



# Customer Manual

## Single & Two Speed Series



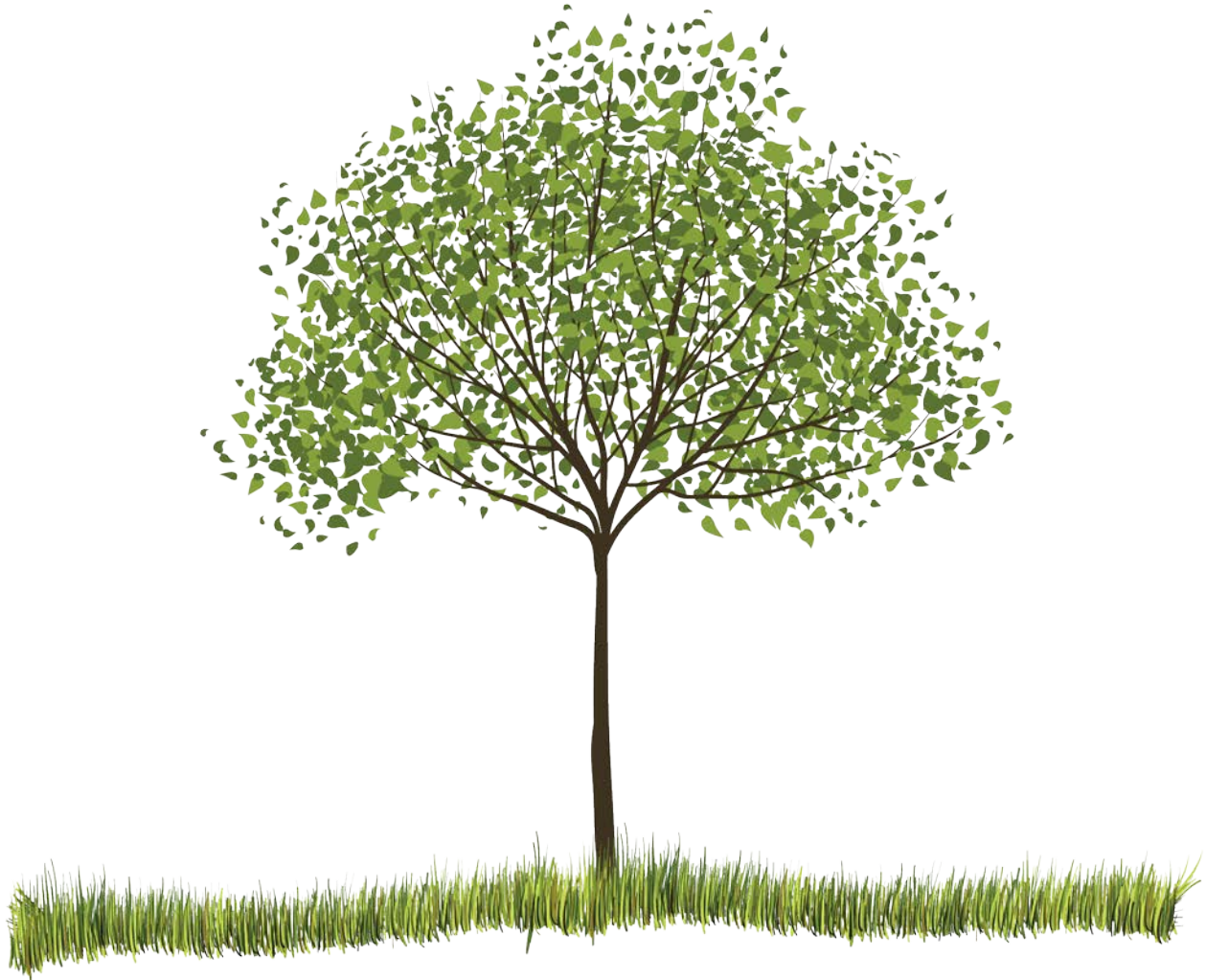


## **Change is in the Air**

You are about to experience a level of comfort and efficiency that many people don't even know exist.

