PS-6503B &
PS-6603B SERIES

Operation Manual
Duplex Models

BALBOA™ **PlatinumSeries**
by HYDROQUIP™

Introduction

This manual covers electrical and installation details on the following product series. Some photos and instructions may not apply to the product you have purchased.

-VH Series "Versi-Heat" Heater configuration: This series is designed to allow the heater to be positioned within 60" of the control to provide an installation where there may not be enough room in the immediate equipment area and to minimize plumbing modifications. Depending upon the actual control being replaced, you may still need to modify the plumbing to achieve proper alignment.

-LH Series "Less Heater" configuration: This series allows the use of customer supplied custom heater configurations which may not have been available from Hydro-Quip. Please refer to the "LH" wiring diagram enclosed with the "LH" wiring harness for specific wiring connections and details NOT covered within this manual.

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IMPORTANT SAFETY 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.
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 . Refer to NEC and local codes in effect at the time of installation.)

▶ A bonding lug is provided on the 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:

▶ The water in a spa or hot tub should never exceed 104°F (40°C). Water temperatures between 100°F (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.

▶ 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).

Before entering the spa or hot tub, the user should measure the water temperature with an accurate thermometer.

The use of alcohol, drugs, or medication before or during spa or hot tub use may lead to unconsciousness with the possibility of drowning.

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.

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 Cord and Plug Connected Units

Must be connected to a grounded, grounding type receptacle only. NEVER connect the spa to an extension cord.

Do not bury the cord.

WARNING -To reduce the risk of electrical shock, replace damaged cord immediately.

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 422-30 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.

For Units with Gas Heaters

WARNING - Do not install indoors. This unit uses a gas heater that requires proper ventilation and is intended for outdoor use only.

High Voltage Warning

HIGH VOLTAGE CAN SERIOUSLY INJURE OR KILL!
ONLY EXPERIENCED TECHNICIANS SHOULD SERVICE THIS EQUIPMENT.
DO NOT remove the protective covers from any electrical enclosure, or attempt to service any related electrical device, unless you are a qualified electrician or service professional.

DANGER

Risk of electric shock. Before working with any electrical connections, make certain that the Main Power breaker from the house breaker box has been turned off.

WARNING

All electrical work must be performed by a qualified electrician and must conform to all local codes.

IMPORTANT

Due to the danger of severe electrical shock, locate all power disconnects before servicing a spa. Precautions must be taken whenever working with breaker boxes, G.F.C.I.’s, or service disconnects.

Electrical Installation

A licensed electrician must accomplish the electrical installation in accordance with the National Electric Code(NEC) Article 680, and any local codes in effect at the time of installation.

Refer to the System Data Label for equipment voltage and maximum amperage draws.

The GFCI (Ground Fault Circuit Interrupter) is a mandatory electrical safety device required for all portable spas and hot tubs as specified in the National Electrical Code Article 680-42. The GFCI in your particular installation may be installed at the electrical service panel or a separate sub-panel.

Use copper conductors ONLY. The ground must be sized following the National Electric Code, Table 250-122. For Power conductor size, refer to the National Electric Code Table 310-16.

A bonding lug has been provided on the control box to allow connection to local ground points. To reduce the risk of electrical shock, a solid copper bonding wire should be connected from this lug to any metal objects within 5 feet of the spa.

The NEC and most local codes require that a “disconnect” be installed within “line-of-site” of the spa.

Circuit & Breaker Rating	15A	20A	30A	40A	50A	60A
Maximum Amps	12A	16A	24A	32A	40A	48A
Minimum Wire Size	14	12	10	8	6	4

The above table is a wiring chart representation.

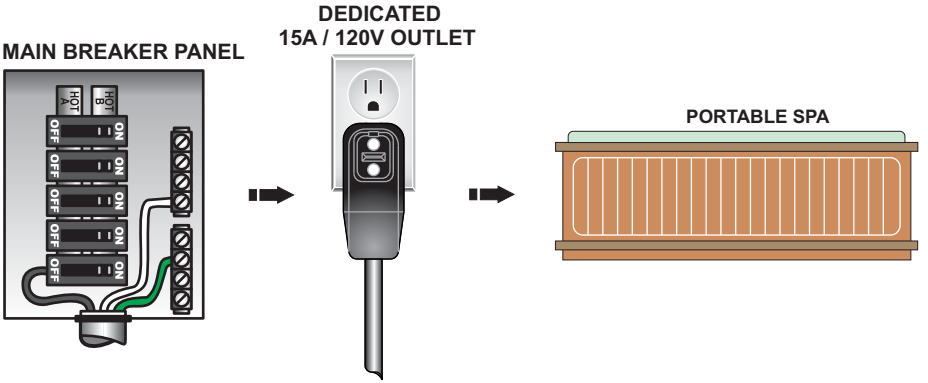
IMPORTANT- If your electrician is not absolutely sure how to connect your system correctly, call your local dealer. Any mistake may be costly and void your equipment warranty.

Electrical Installation

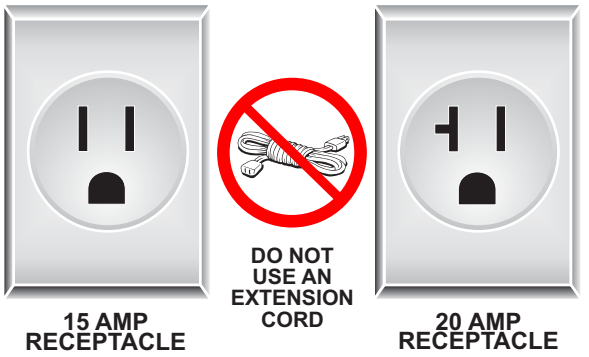
If your system was configured to include a 120VAC power cord, ensure that the proper receptacle has been installed (a dedicated circuit is required). DO NOT under any circumstances modify a 20 Amp plug to fit into a 15 Amp receptacle or use an extension cord. Doing so will create hazardous conditions and/or invalidate the warranty.

OPTION 1 Units with 15A / 20A GFCI Plug Connection

15/20AMP CORD END GFCI

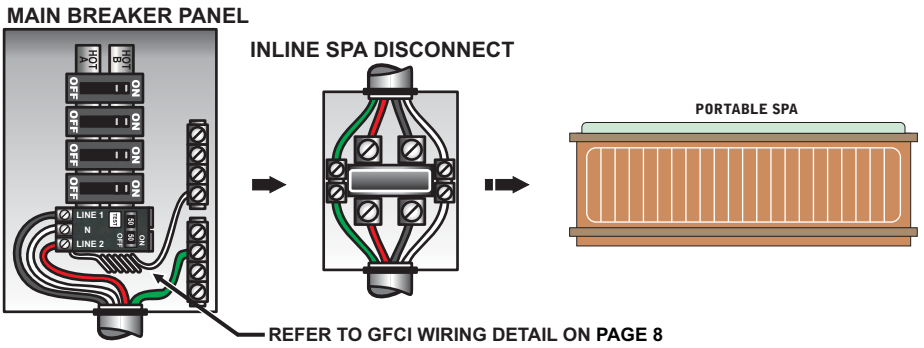


This illustration depicts a typical 15 AMP, cord-end GFCI installation.
(The spa must be installed on a dedicated circuit.)



