



Installation & Start-Up  
Procedures For  
Water Softeners  
And  
Combination Water  
Softener & Whole  
House Filters.

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# WATCH OUR VIDEOS!



Just say to your smart phone:

- YOU-TUBE Safety Zone water softener **installation** instructions. (Applies to softeners and combo systems.)
- YOU-TUBE Safety Zone water softener **start-up** instructions. (Applies to softeners and combo systems.)

**Others:**

- YOU-TUBE Safety Zone Water testing.
- YOU-TUBE Safety Zone water filter installation.
- YOU-TUBE Safety Zone Iron & Sulfur installation.
- YOU-TUBE Safety Zone Water product line.

Visit [www.safetyzonewagter.com](http://www.safetyzonewagter.com) for manuals and videos.

# ATTENTION INSTALLERS!

## FOLLOW OUR INSTRUCTIONS CAREFULLY.



### Satisfied Customer!

At the end of the day, our goal is to have satisfied customers. But unfortunately, many after-the-sale call backs are due to installation oversights. For example the drain was not installed correctly, the brine line tubing was not pushed in all the way, or the valve was not programmed correctly. Take your time. Read our instructions. Watch out videos!

Finally, like your automobile or A/C system, service is required from time to time. And not all service is a warranty issue.

# Before You Start

## (Identify Components.)

### Components

- Control valve
- By-pass valve
- Pipe fitting kit
- Mineral tank
- Brine tank
- Brine well
- Safety float
- Brine line tubing
- Hose bib (optional)
- Shut off valve (optional)
- Water softener salt (2 or 3 bags); additional.



Test Strips  
For Water Testing.  
(Order separately.)



Check For Bacteria  
(Well Water Only)



Pipe Fitting Kit  
(Included.)



Hose Bib To Test  
Water (additional.)



Shut Off Valve  
(additional.)



Water Softening  
Salt (additional.)



Watch Our Videos.  
[www.saftyzonewater.com](http://www.saftyzonewater.com)



Weather cover for  
outdoor installations.

# First.

## Determine the following:

1. Determine where the system is to be installed. Install system on the main water line before the water heater and after the bladder tank on well water installations.

2. How to construct your drain and determine where the drain water should go. (Drains must not be restricted.) Use  $\frac{3}{4}$ " PVC for best results.



Go ahead and build your drain. Note: **Do not pipe your drain more than 4' above the control valve.**



3. Determine where to get power. (110 volts.)

(Be sure to use a weatherproof electrical outlet on outdoor installations.)

# Set-Up Your Brine Tank



Use this “overflow fitting” to attach the 4”x26” brine well to the inside side of the brine tank. (May have to remove the float to do this.)



This shows the brine well attached to the side of the brine tank using the “overflow fitting”.



Push tubing securely into the quick connect fitting. Push in twice. **Must be secure!**



Connect 3/8” brine line tubing to the brine line fitting on the control valve.



Add 6” (or five gallons) of potable water to the brine tank. **Do not add salt at this time.**

Install the by-pass and pipe fittings. Hand tight. **Do not use wrench.** Lube o-rings with Silicone.



By-Pass Valve



# Additional Installation Procedures.

Now you have constructed your drain, assembled the brine tank, added water to the brine tank and powered up the system, perform the following additional installation procedures:



Test the water for water hardness since it is necessary to set the hardness level when programming the valve. (This is essential.)



## Set hardness

At the clock, press **NEXT** and **ARROW UP** simultaneously and release simultaneously. Here you should see, "**Set Hardness.**"

In this mode, you can set water hardness, regen days (to override the meter) and regen time. (Keep regen time set at 2:00 AM or you may adjust.)

**TO SET CLOCK** – Press **SET CLOCK** at any time to set hour and minutes, then press "**NEXT**" to exit. The clock is a 24-hour clock, so AM or PM must be set accordingly. (You may make adjustment only when "hour" or "minutes" blink.)



