

# 850<sup>SERIES</sup><sub>E</sub>

caprio · metro · solo



O W N E R ' S M A N U A L

**Sundance® Spas**

## **Attention New Hot Tub Owner!**

Congratulations on the purchase of your new Sundance Hot Tub! Listed below are important maintenance recommendations you should observe on a regular basis to protect your new investment.

### **Filter Maintenance**

Your new hot tub is equipped with an advanced 2-stage MicroClean™ water filtration system that provides unsurpassed water quality! To ensure maximum water quality at all times, you should clean and reuse the larger pleated filter cartridge every month and replace (throw away) the smaller MicroClean filter cartridge every 3 months (or as needed). See page 17-18 for detailed filter cartridge replacement instructions.

### **Water Maintenance**

You will want to replace the hot tub's water every 3 to 6 months. The frequency depends on a number of variables including the frequency of use, number of users, attention paid to water quality maintenance, etc. You will know it is time for a change when you cannot control sudsing and/or you can no longer get the normal feel or sparkle to the water, even though the key water balance measurements are all within the proper parameters. See page 22 for additional information.

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# 1.0 Important Spa Owner's Information

Your Sundance 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, 240 VAC POWERED SPAS - These spas 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 (8.4 mm<sup>2</sup>). 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 (8.4 mm<sup>2</sup>) 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  $\pm 5$  °F ( $\pm 3$  °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 Sundance spa is equipped with the “state-of-the-art” 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. Sundance 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 (8.4 mm<sup>2</sup>) 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 at all times.

We recommend a poured, reinforced concrete slab with a minimum thickness of 4 inches (10 cm). 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 changing area and shelter around spa (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 Sundance 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 spa's equipment due to insufficient voltage. The power supplied to this spa must be a dedicated circuit with no other appliances or lights sharing the power provided by the circuit.

## 5.0 Power Supply Requirements

### All US/Canada 120/240 VAC Convertible Models (60 Hz)

	<b>120 VAC/ 15 A*</b>	<b>240 VAC/ 30 A*</b>	<b>240 VAC/ 40 A**</b>
Voltage:	120 VAC	240 VAC	240 VAC
Frequency:	60 Hz	60 Hz	60 Hz
Max. Current Draw:	12 A	21 A	30 A
# of Wires	3 (15 A cord/GFCI)	4	4
Circuit Breaker	15 A, 1-Pole	30 A, 2-Pole	40 A, 2-Pole

**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 figure-H (page 8) **before applying power.** Failure to do so will result in damage to the circuit board and/or related components and void the manufacturer's warranty.

\* In the 15 A / 30 A configuration, the heater **will not operate** at the same time as the high-speed jets pump. **The factory setting is 120 VAC/15 A.**

\*\* 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 high-speed jets pump (see page 30).

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

	<b>230VAC/ 20 A*</b>	<b>230VAC/ 30 A**</b>
Voltage:	230 VAC	230 VAC
Frequency:	50 / 60Hz	50 / 60Hz
Max. Current Draw:	13A	19A
# of Wires:	3	3
Circuit Breaker:	20 A	30 A

- \* In the 20 A configuration, the heater **will not operate** at the same time as the main jets pump. **This is the factory setting.**
- \*\* In the 30 A configuration, the heater **will operate** at the same time as the main jets pump.

**Important Information:** The Sundance 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 face-plate from the load box. Refer to sections 13.1-13.3 (page 27-28) 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-I 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.

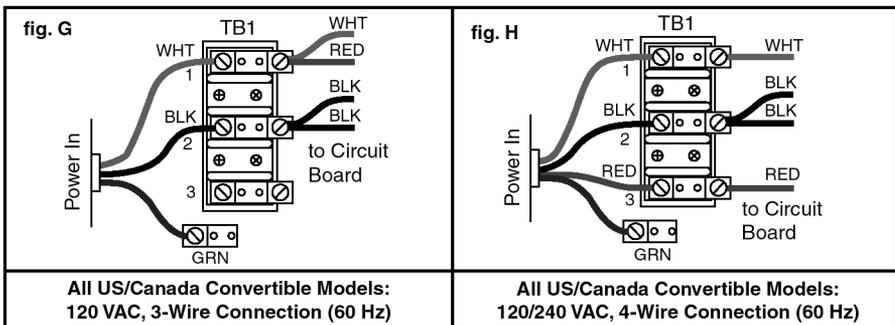
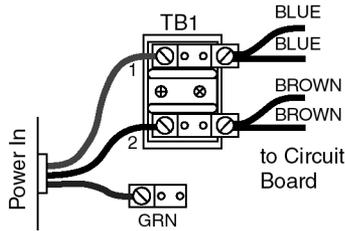


fig. 1



All Export Models:  
230-240 VAC, 3-Wire (50/60 Hz)

## 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 Sundance 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. For more information, consult 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.