OPTION 2 GFCI Installed in Main Service Panel

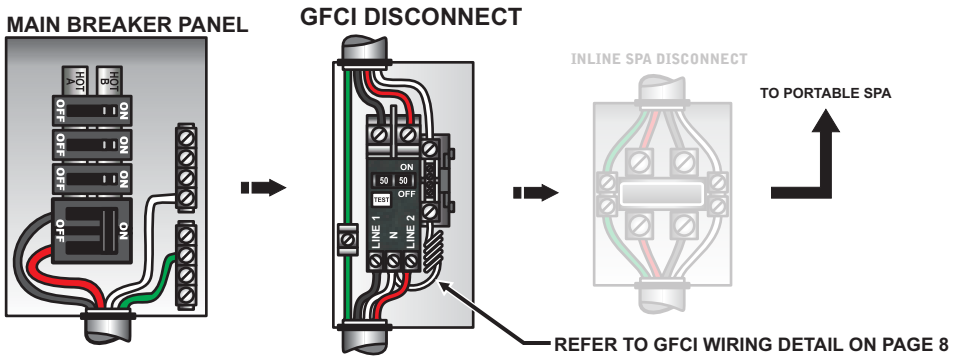
20-60AMP HARDWIRED



Option 2 shows the power from GFCI breaker installed into main service panel to a service disconnect within line-of-site of the spa. If the manufacturer of your homes main breaker panel makes a GFCI breaker, you may be able to add it to an open slot in the panel.

OPTION 3 Subpanel GFCI Installed

20-60AMP HARDWIRED

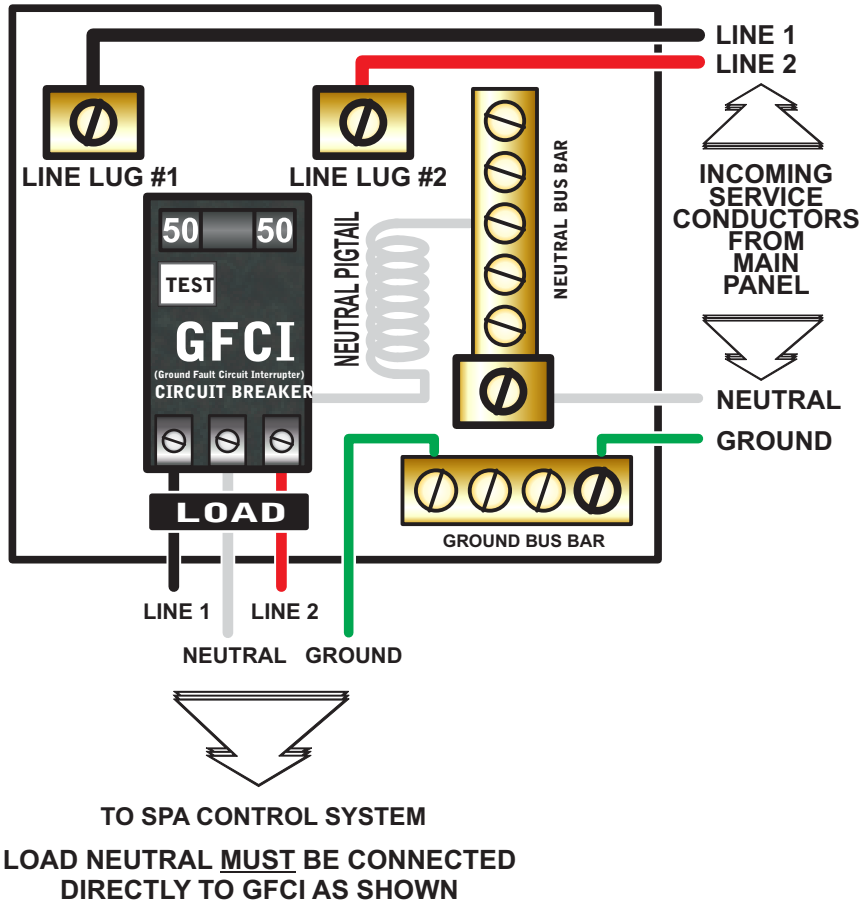


Option 3 shows the power from main service panel to a GFCI subpanel within line-of-site of the spa. (Note: Most local codes will allow a GFCI subpanel to be a disconnect. If this is not the case in your installation, a disconnect must be provided.)

GFCI Wiring Detail

It is important that the GFCI circuit breaker is installed correctly. Often this component has been improperly installed causing the breaker to instantly trip when the system is turned on. Below is an illustration of a typical GFCI breaker installation.

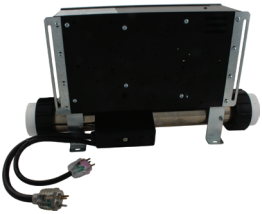
WARNING: Refer to the circuit breaker manufacturers installation instructions. This illustration is meant to be a guide for Field Technicians and is not intended to override or substitute the instructions supplied with the circuit breaker.



INSTALLATION

The Hydro-Quip “Slide” series control offers the ultimate in installation flexibility. The heater can be installed at the bottom, top, back, or remotely up to 60”* away allowing for full coverage of all installation variations. *Requires the purchase of optional heater assembly. If installing with optional “L-shaped” heater, follow back installation below. Hydro-Quip assumes the person installing this control system is a qualified Service Professional and is familiar with their local codes and regulations. Heater can be installed on either the suction or return side of the pump

Remove control box and heater assembly from carton and verify contents for completeness.



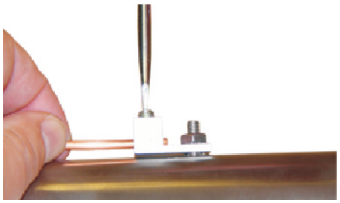
For a bottom installation of heater loosen the 2ea. 3/8” nuts on the adjustable clamps then loosen the adjustable clamps just enough as to move freely. Slide the heater between the feet placing the studs from the adjustable clamps into the slots provided on the feet and tighten the 2ea 3/8” nuts, then tighten the adjustable clamp.

For Back Installation utilize the slide brackets, loosen the adjustable clamps just enough as to move freely. Remove 2ea 3/8” nuts. Align the 2 studs with the slots on the back of the control box. Reinstall 2ea 3/8” nuts, leave the nuts loose until you have adjusted the heater to the proper location then tighten the 2ea 3/8” nuts. Finish by tightening the adjustable clamps with the box rotated as explained on page 10.

