OWNER'S MANUAL

Signature Series Water Conditioner
Signature Series Water Conditioner / Filter

Water Softener Models

Model Number	Size tank
SS-WC-100	9 x 48
SS-WC-150	10 X 54
SS-WC-200	12 X 52
SS-WC-300	14 X 65

Combination Whole House Filter and Water Softener

Model Number	Size tank
SS-WCF-1-150	10 X 54
SS-WCF-1-200	12 X 52
SS-WCF-1-300	14 X 65

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Congratulations!

You've selected our best-selling water conditioning models for top performance and economy.

Your Signature Series water conditioning system is designed to provide years of service with proper care and maintenance.

Hopefully, this manual will be beneficial and provide information you need to install, start-up and maintain your system.

Signature Series Systems

Specifications

Valve type	Metered
Valve sizes	1" and 1.25"
Pipe fittings available	¾", 1", 1.25" and 1.5"
Regeneration method	Down flow
Riser tube size	1.05" and 1.25"
Drain line fitting	¾" male NPT
Drain line tubing	½", ¾" or 1"
Brine line	3/8" quick connect
Supply voltage	120 V AC
Supply frequency	60 Hz
Output voltage	12 V AC
Output current	500 mA
Resin volume (cubic feet)	1.0, 1.5, 2.0, 3.0 and 4.0
Resin type	8% crosslinked
Carbon type (Combo units)	Catalytic coconut shell
Brine tank volume	200 lbs.
Brine tank overflow prevention	Included
By-pass valve	Included

Routine maintenance recommended

Common with all equipment, routine maintenance is necessary. Maintenance procedures generally include a complete water test to evaluate your system's performance. Your dealer will also check your valve's settings to be sure the system is operating at peak efficiency; tanks, for leaks; salt usage; drain line, to be sure they are clear; seals and spacers, for proper regeneration and resin cleaning.

Some assembly is required to prevent shipping damage. Follow these directions:

Open cartons

This carton (left) contains the mineral tank and carton (shown right).

This carton is inside the outer carton. It includes the valve, by-pass, fittings (if ordered), drain line nut, drain line insert, upper basket, installation instructions and warranty information.

Note: Brine tank is shipped separately,

Set-up valve and install valve on the mineral tank. (All connections hand-tight only.)

1. Assemble pipe fittings (Follow directions in package.)

2. Lubricate ALL BLACK ORINGS with Silicone lubricant.

3. Install upper basket (insert and twist to lock in place).

4. Install valve on mineral tank.

5. Install by-pass.

6. Connect pipe fittings to by-pass.

Brine tank set-up

Signature series brine tanks

Components.

Brine well with overflow prevention device.

Overflow fitting.

Note: It is necessary to remove and replace the overflow prevention device to attach the brine well to the brine tank with overflow fitting.

Brine tank set-up instructions:

Brine line fitting.

1. Install one of the two caps to cap the bottom of the brine well.
2. Remove overflow device to be able to connect brine well to the side of the brine tank.
3. Reinstall device and connect brine well to side of brine tank using overflow fitting.
4. Connect brine line to brine line fitting on the overflow device.
5. Connect brine line to brine line fitting on the valve.

Do not add salt at this time.

Caution: With quick connect fittings, push **TWICE!** Once to engage the collet and again to make sure the seal is secure. Use 5/16" drain line tubing up to 20'. Otherwise use ¾" or 1" PVC.

Drain line installation

Proper installation of the drain line is critical to the system's performance. Use ½"x 5/16" drain line, ¾" PVC or 1" PVC for best results. Install tube insert provided, and connect tubing to drain line fitting with nut provided.

Drain line insert

Drain line nut

System placement

1. Locate main water line and determine where to place the unit (near power outlet and location for the drain).
2. Install system on main water line before the water heater.

Be sure the by-pass is closed. If a filter is also to be installed, install it before the softener.

1. Using a clean hose or bucket, fill brine tank 6" from sanitary source. (Fil to where the water level is above slots in brine well.)
2. **Do not add salt at this time.**

Hose bib

Hose Bib

Install a hose bib on two tank systems between the tanks to test the performance of the first tank, and after a single tank non-electric carbon filter for initial rinse.

Water test

It is essential to complete a water test, prior to start-up and valve programming.

