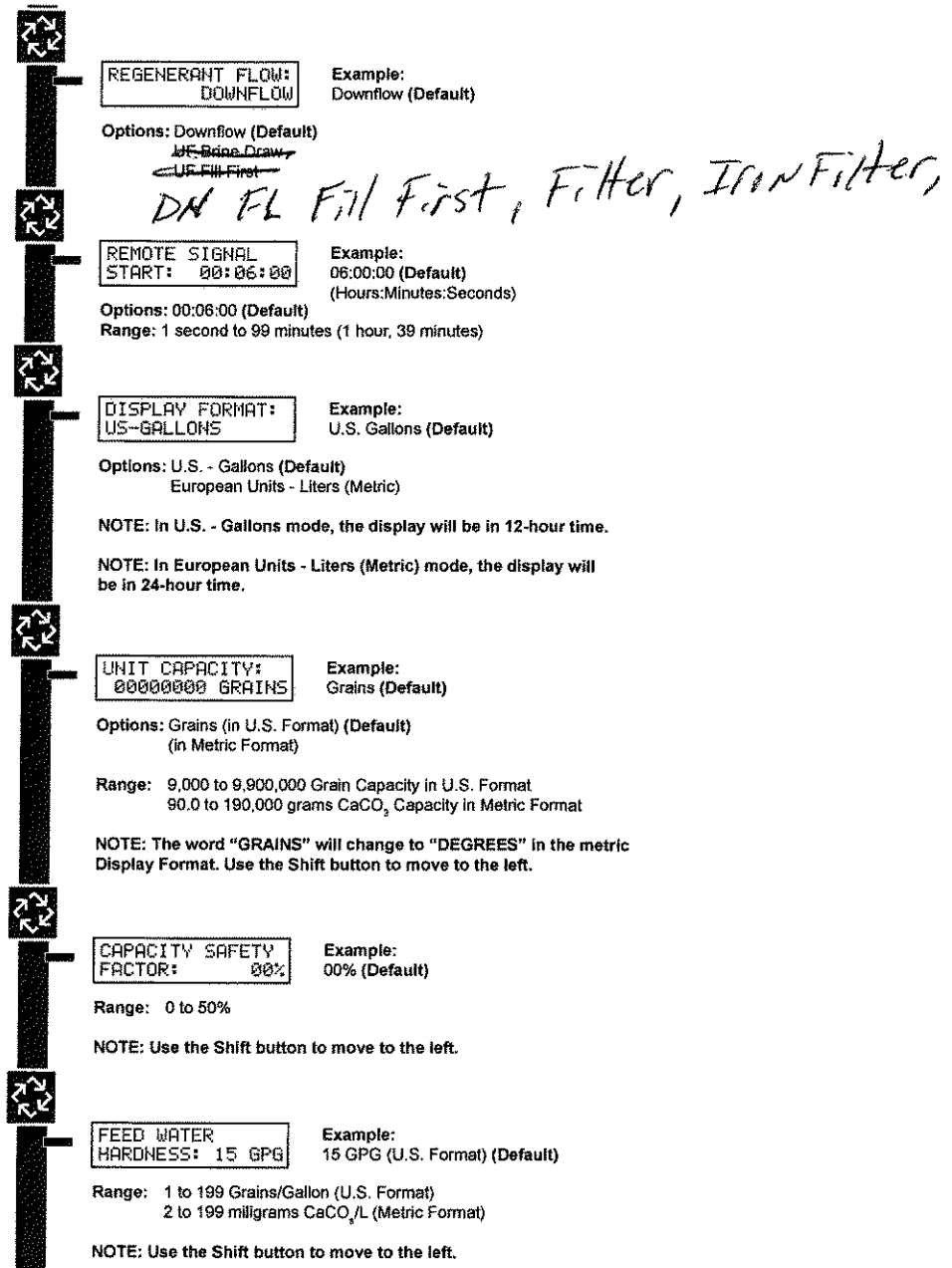
**NOTE:** If the "D" button is pressed while in master programming, no changes will be saved.



**CAUTION:** Before entering Master Programming, please contact your local professional water dealer.

# Master Programming Mode Flow Chart

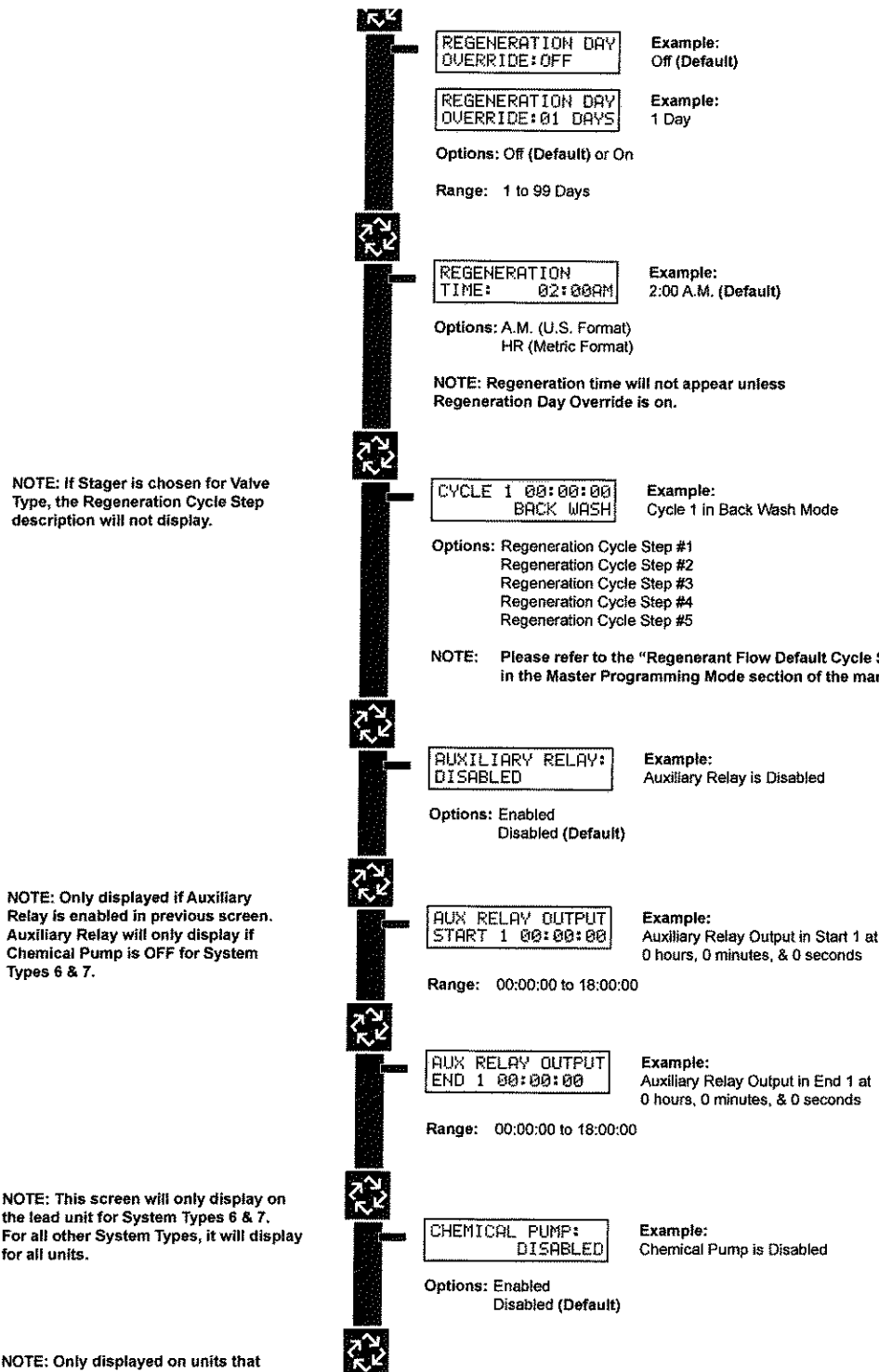
NOTE: Depending on current option settings, some displays cannot be viewed or set.



NOTE: This screen will only display on the lead unit for System Types 6 & 7. For all other System Types, it will display for all units.

**CAUTION: Before entering Master Programming, please contact your local professional water dealer.**

# Master Programming Mode Flow Chart



**CAUTION:** Before entering Master Programming, please contact your local professional water dealer.

# Master Programming Mode Flow Chart

NOTE: Only displayed on units that physically have a meter (Lead always has a meter). Only shown if Auxiliary Relay is disabled on System Types 6 & 7.



CPO AUX RELAY  
VOLUME: 000 g

Example:  
Chemical Pump Auxiliary Relay  
Volume at 0 Gallons

Range: 000 to 999 gallons in U.S. Format  
0.000 to 9.999 L in Metric Format



CPO AUX RELAY  
TIME: 00:00:00

Example:  
Chemical Pump Auxiliary Relay at 0 Hours,  
0 Minutes, & 0 Seconds

Range: 00:00:00 to 02:00:00

NOTES: Default flow meter type is based on the valve type. This screen will only display on the lead unit for System Types 6 & 7. All other system types it will display for all units.



FLOW METER:  
1.0 PADDLE

Example:  
1.0 Paddle Flow Meter

Options: ~~1.0 Paddle~~  
~~1.0 Turbine~~  
~~1.5 Paddle~~  
~~1.5 Turbine~~  
~~2.0 Paddle~~  
~~3.0 Paddle~~  
~~Generic~~

*Generic, 1.2 Turbine*



MAXIMUM FLOW  
RATE: 0000 GPM

Example:  
Maximum Flow Rate of 0 gpm

Range: 20 - 2,000 gpm (U.S. Format)  
2.0 - 200.0 L (Metric Format)

NOTE: Only displayed if "Generic" is chosen for the flow meter.



ADD 01 GALLONS  
EVERY 001 PULSES

Example:  
Add 1 Gallon for Each Pulse in U.S. Format

Options: Gallons (U.S. Format)  
Liters (Metric Format)  
Range: 1 - 99 Gallons (U.S. Format)  
0.1 - 99.9 L (Metric Format)  
Pulses: 1 - 99

NOTE: Only displayed if "Generic" is chosen for the flow meter.



PROGRAMMING UNIT  
PLEASE WAIT...

Example:  
Master Programming Mode is Exiting



**CAUTION: Before entering Master Programming, please contact your local professional water dealer.**

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# Master Programming Guide

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When the Master Programming Mode is entered, parameters can be set to make the timer(s) function as needed.

**NOTE: Depending on current option settings, some displays cannot be viewed or set.**

## Entering Master Programming Mode:

1. Press and hold the Shift and Up buttons for 5 seconds.  
OR
2. Set the time of day display to **12:01 PM** or **12:01HR** (See the "Setting the Time of Day" section on the "Timer Operation" page). Then go to the main display screen, press the Up and Down buttons at the same time for 5 seconds.

## Exiting Master Programming Mode:

1. Press the Extra Cycle button once per display until all are viewed. Master Programming Mode is exited and the normal display screen appears.
2. To exit the Master Programming Mode without saving, press the Diagnostic button.

**NOTE: If no keypad activity is made for 5 minutes while in the Master Programming Mode, or if there is a power failure, no changes will be made, and the unit will go back to the main display screen.**

## Resets:

**Soft Reset:** Press and hold the Up and Down buttons for 25 seconds until 12:00PM (or 12:00HR) appears. This resets all parameters except for the flow meter totalizer volume.

**Master Reset:** Hold the Extra Cycle button while powering up the unit. This resets all of the parameters in the unit. Check and verify the choices selected in Master Programming Mode.

## 1. Choice of Language

This option selectS the language for programming and display.

1. Use Up or Down to select language.
2. Press the Extra Cycle button.

```
SELECT LANGUAGE
ENGLISH
```

## 2. System Type

This program type selects the system type (4, 5, 6, 7, or 9).

1. Use Up or Down buttons to adjust this value.
2. Press the Extra Cycle button.

```
SYSTEM TYPE: 4
SINGLE UNIT
```

## 3. Valve Address

This program step selects the valve address (1, 2, 3, or 4) within the network needed for each timer for communication. The #1 is the "master" or "lead" which contains programmed parameters, that will be used by all of the timer(s) in the network to control Regeneration, in Service, or Standby of all the valve(s) in the system.

1. Use Up or Down buttons to adjust this value.
2. Press the Extra Cycle button.

```
VALUE ADDRESS:
# 2
```

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# Master Programming Guide

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## 4. System Size

This program step is used to set up the number of valves (1, 2, 3, or 4) in the system.

1. Use Up or Down buttons to adjust this value.
2. Press the Extra Cycle button.

```
SYSTEM SIZE:
  2 VALVES
```

## 5. Regeneration Type

This program step is used to set up the trigger type.