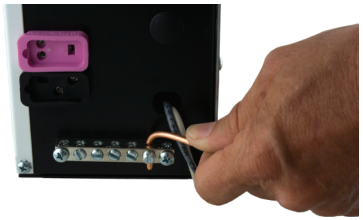
For Top Installation remove the 8 screws from the left and right slide brackets, raise each bracket up one position, than replace all 8 screws. Loosen the adjustable clamps just enough as to move freely. Remove 2ea 3/8” nuts. Align the 2 studs with the slots on the back of the control box. Reinstall 2ea 3/8” nuts, leave the nuts loose until you have adjusted the heater to the proper location then tighten the 2ea 3/8” nuts. Finish by tightening the adjustable clamps with the box rotated as explained on page 10.

Slide Configurations Cont.

Insert the sensor probe(s) under the sensor cover attached to the heater and tighten the wing-nut securely.

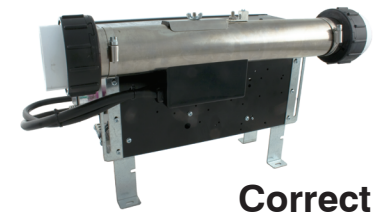


Ground/Bond the control box directly to the heater using the included #8 solid copper bonding wire.



Ground/Bond the heater directly to the control box using the included #8 solid copper bonding wire.

Connect the power and control cords from the heater to the matching receptacles on the side of the control box.



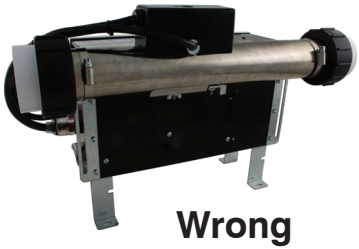
Correct

Installing in a horizontal position or pointing down are both proper installation orientations only.

Failure to follow this instruction may result in false tripping of the high limit circuit

For proper operation of the heater it must NOT be installed with the heater box pointing up.

Correct



Wrong

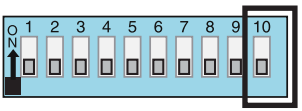
Power Connection

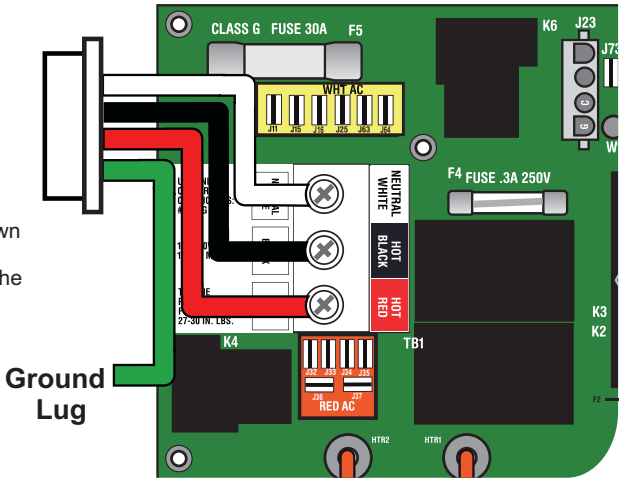
IMPORTANT: Always refer to the product data label (located on top of the control box) for specific electrical information.

- **Use copper conductors only as required by the NEC.**
- **Secure wires as defined by the NEC and in compliance with any local codes in effect at the time of installation.**

240-VOLT ELECTRICAL SERVICE REQUIREMENTS

Move Dipswitch A10 to the off or down position to place the system in high amp mode. High amp mode allows the heater to stay on when high speed pump(s) or blower is turned on.

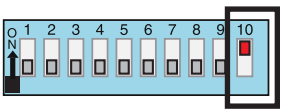


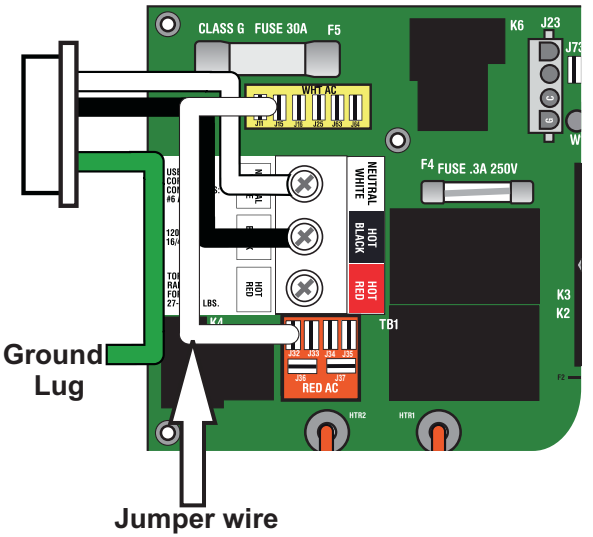


120-VOLT ELECTRICAL SERVICE REQUIREMENTS

Connect the white jumper wire included in the configuration kit to an available RED AC and WHT AC terminal.

Move Dipswitch A10 to the on or up position to place the system in low amp mode. Low amp mode turns the heater off when a high speed pump(s) or blower is turned on.





Heater wattage is rated at 240V. When running 120V to heater, output is approximately 25%.

IMPORTANT- All equipment must be rated for 120VAC.

Sensor Connections

The control system contains the temperature sensors inside the heater tube. If your spa has a pre-existing temperature sensor, do not connect it to the control system. It may be required to leave the old temperature sensor installed in the wall of the spa to prevent leaking.

As shown below, the control systems are shipped with the sensors secured to the heater assembly. Remove the securing ties and route sensors through the access hole located above the heater connector on the left side of the system. See figure 1.

With the sensors routed through the system, plug the sensors in to “SEN A” and “SEN B” See figure 2.

The two temperature sensors are the same value and completely interchangeable.