Check the following parameters:

- Hardness
- pH
- Iron (well water)
- Hydrogen Sulfide (you can smell it!)
- Chlorine
- TDS

Deluxe Field Test Kit

Test Strip

Also: Check for bacteria on well water by checking for slime in the toilets. (Chemicals may be needed.)

LOG: Date Hardness pH Chlorine Iron

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

Valve programming

It is important to program every valve to meet your specific water conditions. This is essential, so follow these directions carefully.

NOTE: DURING PROGRAMMING YOU MAY PRESS "REGEN" TO GO BACK ONE STEP

TO ENTER THE SET-UP MODE:
Press "**NEXT**" and ▼ together and hold for three seconds.

MODE
Select "**SOFTENER**" (The other option is filter.)
Press **"NEXT"**.

BRINE TANK FILL ("PRE" OR "POST" ARE THE OPTIONS)
Select **"POST",** press **NEXT**.

"P" SETTINGS (PROGRAMMING)
Select "P" code from the following options**:**

		Backwash	Brine Draw	2nd B/W	Fast Rinse	Refill
City water softener	P5	5 mins.	60 mins.	4 mins.	4 mins.	Auto set
Well water softener	P23	10 mins.	60 mins.	5 mins.	4 mins.	Auto set
Softener / Filter combo	P45	16 mins.	75 mins.	9 mins.	7 mins.	Auto set
Alt. for longer rinse	P15	8 mins.	60 mins.	8 mins.	8 mins.	Auto set

Press **NEXT**.

UNIT CAPACITY (FOR SOFTENERS AND SOFTENER / FILTER COMBO SYSTEMS)

Set capacity based on the following resin volumes:

Tank Size	Resin Volume	SET:
9X48 & 10X44 softeners	1.0 cu. ft.	24,000 grains of hardness
10x54 softener	1.5 cu. ft.	36,000 grains of hardness
10x54 combo softener / filter	1.0 cu. ft.	24,000 grains of hardness
12x52 softeners	2.0 cu. ft.	48,000 grains of hardness
12x52 combo softener / filter	1.0 cu. ft.	24,000 grains of hardness
14x65 softeners	3.0 cu. ft.	72,000 grains of hardness
14x65 combo softener / filter	1.5 cu. ft.	36,000 grains of hardness

Press **NEXT**.

REGEN LBS. FOR SOFTENERS

Tank Size / Resin Volume	SET :
9X48 & 10X44 softener (1.0 cu. ft. of resin)	9.5 lbs.
10x54 softener (1.5 cu. ft. of resin)	14 lbs.
12x52 softeners (2.0 cu. ft. of resin)	18 lbs.
14x65 softeners (3.0 cu. ft. of resin)	27 lbs.

Press **NEXT**.

REGEN GALS. - Select "**AUTO**", and press **NEXT**.
REGEN SET TIME - Select **"NORMAL**" and press **NEXT**.

Injectors

Injectors are installed at the factory. To re-order, use the information shown below:

Tank	Injector	Color
9”	D	Red
10”	E	White
12”	F	Blue
13”	G	Yellow
14”	H	Green
16”	I	Orange

Metered Valve Programming - Hardness, Regen Day and Regen Time

Press **“NEXT”** and ▲ (hold for three seconds).

SET HARDNESS
Set hardness per your test results - add four (4) grains of hardness for each one (1) PPM of iron.
Press **“NEXT”.**

REGEN DAY / REGEN OVERRIDE
Set to “**14**” days. Press **“NEXT”.**
This will refresh the resin if not enough water is used for a period of time. (Use “OFF” for no override.)

REGEN SET TIME
Default for all valves is set at 2:00 AM. We recommend staggering regen time on multiple systems by setting filters for 12:00 AM (mid-night).

NOTE: Clock is a 12 hour clock; (you must go past 12 to change from AM to PM.) Press **“NEXT”** to exit.

To set clock

SET CLOCK – Press **SET CLOCK** at any time set hour and minute, then press **“NEXT”** to exit. (Keep in mind the clock is a 24 hour clock, so AM or PM must be set.)