Remove the filter cover, then remove the filter cartridge as outlined in section 10.1 (Page 17-18). Place the end of your garden hose into the filter compartment, then fill spa. **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 28). **For Metro and Caprio models**, fill until water level is halfway up the filter skimmer. Refer to sections 14.2-14.3 (page 29). **Do not overfill.** Never fill with water from a water softener. If your water is extremely “hard”, it is preferable to fill half way with hard water and the rest of the way with softened water. Or, you may fill entirely with hard water if you use a special water additive available from your Sundance dealer. Always refill with garden hose in filter compartment. This helps to

purge trapped air from pump intakes. Failure to do so may cause air to be trapped in either pump 1 or the circulation pump's intake (air lock), preventing either pump from circulating water. After filling, make sure the filter is installed properly before applying power to the spa. Refer to section 10.1 (Page 17-18) "Cleaning the Filter" for specific cleaning and installation instructions.

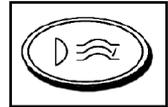
**Solo Models Only** - For installations that do not incorporate permanent drain plumbing, we recommend that you seal off the overflow plumbing by removing the s/s overflow fitting and install the provided plug and O-ring. Refer to section 13.1 (page 27). This option stops the water from entering the 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 27-28). Loosening can occur during shipping and handling. Solo models only - turn the drain valve off. Refer to section 13.1 (page 27).

## 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 28-29). Screw the massage selector cap shut and make sure it is tight before turning power on and starting the pump.

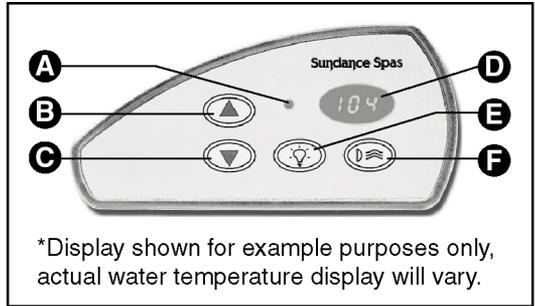
## 7.4 Adding Start-Up Chemicals

Add the spa water chemicals as recommended by your Sundance dealer. Refer to section 10.8 (page 21) "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; press a second time for high speed; press a third time to turn off.

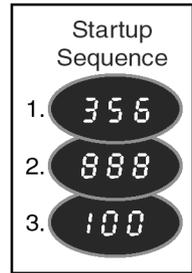
## Operation Details:

- Temperature Adjustment: 65 to 104 °F (18 to 40 °C). 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:

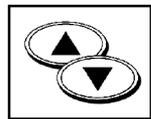
1. Control displays current software release (e.g. 3.56), then;
2. Control panel displays “888” and all indicator LEDs are lit, permitting visual inspection of all display segments and indicator lights for proper operation.
3. After the initial start-up sequence ends actual water temperature is displayed. 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. Note: it is common for the heater to turn on after the spa is first filled because tap water is often very cold.



### 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.



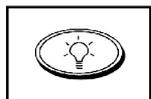
### 9.2 Pump Button

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.



