



Signature Series REACTR™ Manual

Installation / Operation Manual
Fully Automatic & Demand
Water Softeners

SIGNATURE SERIES

Softener Specifications.....	Page 3
Softener Installation.....	Page 4
Error Codes.....	Page 8
Warranty.....	Page 9



WARNING

Lubricants

Do NOT use Vaseline, oils, hydrocarbon lubricants or spray silicone anywhere! Petroleum base lubricants will cause swelling of o-rings and seals. The use of other lubricants may attack plastic Noryl®. It is recommended that Dow Corning® silicone grease be used as a lubricant for all control valves. Dow Corning® 7 Release Compound is used in the manufacture of Chandler Systems control valves. (Part # LT-150)

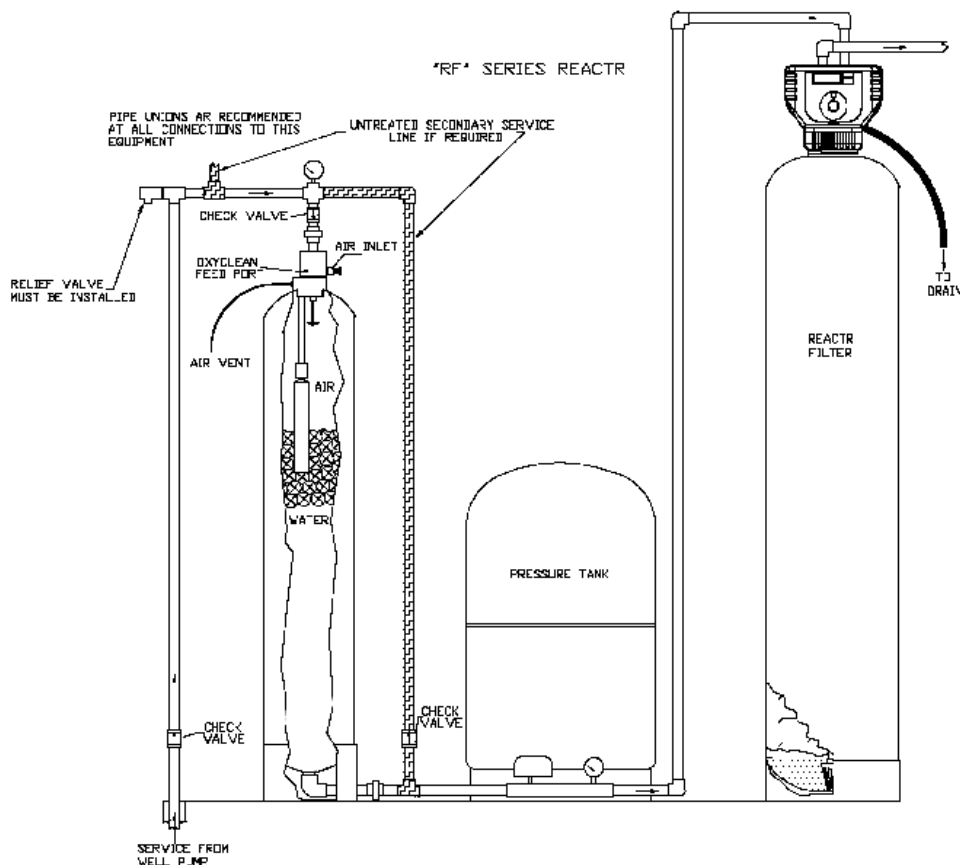
Sealants

Pipe dope and liquid thread sealers may contain a carrier that attacks some plastic materials. It is recommended that Teflon® tape be used to seal plastic Noryl® threaded fittings.

How the REACTR™ Works

The REACTR™ requires no chemicals for its operation. It consists of two components: (1) REACTR™ Tank and (2) Filter Tank. The first item serves to oxidize and precipitate iron and sulfur so that they can later be removed by the filter. The water flows down through the mineral bed of the filter and out to the service lines. The collected precipitates must be regularly removed from the filter by reversing the flow of water through the filter and running to drain. Called "Backwashing" and lasting 10 minutes, the process expands the mineral freeing the iron, sulfur and turbidity which is then washed out of the filter to the drain. It is important that the correct amount of water is available for the Backwash cycle. Check pumping capacity to be certain water is available in sufficient volume to adequately backwash the equipment at the specified rate. (See specifications.)