# Prior to Start-Up

At this point you should have completed the following:

- ✓ Installed the system, making sure you used the correct inlet and outlet. (See arrows on the valve).
- ✓ Installed your drain (must be free flowing). Do not restrict your drain!
- ✓ Set up the brine tank.
- ✓ Added 6" of potable water to the brine tank (do not add salt at this time – last step).
- ✓ Made brine line connections, being sure to “push twice” to make sure connections will not suck air versus drawing water from the brine tank.
- ✓ Made electrical connections (110 / 120 volt).
- ✓ Shielded the electrical connections in outdoor installations.
- ✓ Set the hardness in the valve’s programming.
- ✓ Closed both red knobs on the by-pass valve.
- ✓ Install the by-pass valve and pipe fittings.
- ✓ Provide feed water to the system.



Make sure to install the valve correctly. See “in” and “out” arrows on the control valve.

# Start-Up - Cycle #1



Press and hold the REGEN button until the motor starts.



Slowly open the inlet valve to fill the tank.

## To start - Step #1

With both red knobs closed, **press and hold** the **REGEN** button until the motor starts. This puts you into cycle #1, which is **BACKWASH**.

Next, open the red inlet knob slowly to allow water to fill the mineral tank. Once you see water running to drain, you may open the inlet valve completely.



**Stay in BACKWASH until the drain water runs clear.** This may take several minutes if your system is a water softener, or longer if you are installing a combination system, which includes activated carbon and Ion Exchange resin.

**NOTE:** Once you are in a cycle, you may advance to the next cycle by pressing “Regen”. You do not have to wait to complete the entire cycle.

## Cycle #2



**Press and release** the **REGEN** button to advance to cycle #2, **BRINE DRAW**. Here, you should watch closely to be sure the water level in the brine tank is going **DOWN**. Otherwise, your customer will not have soft water after the initial period. If water is not drawing properly, check the brine line tube connections.

## Cycle #3



**Press and release** the **REGEN** button to advance to cycle #3, the second backwash. Here, you want to again check to be sure the drain water is running clear. If not, stay in backwash until the drain water is clear.

## Cycle #4



**Press and release** the **REGEN** button to advance to cycle #4, **RINSE**. This is a very important cycle, since fresh water is used to rinse the tank and rinse salt off the resin. The default setting for this cycle is eight (8) minutes, which may be adjusted depending on circumstances.

## Cycle #5



**Press and release** the **REGEN** button to advance to cycle #5, **REFILL**. Here fresh, conditioned water is added to the brine tank to produce more brine water for the next resin cleaning process. During this cycle, watch carefully to be sure the water level in the brine tank is going **UP**.

# Step #6



## Step #6 – Advance to service

**Press and release** the regen button to advance to service. Open outlet on by-pass valve to send water to the house.

**Finally . . .**

## Step #7

Add salt to the brine tank (two to three bags initially).

## Step #8

Go inside the house (or to a laundry sink) and open a faucet to be sure water is running clear. You may also test the water for hardness to show your customer the water is soft (once the conditioned water gets to the faucet used for the demonstration).

## Step #9

Give your customer an initial orientation (see next page).

**Note:** Water in the house will be “soft” once water in the water pipes are flushed.

# Customer Orientation Important!

It is now time to give your customer an “orientation” to explain how the system works and provide additional information to prevent call-backs.

## **Components**

**Explain** Safety Zone Water softener includes the following components:

- Automatic control valve
- By-pass valve so the unit may be isolated if necessary
- Pressure tank with Ion Exchange resin
- Brine tank with air check and safety float to prevent brine water overflow.

## **By-pass valve**

Should it be necessary to by-pass your water softener, turn the red knobs on the by-pass valve at right angles to the direction of the flow.

