

Sundance Spas Portofino Series



Installation & Owners Manual

Sundance® Spas

New Spa Owner's Tips:

- 1. Clean your filter cartridge at least once a month. Refer to section 10.1 (page 16).***
- 2. Keep your spa water within pH 7.2 to 7.8 for to prevent scaling and/or damage to equipment. Refer to section 10.9 (page 20).***
- 3. Always keep your spa covered when not in use.***

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1.0 Important Spa Owner's Information

Your Portofino spa is constructed of the highest standards and is capable of providing many years of trouble-free use. However, because heat retentive materials are utilized to insulate the spa for efficient operation, an uncovered spa surface directly exposed to sunlight and high temperatures for an extended period of time is subject to permanent damage. Damage caused by exposing the spa to this abuse is not covered by warranty. We recommend that you always keep the spa full of water when it is exposed to direct sunlight and that you keep the Sundance insulating cover in place at all times when the spa is not in use. Read and carefully follow the requirements for your spa's support base. *Refer to section 4.0-4.2 (page 5-6).*

Sundance Spas Inc. constantly strives to offer the finest spas available, therefore modifications and enhancements may be made which affect the specifications, illustrations and/or instructions contained herein.

2.0 FCC Notice



This equipment has been tested and found to comply with the limits for a Class B Digital Device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Rearrange or relocate the receiving antenna;
2. Increase the separation between the equipment and receiver;
3. Connect the equipment into an outlet on a circuit different from the circuit connected;

4. Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by the party responsible for FCC compliance could void the user's authority to operate this equipment.

3.0 Important Safety Instructions



When installing and using this equipment, basic safety precautions should always be followed, including the following:

1. READ AND FOLLOW ALL INSTRUCTIONS BEFORE OPERATING THE SPA!
2. DANGER - RISK OF ELECTRICAL SHOCK. Install spa at least 5 feet (1.5 m) from all metal surfaces. (A spa may be installed within 5 feet (1.5 m) of metal surfaces, if in accordance with the country electrical code).
3. DANGER - RISK OF ELECTRICAL SHOCK. Do not permit any electric appliance such as a light, telephone, radio, or television within 5 feet (1.5 m) of the spa.
4. INSTALLATION - The spa must be installed in such a manner as to provide drainage of the compartment for electrical components.
5. CAUTION - This spa must be hard wired to your household electrical service box only. Do not use an extension cord or any other disconnectable power cord. The use of an extension cord or a disconnectable power cord is highly dangerous and will void all warranties!
6. A wire connector marked ground "GRN" is provided within the power box. *Refer to section 6.0 (page 8).* To reduce the risk of electric shock, connect this terminal or connector to the grounding terminal of your electrical service or supply panel with a continuous green insulating copper wire equivalent in size to the circuit conductors supplying this equipment, but no smaller than #8 AWG (10 mm). In addition, a second wire connector is provided for bonding to local ground points. To reduce the risk of electrical shock, this connector should be bonded with a #8 AWG (10 mm) copper wire to any metal ladders, water pipes, or other metal within 5 feet (1.5 m) of the spa.
7. The electrical supply for this product must include a suitably rated

- switch or circuit breaker to open all ungrounded supply conductors to comply with the country electrical code.
8. Before entering a spa or hot tub the user should measure the water temperature with an accurate thermometer since the tolerance of the water temperature regulating device may vary as much as ± 5 °F (± 3 °C).
 9. Always enter and exit the spa slowly and cautiously. Wet surfaces are slippery.
 10. Do not use the spa alone.
 11. **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.
 12. **DANGER -** To reduce the risk of injury, do not remove any drain suction gate or cover.
 13. Never use the weir gate for sitting or resting your feet. It is designed to float freely.
 14. The water in the 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.
 15. Since excessive water temperatures have potential for causing fetal damage during the early months of pregnancy, pregnant or potentially pregnant women should limit spa or hot tub water temperatures to 100 °F (38 °C).
 16. The use of alcohol, drugs, or medication before or during spa or hot tub use may lead to unconsciousness with the possibility of drowning.
 17. 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.
 18. Persons using medication should consult a physician before using a spa or hot tub since some medications may induce drowsiness while other medications may affect heart rate, blood pressure, and circulation.
 19. Long exposures in the spa may result in nausea, dizziness, or fainting. Observe a reasonable time limit, leave the spa, then shower, cool down, and if you wish, return for another brief stay.

20. Excessive temperatures may cause hyperthermia. Symptoms and first aid information are as follows:
- **HEAT STROKE:** The most susceptible people are the very young and elderly, alcoholics, and most people under the influence of drugs, medication and alcohol.
 - **SYMPTOMS:** Hyperthermia causes loss of salt, sweating, dizziness, headache, dryness of mouth and nausea, faintness and/or unconsciousness, convulsions, flushed appearance of skin, and rapid pulse and/or weak, shallow breathing.
 - **TREATMENT:** Place the victim on his back, head slightly elevated. Apply wet cloths or ice packs to the head, wrap the body in a sheet, pouring on a small amount of water. Follow with a cool shower or bath. Get medical attention as soon as possible.
21. It is recommended that the following emergency telephone numbers be listed at the nearest telephone: physician, hospital, ambulance and police.
- 22. Save these instructions!**

3.1 General Electrical Safety Instructions

Your new Portofino spa is equipped with the “state-of-the-art” LX-10 equipment system. It contains the most advanced safety and self-protective equipment in the industry. Nonetheless, this spa must be installed properly to insure dependable usage. Please contact your dealer if you have any questions regarding your installation. In the event they are unable to answer your questions, direct your inquiries to Sundance Spas Inc. Please refer to the back of this manual for our address.

Proper grounding is extremely important. Portofino spas are equipped with a current collector system. A pressure-type wire connector is provided outside the control box, located behind the equipment door to permit connection of a bonding wire between this point and any ground metal equipment, metal water pipe or conduit within 5 feet (1.5 m) of the spa, or copper clad grounding rod buried within 5 feet (1.5 m) of the spa. The bonding wire must be at least #8 AWG solid copper wire. This is a very important safety assurance feature. Before installing this spa, check with the local electrical authority to insure the installation conforms to local country/area state codes.

4.0 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 the manufacturer's warranty. It is the responsibility of the spa owner to assure the integrity of the support over time.

We recommend a poured, reinforced concrete slab a minimum of 4 inches (10 cm) thick. 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 condition in which it would sit.

For spas which will be recessed into a floor or deck, install so as to permit access to the equipment, either from above or below, for servicing. Make certain that there are no obstructions that would prevent removal of the cabinet side panels, especially on the side with the equipment pack. Make sure provisions are made for draining the spa.

4.1 Outdoor Location

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

1. The proximity to change area and shelter (especially in colder weather);
2. The pathway to and from your spa (this should be free of debris so that dirt and leaves are not easily tracked into the spa);
3. Closeness to trees and shrubbery (remember that leaves and birds could create extra work in keeping the spa clean);
4. A sheltered environment (less wind and weather exposure can result in lowered operation and maintenance costs);
5. The overall enhancement of your environment.

6. It is preferable not to place the spa under a gutter-less roof overhang since runoff water will shorten the life expectancy of the spa cover.

4.2 Indoor Location

For indoor installations, be certain to make provisions for proper ventilation. When the spa is in use, considerable amounts of moisture will escape. This can damage various surfaces over time. A dehumidifier can help control the moisture in the room. If you have any questions regarding the placement or installation of your spa, consult your authorized Portofino dealer.

120/240 Volt Convertible Models

A spa connected to a 120 VAC electrical service must be located close enough to a grounded, grounding-type electrical outlet so that the included power cord can be plugged directly into it. **DO NOT USE AN EXTENSION CORD** as this could cause damage to the hot tub's equipment due to insufficient voltage. The power supplied to this hot tub must be a dedicated circuit with no other appliances or lights sharing the power provided by the circuit.

5.0 Power Supply Requirements

USA/Canada 120/240 VAC Convertible Models (60 Hz)

	120 VAC/ <u>15 A*</u>	240 VAC/ <u>25 A*</u>	240 VAC/ <u>40 A**</u>
Voltage:	120 VAC	240 VAC	240 VAC
Frequency:	60 Hz	60 Hz	60 Hz
Current Draw:	12 A	18 A	30 A
# of Wires	3 (15 A cord/GFCI)	4	4
Circuit Breaker	15 A	25 A	40 A

For 240 VAC Heater Operation: Move the red wire on the main terminal strip (TB1) from position #1 to position #3. Make certain wires are connected exactly as shown in section 6.0 (page 8) before applying power. Failure to do so will result damage to the circuit board and/or related components and void the manufacturer's warranty.

*In the 15 A / 25 A configuration, the heater will not operate at the same time as the main pump.

**If the spa is to be operated on 40 A service, remove the jumper JP1 #1&2 on the circuit board to allow the heater to operate at the same time as the main pump.