Regeneration cycles (see manual for additional “P” settings)

Cycle Times (Mins.)	Softener City Water P5	Softener Well Water P23	Water Softener / Whole House Filter P45
Backwash	5	10	16
Brine draw	60	60	75
Backwash #2	4	5	9
Rinse	4	4	7
Fill (selecting “post”)	(Valve will determine fill time based on parameters)		

Regeneration (Resin cleaning)

Press and hold **“REGEN”** button for immediate regeneration. Press **“REGEN**” at any time to manually advance through the cycles to verify performance.

Once the installation is complete, start up system in **backwash** with valve's inlet and outlet closed.

Slowly open valve inlet 1/3 to fill mineral tank.

Add water to brine tank

Prior to initial startup and regen, add 6" of water to brine tank from sanitary source.
Do not add salt to the brine tank at this time. This is the last procedure!

Start-Up

With the valve's inlet and outlet closed, initiate a manual regeneration and follow these directions.

1. Press REGEN button and hold button for 3-5 seconds for immediate regen.
2. Let the valve advance to BACKWASH.
3. Open valve's inlet slowly 1/3 to fill mineral tank.
4. Allow air to escape (listen until spurting stops).
5. When water flows from drain, open inlet valve fully.
6. Make sure drain line is not restricted. **(Note: Do not "tee" drain line with a filter.)**
7. Continue backwash until water runs clear.
8. Press and release REGEN to advance to BRINE RINSE.
9. Notice if water level in the brine tank is going down. **(This is important.)**
10. Press and release REGEN to advance to the 2nd backwash.
11. Press and release REGEN to advance to RINSE.
    (Rinse is a downward flow to rinse the ion exchange resin.)

Notes:
The signature Series valve may be programmed to refill the brine tank "PRE" or "POST". If you selected "POST", press and release REGEN to advance to REFILL.

During refill, notice if the water level in the brine tank is going up. **(This is important.)**
Press and release REGEN to advance to SERVICE.

Finally . . .

1. Open the valve's outlet to supply water to the house.
2. Go in the house and open a faucet. See if water runs clear.
3. Look for "gallons flow" in the lower left of the valve's display.
4. Go back in the house and shut off faucet.

Open outlet slowly to supply water to house.

Add salt

It's now time to add salt. Initially, this is typically three to four bags of salt. Do not over fill. (Crystal solar salt is recommended.) Salt volume should be monitored routinely for proper results.

Combination water softener and whole house filters

Eventually the activated carbon will need replacement. Model "100" requires 0.5 CF or carbon and 1 CF of resin; Model "200" requires 1 CF of carbon and 1 CF of resin; and Model "300" requires 1.5 CF of carbon and 1.5 CF of resin. Testing for the presence of Chlorine will indicate when this is necessary.

Trouble shooting

If your water softener is “not working”, here is a basic check list to follow:

1. Test for hardness.
2. Check power source.
3. Check to make sure by-pass is open.
4. Check salt level in the brine tank.
5. Check to see if water is in the bottom of the brine tank.*
6. Try to determine if the unit regenerated recently (see diagnostics below).
7. If the valve is metered, check the display for flow (meter may not be working)**
8. Go through a manual regeneration to see if the cycles are operating properly.
9. During “draw” watch to see the water level in the brine tank go down.
10. During “refill” watch to see the water level in the brine tank go up.
11. If the brine tank has a float, make sure it is set properly and not tangled.

*This assumes the valve is set up to refill POST regeneration, which is most common.

**When water is flowing valve will blink ‘SOFTENING” in upper left corner of the display. Water flow is necessary for a metered valve to regenerate.

Other common problems

1. Too much water in brine tank. (Plugged injector; improper “refill” settings).
2. High salt usage. (Refill set to high – check settings; wrong settings).
3. Flow to drain continuously. (Check valve settings; foreign material in control valve.)
4. Unit fails to draw brine. (Drain line is plugged; injector is plugged; inlet pressure to low).
5. Resin in drain line. (Air in the system; incorrect drain line flow control button).
6. Resin in house. (Broken bottom distributor; upper basket missing).
7. Low water pressure. (Iron or scale build-up; inlet plugged).

Diagnostics

STEP 1D – Press ▼ and ▲ simultaneously for three seconds. If screen in step 2D does not appear in 5 seconds the lock on the valve is activated. To unlock press ▼, NEXT, ▲, and SET CLOCK in sequence, then press ▲ and ▼ simultaneously for 3 seconds.

