



Installation / Operation Manual

HYDROXR™ Water Treatment System

**With
Signature Series
Control Valve**

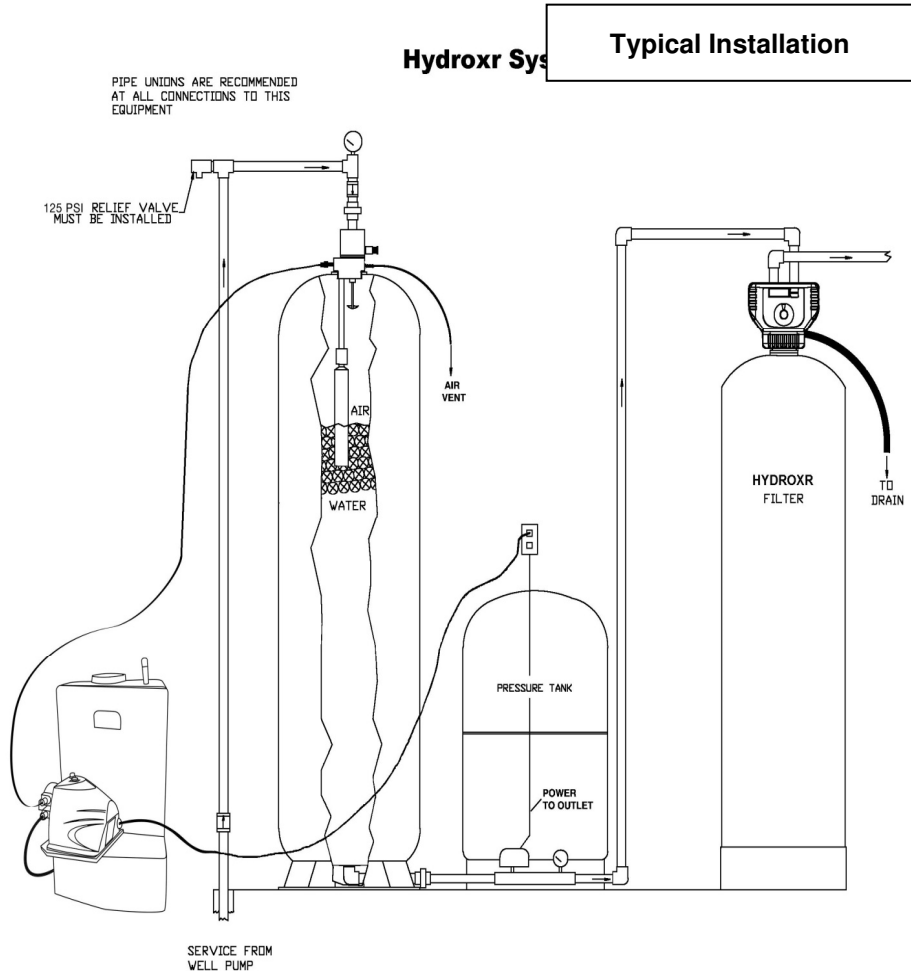
*CSI Water Treatment
Ashland, Ohio*

How The HYDROXR™ Works

The HYDROXR™ consists of three components: HYDROXR™ Tank, Peroxide Feed System and Filter Tank. The first two items serve 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 through the filter and running to drain. Called **Backwashing** and lasting 10 minutes, the process expands the mineral bed 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 pump capacity to be certain water is available in sufficient volume to adequately backwash the equipment at the specified rate. (See specifications.)

