

## UNPACKING

Please open and inspect your package upon receipt. Your package was packed with great care and all the necessary packing materials to arrive to you undamaged. If you do find an item that is broken or damaged, you must contact the delivering carrier to report the claim.

## Installation Guidelines and Operation of Anderson Ratio:Feeder<sup>®</sup> DD / DB / Wallmount Units

### GETTING TECHNICAL ASSISTANCE

**The H.E. Anderson Company** is dedicated to assisting our customers with installation and use of our products. Our technical staff are available each weekday from 8:30 AM to 4:30 PM central time. You may call us toll free at **1-800-331-9620** from anywhere in the U.S.A. and Canada. If no one is available, we will promptly return your call. You may also contact us via e-mail at **info@heanderson.com**

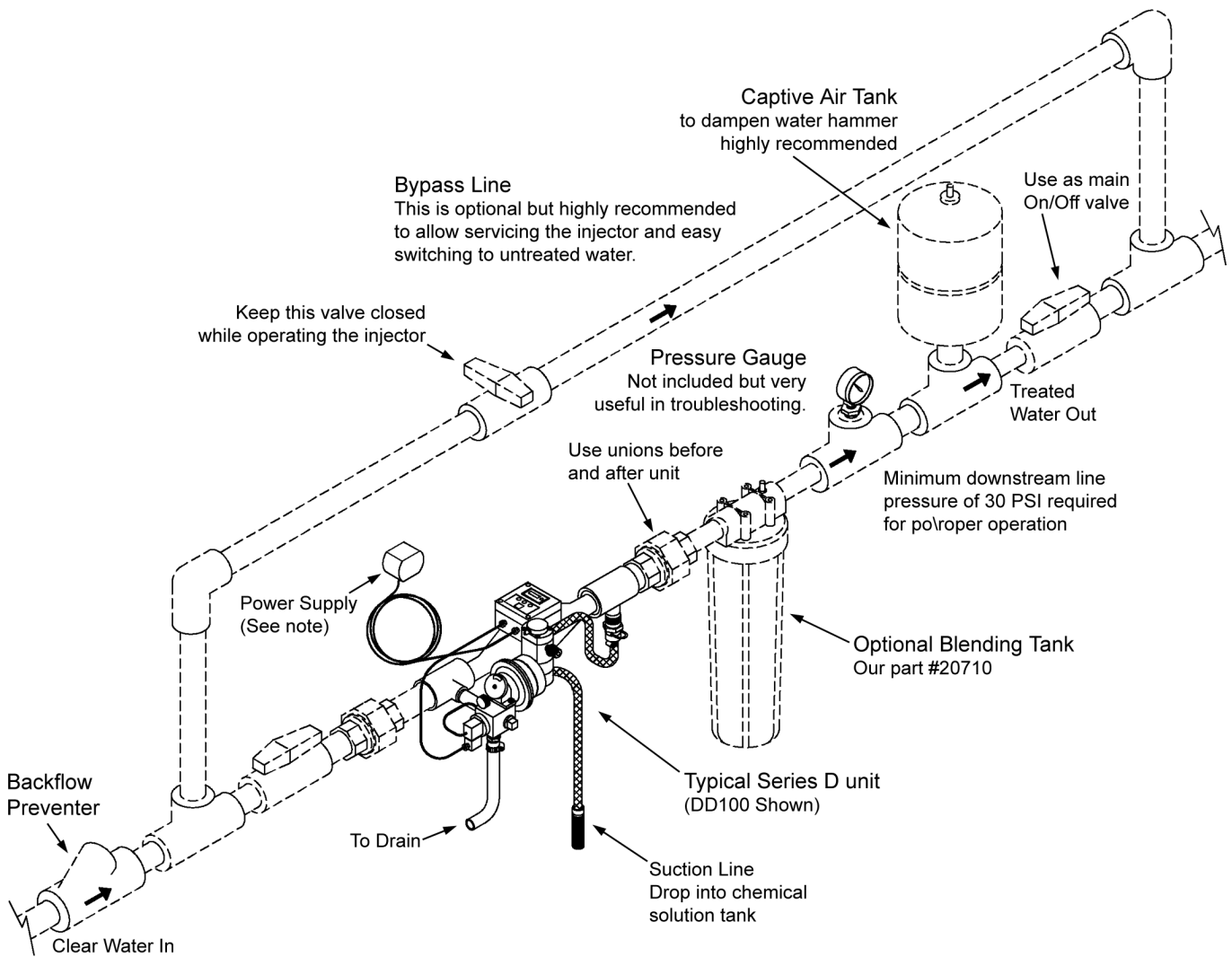
**Before you call**, review this manual. You may find the answer to your question here. But if not, reviewing the manual will help us to help you.