STEP 2D – Days, since last regeneration: This display shows the days since the last regeneration occurred. Press the NEXT button to go to Step 3D. Press REGEN to exit Diagnostics.

STEP 3D – Gallons, since last regeneration: This display shows the number of gallons that have been treated since the last regeneration. This display will equal zero if a water meter is not installed. Press the NEXT button to go to Step 4D. Press REGEN to return to previous step.

STEP 4D – Gallons, reserve capacity used for last 7 days: If the valve is set up as a softener, a meter is installed and Set Gallons Capacity is set to “Auto,” this display shows 0 day (for today) and fl ashes the reserve capacity. Pressing the ▲ button will show day 1 (which would be yesterday) and flashes the reserve capacity used. Pressing the ▲ button again will show day 2 (the day before yesterday) and the reserve capacity. Keep pressing the ▲ button to show the gallons for days 3, 4, 5 and 6. The ▼ button can be pressed to move backwards in the day series. Press the NEXT button at any time to go to Step 5D. Press REGEN to return to previous step.

STEP 5D - Gallons, 63 day usage history: This display shows day 1 (for yesterday) and fl ashes the number of gallons treated yesterday. Pressing the ▲ button will show day 2 (which would be the day before yesterday) and fl ashes the number of gallons treated on that day. Continue to press the ▲ button to show the maximum number of gallons treated for the last 63 days. This display will show dashes if a water meter is not installed. Press the NEXT button at any time to go to Step 6D. Press REGEN to return to previous step.

STEP 6D – Flow rate, current: Turn the water on at one or more taps in the building. The fl ow rate in gallons per minute will be displayed. If fl ow stops the value will fall to zero in a few seconds. This display will equal zero if a water meter is not installed. Press the NEXT button to go to Step 7D. Press REGEN to return to previous step.

Diagnostics, continued

STEP 7D – Flow rate, maximum last seven days: The maximum flow rate in gallons per minute that occurred in the last seven days will be displayed. This display will equal zero if a water meter is not installed. Press the NEXT button to go to Step 8D. Press REGEN to return to previous step.

STEP 8D – Gallons, total used since last reset: The total number of gallons used since last reset will be displayed. This display will equal zero if a water meter is not installed. Press the NEXT button to go to Step 9D. Press REGEN to return to previous step.

STEP 9D – Days, total number since last reset: The total number of days the control valve has been in service since last reset will be displayed. Press the NEXT button to go to Step 10D. Press REGEN to return to previous step.

STEP 10D – Regenerations, total number since last reset: The total number of regenerations that have occurred since last reset will be displayed. Press the NEXT button to exit Diagnostics. Press REGEN to return to previous step.

When desired, all information in Diagnostics may be reset to zero when the valve is installed in a new location. To reset to zero, press NEXT and ▼ buttons simultaneously to go to the Service/OEM screen, and release. Press ▼ and ▲ simultaneously to reset diagnostic values to zero. Screen will return to user display.

How to determine valve history

STEP 1VH – Press ▼ and ▲ simultaneously for three seconds and release. Then press ▼ and ▲ simultaneously and release. If screen in step 2VH does not appear in 5 seconds the lock on the valve is activated. To unlock press ▼, NEXT, ▲, and SET CLOCK in sequence, then press ▼ and ▲ simultaneously for 3 seconds and release. Then press ▼ and ▲ simultaneously and release.

STEP 2VH – Software Version: This display shows the software version of the valve. Press the NEXT button to go to Step 3VH. Press REGEN to exit Valve History. **STEP 3VH5** – Flow rate, maximum since startup: This display shows the maximum flow rate in gallons per minute that has occurred since startup. This display will equal zero if a water meter is not installed. Press the NEXT button to go to Step 4VH. Press REGEN to return to previous step.

STEP 4VH – Gallons, total used since start-up: This display shows the total gallons treated since startup. This display will equal zero if a water meter is not installed. Press the NEXT button to go to Step 5VH. Press REGEN to return to previous step.

STEP 5VH – Days, total since start-up: This display shows the total days since startup. Press the NEXT button to go to Step 6VH. Press REGEN to return to previous step.

STEP 6VH – Regenerations, total number since start-up: This display shows the total number of regenerations that have occurred since startup. Press the NEXT button to go to Step 7VH. Press REGEN to return to previous step.