General Specifications	UTP15	UTP20	UTP25	UTP30	UTP40
Filter Media Type	Filter Ag Plus				
Filter Media Capacity (cu ft)	1.50	2.00	2.50	3.00	4.00
Mineral Tank (Vortech)	10 x 54	12 x 52	13 x 54	14 x 65	16 x 65
Service Flow Rate-Continuous (gpm)	5	6	8	9	11
Service Flow Rate-Intermittent (gpm)	7	8	10	11	13
Backwash Flow Rate (gpm)	5.0	6.0	7.0	10.0	15.0
Gallons Used / Backwash	100	120	140	200	300
Space Required (DxWxH inches) HYDROXR™ Tank	21x21x74	21x21x74	21x21x74	21x21x74	21x21x74
Space Required (DxWxH inches) Filter Tank	10x10x62	12x12x60	13x13x62	14x14x73	16x16x74
Space Required (DxWxH inches) Feed Pump System	17x17x28.5	17x17x28.5	17x17x28.5	17x17x28.5	17x17x28.5
Approximate Shipping Weight (pounds)	145	190	235	256	363

Note : Caution should always be used in sizing filters! Always choose a unit by first satisfying the *Backwash requirement*. Use of a flow control in the Service Line is highly recommended. Consult the factory or your field sales person with questions.



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

Installation Requirements

HYDROXR™ Tank

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

Peroxide Feed System

- Leave ample room near HYDROXR™ Tank to accommodate the Peroxide Feed System.

Filter Tank

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

HYDROXR™ 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 HYDROXR™ connection (e.g. galvanized, PVC plastic).

Note : If household plumbing is galvanized and you intend to make the 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 : *If sweat soldering copper pipe (remember to always use lead free solder and flux), cover yoke or bypass valve with wet rags to prevent heat damage to connection and control valve!! If using PVC or plastic pipe, primers and solvent cements specifically recommended for use with potable water are required.*

Note : All secondary service points (outside hose bibs, etc.) will need to be connected after the HYDROXR™ Filter. Flow and volume requirements for secondary service points must be considered when sizing the system.

Installation Procedure

Water Supply Connection and Bypass Valve

To allow for HYDROXR™ Filter servicing, a manual bypass valve has been installed at the factory. The bypass valve allows raw water to be manually routed around the filter.

1. Position HDYROXR™ Tank and Filter Tank at desired location. The HYDROXR™ 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 media must be loaded after Filter Tank has been placed at desired location.
 - A. Remove the control valve by unscrewing from the Filter Tank.
 - B. Use a cork or tape to place over distributor tube to prevent media from entering tube while filling.
 - C. Place media funnel (part # U1006) in hole on top of tank.
 - D. Pour several gallons of water in the tank.
 - E. Pour in the required quantity of filter media. **No gravel is required.**

Note : If pH is 6.8 or above, Filter Ag Plus media should be used. If pH is *below* 6.8, and sulfur gas (H₂S) is the primary problem, Neutralizer media or Neu-Cor media should be considered. If pH is *below* 6.8 and iron / manganese is the primary problem, Filter Ag Plus media should be used in the primary filter followed by an additional backwashing filter with Neutralizer or Neu-Cor media.

Note : The required quantity of media is listed in the filter specifications. If rebidding an existing unit and the system utilizes a standard tube and basket style distributor, a "D" gravel underbedding will be required.

- F. After filling the filter tank with media, fill the tank completely with water.

Note : This will permit the filtering media to become soaked while preparing the installation and will prevent the control valve from being plugged with floating material on initial backwash.

- G. Remove funnel and clean filter media from tank threads.
- H. Remove cork or tape from distributor tube.
- I. Replace the 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 : *Verify voltage of well pump and Peroxide Feed Pump!! Connecting Feed Pump to improper voltage source will void the warranty!*

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 HYDROXR™ Tank is 1" FNPT and the bottom outlet is 1" MNPT. Inlet is in the top of the tank and outlet is out the bottom. Inlet and outlet connections on filter yoke are 3/4" FNPT pipe size. (1" FNPT for UTP30 or UTP40.)

Note : An optional 1" FNPT yoke is available.