## 9.4 Solo Massage Selector / Air Control Operation

### Air Controls

#### Functions:

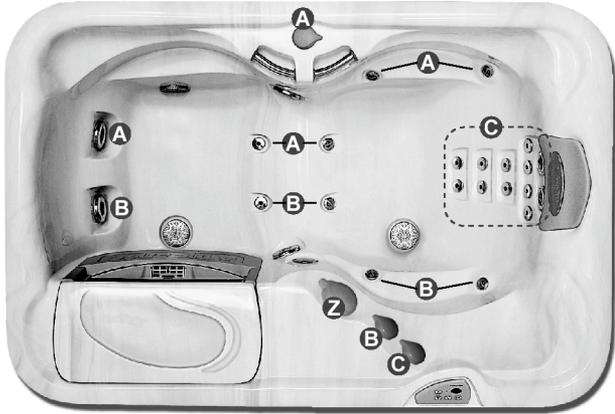
Air Controls A-C  
Open An Air  
Venturi to  
Specified Jets:

- 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 Metro Massage Selector / 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 Massage Selector / 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 Filtration Options**

Your new spa includes a 24-hour circulation pump which filters the water continuously while using less energy than a common 100 watt light bulb! The circulation pump draws water through the short side of the double-ended filter cartridge and effectively removes small debris in your spa. Note: the 24-hour circulation pump system also supplies heated water to the spa when the heater turns on. This features cannot be altered or disabled.

The control system activates a programmable “standard” or “economy” skimming/heating cycle to remove larger debris missed by the 24-hour circulation pump filtration system. These cycles utilize pump#1 and the larger filter cartridge end to quickly clear “skim” the water of large debris and minimize their “bathtub ring” effect. Apart from their skimming benefit, each mode also effects the operation of your spa’s heater. Refer to sections 9.8 and 9.9 below for additional information.

## **9.8 Standard Skimming/Heating Modes (F0 - F3)**

Standard skimming/heating modes are typically selected by customers in cold climates where heatup times are extended due to lower ambient temperatures. In these modes, the water temperature is regulated by the set temperature, 24-hour circulation pump, and heater which turns on as needed. After the programmed set temperature is reached, the heater turns off and the circulation pump continues to operate 24-hours to filter and clean your spa.

## **9.9 Economy Skimming/Heating Modes (F4 - F6)**

Economy skimming/heating modes are typically selected by customers in warm climates where heatup times are minimized due to higher ambient temperatures. In these modes, the water temperature is regulated by the set temperature, 24-hour circulation pump, and heater only while a programmed filter cycle is running (unless in summer logic; see section 11.1, page 23). Note: these modes consume far less energy than standard modes F0-F3 outlined above.

## **9.10 Lock Modes (L1 - L2)**

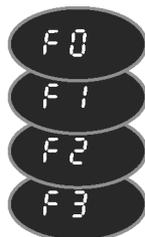
These modes are designed for use during spa service or to prevent unauthorized use.

## 9.11 Selecting The Skimming/Heating Mode

Press and hold both control panel WARMER ▲ and COOLER ▼ buttons at the same time, then release. Then press either WARMER ▲ or COOLER ▼ button to select skimming/heater mode F0-F6 or lock modes L1-L2 below:

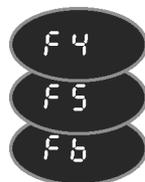
### Standard Skimming/Heating Modes

- F0** 5 minutes of skimming per day (one 5 minute “Blow-Out” cycle every 24 hours to purge all plumbing lines)
- F1** 1 hour of skimming per day (one 30-minute cycle every 12 hours); this is the factory default setting.
- F2** 1.5 hours of skimming per day (one 30-minute cycle every 8 hours)
- F3** 2 hours of skimming per day (one 30-minute cycle every 6 hours)



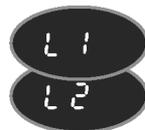
### Economy Skimming/Heating Modes

- F4** 1 hour of skimming/heating per day (one 30-minute cycle every twelve hours)
- F5** 1.5 hours of skimming/heating per day (one 30-minute cycle every eight hours)
- F6** 2 hours of skimming/heating per day (one 30-minute cycle every six hours)



### Lock Modes

- L1** Lock Out (disables all spa functions to permit filter cleaning)
- L2** Lock Mode (disables the jets and light buttons to prevent unauthorized use of spa.) Skimming/heating cycle will continue to operate as programmed in this mode. The temperature display flashes when this function is enabled. Example: the “F3” skimming/heating cycle was enabled prior to choosing lock mode. The spa continues to perform the “F3” cycle until lock mode is canceled, allowing another cycle to be selected.