240 VAC Caprio ST Models (60 Hz)

Voltage:	240 VAC	*Note: in the 25 A configuration, the heater will not operate at the same time as the main pump. This model is factory configured for 40 A operation.
Frequency:	60 Hz	
Current Draw:	18 A / 29 A	
Breaker:	25 A* / 40 A	

Export 230-240 VAC Models (50/60 Hz)

Voltage:	230-240 VAC
Frequency:	50 Hz
Current Draw:	13 A / 19 A

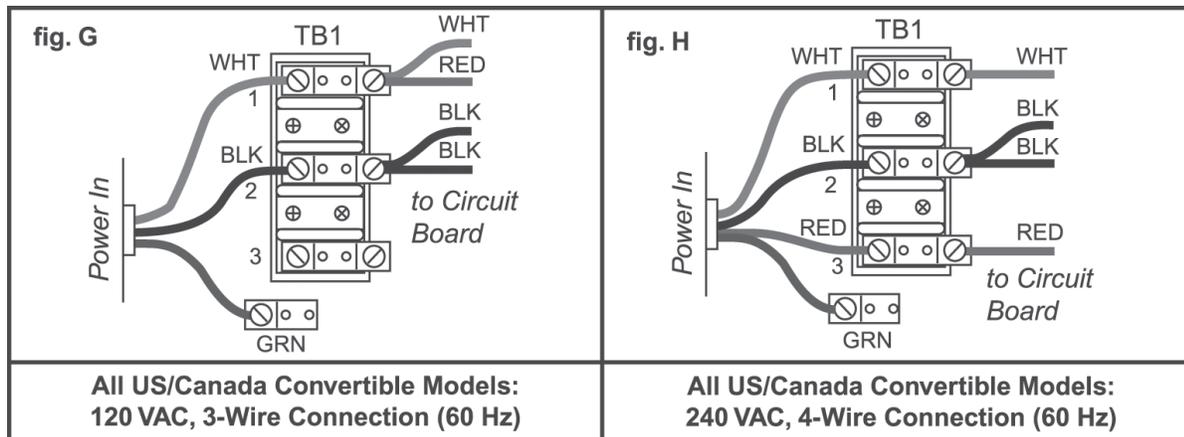
Important Information: The Portofino series spa can be adapted to use higher amperage circuits when available. Please contact your dealer for details. The electrical supply for this product must comply with local electrical regulations.

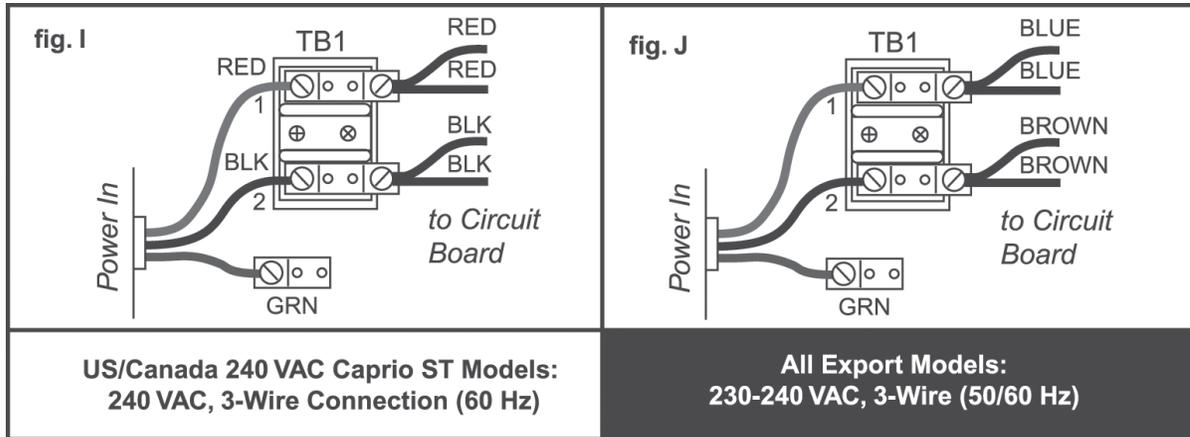
6.0 Electrical Wiring Instructions



Important Notice: The electrical supply to this product must be installed by a qualified, licensed electrician to comply with all regulations and standards specified by the electrical authority in your state or country.

1. A 240 VAC powered spa must be permanently connected (hard-wired) to the power supply. No plug-in connections or extension cords are to be used in conjunction with the operation of this spa. Supplying power to the spa which is not in accordance with these instructions will void both the independent listing and the manufacturer's warranty.
2. The power supplied to this spa must be a dedicated circuit with no other appliances or lights sharing the power provided by the circuit.
3. To gain access to the spa's power terminal strip, remove the spa's cabinet panel on the light side of the spa. Then remove the faceplate from the load box. Refer to sections 13.1-13.3 (page 26-27) for your specific spas load box location.
4. Locate the hole in the cabinet (above the pan) and feed the wires through (Solo spa only).
5. Connect the wires to main terminal block TB1. Refer to figures G-J for your specific spas terminal block configuration. **Tighten securely!** All wires must be hooked up or damage could result.
6. The electrical supply for this product must include an electrical installation and circuit breaker that complies with local electrical regulations.
7. A suitably rated GFCI or RCD must be installed at the power supply in the house electrical box.
8. Reinstall the face plate and the cabinet panel.





7.0 Start-Up Instructions

Congratulations! You are now all set to get your new spa ready to use. Simply follow this step-by-step procedure and, before long, you will be enjoying your first glorious experience in your Portofino spa. For best results, read each step in its entirety before proceeding with that step. *During power-up, the control panel will display a series of start-up displays. Refer to section 9.0 (page 12) for additional information.*

7.1 Filling the Spa

Clear all debris from the spa. Although the spa shell has been polished at the factory, you may want to treat it with a specially formulated spa cleaner and wax available from your dealer prior to filling it.

Only spas with a smooth acrylic surface require waxing. It is not necessary to wax spas with the textured Quarite™ surface. For Solo models only - fill the spa with water from a garden hose until the water level is just below the neck jets. *Refer to section 14.1 (page 27).* For Tango and Caprio models, fill until water level is halfway up the filter skimmer. *Refer to sections 14.2-14.3 (page 28).*

Never fill with water from a water softener. If your water is extremely “hard”, it is preferable to fill halfway with hard water and the rest of the way with softened water. Make sure the filter is installed properly before continuing. *Refer to section 10.1 (Page 16) “Cleaning the Filter” for specific cleaning and installation instructions.*

Solo Models Only - For installations that do not incorporate permanent drain plumbing, we recommend that you seal off the overflow plumbing by removing the s/s overflow fitting and install the provided plug and O-ring. *Refer to section 13.1 (page 26).* This option stops the water from entering the overflow pipe, and prevents it from stagnating between draining periods.

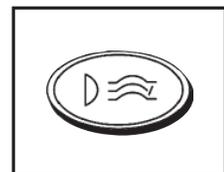
7.2 Safety Check

Open the cabinet access panel and check the pump unions to make sure they are hand tight. *Refer to sections 13.1-13.3 (page 26-27).*

Loosening can occur during shipping and handling. Solo models only - turn the drain valve off. *Refer to section 13.1 (page 26).*

7.3 Initiating Water Circulation

Depress the JETS Button on the control panel. This causes the pump to activate water flow to the jets. If the pump is properly primed, you should be able to feel a steady flow of water through at least some of the jets.



After draining and refilling the spa, it is possible that the pump does not prime adequately. Trapped air in the plumbing system can be the reason for loss of prime. In this case, turn off power to the spa and loosen the cap of the Massage Selector and carefully let trapped air escape from the plumbing. *Refer to section 14.1-14.3 (page 27-28).* Screw the massage selector cap shut and make sure it is tight before turning power on and starting the pump.

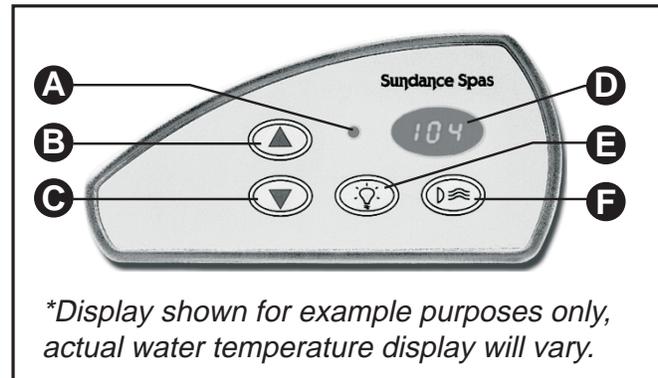
7.4 Adding Start-Up Chemicals

Add the spa water chemicals as recommended by your Portofino dealer. *Refer to section 10.8 (page 19) “Maintaining the Water Quality” for general guidance.*

8.0 Control Panel Functions

Panel Functions:

- A. Heat Indicator: lit when heater is on.
- B. Warmer Button: increases water temperature setpoint.
- C. Cooler Button: decreases water temperature setpoint.
- D. LED Display: can display current water temperature (default display*), water temperature setpoint, selected filtration mode, and error messages.
- E. Light Button: turns underwater light on and off.
- F. Jets Button: turns jets on and off. Press once for low speed; a second time for high speed; a third time to turn off.



