



**Manufacturer of Quality Spas**

*Royalty Series*



**Manufacturer of Fine Spas**  
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Clearwater, FL. 33762  
[www.HYDROSPA.com](http://www.HYDROSPA.com)

Part # 7063  
Revision: May 01, 2004

**Owner's Manual**  
*and*  
**Safety Instructions**



## MAINTENANCE and CARE

Your new spa was built to give you years of enjoyment and pleasure. However, certain maintenance steps must be taken in order to extend life and usability of the spa.

**IMPORTANT!** The warranty on your spa and equipment is dependent on proper water balance through the use of spa chemicals. A special section of this manual will cover chemical usage and requirements. In addition to chemicals water balancing, the following maintenance procedures must be followed periodically.

### MAINTAINING THE SPA COVER

The spa cover should be cleaned monthly. To clean the spa cover, use water and a non-abrasive cleaner on the entire cover. Rinse the cover with a garden hose to remove any cleaner residue. Dry the cover entirely. You should also use a non-silicone based vinyl conditioner on the cover after you clean it. This will protect the cover from sun damage.

### MAINTENANCE SCHEDULE

#### Daily

- Check the water level and refill the spa to the proper level if needed.
- Check the pH balance and sanitizer level. Adjust if necessary.
- Clean the surface of the water with a skimming net.

#### Weekly

- Clean the spa shell at the waterline.
- Check and thoroughly clean the filter if needed.
- Replace the filter if needed. (always have a spare.)

#### Monthly

- Clean the spa cover.
- Soak the filter for two hours in a trisodium phosphate (TSP) solution. Rinse the filter in clean water.

#### Every Three Months

- Drain the spa and refill with clean water. Sanitize and test the pH of the water.
- Check for any leaks around the pump or joints in the pipes. The seals will wear out over time; detecting leaks early can reduce repair cost.
- Clean the interior of the spa. **DO NOT** use solvents or waxes.

Your Spa and Dealer  
Your Spa and Dealer

*Royalty Series*

**Princess  
Empress  
Duchess**

Spa Model: \_\_\_\_\_

Spa Serial Number: \_\_\_\_\_

Purchase Date: \_\_\_\_\_

Dealer's Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_

Zip Code: \_\_\_\_\_

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

## BASIC TROUBLESHOOTING

(before you call for service)

The following describes situations and possible solutions to common problems you may encounter as a spa owner.

### NOTHING WORKS:

**Main Breaker is Off** - Set to On.

**Sub-Panel Breaker Off** - Set to On.

**Equipment GFCI Off** - Set to On.

**Power switch in Off position** - Set to On.

**Components not plugged in** - Plug in components.

**Power cord not plugged in** - Plug in power cord.

**Over or High Temperature Protection On** - Refer to "Error Identification"

### NO, LOW OR SURGING WATER FLOW

**Air Lock in Plumbing System** - "Bleed" the system.

**Restricted Flow** - Insure that the water shut-off valves are open and that suction fittings are not blocked by debris.

**Dirty Filter** - Clean or replace filter.

**Low Water Level** - Increase water level to recommended level.

### NO LOW SPEED PUMP OPERATION

**Low level Programming Incorrect** - Contact your local dealer.

**Over or High Temperature Protection** - Turn power off then back on to reset.

**Pump Not Plugged-In** - Plug in the Pump.

### NO PUMP OR BLOWER OPERATION

**Pump or Blower Not Plugged-In** - Plug in the Blower or Pump

**Over or High Temperature Protection On** - Turn power off then back on to reset.

### NO THERAPY JET OPERATION

**Water Shut-Off Valves are Closed** - Open Shut-Off Valves.

**Dirty Filter** - Clean or Replace Filter

**Jets Not Properly Adjusted** - Adjust Jets properly.

**Diverter Valve not Properly Adjusted** - Adjust diverter valve properly.

**Thermal Overload Tripping** - Check for restricted flow of water.

**Over or High Temperature Protection On** - Turn power off then back on to reset.

### WATER LEAKS

**Spa Overfilled** - Adjust water level.

**Too Many People in the spa** - Adjust water level.

**Drain - Valve left Open** - Close drain valve.

## IMPORTANT SAFETY INSTRUCTIONS

- **DANGER - TO REDUCE THE RISK OF INJURY:** The suction fittings in the spa are sized to match the specific water flow created by the pump/pumps. Should the need arise to replace the suction fittings or the pump/pumps, be sure that the flow rates are compatible.
- **DANGER - RISK OF ELECTRICAL SHOCK:** Install at least 5 feet (1.5m) from all metal surfaces. As an alternative, a spa may be installed within 5 feet (1.5m) of metal surfaces if each metal surface is permanently connected by a minimum No. 8 AWG (8.4mm<sup>2</sup>) solid copper conductor to the wire connector on the terminal box that is proved for this purpose. Do not permit any electrical appliance, such as a light, telephone, radio or television within 5 feet (1.5m) of the spa, unless factory installed.
- Position spa to provide proper drainage of the compartment for electrical components.
- For floor recessed spas, install to permit access for servicing from above or below floor.
- **NEVER USE AN EXTENSION CORD!**
- Consideration should be taken for water splash out. Water can ruin wood floors and some finishes.
- **DO NOT** use a wall switch, ground fault circuit interrupter, circuit breaker, fuse, or plugging and unplugging the spa as a means of turning on or off your spa for normal everyday use.
- **DO NOT** block access door.
- Set the spa on a firm level (flat) surface. **DO NOT** set spa on blocks as structural damage may occur to spa.
- **WARNING** - To reduce the risk of injury. The water in a spa should never exceed 40° C (104° F). Water temperatures between 38° C (100° F) and 40° C (104° F) are considered safe for a healthy adult. Lower water temperatures are recommended for young children and when spa use exceeds 10 minutes. Since excessive water temperatures have a high potential for causing fetal damage during early pregnancy, pregnant or possible pregnant women should limit water temperatures to 38° C (100° F). Before entering a spa, the user should test the water temperature with an accurate thermometer. The tolerances of water temperature-regulating devices vary. The use of alcohol, drugs, or medication before or during spa use may lead to unconsciousness with the possibility of drowning. Persons suffering from obesity, medical history or heart disease, low/high blood pressure, circulatory system problems, or diabetes, should consult a physician before using a spa. Persons using medication should consult a physician before using a spa because some medications induce drowsiness while others may affect heart rate, blood pressure and circulation.