1. Use Up or Down buttons to adjust this value.
2. Press the Extra Cycle button.

```
REGEN TYPE:
TIME CLK DELAYED
```

## ~~6. Valve Type~~

~~This program step selects the valve type (2750, 2850, 2900s, 3150, 3900, Stager-Butterfly, or Stager-Notch Cam)~~

- ~~1. Use Up or Down buttons to adjust this value.~~
- ~~2. Press the Extra Cycle button.~~

```
VALVE TYPE:
  2750
```

## 7. Regenerant Flow

This program step selects the regenerant flow type (Downflow, ~~Upflow, or Upflow-Fill-First~~)

1. Use Up or Down buttons to adjust this value.
2. Press the Extra Cycle button.

```
REGENERANT FLOW:
  DOWN FLOW
```

*DOWN FLOW FILL FIRST*  
*Filter, Iron Filter*

**CAUTION:** Before entering Master Programming, please contact your local professional water dealer.

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# Master Programming Guide

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## 8. Remote Signal Start

This program step selects the remote signal start. Hours, minutes, and seconds can be changed. When Remote Signal Start is active, the main screen will display. The options are either Off or set to the desired time.

1. Use Up or Down buttons to adjust this value.
2. Press the Extra Cycle button.

```
REMOTE SIGNAL
START: 00:00:00
```

```
5#1 SRV* 05:38PM
SIGNAL 00:06:00
```

Example of setting Remote Signal Start to 6 minutes.  
The display counts down to 0. If Remote Signal Start is detected for 6 minutes, it will remotely signal start.

## 9. Display Format

This program step is used to set the desired volume display format. This option must be the same on all system units. U.S. will display volumes in gallons and is in 12 hour timekeeping. Metric will display volumes in liters and is in 24 hour timekeeping.

1. Use Up or Down buttons to adjust this value.
2. Press the Extra Cycle button.

```
DISPLAY FORMAT:
US-GALLONS
```

## 10. Unit Capacity

This program selects the individual timer's total capacity of hardness that can be removed. The unit capacity is measured in grains if in U.S. mode and grams CaCO<sub>3</sub> in Metric mode.

U.S. Range: 9,000 to 9,900,000 Grains (Default = 300,000 Grains)

Metric Range: 90.0 to 199,000.0 grams CaCO<sub>3</sub> (Default = 300.0 grams CaCO<sub>3</sub>)

1. Use the Shift button to select the digit you want to modify.
2. Use Up or Down buttons to adjust this value.
3. Press the Extra Cycle button.

```
UNIT CAPACITY:
300000 GRAINS
```

---

**CAUTION:** Before entering Master Programming, please contact your local professional water dealer.

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# Master Programming Guide

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## 11. Capacity Safety Factor

This program step is used to adjust the capacity of the system. This is a percentage by which the unit's capacity is reduced.

**Range:** 0 – 50% (Default = 0%)

1. Use the Shift button to select the digit you want to modify.
2. Use Up or Down buttons to adjust this value.
3. Press the Extra Cycle button.

```
CAPACITY SAFETY  
FACTOR: 00%
```

## 12. Feed Water (Hardness)

This program step is used to set the feed water hardness. The system will automatically calculate volume remaining based on the Unit Capacity, Capacity Safety Factor and Feed Water Hardness entered.

**U.S. Range:** 1 – 199 gpg (Grains per Gallon)(Default = 15)

**Metric Range:** 2 – 199 milligrams CaCO<sub>3</sub>/Liter (Default = 30)

1. Use the Shift button to select the digit you want to modify.
2. Use Up or Down buttons to adjust this value.
3. Press the Extra Cycle button.

```
FEED WATER  
HARDNESS:015 GPG
```

## 13. Regeneration Day Override

This program step sets the maximum amount of time (in days) the unit can be In Service without a Regeneration.

**Default:** OFF

**Range:** 1 - 99 Days

**NOTE:** If "On," the screen for regeneration time will display.

1. Use the Shift button to select the digit you want to modify.
2. Use Up or Down buttons to adjust this value.
3. Press the Extra Cycle button.

```
REGENERATION DAY  
OVERRIDE: OFF
```

```
REGENERATION DAY  
OVERRIDE:01 DAYS
```

**CAUTION:** Before entering Master Programming, please contact your local professional water dealer.

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# Master Programming Guide

## 14. Regeneration Time

This program step sets time of day for a delayed regeneration to occur, or regeneration day override.

**Default U.S.:** 02:00 AM

**Default Metric:** 02:00 HR

1. Use the Shift button to select the digit you want to modify.
2. Use Up or Down buttons to adjust this value.
3. Press the Extra Cycle button.

REGENERATION  
TIME: 02:00AM

## 15. Regeneration Cycle Steps

This program step programs the Regeneration Cycle step times 1 through 5. Please refer to the chart below for regenerant flow default cycle steps and times.

| Regenerant Flow | Cycle 1            | Time       | Cycle 2            | Time       | Cycle 3            | Time       | Cycle 4         | Time       | Cycle 5     | Time       |
|-----------------|--------------------|------------|--------------------|------------|--------------------|------------|-----------------|------------|-------------|------------|
| Down Flow       | Back Wash          | 10 Minutes | Brine & Slow Rinse | 1 Hour     | Rapid Rinse        | 10 Minutes | Brine Tank Fill | 12 Minutes | Pause       | N/A        |
| UF Brine Draw   | Brine & Slow Rinse | 1 Hour     | Backwash           | 10 Minutes | Rapid Rinse        | 10 Minutes | Brine Tank Fill | 12 Minutes | Pause       | N/A        |
| UF Fill First   | Brine Tank Fill    | 12 Minutes | Brine Making       | 1 Hour     | Brine & Slow Rinse | 1 Hour     | Back Wash       | 10 Minutes | Rapid Rinse | 10 Minutes |

## 16. Auxiliary Relay Output

The next two displays are part of a series of settings used to program the optional relay output. The first setting turns the output on/off during Regeneration only. The second turns the output on during Service only, every time a set volume of water used has accumulated.

AUXILIARY RELAY:  
ENABLED

*Regen Flow Cycle 1 Time Cycle 2 Time  
Down Flow*

→ See NEXT page

**CAUTION:** Before entering Master Programming, please contact your local professional water dealer.

|                         | Cycle 1          | Time   | Cycle 2               | Time   | Cycle 3      | Time   | Cycle 4               | Time   | Cycle 5      | Time  | Cycle 6     | Time   |
|-------------------------|------------------|--------|-----------------------|--------|--------------|--------|-----------------------|--------|--------------|-------|-------------|--------|
| Regerant Flow           | Backwash         | 10 Min | Brine Draw/Slow Rinse | 60 Min | 2nd Backwash | 10 Min | Rapid Rinse           | 12 Min | Brine Fill   | NA    | NA          | NA     |
| Down Flow               | Brine Tank Fill  | 10 Min | Brine Making          | 10 Min | Backwash     | NA     | Brine Draw/Slow Rinse | 5 Min  | 2nd Backwash | NA    | Rapid Rinse | 10 Min |
| DN FL Fill First Filter | Backwash         | 10 Min | Rapid Rinse           | NA     | NA           | NA     | NA                    | NA     | NA           | NA    | NA          | NA     |
| Iron Filter             | Depressurization |        | Air Purge             |        | Backwash     | 10 Min | Air Draw              | 25 Min | Rinse        | 0 Min | NA          | NA     |

Questioning items in red

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# Master Programming Guide

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## 17. Timed Auxiliary Relay Output Window (Start & End Time Setting, If Auxiliary Relay is Enabled)

This option setting consists of two displays. The first display sets the turn-on time of the output, referenced to the start of the first Regeneration Cycle. The second display sets the output turn-off time, referenced again to the start of first Regeneration Cycle.

**Start Time:**

Anytime During Regeneration (Except Last Minute of the Regeneration Time)

**End Time:**

At start time, and anytime during the regeneration cycle.

```
AUX RELAY OUTPUT
START  00:00:00
```

```
AUX RELAY OUTPUT
END    00:00:00
```

## 18. Chemical Pump Auxiliary Relay Output Window

This option setting consists of two displays. The first display sets the volume of water flow at which the output turns on. The second display sets the time of the output.

**U.S. Range:** 0 – 999 Gallons (1 – 999 Seconds)

**Metric Range:** 0.00 – 9.99 m3 (1 – 999 Seconds)

Activate Output After Volume Set is Reached.

Use the Shift button to move one space to the left for each number entered.

Use Up or Down buttons to adjust this value.

Press the Extra Cycle button.

```
CHEMICAL PUMP:
ENABLED
```

```
CPO AUX RELAY
VOLUME:  000 9
```

```
CPO AUX RELAY
TIME:    00:00:00
```

---

**CAUTION:** Before entering Master Programming, please contact your local professional water dealer.

---

## 19. Fleck Flow Meter Size (Default to Valve Type)

This program step sets the size of the Fleck flow meter.

- 1.0" Paddle (2750 Default)
  - 1.5" Paddle (2850/2900 Default)
  - 2.0" Paddle (3150 Default)
  - 3.0" Paddle (3900 Default)
  - 1.0" Turbine
  - 1.5" Turbine
  - Generic Flow Meter
1. Use Up or Down buttons to adjust this value.
  2. Press the Extra Cycle button.

```
FLOW METER:
. 75 PADDLE
```

## 20. Maximum Flow Rate

This program step sets maximum flow rate of the generic flow meter.

1. Press the Shift button to select the digit you want to modify.
2. Press the Up or Down buttons to adjust this value.
3. Press the Extra Cycle button.

```
MAXIMUM FLOW
RATE: 0000 GPM
```

## 21. Pulses per Gallon/Liter

This program step sets the pulses per gallon/liter for generic flow meters.

1. Press the Shift button to select the digit you want to modify.
2. Press the Up or Down buttons to adjust this value.
3. Press the Extra Cycle button.

```
ADD 01 GALLONS
EVERY 001 PULSES
```

## 22. End of Master Programming Mode

```
PROGRAMMING UNIT
PLEASE WAIT...
```

---

**CAUTION:** Before entering Master Programming, please contact your local professional water dealer.

---

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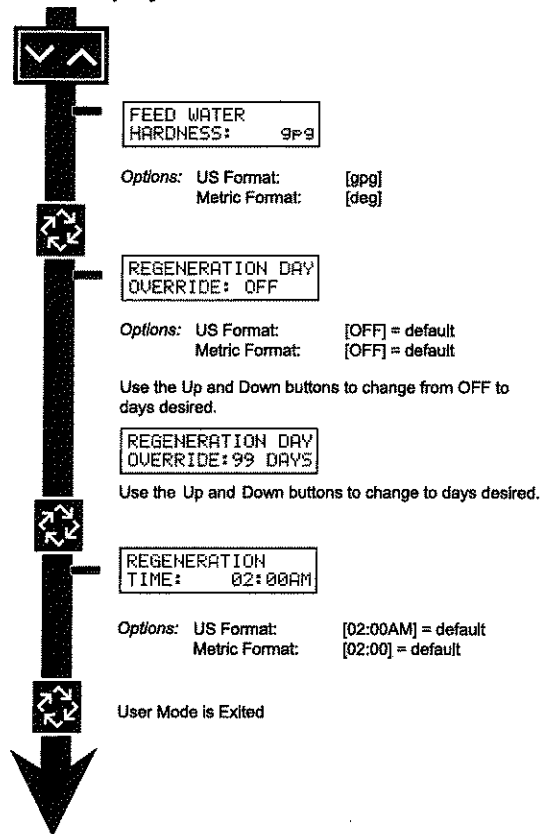
# User Mode Programming Flow Chart

---

**NOTES:** User Mode is only displayed when a metered option is chosen under System Type.  
Depending on current option settings, some displays cannot be viewed or set.

## Entering User Mode:

Hold the Up and Down buttons for 5 seconds.