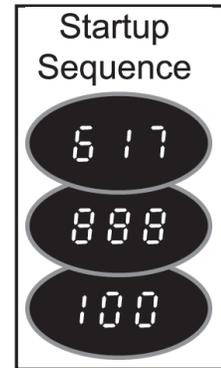
Operation Details:

- Temperature Adjustment: 65 to 104 °F (18 to 40 °C); temperature override not possible. Software default setting is 100 °F (38 °C).
- Underwater Light Operation: light runs for 1 hour then shuts off for increased bulb life.
- JETS Button Operation: jets run for 20 minutes after activated then turn off automatically to conserve energy. Simply press JETS Button to continue operation for an additional 20 minutes.

9.0 Operating Instructions

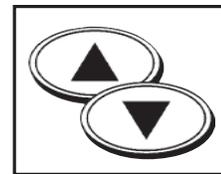
The spa control system has automatic functions that operate upon start-up and normal operation to protect the system. Upon power up, the readout displays the following information:

1. Control displays current software release (e.g. 6.17), then;
2. Control panel displays “888” and all indicator LEDs are lit, permitting visual inspection of all display segments and indicator lights for proper operation.
3. After the initial start-up sequence ends actual water temperature is displayed. If water temperature at this time is less than the factory default temperature setting of 100 °F (38 °C), the circulation pump and heater will turn on and run until the water temperature rises to the factory default temperature setting. Then the heater turns off and the circulation pump remains on for 24 hour operation.



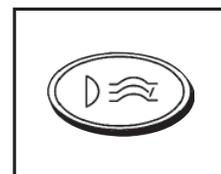
9.1 Setting Water Temperature

The spa's thermostat provides optimum control of water temperature. The temperature setpoint (set temperature) can be adjusted from 65 °F to 104 °F (18 °C to 40 °C). To raise the set temperature, press the WARMER ▲ arrow button. To lower the set temperature, press the COOLER ▼ arrow button. Note: The first press of either WARMER ▲ or COOLER ▼ button displays the set temperature.



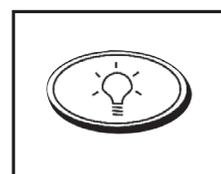
9.2 Pump Button

The JETS Button activates the functions of the pump. The first press activates low speed, the second press activates high speed, and the third press shuts the pump off. The pump has a twenty-minute default when manually activated.



9.3 Light Button

The LIGHT Button activates the spa light when pressed. The light has a one-hour default.



9.4 Solo Diverter Valve / Air Control Operation

Air Controls

Functions:

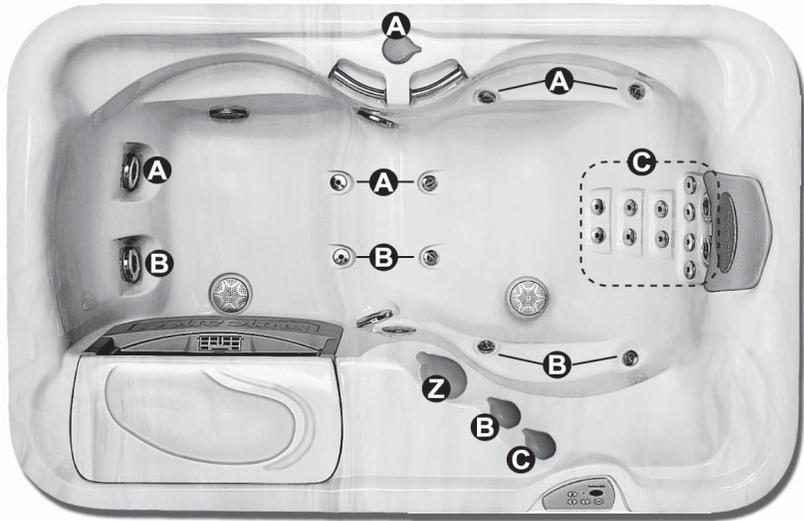
Air Controls A-C
Open An Air
Venturi to
Specified Jets:

- A** = Jets A
- B** = Jets B
- C** = Jet Group C

Massage Selector

Functions:

Z Diverts Water
Flow Between Jet
Group C and Jets
A&B



9.5 Tango Diverter Valve / Air Control Operation

Air Controls

Functions:

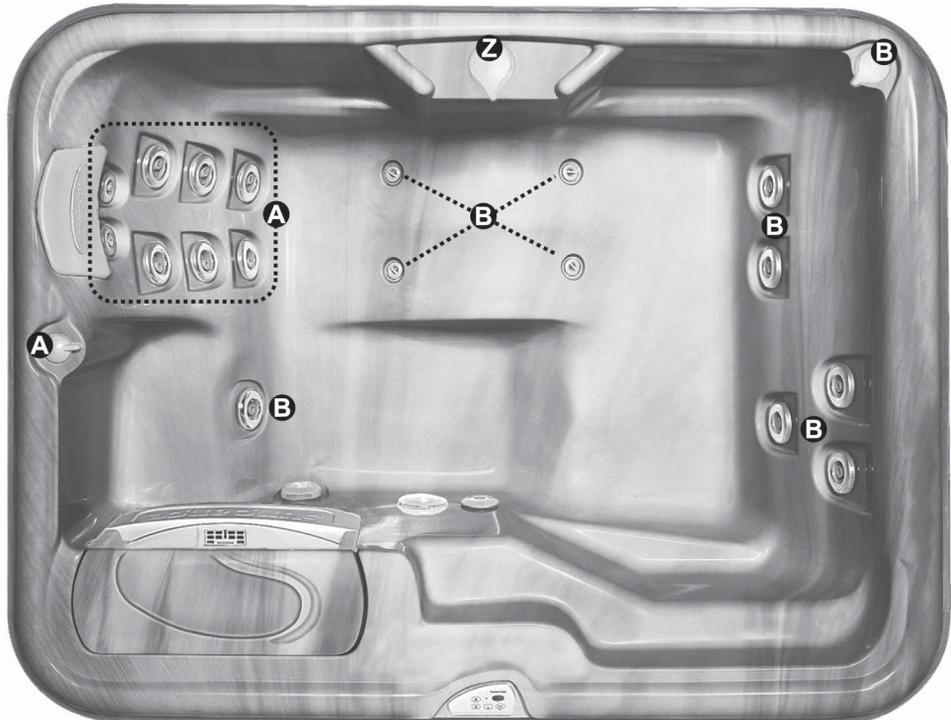
Air Controls A&B
Open An Air
Venturi to
Specified Jets:

- A** = Jets A
- B** = Jets B

Massage Selector

Functions:

Z Diverts Water
Flow Between
Jet Group A and
Jets B



9.6 Caprio / Caprio ST Diverter Valve / Air Control Operation

Air Controls Functions:
Air Controls A-C Open An
Air Venturi to Specified
Jets:

- A** = Jet Group A
- B** = Jet Group B
- C** = Jet Group C

Massage Selector Functions:
Z Diverts Water Flow Between Jet Group
A and Jets D.

Jet Groups B & C Are Always On. However,
The Jet Faces of These Jets Can be
Adjusted to Personal Preference Levels.



9.7 Programming the Filter Cycle

Tango, Caprio, and Caprio ST Models Only

Proper filtration is an important key to maintaining the clarity of your hot tub's water. The hot tubs filtration system is designed for unsurpassed effectiveness at removing debris and suspended particles from the water anytime the water is circulated by the pump.

To select a pre-programmed filter cycle or lockout mode, press and hold both control panel WARMER ▲ and COOLER ▼ arrow keys **at the same time**, then release. Then press either WARMER ▲ or COOLER ▼ arrow keys to select filter mode F1 through L2 below:

- | | | |
|-----------|---|----|
| F1 | No filter cycle - power-up default (recommended for Solo models only) | F1 |
| F2 | 1 hour of filtration a day two minutes after initial power-up | F2 |
| F3 | 2 hours of filtration a day (1 hour cycle every 12 hours) | F3 |
| F4 | 3 hours of filtration a day (1 hour cycle every 8 hours) | F4 |
| F5 | 4 hours of filtration a day (1 hour cycle every 6 hours) | F5 |
| F6 | 6 hours of filtration a day (1 hour cycle every 4 hours) | F6 |
| L1 | Lock Out (disables all hot tub functions to permit filter cleaning) | L1 |
| L2 | Lock Mode (disables the jets and light buttons to prevent unauthorized use of the hot tub) - filter cycles and heater will continue to operation as programmed in this mode. The temperature display flashes when this function is enabled. Example: the "F3" filter cycle was enabled prior to choosing lock mode. The hot tub continues to perform filter cycle "F3" until lock mode is canceled, allowing another filter cycle to be selected. | L2 |

To set a time for the first filter cycle, simply turn power on to the spa two minutes prior to the desired filter time. **EXAMPLE:** If you desire your first filter cycle to begin at 10:00 AM turn off power to the spa and turn it back on again at 9:58 AM. *Note: start time is approximate and may vary slightly from day to day.*

10.0 Care and Maintenance

Proper and regular maintenance of your spa will help it retain its beauty and performance. Your authorized Portofino dealer can supply you with all the information, supplies and accessory products you will need to accomplish this.

