



HYDROQUIP™

THE **SMART** CHOICE™

HEAT-MAX

ELECTRIC POOL AND SPA HEATER



MODELS:

RHS-5.5
RHS-11.0

5500W HEATER
11,000W HEATER

Operation / Installation Instructions

INTRODUCTION

Your **Hydro-Quip** Remote Heater System has been designed to be installed safely either indoors or outdoors, remote installation. It's weather-tight construction helps to guard against the elements and allows for a variety of mounting possibilities.

Your **Hydro-Quip** Remote Heater System is totally self contained to insure trouble free installation and operation. As with all electrical devices, certain safety precautions should be taken during installation and operation.

IMPORTANT SAFETY INSTRUCTIONS

READ AND FOLLOW ALL INSTRUCTIONS

- **DANGER** – To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.
 - **WARNING** – RISK OF CHILD DROWNING. Extreme caution must be exercised to prevent unauthorized access by children. To avoid accidents, ensure that children cannot use a spa or hot tub unless they are supervised at all times.
 - **DANGER** – To reduce the risk of injury to persons, do not remove suction fittings.
 - Spa location must accommodate sufficient drainage of water around the base of the structure, as well as the power source compartment. Prolonged immersion in water that is warmer than normal body temperature can result in a dangerous condition known as HYPERTHERMIA. The causes, symptoms, and effects of hyperthermia may be described as follows: Hyperthermia occurs when the internal temperature of the body reaches a level several degrees above the normal body temperature of 98.6° F. The symptoms of hyperthermia include dizziness, fainting, drowsiness, lethargy, and an increase in the internal temperature of the body. The effects of hyperthermia include (1) unawareness of impending hazard, (2) failure to perceive heat, (3) failure to recognize the need to exit spa, (4) physical inability to exit spa, (5) fetal damage in pregnant women, (6) unconsciousness resulting in danger of drowning. **WARNING** – The use of alcohol, drugs or medication can greatly increase the risk of fatal hyperthermia in hot tubs and spas.
 - **DANGER** – RISK OF ELECTRICAL SHOCK. Install at least 5 feet (1.5m) from all metal surfaces. (A spa may be installed within 5 feet of metal surfaces if each metal surface is permanently connected by a solid copper conductor attached to the wire connector on the terminal box that is provided for this purpose. Refer to NEC and local codes in effect at the time of installation.)
 - A pressure wire connector is provided on the RHS control box to permit connection of a solid copper bonding conductor between this point and any equipment, metal enclosures of electrical equipment, metal water pipe, or conduit within 5 feet (1.5m) of the unit as needed to comply with local requirements.
 - Bond accessible metal to the dedicated connector on the equipment grounding bus, bond the equipment ground bus to the local common bonding grid as part of the installation in the form of (1) a reinforced concrete slab for support, (2) a ground plate provided beneath the hot tub or spa, or (3) a permanent ground connection that is acceptable to the local inspection authority.
 - **DANGER** – RISK OF ELECTRICAL SHOCK. Do Not permit any electrical appliance, such as a light, telephone, radio, or television, within 5 feet (1.5m) of a spa or hot tub.
- To reduce the risk of injury:
- a) The water in a spa or hot tub should never exceed 104°F (40°C). Water temperatures between 100 ° (38° C) and 104 °F (40 °C) are considered safe for a healthy adult. Lower water temperatures are recommended for extended use (exceeding 10 – 15 minutes) and for young children.
 - b) Excessive water temperatures have a high potential for causing fetal damage during the early months of pregnancy, pregnant or possibly pregnant women should limit spa or hot tub water temperatures to 100°F (38°C).
 - c) Before entering the spa or hot tub, the user should measure the water temperature with an accurate thermometer.
 - d) The use of alcohol, drugs, or medication before or during spa or hot tub use may lead to unconsciousness with the possibility of drowning.
 - e) Persons suffering from obesity or with a medical history of heart disease, low or high blood pressure, circulatory system problems, or diabetes should consult a physician before using a spa or hot tub.
 - f) Persons using medication should consult a physician before using a spa or hot tub since some medication may affect heart rate, blood pressure, and circulation.
- For Permanently Installed Units**
- A terminal marked "G" or "ground" is provided in the wiring box located inside the equipment compartment. To reduce the risk of electric shock, connect the terminal or connector to the grounding terminal of your electrical service or supply panel with a continuous green insulated copper wire in accordance with National Electric Code Table 250-95 and any other local codes in effect at the time of the installation.
- For Permanently Installed Units not Provided with an Internal Disconnecting Method**
- The electrical supply for this product must include a suitably rated switch or circuit breaker to open all ungrounded supply conductors to comply with Section 422-20 of the National Electric Code, ANSI/NFPA 70 –1987. The disconnecting means must be readily accessible to the tub occupant but installed at least 5 feet (1.5m) from the tub water. The electrical supply for permanently installed equipment must also include a suitably rated Ground Fault Circuit Interrupter (GFCI) to comply with article 680-42 of the National Electric Code, ANSI/NFPA 70.