General Specifications	RF10	RF15	RF20	RF25	RF30	RF40
Filter Media Type	REACTR™ Blend					
Filter Media Capacity (cu. ft.)	1.00	1.50	2.00	2.50	3.00	4.00
REACTR™ Tank (polyglass)	9x48	9x48	9x48	9x48	16x40	16x40
Mineral Tank (Vortech)	9x48	10x54	12x52	13x54	14x65	16x65
Service Flow Rate-Continuous (gpm)	4	5	6	8	9	11
Service Flow Rate-Intermittent (gpm)	6	7	8	10	11	13
Backwash Flow Rate (gpm)	5.0	5.0	6.0	7.0	10.0	15.0
Gallons Used / Backwash	100	100	120	140	200	300
Space Required (DxWxH) REACTR™ Tank	9 X 9 X 62	9 X 9 X 62	9 X 9 X 62	9 X 9 X 62	16 X 16 X 51	16 X 16 X 51
Space Requires (DxWxH) Filter Tank	9 X 9 X 56	10 X 10 X 62	12 X 12 X 60	13 X 13 X 62	14 X 14 X 73	16 X 16 X 74
Approximate Shipping Weight (pounds)	133	165	210	270	311	430



Installation Requirements

REACTR™ Tank

- A level floor position between the well pump and pressure tank. (See Typical Installation Diagram.)
- DO NOT install in an area of direct sunlight or where freezing temperatures may occur!

Filter Tank

- A level floor position ahead of piping into water heater.
- Unit must be installed at least 10' ahead of the inlet to a water heater to prevent damage due to back-up of hot water.
- DO NOT install the unit in an area of direct sunlight or where freezing temperatures may occur! (See Typical Installation Diagram.)

REACTR™ Location / Other Requirements

- Locate the filter near an unswitched, 120 volt / 60 Hz grounded electrical outlet.
- Check for distance and proper drain installation (e.g. floor drain, washing machine standpipe).
- Determine type and size of piping required for REACTR™ connection (e.g. galvanized, PVC plastic).

Note: If household plumbing is galvanized and you intend to make an installation with copper (or vice versa), obtain di-electric unions to prevent dissimilar metal corrosion.

Note: Where the drain line is elevated above the control valve or exceeds 20' in length to reach the drain, use 3/4" I.D. drain line tubing instead of 1/2" I.D. Drain line tubing is not included.

Caution: When sweat soldering copper pipe (remember to always use lead free solder and flux), Cover yoke and bypass valve with wet rags to prevent heat damage to connections and control valve! If using PVC or plastic pipe, primers and solvent cements specifically recommended for use with potable water are required.

Note: All plumbing lines not requiring "filtered" water should be connected "upstream" of the REACTR™ Tank. (See Typical Installation Diagram.)

Installation Procedure

- Water Supply Connection and Bypass Valve -

To allow REACTR™ Filter servicing, swimming pool filling or lawn sprinkling, a manual Bypass Valve has been installed at the factory. The Bypass allows raw water to be manually routed around the filter.

1. Position REACTR™ Tank and Filter Tank at desired location for installation. The REACTR™ Tank must be installed between the well pump and pressure tank. The filter tank must be installed after the pressure tank. (See Installation Diagram.) If a water softener is to be installed, it should be positioned after the filter tank.
2. The filter material is shipped separately from the Filter Tank. The Filter Tank must be loaded with material after tank has been placed at the desired location.
 - A. Remove the control valve by unscrewing from the tank.
 - B. Use the cap provided to place over top of distributor tube to prevent media from entering tube while filling.
 - C. Place media funnel (part # U-1006) in hole on top of tank.
 - D. Pour several gallons of water in the tank. (Fill tank about 1/3 full.)
 - E. Pour in the required quantity of filter media. No gravel is required.
 - H. Remove funnel and clean filter material from tank threads.
 - I. Remove cap from distributor tube.
 - J. Replace control valve on mineral tank. Do not use Teflon tape or paste on valve threads as the valve to tank o-ring seals this joint.

Caution: Be extremely careful to position distributor tube into control valve distributor tube pilot hole.

3. Turn OFF main water supply and OPEN nearest faucet to relieve pressure.
4. Cut main line and install appropriate elbows and extensions. Inlet connection on the REACTR™ Tank is 1" FNPT and the bottom outlet is 1". Inlet is in the top of the tank and outlet is out the bottom. Inlet / outlet connections on the filter yoke are 3/4" FNPT. (1" FNPT for RF30 and RF40)

Note: An optional 1" FNPT yoke is available.

Caution: If a check valve is installed between REACTR™ Tank outlet and pressure tank, it should be relocated prior to REACTR™ Tank inlet. If mineral build up inside of check valve is evident, replacement is advised. If a pressure relief valve is installed prior to REACTR tank inlet, a 125 psi relief valve must be used.