If you need an additional owners manual for **any** H.E. Anderson Company product, please visit our website at <http://heanderson.com/manuals.php>



Dotted lines indicate parts not included with your unit.  
 Observe local codes.  
 For hypochlorination a contact tank (not shown) must be provided.

Overall space requirements for a system as shown using 1-1/2" piping would be approximately 5' long x 3' high x 1' deep.

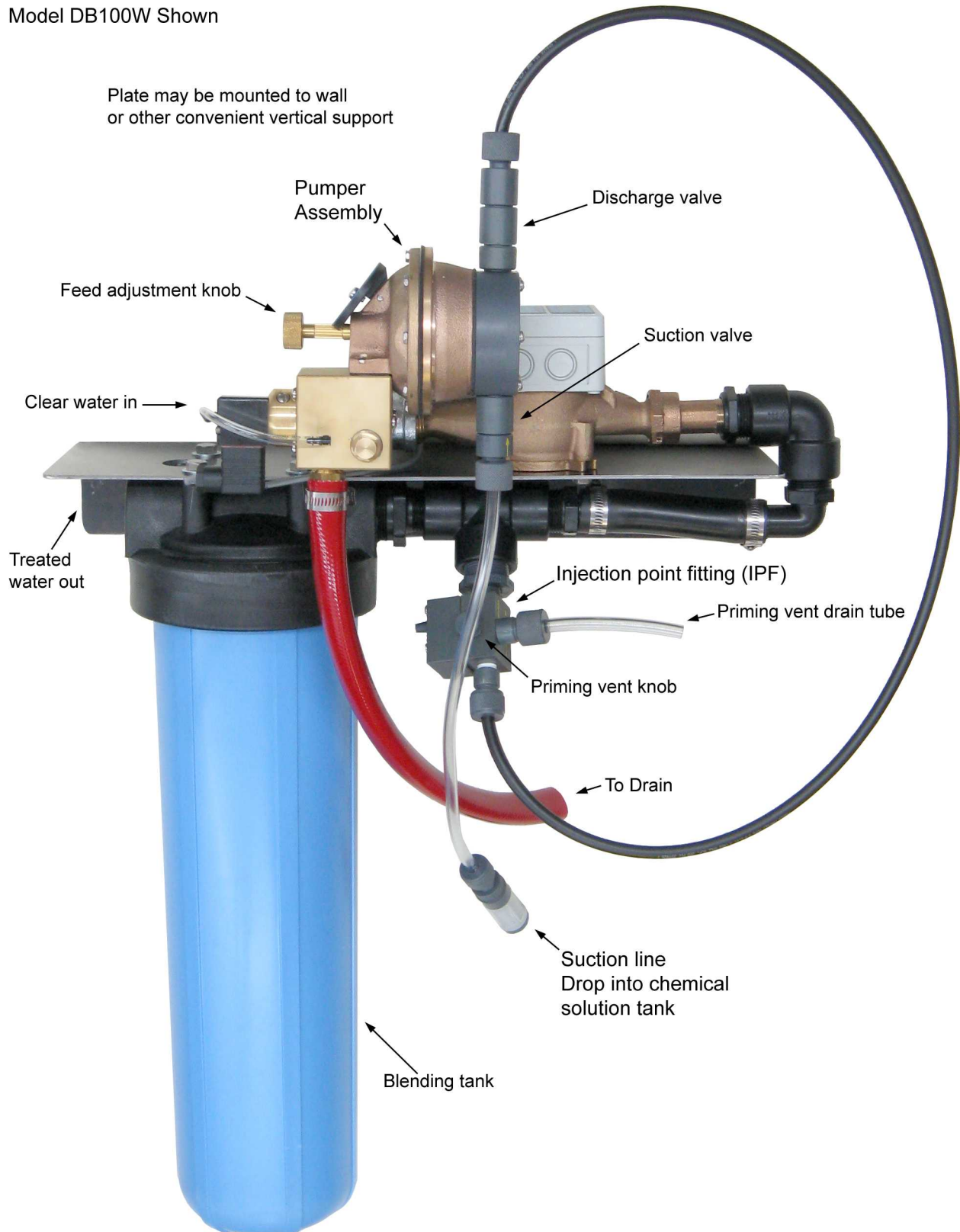


Note: System ships with a 12VDC power supply for use with 120VAC.  
 Unit can be powered directly from 12VDC 10 watt solar panel  
 w/storage battery and charge controller.

*Installation Guidelines*

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Model DB100W Shown



## Warnings and Cautions



**WARNING!** Never allow the unit to freeze! The unit is not warranted for freeze damage.



You should check your controller dip switch setting before starting up your system. Refer to the DD/DB Unit manual.



**IMPORTANT!** The waste line must exit to atmospheric pressure and must not be elevated or restricted in any way



**IMPORTANT!** If you have not flushed out the system as described in section 2.1 you should do so now.



Store protective clothing and accessories in a location away from the injector so that they may be donned before approaching the equipment.



Never transfer the suction line of a feeder pumping a strong acid or alkali to a container of water. This can generate dangerous heat which may destroy your pumper and plumbing.



**WARNING!** Water Hammer Destroys diaphragms.



Do not store chemicals in tanks where the level will be more than just a few feet above the discharge point of the pumpers. If you have very large solution