## **How to set the clock**

The valve has a battery to keep time for a limited period of time. However, should it be necessary to re-set the clock press SET CLOCK for several seconds. Notice hours are blinking. Also, notice if AM or PM appears. Arrow up or down to the correct hour, AM or PM. Press next. Now, the seconds are blinking. Arrow to the correct minutes and press NEXT to exit the “set clock” mode. During a power outage other valve settings are maintained.

## **Resin cleaning process**

The Ion Exchange resin in your water softener must be cleaned periodically to remove hardness minerals which have been removed from your water. Your control valve initiates this resin cleaning process automatically based on water use. This process is typically set to occur at 2:00 AM, but adjustments are possible. When this occurs, you will hear water running to drain. This is normal.

## **When to add salt to your brine tank**

Salt is used for the resin cleaning process to remove the hard water minerals from the resin. For this reason, it is essential to monitor your salt levels and to add salt to your brine tank when needed. We recommend CRYSTALS, but other softener salt is acceptable. Initially, add 2 or 3 bags of salt to the brine tank.



## **Salt in your water**

Water softener salt is used to remove hardness minerals (Calcium and Magnesium) from the resin. However, after the “brining cycle” your water softener goes through a second backwash cycle and a downward flow rinse cycle to remove salt from the tank and resin. For this reason salt will not be in your water. Furthermore, the duration of these cycles can be easily adjusted if necessary.

## **Iron**

Our water softeners will remove clear water Iron, up to 2 PPM. However, if you have oxidized Iron or high levels of Iron we recommend using a Iron filter. (Model: ISF-150-AD.)

## **Error messages**

If an error message is shown on your valve’s display use the valve manual posted on our website for additional information ([www.safetyzonewater.com](http://www.safetyzonewater.com)).

## **Re-Bedding**

Inform customers it is necessary to re-bed the water softener resin. Every 7-10 years is typical for water softeners. For “combo” systems, it is necessary to re-bed the filter media, and every five years is typical.

## Diagnostics

To determine how frequently the resin cleaning process has occurred and observe other operational factors follow the following directions:

Press ▲ and ▼ simultaneously for 5 seconds and release. Observe the following data, pressing NEXT to advance through the data:

1. Software version
2. Volume of water used since start-up
3. Total days since start-up
4. Total regenerations since start-up
5. Error log
6. Days since last regeneration
7. Volume of water since last regeneration
8. Press next to get back to the clock to exit

Analysis:

Is the volume of water excessive? (Is the customer using soft water to fill a pool?)

Is the system going through the resin cleaning process?

How many “regen days” on average?

Error messages?

# TROUBLE SHOOTING

## Service

When you first arrive to service a water softener, complete a water analysis to determine the hardness (and Chlorine level if you are dealing with a COMBO system).

### **Next, check the basics:**

Are the inlet and outlet valves open?

1. Is the valve installed correctly? (Direction of flow – see arrows on valve).
2. Does the system have power, or is the display blank?
3. Is there salt and water in the brine tank?
4. Is there too much water in the brine tank? (6" normal.)
5. Is there too little water in the brine tank? (6" normal.)
6. Go into diagnostics (see above) to determine when the last regeneration occurred and other factors.
7. Check the valve settings.
8. Check the hardness setting (press next and arrow up) to determine if the valve's hardness setting is the same as the actual hardness.
9. Go through a regeneration and advance through the cycles to determine if each cycle is operating properly.
10. Is the backwash water flowing properly? (2-5 GPM is typical for residential softeners).
11. Is water continuously running to drain?
12. Call 352-492-9516 if you need assistance.

## Troubleshooting, continued:

### **“My water is not soft”.**

Obviously, you need to check water hardness with your test kit or test strips. If the water has hardness, check the following:

1. Is salt in the brine tank?
2. Is water in the brine tank?
3. Diagnostics (how often are regens occurring?)
4. Go into a manual regeneration to check the cycles.
5. In cycle #2, is the water level in the brine tank going down? (In this cycle you can actually remove the brine line tubing from the valve, put your finger over the fitting and see if there is suction from the brine line fitting.) If there is suction, brine water is sucking from the brine tank to clean the resin properly.)
6. If there is too much water in the brine tank, push the brine line tubing into the fitting in the brine well, If the tubing moves in only slightly, most likely you have corrected the problem since the system has been sucking air instead of brine water. (This is a major complaint, which is easily corrected.)
7. Check the hardness setting to make sure the setting matches the actual level of hardness. Press NEXT and ARROW UP simultaneously and adjust if necessary.