Caution : *If a check valve is installed between HYDROXR™ Tank outlet and pressure tank, it should be relocated prior to HYDROXR™ Tank inlet. If mineral build up inside of check valve is evident, replacement is advised. (See Typical Installation Diagram.) **If a pressure relief valve is installed prior to HDYROXR™ Tank inlet, a 125 psi relief valve should be used.***

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

Caution : *Arrows located on the sides of control valve body and bypass valve indicate proper direction of water flow. Install inlet and outlet piping in directions of arrows.*

5. Install Peroxide Feed System to HDYROXR™ Tank Manifold. The white colored 1/4" MNPT injection fitting is located in Peroxide Feed System carton. Peroxide Feed Pump and Solution Tank are pre-assembled at the factory. **Note : Do not remove** clear plastic covering injection fitting nozzle!!

- A. Install injection check valve assembly (located in peroxide feed pump carton) into one of the two 1/4" FNPT openings in side of HYDROXR Tank Manifold.
- B. Connect tubing from feed pump outlet to injection check valve.

Note : Do not connect feed pump outlet tubing to air vent hose barb!

- C. Turn off power to well pump pressure switch. Install electrical receptacle on wall near Peroxide Feed Pump pressure switch. Wire a receptacle to pressure switch. (See Typical Installation Drawing.)

Warning : Verify voltage of well pump and peroxide feed pump. Connecting feed pump to improper voltage source will void the warranty!!

- D. Turn on power to well pump pressure switch.

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

Drain Line Connections

- 1. Pull out clip and remove drain line assembly located on back 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" air 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 siphon 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.
- 3. Install included 3/8" x 1/4" tubing to air vent hose barb on HYDROXR Aeration Manifold and run to a 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!

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.

Warning : If multiple backwashing style units are used, DO NOT tee drain lines together!!!

Electrical Connections

- 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.

- 2. Plug peroxide feed pump into pressure switch receptacle.

Installing Battery Back Up

- 1. Remove the rear control valve 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 the **SERVICE** position.
2. Slowly rotate the knob of the bypass valve to the **SERVICE** position. Slowly rotate outlet knob to the **SERVICE** position. (Position of bypass knobs are 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.

Filling Peroxide Solution Tank

Refer to the chart below for suggested starting solution strengths and feed pump frequency/stroke settings.

Combined Iron, Manganese & Sulfur (H ₂ S) ppm	Solution Strength (7% H ₂ O ₂ / Water)	Feed Pump Frequency / Stroke Setting (in %)
5 – 9	1 gallon H ₂ O ₂ / 4 gallons water	63%
10 – 14	1 gallon H ₂ O ₂ / 3 gallons water	66%
15 – 19	1 gallon H ₂ O ₂ / 2 gallons water	53%
20 – 24	1 gallon H ₂ O ₂ / 2 gallons water	64%
25 – 29	1 gallon H ₂ O ₂ / 2 gallons water	77%
30 – 34	1 gallon H ₂ O ₂ / 1 gallons water	59%
35 – 39	1 gallon H ₂ O ₂ / 1 gallons water	67%
40 – 44	1 gallon H ₂ O ₂ / 1 gallons water	75%
45 – 49	1 gallon H ₂ O ₂ / 1 gallons water	84%
50 – 54	Straight H ₂ O ₂	46%
55 – 59	Straight H ₂ O ₂	50%
60 – 64	Straight H ₂ O ₂	54%
65 – 69	Straight H ₂ O ₂	58%
70 – 74	Straight H ₂ O ₂	62%
75 – 79	Straight H ₂ O ₂	67%
80 – 84	Straight H ₂ O ₂	71%
85 – 89	Straight H ₂ O ₂	75%
90 – 94	Straight H ₂ O ₂	79%
96 – 100	Straight H ₂ O ₂	84%

Figure 1

**** This chart is an estimation only! Actual solution strength and frequency / stroke setting may differ. Adjust feed pump frequency / stroke setting and/or solution strength to achieve 2 – 5 ppm residual H₂O₂ at the kitchen faucet. It is for this reason that a minimum quantity of solution be mixed on initial start-up until the actual solution strength can be determined.**