## START UP INSTRUCTIONS

**CHLORINE AND pH TEST KIT:** An accurate, high quality test kit is needed to properly test and maintain the chlorine and pH levels in the spa water.

**THERMOMETER:** A thermometer is necessary in your spa to provide an easy temperature reading. Water temperatures, which are too hot, are unsafe and could cause damage to your spa's finish. Recommended temperatures ranges are 102°F to 104°F. UL has determined that water in excess of 104°F is UNSAFE .

*The following chemicals are not necessary for safe use in your spa. However, depending on the type of water available to you, the products are highly recommended. In most cases, these products will increase the life of your spa and equipment and will make the spa more pleasant to maintain.*

**SPA SHOCK:** This chemical oxidizes or “burns-out” most organic contaminants in the spa water. It works together with the chlorine in your spa. Most often it is a weekly or bi-weekly treatment. (This product is mandatory when using a tablet form of chlorine, bromine or granular).

**STAIN & SCALE REMOVER:** A stain and scale remover prevents water discoloration due to certain minerals in the water. It also prevents scaling which could corrode the pump and shorten its lifespan. Depending on the brand, stain & scale remover is most often a weekly treatment.

**WATER CLARIFIER:** This product is designed to coagulate small particle of unwanted dirt or grime in order to aid filtration. As with the stain & scale remover is most often a weekly treatment. Use of this chemical will prolong your filtration system and filter a spa.

**ALKALINITY INCREASER:** Total alkalinity in the water is the combined measurement of a group of alkaline sales in the water. Too low alkalinity may cause the pH levels to fluctuate excessively when being adjusted. The ideal range for total alkalinity is between 90 -150 p.p.m. range. (A special test kit is required).

**CALCIUM HARNESS INCREASER:** Calcium is the mineral in water, which determines whether the water is “soft” or “hard”. Low calcium can make the spa water is ideal in the 225 - 275 p.p.m. range. (A special test kit is required). Test Strips are recommended for testing.

**BROMINE:** Bromine is an alternative to chlorine as a disinfectant. The benefit of using bromine is that it has less odor and is more pH independent.

Filling the Spa - Insure spa inside is clean. Remove filter cover and place end of garden hose into the filter housing. Fill spa until water level reaches 1 inch below the lowest pillow and above all jets. Do Not overfill. Never fill with water from a water softer.

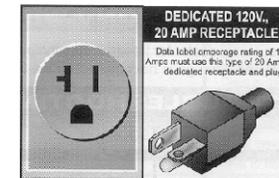
Add Start up chemicals to your spa after filling with water.

Place spa cover onto spa to retain heat until desired temperature is reached. Note: Install spa cover when not in use to maintain heat.

## ELECTRICAL SPECIFICATIONS

The GFCI is a mandatory electrical safety device required for all portable spas as specified in the National Electrical Code Article 680-42. Equipment systems with a built in GFCI Meeting the code requirements will be marked on the top of the control panel with an identification label.

Your spa equipment requires a **DEDICATED CIRCUIT 3 prong receptacle**. No other appliances or lights can be on this circuit. Refer to equipment data label for power supply requirement of your spa equipment. Use copper conductors only. The ground must be equal to or larger than the largest power conductor.



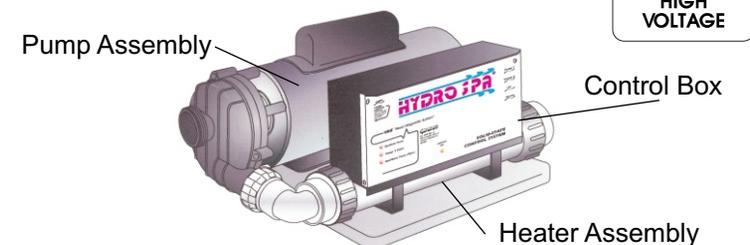
**20A Only**

120 volt systems require a three wire electrical service including the ground, consisting of LINE 1 (Black), NEUTRAL (White) and GROUND (Green).

### EQUIPMENT

Standard Portable Spa Equipment System

**CS-6100**



## DRAINING SPA

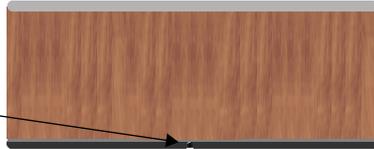
1. Disconnect the electrical power. Never run spa while draining or empty!
2. Locate the drain valve (Fig 2), and then remove the cap from the valve, and screw on the end of a garden hose. Route the garden hose to a place suitable for draining water. Turn valve to the left, then pull valve outward to open fully.