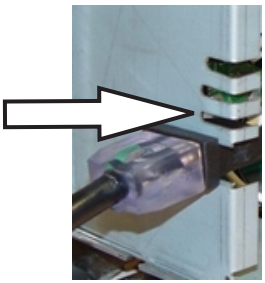


Figure 1

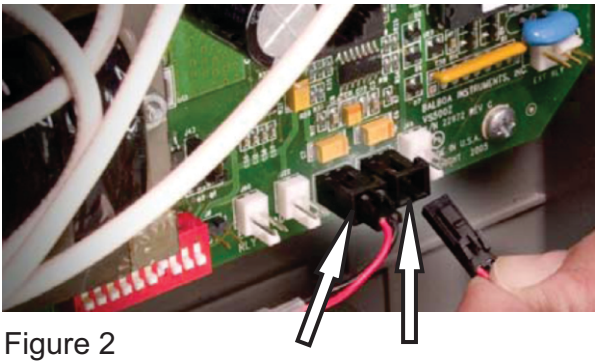
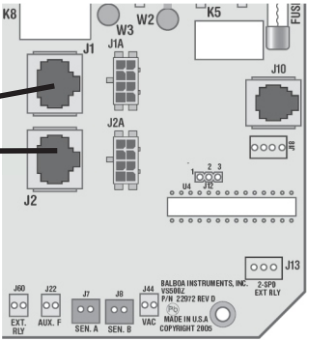
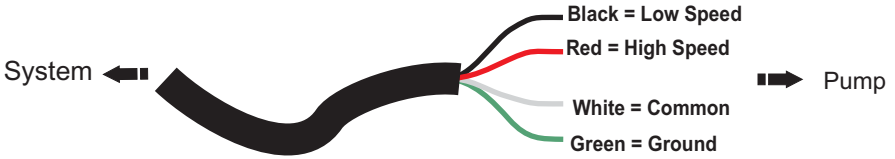


Figure 2

Cord Connections



2-SPEED PUMP CORD CONFIGURATION
The following wiring configuration is for two-speed pump circuits.



SINGLE SPEED PUMP / ACCESSORY CORD CONFIGURATION
The following wiring configuration is for single-speed pump circuits, circulation pumps, ozones, blowers and accessories.

Circuit Board Configurations

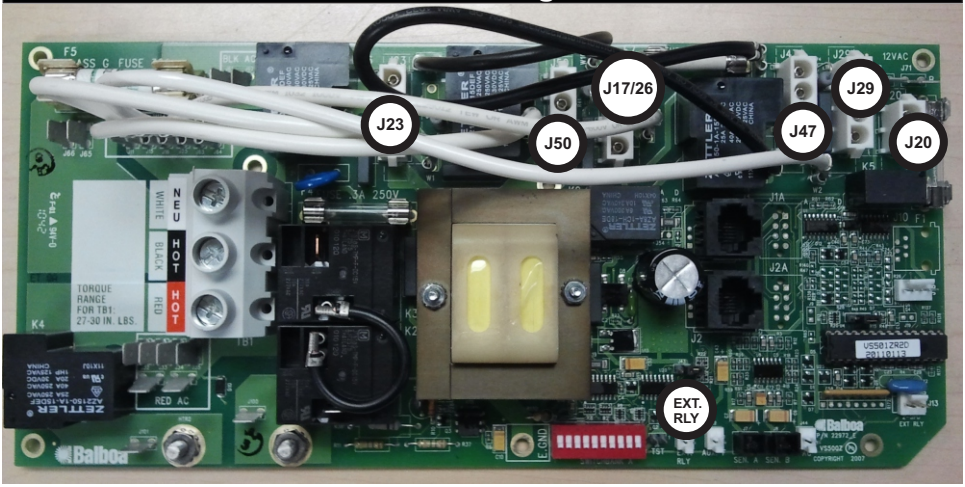


Figure 1

All Device outputs are preset for 120V outputs (as seen above in figure 1). If 240V output is required, please utilize the chart below to configure the appropriate outputs for 240V. For example, to convert pump 1 to 240V, move the red coded wire to J32 (as shown in Figure 2).

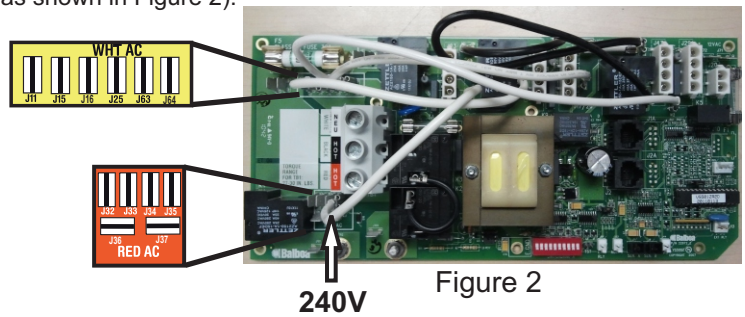


Figure 2

Voltage Selection Chart for 240V Conversion

Device	Plug Location	Volts	Amps	Wire Color Code	Move To
2 SPD P1	J23	240V	12A	Red	RED AC / J32
Circ Pump	J47	240V	4A	Brown	RED AC / J33
Blower / P2	J17/26	240V	12A	Violet / Blue	RED AC / J34
AV	J50	240V	2A	White	RED AC / J35
Ozone	J29	240V	1A	Yellow	RED AC / J36
Light	J20	240V	1A	NA	NA
Blower / P2	Expander Board	240V	12A	Violet / Blue	RED AC / J37

Expander Board

Connects to Ext. RLY jack on circuit board

Connects to: WHT / 120V or Red / 240V-J37 depending on equipment rating. (Pre-configured for WHT / 120V)

Connects to J65 or J66

IMPORTANT- Circulation pump and ozone must be same voltage rating.

Circuit Board Configurations

IMPORTANT: Power off spa when making any dip switch changes.

Dip Switch Chart for PS-6501

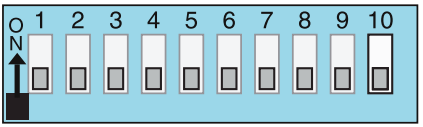
A1 Test Mode (normally OFF)
A2 "ON" position: Button layout will be: Pump 1, Light, Temp Down, Temp Up *
"OFF" position: Button layout will be: Unused, Pump 1, Temp, Light
A3 "ON" position: use Mini Panel *
"OFF" position: use Lite Duplex or Digital Duplex panel
A4 Aux Freeze (must be OFF)
A5+A9 Pump 1 speeds and Circ Modes:

A5	A9	Circ Mode	Pump 1 Speed
OFF	OFF	Non-circ	2-speed
ON	OFF	Thermostatically Controlled	1-speed
OFF	ON	24 hours with 3°F shut-off	1-speed
ON	ON	24 hours with 3°F shut-off	2-speed

A6 "ON" position: 50Hz operation
"OFF" position: 60Hz operation
A7 "ON" position: Standard mode only
"OFF" position: Std/Ecn/Sleep mode changes allowed
A8 "ON" position: temperature is displayed in degrees Celsius
"OFF" position: temperature is displayed in degrees Fahrenheit
A10 "ON" position: heater is disabled while any high-speed pump is running (low amperage mode)
"OFF" position: heater can run while any/all high-speed pumps are running (high amperage mode)

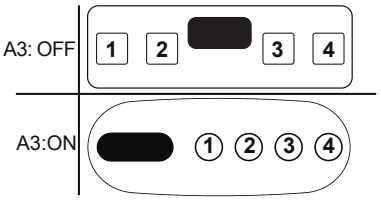
Hot tubs equipped with pump 1 as a single speed pump must utilize a circulation pump as the heater pump.