**WARNING!** Connecting power incorrectly can damage unit's electronics.

storage tanks you should use them to fill smaller "day tanks". This will eliminate the chance of large quantities of chemicals draining into your watering system.

## Installation Guidelines

### Location & Access

- The injector should be out of the way, yet accessible,
- If your water supply is from a municipal or public water line, you should comply with local codes.
- If your watering system is connected to a public or potable water source you should install a backflow preventer so that no backward flow of treated water into potable supplies or public mains could occur. Contact your local water authority for approved devices and recommendations to insure that your installation meets their standards.
- Install the system neatly and with room for easy maintenance access.

### Environment



**WARNING! Never allow the unit to freeze! The unit is not warranted for freeze damage.**

Freezing can cause expensive damage, even during storage if the measuring unit and pumpers have not been properly drained. Contact factory for proper winterization instructions.

A drain should be close at hand. The unit discharges approximately twice as much water as chemical pumped. The drain line should be kept short, or expanded to a larger size for runs longer than fifteen feet.



**IMPORTANT! The waste line must exit to atmospheric pressure and must not be elevated or restricted in any way.**

### Safety

- Most chemicals used to treat water are dangerous to someone or thing.
- Do not permit access by children or pets.
- Provide safety equipment such as goggles, gloves, aprons, or anything common sense tells you you might need.