Caution: Raised arrows located on the sides of control valve body and bypass valve indicate proper direction of water flow. Install inlet and outlet piping in direction of arrows. It is recommended that a vacuum breaker be installed on the inlet plumbing.

Caution: If using PVC pipe for installation of REACTR™ Tank, assemble inlet tee before installing on tank manifold, to prevent excess solvent from entering REACTR™ manifold assembly. Use only Teflon based tape and paste for threaded connections!

5. Rotate bypass valve to the bypass position (position of bypass lever is at right angles to inlet / outlet piping).
6. Turn the main supply line on to restore water service to the home.
7. OPEN nearest faucet to evacuate air and repressurize plumbing lines.
8. Check for leaks!

- Drain Line Connections -

1. Pull out clip and remove drain line assembly located on the left side of control valve. Remove drain line hose barb and wrap threads with Teflon tape. Reinstall drain line hose barb.

Caution: Hand tighten only!!! Replace drain line assembly and reinstall clip.

2. Install 1/2" I.D. drain line tubing (not included) from hose barb to an open drain. A 4" gap between the end of the drain line and the open drain is required to prevent waste water backflow. Keep the drain line as short as possible. An overhead drain line can be used, if necessary, but should discharge below the control valve. A syphon trap (taped loop) at the outlet of the drain line is advisable to keep the drain line full and assure correct flow during backwash. Elbows or other fittings must be kept at a bare minimum.

Note: Where the drain line is elevated above the control valve or exceeds 20' in length, 3/4" I.D. drain line tubing should be used.

3. Install included 3/8" x 1/4" tubing to air vent hose barb on REACTR™ Tank Manifold and run to drain. An air gap must be provided.

Warning: Do not tee air vent line to drain line or soil line. Protect air vent line from freezing.

SIGNATURE SERIES Installation

- Electrical Connection -

1. Connect the power supply to the control valve and plug into a 115 volt / 60 Hz receptacle.

Note: Do not plug into an outlet controlled by a wall switch or pull chain that could inadvertently be turned off.

- Install Battery Back Up -

1. Remove the rear cover.
2. Install a 9 volt battery. Refer to page 3, item 3 of the Signature Series Service Manual.
3. Reinstall rear cover.

- Pressurizing the System -

1. Make certain Signature Series Control Valve is in SERVICE position.
2. Slowly rotate inlet lever of the bypass valve to the SERVICE position. (Position of bypass lever is parallel to inlet / outlet piping.)
3. Open the nearest faucet to evacuate air from plumbing lines.
4. Check for leaks! If water is observed leaking from bottom of bypass knobs, close and open bypass knobs several times to seat o-rings.
5. After air is evacuated from plumbing lines, close inlet knob (position of bypass knob is perpendicular to direction of inlet pipe) on bypass valve.

- Programming the Control Valve -

Refer to page 2 of the Signature Series Service Manual for main menu programming and instruction.

1. Set time of day.
2. Set a.m. or p.m.
3. Set number of days between backwashes. (This generally will be every 4 or 6 days.)
Refer to page 7 of the Signature Series Service Manual for master programming and instruction.
1. Set regeneration time if other than 12:00 a.m. is desired.

- Pressurizing the System and Control Valve Operation -

Refer to page 4, item 2 of the Signature Series Service Manual instructions.

1. Advance control valve to BACKWASH (cycle 1) position and allow water to run to drain for 3 to 4 minutes.

Warning: Close inlet valve on bypass prior to selecting the backwash position. After backwash position has been established, slightly open inlet valve on bypass to evacuate air from the media tank. Fully open inlet valve when all air is depleted. This procedure will prevent media from being uplifted into control valve.

2. Advance control valve to RAPID RINSE (cycle 3) position and allow water to run to drain for 3 to 4 minutes.
3. Advance control valve to SERVICE (cycle 0) position.

Operation, Care and Cleaning

When the inlet / outlet knobs of the bypass valve are in SERVICE position (position of bypass knobs are parallel to the inlet/ outlet piping), water is directed through the water filter. Water may be bypassed by turning the inlet / outlet knobs to the BYPASS position (position of bypass knobs are at right angles to inlet / outlet piping). Water to the home will bypass the filter and be untreated.

You should manually bypass the filter if:

1. The outside lines do not bypass the water filter and water is to be used for lawn sprinkling or other similar uses.
2. Servicing the water filter.
3. A water leak from the water filter is evident.
4. "Shock treating" water well and piping with chlorine or other disinfectant.