To set a time for the first skimming/heating cycle, simply turn power on to the spa two minutes prior to the desired time. **EXAMPLE:** If you desire your first skimming/heating 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 Sundance dealer can supply you with all the information, supplies and accessory products you will need to accomplish this.

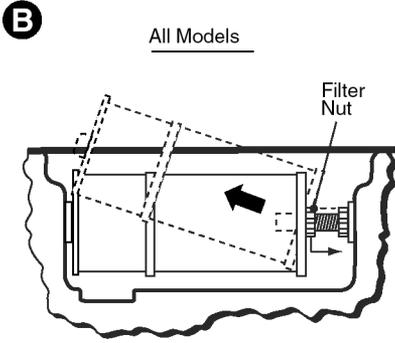
### 10.1 Cleaning The Filter

**Solo Models** - These models are equipped with a double-ended polyester mesh (pleated) filter cartridge under the filter lid (section 14.1, page 28). Debris are filtered 24-hours by the circulation pump drawing water through the smaller side of the cartridge. Larger debris are filtered by the main 2-speed pump drawing water through the larger side of the cartridge during normal operation and during each skimming/heating cycle. Combined, both halves work together to give you clean water by trapping suspended particles on their outer surface. Note: To ensure optimum performance, clean and reuse the filter cartridge once a month.

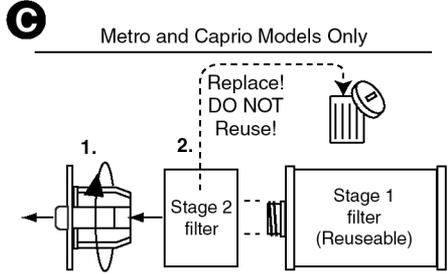
**Metro and Caprio Models** - These models are equipped with an exclusive MicroClean™ 2-stage filter cartridge located under the filter lid (sections 14.2-14.3, page 29). Fine debris are filtered 24-hours by the circulation pump drawing water through the ultra-fine (stage 2) cartridge. Larger debris are filtered by the main 2-speed pump drawing water through the (stage 1) polyester mesh (pleated) cartridge during normal operation and during each skimming/heating cycle. Combined, both filter halves work together to give you unsurpassed water quality by trapping suspended particles on their outer surface. Note: To ensure optimum performance, clean and reuse the stage 1 cartridge once a month and replace the stage 2 cartridge every 3 months, or as needed.

**ALWAYS TURN POWER TO HOT TUB OFF BEFORE CLEANING THE FILTER CARTRIDGE!** Refer to the filter cleaning/replacement procedure below.

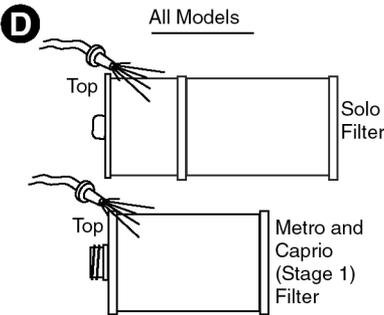
**A**  **TURN POWER TO HOT TUB OFF!** 



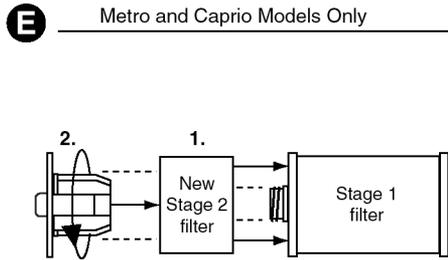
Loosen filter nut to provide clearance, then remove filter assembly.



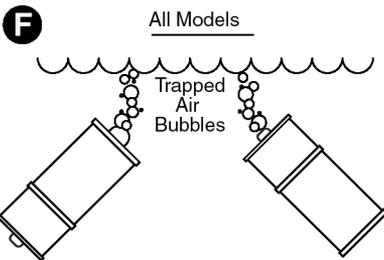
1. Rotate stage 2 retainer **counterclockwise** to release, then separate filter assembly.
2. Replace (throw-away) stage 2 filter after 3 months use or as needed. **DO NOT** reuse!