# Thank You!

## Your investment Helps Everyone!



Your decision to own a Hydro-Temp system puts you in a unique position. Geothermal heat-pumps are known for being GREEN, however green usually means giving something up. In your case not only will you be helping the environment now and for the future, you are providing yourself with the most comfortable indoor environment available today. It is not often you can make an impact on others by providing for yourself.



Thank you for purchasing your new Hydro-Temp geothermal heat pump.

For your convenience please take a minute to record some critical information that could be very beneficial in the future.

Customer Name: \_\_\_\_\_

Customer Phone Number: \_\_\_\_\_

Dealer Name: \_\_\_\_\_

Dealer Phone Number: \_\_\_\_\_

Date of Installation: \_\_\_\_\_

Model number: \_\_\_\_\_

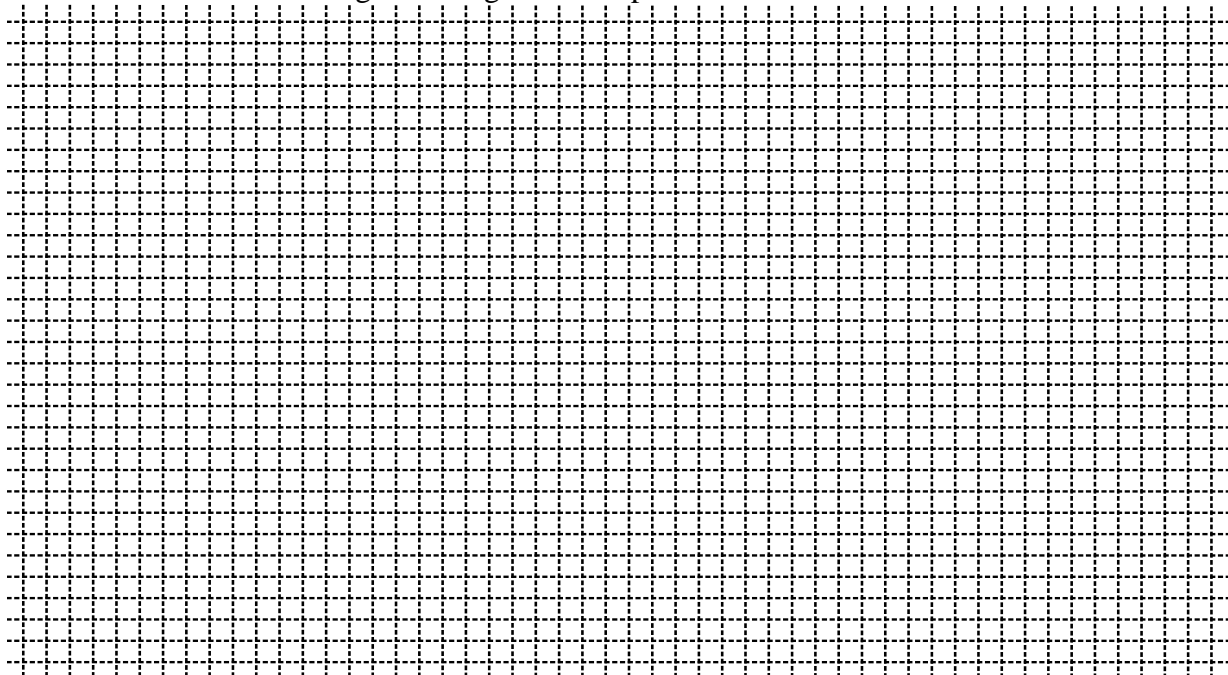
Warranty Information: \_\_\_\_\_

Serial number \_\_\_\_\_

Ground loop / Well Water information:

- ☐ Well Water: Gallons per minute \_\_\_\_\_ Discharge into \_\_\_\_\_
- ☐ Horizontal Loop: # of Circuits \_\_\_\_\_ Circuit length one way \_\_\_\_\_ ft Average depth \_\_\_\_\_ ft
- ☐ Vertical Loop: # of Circuits \_\_\_\_\_ Circuit length one way \_\_\_\_\_ ft
- ☐ Pond Loop: # of Circuits \_\_\_\_\_ Total length per Circuit \_\_\_\_\_ ft Depth where sunk \_\_\_\_\_ ft
- ☐ Other \_\_\_\_\_

Use this area to make a rough drawing of the loop in relation to the home.