10.1 Cleaning the Filter

Your Portofino spa is equipped with a cartridge filter under the skimmer lid. *Refer to section 14.1-14.3 (page 27-28).* Filtering is accomplished by causing water to flow through the polyester mesh of the filter, and as water flows through the filter, suspended particles become trapped in its surface. It is necessary to remove the filter cartridge and clean it thoroughly, generally every three to four weeks, depending on usage and water quality.



CAUTION! Never scrub the filter with a brush as this will cause the polyester mesh to wear out and come apart. Never let the spa pump run or have a filter cycle come on without a filter in the skimmer compartment. Running the spa without a filter may permit debris to enter the spa plumbing and void the warranty!

Filter Cleaning Procedure

1. To remove the filter, first turn off the power to the spa, or select “lock out” mode L1. *Refer to section 9.7 (page 15).* Note: removing power from the spa will reset temperature and filter cycle selections to the software defaults of 100 °F (38 °C) and filter cycle “F1.”
2. For Solo and Tango filter cleaning: First remove the filter lid, then back off the nut away from the filter. *Refer to sections 14.1-14.2 (page 27-28).* Rotate the filter counter clockwise until the threaded end comes free from the heater intake fitting, then pull the filter out at an angle. After you remove the filter, check the secondary “safety screen” for debris and remove and clean if necessary.
3. For Caprio/Caprio ST filter cleaning: Remove the filter lid. Remove the filter cartridge by loosening the retainer nut on the pipe at one end of the filter sliding the filter toward the nut until the other end is free from the universal wall fitting. *Refer to section 14.3 (page 28).* Then pull the filter out at an angle.

4. Occasionally, the cartridge will need an enhanced cleaning to remove oils and minerals from its surface. For this, remove the cartridge, clean with a high-pressure nozzle, then place the cartridge in a plastic container, soaking it three to six hours, or overnight in a solution of specially formulated cartridge filter cleaner. If you do not have a replacement filter to install while you are soaking this one, you must leave the power to the spa turned off.

The average life expectancy of a Portofino filter cartridge is approximately two years with proper care and water quality maintenance. A replacement cartridge may be purchased from your Portofino dealer.

10.2 Draining and Refilling



WARNING: Read This Before Draining

To prevent damage to the spa's components, turn off power to the spa at the circuit breaker before draining it. Do not turn power back on until your spa has been refilled.



CAUTION: There are certain precautions to keep in mind when draining your spa. If it is extremely cold, and the spa is outdoors, freezing could occur in the plumbing or the equipment. On the other hand, if it is hot outdoors, do not leave the spa's surface exposed to direct sunlight for long periods.

To drain Solo model, first, shut off the power to the spa. Next, remove the drain cap, then open the equipment access panel and locate the drain valve and turn. *Refer to section 13.1 (page 26).* To drain Caprio, Caprio ST, and Tango models, first, shut off the power to the spa. Pull the external drain cap from the wood skirt (attached to it is a drain hose) and continue pulling upward until it is above the water line. Connect garden hose and drain.

10.3 Cleaning the Spa Interior

To preserve the sheen of your spa's surface, it is crucial that you avoid using abrasive cleaners or cleaners which have adverse chemical effects on the surface. If you are not certain about the suitability of a particular cleaner, please consult your authorized Portofino dealer. Regardless of the cleanser used, use extreme care to assure that no soap residue is left on the surface. This could cause foaming when the spa is refilled.

10.4 Cleaning the Pillows

Remove and clean the pillows regularly with a soapy water solution using a clean cloth or soft-bristle brush. To maintain water resistance or luster, apply a quality vinyl conditioner once a month.



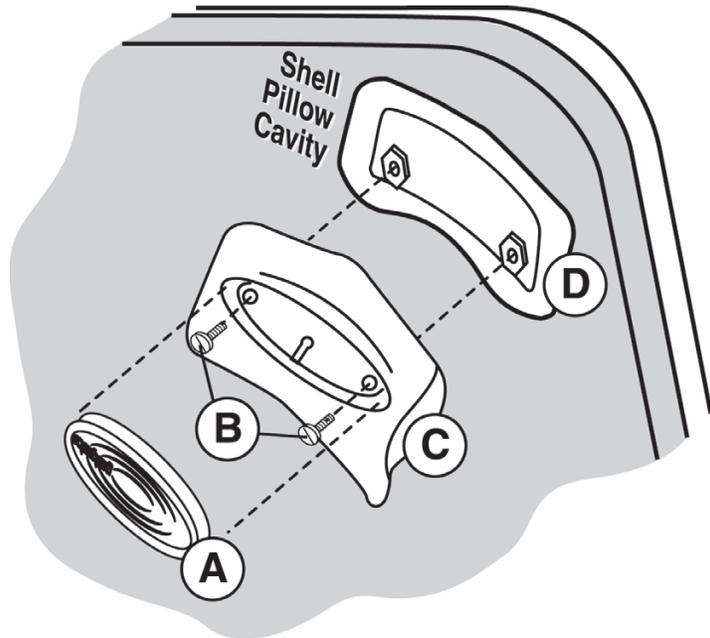
IMPORTANT INFORMATION

Always remove the pillows when adding chemical shock treatment to the hot tub water. The pillows can be returned to the hot tub when the sanitizer reading drops below 5 PPM.

Your hot tub is equipped with 2-part, bolt-on style pillows. Follow the instructions below for proper removal/installation techniques:

Removal Instructions:

1. Grasp center pillow insert (A) with finger tips and gently pry outward from pillow base (C).
2. Use a standard screwdriver to loosen and remove mounting bolts (B) from pillow base, then remove pillow base from shell cavity (D).



Installation Instructions:

1. Place pillow base (C) over hot tub shell cavity (D).
2. Install each mounting bolt (B) into the threaded mounting boss located in the shell pillow cavity (D). Tighten each mounting bolt using a standard screwdriver. **Do not over tighten!**
3. Install center pillow insert (A) into pillow base cavity (C) by gently pressing it into place. The insert is slightly larger for a compression fit. Pillow installation is complete.

10.5 Maintaining the Cover

Using the Portofino insulating spa cover anytime the spa is not in use will significantly reduce your operating costs, heat-up time and maintenance requirements. To prolong the life of the cover, handle it with care and clean it regularly using mild soap and water. Periodic treatments with a special conditioner developed for Sundance spa covers will help protect against deterioration caused by UV rays from the sun. Never allow anyone to stand or sit on the cover, and avoid dragging it across rough surfaces.

10.6 Maintaining the Wood Cabinet

With time and exposure to the elements, the wood on your spa will tend to lose its new appearance. Protecting or reviving the wood surface is a fairly simple process. Light sanding with fine-grit sandpaper will help smooth any roughness. Regular applications of a penetrating wood preservative will enhance and protect the richness of the wood. A specially formulated wood stain available from your Portofino dealer is ideal for this job. Note: Do not apply varnish, shellac or other surface sealant to the wood. These tend to react with the chemicals in the wood and the UV rays of the sun, causing yellowing, flaking and peeling.

10.7 Winterizing the Spa

Your Portofino spa is designed to automatically protect itself against freezing when operating properly. During periods of severe freezing temperatures, you should check periodically to be certain that the electrical supply to the spa has not been interrupted.

If you do not intend to use your spa, or if there is a prolonged power outage during periods of severe freezing temperatures, it is important that **all water be removed** from the spa and equipment to protect against damage from freezing. For expert winterization of your spa, contact your authorized Portofino dealer.

10.8 Maintaining the Water Quality

Maintaining the quality of the water within specified limits will serve to enhance your enjoyment and prolong the life of the spa's equipment. It is a fairly simple task, but it requires regular attention because the water chemistry involved is a balance of several factors. A careless attitude in regard to water maintenance will result in poor and potentially unhealthy conditions for soaking and even damage to your spa investment. For

specific guidance on maintaining water quality, consult your authorized Portofino dealer who can recommend appropriate chemical products for sanitizing and balancing your spa water.



CAUTION: Never store spa chemicals inside the spa's equipment bay.

10.9 Controlling the pH

pH is a measure of relative acidity or alkalinity of water and is measured on a scale of 0 to 14. The midpoint of 7 is neutral, above 7 is alkaline, and below 7 is acidic.

In spa water, **it is very important to maintain a slightly alkaline condition of 7.2 to 7.8.** Problems become proportionally severe when this range is exceeded or diminished. A low pH will be corrosive to metals in the spa equipment. A high pH will cause minerals to deposit on the interior surface of the spa and equipment (scaling). In addition, the ability of the sanitation agents to keep the spa clean is severely affected as the pH moves beyond the ideal range. Your Portofino dealer can provide you with any chemicals and instructions you may need to adjust the pH of your spa water.

10.10 Sanitizing / Using Additives

To destroy bacteria and organic compounds in the spa water, a sanitizing agent must be used regularly. Consult your Sundance dealer for specific sanitizing instructions.



IMPORTANT: Do not use Trichlor in your spa. This chemical can have an extremely corrosive effect on certain materials in the spa. Damage caused by use of this chemical, or improper use of any chemicals, is not covered under the manufacturer's warranty.