**NEVER SUPPLY WATER TO THE SPA BY THIS MEANS!**

3. NOTE: Some models may take hours to drain completely.
4. Once drained, close the valve back to closed position and install the cap back to the spa drain hose. **DO NOT** supply power again until the spa is refilled! Once filled run the spa until there is good water flow and all air is bled from the system. Once this is done, turn heater thermostat back to the setting you desire.

Fig. 2

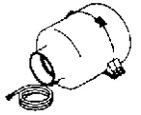
Spa Drain Fitting Valve



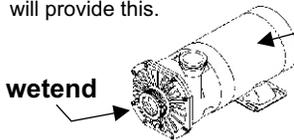
## UNDERSTANDING SPA JARGON

### Air Blower

If you like the bubbling sensation, the blower will provide this.



motor



wetend

Discharge Pump

The pump moves water through you spa filter, heater system, jets, and spa.



### Air Control (AVC)

By turning the lever, it will allow more air flow through the jets providing more water agitation.



### Jets

The openings through which water flows into the spa. Jets affect the direction, volume & velocity of the water.



### Sensor Assembly

The Sensor will monitor the spa water temperature.

### Ozonator



Ozonators bubble ozone into the spa to kill organic matter such as bacteria. They use an ultraviolet lamp. They are mounted in the cabinet and supply ozone into the heater return line. Ozone reduces the use of chemicals in the water. This also aids in maintenance requiring less attention from harsh chemicals and less frequency with which they are used.

### Slide Valve



Handle must be pulled out during normal operation of spa allowing flow of water thought pumps and system.

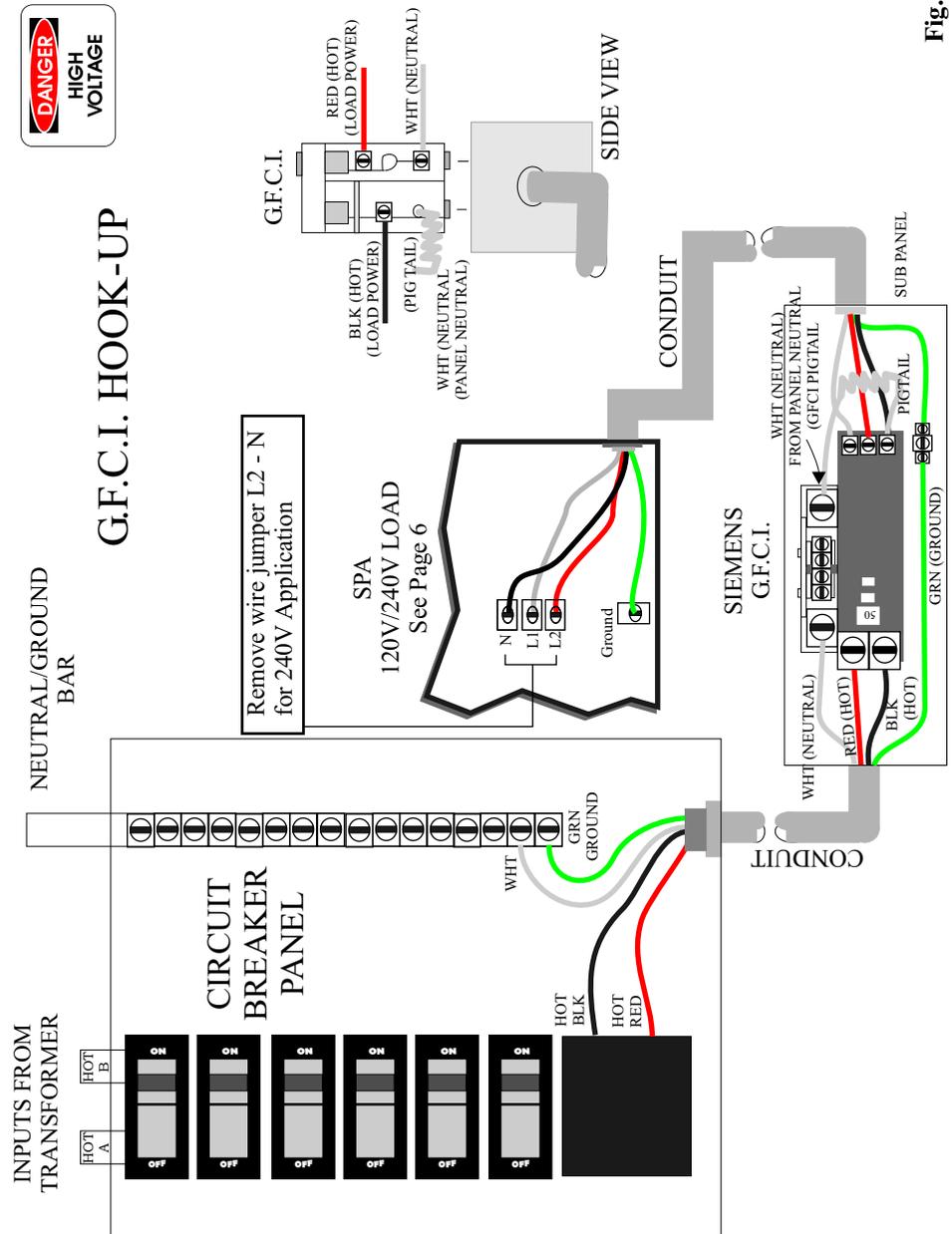


Fig. 1

## Vacation Care Of Spa

Following these instructions to ensure that the water quality of your spa is maintained:

### For Short Periods (3 to 5 days)

Adjust the pH  
Sanitize the water  
Lock cover for safety

### For Long Periods (5 to 14 days)

Set temperature to its lowest level approximate water temperature of 80°F.  
Adjust the pH  
Sanitize the water  
Lock cover for safety

### Return Procedures

Sanitize the water following shock procedures  
Return water temperature to original setting  
Insure chlorine level had dropped below 5.0 ppm

**NOTE:** If you plan on not using your spa for periods exceeding 14 days, you may ask a family member or neighbor to assist with your spa maintenance, and if not available you will need to drain or winterize spa.

## Winterizing Your Spa

During the cold weather you may not wish to use your spa outside. In this case you may move it to a heated area, or leave it until the weather warms up.

**WARNING:** Allowing your spa water to freeze will cause severe damage to the spa shell, equipment, and plumbing and **WILL VOID WARRANTY.**

**The following steps should protect your spa from freezing:**

- Disconnect the spa from the power supply.
- Remove the screws holding your spa excess panel door.
- Open the valve and the spa will drain by gravity flow.
- Remove the filter cartridge, then clean and store in a dry place.
- Attach a wet/dry shop vac (capable of blowing air as well as vacuuming) into the filter housing.
- Turn blower on and allow it to blow out any water remaining in the plumbing lines. (Should take no more than 5 minutes).
- Reinstall the filter housing.
- Use the shop vac to remove water inside spa blown through jets.
- Use a shop vac and clean towel and remove any remaining water from bottom of spa until dry.
- Leave the drain open.
- Close the spa cover and fasten with tie down safety locks.

## PROGRAMMING FILTRATION

**Programming Filter Cycles:** You may choose to filter the spa 1, 2 or 3 times per day as required to keep the water clean and sanitary. Press both the pump and arrow up keys at the same time. The current setting will be displayed. Use the Up and Down arrow keys to increase or decrease the frequency of the filtration cycles per day. The filter cycle is now set. To start filter cycle immediate, press both the pump and up arrows keys. The cycles will repeat every 8, 12 or 24 hours within a 24-hour period starting from the time programmed. It is recommended to schedule the filtration cycles so they do not interfere with sleeping hours.

**Programming Filter Cycle Duration:** You may choose to filter your spa 60, 120, 180 or 480 minutes per cycle as required to keep the water clean and sanitary. Press both the Light and arrow up key. Use the Up and Down keys to increase or decrease the duration of the filter cycle. The duration is now set. To start a filter cycle immediately, press and hold the Light Key.

**Note:** If a Key is not pressed with 5 seconds during programming, the system will revert back to the monitoring mode. If the Pump and/or light were turned on during the programming process, turn them off. The system will revert back to display the water temperature within 5 seconds.

**Power Loss:** Any interruption of power will cause the unit to reset and revert to the default programming of 95 ° F set point temperature and 2, 1-hour filtration cycles.

## ADDITIONAL FEATURES

**Smart Winter Mode:** If the system detects ambient conditions below a present factory setting, the system will automatically activate the Smart Winter Mode for a period of **24 hours**. In this mode, if a pump has not been powered in the last 2 hours, the system will turn it on for a minute to prevent freezing. The filter Mode light indicator will flash while the pump is running in this mode. **Note: If you notice the pump coming on every 2 hours. This is the most likely cause. This will continue for a 24-hour period. This is normal and is the systems protection against freezing.**

**Over Temperature Protection:** If the water temperature exceeds 112 F at the Temperature sensor 3 flashing dots will appear below the temperature display and the heater as well as all other outputs will shut off. After the water has cooled down power to the spa must be cycled on then off to reset the system. If the spa water temperature does not seem to elevated, the error indication may have been caused by poor water flow or electrical line interference (thunder storms, voltage surges, etc.). Simply reset and monitor the system.

**Power-Up Detection:** Upon first powering the system or if a power outage occurs, the display will flash until a key is pressed. This feature also lets the user know there has been a power failure.

## ERROR IDENTIFICATION

### Three Flashing Dots with Pump Off

**Pressure or Flow Switch Activated:** If 3 flashing dots appear below the temperature display while there is no pump operating, turn the pump on. If the 3 flashing dots went away this indicates that the pressure or flow switch was activated although there was no water flow. (Contact Your Local Dealer for Service)



### Three Flashing Dots with Pump On

**Pressure or Flow Switch Not Activated:** If 3 flashing dots appear below the temperature display while the pump is operating, turn the pump off. If the 3 flashing dots went away this indicates that the pressure or flow switch was not activated although there was water flow. Note: A dirty filter limiting the water flow will also cause this error message to appear. (Contact Your Local Dealer for Service)



### Temperature Sensor

If the display shows a constant 32°F or 125°F and this is not the actual temperature or the displayed temperature greatly differs from the actual spa water temperature, problem with the water temperature sensor has occurred. Contact Your Local Dealer for Service)



### High Temperature

If 3 flashing dots appear below the temperature display and the temperature displayed is 115°F or higher, and over temperature condition and a need for service has occurred. (Contact Your Local Dealer for Service)



**NOTE:** If you notice the pump coming on for seemingly no reason throughout the day, the system may be in “Smart Winter Mode”. If you cannot control some functions of the spa be sure to check to see if the Filtration Indicator is illuminated. The spa may be in the midst of a filtration cycle. Freeze Protection and Over Temperature Condition will also limit or disable spa functions.