**NOTE:** User Mode cannot be entered on the Lag unit for System 6.

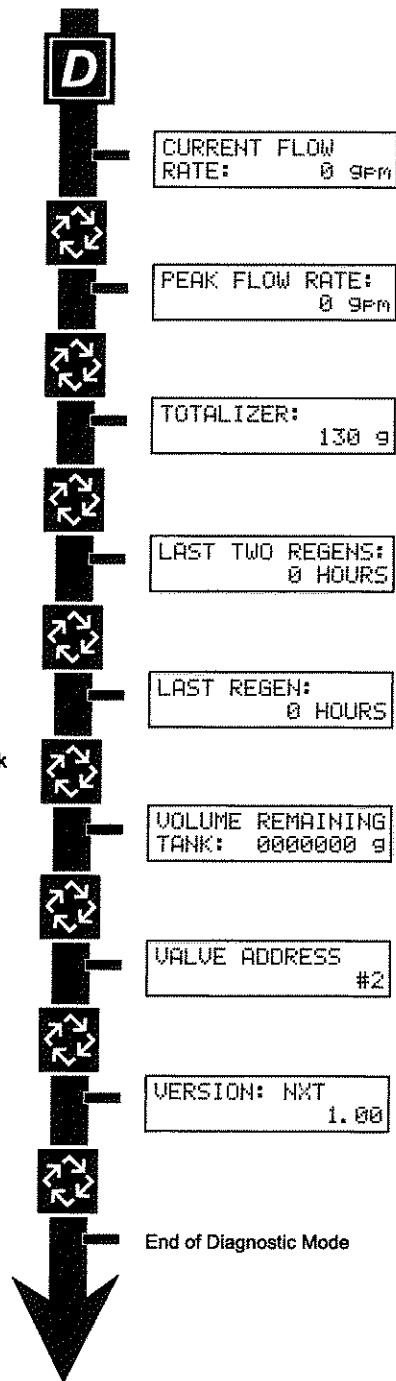
- 1. Enter User Mode**
  - Press and hold the Up and Down buttons for 5 seconds.
- 2. Set Language Option**
  - Press up or down to select language.
  - Press the Extra Cycle button to proceed to the next step.
- 3. Set Feed Water Hardness**
  - Press the Shift, Up, and Down buttons to move the cursor and change the value of the numbers.
  - Press the Extra Cycle button to proceed to the next step.
  - NOTE: Only displayed when a metered option is chosen under System Type.**
- 4. Set Regeneration Day Override**
  - To turn on and set the days, press the Down button.
  - Press the Shift, Up, and Down buttons to move the cursor and change the value of the numbers.
  - Press the Extra Cycle button to proceed to the next step.
- 5. Regeneration Time**
  - Press the Shift, Up, and Down buttons to move the cursor and change the value of the numbers.
  - Press the Extra Cycle button
- 6. End of User Programming Mode**

# Diagnostic Mode Flow Chart

## Entering Diagnostic Mode:

1. Push and release the "D" button.
2. Press the Extra Cycle button once per display until all displays are viewed and Normal Display is resumed.
3. Push and release the "D" button at anytime during diagnostic mode and the timer will exit the mode.
4. Depending on current valve programming, certain displays may not be able to be viewed or set.

NOTE: If a System 6, Unit#1 of "Tank Remaining" will display "System Remaining).



---

# Diagnostic Programming Guide

---

When the Diagnostics Mode is entered, all available displays are viewed as needed. Depending on current option settings, some displays cannot be viewed.

## Overview Diagnostic Mode

The current diagnostic will be displayed until Extra Cycle key is pressed. There is no time limit on each display. The timer will display individual valve information, not system information. In the event of regeneration occurring while displaying diagnostics, the regeneration step and time remaining will be displayed. When regeneration has been completed, the display will return to the normal Time of Day display.

## Entering and Exiting Diagnostic Mode

Push and Release the "D" button to enter. Pressing the Extra Cycle button will move to the next diagnostic to be displayed. Push the Extra Cycle button once per display until all are viewed. Pressing the Diagnostic button, while in the Diagnostic Mode, will cause the unit to leave the Diagnostic Mode and return to the normal time of day display.

## Current Flow Rate

Flow Rate for this particular Timer will be calculated and displayed. Flow rates will be calculated every second. The display updates once per second. Flow rates are dependent upon the meter used.

- **1" Paddle Meter Maximum Flow Rate:** 75 gpm (.28 m3/m)
- **1.5" Paddle Meter Maximum Flow Rate:** 90 gpm (.34 m3/m)
- **2" Paddle Meter Maximum Flow Rate:** 175 gpm (.66 m3/m)
- **3" Paddle Meter Maximum Flow Rate:** 350 gpm (1.32 m3/m)
- **1" and 1.5" Turbine Meter:** 75 gpm

1. Press the Extra Cycle button.

```
CURRENT FLOW
RATE:      0 GPM
```

## Peak Flow Rate

The Peak Flow Rate since the last regeneration will be captured.

- **Range:** 0 to Maximum Number

1. Press the Extra Cycle button.

```
PEAK FLOW RATE:
                0 GPM
```

## Totalizer

The total volume of treated water that passes through a meter will be counted.

**NOTE: The user cannot edit below the current volume remaining.**

1. Reset to zero by holding the Up and Down arrow keys for 5 seconds during the Totalizer display.
2. Press the Extra Cycle button.

```
TOTALIZER:
          0000000 9
```



---

# Diagnostic Programming Guide

---

## Hours Between Last Two Regenerations

The hours between the last two regenerations will be saved and displayed.

1. Depress the Extra Cycle button.

```
LAST TWO REGENS:  
  0000 HOURS
```

## Hours Since Last Regeneration

The hours since the last regeneration will be saved and displayed.

1. Depress the Extra Cycle button.

```
LAST REGEN:  
  0000 HOURS
```

## Volume Remaining (This Tank Only)

Volume remaining in the current tank will be adjustable when displayed in this mode. Regeneration will occur if set to zero.

**NOTE: Volume Remaining will not display for System Type 6.**

The maximum ranges are the same as the maximum volume calculated on the main screen.

1. Press the Shift button to select the digit you want to modify.
2. Use Up or Down buttons is used to adjust this value.
3. Depress the Extra Cycle button

```
VOLUME REMAINING  
TANK: 00000000 g
```

## Volume Remaining (System)

Volume remaining in the system cannot be edited when displayed in this mode, except for the Lead unit. It can only be viewed on the Lag unit.

1. Depress the Extra Cycle button

```
VOLUME REMAINING  
SYS: 000000000 g
```

---

## **Diagnostic Programming Guide**

---

### **Valve Address**

This diagnostic display is for 2 control valves or more in a system (a single valve will not display).

1. Depress the Extra Cycle button.

```
VALUE ADDRESS:
                # 2
```

### **Software Version**

The electronic timer's software program version number will be displayed.

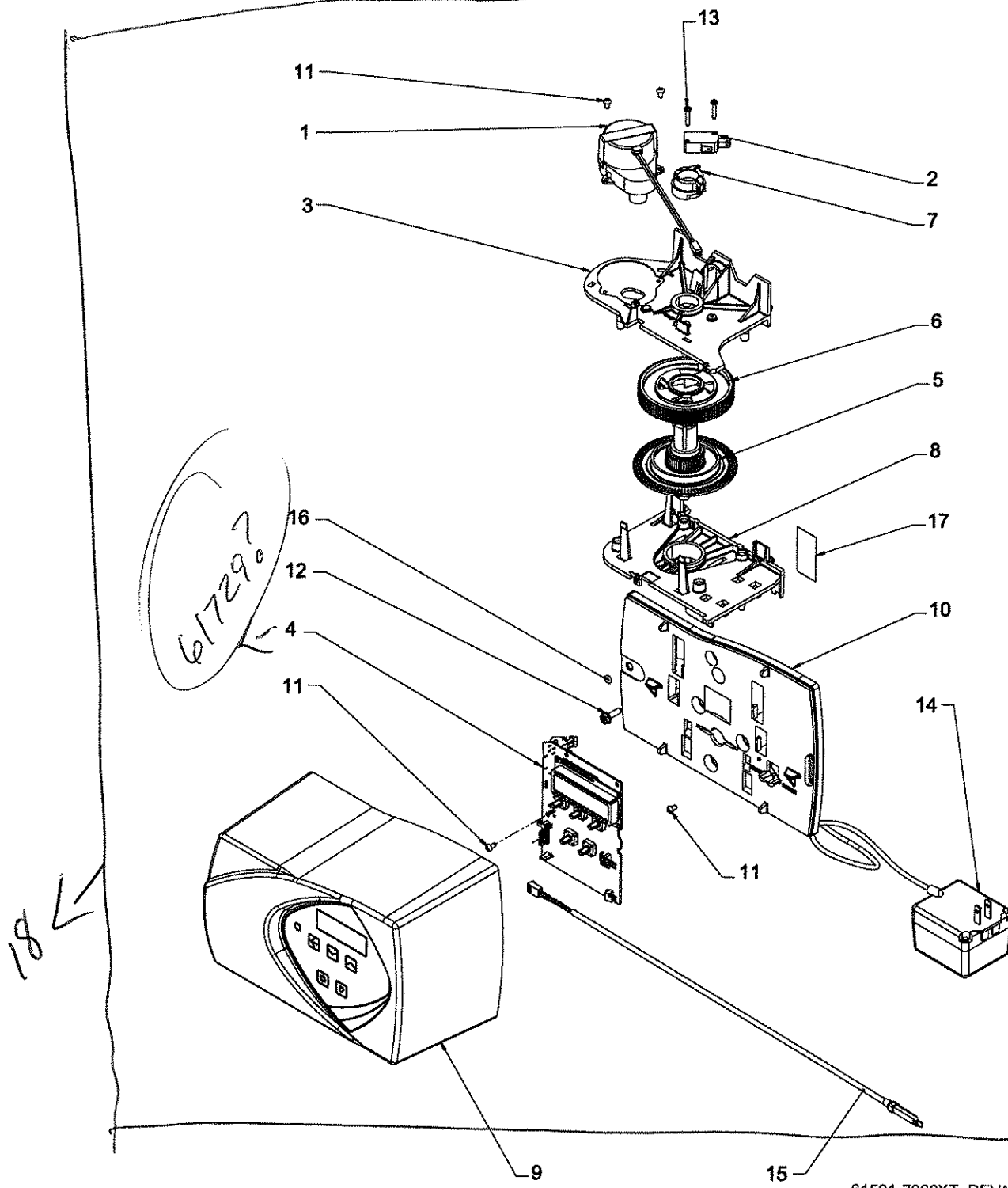
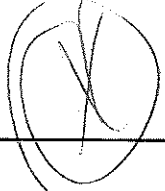
1. Depress the Extra Cycle button to exit.

```
VERSION: NXT
          X. XX
```

**NOTE: Diagnostic Mode programming will stop if the system goes into regeneration.**



# Power Head Assembly



61501-7000XT\_REVA



## Power Head Assembly

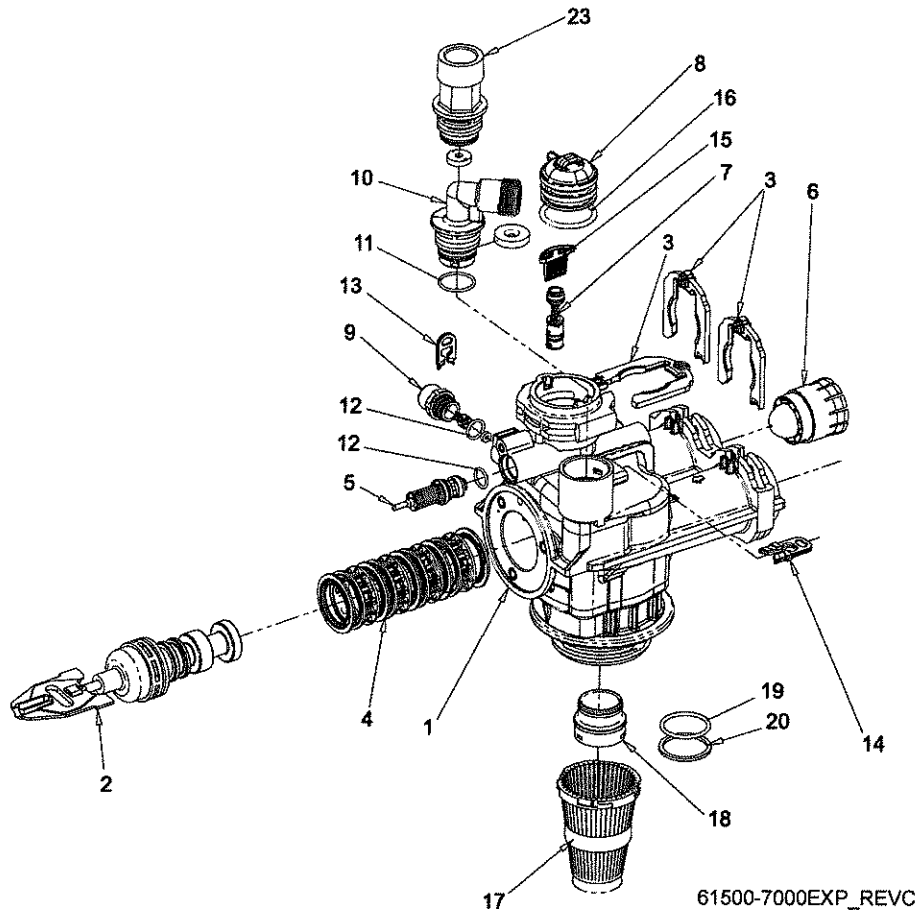
| Item No. | Quantity | Part No.         | Description   |
|----------|----------|------------------|---|
| 1        | 1        | 42349            | Motor, 24V, 2 RPM, 7000                               |
| 2        | 1        | 10218            | Switch, Micro   |
| 3        | 1        | 40978            | Plate, Upper Support                                  |
| 4        | 1        | <del>42356</del> | Circuit Board Assy, <del>XTR7000</del> 7000NXT 61729? |
| 5        | 1        | 40702            | Shaft, Encoder, 7000                                  |
| 6        | 1        | 40703            | Gear, Main  |
| 7        | 1        | 40704            | Cam, Brine, Downflow                                  |
| 8        | 1        | 40979            | Plate, Lower Support                                  |
| 9        | 1        | 61635-01         | Cover Assy, 7000-II, Black                            |
|          | 1        | 61634-01         | Cover Assy, 7000-II, Gray                             |
| 10       | 1        | 40980            | Backplate, 7000                                       |
| 11       | 4        | 13602            | Screw, Phil Rd Hd, 6-32 x 5/16                        |
| 12       | 1        | 12473            | Screw, Hex Wsh, 10-24 x 5/8                           |
| 13       | 2        | 11805            | Scerw, Rd Hd, 4-40 x 5/8 Type 1                       |
| 14       | 1        | 40981            | Transformer, US 24V, 9.6VA, 7000                      |
| 15       | 1        | 19791-01         | Meter Cable Assy, Turbine/SE                          |
| 16       | 1        | 41122            | O-ring, -007  |
| 17       | 1        | 40960-03         | Label, UL Nameplate, 7000, US/24                      |