One block equals \_\_\_\_\_ feet

Notes:

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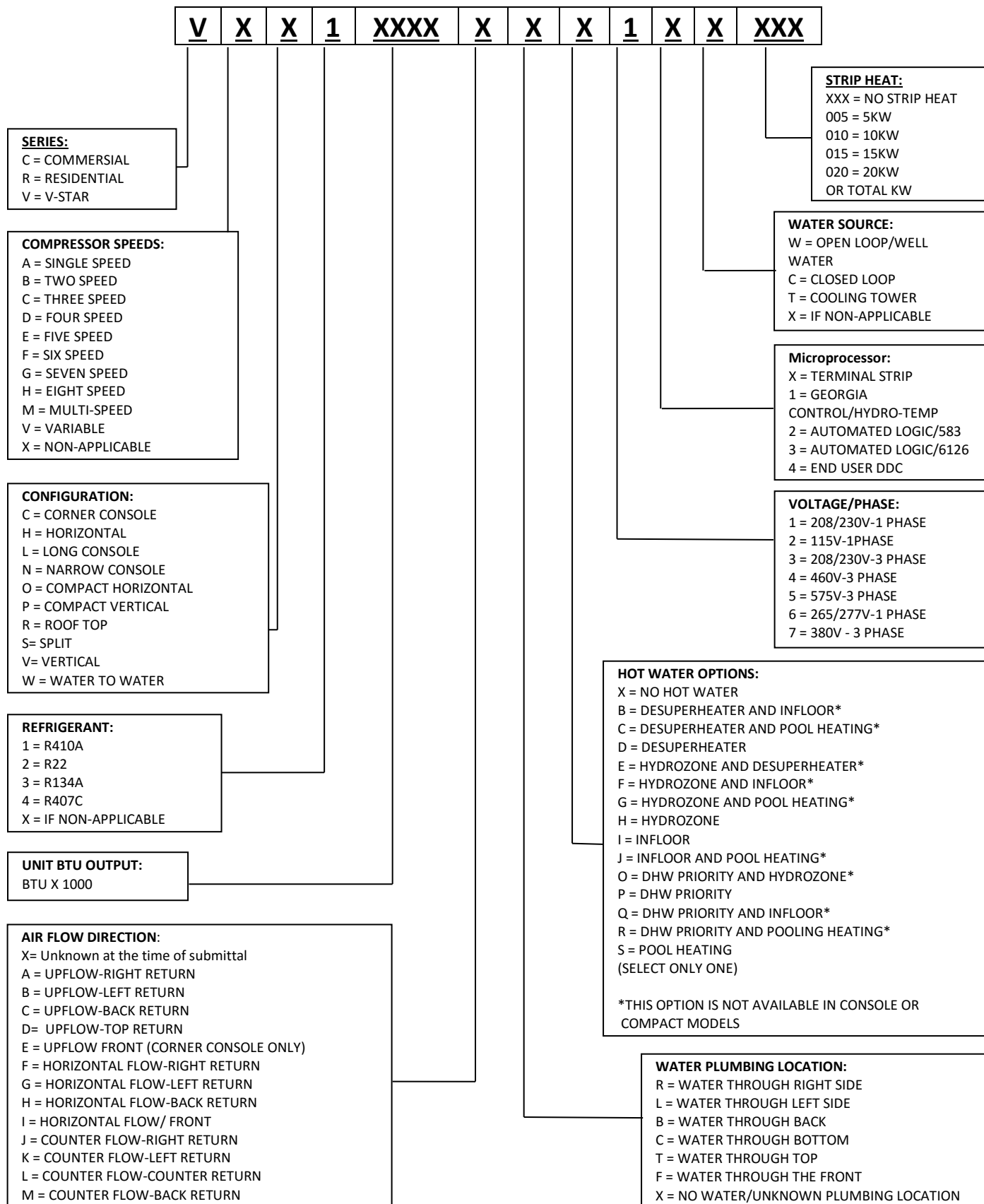
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# MODEL NOMENCLATURE