# Troubleshooting, continued

## **“My water is too soft”.**

This is a common complaint, when customers do not realize soap fully dissolves in soft water and it takes longer to rinse off all the soap. The easy fix is to simply use less soap.

However, adjustments can be made to add a little hardness to the water.

1. Increase the hardness setting in the valve. (Press NEXT and ARROW UP .)
2. Reduce the salt setting in the valve. (Press NEXT and ARROW DOWN; go to setting #5; and reduce the salt setting from 9.5 to maybe 6.)

## **“I’m getting odors with my combination system”.**

Usually, odors are due to improper backwashing because the drain is obstructed. Therefore this is most often an installation error.



Put the system into regen and observe the rinse water. The flow rate should be 5-6 GPM with a combo system. Next, check the frequency of regens since this problem is often when there is low water usage. Finally, check chlorine levels prior to the unit, since the incoming water may contain bacteria, which is a source of odors.

# Troubleshooting, continued

“My display is blank”.

Typically, this is in outdoor installations, where a weather cover is not used and when an electrical outlet is not waterproof. (Not a warranty issue.)

Try to re-boot the system at the PC board. Remove the second terminal from the right for fifteen seconds and repower. If the motor starts, the problem is most likely corrected. Otherwise, see below. May need a new transformer and or PC board.



## Problems & Error Messages (Overview)

Problem	Most common correction
Water continuously runs to drain.	Reboot if you had a power outage. Replace seal stack assembly & piston.
No brine suction.	Clean or replace injector. Brine line may not be pushed in all the way. Drain may be obstructed.
Error 1, 101, 1001	Check PC board, motor, drive cap assembly. Board must “snap” in. Clean optical eye. Re-boot..
Error 2, 102, 1002	Unexpected stall. Binding, interfering with piston. Clean piston. May need to replace piston and spacer assembly.
Blank display..	Loss of power. Water damage. Replace transformer and/or PC board.
Too much water in the brine tank.	Brine line tubing may not be pushed in all the way. Clogged injector.

Re-boot after service.

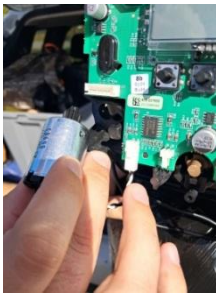
# HOW TO SERVICE WATER SOFTENERS AND COMBO SOFTENER & FILTERS

***Please remember service is part of owning practically every appliance. Not every service call is a warranty issue!***

**Error 2 (valve cannot find correct cycle position).**



Snap out cradle which holds the PC board, tilt forward and rotate drive cap counterclockwise to the stop and back clockwise to the stop. This puts the valve in the service position



On occasion, the motor and PC board may not be secure. Remove the motor and securely replace. And make sure PC board is snapped in properly.



# HOW TO SERVICE WATER SOFTENERS AND COMBO SOFTENER & FILTERS

## Replace seals assembly and piston.

For best results order our **spanner wrench** (P/N V3193-02) to remove the drive cap .



### Seals Stack Assembly

P/N: V3005-02

For softener & combo systems.