Switchbank A



A1, Test Mode OFF
A2, Un, P1, TE, LT
A3, Duplex Panel
A4, Aux Freeze
A5, 2-speed P1
A6, 60 Hz
A7, Mode changes allowed
A8, Degrees F
A9, Non-Circ Mode
A10, High Amp mode

Panel Button Positions



Panel Button Assignments

A2: OFF	1=Unused 2=Pump 1	3=Temp 4=Light
A2:ON	1=Pump 1 2=Light	3=Temp Down 4=Temp Up

Circuit Board Configurations

IMPORTANT: Power off spa when making any dip switch changes.

Dip Switch Chart for PS-6502B

A1 Test Mode (normally OFF)
A2 "ON" position: Standard mode only
"OFF" position: Std/Ecn/Sleep mode changes allowed
A3 "ON" position: use Mini Panel *
"OFF" position: use Digital Duplex or Light Duplex panel
A4 Aux Freeze (must be OFF)
A5+A9 Pump 1 speeds and Circ Modes:

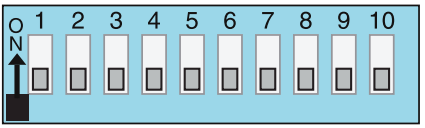
A5	A9	Circ Mode	Pump 1 Speed
OFF	OFF	Non-circ	2-speed
ON	OFF	Thermostatically Controlled	1-speed
OFF	ON	24 hours with 3°F shut-off	1-speed
ON	ON	24 hours with 3°F shut-off	2-speed

A6 "ON" position: 50Hz operation
"OFF" position: 60Hz operation
A7 N/A (must remain OFF)
A8 "ON" position: temperature is displayed in degrees Celsius
"OFF" position: temperature is displayed in degrees Fahrenheit
A10 "ON" position: heater is disabled while any high-speed pump or blower is running (low amperage mode)
"OFF" position: heater can run while any/all high-speed pumps or blowers are running (high amperage mode)

Note: Aux is required. For no Aux, use PS6501B series system.

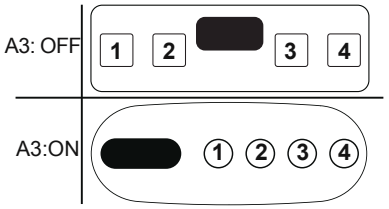
Hot tubs equipped with pump 1 as a single speed pump must utilize a circulation pump as the heater pump.

Switchbank A



A1, Test Mode OFF
A2, Mode changes allowed
A3, Duplex Panel
A4, Aux Freeze
A5, 2-speed P1
A6, 60 Hz
A7, N/A
A8, Degrees F
A9, Non-Circ Mode
A10, High Amp mode

Panel Button Positions



Panel Button Assignments

1=Pump 2 or Blower
2=Pump 1
3=Temp
4=Light

Circuit Board Configurations

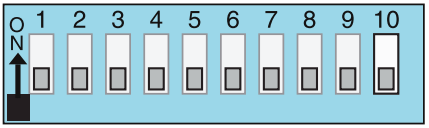
IMPORTANT: Power off spa when making any dip switch changes.

Dip Switch Chart for CS622*B *(* = 0,7,8,9)*

A1 Test Mode (normally OFF)
A2+A10 Control amp draw requirements (See Table 1)
A3 "ON" position: use Mini Panel
"OFF" position: use Digital Duplex or Light Duplex panel
A4 Aux Freeze (must be OFF)
A5+A9 Pump 1 speeds and Circ Modes:

Hot tubs equipped with pump 1 as a single speed pump must utilize a circulation pump as the heater pump.

Switchbank A

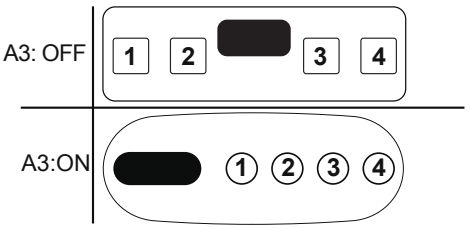


A1, Test Mode OFF
A2, See Table 1
A3, Duplex Panel
A4, Aux Freeze
A5, 2-speed P1
A6, 60 Hz
A7, Mode changes allowed
A8, Degrees F
A9, Non-Circ Mode
A10, See Table 1

Table 1

A2	A10	# of Hi-Speed Pumps/Blower Before Heat Disabled
OFF	OFF	0
ON	OFF	1
OFF	ON	2
ON	ON	3

Panel Button Positions



Panel Button Assignments

1=Pump 2 **3=Temp**
2=Pump 1 **4=Light**

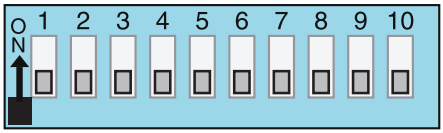
Circuit Board Configurations

IMPORTANT: Power off spa when making any dip switch changes.

Dip Switch Chart for CS623*B *(* = 0,7,8,9)*

A1 Test Mode (normally OFF)
A2 "ON" position: Standard mode only
"OFF" position: Std/Ecn/Sleep mode changes allowed
A3 "ON" position: use Mini Panel
"OFF" position: use Digital Duplex or Light Duplex panel
A4 Aux Freeze (must be OFF)
A5+A9 Pump 1 speeds and Circ Modes:

Switchbank A



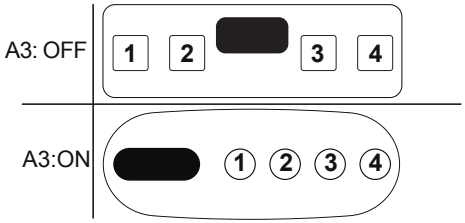
A1, Test Mode OFF
A2, Mode changes allowed
A3, Duplex Panel
A4, Aux Freeze
A5, 2-speed P1
A6, 60 Hz
A7, See Table 1
A8, Degrees F
A9, Non-Circ Mode
A10, See Table 1

Table 1 — **# of Hi-Speed Pumps/Blower Before Heat Disabled**

A7	A10	
OFF	OFF	0
ON	OFF	1
OFF	ON	2
ON	ON	3

Alert:
Pump 2 is required, connect to expander board.
Blower 3 is also required connect to J17/26.

Panel Button Positions

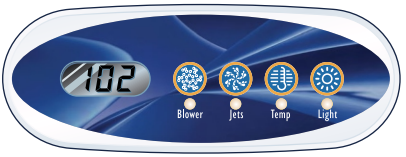


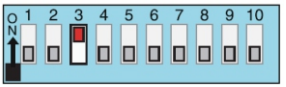
Panel Button Assignments

1=Pump 2+Blower **3=Temp**
2=Pump 1 **4=Light**

Circuit Board Configurations

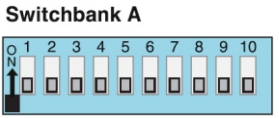
ECO200 Series Panel





Dipswitch A3 must be in the on / up position for the ECO200 series spaside to operate correctly.