**Store protective clothing and accessories in a location away from the injector so that they may be donned before approaching the equipment.**

- Check with the manufacturer of the chemical for safety precautions for specific chemicals.
- Label chemicals and keep a supply of antidotes, neutralizing agents, and safety precautions handy. **If feeding acid, keep some baking soda (powdered and solution) nearby.**
- If feeding dangerous or corrosive chemicals, you should attach a drain line to the drain hole in the bottom of the cylinder, which drains into a chemical resistant container. An alternative would be placing a chemical resistant container directly beneath the drain hole.
- Protect the injector from corrosive vapors with adequate ventilation. **Corrosion can sometimes attack diaphragms from the back side, resulting in premature failure.**

### Water Hammer



**WARNING! Water Hammer Destroys diaphragms.**

- Water hammer can generate pressures up to 500 psi or more! This puts stress on the injector (and on your entire water system), but it is especially destructive to diaphragms.
- Water hammer can be a serious problem in installations with long pipe runs.
- Solenoid valves can cause water hammer.
- If water hammer could be a problem for your installation, you should install a suppressor such as a “pop” valve or an accumulator (captive air device) near your injector. (See installation example, P. 3)

## Water Quality

Solids in your water supply act as abrasives and will wear away the water measuring mechanism. If you have problems with solids, install a filter upstream of the injector and place pressure gauges before and after. You can use the difference in pressure readings to tell when the filter is plugged up.

## Preparation

Refer to the examples on pages 2 & 3 to help you with assembly and installation. All Anderson systems can be installed with the use of commonly available plumbing tools, supplies, and knowledge. When in doubt; call the factory for assistance. Many problems can be solved, before they occur, with a short toll free phone call.

## Installation Pointers & Recommendations

- (1) A check valve or backflow preventer should be installed in the main line before the by-pass and injector. Comply with local codes.
- (2) Any on-off water valve should be installed downstream from unit. This will insure that the system injection point will always be pressurized, making siphoning of chemical unlikely. It will also help to prime and diagnose your system later.
- (3) Anderson equipment is designed to assemble with little force required. If you find that you need excessive force. Stop and double check your progress before continuing.
- (4) Short and straight tubing runs, made for both the pilot valve drain hose and the pumper's chemical suction and discharge tubes, will make your injector easier to prime and more efficient to operate.
- (5) Use unions when able. Winterization and maintenance is greatly simplified with the use of unions.
- (6) Protect your investment. Direct exposure to sunlight, rain, spray from other equipment, and caustic chemicals will greatly reduce the life of your equipment.

## Assembly

If you are unfamiliar with plumbing or working with the piping materials of your choice, you should hire a professional plumber to do the installation. ***Beware! Most plumbers are unfamiliar with our equipment and should be monitored to see that they are following our installation recommendations.***

Once the plumbing is complete and all pipe connections are tight, remove the unit from the system. The piping should not spring apart or close up when it is removed. Continuous strain could interfere with operation. Adjust the piping if necessary.

Before reinstalling the unit, flush the system to remove metal/plastic flakes and other debris from the plumbing.

## DD/DB Units

Refer to examples on pages 2 & 3 of this guide. Proper operation of the unit will require care in plumbing the unit properly. 30 psi downstream pressure is required. You will need a blend tank installed after the unit for uniform blending of chemical in system. Plumb a bypass when able and use unions. If you expect water hammer; a bladder tank installed before the unit is highly recommended. The installation of ball valves before and after the unit along with a pressure gauge on the downstream side will make setup, operation, and maintenance more efficient and effective. Comply with all local codes. All Anderson equipment comes with lifetime phone support. When in doubt call 800-331-9620; we will provide more detailed instruction or help to find a local installer when available.

## Wallmount Units

Anderson DD/DB Wallmount injection systems are pre-plumbed and require little effort to get up and running. 30 psi downstream pressure is required. Make sure to use unions before and after the unit. Installation of a bypass around the unit is recommended for ease of maintenance. Mount your injector plate to a suitable support, attach blend tank and pumper assembly. Plumb clear water line in and treated water line out. Connect pumper tubing and valves. Power up the unit and follow startup instructions.

## Operational Start-Up



**IMPORTANT!** If you have not flushed out the system as described the Assembly section in this manual; you should do so now.

### Initial Check-Out

- With the water supply turned off, apply power to your DD/DB/Wallmount Unit. The red power LED should be lit.
- Press the "Prime / ON-OFF" button twice. With the second press of the button the green valve LED should be lit for approx. 3/4 of 1 second. A slight "clicking" sound should be heard coming from the electric coil on the pilot valve in coordination with the green LED flash.