## FILTER CLEANING

### Filter Cleaning and Cartridge Replacement

The filter in your spa should be cleaned at least every 5-6 weeks, depending on spa usage. This will ensure that the water is being filtered properly, and there is no restriction in the filter due to dirt and grease build-up.

Cleaning the filter can be done easily using a Filter Degreaser solution and following the directions on the bottle. Soak filter in a degreaser and power wash with a garden hose. It is recommended to have a second filter, which can be cleaned between filter changes. This will enable you to quickly exchange the dirty filter with a clean filter and immediately start your spa



**Filter Element  
Part # 5107**

### Care Of The Exterior

#### Spa Shell

Your spa shell is made of acrylic. Stains and dirt generally will not adhere to the surface. Using a soft rag or a nylon scrubber should easily remove most dirt. Most household chemicals are harmful to your spa's shell. See your dealer for the best product to use. The only products which have passed the manufacturer's test are Soft Scrub and Windex. Sodium bicarbonate (baking soda) can also be used for minor surface cleaning. Always thoroughly rinse off any spa shell cleaning agent with fresh water.

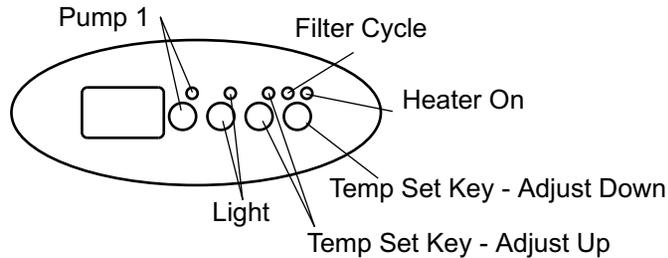
**NOTES:** Iron and copper in the water can stain the spa shell if allowed to go unchecked. Ask your Hydro Spa dealer about a stain and scale inhibitor to use if your spa water has a high concentration of dissolved minerals.

The use of alcohol or any household cleaners other than those listed to clean the spa shell surface is NOT recommended. **DO NOT** use any cleaning products containing abrasives or solvents since they may damage the shell surface. **NEVER USE HARSH CHEMICALS!** Damage to the shell by the use of harsh chemicals is not covered under the warranty.

**IMPORTANT:** Some surface cleaners contain eye and skin irritants. Keep all cleaners out of the reach of children and use care when applying.

## TOP SIDE CONTROL BUTTONS

### OPERATION



**Default System Operation:** When power is applied, or there is a temporary loss of power, the system will initiate its default programming. The filter cycle will begin 24-hours after the system has been powered up. The filtration cycle will be active for 1-hour and will repeat every 12-hours. The temperature will be maintained at 95° F. (Default setting can change) w/out notice



**Pump 1 Key (Jets 1):** Press this key once to turn Pump 1 onto Low speed, press this key a second time to turn Pump 1 onto High speed, a third press will turn the pump off. A built-in timer will shut the pump off after 20 minutes of operation unless done so manually. The Pump 1 indicator will illuminate while the pump is running. If the filter cycle indicator is illuminated, a filtration cycle has begun and you will not be able to turn the pump off.



**Light Key:** Press this key to turn the Light on and off. The light will automatically shut off after 2 hours.

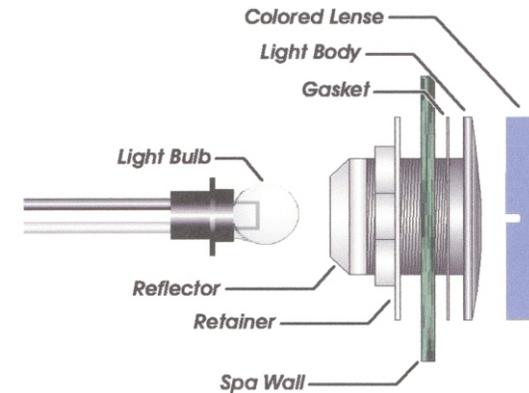


**Temperature Set Keys:** Press the Temperature Set Key Up to increase the desired temperature. Press the Temperature Set Key Down to decrease the temperature. The temperature can be adjusted in 1° F increments from 59° F to 104° F (5°C to 40° C). The new setting will remain on the display for 5 seconds as a confirmation. During this time the Temperature Program indicator will illuminate to let you know this is the desired and not the actual temperature. After 5 seconds the display will return to the current temperature reading. When the temperature drops to 1° F below the set temperature, the heater will be turned on until the temperature is 1° F above the set temperature. The heater On indicator will illuminate while the heater is on and flash when there is a call for heat and the heater has not yet been activated.

## REPLACING SPA LIGHT BULB

To replace the spa light bulb, open up the access door and look on the body of the shell and locate the light. Remove the bulb by twisting on the bulb socket (not wires), as illustrated. Once removed, pull the bulb from the light socket and replace by reversing steps.

**NOTE:** The replacement bulb must be of the same electrical rating as the factory installed bulb.



## Your Cabinet & Cedar Skirting

Your cabinet has an access panel or door to the internal parts which consists of a pump or pumps, motor or motors, heater, ozonator (if you have one), filter housing, hoses, and wiring to provide electricity to your control system.

The cabinet frame is made of treated wood, and covered outside by either redwood, cedar or cypress.