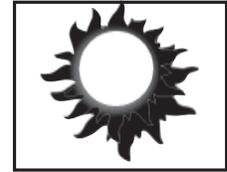


Many other additives are available for your spa. Some are necessary to compensate for out-of-balance water, some aid in cosmetic water treatment, and others simply alter the feel or smell of the water. Your authorized Portofino dealer can advise you on the use of these additives.

11.0 Error Conditions / Error Messages

11.1 Summer Logic

When the actual spa water temperature reaches up to 2 °F (1 °C) above the set temperature, the spa goes into “summer logic.” The circulation pump will turn off automatically to avoid adding additional heat to the water and eventually creating an overheat condition. This setting is not user-programmable. Note: The summer logic does not take effect until the spa water temperature reaches 95 °F (35 °C).



11.2 Overheat Condition

When the actual water temperature is approximately 2 °F (1 °C) above the set temperature, the circulation pump will stop operating to reduce (frictional) heating. If the spa water temperature continues to rise and gets above 110 °F (43 °C), the spa will go into an “OH” overheat condition. To help prevent “OH” conditions, you may want to consider setting the spa temperature at a lower set point, especially in hot weather conditions.



There are a number of unique functions designed into your Sundance spa to protect it from damage and/or aid in troubleshooting. Refer to sections 11.3-11.9 below for a listing of all possible error messages and their meanings.

11.3 Panel displays SN1

Open sensor (heater is disabled) or shorted sensor (spa is deactivated). The high-limit temperature sensor is not functioning. Your authorized dealer must repair this.



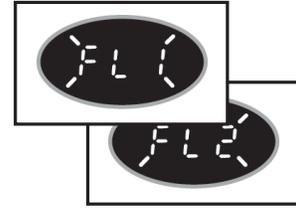
11.4 Panel displays SN2

Open or shorted sensor (heater disabled). The temperature sensor is not functioning. Your authorized dealer must repair this.



11.5 Panel displays *FL1* or *FL2*

A flashing “FL1” display means the flow switch is malfunctioning open; a flashing “FL2” display means the flow switch is malfunctioning closed.



- Flow switch has malfunctioned.
- Heater is deactivated. Pump may also be deactivated.
- Proper flow of water is inhibited, or the flow switch has malfunctioned.

To Correct Condition:

1. Remove filter and allow air to bleed out of cartridge.
2. Check for proper water level.
3. Check for clogged/excessively dirty filter cartridge.
4. Check secondary screen filter (Solo models only).
5. Check for sticking or damaged weir gate.
6. If problem persists, contact your authorized dealer.

Note: This message can also appear if the pump has not regained prime after the spa has been drained and refilled. If you suspect this is the case, refer to section 7.3, page 10.

11.6 Panel displays *COL*

Cool Condition - Temperature has dropped 20 °F (11 °C) below the current set temperature. The pump and heater have been activated to bring the temperature to within 15 °F (8 °C) of the set temperature. No corrective action is required.



11.7 Panel displays *ICE*

Freeze Protection - A potential freeze condition has been detected. No action is required. Main pump will operate to circulate warm water through the plumbing until the spa is out of danger.



11.8 Panel displays *OH*



WARNING! DO NOT ENTER HOT TUB WATER!

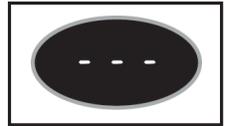
Water is too hot. Overheat protection. Heater is deactivated. Spa water temperature is above acceptable limits.



1. Remove the spa's cover and allow your spa to cool down.
2. Reduce the temperature setting.
3. When the water temperature drops below 108 °F (42 °C), the spa will resume normal operation.
4. If the water does not drop below 108 °F (42 °C), contact your authorized dealer.

11.9 Panel displays - - -

The safety "Watchdog" software has been triggered and the spa is deactivated. A problem has been detected which could cause damage to the spa or its components. Contact your authorized dealer.



12.0 Troubleshooting Procedures

In the event your Portofino spa is not working the way it should, please first review all the installation and operating instructions in this manual and check the message on the panel display. If you are still not satisfied it is working properly, please follow the appropriate troubleshooting instructions. Note: If any of the supply cords to the accessories are damaged, they must be replaced by authorized service personal.

12.1 None of the Components Operate (e.g. Pump, Light)

Check the following:

1. Is there power to the spa?
2. Is the household circuit breaker tripped?
3. Call your authorized dealer.

12.2 Pump Does Not Operate but Light Does

Press the JETS Button:

1. If no water movement is detected, make sure power is going to the spa and check the water level. If it does not solve the problem, contact your authorized Portofino dealer.
2. The main pump operates but no water flows to jets. Pump may not be properly primed. This can happen after the spa is drained and refilled. Press the JETS Button several times, never leaving the motor on for more than 5 to 10 seconds at-a-time. Turn power off and let the air out by loosening the cap on the diverter and/or remove the filter. *Refer to section 7.3 (page 10)*. Make certain you tighten the diverter cap and/or reinstall the filter before turning on spa power and restarting the pump.

12.3 Poor Jet Action

1. Press the JETS button to make certain the pump is on.
2. Rotate the air control to the "on" position.
3. Solo Models Only - make certain that the water level is to *just* below the neck jets.
4. Check for dirty filter. Clean, if necessary.
5. Make sure jets are all the way open.

12.4 Water is Too Hot

Reduce thermostat setting so the circulation pump turns off.

12.5 No Heat

1. Check thermostat setting.
2. Keep the spa cover in place while heating.

Your authorized dealer is a trained service repair center. Should checking the above steps fail to correct the problem, please call your dealer so that they may arrange service.

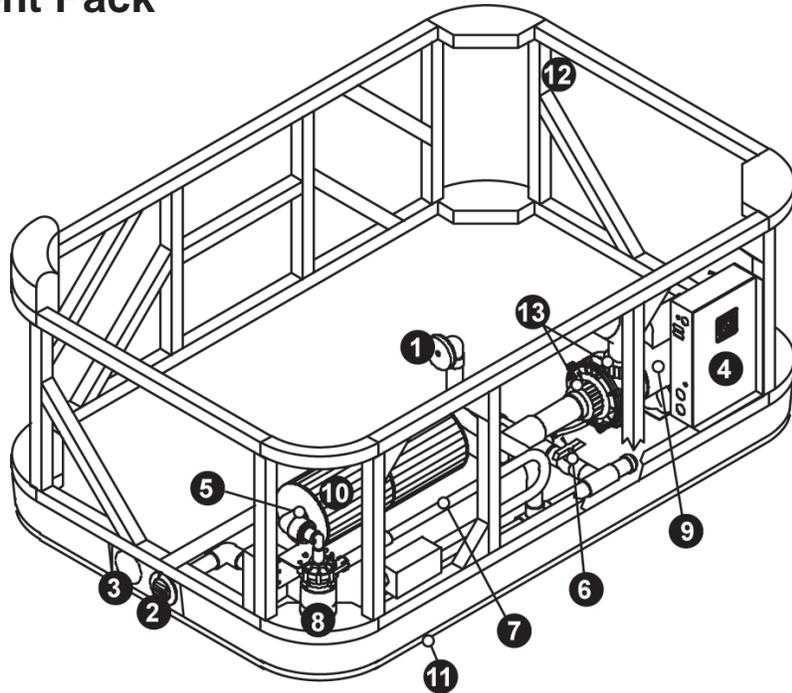
We build the best spas in the industry. Nonetheless, we are always striving to improve the quality and features of our products. Your input as a Sundance spa owner is a cherished part of this process. If you have any comments or suggestions, or if you wish to be informed on any new products for your spa, please write to us.

CONGRATULATIONS on your good taste and welcome to the happiest and most relaxed family in the world!