18 ..... \* ..... 7000 Complete Power Head

NOT SHOWN

19 ..... 1 ..... 41692 ..... Kit, CAN COMMUNICATION Cable

# Control Valve Assembly



| Item No. | Quantity | Part No. | Description                             |
|----------|----------|----------|---|
| 1        | 1        | 61050    | Valve Body Assy, 7000, 32 mm Dist       |
| 2        | 1        | 61542-10 | Piston Assy, 7000, Softener, D/F 35 gpm |
|          |          | 61453-10 | Piston Assy, 7000, Softener, D/F 28 gpm |
|          |          | 61452-20 | Piston Assy, 7000, Filter 35GPM         |
| 3        | 3        | 40576    | Clip, H, Plastic, 7000                  |
| 4        | 1        | 61438    | Seal & Spacer Kit, 7000, D/F            |
| 5        | 1        | 60016-01 | Brine Valve Assy, 7000, 560CD           |
| 6        | 1        | 40577    | Turbine Meter Assy, 7000                |
| 7        | 1        | 61XXX    | Injector Assy, 7000                     |

| Part Number | Injector Number |
|-------------|-----------------|
| 61454-000   | #000            |
| 61454-00    | #00             |
| 61454-0     | #0              |
| 61454-1     | #1              |
| 61454-2     | #2              |
| 61454-3     | #3              |
| 61454-4     | #4              |
| 61454-5     | #5              |

# Control Valve Assembly

| Item No. | No. Req'd | Part Number | Description     |
|----------|-----------|-------------|-----------------|
| 8.....   | 1.....    | 40556.....  | Cap, Injector   |
| 9.....   | 1.....    | 61XXX.....  | BLFC Assemblies |

| Part No.       | BLFC Size | GPM   |
|----------------|-----------|-------|
| 61450-00.....  | 3/8"..... | Blank |
| 61450-12.....  | 3/8"..... | 0.125 |
| 61450-25.....  | 3/8"..... | 0.25  |
| 61450-50.....  | 3/8"..... | 0.50  |
| 61450-100..... | 3/8"..... | 1.0   |
| 61451-00.....  | 1/2"..... | Blank |
| 61451-12.....  | 1/2"..... | 0.125 |
| 61451-25.....  | 1/2"..... | 0.25  |
| 61451-50.....  | 1/2"..... | 0.50  |
| 61451-100..... | 1/2"..... | 1.0   |

|         |        |            |                 |
|---------|--------|------------|-----------------|
| 10..... | 1..... | 61XXX..... | DLFC Assemblies |
|---------|--------|------------|-----------------|

| Part No.      | DLFC Size | GPM   |
|---------------|-----------|-------|
| 61455-00..... | 3/4"..... | Blank |
| 61455-17..... | 3/4"..... | 1.7   |
| 61455-20..... | 3/4"..... | 2.0   |
| 61455-24..... | 3/4"..... | 2.4   |
| 61455-30..... | 3/4"..... | 3.0   |
| 61455-35..... | 3/4"..... | 3.5   |
| 61455-40..... | 3/4"..... | 4.0   |
| 61455-45..... | 3/4"..... | 4.5   |
| 61455-50..... | 3/4"..... | 5.0   |
| 61455-60..... | 3/4"..... | 6.0   |
| 61455-70..... | 3/4"..... | 7.0   |

|         |        |               |                                 |
|---------|--------|---------------|---------------------------------|
| 11..... | 1..... | 13303-01..... | O-ring, -021, 560CD             |
| 12..... | 2..... | 13302-01..... | O-ring, -014, 560CD             |
| 13..... | 1..... | 40946.....    | Clip, Brine Retaining           |
| 14..... | 1..... | 40945.....    | Clip, Drain Retaining           |
| 15..... | 1..... | 40950.....    | Screen, Injector, 7000          |
| 16..... | 1..... | 40951.....    | O-ring, -220                    |
| 17..... | 1..... | 18280.....    | Collector, Top, 1" x .011, Gray |
| 18..... | 1..... | 61419.....    | Kit, 1.05" Distributor, Adapter |
| 19..... | 1..... | 19054.....    | O-ring, -124                    |
| 20..... | 1..... | 18303-01..... | O-ring, -336, 560CD             |
| 23..... | 1..... | 61XXX.....    | DLFC Kits                       |

| Part Number    | DLFC Size | GPM   |
|----------------|-----------|-------|
| 61456-00.....  | 1".....   | Blank |
| 61456-8.0..... | 1".....   | 8.0   |
| 61456-9.0..... | 1".....   | 9.0   |
| 61456-10.....  | 1".....   | 10.0  |
| 61456-12.....  | 1".....   | 12.0  |
| 61456-15.....  | 1".....   | 15.0  |
| 61456-20.....  | 1".....   | 20.0  |
| 61456-25.....  | 1".....   | 25.0  |
| 61456-30.....  | 1".....   | 0.0   |

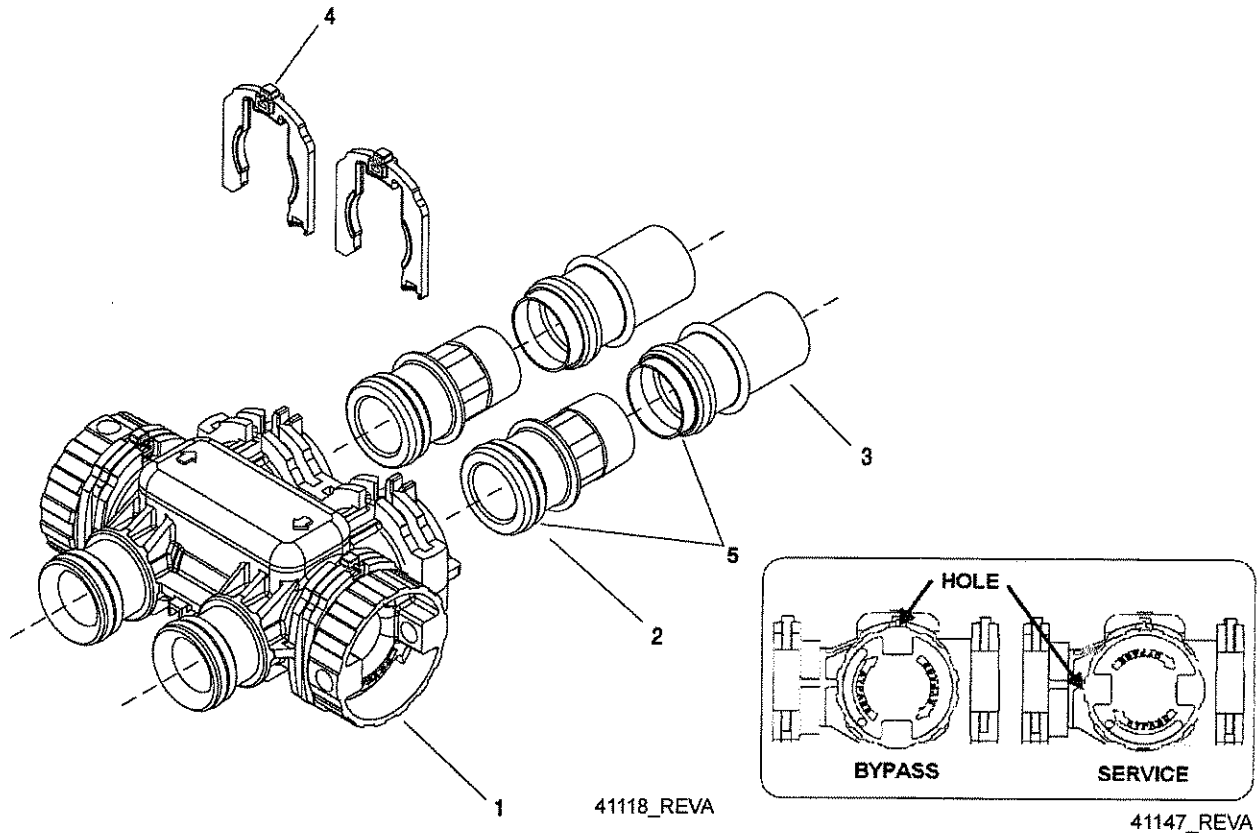
**Not Shown:**

|               |                         |
|---------------|-------------------------|
| 40677.....    | Tube, Distributor, 32MM |
| 40924.....    | Distributor, 32MM       |
| 40697-02..... | Collector, 32MM Bayonet |
| 12763-10..... | Stuffer Tool Assy, 7000 |

**Filter Valves**

|               |                             |
|---------------|-----------------------------|
| 40947-01..... | Plug, Brine Valve, w/O-ring |
| 40990-01..... | Plug, Injector, w/O-ring    |

# Bypass Assembly



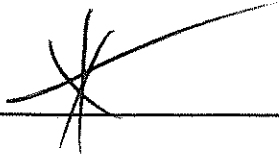
## IMPORTANT

To bypass the valve, turn bypass knob on both sides of the valve to bypass position.

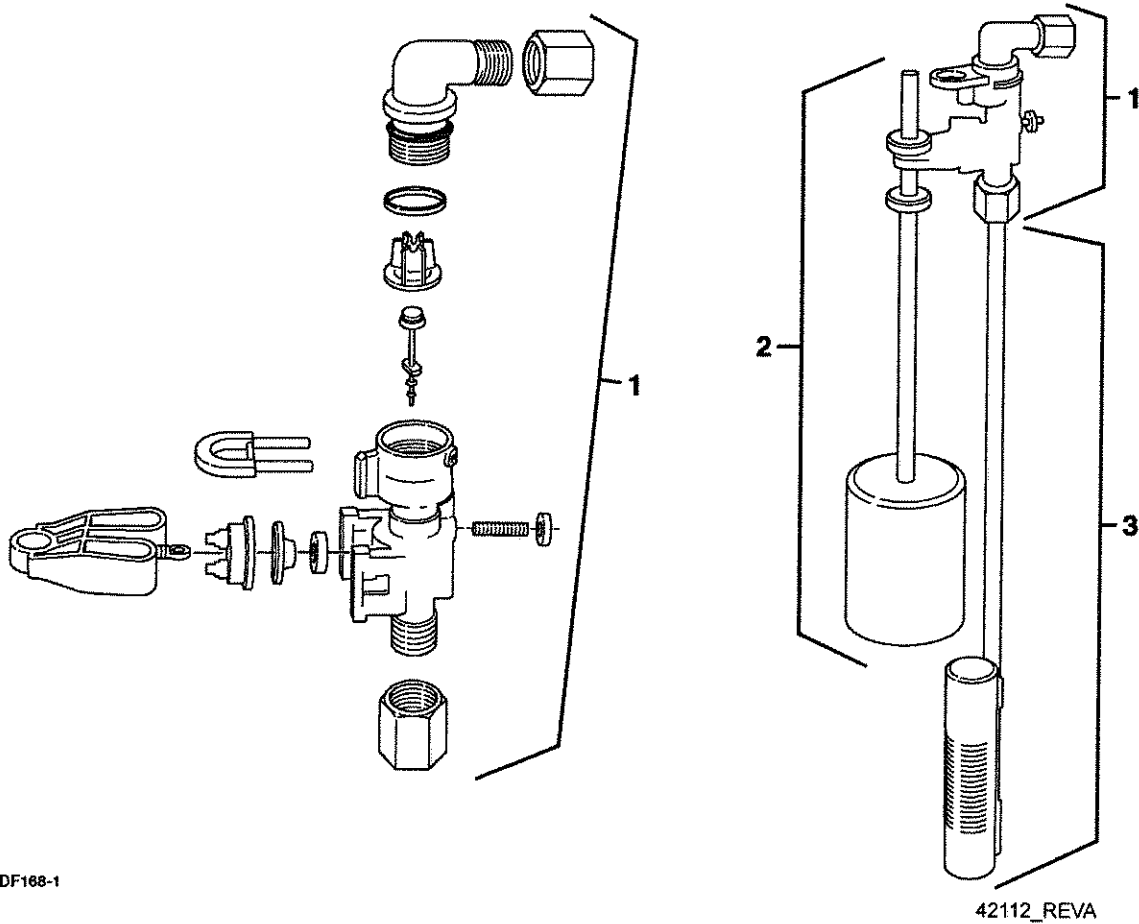
When returning to service, put the inlet into service before the outlet.