The cabinet should be treated just like any other piece of furniture in your home. If spa will be setting outside in the weather, remember that it will be out in all types of conditions such as rain, sun and the wind. It will be necessary at least every 4 months to retreat the wood using a water-resistant stain (linseed oil) to protect the wood as needed. You may also order stain through the manufacturer.

## CHEMICALS

### Voltage Conversion Instructions or Upgraded Systems

Warning - Disconnect all electrical power to the equipment BEFORE attempting any conversion procedure.

- 1 - Remove front panel of the equipment control box and locate the power terminal compartment.
- 2 - Remove and discard 120 Volt Power cord. Never use 120 Volt power cord for a 240 Volt unit.
- 3 - Remove jumper L2-N on terminal block. (See Fig. 1 page 7)

Install 40AMP GFCI then connect proper sized wiring and bonding wire. A bonding lug has been provided on the equipment control box to allow connection to local ground points. To reduce the risk of electrical shock, a #8 or larger solid copper bonding wire should be connected from this lug to any metal ladders, water pipes or other metal objects within 5 feet of the spa. See page 7 for proper GFCI hook up.



**WARNING** - Be sure that your power supply circuit can adequately handle the amperage you select.

**WARNING** - Do not change configuration plugs while power is on.

The 240 volt system requires a four wire #6 electrical service including ground, consisting of Line 1 (Black), Line 2 (Red), Neutral (White) and Ground (Green).

**IMPORTANT:** This service must be single phase. Do not attempt to fix these types of problems yourself. **High voltage can seriously injure or kill. Always use a certified electrician when hooking up your new spa.**

Remember, high voltage is still accessible in the house breaker box even

MODEL	VOLTS	AMPS	AMP LOAD	MARKING	APPLICATION
STANDARD					
Princess	120	20	16	3 Prong Plug 20A	HydroQuip CS6100
Empress	120	20	16	3 Prong Plug 20A	HydroQuip CS6100
Duchess	120	20	16	3 Prong Plug 20A	HydroQuip CS6100
UP-GRADE					
Princess	240	50	40	3 Wire #6 + Grd 3	HydroQuip CS6100
Empress	240	50	40	3 Wire #6 + Grd 3	HydroQuip CS6100
Duchess	240	50	40	3 Wire #6 + Grd 3	HydroQuip Cs6100

**IMPORTANT!** The following section on chemicals must be read and understood fully! The warranty on your new spa is dependent on the proper use of these chemicals.

The biggest threat to a spa is poor chemical balancing of the water. Spas can present health hazards if inadequate maintenance programs are used. Consider that four people in 1,000 gallons spa are equal to 160 people in 38,000 gallons of water in a pool. Bear in mind that the water in your spa is at a very high temperature. These conditions could create an unsafe environment if the water is not properly maintained.

*The following are some important points when dealing with spa chemicals:*

1. Always follow the directions on the individual (bromine & chlorine) chemical containers.
2. Never mix different types of chemicals, it could cause a fire or explosion.
3. Never store chemicals in anything but their original containers.

### CHEMICALS AND ACCESSORIES NEEDED FOR SPA

There are many types of chemicals recommended for use in spa. Some are mandatory, where others are optional.

*Below is a list of all chemicals and accessories with an explanation of each:*

**CHLORINE:** A highly concentrated chemical, which is used in pools and spas as a bactericide and algaecide. Chlorine will sanitize and disinfect your spa. Chlorine is most often available in two different forms, a concentrated granular form and tablet form. (When using a tablet form of chlorine, a non-chlorine shock is recommended). A residual of 1-1.5 p.p.m. (parts per million) is needed.

**pH UP & pH DOWN:** The pH level of water represents the amount of acid or alkaline in the water. This can promote scaling, cloudy water, eye irritations, and difficulty in maintaining a proper chlorine level. Too low pH makes the water in the spa corrosive. This could lead to damage to the spa itself or the spa pack. **NOTE THIS DAMAGE IS NOT COVERED UNDER WARRANTY!** A pH level of 7.2 - 7.6 p.p.m. is to be maintained in your spa.

## CHOOSING A LOCATION

**IMPORTANT:** Because of the combined weight of the spa, water and users, it is extremely important that the base upon which the spa rests be smooth, flat, level and capable of uniformly supporting this weight, without shifting or settling, for the entire time the spa is in place. If the spa is placed on a surface which does not meet these requirements, damage to the skirt and/or the spa shell may result. Damage caused by improper support is not covered under warranty. It is the responsibility of the spa owner to assure the integrity of the support at all times. It is strongly recommended that a qualified licenced contractor prepare foundation for your spa.

Manufacturer recommends a poured, reinforced concrete slab with a minimum thickness of 4 inches (10cm). Wood decking is also acceptable provided it is constructed so that it meets the requirements outlined above. The spa must be installed in such a manner as to provide drainage away from the spa. Placing the spa in a depression without provisions for proper drainage could allow rain, overflow and other casual water to flood the equipment and create a wet deck. Install so as to permit access to the equipment, either from above or below, for servicing. Make certain that there are no obstruction which would prevent removal of the cabinet side panels and access to the jets components, especially on the side with the equipment bay doors.