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**Contact Information:**

*Hydro-Temp™* Corporation

P.O. Box 566

3636 Hwy 67 South

Pocahontas, AR 72455

870-892-8343

[www.Hydro-Temp.com](http://www.Hydro-Temp.com)

**Do not** install, operate, or maintain this equipment before carefully reading the instruction manual. Additional copies of this manual are available from the installing dealer or from *Hydro-Temp™* Corporation. Save these and any other operating instructions for yourself and any future owners of this equipment.



## 1.0 Transportation & Storage

Move and store units in an upright position. Do not stack units.

Inspect shipment for shipping damage and check packing slip for accuracy. Any equipment or cartons in question should be removed from the packing and physically inspected. If any damage is detected, the carrier should make a note on the delivery slip acknowledging the damage.

During freezing conditions special consideration should be made to prevent unit damage. **If a unit is taken to the job site or put in storage, anti-freeze will need to be pumped into the water coils to prevent freezing.** Failure to do this will void warranty.

## 2.0 Electrical Hazard Warnings

**THE FOLLOWING IS A GENERAL WARNING STATEMENT WHICH SHOULD BE READ AND UNDERSTOOD BEFORE OPERATING YOUR NEW *HYDRO-TEMP*™ UNIT.**

There are no end user maintenance items inside the cabinet of the unit. If the unit operates unusually or develops a leak, turn off all electrical power to unit and call your service technician.



### **ELECTRIC SHOCK CAN KILL!!**

- Always protect yourself and others. Always turn off system power before removing panels. Some units may have more than one or two power supplies.
- Keep all covers and panels in place at all times. Do not open panel/doors. Removing panel/doors present an Electric shock and/or pinch hazard.
- Do not stick hands into return or any other opening.
- All repairs, electrical or mechanical, should be attempted only by trained *Hydro-Temp*™ technicians. In the event of a unit problem, do not reset the equipment before correcting the problem. Equipment failure due to resetting without first correcting the problem will not be covered by the warranty.
- The presence of water around the base of the unit constitutes an electrical hazard. Turn off the power to the unit as soon as water leakage is discovered and call a service technician immediately.

### **STRIP HEAT WARNING:**



- On systems with auxiliary/emergency heat strips, be aware that the heat strip contactor may be wired on a separate circuit. Therefore, two breakers (normally 2 double pole breakers if single phase) must be shut off before removing panels and servicing the unit.
- All breakers/fuses supplying power to this equipment should be clearly labeled at time of installation.
- All wiring and plumbing should be done in strict accordance with local and national codes and ordinances.

### 3.0 Preventative Maintenance


YOUR *HYDRO-TEMP™* WATER SOURCE HEAT PUMP HAS BEEN BUILT TO BE VIRTUALLY MAINTENANCE FREE IF PROPERLY MAINTAINED. THERE ARE ONLY A FEW THINGS YOU NEED TO DO TO KEEP YOUR SYSTEM RUNNING AS EFFICIENTLY AS POSSIBLE.

IT'S STRONGLY RECOMMENDED TO HAVE THE SYSTEM CHECKED ONCE A YEAR BY A TRAINED SERVICE PROFESSIONAL. MANY INSTALLING DEALERS OFFER PREVENTATIVE MAINTENANCE CHECKS.