- Extra Backwash -

If water demands are unusually heavy, an extra backwash can be initiated manually. Refer to page 4, item 2 of the Signature Service Manual.

- To Skip A Backwash -

1. For vacations or extended periods of absence, the power supply can be pulled from the receptacle. It is recommended that the 9 volt battery be removed.
2. Upon return, plug in the cord and reset the time of day. Replace 9 volt battery.

- General Care and Cleaning -

1. Do not place heavy or sharp objects on water filter.
2. Use only mild soap and warm water to clean exterior of the unit. Never use harsh, abrasive cleaners.
3. Protect the water filter and drain line from freezing.
4. Reset time for daylight saving time periods.
5. Replace 9 volt battery once a year.

- Oxyclean Option -

Note: If the Oxyclean Option is used, changes to the cycle times are necessary. The Oxyclean Option model number for use with the Signature Series REACTR™ is OXY-08R.

Cycle Settings for Oxyclean Option

Backwash - 10 minutes
Rest Period - 20 minutes
Rapid Rinse - 16 minutes

Note: Refer to page 8, item 4 of the Signature Series Service Manual for instruction.

SIGNATURE SERIES Error Codes

Control Valve Error Code Diagnosis

Under normal operating conditions, when your control valve is in the “in service” position, the display should alternate between the current time of day and the number of days remaining (for filters and time clock softeners) or gallons remaining (for metered softeners) until the next regeneration. This is the “home display.” If the valve is currently going through a regeneration cycle, the display will show the cycle step on the left side of the display and the number of minutes remaining in that step on the right side of the display. If any other information is being displayed, then the valve is informing you of an issue. There are five error codes which could indicate an issue with the control valve. When an error is being displayed, the valve will be in a stopped position, and the buttons will not respond to being pressed. Even if the cause of the error code is corrected, the error code will not clear until the power supply has been disconnected and reconnected (this will be referred to as “cycling” the power). All error codes are displayed as the letters “Err” followed by a flashing number 2-6:

Error 2 - Valve is searching for homing slot.

Allow valve to continue running. If the homing slot is found, the valve will return to the home display, otherwise, another error code will appear.

Error 3 - No encoder slots are being seen.

This occurs when the motor is running, but the encoder is not seeing any of the slots in the encoder wheel. This can happen if the encoder has been disconnected, but most commonly occurs when debris in the valve body has stopped the piston, causing the encoder wheel to be unable to turn.

1. Check encoder connection. If the encoder is plugged in and snapped into place, skip to step #2 below. If encoder is disconnected, reconnect it and cycle power to clear the error.
2. Disconnect powerhead from valve body, cycle power to clear the error code. Manually cycle the powerhead through the regeneration cycle steps to verify that the motor can cycle properly while the powerhead is disconnected from the valve body. If the error 3 does not reappear, skip to step #3 below. If the error 3 does reappear, order a board & motor kit to replace the circuit board & motor.
3. Remove piston and seals from the valve body and inspect valve body for debris. Replace the seal & spacer kit. Inspect piston and replace piston if Teflon coating is worn

Error 4 - Unable to find homing slot.

1. Check encoder wheel for debris.
2. Cycle power. Valve should either find home or go to a different error code. If error 4 returns, replace powerhead assembly.

Error 5 - Motor overload.

This occurs when the motor current is too high. This could be caused by an issue with the motor itself, but is typically caused by friction in the valve body

1. Disconnect powerhead from valve body and cycle power to clear the error code.
2. If the error 5 returns, replace the motor. Otherwise, manually cycle the powerhead through the regeneration cycle steps to verify that the motor can cycle properly while the powerhead is disconnected from the valve body. Either way, proceed to the next step.
3. Remove piston and seals from the valve body and inspect valve body for debris. Replace the seal & spacer kit. Inspect piston and replace piston if Teflon coating is worn.

Error 6 - No motor current.

This typically occurs if the motor cable has come unplugged from the circuit board. Check that the motor cable is plugged into the circuit board and attached to the motor. If this is not the issue, the motor or circuit board may need to be replaced.

No Display

If your display is blank, there is no power going to the circuit board due to one of the following factors:

- The electrical outlet is not powered or is switched off
- The power cable has come unplugged from the circuit board
- The power supply has come unplugged from your electrical outlet
- The power supply has come unplugged from the control valve
- The power supply is not working

WATER TREATMENT EQUIPMENT

This warranty cannot be transferred - it is extended only to the original purchaser or first user of the product. By accepting and keeping this product, you agree to all of the warranty terms and limitations of liability described below.