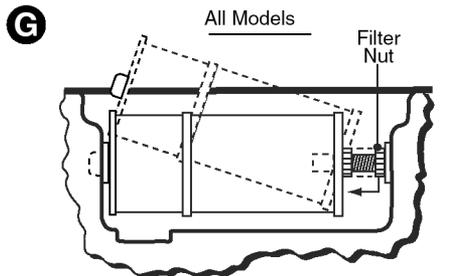
Rinse debris from all filter pleats using a garden hose and high-pressure nozzle. Start at top and work downward to face. Repeat process until all filter pleats are clean.



1. Install new stage 2 filter onto clean stage 1 filter.
2. Insert retainer into stage 2 filter and rotate **clockwise** to assembly. **DO NOT** overtighten retainer (finger tight only).



Submerge assembled filter in spa and tilt each end upward to remove trapped air bubbles from inside each filter cavity.



1. Install filter assembly, then tighten filter nut so it just touches filter face. **DO NOT OVERTIGHTEN!**
2. Turn power to hot tub back on.

Periodically, the polyester mesh (pleated) filter will need a more thorough cleaning to remove imbedded oils and minerals. For this, we suggest cleaning as illustrated above (step D), followed by soaking the filter overnight in a plastic container filled with a solution of water and a specially formulated filter cleanser available from your Sundance dealer.



**CAUTION!** Never scrub the polyester mesh filter cartridge 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 cartridge in the skimmer compartment. Running the spa without a filter cartridge may permit debris to enter the spa plumbing and void the warranty!

The average life expectancy of the polyester mesh filter cartridge is approximately two years with proper care and water quality maintenance. The smaller stage 2 filter cannot be cleaned and must be replaced (thrown-out) every 3-months, or as needed. DO NOT reuse this cartridge! Attempts to reuse this cartridge will reintroduce debris back into your spa! Replacement cartridges may be purchased from your Sundance 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 handle to open. Refer to section 13.1 (page 27). To drain Metro and Caprio models, first, shut off the power to the spa. Pull the external drain cap from the cabinet skirt (attached to it is a drain hose) and continue pulling upward until it is above the water line. Connect garden hose and drain spa. After draining spa, refer to section 7.1 (page 9) for filling instructions.

### 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 Sundance 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

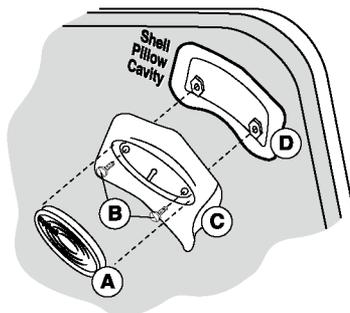
Remove and clean the headrest pillows as needed with soapy water using a cloth or soft-bristle brush. To maintain water resistance and luster, apply a quality vinyl conditioner once a month. Always remove the pillows when adding chemical shock treatment to the hot tub water. The pillows can be returned to the hot tub when the sanitizer reading drops below 5 ppm.



**IMPORTANT:** Never attempt to remove the pillows by pulling on them! The pillows utilize a bolt-on design that prohibits removal without tools.

To remove pillows:

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.
3. Assemble in reverse order after cleaning. **DO NOT** overtighten pillow mounting bolts!



## 10.5 Maintaining The Cover

Using the Sundance 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 Synthetic Cabinet

Your new spa's synthetic cabinet requires little or no maintenance of any kind. To clean, simply wipe cabinet with a clean towel and mild soap solution.



**CAUTION:** Never spray cabinet with a garden hose for any reason since this action may induce an electrical short in the spa's electrical equipment.

## 10.7 Winterizing The Spa

Your Sundance 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 Sundance dealer.

## 10.8 Maintaining 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 Sundance 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 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 Sundance 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 Sundance 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, 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 OH

### **WARNING! DO NOT ENTER HOT TUB WATER!**

Water is too hot. Overheat protection. Heater is deactivated. Spa water temperature is above acceptable limits. 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 112 °F (44 °C), the spa will go into an “OH” overheat condition.



### **To Correct Condition:**

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 106 °F (41 °C), the spa will resume normal operation.
4. If the water does not drop below 106 °F (41 °C), contact your authorized dealer.

There are a number of unique functions designed into your spa to protect it from damage and/or aid in troubleshooting. Refer to sections 11.3-11.8 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

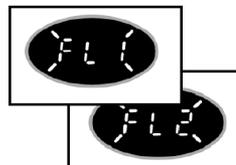
Open or shorted sensor (heater disabled). The temperature sensor is not functioning. Your authorized dealer must repair this.