ECO401 Series Panel



Prior to connecting the optional ECO401 series spaside. Move dipswitch A3 to the off / down position.

System Start-Up

1) Unplug the power cord (120-volt system only) or turn the electrical power “OFF” at the service or breaker panel (120 or 240 volt permanently connected units.)

2) Open all **WATER** shut-off valves.

3) For spas equipped with a hose bib or drain valve, make sure that it has been closed.

4) For spas equipped with in-line or pressure water filters, make sure that the filter nut, housing drain plug, and air relief valve are closed and tight.

5) Using a standard water hose, fill the spa with fresh tap water to the level recommended by the spa manufacturer.

6) Inspect all plumbing connections and lines for any sign of water leaks.

7) Close all **AIR** control valves. **WARNING:** Do not confuse with **WATER** shut-off valves.

8) Plug the unit into the proper outlet (120-volt system) or turn on the breaker at the electrical service panel (240-volt system).

9) When the system is first started (or any time power is reset) it will go through a series of diagnostic checks, displaying various information on the display, and finally ending with the spaside panel reading “PR” meaning Priming Mode.

10) During Priming Mode, press “Jets” button(s) repeatedly and be sure all pumps are free of air.

11) On systems with a pressure filter, bleed off the trapped air by opening the Air-Relief valve. You will notice a steady flow of water when the air has been bled completely.

12) If equipped, switch the “AIR BLOWER” on to verify that it is working, then switch it off.

13) If equipped, switch the “LIGHT” on to verify that it is working, then switch it off.

14) If equipped, switch the “AUXILIARY PUMP” on to verify that it is working, allow to run until all air is evacuated from the plumbing system, then switch it off.

15) Adjust temperature to the desired set point for comfortable use of the spa. The pump low speed and heater will activate until the set point has been reached.

Heater Start-Up Sequence

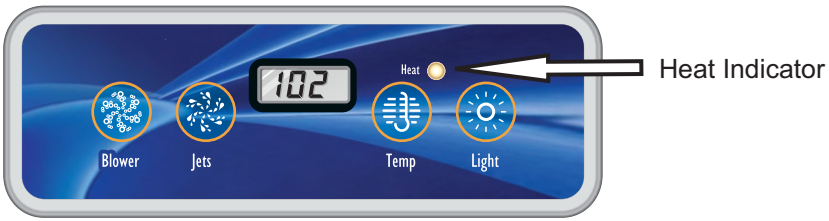
The HydroQuip heater goes through a testing phase every time it starts up to assure that there is adequate water flow.

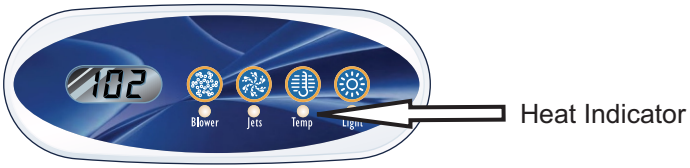
1) Prior to heating, the pump will run for at least 2 minutes and verify that sensors are within specifications.

2) The heater turns on for 6.5 to 18 seconds. At this point, the heat indicator on the panel is “solid”. During this time the spa side panel is not immediately responsive.

3) The heater turns off for 90 seconds, checking for adequate water flow in the heater. At this point, the heat indicator on the spa side panel may appear to “flicker” or “dim”.

4) After adequate water flow has been verified, the heat indicator on the spaside panel returns to “solid” and the spa will heat to set temperature.





Filtration Programming

The first preset filter cycle begins 6 minutes after the spa is powered up. The second preset filter cycle begins 12 hours later. Filter duration is programmable for 2, 4, 6, or 8 hours or for continuous filtration (indicated by fc). To program, press “Temp,” then “Jets 1.” Press “Temp” to adjust the number of hours of filtration. Press “Jets 1” to exit programming.

For non-circulation pump systems, low-speed pump 1 and the ozone generator (if installed) run during filtration.

For 24 hour circulation systems, the circ pump and the ozone generator (if installed) run 24 hours. In hot environments, the circulation pump may turn off for 30 minute periods, except during filter cycles.

For non-24 hour circulation pump systems, the circ pump and ozone generator (if installed) run during filtration (and may also run automatically at other times).

At the beginning of each filter cycle all other pumps and blowers will run briefly to purge the plumbing to prevent water from becoming stale.

IMPORTANT - Heater pump must provide a minimum flow of 23 GPM through the heater.

Modes / Behaviors

Standard Mode

STANDARD Mode maintains set temperature.”St” will be displayed momentarily when you switch into Standard Mode. Non-Circ systems will turn on pump 1 low every 30 minutes for 2 minutes to measure water temperature.

Economy Mode

ECONOMY Mode heats the spa to the set temperature only during filter cycles. “Ec” will display when water temp is not current, and will alternate with water temp when the pump is running.

Sleep Mode

SLEEP Mode heats the spa to within 20°F/10°C of the set temperature only during filter cycles.”SL” will display when water temp is not current, and will alternate with water temp when the pump is running.

How to change modes

Mode is changed by pressing the “Temp” or “Set” button, then pressing the “Light” button.

Note that the last measured spa temperature displayed is current only when the pump has been running for at least 2 minutes.

On non-circ systems, the low speed of pump 1 runs when the blower or any other pump is on. It may also activate for at least 2 minutes every 30 minutes to detect the spa temperature (polling) and then to heat to the set temperature if needed, depending upon mode. When the low speed turns on automatically, it cannot be deactivated from the panel; however, the high speed of pump 1 may be started.

Spaside Control Operation

Temp

For Spasides with one temperature button. Press the “Temp” button once to display the set temperature. To change the set temperature, press the pad a second time before the LCD stops flashing. Each press of the “Temp” button will continue to either raise or lower the set temperature. If the opposite direction is desired, release the pad and let the display revert to the current water temperature. Press the pad to display the set temperature, and again to make the temperature change in the desired direction. After three seconds, the LCD will automatically display the last measured spa temperature.
Temperature range (80°F - 104°F/26.0°C - 40.0°C) The last measured temperature is constantly displayed on the LCD.
Note that the last measured spa temperature displayed is current only when the pump has been running for at least 2 minute.

Jets

Press “Jets 1” to turn pump 1 on or off, and to shift between low and high speeds (if equipped). The low-speed will turn off after 4 hours. High-speed will turn off after 15 minutes. Low-speed may run automatically at times, during which it cannot be deactivated from the panel, but high-speed may be operated. A light will appear next to the Jets button when it is active.