**WARNING!** BEFORE PERFORMING SERVICE OR MAINTENANCE ON THE SYSTEM, TURN OFF ALL BREAKERS INCLUDING MAIN POWER AND POWER TO OPTIONAL AUXILIARY HEATER. WAIT FIVE MINUTES BEFORE REMOVING ANY PANELS TO ALLOW POWER TO DISSIPATE FROM VARIABLE FREQUENCY DRIVES. ELECTRICAL SHOCK CAN CAUSE PERSONAL INJURY OR DEATH.

DO NOT OPEN PANELS/DOORS! DANGER OF ELECTRICAL SHOCK AND/OR PINCH HAZARD!

- Be aware of thermostat setting. In some cases, programmable thermostats will mistakenly be programmed to set the temperature back when not desired. Check the programming to insure the correct time of day and desired temperature is programmed or set the thermostat on hold. Which will stop the programming and allow a constant setting.
- **Keep a clean air filter on your unit.** Air filters need to be changed about once every 30 days. Always buy the best air filter available. Air filters can be purchased through *Hydro-Temp™* if necessary. *Hydro-Temp™* recommends a lifetime electrostatic air filter that can be taken out once a month and cleaned by back flushing / washing with water. If filter is not changed / cleaned on a regular basis expensive air coil cleaning may be required during preventative maintenance checks.
- Give the unit an occasional visual check. Look for water around the base of the unit and listen for any unusual noises.
- Closed loop systems are a sealed system unless an auto purge tank is used. If totally sealed they require no physical maintenance short of visual inspection for leaks. If your system was installed with an auto purge tank / kit it is recommended to check the fluid level in the tank once a month when you replace the air filter. Ensure the fluid level in the tank is between  $\frac{1}{2}$  and  $\frac{3}{4}$  of the way full. It should be rare to have to add fluid after the first year. If you are required to add fluid more than a few times after the first year contact the installing dealer to have the anti-freeze levels checked. Never fill more than  $\frac{3}{4}$  of the way full to prevent over flow.

 **IMPORTANT NOTICE:** UNITS THAT UTILIZE GROUND LOOPS MUST MAINTAIN A MINIMUM OF 20% METHANOL OR 25% PROPYLENE GLYCOL AS AN ANTIFREEZE SOLUTION IN THE UNIT AND GROUND LOOP AT ALL TIMES. FAILURE TO DO SO WILL ALLOW REFRIGERANT TEMPERATURES TO DROP, CAUSING INTERNAL FREEZING OF THE UNIT TO OCCUR, CAUSING SEVERE DAMAGE TO THE UNIT. **DAMAGE TO THE UNIT CAUSED BY FAILURE TO MAINTAIN PROPER ANTIFREEZE LEVELS IS NOT COVERED UNDER WARRANTY.**

- Open loop systems require well water to be pumped through the system. For this reason Hydro-Temp recommends the installing dealer to install isolation valves and a water strainer on the entering water line feeding water to the Hydro-Temp system. Be aware of the location of these components in the event the strainer needs to be cleaned more often than once a year during your preventive maintenance check. Be aware of all isolation valves so cleaning can be done with minimal water spillage. It's a good idea to be familiar with the location of the isolation valves in the event of a major water leak. All open loop systems have a discharge water line that discharges the water to a discharge well, creek, pond, etc. **Check local state and county codes for proper discharge of water.** Be aware of discharge location and check occasionally to insure proper drainage is occurring. During the winter, insure discharge is protected from freezing. Do not attach any kind of sprinkler to the end of the discharge water line as the increase in back pressure will result in decreased water flow and damage the Hydro-Temp system.