### Pistons

P/N: V3011 & V3174  
(Standard & brine)

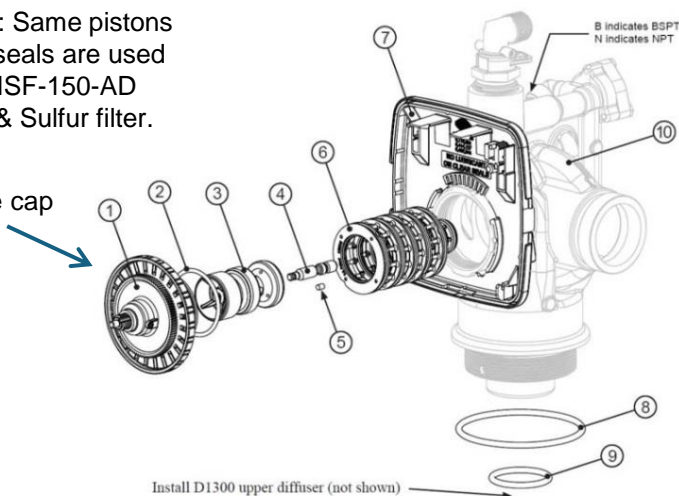
For softener & combo

### Note:

Brine piston not used on whole house filters.

Note: Same pistons and seals are used with ISF-150-AD Iron & Sulfur filter.

Drive cap



1. Remove cover
2. Remove drive cap
3. Remove pistons
4. Remove seals assembly
5. Clean surfaces
6. Inspect all components

7. Lubricate black seals with silicone
8. Install new seals assembly
9. Install new pistons
10. Install drive cap
11. Do not over-tighten
12. Replace cover

# HOW TO SERVICE WATER SOFTENERS AND COMBO SOFTENER & FILTERS

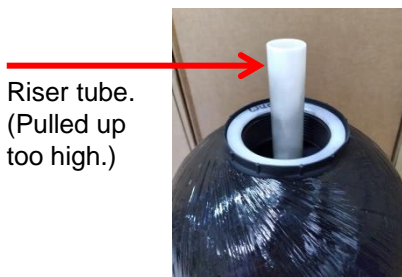
## How To Re-Bed a Water Softener & Combo System.

Your water softener resin (and activated carbon with a COMBO system) must be replaced at specific times.

<b>Material / situation</b>	<b>Replacement</b>
Softening resin (city water with Chlorine)	7 years
Softening resin (well water—no Chlorine)	10 years
Carbon (with a COMBO system)	5 years

### **Procedure:**

1. Shut valves on by pass and disconnect the power.
2. Remove drain and brine fittings so valve can be removed.
3. Spin off the valve and remove.
4. Remove “riser tube”. Caution: Do not damage riser tube because it must seal onto o-ring inside your valve.
5. Vacuum out resin, carbon & gravel using WET VAC.
6. Replace riser tube and media. (Use funnel P/N U1006.)  
(Be sure not to allow resin or media to get inside riser tube.)
7. Replace valve and connect power.
8. Go through an immediate regeneration to rinse media. (See pg. 7).
9. Open outlet on by-pass valve to send water to the house.



**Notice:**  
If you have a wet vac, this is easier than it looks.

**Or, you can purchase a new tank, with new resin or media.**

# HOW TO SERVICE WATER SOFTENERS AND COMBO SOFTENER & FILTERS

## **Water softener Resin replacement:**

Model	Cu. Ft. of Resin (P/N RESIN-8)
WC-100	1
WC-150	1.5
WC-200	2
WC-250	2.5
WC-300	3
WC-400	4
WC-500	5
WC-700	7
WC-1000	10

## **Single tank COMBO systems:**

Model	Cu. Ft. of Resin (P/N: RESIN-8)	Cu. Ft. of Carbon (P/N: CARBON-CAT)
COMBO-1-100	1	0.5
COMBO-1-200	1	1
COMBO-1-250	1.5	1
COMBO-1-300	1.5	1.5
COMBO-1-400	2	2

## **Two tank COMBO systems**

COMBO-2-100	1	1
COMBO-2-150	1.5	1.5
COMBO-2-200	2	2
COMBO2-250	2.5	2.5

Note: Order gravel for under bedding. 10 lbs. for 9" tanks. 15 lbs. for 10" tanks. 18 lbs. for 12" tanks. 20 lbs. for 13" tanks. 25 lbs. for 14" tanks.