Priming Peroxide Feed Pump

1. Fill solution tank with enough peroxide solution to cover suction bulkhead assembly. (Refer to Solution Strength Table in Figure 1.)
2. Open a faucet until well pump turns on.
3. Verify Peroxide Feed Pump is operating. If feed pump is **not** operating, verify on/off switch on feed pump is in the **on** position.
4. Increase stroke setting to 100% using the stroke adjustment knob.
5. The feed pump is self-priming. Keep running the feed pump until the outlet tubing from pump to HYDORXR™ manifold is full of liquid.
6. Reduce stroke setting to suggested setting from chart (Figure 1) using the stroke adjustment knob.

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. and p.m.
3. Set number of days between backwash. (This generally will be every 4 to 6 days of sulfur: 3 to 4 days for iron / manganese.)

Note : If a significant pressure loss is experienced prior to a scheduled backwash, increase the backwashing frequency.

Refer to page 7 of the Signature Series Manual for master programming and instruction.

4. 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 - 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 from being uplifted into control valve.

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

Checking Peroxide Residual

1. Flush kitchen faucet cold side plumbing line of any untreated water and check peroxide residual using the supply H₂O₂ test strips.
2. Adjust feed pump stroke setting and/or solution strength to achieve 2 – 5 ppm H₂O₂ residual.

Note : H₂O₂ residual will need to be checked periodically and adjustments made when necessary. **Peroxide Feed Pump tube should be replaced every year (part # 67555X219).** An extra feed pump tube is included with system.

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. Servicing the water filter.
2. A water leak from the water filter is evident.

Extra Backwash

If water demands are unusually heavy, an extra backwash can be initiated manually. Refer to page 4, item 2 of the Signature Series 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 savings time periods.
5. Replace 9 volt battery once a year.
6. Keep peroxide solution tank filled with solution.
7. Check H₂O₂ residual once a week and make feed pump stroke setting adjustment when necessary.
8. ***Replace Peroxide Feed Pump Tube every year.*** An extra feed pump tube is included with system.

Installation Addendum for HYDROXR System

Chemical Feed System Installation

1. Install feed pump onto it's solution tank per instructions. Install level indicator onto solution tank per instructions.
2. Install integral flow switch (wired to feed pump) into inlet line to UT80 REACTR™ Tank Assembly. Connections are 1" socket weld.

Warning : *The inlet to the flow switch **must** be installed vertically for the switch to operate properly. (Water must flow from well pump **upwards** into inlet of flow switch.) **Be very careful not to allow solvent cement to contact the internals to the switch.***
3. Connect all tubing from solution tank to feed pump per instructions.
4. Remove 1/4" pipe plug located on base of REACTR™ Tank Manifold and install feed pump injector fitting assembly. Install outlet tubing from feed pump to injection fitting per instructions.
5. Fill solution tank with hydrogen peroxide / water mix. Using 7% hydrogen peroxide, the suggested ratio is : 1 gallon of water / 1 gallon of hydrogen peroxide.
6. Plug feed pump cord into a 115 volt receptacle.
7. Finish installation by installing filter per REACTR™ instructions. **The standard media for the HYDROXR is filter ag.**
8. Purge air from HYDROXR Filter per REACTR™ instructions.
9. When well pump starts, verify air draw and feed pump operation.
10. Adjust feed pump to **50% stroke frequency. Only adjust the feed pump frequency when the feed pump is operating.**

Note : The feed pump is self priming.

11. Let system run for a minimum of 10 minutes (after priming is complete), then test the residual (free) H₂O₂ at the kitchen faucet. (Thoroughly flush line prior to testing.) Adjust the feed pump until a 2 - 5 ppm residual is attained. (Remember, it will take approximately 10 minutes after feed pump adjustment, before retesting can be conducted.)