- Fan motors are permanently lubricated and do not need further lubrication. Motors and fan assemblies will be inspected on a yearly basis for wear during preventative maintenance checks.
- DHW plumbing consist of a closed recirculating loop which is purged free of air by the installing dealer. If any maintenance or hot water tank replacement is done, insure the DHW plumbing is properly purged of air. Consult with your installing dealer before draining the hot water tank for proper procedures.
- During your annual preventative maintenance check, inspect the drain pans for debris to avoid condensate tubing blockage. Tubing needs to be checked at both ends to ensure blockage doesn't clog up the pipe from the inside or outside of the house if exposed.
- If the system is equipped with a ultra-violet light, the bulb will need to be replaced every 18 months. Due to the hazard of UV exposure, the bulb should only be replaced by a trained professional.
- Be aware of all breaker locations. Some systems may have two breakers for the compressor section. If the system is equipped with auxiliary heat a separate breaker will be needed to supply power to auxiliary heat strips.

#### ADDITIONAL REMINDERS:

Chemicals, cleaners, inhibitors or other products that corrode or attack copper (such as Trisodium Phosphate) should never be placed into the water circulation loop(s) connected to the Hydro-Temp equipment or stored in the same room as the Hydro-Temp equipment. Failure to follow this requirement will void the equipment warranty.

Protect the *Hydro-Temp™* unit from freezing temperatures. If the system is in your attic or outside special precautions may need to be taken to ensure freeze protection.

The *Hydro-Temp™* unit should never be exposed to a dirty or dusty air environment. Dust, such as sawdust or sheet rock dust, can damage the electrical components, fan motor, and air coil on the unit. Simply place a cover (tarp, etc.) over the unit when construction or any other dust producing job is being done in the area of the *Hydro-Temp™* unit. Never run the system during construction. Not only will sheet rock dust plug up and cause damage to the air coil but it will also accumulate in the duct system and slowly be blown out over the years.

- If the unit is ever moved from its original location, never lay it on its side. Never jar or drop the unit during transport. This is a sealed refrigeration system; rough handling may cause the system to develop a leak. Once removed, protect the system from freezing. Anti-freeze may need to be flushed into the plumbing. When being reinstalled, anti-freeze levels will need to be checked.
- All plumbing from the Hydro-Temp system to the hot water tank may require a licensed plumber. If any repairs are ever needed, insure all plumbing is done / maintained with **copper tubing only**. Do not use PVC, CPVC, PEX or any other plastic pipe.
- Keep an accurate service record. Keep a copy of all service reports with this booklet.

## ***A Hydro-Temp Option for a Healthier Environment***

### ***The Purifying Power of Sunlight***

For more than 50 years, scientists have known that one of the most effective sterilizers of airborne contaminants is natural sunlight. Not the light we see when we look out the window, but the invisible ultraviolet rays. The most powerful part of the UV wave is called the “C” band, and that’s what the ultraviolet air purifying system uses to destroy and reduce micro-organisms in the air.

The Air Purifying System is a safe, silent, and proven way to make your conditioned space a healthier place to live. The Air Purifying System has been proven effective in hospitals, schools, daycare centers, restaurants and hotels, and homes.

Installed directly inside your Hydro-Temp System, the Air Purifying System silently and effectively reduces airborne contaminants such as:

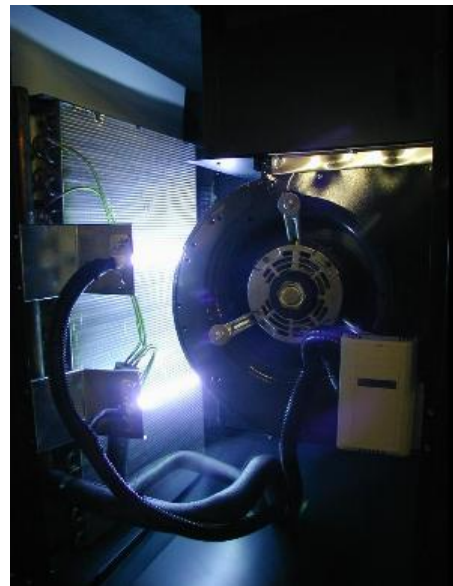
Molds

Dust Mites

Yeasts

Bacteria

Viruses associated with Allergies and Sick Building Syndrome



### **FACTS YOU SHOULD KNOW**

The air circulating through the Hydro-Temp system in your home or office can be some of the poorest quality anywhere. Molds, bacteria, yeasts, dust mites, viruses—all could be present in every breath you take. You fill your lungs up to 20,000 times each day. Over time, these contaminants become concentrated causing allergies, inflammation of the mucous membrane, upper respiratory problems, asthmatic conditions, headaches and even flu-like symptoms.