STEP 7VH – Error Log: This display shows a history of the last 10 errors generated by the control during operation. Press the ▼ or ▲ buttons to review each error recorded. Press the NEXT button to exit Valve History. Press REGEN to return to previous step.

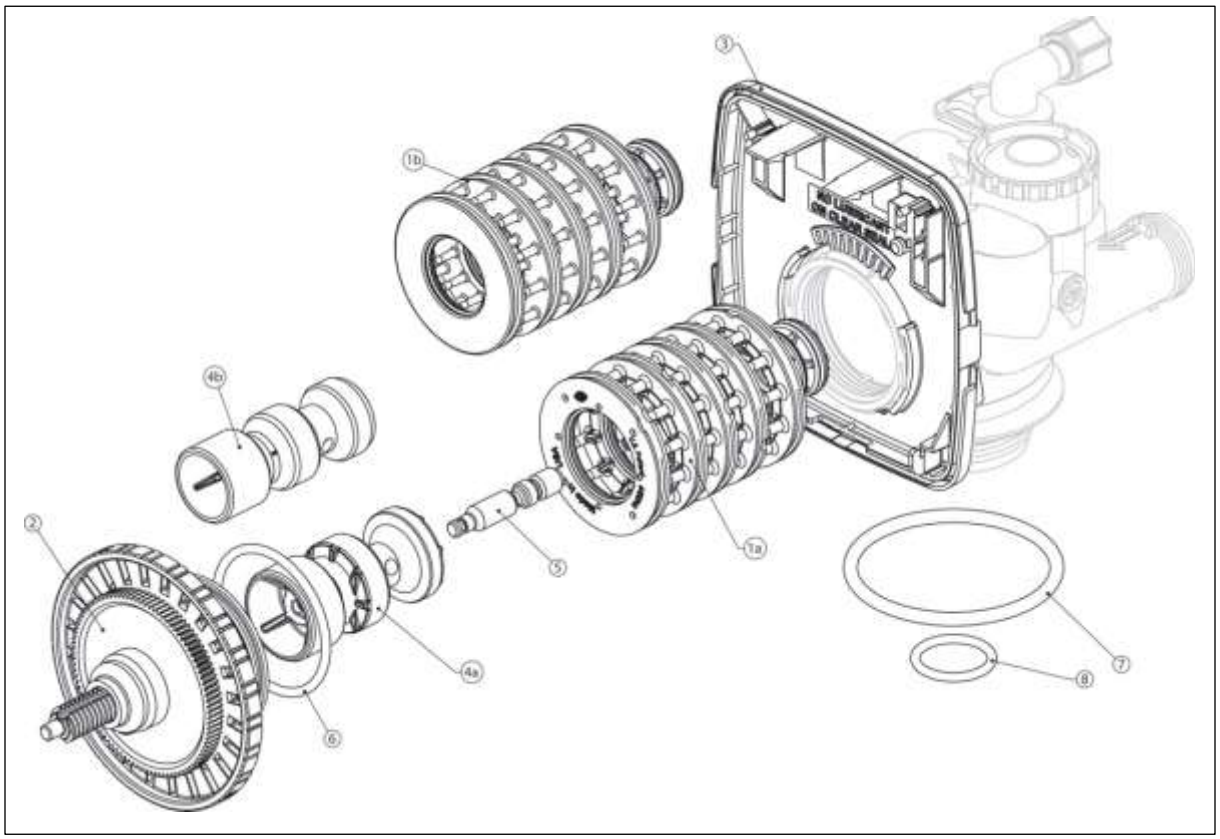
Error messages

If the word “ERROR” and a number are alternately flashing on the display, contact your dealer for assistance. This indicates the valve is not able to function properly.