| Item No.  | Quantity | Part No. | Description   |
|-----------|----------|----------|---|
| 1         | 1        | 40569    | Bypass Assembly, 7000, Less Clip  |
| 2         | 2        | 40563-01 | Connector Assy, 1" NPT, w/O-ring  |
|           |          | 40563-11 | Connector Assy, 1" BSP, w/O-ring  |
|           |          | 40565-01 | Connector Assy, 1 1/4" NPT w/O-ring   |
|           |          | 40565-11 | Connector Assy, 1 1/4" BSP w/O-ring   |
| 3         | 2        | 41242-01 | Connector Assy, 1" & 1/4" Sweat, w/O-ring   |
|           |          | 41243-01 | Connector Assy, 1 1/4" & 1 1/2" Sweat, w/O-ring   |
| 4         | 2        | 40576    | Clip, H, Plastic, 7000  |
| 5         | 1        | 40951    | O-ring, -220  |
| Not Shown | 1        | 61462    | By-Pass Service Kit, 7000 (Includes all internal parts for 7000 bypass assembly - bypass body not included) |





# 2310 Safety Brine Valve



DF168-1

| Item No. | Quantity | Part No.  | Description                   |
|----------|----------|-----------|-------------------------------|
| 1        | 1        | 60014     | Safety Brine Valve Assy, 2310 |
| 2        | 1        | 60068 -30 | Float Assy, 2310, w/30" Rod   |
| 3        | 1        | 60002 -34 | Air Check, #500               |

## Troubleshooting

### Detected Errors

**NOTE:** It can take up to 30 seconds for an error to be detected and displayed. All errors on each timer in the system must be displayed before the errors can be corrected.

If a communication error is detected, an Error Screen will alternate with the main (time of day) screen every few seconds.

- All units In Service remain in the In Service position.
- All units in Standby go to In Service.
- Any unit in Regeneration when the error occurs completes Regeneration and goes to In Service.
- No units are allowed to start a Regeneration Cycle while the error condition exists, unless they are manually forced into Regeneration.
- When an error is corrected and the error no longer displays (it may take several seconds for all of the units in a system to stop displaying the error message), the system returns to normal operation.

**NOTE:** During the error condition the control continues to monitor the flow meter and update the volume remaining. Once the error condition is corrected all units return to the operating status they were in prior to the error. Regeneration queue is rebuilt according to the normal system operation. Or, if more than one unit has been queued for regeneration, then the queue is rebuilt according to which one communicates first.

| Cause   | Correction  |
|---|---|
| A. One or more units have a missing or bad communication cable.                   | A. Connect the communication cables and/or replace.                 |
| B. One or more units has a communication cable plugged into the wrong receptacle. | B. Connect the communication cable as shown in the wiring diagrams. |
| C. One or more units is not powered.  | C. Power all units.   |

### Programming Errors

During the error condition the control continues to monitor the flow meter and update the remaining capacity. Once the error condition is corrected all units return to the operating status they were in prior to the error and regeneration is queued according to the normal system operation. If reprogramming the unit in the Master Programming Mode clears the error, the volume remaining may be reset to the full unit capacity (i.e. as though it were just regenerated).

1. All units in standby go In Service.
2. Any unit in regeneration when the error occurs completes regeneration and goes to In Service.
3. No units are allowed to start a regeneration cycle while the error condition exists.

When the problem is corrected and the error no longer displays (it may take several seconds for all of the units in a system to stop displaying the error message), the system returns to normal operation.

#### Programming Errors Detected:

- Duplicate unit addresses or numbers
- Size of system (ex: if sized for a 4 units, and only have 2 units)
- Display format mismatches

#### Solution:

- Program the units correctly in the Master Programming Mode.

**NOTE:** If these errors are detected, numbers 1 through 3 become true, and the main screen (time of day) will alternate with an error screen.

# Troubleshooting

| Cause  | Correction   |
|--|--|
| A. Any or all of two or more units programmed with the same unit number (Matching Address Error) | A. Program the units correctly in the Master Programming Mode  |
| B. Flashing/blinking display   | B. Power outage has occurred   |
| C. Format Mismatch (Units have both U.S. and Metric Formats)                                     | C. Verify all units have same Format selected (all U.S. or all Metric)   |
| D. No messages displayed/small black squares appear in display                                   | D. Turn the contrast button on the back of unit until text appears (see "Problems Viewing Display/Changing Contrast of Display" below) |
| E. Size Error (Units not correctly numbered/more than one unit has the same number assigned)     | E. Check each unit and verify each as the correct number, and that only one unit has that number                                       |
| F. Com Error (Communication Error)   | F. Check the wiring of the system and verify it is correct and that all are connected  |

## Example Error Screens

```
DETECTED ERROR=
E2   RESET UNIT
```

### Detected Error

1. Go through Master Programming to program the unit.

```
DETECTED ERROR=
NO MESSAGE #1
```

### No Message #1

1. Make sure all communication cables are connected.
2. If "No Message #1" ensure it is the lead unit.
3. Ensure #1 is configured for the correct system type.

```
DETECTED ERROR=
NO MESSAGE #3
```

### No Message #3

1. Make sure all communication cables are connected.
2. If "No Message #3" ensure it is unit #3.
3. Ensure #3 is configured for the correct system type.

```
DETECTED ERROR=
PROGRAM MISMATCH
```

### Program Mismatch

1. Ensure the units on the network are not configured the same as #1/the Lead unit.

```
DETECTED ERROR=
EXCEED UNIT SIZE
```

### Exceed Unit Size

1. There are more units on the system than the Lead is programmed for.

```
DETECTED ERROR=
MATCHING ADDRESS
```

### Matching Address

1. The unit is programmed the same # as another unit.  
**NOTE: The rest of the system will still function without this unit.**

## Troubleshooting - Control Valve



### WARNING

The controller **MUST** be depressurized before removing any quick connection clips for servicing. The connector should be pushed toward the control while removing clips.

| Problem                                   | Cause   | Correction  |
|---|---|---|
| 1. Water conditioner fails to regenerate. | A. Electrical service to unit has been interrupted  | A. Assure permanent electrical service (check fuse, plug, pull chain, or switch)                                |
|   | B. Timer is defective.  | B. Replace timer.   |
|   | C. Power failure.   | C. Reset time of day.   |
| 2. Hard water.                            | A. By-pass valve is open.   | A. Close by-pass valve.   |
|   | B. No salt is in brine tank.  | B. Add salt to brine tank and maintain salt level above water level.  |
|   | C. Injector screen plugged.   | C. Clean injector screen.   |
|   | D. Insufficient water flowing into brine tank.  | D. Check brine tank fill time and clean brine line flow control if plugged.                                     |
|   | E. Hot water tank hardness.   | E. Repeated flushings of the hot water tank is required.  |
|   | F. Leak at distributor tube.  | F. Make sure distributor tube is not cracked. Check O-ring and tube pilot.                                      |
|   | G. Internal valve leak.   | G. Replace seals and spacers and/or piston.   |
| 3. Unit used too much salt.               | A. Improper salt setting.   | A. Check salt usage and salt setting.   |
|   | B. Excessive water in brine tank.   | B. See problem 7.   |
| 4. Loss of water pressure.                | A. Iron buildup in line to water conditioner.   | A. Clean line to water conditioner.   |
|   | B. Iron buildup in water conditioner.   | B. Clean control and add mineral cleaner to mineral bed. Increase frequency of regeneration.                    |
|   | C. Inlet of control plugged due to foreign material broken loose from pipes by recent work done on plumbing system. | C. Remove piston and clean control.   |
| 5. Loss of mineral through drain line.    | A. Air in water system.   | A. Assure that well system has proper air eliminator control. Check for dry well condition.                     |
|   | B. Improperly sized drain line flow control.  | B. Check for proper drain rate.   |
| 6. Iron in conditioned water.             | A. Fouled mineral bed.  | A. Check backwash, brine draw, and brine tank fill. Increase frequency of regeneration. Increase backwash time. |

## Troubleshooting - Control Valve

| Problem                           | Cause   | Correction   |
|-----------------------------------|---|--|
| 7. Excessive water in brine tank. | A. Plugged drain line flow control.             | A. Clean flow control.   |
|                                   | B. Plugged injector system.                     | B. Clean injector and screen.  |
|                                   | C. Timer not cycling.                           | C. Replace timer.  |
|                                   | D. Foreign material in brine valve.             | D. Replace brine valve seat and clean valve.   |
|                                   | E. Foreign material in brine line flow control. | E. Clean brine line flow control.  |
| 8. Softener fails to draw brine.  | A. Drain line flow control is plugged.          | A. Clean drain line flow control.  |
|                                   | B. Injector is plugged.                         | B. Clean injector  |
|                                   | C. Injector screen plugged.                     | C. Clean screen.   |
|                                   | D. Line pressure is too low.                    | D. Increase line pressure to 20 psi (1.3 bar)  |
|                                   | E. Internal control leak                        | E. Change seals, spacers, and piston assembly.   |
|                                   | F. Service adapter did not cycle.               | F. Check drive motor and switches.   |
| 9. Control cycles continuously.   | A. Misadjusted, broken, or shorted switch.      | A. Determine if switch or timer is faulty and replace it, or replace complete power head.                                    |
| 10. Drain flows continuously.     | A. Valve is not programming correctly.          | A. Check timer program and positioning of control. Replace power head assembly if not positioning properly.                  |
|                                   | B. Foreign material in control.                 | B. Remove power head assembly and inspect bore. Remove foreign material and check control in various regeneration positions. |
|                                   | C. Internal control leak.                       | C. Replace seals and piston assembly.  |

## General Service Hints For Meter Control

**Problem:** Softener delivers hard water

**Reason:** Reserve capacity has been exceeded.

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

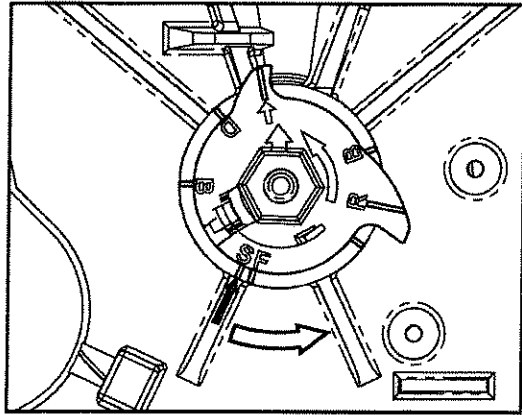
**Reason:** Meter is not measuring flow.

**Correction on Mechanical Meter:** Check with meter checker kit. If volume is not registering, check the meter cap and impeller for debris, and ensure they can move freely.

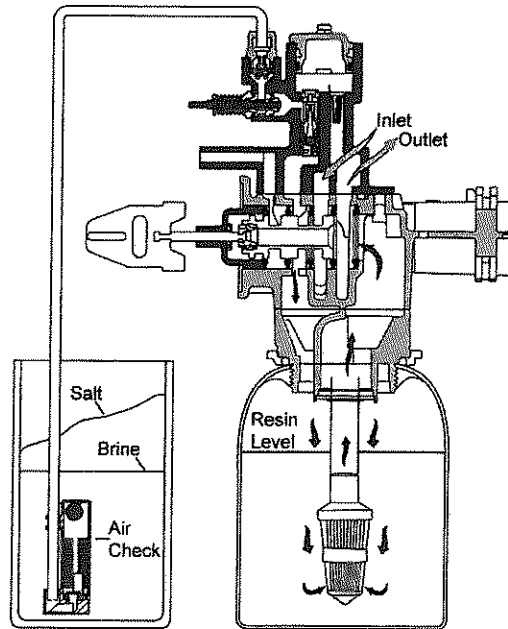
**Correction for Electronic Meter:** Check for a short in the meter cable. Ensure that it is programmed as a meter, and that the turbine and impeller can move freely.