Do not adjust the feed pump below 30% frequency. (Dilute the solution strength if necessary.)

12. Check H₂O₂ residual periodically (every week or two) and make feed pump adjustments as necessary to maintain 2 - 5 ppm residual.



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“LIMITED” WARRANTY

Water Treatment Equipment

During the time periods and subject to the conditions hereinafter set forth, CSI Water Treatment, will repair or replace to the original user or consumer, any portion of your new CSI Water Treatment product which proves defective due to defective materials or workmanship of CSI Water Treatment. Contact your nearest authorized CSI Water Treatment dealer for warranty service. At all times CSI Water Treatment shall have and possess the sole right and option to determine whether to repair or replace defective equipment, parts, or components. Damage due to conditions beyond the control of CSI Water Treatment is **NOT COVERED BY THIS WARRANTY**. (Contact parcel or Freight Company for claims on freight damage in transit.)

WARRANTY PERIODS:

ITEM	*10 YRS	*7 YRS	*5 YRS	*1 YRS
Residential Mineral Tanks	●			
Commercial Mineral Tanks			●	
Proprietary Control Valves		●		
Other Softener/Filter Control Valves			●	
Brine Tank (30" or smaller)			●	
Brine Tank (39" or larger)				●

ITEM	*5 YRS	*1 YRS
Brine Tank Components		●
Microcline™ Reverse Osmosis Systems	●	
Other Residential RO Systems		●
Other Accessories & Parts		●
Commercial Reverse Osmosis – 1 year from ship date		
- Pumps & membranes are pro-rated per month		

* From Date of Installation

LABOR, ETC., COSTS : CSI Water Treatment shall **IN NO EVENT** be responsible or liable for the cost of field labor or other charges incurred by any customer removing and/or reaffixing any CSI Water Treatment product, part or component thereof.

THIS WARRANTY WILL NOT APPLY : (a) To defects or malfunctions resulting from failure to properly install, operate or maintain the unit in accordance with printed instructions provided; (b) to failures as a direct result of the incoming water quality, (c) to failures resulting from abuse, accident or negligence; (d) to normal maintenance services and parts used in connection with such service; (e) to units which are not installed in accordance with applicable local codes, ordinances and good trade practices; (f) if the unit is moved from its original installation location; (g) unit is used for purposes other than for what it was designed and manufactured, and (h) filter media and exchange resins.

RETURN OF REPLACED COMPONENTS: Any item to be replaced or repaired under this Warranty must be returned to CSI Water Treatment in Ashland, Ohio, or such other place as CSI Water Treatment may designate, freight prepaid.

PRODUCT IMPROVEMENTS: CSI Water Treatment reserves the right to change or improve its products or any portions thereof without being obliged to provide such change or improvement of units sold and/or shipped prior to such change or improvement.

WARRANTY EXCLUSIONS : As to any specific CSI Water Treatment product, after the expiration of the time period of the warranty applicable thereto as set forth under the heading "Warranty Periods" above, **THERE WILL BE NO WARRANTIES, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.**

Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. No warranties or representations at any time made by any representative of CSI Water Treatment shall vary or expand the provisions hereof.

LIABILITY LIMITATION: IN NO EVENT SHALL CSI WATER TREATMENT BE LIABLE OR RESPONSIBLE FOR CONSEQUENTIAL, INCIDENTAL OR SPECIAL DAMAGES RESULTING FROM OR RELATED IN ANY MANNER TO ANY CSI WATER TREATMENT PRODUCT OR PARTS THEREOF.

Some states do not allow the exclusion of limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

The Warranty gives you specific legal rights and you may also have other rights which vary from state to state.

In the absence of suitable proof of installation date, the effective date of this warranty will be based upon the date of manufacture plus thirty (30) days.

Direct all notices, etc. To : Service Department, CSI Water Treatment, 710 Orange Street, Ashland, Ohio 44805

Date : October, 2011