Blower

Press this key to turn the blower on and off, an automatic timer will turn the blower off after 30 minutes of operation. A light will appear next to the Blower button when it is active. Heater pump will run when blower is activated.

Light

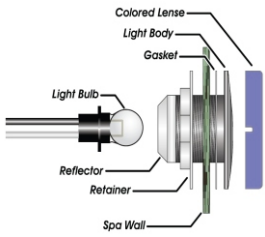
Press this key to turn the light on and off, an automatic timer will turn the light off after 4 hours of operation. A light will appear next to the Lights button when it is active.

Dolphin Remote
Part Number 34-0215

IR Receiver
Part Number 34-0216C

Spa Light

Your control may contain a high intensity, low voltage light to enhance night time use. This illustration shows how and where to find the bulb for replacement. It also shows the mounted spa light with a replacement (colored) lens. Colored lenses will further the enhancement of the light. Simply snap on or off to change the mood of your spa. Wall fitting, reflector and lenses are not included. Spa light circuit is LED compatible.



Operation Considerations

The following describes situations you may encounter and situations to be aware of.

Warm Weather Conditions

Since your spa will normally be expected to maintain warm to hot water ready for use, a great deal of attention has been directed to the energy conservation detail of insulation to keep electrical cost down. Energy conservation efficiency may be achieved by extensive insulation of the spa cabinet, plumbing, spa shell and in some climates full foam insulation may have been provided. This energy conservation feature may cause an inconvenience during warmer times of the year. During warm periods of the year, the temperature within the equipment compartment can elevate to a point that the pump will automatically turn off for a short amount of time (15-30 minutes) to allow the pump to cool down before automatically restarting. This cool down feature will not harm your spa, but serves only to protect the pump from damage ad as and indicator that it is too hot. To minimize this occurrence, refrain from using your Hydrotherapy Jets for prolonged periods of time during warm seasons. The jet pump chosen for your spa has been specifically sized for maximum performance and your Hydrotherapy enjoyment.

Filtration System

Please refer to your Spa Manufactures Owner's Manual regarding the operation, maintenance and cleaning of your filtration system.

IMPORTANT - Heater pump must provide a minimum flow of 23 GPM through heater.

Winterizing

When freezing weather and/or power losses are expected, contact your local spa dealer for freeze protection or winterizing recommendations for both the spa and the equipment system. Freeze related damage is not covered by the warranty.

Chemical Water Treatment

Your dealer is familiar with local water conditions and which chemicals are compatible with and designed specifically for your spa. This is the best person to advise you on proper water quality management. The one thing you can do to insure years of trouble free equipment operations is to maintain proper water chemistry.

Two basic goals of the chemical water treatment are sanitizing and balancing the water. Sanitizing simply means keeping the water free from microorganisms including algae, bacteria and viruses. The current most popular chemicals for sanitizing include chlorine, bromine and ozone.

Balancing water means establishing a balance among pH, total alkalinity and total hardness. Water that is unbalanced can corrode the spa and it's support equipment or leave deposits of minerals. Properly balanced water is essential to allow the sanitizing chemical to work effectively. There are numerous chemical additives to help you in controlling pH, total hardness and alkalinity. Never use softened water when filling you spa. Softened water is extremely corrosive to the metal parts of the spa equipment and may lead to an unforeseen failure. Sometimes, despite your most diligent efforts, your water may become to far out of balance to be managed chemically. At this point it is probably better to drain and clean the spa and start over with fresh water. Equipment failure caused be improper water chemistry will not be covered under warranty. Saltwater purification systems can potentially damage your equipment. Any related failures will not be covered under warranty.

Spa Side Messages

Message	Meaning	Action Required
	No Message on display. Power has been cut off to the spa.	The control panel will be disabled until power returns.
– –	Temperature unknown.	After the pump has been running for 2 minutes, the current water temperature will be displayed.
HH	"Overheat" - The spa has shut down.* One of the sensors has detected 118°F/47.8°C at the heater.	DO NOT ENTER THE WATER. Remove the spa cover and allow water to cool. Once the heater has cooled, reset by pushing any button. If spa does not reset, shut off the power to the spa and call your dealer or service organization.
OH	"Overheat" - The spa has shut down.* One of the sensors has detected that the spa water is 110°F/43.5°C.	DO NOT ENTER THE WATER. Remove the spa cover and allow water to cool. At 107°F/41.7°C, the spa should automatically reset. If spa does not reset, shut off the power to the spa and call your dealer or service organization.
SA	Spa is shut down.* The sensor that is plugged into the Sensor "A" jack is not working.	Test sensors, possible defective sensor refer to page 28. If the problem persists, contact your dealer or service organization. (May appear temporarily in an overheat condition.)
Sb	Spa is shut down.* The sensor that is plugged into the Sensor "B" jack is not working.	Test sensors, possible defective sensor refer to page 28. If the problem persists, contact your dealer or service organization. (May appear temporarily in an overheat condition.)
Sn	Sensors are out of balance. If alternating with spa temperature, it may just be a temporary condition. If flashing by itself, spa is shut down.*	Cycle power to spa. If problem persists, contact your dealer or service organization.
HL	A signifcant difference between temperature sensors has been detected. This could indicate a flow problem.	Clean or replace filter. Open all jets and valves. If the water level is normal, make sure all pumps have been primed. If problem persists, contact your dealer or service organization.
LF	Persistent low fow problems. (Displays on the fifth occurrence of "HL" message within 24 hrs.) Functions continue to run normally.	Clean or replace filter. Open all jets and valves. Follow action required for "HL" message. Heating capability of the spa will not reset automatically; you may press any button to reset.
dr	Possible inadequate water, poor flow, or air bubbles in detected in the heater. Spa is shut down for 15 minutes.	Clean or replace filter. If water level is normal, make sure all pumps have been primed. Press any button to reset. This message will reset within 15 minutes. If problem persists, contact your dealer or service organization.
dY	Inadequate water detected in heater. (Displays on third occurrence of "dr" message.) Spa is shut down.*	Clean or replace filter. Follow action required for "dr" message. Spa will not automatically reset. Press any button to reset manually.

Spa Side Messages

Message	Meaning	Action Required
	"Ice" - Potential freeze condition detected. ** Even when spa is shut down, some equipment will turn on if freeze protection is needed.*	No action required. All equipment will automatically activate regardless of spa status. The equipment stays on 4 minutes after the sensors detect that the spa temperature has risen to 45°F/7.2°C or higher. An optional freeze sensor may be added to protect against extraordinary freeze conditions. Auxiliary freeze sensor protection is advisable is colder climates. See your dealer for details.
	Standard Mode	Refer to the modes / Behaviors section on page 22.
	Economy Mode	Refer to the modes / Behaviors section on page 22.
	Sleep Mode	Refer to the modes / Behaviors section on page 22.