# Water Conditioner Flow Diagrams

## In Service Position

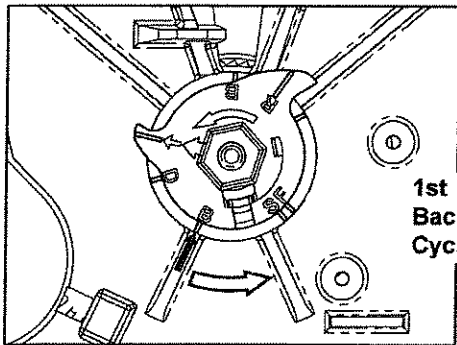


40988\_REVA

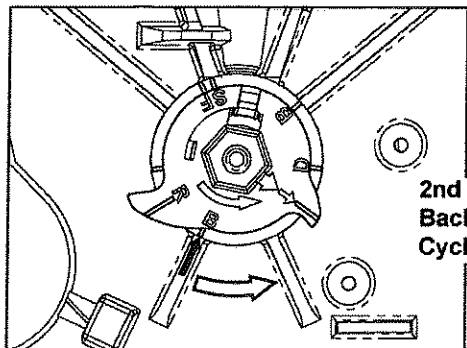


41121\_REVA

## Backwash Position

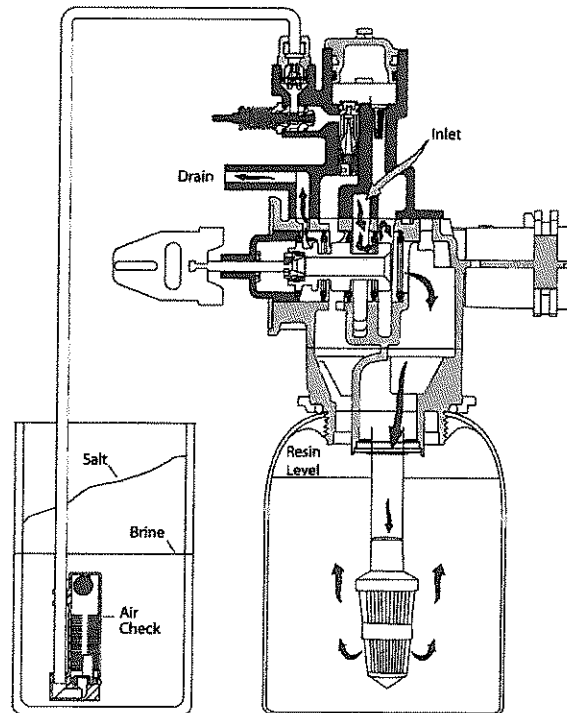


1st  
Backwash  
Cycle



2nd  
Backwash  
Cycle

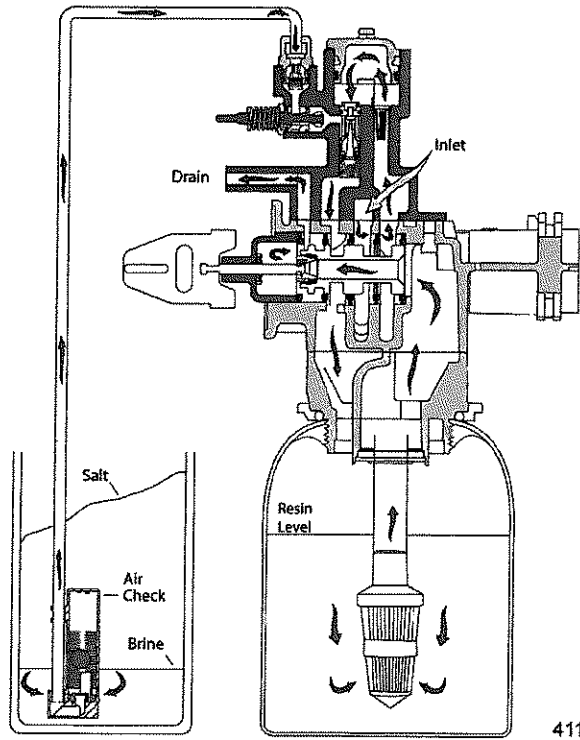
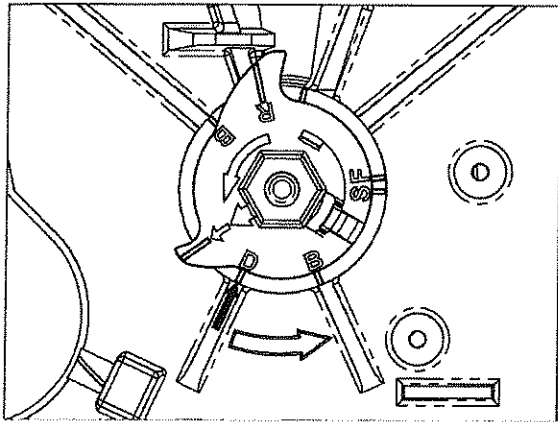
40988\_REVA



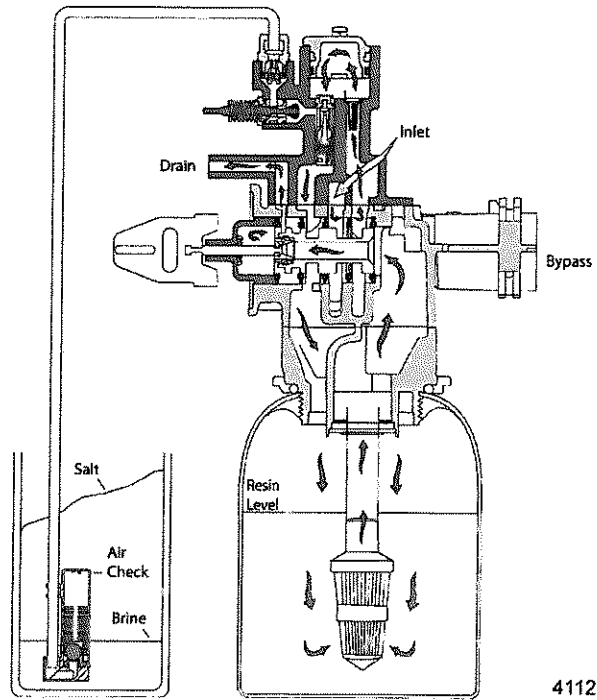
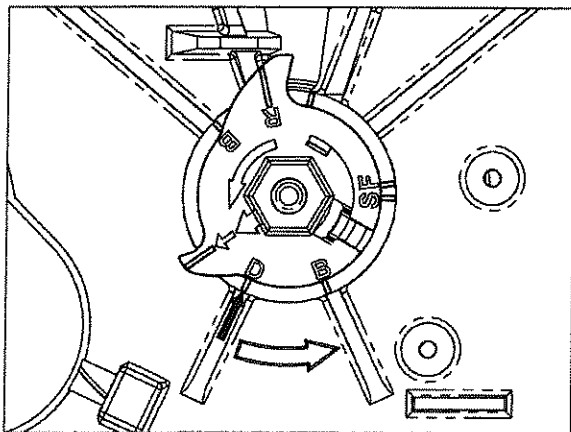
41121\_REVA

# Water Conditioner Flow Diagrams

## Brine Position

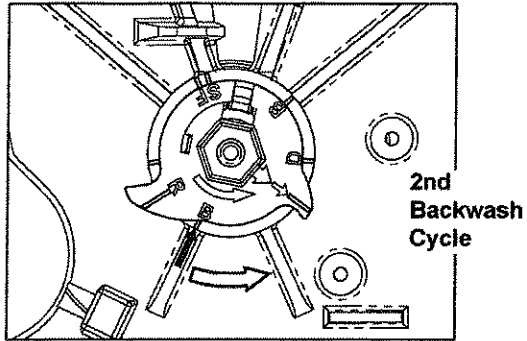


## Slow Rinse Position

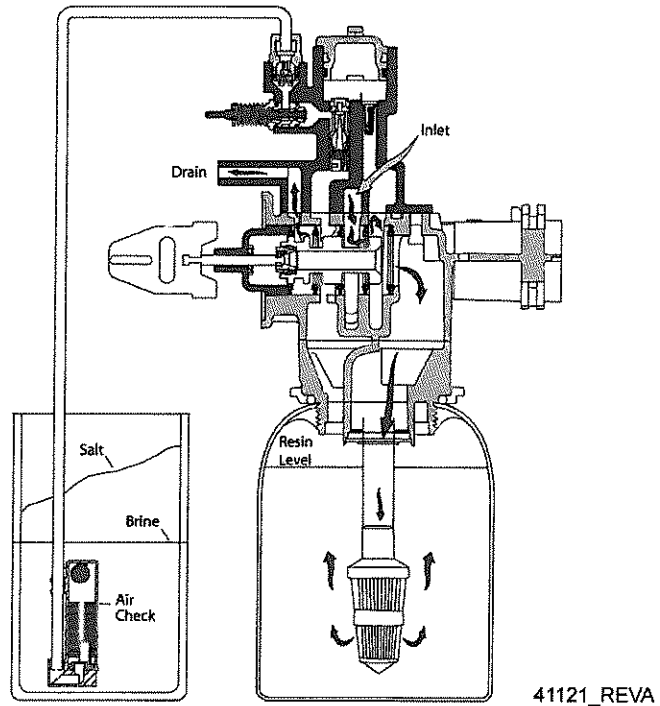


# Water Conditioner Flow Diagrams

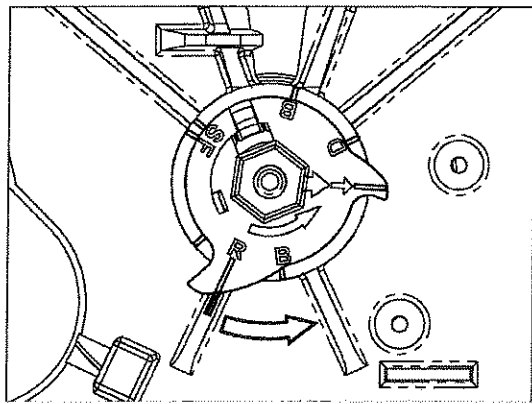
## Second Backwash Position



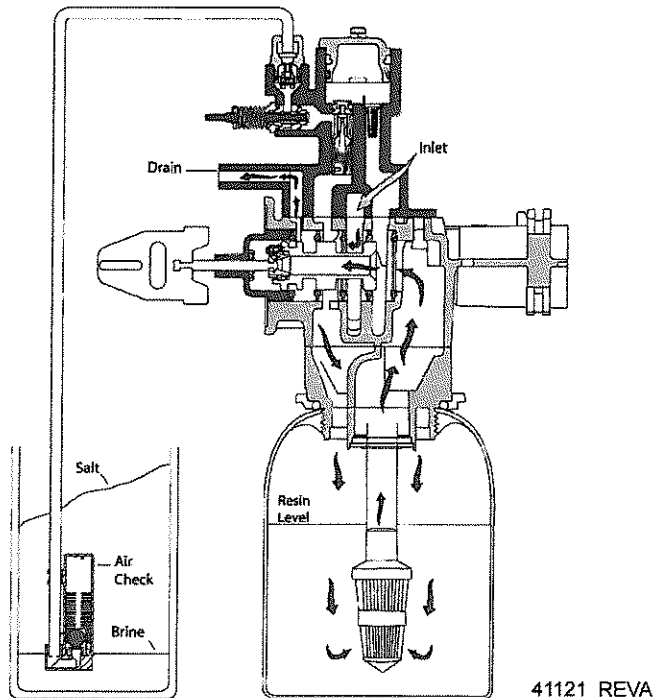
40988\_REVA



## Rapid Rinse Position



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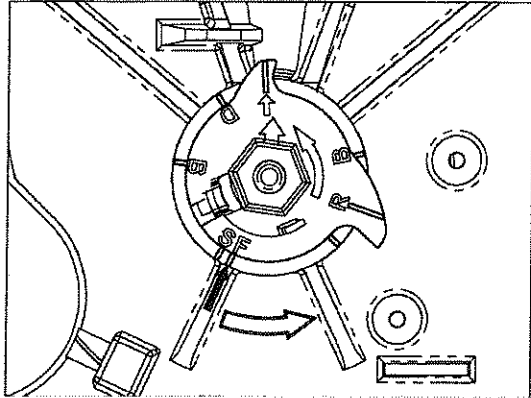


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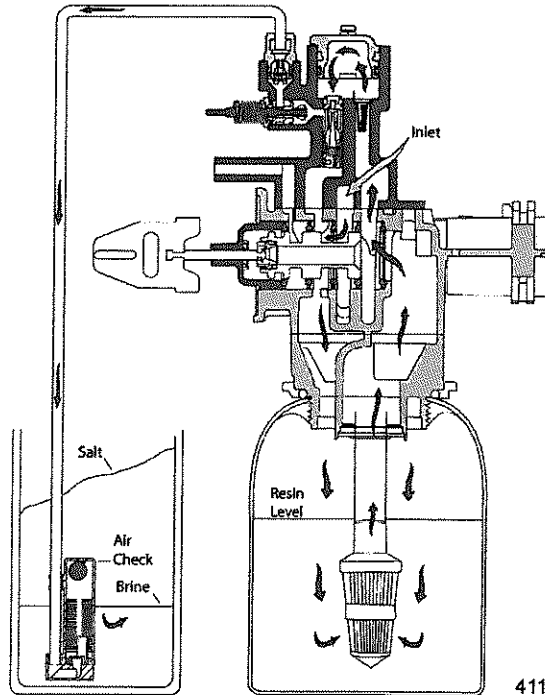
# Water Conditioner Flow Diagrams

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## Brine Tank Refill Position