13.0 Spa Equipment Packs

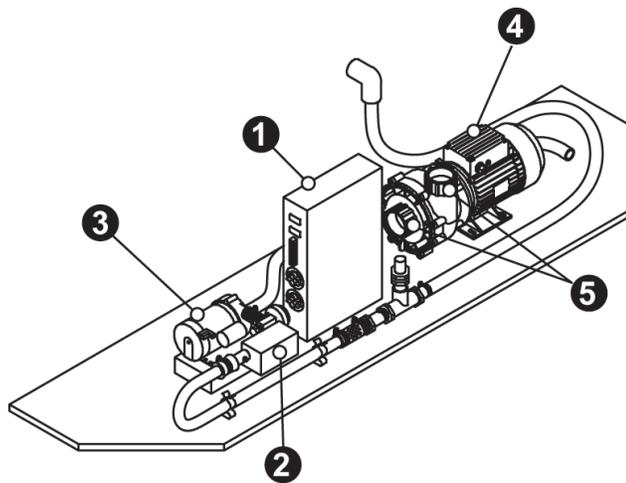
13.1 Solo Equipment Pack

1. Overflow Fitting
2. Drain Cap
3. Auxiliary Pan Drain Location
4. Load Box
5. Safety Screen and Heater Intake
6. Drain Valve
7. Heater
8. Circulation Pump
9. Main Pump
10. Filter
11. Pan
12. Wood Frame
13. Pump Unions



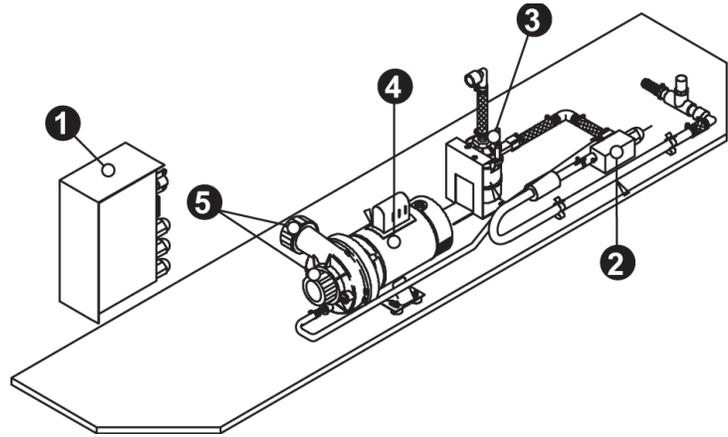
13.2 Tango Equipment Pack

1. Load Box
2. Heater
3. Circulation Pump
4. Main Pump
5. Pump Unions



13.3 Caprio / Caprio ST Equipment Pack

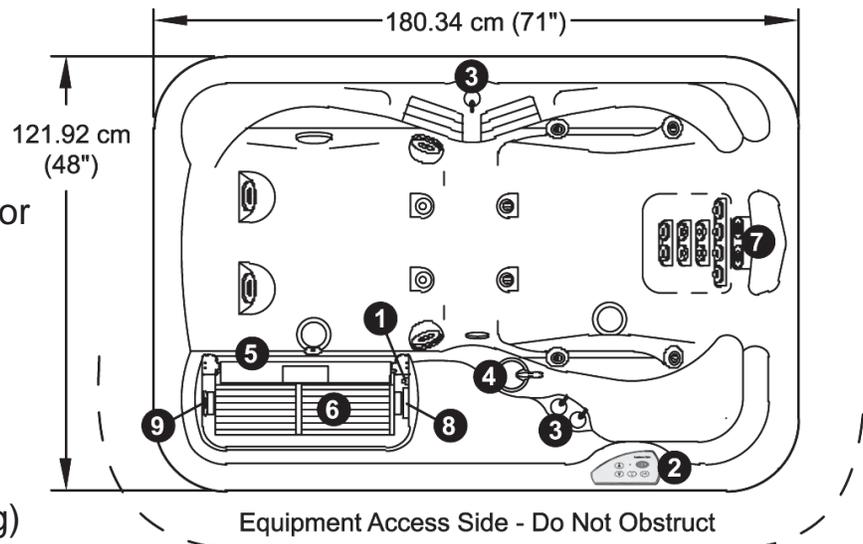
1. Load Box
2. Heater
3. Circulation Pump
4. Main Pump
5. Pump Unions



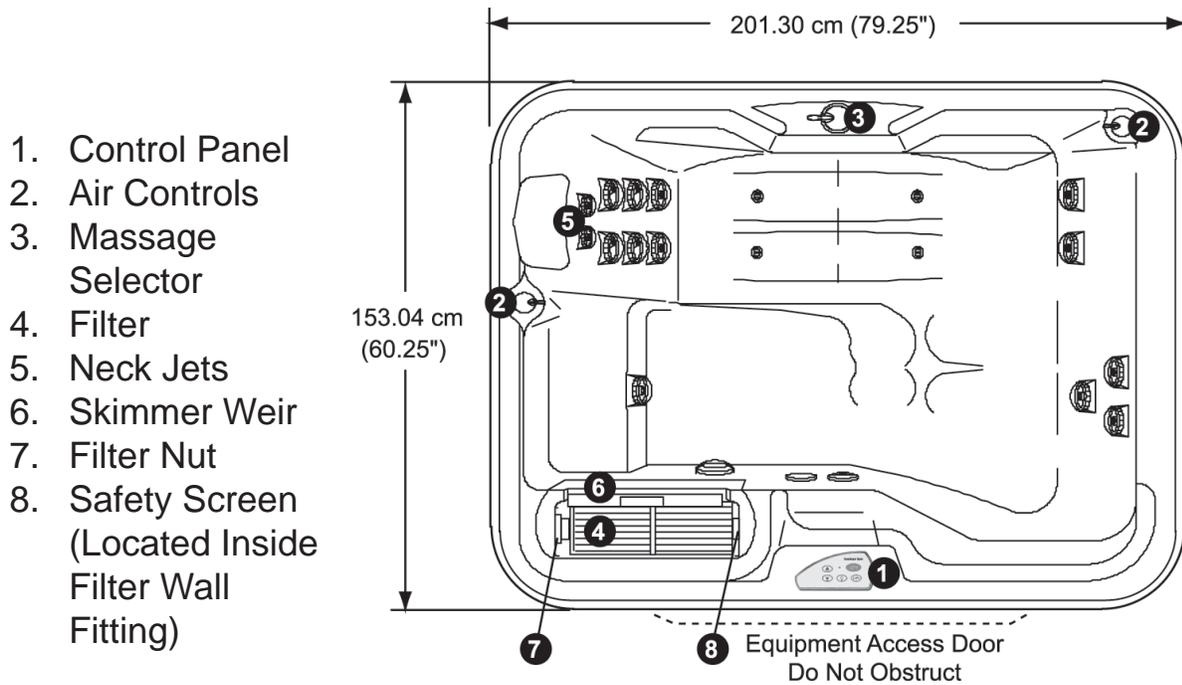
14.0 Spa Overhead Views

14.1 Solo Overhead View

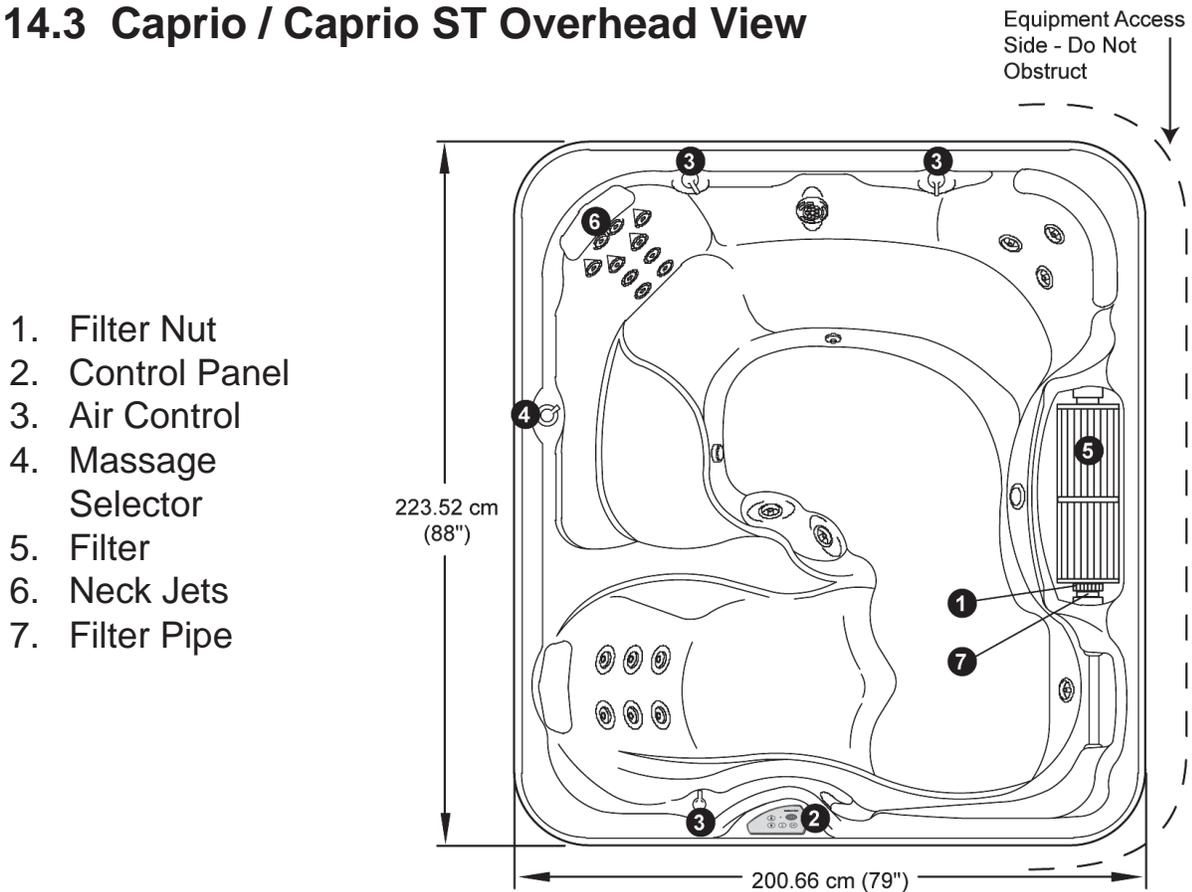
1. Overflow
2. Control Panel
3. Air Controls
4. Massage Selector
5. Skimmer Weir
6. Filter
7. Neck Jets
8. Filter Nut
9. Safety Screen
(Located Inside
Filter Wall Fitting)