Common spare parts

KV3193-02	Service spanner wrench
KV3330-01	Brine elbow assembly
KKJCP-P-6	Insert for brine elbow assembly
KD1203	Upper basket
KV3010-IC	Injector for 8" tank, violet
KV3010-ID	Injector for 9" tank, red
KV3010-1E	Injector for 10" tank, white
KV3010-IF	Injector for 12" tank, blue
KV3010-1H	Injector for 14" tank, green
KV3162-017	1.7 gpm dlfc
KV3162-022	2.2 gpm dlfc
KV3162-027	2.7 gpm dlfc
KV3162-032	3.2 gpm dlfc
KV3162-042	4.2 gpm dlfc

KV3162-053	5.3 gpm dlfc
KV3162-075	7.5 gpm dlfc
KV3162-090	9.0 gpm dlfc
KV3162-100	10.0 gpm dlfc
KV3107-01	Drive motor
KV3192	Drain line elbow nut
KPKP10T58	Drain Line insert
KV3006	By-pass valve
KSW-COVER	Weather cover for Signature Series valve
KV3150	WS1 Split ring (for pipe fittings and by-pass)
KV3105	WS1- O-ring 215 (for pipe fittings and by-pass)
KV-3001	Valve piston
KV3005-02	Seal & spacer assembly
KV3186	Transformer



Drive Cap Assembly, Downflow Piston, Upflow Piston, Regenerant Piston and Spacer Stack Assemblies

Note: The regenerant piston is not used in backwash only applications.

Drawing No.	Order No.	Description Quantity
1a	V3430 WS1.5 Spacer Stack Assembly	1
1b	V3005 WS1 Spacer Stack Assembly	1
2	V3004 Drive Cap Assembly	1
3	V3178 WS1 Drive Back Plate	1
4a	V3407 WS1.5 Piston Downflow Assembly	1
4b	V3011-01 WS1 Piston Upflow Assembly	1
5	V3174 WS1 Regenerant Piston	1
6	V3135 O-ring 228	1
7	V3180 O-ring 337	1
8	V3358 O-ring 219 (Distributor tube opening 1.32”)	1

Not Shown

V3020 WS1.25 Body Assembly Downflow (Distributor tube opening 1.32”)
V3020-01 WS1.25 Mixing Valve Body Downflow Asy (Distributor tube opening 1.32”)
V3020-02 WS1.25 Body Assembly Downf ow (Distributor tube opening 32mm)
V3020-03 WS1.25 Mixing Valve Body Downflow Asy (Distributor tube opening 32mm)
V3020UP WS1.25 Body Assembly Upflow (Distributor tube opening 1.32”)
V3020-02UP WS1.25 Body Assembly Upflow (Distributor tube opening 32mm)

Trouble Shooting

Note: Time clock softeners do not have meters. Therefore, shaded info does not apply to TC valves.

Problem	Possible Cause	Solution
1. No Display on PC Board	a. No power at electric outlet	a. Repair outlet or use working outlet
	b. Control valve Power Adapter not plugged into outlet or power cord end not connected to PC board connection	b. Plug Power Adapter into outlet or connect power cord end to PC Board connection
	c. Improper power supply	c. Verify proper voltage is being delivered to PC Board
	d. Defective Power Adapter	d. Replace Power Adapter
	e. Defective PC Board	e. Replace PC Board
2. PC Board does not display correct time of day	a. Power Adapter plugged into electric outlet controlled by light switch	a. Use uninterrupted outlet
	b. Tripped breaker switch and/or tripped GFI	b. Reset breaker switch and/ or GFI switch
	c. Power outage	c. Reset time of day. If PC Board has battery back up present the battery may be depleted. See Front Cover and Drive Assembly drawing for instructions.
	d. Defective PC Board	d. Replace PC Board
3. Display does not indicate that water is flowing. Refer to user instructions for how the display indicates water is flowing	a. Bypass valve in bypass position	a. Turn bypass handles to place bypass in service position
	b. Meter is not connected to meter connection on PC Board	b. Connect meter to three pin connection labeled METER on PC Board
	c. Restricted/ stalled meter turbine	c. Remove meter and check for rotation or foreign material
	d. Meter wire not installed securely into three pin connector	d. Verify meter cable wires are installed securely into three pin connector labeled METER
	e. Defective meter	e. Replace meter
	f. Defective PC Board	f. Replace PC Board
4. Control valve regenerates at wrong time of day	a. Power outage	a. Reset time of day. If PC Board has battery back up present the battery may be depleted. See Front Cover and Drive Assembly drawing for instructions.
	b. Time of day not set correctly	b. Reset to correct time of day
	c. Time of regeneration set incorrectly	c. Reset regeneration time
	d. Control valve set at “on 0” (immediate regeneration)	d. Check programming setting and reset to NORMAL (for a delayed regen time)
	e. Control valve set at “NORMAL + on 0” (delayed and/ or immediate)	e. Check programming setting and reset to NORMAL (for a delayed regen time)
5. Time of day flashes on and off	a. Power outage	a. Reset time of day. If PC Board has battery back up present the battery may be depleted. See Front Cover and Drive Assembly drawing for instructions.
6. Control valve does not regenerate automatically when the correct button(s) is depressed and held. For TC valves the buttons are ▲&▼. For all other valves the button is REGEN	a. Broken drive gear or drive cap assembly	a. Replace drive gear or drive cap assembly
	b. Broken Piston Rod	b. Replace piston rod
	c. Defective PC Board	c. Defective PC Board
7. Control valve does not regenerate automatically but **does** when the correct button(s) is depressed and held. For TC valves the buttons are ▲&▼. For all other valves the button is REGEN	a. Bypass valve in bypass position	a. Turn bypass handles to place bypass in service position
	b. Meter is not connected to meter connection on PC Board	b. Connect meter to three pin connection labeled METER on PC Board
	c. Restricted/ stalled meter turbine	c. Remove meter and check for rotation or foreign material
	d. Incorrect programming	d. Check for programming error
	e. Meter wire not installed securely into three pin connector	e. Verify meter cable wires are installed securely into three pin connector labeled METER
	f. Defective meter	f. Replace meter
	g. Defective PC Board	g. Replace PC Board