### Start-Up

- Turn off upstream water supply valve for the injector. Place the flush/foot valve or standpipe in the solution concentrate tank. Connect the suction line from the solution concentrate container to the lower connection of the valve module. Connect the discharge line between the valve module and injection point fitting.
- Fill your concentrate tank and prime the injector.
- Priming Instructions: Close valve downstream of injector before any point of water use. Slowly open upstream water supply valve to place unit under full line pressure. Open "vent" on IPF of your pumper. Repeatedly press the "Prime / ON-OFF" button on the unit. Chemical should now "climb" the suction side tubing. Once chemical begins to exit the "vent" on the IPF; stop pressing the button and close the vent. Your pumper is now primed and ready for use.
- Set pumper to dial setting required for desired rate of injection. 10 being 100%; 1 being 10%, of pumper capacity.
- Open the downstream valve, when ready, to use your Anderson injector.

## Maintenance

The electronic controller portion of your injector system normally require no maintenance. There is no reason to disturb these components except to service them when a problem arises. See the *Pumper Manual* for information on maintaining your pumpers and fittings. The chemical concentrate solution should be kept clean and fresh. When refilling the concentrate, try to avoid stirring up sediment which may have collected on the bottom of the tank. Your solution tank should be covered, but must be vented with a small vent hole to atmosphere to permit the pump to pump from it.

Periodically you may find you need to completely clean your solution container. When doing this we recommend transferring the suction line of the injector to another container of the same solution, to prevent loss of prime. Use caution appropriate to the chemical.



**Never transfer the suction line of a feeder pumping a strong acid or alkali to a container of water. This can generate dangerous heat which may destroy your pumper and plumbing.**

## Storage

If an injector will not be used for a long period, you should remove it from service.

- Flush the pumper and chemical valves, either by pumping water through the unit (if not feeding acid, see below) before removing it or by rinsing after removal.
- Tape the valve openings closed while still wet. This protects the seals and prevents insects from plugging the openings.
- Drain the unit completely to prevent freeze damage. Contact factory for proper winterization instructions.

## Trouble Shooting

If you suspect there may be a problem with your unit please read the following section carefully. **DO NOT DISASSEMBLE ANY PART OF YOUR SYSTEM** until you have determined the exact problem, and then do it carefully, according to instructions. Many small and easily corrected

problems are greatly aggravated by not heeding this warning.

There are two basic categories of problems; pumper problems and control / pilot valve problems. If you are getting flow indication and regular cycles of waste water from the pilot valve; you can be almost certain the control and pilot valve are working properly. Refer to *Pumper Manual* for troubleshooting. If not; refer to the next step below. If you cannot determine the problem, contact the factory at 800-331-9620 and ask for technical support.

## Checking the DD/DB Control

You have probably already observed the red, green, and yellow LED indicators on your unit. Checking these can quickly pinpoint some problems.

- The red LED will be lit whenever power to the controller is on and properly functioning. If not lit, there is a problem with the control board or, with the power supply of the unit. Refer to the *DD/DB Manual* for information.
- The yellow LED should be blinking whenever water is flowing. If not lit, there is a problem with the control board or water meter. Refer to the *DD/DB Manual* and *Water Meter Manual* for information.
- The green LED should flash as the pilot valve is actuated. If not lit, there is a problem with the control board or power supply. Refer to the *DD/DB Manual* and *Pilot Valve/Manifold Manual* for information.

## Checking the Pilot Valve

The pilot valve should regularly discharge water or air (depending on pressure source) as the unit operates. This waste should have a distinct "off" and "on" with no constant leakage or small stream of constant discharge. If either occurs; refer to the *Pilot Valve/Manifold Manual* for information.

## Checking the Pumper

Your pumper should give many seasons of use before needing service. However; if leakage should occur, stop using the injector and refer to your *Pumper Manual* for instructions.

## Primary Requirements for Proper Operation

There are some conditions which must be met in order for your injection system to operate properly.