Indoor air can contain up to 100 times more airborne contaminants than outside air.

Indoor air quality problems, often referred to as Sick Building Syndrome, cost North Americans over \$100 billion each year in health care, absenteeism, lost production and lost revenue.

65 to 75 percent of infections and allergy sources are passed from person to person through the air.

Airborne contaminants cause diseases such as influenza, hepatitis, tuberculosis and pneumonia.

### **HOW DOES THE SYSTEM WORK?**

The Ultraviolet Air Purifying System uses the energy from a specially designed, high-intensity UV-C bulb to kill micro-organisms that cycle through your heating and cooling system. Mounted inside the unit, the Ultraviolet Air Purifying System sterilizes contaminants as they pass by the UV bulb.

The process requires very little maintenance and costs just pennies a day to operate. The Ultraviolet Air Purifying System could be one of the best health and comfort investments you will ever make.

**The ultraviolet bulb needs to be replaced every 18 months.**

**A factory mounted UV on/off switch is located on the front of the system for servicing the blower section.**

**Caution: Exposure to UV light when in operation with the blower section cover removed can cause Sever burn / eye damage. Always remove power when servicing UV light.**

## 4.0 Mounting the Thermostat

Mount the thermostat on a piece of Rubatex™ or similar foam tape, to seal around the wire penetration. Sometimes silicone may be used to help seal this hole. This prevents drafts from affecting the thermistor, and thus helps prevent short cycling of the equipment from errant air movement. Thermostat operating instructions and wiring options are enclosed with the thermostat and should be kept for future operation and set up needs.

### 4.1 Thermostat selection

The standard Hydro-Temp thermostat is the LuxPro PSP722E. Upon request other thermostats can be substituted for the LuxPro. Most will have the same terminals and will wire exactly the same way. Only Heat pump thermostats or thermostats that can be programmed for heat pump mode will work on the terminal strip driven Hydro-Temp System. The two speed systems will require the thermostat to be a two heat plus aux heat and two cool thermostat.



The LuxPro PSP722E meets all thermostat requirements for the single and two speed systems plus it is a 7 day programmable thermostat. **This thermostat must be programmed as a heat pump t-stat to work on the Hydro-Temp system.** Follow the instructions in the next section for programming the t-stat for heat pump mode. The following instructions can be found in the installer manual for the LuxPro PSP722E:

To enter the Installer Setup Menu press and hold the Setup button for 10 seconds.

Use the NEXT button to scroll through its options. As you proceed, the menu item number will be displayed in the left portion of the screen.

Selections can be changed by pressing the UP/DOWN button.

Moving from one menu item to the next and acceptance of changes is done by pressing the NEXT button. All changes become effective when the unit exits the Installer Setup mode.

The Installer Setup mode will be exited when the Setup button is pressed again, or if no other keys are pressed for 20 seconds.

**The following installer setup settings must be changed to operate the Hydro-Temp system.**

<u>Menu Item</u>	<u>Display</u>	<u>Change to</u>
01	System Type	Heat Pump
03	Compressor Stages	2

## 4.2 Thermostat Wiring

The Lux PSP722E should be wired as shown on this page for any terminal strip unit (single speed, dual compressor or single compressor with two speeds). The B terminal on the system terminal strip is used for the optional stage 2 heating or cooling. If your system is a single speed system nothing is wired to the B terminal. The S terminal on the system terminal strip is used for the optional strip heater. If your system doesn't have strip heat (AKA Auxiliary heat) this terminal will have nothing wired to it.