Trouble Shooting

Note: Time clock softeners do not have meters. Therefore, shaded info does not apply to TC valves.

Problem	Possible Cause	Solution
8. Hard or untreated water is being delivered	a. Bypass valve is open or faulty	a. Fully close bypass valve or replace
	b. Media is exhausted due to high water usage	b. Check program settings or diagnostics for abnormal water usage
	c. Meter not registering	c. Remove meter and check for rotation or foreign material
	d. Water quality fluctuation	d. Test water and adjust program values accordingly
	e. No regenerant or low level of regenerant in regenerant tank	e. Add proper regenerant to tank
	f. Control fails to draw in regenerant	f. Refer to Trouble Shooting Guide number 12
	g. Insufficient regenerant level in regenerant tank	g. Check refill setting in programming. Check refill flow control for restrictions ordebris and clean or replace
	h. Damaged seal/stack assembly	h. Replace seal/stack assembly
	i. Control valve body type and piston type mix matched	i. Verify proper control valve body type and piston type match
	j. Fouled media bed	j. Replace media bed
9. Control valve uses too much regenerant	a. Improper refill setting	a. Check refill setting
	b. Improper program settings	b. Check program setting to make sure they are specific to the water quality and application needs
	c. Control valve regenerates frequently	c. Check for leaking fixtures that may be exhausting capacity or system is undersized
10. Residual regenerant being delivered to service	a. Low water pressure	a. Check incoming water pressure – water pressure must remain at minimum of 25 psi
	b. Incorrect injector size	b. Replace injector with correct size for the application
	c. Restricted drain line	c. Check drain line for restrictions or debris and clean
11. Excessive water in regenerant tank	a. Improper program settings	a. Check refill setting
	b. Plugged injector	b. Remove injector and clean or replace
	c. Drive cap assembly not tightened in properly	c. Re-tighten the drive cap assembly
	d. Damaged seal/ stack assembly	d. Replace seal/ stack
	e. Restricted or kinked drain line	e. Check drain line for restrictions or debris and or un-kink drain line
	f. Plugged backwash flow controller	f. Remove backwash flow controller and clean or replace
	g. Missing refill flow controller	g. Replace refill flow controller
12. Control valve fails to draw in regenerant	a. Injector is plugged	a. Remove injector and clean or replace
	b. Faulty regenerant piston	b. Replace regenerant piston
	c. Regenerant line connection leak	c. Inspect regenerant line for air leak
	d. Drain line restriction or debris cause excess back pressure	d. Inspect drain line and clean to correct restriction
	e. Drain line too long or too high	e. Shorten length and or height
	f. Low water pressure	f. Check incoming water pressure – water pressure must remain at minimum of 25 psi

Trouble Shooting

Note: Time clock softeners do not have meters. Therefore, shaded info does not apply to TC valves.