### Outdoor Location

In selecting the ideal outdoor location for your spa, we suggest that you take into consideration:

1. The proximity to changing area and shelter (especially in colder weather conditions).
2. The pathway to and from the spa (free of debris, dirt, leaves as not to be tracked into spa).
3. The closeness to trees and shrubbery (leaves and birds could create extra work).
4. A sheltered environment (less wind, weather exposure resulting in lowered operation and maintenance costs).
5. The overall enhancement of your environment. It is preferable not to place the spa under an un-guttered roof overhang since run-off water will shorten the life expectancy of spa cover.

### Indoor Location

Be sure your spa will fit into the space you have chosen. Proper access into the home is needed to move the spa into place. Ventilation may be needed because of the humidity from the spa. In most cases, a spa cover is sufficient. Be sure to check the load carrying capabilities of the floor you will be installing your spa, as most homes meet the requirement of 80lbs per square foot (manufacturer not responsible). Insure you have proper drainage in the event of a leak or water spill due to over load of spa with people causing water damage (manufacturer not responsible. Incase of maintenance problems; leave enough room around the spa to work. Choose proper flooring area for spa.

## CHEMICAL STARTUP

The initial chemical startup of your new spa involves a number of simple steps. Most important is adjusting the pH level of the water and introduction chlorine (or bromine) into the spa. Follow the step-by-step procedures listed below and remember to follow the directions on each individual chemical bottle.

Test both pH and the chlorine/bromine levels of the water.

Adjust the pH level by adding decreaseer or pH increaser . **NOTE!** The pH may be too high or too low to fully adjust in one treatment. Do not try too make large changes in the pH with one treatment; you must increase or reduce the pH gradually to ensure damage does occur to your spa or equipment.

Add chlorine/bromine into the water in the method your have chosen. **NOTE!** If a tablet of chlorine/bromine is used, "shock" the water first with the spa shock.

Add the Water Clarifier and Stain & Scale chemicals as recommended on the chemical bottle.

## CHEMICAL TROUBLE SHOOTING GUIDE

Just as with anything else, adjusting and balancing spa chemicals takes practice. Below are a number of common problems, which may arise in your spa water. Try curing the problem by following the trouble-shooting guide. If the problem persists, or the problem is not covered in the following guide contact your authorized Hydro Spa Dealer.

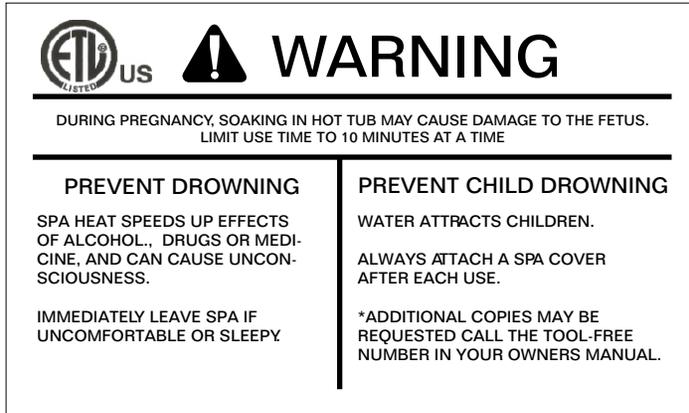
PROBLEM	SOLUTION
Cloudy Water	1. Cloudy water is normally due to high pH or low chlorine/bromine levels. Test the water and correct the pH levels and chlorine/bromine levels. 2. Excessive use of defoamer chemical may cause the water to turn cloudy.
Foamy Water	Use defoamer in the water. This chemical must be used only when necessary. It will cause the water to turn cloudy if used excessively.
Green or Yellow Water	This usually means the water is low on chlorine/bromine levels. "Shock" the water and test for chlorine/ Bromine levels. Add Water Clarifier.
Scum Line	A scum line will normally appear on the water level of the spa. However, it is unusual for scum line to persist. Add Stain & Scale Remover as directed.

## CHEMICAL TROUBLE SHOOTING

## **IMPORTANT SAFETY INSTRUCTIONS**

When installing your spa and using this equipment, basic safety precautions should always be followed, to include the following:

- **READ AND FOLLOW ALL INSTRUCTIONS!** The following instructions are required by UL 1583 standard to be printed as a condition of their listing this product. They contain important safety information we strongly urge you to read and apply.
- **DANGER - TO REDUCE THE RISK OF INJURY:** Do not permit children to use spa unless they are closely supervised at all times.



### **WARNING SIGN MUST BE POSTED**

The WARNING sign (RED) above is packed with your new Hydro Spa. This sign must be posted in a prominent place in close proximity to the spa installation site immediately upon completion of spa installation.

- **WARNING SIGN** - It is extremely important that this sign be permanently placed in clear view of any persons using the spa. Occasional spa users may not be aware of some of the dangers hot water poses to pregnant women, small children, and people under the influence of alcohol. If you did not receive a warning sign or your sign has become damaged, please contact your spa dealer or manufacturer.
- **DANGER** - A wire connector is provided on this unit to connect a minimum No. 8 AWG (8.4mm<sup>2</sup>) solid copper conductor between unit and any metal equipment, metal enclosures of electrical equipment, metal water pipe, or conduit, if that item is located within 5 feet (1.5m) of the unit.
- **DANGER - RISK OF ACCIDENTAL DROWNING:** Extreme Caution must be exercised at all times, to prevent unauthorized access by children. To avoid accidents, ensure that children cannot use spa unless they are supervised at all times. Cover spa and use safety locks to prevent accidents. 2

**Coupling or Unions Loose** - Tighten or contact your local dealer.  
**Pump Seal Leaking** - Contact your local dealer.  
**Pump Seal leaking** - Contact your local dealer.  
**Plumbing / Connection Leaking** - Contact your local dealer.  
**Water Leaking from Spaside Control** - Contact your local dealer.  
**Water in Air Blower Plumbing** - Contact your local dealer.