Important Warning: Read carefully the CSI Water Treatment Systems Equipment Installation, Operating and Maintenance Instructions Manual to avoid serious personal injury and property HAZARDS and to ensure safe and proper care of this product.

Model Numbers Covered:
Water Softeners, Media Filters and Upflow Filters

*FOR AS LONG AS YOU OWN AND LIVE IN YOUR SINGLE FAMILY HOME, this warranty covers your water treatment equipment, if you are the first user of this CSI Water Treatment Systems equipment and purchased it for single family home use - subject to all of the conditions, limitations and exclusions listed below. Purchasers who buy the CSI Water Treatment Systems equipment for other purposes, and other component parts are subject to more limited warranties and you should read all of the terms included in this form to make sure you understand your warranty.

What is covered by this warranty?

CSI Water Treatment Systems warrants that at the time of manufacture, the water treatment equipment shall be free from defects in material and workmanship as follows :

Product	Warranty
Residential Mineral Tank	10 Years
Proprietary Control Valves	7 Years
Other Softener / Filter Control Valves	5 Years
Brine Tank	5 Years
Residential Reverse Osmosis System	5 Years
Other Accessories and Parts	1 Year
Brine Tank Components	1 Year
REVERE Wireless Low Salt Alarm	90 Days

* This warranty does not include media and/or cartridge filter elements.

Additional Terms & Conditions

What CSI Water Treatment Systems will do if you have a covered warranty claim CSI will at its option either make repairs to correct any defect in material or workmanship or supply and ship either new or used replacement parts or products. CSI will not accept any claims for labor or other costs.

Additional Exclusions and Limitations

This warranty is non-transferable and does not cover any failure or problem unless it was caused solely by a defect in material or workmanship. In addition, this warranty shall not apply :

- If the water treatment equipment is not correctly installed, operated, repaired and maintained as described in the Installation, Operating & Maintenance Instructions Manual provided with the product.
- Defects caused as a direct result of the incoming water quality

- If the tank is not the size indicated for the supply line size of the installation, as described in the manual.
- To any failure or malfunction resulting from abuse (including freezing), improper or negligent; handling, shipping (by anyone)
- If the unit has not always been operated within the factory calibrated temperature limits, and at a water pressure not exceeding 125 psi other than CSI), storage, use, operation, accident; or alteration, lightning, flooding or other environmental conditions;
- To any failure or malfunction resulting from failure to keep the unit full of potable water, free to circulate at all times; and with the tank free of damaging water sediment or scale deposits;
- This warranty does not cover labor costs, shipping charges, service charges, delivery expenses, property damage, administrative fees or any costs incurred by the purchaser in removing or reinstalling the water treatment equipment.
- The warranty does not cover any claims submitted to CSI more than 30 days after expiration of the applicable warranty, and does not apply unless prompt notice of any claim is given to an authorized CSI Dealer or to CSI or a designated contractor is provided access to the installation and to the water treatment equipment.

THESE WARRANTIES ARE GIVEN IN LIEU OF ALL OTHER EXPRESS WARRANTIES. NO CSI REPRESENTATIVE OR ANY OTHER PARTY IS AUTHORIZED TO MAKE ANY WARRANTY OTHER THAN THOSE EXPRESSLY CONTAINED IN THIS WARRANTY AGREEMENT.

Additional Warranty Limitations

ANY IMPLIED WARRANTIES THE PURCHASER MAY HAVE, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, SHALL NOT EXTEND BEYOND THE APPLICABLE TIME PERIODS SPECIFIED ABOVE. Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you.

Limitations of Remedies

The remedies contained in this warranty are the purchaser's exclusive remedies. In no circumstances will CSI or the seller of the product be liable for more than, and purchaser-user's remedies shall not exceed, the price paid for the product. In no case shall CSI or seller be liable for any special, incidental, contingent or consequential damages. Special, incidental, contingent and consequential damages for which CSI is not liable include, but are not limited to, inconvenience, loss or damage to property, consequential mold damage, loss of profits, loss of savings or revenue, loss of use of the products or any associated equipment, facilities, buildings or services, downtime, and the claims of third parties including customers. Some states do not allow the exclusion or the limitation of incidental or consequential damages, so the above limitations or exclusion may not apply to you.

What to do if you have a problem covered by this warranty

Any warranty coverage must be authorized by CSI. Contact the person from whom you purchased the product, who must receive authorization from a CSI Dealer .

If your product is new and not used and you wish to return it, contact your CSI Dealer.