14.2 Tango Overhead View

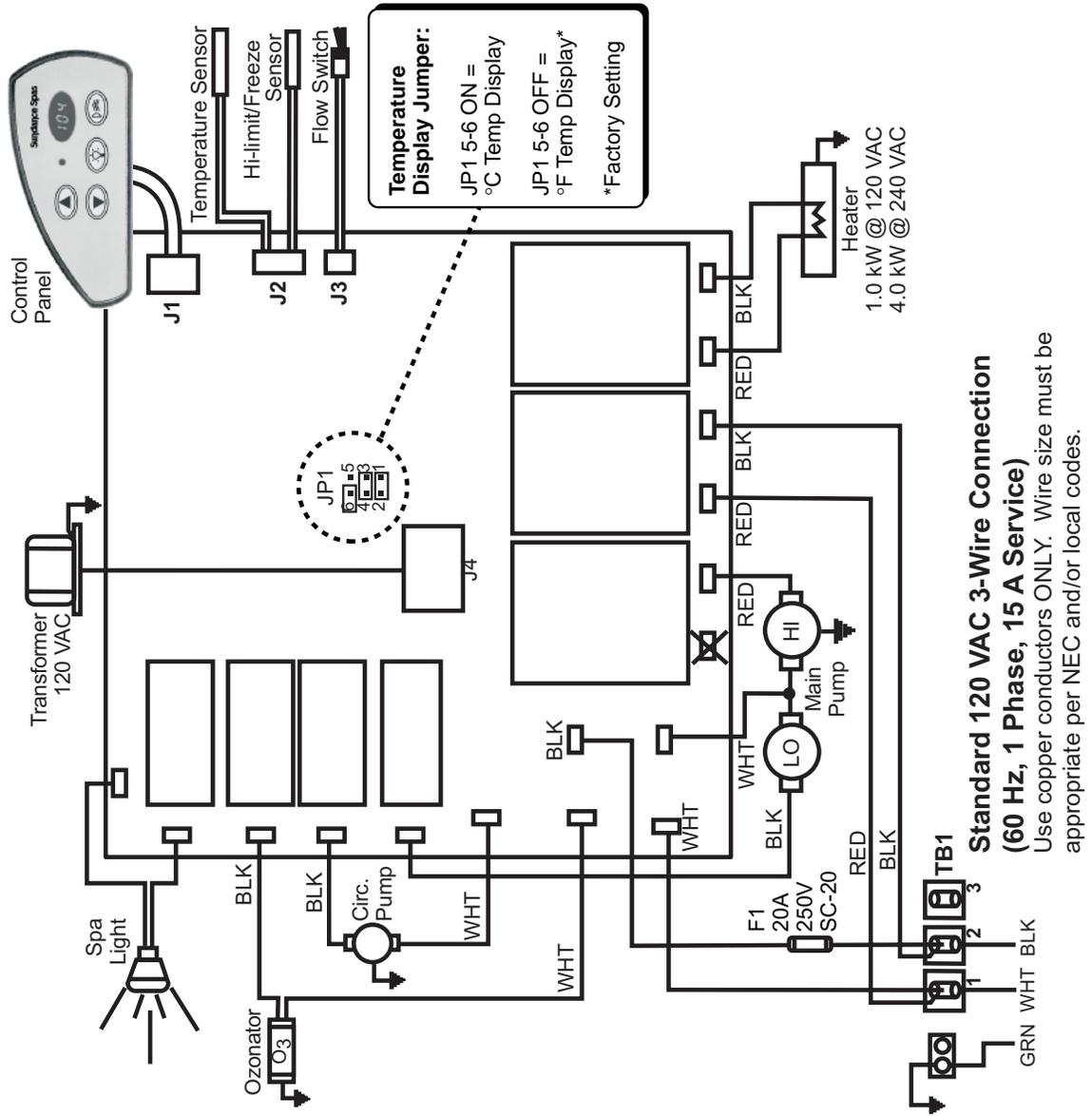


14.3 Caprio / Caprio ST Overhead View



15.0 120/240 VAC Convertible Circuit Diagram

This wiring diagram is used for all US/Canada 120/240 VAC (60 Hz) convertible power models.



Temperature Display Jumper:
 JP1 5-6 ON = °C Temp Display
 JP1 5-6 OFF = °F Temp Display*
 *Factory Setting

Optional 120/240 VAC 4-Wire Convertible Heater Connection

1. Remove and discard the factory installed GFCI Cord.
2. Move RED* wire from position #1 to position #3 on terminal block TB1 as shown below.
3. Permanently connect to the power supply. Use copper conductors ONLY. Wire size must be appropriate per NEC and/or local codes.
4. If hot tub is to be operated on 40A service, remove the jumper provided at location JP1 #1&2 on the circuit board.

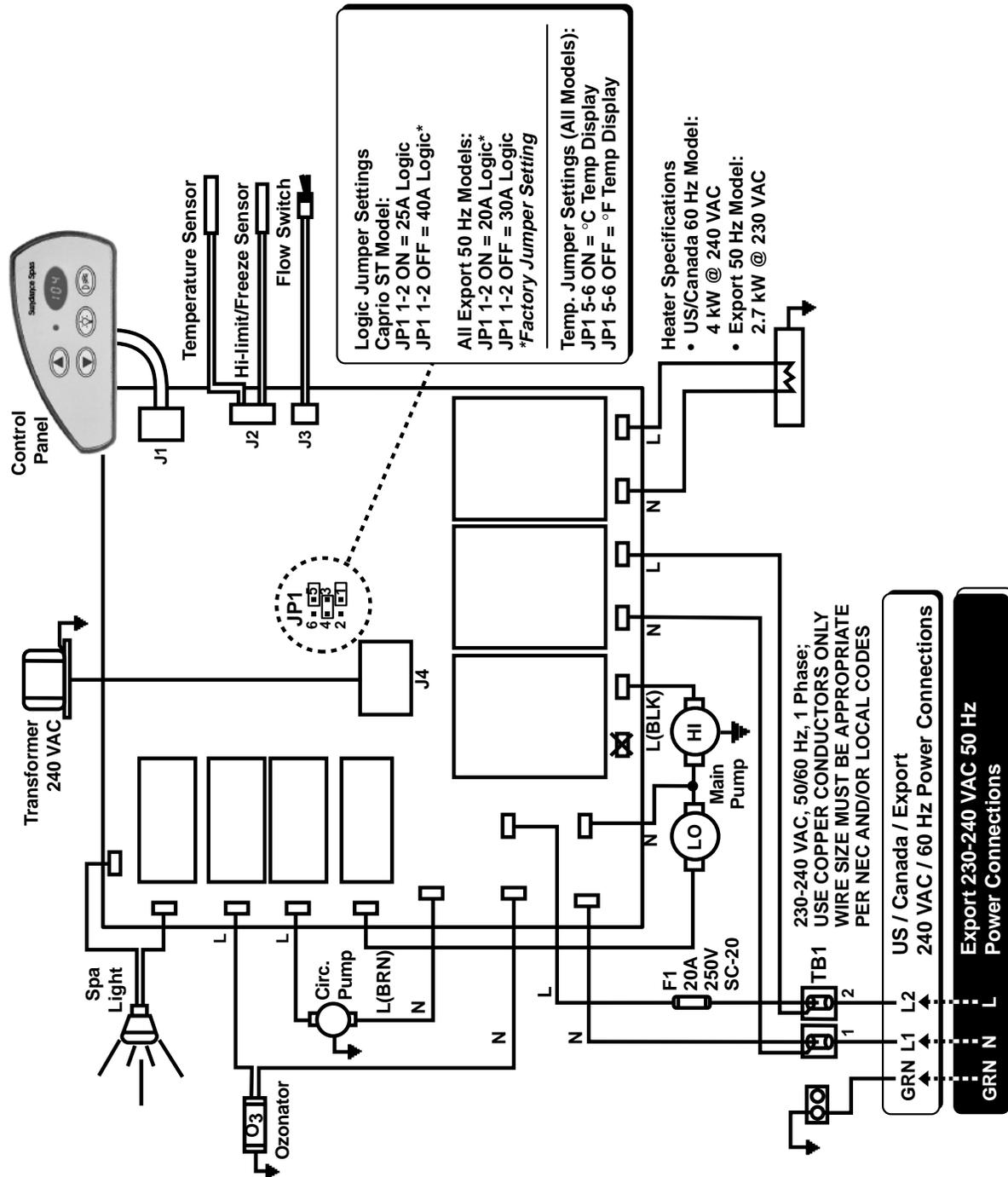
The diagram shows terminal block TB1 with terminals 1, 2, and 3. The original wiring is: 1 (RED*), 2 (BLK), 3 (RED). The modified wiring for 40A service is: 1 (GRN), 2 (WHT), 3 (BLK). The RED* wire is moved from terminal 1 to terminal 3.