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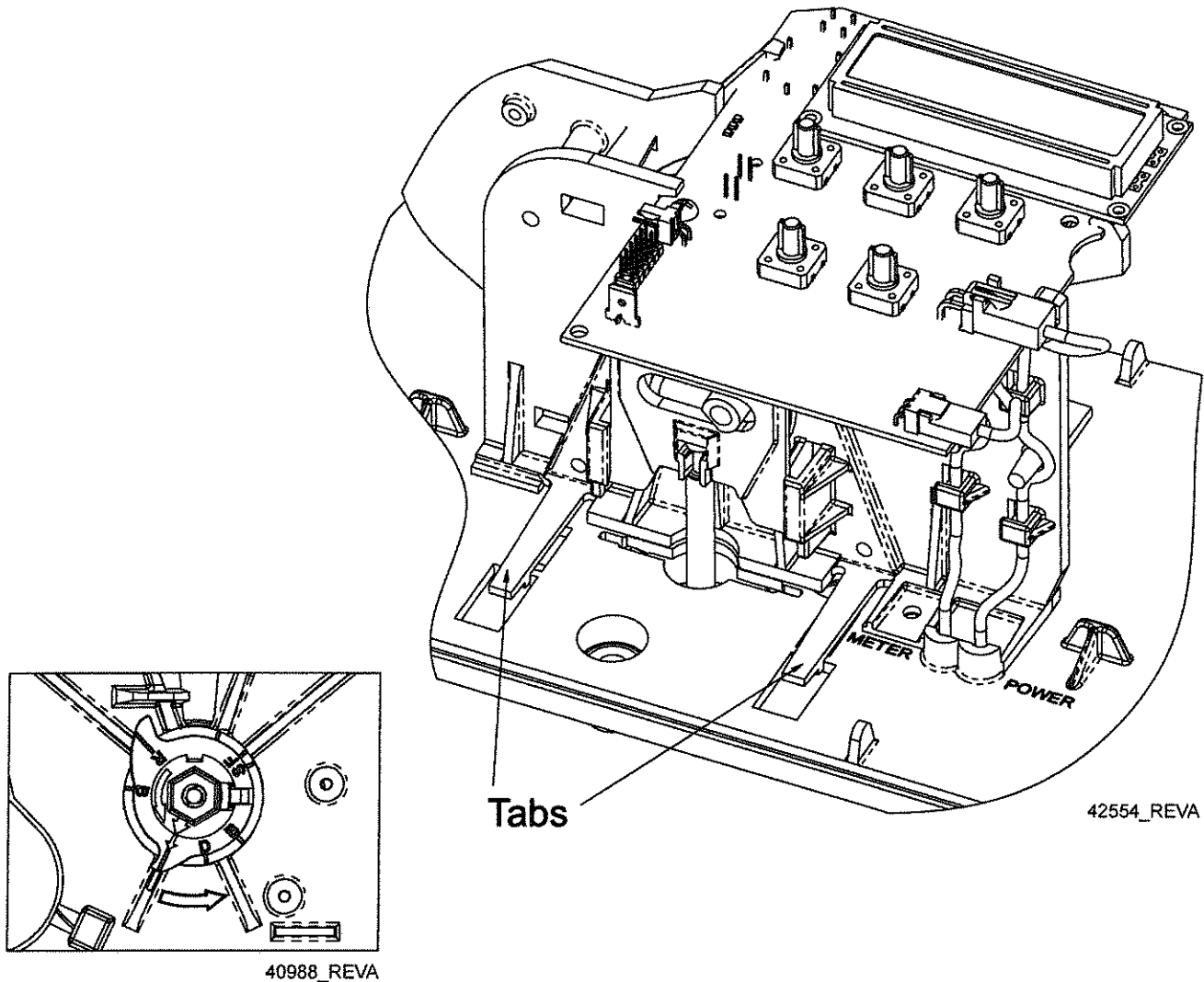


41121\_REVA

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## Removing the Gear Box Assembly

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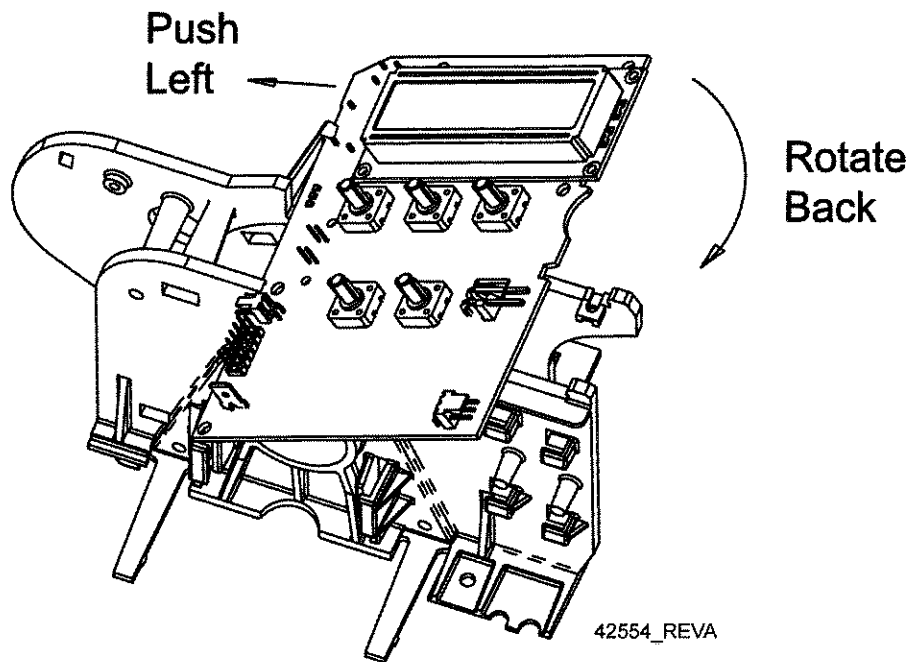


1. Unplug the power source.
2. With a 3/8" nut driver, turn the cycle cam counter-clockwise to the position shown in the illustration above.
3. Slightly pull the two tabs outward and push the gearbox slightly upward to remove.
4. When returning the valve to service after powerhead disassembly, manually step valve through regeneration using the extra cycle button until the valve is in service.

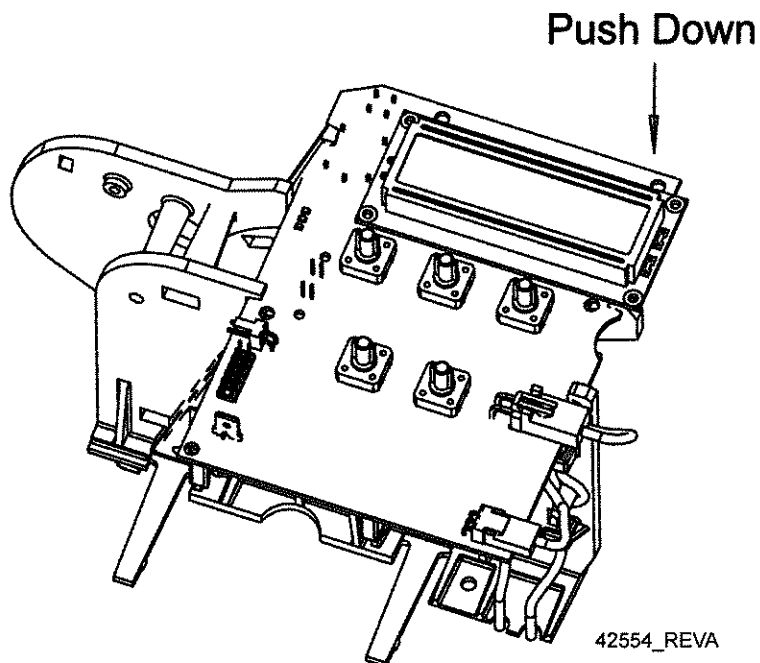
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## Inserting the Circuit Board

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1. To insert circuit board, align notches on left side of board with flexible finger on power head. Apply pressure to left while rotating the board back.

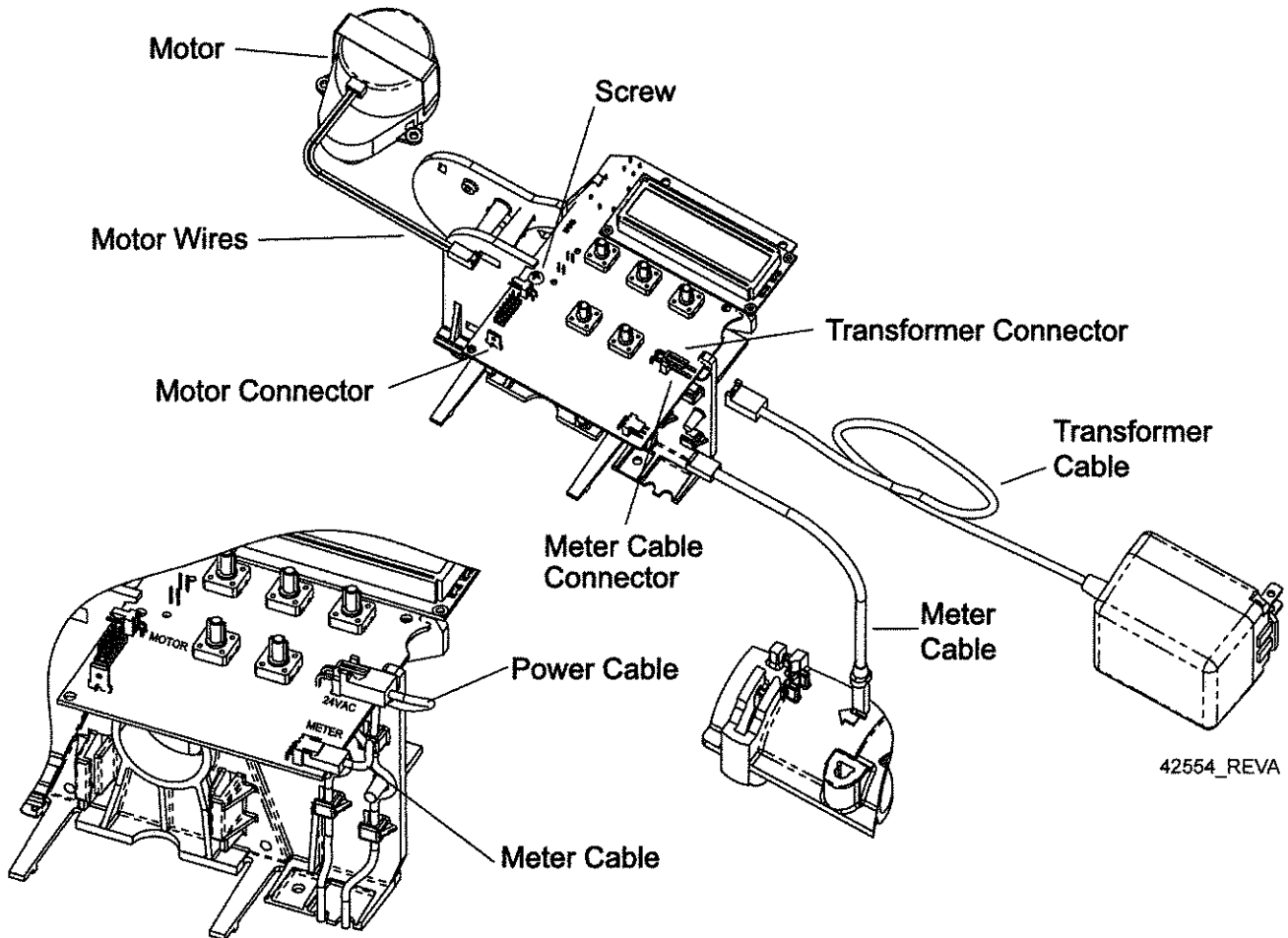


2. When all the way down, snap the circuit board into place under the notches on the right.

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## Connecting the Circuit Board

