

**MANUAL FOR
OPERATION AND MAINTENANCE
OF
TWIN SOFTENER**

for Models:

W-S744ST	W-S1054ST	W-S1665ST	W-S3672ST
W-S844ST	W-S1252ST	W-S2162ST	W-S4272ST
W-S940ST	W-S1354ST	W-S2472ST	W-S4872ST
W-S1040ST	W-S1465ST	W-S3072ST	

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Softener (TWIN Tank)

System Model	Capacity (GPM)		Backwash DLFC	Valve type	Tank size (")	Distributor	Pipe size (")		Resin (Cu.Ft.)
	Min	Max					Inlet	Outlet	
W-S940ST	4	12	2.4	9000	9X40	YDA1	3/4	3/4	1.8
W-S948ST	4	12	2.4	9000	9X48	YDA1	3/4	3/4	2
W-S1040ST	4	14	3.5	9000	10X40	YDA1	3/4	3/4	2.6
W-S1054ST	4	14	3.5	9000	10X54	YDA1	3/4	3/4	3
W-S1252ST	8	24	4	9000	12X52	YDA1	3/4	4/4	4
W-S1354ST	8	28	5	9000	13X54	YDA1	1	1	5
W-S1465ST	10	20	5	9000	14X65	YDA1	1	1	6
W-S1665ST	14	42	7	9000	16X65	5665	1	1	8
W-S1865ST	16	54	9	9500	18X65	5666	1 1/2	1 1/2	11
W-S2172ST	26	72	12	9500	21X72	5667	1 1/2	1 1/2	17
W-S2472ST	30	94	15	9500	24X72	5667	1 1/2	1 1/2	20
W-S3072ST	48	148	25	2900 (2)	30X72	5672	2	2	30
W-S3672ST	70	212	35	3150 (2)	36X72	5673	2	2	40
W-S4272ST	96	288	48	3150 (2)	42X72	5674	2	2	60
W-S4872ST	120	376	60	3900 (2)	48X72	5675	3	3	80

* Voltage available : 110/220 VAC
 ♦ Frequency available : 50/60 Hz

* To be specified
 ♦ To be specified

SYSTEM INSTALLATION

1. Unpack the Softener. Inspect the assemblies for any type of damage (Cracked couplings, broken pipe, split pipe, loose straps, etc.)
2. Place the Softener so as to allow full access to all sides of the tank.
3. Select where the Brine Tank is to be installed. Make sure that the floor is clean beneath the Brine Tank and that it is level.
4. Install the 1/2" tubing from the Brine Tank and the injector on the control valve.
5. Install connecting piping between the raw water source and the By-Pass Valve assembly. The inlet line is marked with an arrow.

CAUTION

When placing wall anchors to support piping ensure that no electrical conduit or wiring is located behind the intended mounting location.

6. Install the drain line from the Control Valve to a free flowing drain.

NOTE

Do not place salt in the Brine Tank at this time.

7. Install the piping between the output of the Softener and the point of use.

SYSTEM START-UP

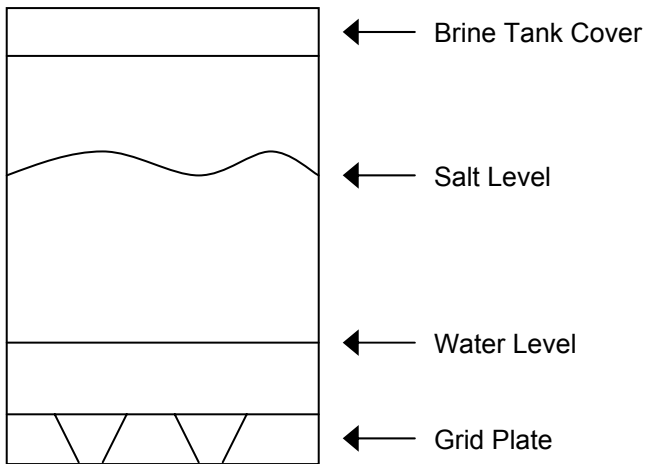
1. Close all valves and ensure that all piping is connected.
2. Check that the Control Valve is connected from the electrical source.
3. Open the Raw Water source valve.

NOTE

Check for leaks throughout the system as pressure is applied

4. To expose the cycle program wheel, open the cover on the control valve. Unscrew the knurled screw in the upper left hand corner of the timer. Swing the timer forward.
5. Manually initiate the Softener regn. cycle by depressing the red button on the front of the timer. Be careful not to move the large gear on the front of the timer while turning the black center knob to the M position on the "Day of Regeneration" disc.
6. Observe the back wash effluent and continue to back wash until a clear discharge is observed.
7. Observe that the program wheel cycles to the Brine index.
8. Observe that the program wheel cycles to the Slow Rinse index.
9. Observe that the program wheel cycles to the Rapid Rinse index.
10. Observe that the program wheel cycles to the Brine Refill index.
11. Observe the brine tank during the brine tank refill cycle. Establish that the brine tank is filling.
12. Observe the level of the water in the brine tank.
13. Cycle the program wheel to the Service index.

14. Fill the brine tank with salt. The salt can be sodium chloride (NaCl) or Potassium Chloride (KCl). Fill the tank to only 2/3 full (approximately 40 lbs.). The tank will hold a large quantity of salt, so you will not need to refill at frequent intervals. You can fill the brine tank with additional NaCl or KCl after your system is successfully installed and operating trouble-free.