TroubleShooting

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

Nothing Operates

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 Spa Side Messages.*

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.*

Low Speed Pump Not Operational

Circuit board configuration is Incorrect - *Contact your local dealer.*
Pump Not Plugged-In - *Plug in the Pump.*
Blown Fuse - *Contact your local dealer.*

Jets or Blower Not Operational

Blower or Pump Not Plugged-In - *Plug in the Blower or Pump.*
Blown Fuse - *Contact your local dealer.*
Over or High Temperature Protection On - *Refer to Spa Side Messages.*

Therapy Jet Not Operational

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.*

Water Leaks

Spa Overfilled - *Adjust water level.*
Too Many People in the Spa - *Adjust water level.*
Drain-Valve Left Open - *Close drain valve.*
Couplings or Unions Loose - *Tighten or contact your local dealer.*
Pump Seal Leaking - *Contact your local dealer.*
Plumbing / Connections 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 - *Refer to Spa Side Messages*
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.*
System is in Economy or Sleep Mode - *Refer to modes / behaviors on page 21.*

Light Not 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.*

High Heat

Filter Cycles Running Too Long - *Adjust filter cycles down.*
Temperature Set Too High - *Adjust Set Point.*
High Ambient Temperature - *Remove spa cover.*

GFCI Breaker Trips Occasionally

Lightning / Electrical Storm or Power Surge - *Reset GFCI Breaker.*
NOTE: The GFCI breaker must be properly installed by a licensed electrician.

GFCI Breaker Trips Immediately

Defective Component or Improper GFCI Breaker Installation - *Contact a qualified service technician or the factory for assistance.*

Testing the Sensor Set

IMPORTANT: For the following set of instruction, the power must be off when plugging in or unplugging sensors.

1) Check sensor wires for cracks or damage that may indicate the presence of a rodent.

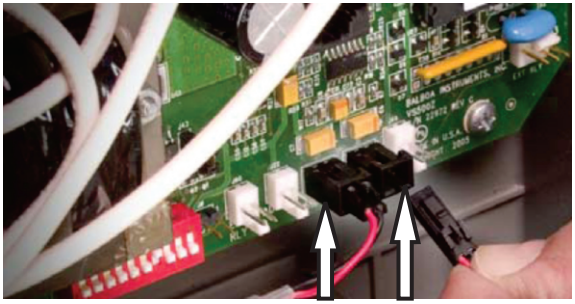
2) Inspect connections of both sensors on the circuit board. The plugs must be clean.

3) If the spaside has the error message of SA or Sb, this is an indication of a faulty sensor or possibly a faulty circuit board.

4) With the power off to the spa, unplug the two sensors from the circuit board and exchange their positions (i.e., plug the one that was in the “Sen. A jack into the “Sen. B jack and vice versa).

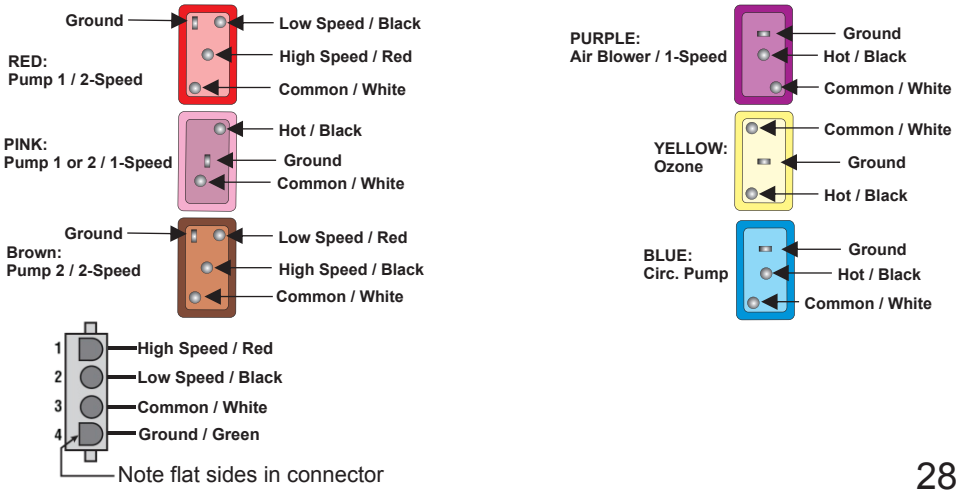
5) Power up the spa, if the error message did not change (i.e. original error message was SA and still displays SA) this is an indication of a faulty circuit board. If the error message changed (i.e., original error message was SA and now displays Sb) replace the sensor in the corresponding plug on the circuit board.

6) When replacing sensors, please keep in mind that the heater assembly will contain water pressure even with the spa’s power off. Close available slice valves and proceed with caution not to allow water on the surrounding electronics.



Sensor A Sensor B

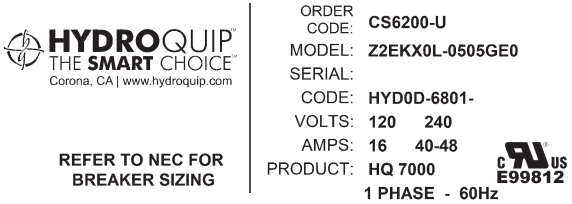
System Plug Pinouts



System Data Label

Note: *This information will be necessary if you should ever have to request warranty or any other type of service.*

The system data label is located on the control box. This label is very important and contains information you will need to establish your electrical service. The voltage and amperage ratings are shown on the bottom of the label. Product, Model, Serial and Code numbers are also shown on the label.



Warranty Information

To all original purchasers, HydroQuip, warrants this product to be free from defects in material and workmanship for a period of 3 years from the date of purchase.
Hydro-Quip will, at it's discretion, repair or replace any part which has been found to be defective.
This warranty excludes damage as a result of: normal wear, freezing, low voltage, chemical abuse, accident, negligence, alteration, improper installation, use or care.
To obtain warranty service, return defective products within the warranty period to Hydro-Quip.
The Hydro-Quip Limited Warranty is for service on the control box only. Purchaser is responsible for removal or reinstallation labor, freight charges, or any other such costs incurred in obtaining warranty service.
Hydro-Quip assumes no responsibility for incidental or consequential damages. Some states do not allow the exclusion of incidental or consequential damages, so the above limitations and exclusions may not apply to you. This warranty gives you specific legal rights and you may also have other rights, which vary from state to state.
If you are the end user for this control system, the spa dealer may provide a different warranty; contact your spa dealer for details and warranty information.

Notes

Use this section to jot down any information you may need at a later date.

Dealer: _____ **Date of Manufacture:** _____

Contact: _____ **Phone:** _____

Address: _____

City: _____ **State:** ____ **Zip:** _____

Notes: _____

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