These are given here:

- Minimum line pressure of 30 psig, measured on the downstream side of the injector. If you do not have a pressure reading of 30 pounds at the pressure gauge on top of the unit, then you do not have enough pressure. If the water is flowing out to an open tank or onto the ground, there will probably not be sufficient back pressure to meet the 30 psig requirement even if there is much greater pressure (e.g. 50 psig) on the inlet. This is the most common cause of erratic operation. In this situation you should install a valve and pressure gauge downstream from the unit. Close the valve until the gauge reads 30 psi or greater.
- The flow rate should be within the range of your flow meter. DB (1/4-20 gpm) DD (3/4-50 gpm)
- The manifold discharge line and any tubing attached must open to "daylight" and go directly to a drain. Do not obstruct or elevate the line at any point. If a long line is needed, it should be expanded to a larger size. Put an air vent or gap between the primary and the extended line.
- Too much chemical feed is not caused by a mechanical malfunction. It is probably due to siphoning or gravity flow of chemical through the feeder during periods of zero pressure on the system. The system shutoff valve should be downstream of the system to maintain pressure at all times.



**Do not store chemicals in tanks where the level will be more than just a few feet above the discharge point of the pumps.**

**If you have very large solution storage tanks you should use them to fill smaller "day tanks". This will eliminate the chance of large quantities of chemicals draining into your watering system.**



# RATIO:FEEDER® LIMITED WARRANTY

## WHAT IS COVERED

The H.E. Anderson Company of Muskogee, Oklahoma, will make any necessary repairs and/or replace any parts of any Ratio:Feeder® product made necessary because of defects in materials or workmanship for fifteen months from date of manufacture. Warranty repairs and/or replacements will be performed without charge to the owner by H.E. Anderson Company within a reasonable time after prepaid delivery of the defective product to the H.E. Anderson Company, 2100 Anderson Drive, Muskogee, Oklahoma 74403.

## WHAT IS NOT COVERED

This warranty specifically excludes failure of any parts or materials caused by chemical attack or damage caused by operation above rated capacity or pressure. Further, this warranty does not cover wear or failure caused by sand or other foreign materials which may be found in water that is passed through our products, or damage caused by freezing or exposure to water temperatures above 60 °C (140 °F).

This warranty does not cover damage caused by failure to follow prescribed installation instructions and limitations issued by H.E. Anderson Company. In addition, this warranty does not cover service adjustments, repairs, or replacements caused by misuse, negligence, alteration, accident, or lack of specified maintenance.

This warranty does not cover components used by, but not manufactured by H.E. Anderson Company, in the manufacture of our products except to the extent of said component manufacturer's warranty.

This warranty specifically excludes liability for consequential damages or for charges for labor or expense in making repairs or adjustments, or losses of time or inconvenience.

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This warranty gives you specific legal rights and you may also have other legal rights which may vary from state to state. H.E. Anderson Company does not authorize any person to create for it any other obligation or liability in connection with these products. ANY IMPLIED WARRANTY APPLICABLE TO THESE PRODUCTS IS LIMITED TO THE DURATION OF THIS WARRANTY. H.E. Anderson Company shall not be liable for consequential damages resulting from breach of this written warranty.

NOTE: Some states do not allow limitation on how long an implied warranty will last or the exclusion of limitations of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

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## WHAT TO DO IF THERE IS A QUESTION REGARDING WARRANTY

- 1) Promptly notify the consumer adviser at H.E. Anderson Company by telephone at 800-331-9620 or 918-687-4426.
- 2) Confirm the report in writing (or via FAX at 918-682-3342) to the H.E. Anderson Company, stating the circumstances surrounding the problem.

## PURCHASER'S OBLIGATION

- a) Purchaser must give H.E. Anderson Company immediate written notice on discovery of defect.
- b) Purchaser must pay for shipment of the defective product to the H.E. Anderson Company, 2100 Anderson Drive, Muskogee, Oklahoma 74403.