15. Place the softener in service.

MONITORING AND RECORD KEEPING

The Softener should be monitored and all pertinent data recorded on a daily basis. Data is needed to determine operating efficiency and for performing system maintenance. The latter includes changing of the resin, pressure drop across the softener, and salt used.

NOTE

Warranty Claims can not be processed without adequate operating data and history of Softener System.

OPERATING CONDITIONS

To get optimum performance from the Softener system, the following must be carried out:

1. Maintain a minimum of 25 psi during the backwash cycle.
2. Water pressure should not exceed 120 psi across the softener tanks.
3. Water temperature should not exceed 110 °F.
4. Maintain salt level above the water level in the brine tank.
5. Maintain a regular log of the system performance and salt consumption. Without a proper log, it is extremely difficult to troubleshoot the system

OPERATING DO'S & DON'TS

DO:

1. Monitor the system and keep a log daily.
2. Maintain the salt level above the water level.
3. Maintain the proper water pressure for back washing.

DON'T:

1. Permit oils or fats in the feed water.
2. Shut down the system for extended periods.
3. Exceed the operating pressures or temperatures.
4. Backwash the softener with insufficient water flow.

MAINTENANCE TIPS

MAINTAIN PROPER OPERATING CONDITIONS: (See Section: "Operation Conditions")

REPLACEMENT OF SOFTENER RESIN

When it become necessary to replace the softener resin in this system, it can be handled without too much difficulty if the following procedures and precautions are followed.

REMOVAL OF RESIN

TOOLS

- Wrench for removing piping
- Wide blade screwdriver
- Buckets for materials
- Wet and Dry Vacuum Cleaner or a tarp

PROCEDURE

1. Turn off the water to the Softener.
2. Relieve the pressure in the tank by either opening a down stream valve or cycle the control valve into the back wash position.
3. If a by-pass valve is installed place it in the by-pass position.
4. Disconnect the brine tube to the brine tank.
5. Turn off the electrical source and disconnect the Softener. Remove any other wiring connected to the control valve.
6. Loosen the plumbing from the Control Valve.
7. Carefully move the Softener forward until it clears the plumbing.
8. Move the Softener to an area where access is available to all sides.
9. Carefully loosen the Control Valve on the top of the mineral tank. Slowly unscrew the valve being careful not to damage the threads in the top of the tank.
10. When the valve is loose from the top of the tank, slowly twist it back and forth to remove it from the top of the distributor tube inside the tank.

MAINTENANCE TIPS

(Continued)

11. The following two methods are recommended for removal of the resin from the mineral tank.
12. Vacuum Removal
13. The vacuum method requires the use of vacuum device which will lift the resin and other materials from the mineral tank. Simply vacuum all of the material out of the tank and then wash the inside with clean water.
14. Manual Removal
15. Place a canvass on the floor to catch the resin and other materials when they are dumped from the mineral tank. Lay the tank down and tip it up to dump the resin and other materials out of the tank. Slowly rotate the tank as it is being dumped. When all of the material is out of the tank wash it with clean water.
16. Clean out the Brine Tank. Remove the existing salt and any residue from the bottom of the tank. Inspect and clean the brine control valve.
17. Dispose of the resin by local procedures or laws.

LOADING RESIN**TOOLS**

- Wrench for replacing piping.
- Wide blade screwdriver
- Buckets for materials
- Food Grade Glycerin
- A tarp

PROCEDURE

1. Place the tarp or other floor covering where the mineral tank is to be loaded. Place the tank in the middle of the tarp.
2. Inspect the distributor tube for any cracks or damage. Inspect the basket on the end of the tube for crushed members or broken pieces.
3. Inspect the top collector for any cracks or damage. (Replace the pins in the base of the control valve if any are loose or missing.

MAINTENANCE TIPS

(Continued)

4. Clean the threads in the top of the mineral tank. Lubricate the threads with glycerin.
5. Reinstall the distributor tube in the mineral tank. Cover the top end of the tube to prevent the entry of any material (Tape or a plastic cap works well).
6. Pour specified cubic foot of resin into the mineral tank.
7. Wipe the outside of the tank off and remove the tarp from under the mineral tank.
8. Lubricate the top of the distributor and the o-rings in the base of the control valve with the glycerin. Lubricate the o-rings in the bottom of the control valve.
9. Slowly twist the control valve onto the top of the distributor.
10. Align the bottom of the control valve with the top of the mineral tank.
11. Screw the control valve into the mineral tank slowly. Tighten the control valve down by hand until tight. The base of the valve must be flush with the top of the tank and the o-ring must be compressed.
12. Move the softener into position. Reconnect the plumbing to the control valve.
13. Reconnect the electrical power and any wiring removed.
14. Turn on the raw water.
15. Close the by-pass valve if installed.
16. Perform the System Start-Up procedure.

TROUBLESHOOTING

<u>PROBLEM</u>	<u>POSSIBLE CAUSE</u>	<u>SOLUTION</u>
Inlet pressure low.	Low supply pressure	Correct incoming supply pressure
	Low flow from source.	Remove blockage or other restrictions.
Treated Water flow low	Resin Bed Fouled	Backwash Softener
	Valves closed	Check valves and fully open.
Treated Water Hard	By-pass valve in by-pass	Set by-pass valve to service position
	No salt in brine tank	Add salt to brine tank and maintain salt level above water level.
	Weak brine solution	Salt bridged in brine tank Low quality of salt be used
	Injector screen plugged. Insufficient water flowing into brine tank	Clean screen Check brine tank fill time and clean brine line flow control if plugged

MANUFACTURER'S LITERATURE

REFERENCE SECTIONS

(see related component information)