Problem	Possible Cause	Solution
13. Water running to drain	a. Power outage during regeneration	a. Upon power being restored control will finish the remaining regeneration time. Reset time of day.
	b. Damaged seal/ stack assembly	b. Replace seal/ stack assembly
	c. Piston assembly failure	c. Replace piston assembly
	d. Drive cap assembly not tightened in properly	d. Re-tighten the drive cap assembly
14. E1, Err – 1001, Err – 101 = Control unable to sense motor movement	a. Motor not inserted full to engage pinion, motor wires broken or disconnected	a. Disconnect power, make sure motor is fully engaged, check for broken wires, make sure two pin connector on motor is connected to the two pin connection on the PC Board labeled MOTOR. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	b. PC Board not properly snapped into drive bracket	b. Properly snap PC Board into drive bracket and then Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	c. Missing reduction gears	c. Replace missing gears
15. E2, Err – 1002, Err – 102 = Control valve motor ran too short and was unable to find the next cycle position and stalled	a. Foreign material is lodged in control valve	a. Open up control valve and pull out piston assembly and seal/ stack assembly for inspection. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	b. Mechanical binding	b. Check piston and seal/ stack assembly, check reduction gears, check drive bracket and main drive gear interface. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	c. Main drive gear too tight	c. Loosen main drive gear. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	d. Improper voltage being delivered to PC Board	d. Verify that proper voltage is being supplied. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.

Trouble Shooting

Problem	Possible Cause	Solution
16. E3, Err – 1003, Err – 103 = Control valve motor ran too long and was unable to find the next cycle position	a. Motor failure during a regeneration	a. Check motor connections then Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	b. Foreign matter built up on piston and stack assemblies creating friction and drag enough to time out motor	b. Replace piston and stack assemblies. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	c. Drive bracket not snapped in properly and out enough that reduction gears and drive gear do not interface	c. Snap drive bracket in properly then Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
17. Err – 1004, Err – 104 = Control valve motor ran too long and timed out trying to reach home position	a. Drive bracket not snapped in properly and out enough that reduction gears and drive gear do not interface	a. Snap drive bracket in properly then Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
18. Err -1006, Err – 106, Err - 116 = MAV/ SEPS/ NHBP/ AUX MAV valve motor ran too long and unable to find the proper park position Motorized Alternating Valve = MAV Separate Source = SEPS No Hard Water Bypass = NHBP Auxiliary MAV = AUX MAV	a. Control valve programmed for ALT A or b, nHbP, SEPS, or AUX MAV with out having a MAV or NHBP valve attached to operate that function	a. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect. Then re-program valve to proper setting
	b. MAV/ NHBP motor wire not connected to PC Board	b. Connect MAV/ NHBP motor to PC Board two pin connection labeled DRIVE. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	c. MAV/ NHBP motor not fully engaged with reduction gears	c. Properly insert motor into casing, do not force into casing Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	d. Foreign matter built up on piston and stack assemblies creating friction and drag enough to time out motor	d. Replace piston and stack assemblies. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
19. Err – 1007, Err – 107, Err - 117 = MAV/ SEPS/ NHBP/ AUX MAV valve motor ran too short (stalled) while looking for proper park position Motorized Alternating Valve = MAV	a. Foreign material is lodged in MAV/ NHBP valve	a. Open up MAV/ NHBP valve and check piston and seal/ stack assembly for foreign material. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	b. Mechanical binding	b. Check piston and seal/ stack assembly, check reduction gears, drive gear interface, and check MAV/ NHBP black drive pinion on motor for being jammed into motor body. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.

LIMITED WARRANTY

Signature Series systems supplied by SAFE WATER ALLIANCE, LLC

(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

Signature Series 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 seven 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 in no event shall this Warranty coverage exceed the purchase price of the Equipment. This Warranty excludes any equipment not manufactured by the Manufacturer; equipment which has been altered by the CONSUMER or non-authorized service personnel; systems installed outside without a weather cover; and systems where date codes and serial numbers have been removed. 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.

Serial number

Serial numbers are printed on a label located on the back side of the valve.

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 Safe Water Alliance, LLC; 2535 N.E. 36 Avenue; Ocala, Florida 34470. Telephone: 352-694-0270.

SAFE WATER ALLIANCE