# LIMITED WARRANTY

## SAFETY ZONE WATER™ SYSTEMS

Safety Zone Water Systems (Manufacturer) are warranted to be free of defects in material and workmanship to the ORIGINAL residential purchaser. All aspects of this warranty are subject to the limitations, terms and conditions described below:

### Duration

Water conditioner and whole house filter components, including valves, tanks and non-wear parts are covered under this warranty. Should failure occur due to defects in materials and workmanship, Manufacturer, at its sole discretion, will repair or replace the defective part or component for the duration of five years for valves; ten years on tanks; and five years on electrical components. Labor for parts replacement, service, shipping and handling charges are not included, and they are the customer's responsibility under the terms of this warranty.

### Limitations of Coverage

This warranty extends only to the CONSUMER for damage resulting from defects in materials and workmanship, and does not include wear related damage, renewable or consumable components, such as seals, spacers, ultraviolet lamps, filter cartridges, resin, neutralizing media, iron media, sediment media and granular activated carbon. Damage caused by the CONSUMER'S neglect or abuse, accident, rain, wind, heat, cold, ultraviolet light exposure, damage caused by acts of God, civil insurrection and extraordinary circumstances beyond the Manufacturer's control are not covered. Manufacturer shall not be liable for any direct or indirect damage resulting from the use of the Equipment, and this Warranty coverage shall not exceed the purchase price of the Equipment. This Limited Warranty excludes: 1. Any equipment not manufactured by the Manufacturer. 2. Equipment which has been altered by the CONSUMER or non-authorized service personnel. 3. Systems where date codes and serial numbers have been removed. Additionally, electrical components are not covered under the following circumstances: 1. Systems installed outdoors.

..

This limited warranty may NOT be transferred from the original owner to another individual.

### Water quality

Manufacturer cannot know the characteristics of the customer's water quality. Furthermore, water characteristics may vary, over time. For these reasons, Manufacturer assumes no liability for product selection.

### Claims

All claims for Warranty coverage must be accompanied by a copy of the purchase agreement, showing date of the original installation. If this is not available, a warranty card must be on file. Manufacturer reserves the right to inspect the equipment, prior to honoring any warranty claim. This Warranty gives CONSUMERS specific rights, and these rights may vary from state to state.

### Contact information

Any and all claims should be directed to the Authorized Dealer in your area. If this information is not available, consumers may contact Safety Zone Water Systems, LLC.

# SPARE PARTS

Part Number	Description
WC-SS-W	Weather cover for control valve; white
V3186-06	Transformer & power cord
V3408EE-BOARD	PC board for metered softener
V3007-01	Pipe fitting kit; ¾" & 1"; slip
V3005-02	Seals & spacers stack assembly
V3006	By-pass valve
BT-15X17X33	Brine tank; 15x17x33; injection molded
V3004	Drive cap assembly
V3193-02	Spanner wrench
V3010-1E	White injector for valves with 9" & 10" tanks
V3010-1F	Blue injector for valves with 12" tank
V3010-1G	Yellow injector for valves with 13" tanks
V3010-1H	Green injector for valves with 14" tanks
V3162-027	Drain line flow control button; 2.7 GPM
V3162-053	Drain line flow control button; 5.3 GPM
V3162-075	Drain line flow control button; 7.5 GPM
V3011	Piston for control valve.
V3107-01	Motor
V3004	Drive cap assembly
H4615	Red locking clip for by-pass valve
MT-9X48	Mineral tank; 9x48; black
MT-10x54	Mineral tank; 10x54; black
MT-9x48-RESIN	Mineral tank; 9x48; pre-loaded with resin & gravel
MT-10x54-RESIN	Mineral tank; 10x54; pre-loaded with resin & gravel
MT-10x54-COMBO	Mineral tank; 10x54 pre-loaded with resin & carbon