SAVE THESE INSTRUCTIONS

EQUIPMENT DESCRIPTION AND OPERATION

CONTROL BOX

The control box contains all the electrical components necessary to operate your heater. It also contains the field-wiring compartment.



THERMOSTAT

Setting the thermostat, located on the left side panel, controls the temperature of the spa water. When the equipment is operating, the thermostat will control the heater. Initially, adjust the knob to the center heat range. Do not expect to feel hot water coming out of the jets.

The length of time it takes the water to reach the desired temperature depends on several factors: water temperature at start up, ambient air temperature, spa volume, relative humidity, insulation qualities of the spa cover, and consistency of electrical power applied. An insulated cover should be kept on the spa when it is not in use. Prolonged use of an air blower or hydrotherapy jets will have a significant cooling effect on the spa water.



The graduations on the scale around the thermostat are intended for reference points only. They do not reflect the actual temperature of the water. Make small adjustments until the desired temperature is achieved. Allow several hours between adjustments for the temperature to stabilize. Use an accurate thermometer to monitor the water temperature.

HIGH LIMIT

The purpose of this switch is to shut off the heater if the water temperature reaches 117°F. After the water has cooled sufficiently, push to reset. Note: if the switch trips repeatedly, do not use the spa until the problem has been corrected by a qualified service technician.



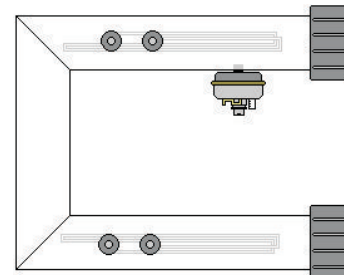
HEATER "ON" LIGHT

This indicator light activates when the heater is on. It is also used as a diagnostic tool for service technicians.



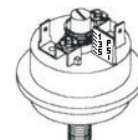
HEATER ASSEMBLY

The heater assembly contains the heating element(s) and is equipped with a pressure switch.



PRESSURE SWITCH

This is a safety device that uses the weight of the water to actuate a switch. If there is no water flow the heater will not turn on. *It is important that the pressure switch is tested for calibration to assure it is operating properly.*



ELECTRICAL INSTALLATION

All electrical connections to the Remote Heater System must be accomplished by a qualified and licensed electrician in accordance with the National Electric Code and any local codes in effect at the time of the installation. All electrical connections must be made in accordance with the wiring information contained in this manual or the wiring diagram included on the inside of the access panel.

The Remote Heater System must be configured to operate at 208-240 volts. Refer to the data label located on the control box to determine voltage requirements. Connection must be made using copper conductors only. Field provided conductors and circuit breakers must be sized to accommodate the total amperage load of the equipment. For Power conductor size, refer to the National Electric Code Table 310-16. For Ground conductor size, refer to the National Electric Code Table 250-95.

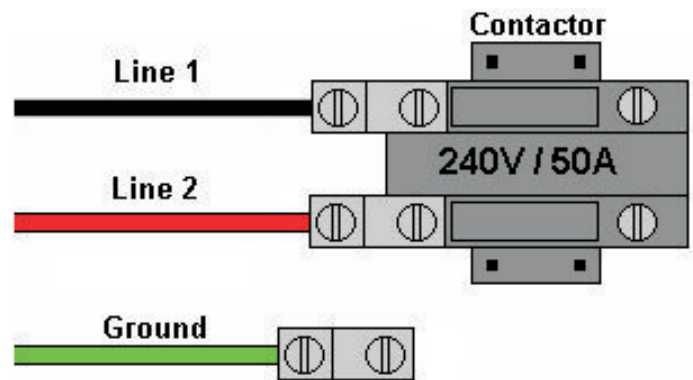
Note: When determining conductor size, the total length of run must be calculated and sized per the National Electric Code.

WARNING – Improper electrical connection or conductor sizing will create the potential for electrical hazard, and may void the warranty.

CAUTION – Use only approved pressure-type wire splicing or connectors suitable for the size and type of wiring used.

240 VOLT INSTALLATION

- 1) Provide the proper voltage and circuit from the service panel as detailed above.
- 2) Open the access panel on the RHS control box to expose wire connections.
- 3) Using copper conductors only, connect input wiring as shown. A two wire electrical connection plus ground is required (Line 1, Line 2 and Ground).
- 4) Close the access panel when connections are complete



SYSTEM START UP

- 1) Turn the thermostat counter clockwise, to the off position.
- 2) Open all WATER shut-off valves, if equipped, on both the inlet and outlet side of the heater to allow water flow into the Remote Heater System.
- 3) Fill the spa or hot tub with fresh tap water to the level recommended by the spa manufacturer.

CAUTION: The Remote Heater System must never be operated without water or serious damage to the heater and/or pump may result which may void the warranty.