### **NO HEAT**

**Temperature Not Set Correctly** - Adjust Set Point.  
**Over or High Temperature Protection On** - Turn power off then back on to reset.  
**Current Limiting On** - 120V Systems will not heat if High Speed or Blower is on. Contact your local dealer.  
**No Power** - Reset breaker at service panel.  
**Low Water Flow** - Clean or Replace Filter.

### **HIGH HEAT**

**Temperature Sensor Not in Dry-Well** - Place sensor in dry-well.  
**Temperature Set Too High** - Adjust Set Point.  
**High Ambient Temperature** - Remove spa cover.

### **GFCI TRIPS OCCASIONALLY**

**Lightning or Electrical Storm, Power Surge, Extremely Humid Conditions, or Radio Frequency Interference** - Reset GFCI. NOTE: GFCI must be properly grounded and bonded.

### **GFCI TRIPS IMMEDIATELY**

**Defective Component** - Contact a qualified service technician or the factor for assistance.

### **NO LIGHT OPERATION**

**Light Bulb Defective** - Replace bulb or contact your local dealer.  
**Reflector has Fallen Off** - Replace deflector or contact your local dealer.  
**Light Not Plugged-In** - Plug in the light.

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## Lifetime Spa Structural Warranty

Hydro Spa warrants the Royalty spa shell structure, against the loss of water through the fiberglass laminate of the shell caused by defects in materials and workmanship for as long as the original purchaser owns the spa. Contact your dealer if you have any questions concerning warranty issues, prior to contacting Hydro Spa.

## 5 Year Limited Hydro Spa Surface Warranty

Hydro Spa warrants the Royalty Series interior acrylic spa surface against blisters, cracks, or delaminating resulting from a defect in the acrylic surface material for a period of 5 years from the date of purchase, based on the following formula: Retail cost divided by months covered (60 months), multiplied by months owned = replacement cost. Royalty Series 5 year surface warranty. Spa Surface Warranty issues will be notified to Hydro Spa by CERTIFIED MAIL to warranty department within 30 days of defect found or warranty will be void.

## Lifetime Manifold Plumbing Warranty

Hydro Spa warrants the Royalty plumbing manifolds, fittings, and parts to be free of defects in materials or workmanship for as long as the spa is owned by the original purchaser.

## Limited Electrical Equipment Warranty

Hydro Spa warrants the Royalty Series electrical equipment and components to be free of defects in materials and workmanship for a period of 1 year from the date of purchase.

## Warranty Performance

In the event of a defect covered under the terms of this Limited Warranty, notify your Hydro Spa Dealer. At the time of delivery warranted to be free of defects in workmanship and materials, light bulbs, light lenses, fuses, headrest, cabinet finish, filter stereo and related equipment 90 days. Use all reasonable means to protect the spa from further damage. A service representative from your selling Dealer will repair the spa subject to the terms and conditions contained in this Limited Warranty. The service representative may assess reasonable travel charges, during inspection or repairs. If we determine that repairs are not feasible due to functional defect, we reserve the right to provide a replacement part or spa in lieu of repair. We will replace with a part of value equal to the original purchase. In such event, reasonable costs for removal of the defective spa and delivery and installation of the replacement spa will be the responsibility of the spa owner. We reserve the right to an on-site inspection by an authorized service representative. HYDRO SPA WILL NOT PAY REIMBURSEMENTS WITHOUT PRIOR AUTHORIZATION.

## Limitations and Exclusions

This limited warranty applies to spas sold after January 1, 2004 by Hydro Spa. This limited warranty applies only to the Original Purchaser and terminates with any transfer of ownership. This limited warranty does not apply to a spa used for any commercial, rental, club purposes, or for any spa used outside of the United States. The purchaser must establish the date of purchase by dated sales invoice or delivery receipt.

This limited warranty does not cover damage resulting from abuse, misuse, or neglect including any installation, operation, maintenance, or use of spa other than in accordance with the Owner's Manual of the spa. Improper operation of the spa at water temperatures outside the range of 32 degrees F. and 120 degrees F., damage caused by dirty, clogged, or calcified filter cartridges, damage to the spa surface caused by improper use of chemicals or cleaning agents, allowing undissolved spa sanitizing chemicals to lie on the surface, damage caused by improper pH balance or other improper water chemistry, damage caused by failure to provide even and sufficient support for the spa, are considered abuses and may invalidate this Limited Warranty. Damage caused by repairs or alterations performed by anyone other than an authorized service representative is not covered. Failure caused by accidents, acts of God, nonstructural normal wear and tear, cosmetic blemishes and other causes beyond our control is excluded.

THE WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL HYDRO SPA BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

## Disclaimers

The spa owner is required to provide adequate access to the spa for any repair or inspection. Hydro Spa shall not be liable for loss of use of the Spa or other incidental or consequential costs, expenses or damages, which may include but are not limited to water damage, or the removal of a permanent deck or other custom fixture. Under no circumstances shall we, or any of our representatives be held liable for injury to any person or damage to any property, however arising. This warranty gives you specific legal rights and you may have other rights. No Agent, Dealer, Service Company, or other party is authorized to change, modify, or extend the terms of this Warranty in any manner whatsoever.