Standard 120 VAC 3-Wire Connection (60 Hz, 1 Phase, 15 A Service)
 Use copper conductors ONLY. Wire size must be appropriate per NEC and/or local codes.

16.0 230-240 VAC Dedicated Circuit Diagram

This wiring diagram is used for the following dedicated power models:

- US/Canada 240 VAC (60 Hz) Caprio ST models
- All Export 230-240 VAC (50/60 Hz) models



17.0 Specifications

17.1 Solo Specifications

- **Dimensions:** 48" x 71" x 29"
(122 cm x 180 cm x 74 cm)
- **Seating Capacity:** 1 Adult
- **Dry Weight:** 401 lbs / 182 kg
- **Filled Weight:** 1,238 lbs / 562 kg
- **Water Capacity (Avg. Fill):** 100 US Gal / 380 Liters
- **Controls:** Solid-State Electronic Controls with LED Readout, Programmable Temperature, Filtration, and Heat Cycles
- **Water Delivery:** 1 TheraFlo™ High-Flow Pump
- **Pump 1 Rating:**
 - US/Canada Convertible Model (60 Hz): 2-Speed /1.5 hp Continuous, 13.6 A Max.
 - Export Models (50/60Hz): 2-Speed/2.0 hp Continuous, 8.7 A Max.
- **Pump 2:** Circulation Pump
- **Total Hydrojets:** 24
- **Therapy Jets:** 4 Pro-Touch II™
- **Vertical Jets:** 6 Pulsator™, 2 Accu-Pressure™
- **Accu-Ssage Therapy Seat Jets:** 12 Accu-Pressure™
- **Air Controls / Massage Selectors:** 3 / 1



(Continued)

- **Filter:** 90 ft² Double-End, 20" Slipstream™ Weir with Automatic Brominator™
- **Water Treatment:** Brominator™ Chemical Feeder
- **Lighting:** Underwater with Two Colored Lenses; Optional SunGlow™ Multi-Color LED Light Kit
- **Cabinet:** Redwood with Coastal, Sierra, or No Stain; Optional Synthetic Wood Skirt
- **Colors:** Textured - Bluegrass, Jade, Marine, Onyx, Sahara, or Sand; Marbled Emerald, Platinum, Sapphire, or Topaz
- **Handrails:** 2 High Quality Stainless Steel
- **Pillows:** 2-Part/2-Tone Gray, Bolt-on; Optional Blue or Camel Insert
- **Heater:**
 - US/Canada Convertible Model (60 Hz): Low Flow, 1 kW @ 120 VAC or 4 kW @ 240 VAC
 - Export Models (50/60 Hz): Low Flow, 2.7 kW
- **Electrical Requirements:**
 - USA/Canada Convertible Model (60 Hz): 120 VAC @ 15 A or 240 VAC @ 25 A or 40 A
 - Export Models (50/60 Hz): 230 - 240 VAC @ 20 A or 30 A; or suitably rated circuit breaker to comply with local electrical regulations. Certain countries may require dual power inputs; two 16 A and breakers are required for this configuration.

17.2 Tango Specifications

- **Dimensions:** 60.25" x 79.25" x 30.5"
(153 cm x 201.30 cm x 77.5 cm)
- **Seating Capacity:** 2 Adults
- **Dry Weight:** 483 lbs / 219 kg
- **Filled Weight:** 2,026 lbs / 919 kg
- **Water Capacity (Avg. Fill):**
185 US Gal / 700 Liters
- **Controls:** Solid-State Electronic Controls with LED Readout, Programmable Temperature, Filtration, and Heat Cycles
- **Water Delivery:** 1 TheraFlo™ High-Flow Pump
- **Pump 1 Rating:**
 - US/Canada Convertible Model (60 Hz): 2-Speed/1.5 hp Continuous, 13.6 A Max.
 - Export Models (50/60 Hz): 2-Speed/2.0 hp Continuous, 8.7 A Max.
- **Pump 2:** Circulation Pump
- **Total Hydrojets:** 19
- **Therapy Jets:** 5 Pro-Touch II™
- **Vertical Jets:** 4 Pulsator™, 1 Pro-Touch II™
- **Therapy Seat Jets:** 2 Mini-Intelli-Jet™, 6 Pro-Touch II™
- **Ozone Jets:** 1
- **Air Controls / Massage Selectors:** 2 / 1



(Continued)

- **Filter:** 90 ft² Double-end, 20" Slipstream™ Weir with Automatic Brominator™
- **Water Treatment:** Brominator™ Chemical Feeder; Ready for PermaClear™ or SunZone™ CD Installation
- **Lighting:** Underwater, with Two Colored Lenses; Optional SunGlow™ Multi-Color LED Light Kit
- **Cabinet:** Redwood with Coastal, Sierra, or No Stain; Optional Synthetic Wood Skirt
- **Colors:** Textured Bluegrass, Jade, Marine, Marble, Onyx, Sahara, or Sand; Marbled Emerald, Platinum, Sapphire, or Topaz
- **Handrails:** Integral
- **Pillows:** 2-Part/2-Tone Gray, Bolt-on; Optional Blue or Camel Insert
- **Heater:**
 - US/Canada Convertible Model (60 Hz): Low Flow, 1 kW @ 120 VAC or 4 kW @ 240 VAC
 - Export Models (50/60 Hz): Low Flow , 2.7 kW
- **Electrical Requirements:**
 - US/Canada Convertible Model (60 Hz): 120 VAC @ 15 A or 240 VAC @ 25 A or 40 A
 - Export Models (50/60 Hz): 230 - 240 VAC @ 20 A or 30 A; or suitably rated circuit breaker to comply with local electrical regulations. Certain countries may require dual power inputs; two 16 A breakers are required for this configuration.

17.3 Caprio / Caprio ST Specifications

- **Dimensions:** 79" x 88" x 33"
(201 cm x 224 cm x 84 cm)
- **Seating Capacity:** 3-4 Adults
- **Dry Weight:** 638 lbs / 289 kg
- **Filled Weight:** 3,543 lbs / 1,607 kg
- **Water Capacity (Avg. Fill):**
350 US Gal / 1,325 Liters
- **Controls:** Solid-State Electronic Controls with LED Readout, Programmable Temperature, Filtration, and Heat Cycles
- **Water Delivery:** 1 TheraFlo™ High Flow Pump
- **Pump 1 Rating:**
 - US/Canada Convertible Model (60 Hz): 2-Speed/1.5 hp Continuous, 13.6 A Max
 - US/Canada 240 VAC Caprio ST Model (60 Hz): 2-Speed 2.5 hp Continuous, 12 A Max
 - Export Model (50 Hz): 2-Speed / 2.0 hp Continuous, 8.7 A Max.
- **Pump 2:** Circulating Pump
- **Total Hydrojets:** 24
- **Therapy Jets:** 3 Pro-Touch II™, 1 Duo-Path™
- **Vertical Jets:** 3 Pro-Touch II™
- **Therapy Lounge Jets:** 6 Mini-Intelli-Jet™
- **Accu-Ssage Therapy Seat Jets:** 10 Accu-Pressure™



(Continued)

- **Ozone Jet:** 1
- **Air Controls/Massage Selectors:** 3/1
- **Filter:** 125 ft² Double-end, 20" Slipstream™ Weir with Automatic Brominator™
- **Water Treatment:** Brominator™ Chemical Feeder; Ready for PermaClear™ or SunZone™ CD Installation
- **Lighting:** Underwater, with Two Colored Lenses; Optional SunGlow™ Multi-Color LED Light Kit
- **Cabinet:** Redwood, Coastal, Sierra, or No Stain; Optional Synthetic Wood Skirt
- **Colors:** Textured Bluegrass, Jade, Marine, Onyx, Sahara, or Sand; Marbled Emerald, Platinum, Sapphire, or Topaz
- **Handrail:** 1 High Quality Stainless Steel, 1 Integral
- **Pillows:** 2-Part/2-Tone Gray, Bolt-on; Optional Blue or Camel Insert
- **Heater:**
 - US/Canada Convertible Model (60 Hz): Low Flow, 1 kW @ 120 VAC or 4 kW @ 240 VAC
 - US/Canada 240 VAC Caprio ST Model (60 Hz): Low Flow, 4 kW @ 240 VAC
 - Export Model (50 Hz): Low Flow, 2.7 kW @ 230-240 VAC
- **Electrical Requirements:**
 - US/Canada Convertible Model (60 Hz): 120 VAC @ 15 A or 240 VAC @ 25 A or 40 A
 - US/Canada 240 VAC Caprio ST Model (60 Hz): 240 VAC @ 25 A or 40 A
 - Export Model (50 Hz): 230 - 240 VAC @ 20 A or 30 A; or suitably rated circuit breaker to comply with local electrical regulations. Certain countries may require dual power inputs; two 16 A breakers are required for this configuration.

Notes:

Notes:

Sundance Spas, Inc.

14525 Monte Vista Ave, Chino, CA 91710/U.S.A.,

Phone: (909) 606-7733, Fax: (909) 606-0195

Website: <http://www.sundancespas.com>