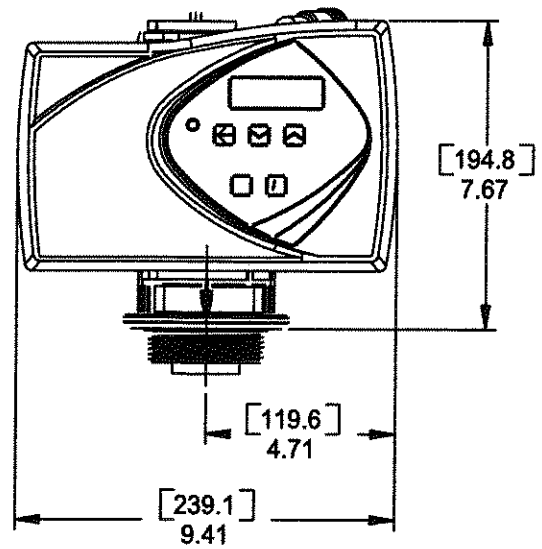
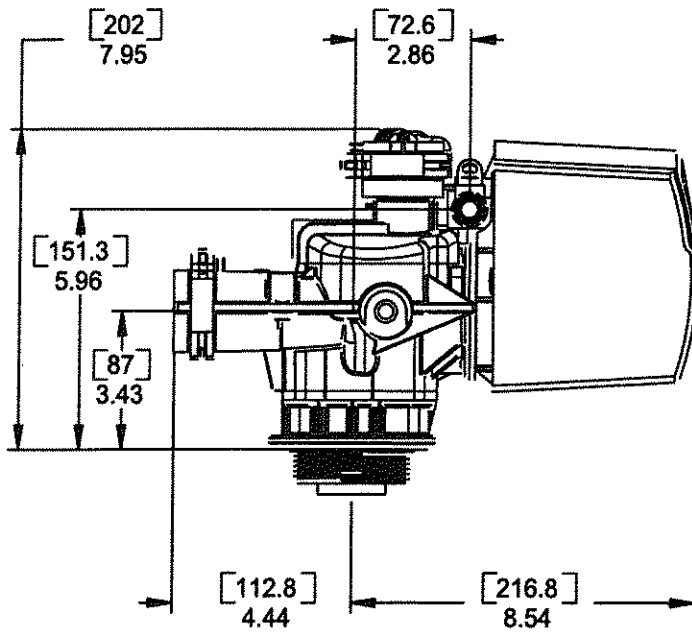
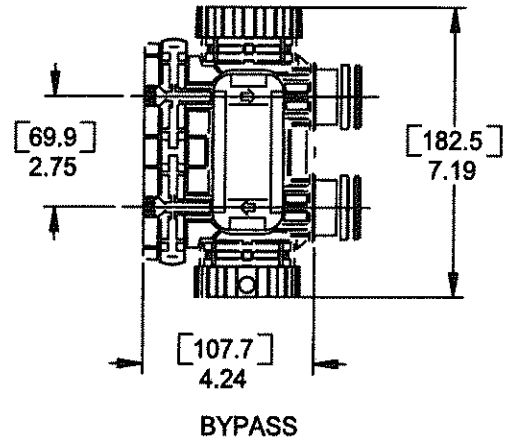
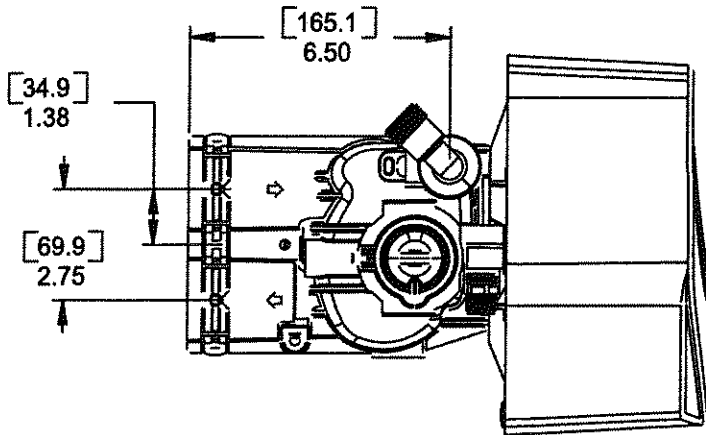
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After the circuit board is installed:

1. Connect the motor wires to the motor connector on the circuit board.
2. Connect the transformer cable to the transformer connector on the circuit board.
3. Connect the meter cable to the meter cable connector on the circuit board.
4. Connect the meter cable sensor end to the opening on the valve body.
5. Thread the meter cable and power cable along the path shown in the above illustration.
6. Insert screw to secure circuit board.

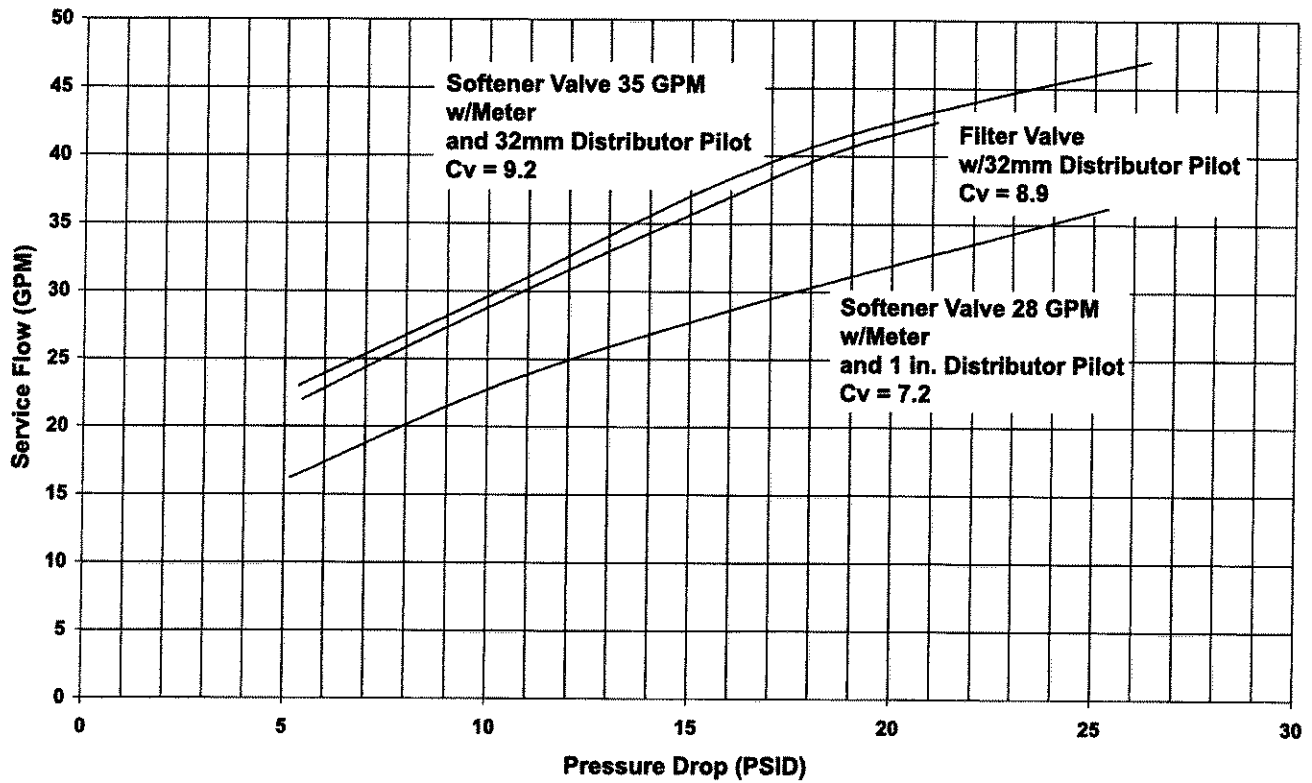
# Dimensional Drawings



61500-7000XTR-LNE\_REVA

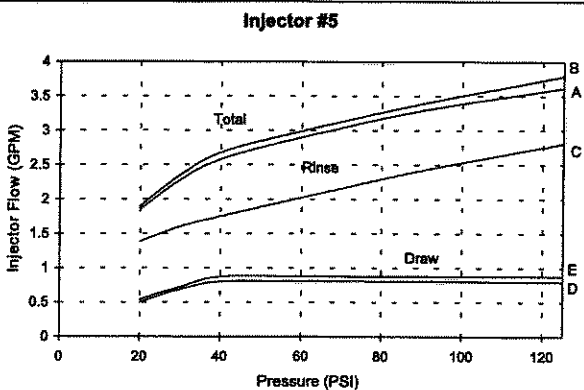
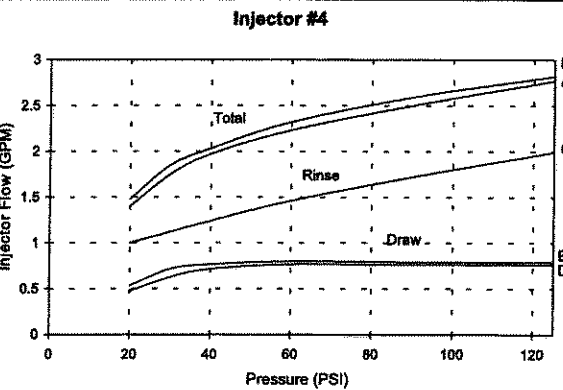
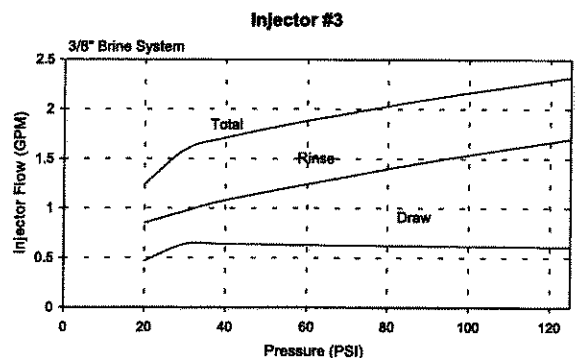
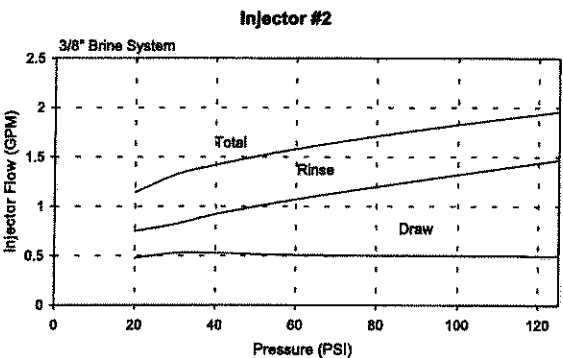
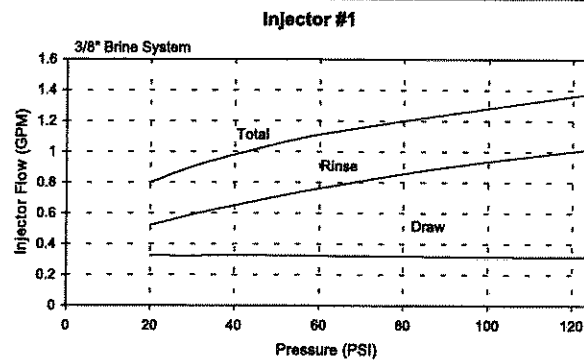
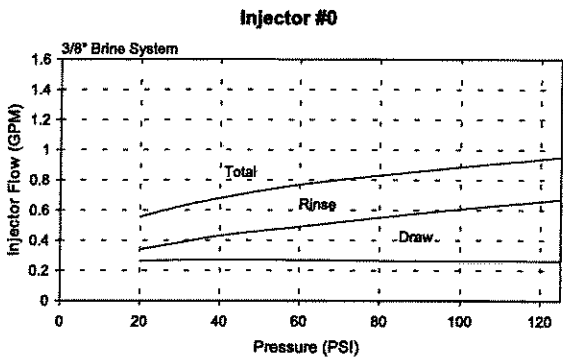
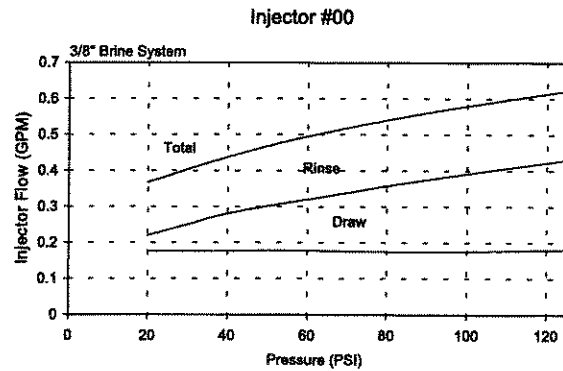
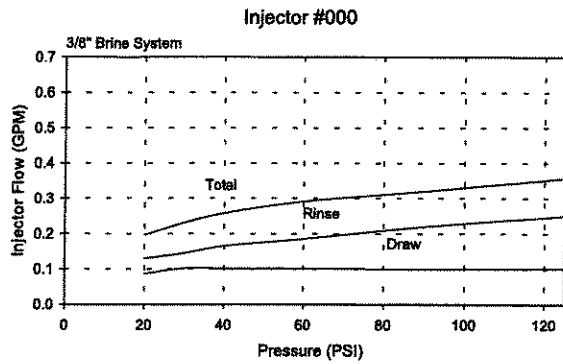
# Meter Flow Data

## NXT 7000XTR Valve



TR18753 Softener  
TR18688 Filter  
41140-02\_REVA

# Injector Flow Data



A) Total Flow, 3/8" Brine System B) Total Flow, 1/2" Brine Line C) Rinse D) Brine Draw, 3/8" Brine System E) Brine Draw, 1/2" Brine Line

NOTE: All data taken with 2310 Safety Brine Valve and 500 Air Check

TR18755\_REV B





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## **Notes**

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