- 4) Check all plumbing for leaks.
- 5) With the thermostat in the off position, apply power to the system.

IMPORTANT: It is important that the pump is operated on high speed for several minutes to assure that all of the air has been removed from the system before the heater is turned on. Only after full water flow has been achieved should the thermostat be turned up.

INSTALLATION CONSIDERATIONS

The equipment should be installed so that there is safe access for servicing and routine maintenance.

After filling the spa or hot tub each time it is important that the pump be operated on high speed for several minutes to insure that all the air has been removed from the system before the heater is turned on. Trapped air can cause the heater to dry fire, which is not covered under the warranty.

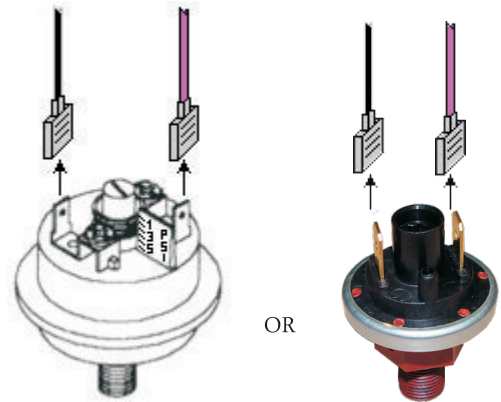
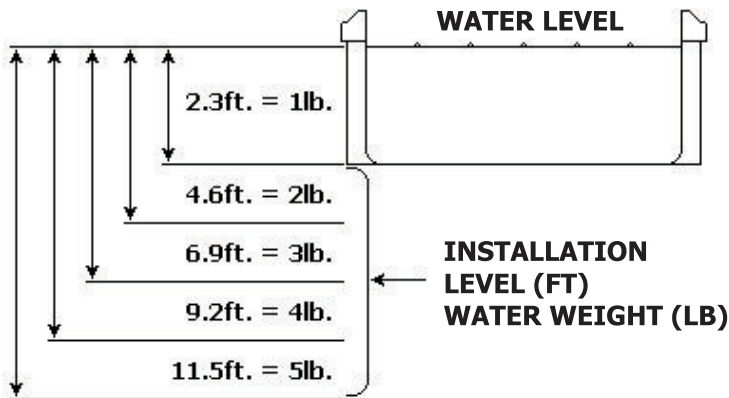
Factory Installed Pressure Switch:

Your Remote Heater System is equipped with a pressure switch. The function of the pressure switch is to shut the heater off if the pump is turned off or if there is restricted water flow (dirty filter, obstruction in the spa plumbing etc.).

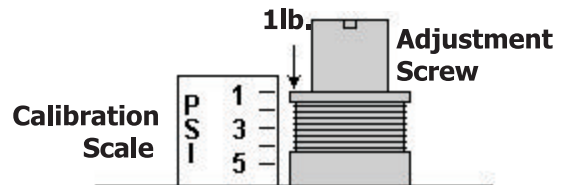
Installation Below Spa Surface:

If the heater is installed more than two (2) feet below the spa water level, adjustment of the pressure switch may be necessary. The following procedures and illustrations outline the adjustment of the pressure switch.

Follow the system start up procedures (leaving the thermostat in the OFF position). **CAUTION:** Remove all power to the unit prior to completing the steps below:



- 1) Shut off power to the HEATMAX System & Pump prior to attempting any adjustments to the pressure switch.
- 2) Remove wires from pressure switch terminals.
- 3) Place an Ohm meter across the pressure switch Terminals to verify an OPEN circuit. If closed proceed to step #4.
- 4) Rotate the pressure switch adjustment screw (slot or torx) *counter-clockwise* until the Ohm meter indicates a CLOSED circuit.
- 5) Finally, rotate the pressure switch adjustment screw *clockwise* until the Ohm meter indicates an OPEN circuit again.
- 6) Apply power to the unit at this time and operate the spa or hot tub as normal.



Note: If the pressure switch CANNOT be adjusted, a flow switch will need to be installed in the spa or hot tub plumbing and the wiring from the pressure switch extended and connected to the flow switch.

FREEZING TEMPERATURES

If your Remote Heater System is to be shut off and exposed to freezing temperatures, the heater must be drained. Water, when frozen, will expand, damaging the heater housing. Disconnect all power to the unit prior to drainage. Follow the filling instructions prior to applying power.

TROUBLE SHOOTING

Heater will not operate:

- 1) Check the main circuit breaker panel. If the circuit breaker has tripped, reset the breaker. If the circuit breaker trips repeatedly, contact a qualified technician to correct the problem.
- 2) Push the high-limit reset button.
- 3) Verify that the filter is clean and not causing restricted water flow.

The spa water will not maintain the desired temperature:

- 1) A spa cover is required to maintain water temperature.
- 2) Turn the thermostat to a higher setting.

Contact Us

**If you encounter any problems or need assistance,
don't hesitate to call our Technical Support staff.**



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