### 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.



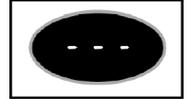
## 11.7 Panel displays ICE

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 - - -

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 Sundance 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 No 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 Sundance 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 Sundance 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.

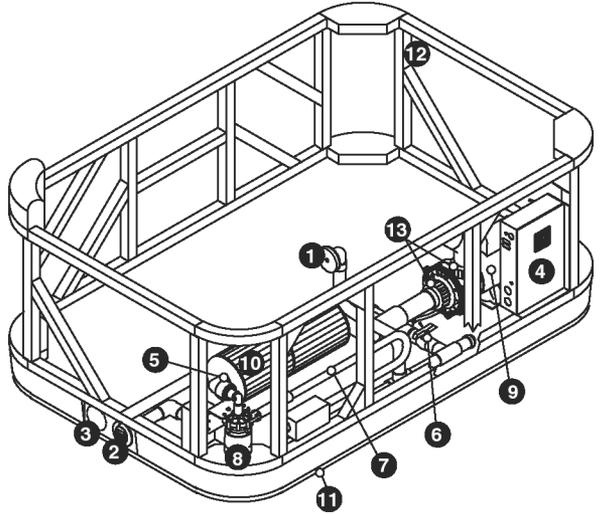
We build the best spas in the industry. Nonetheless, we are always striving to improve the quality and features of our products. Your input as a Sundance spa owner is a cherished part of this process. If you have any comments or suggestions, or if you wish to be informed on any new products for your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



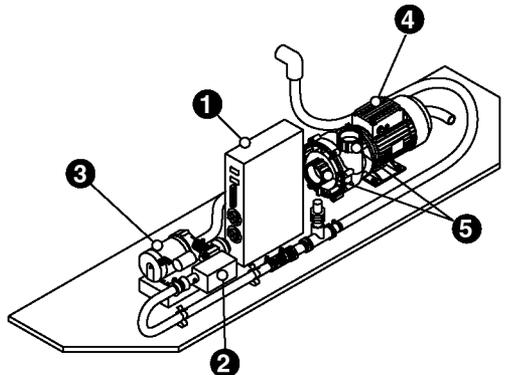
**Note: this spa is not Ozone compatible.**

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## 13.2 Metro Equipment Pack

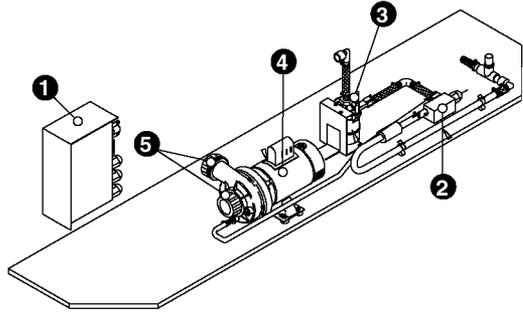
- 1. Load Box
- 2. Heater
- 3. Circulation Pump
- 4. Main Pump
- 5. Pump Unions

**Note: this spa includes an Ozone Injector and is Ozone ready.**



## 13.3 Caprio Equipment Pack

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



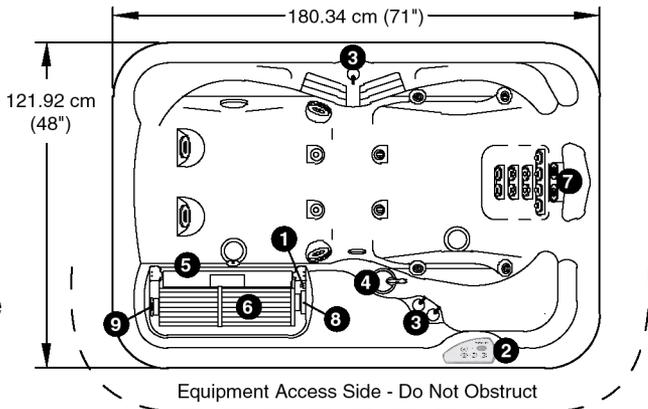
**Note: this spa includes an Ozone Injector and is Ozone ready.**

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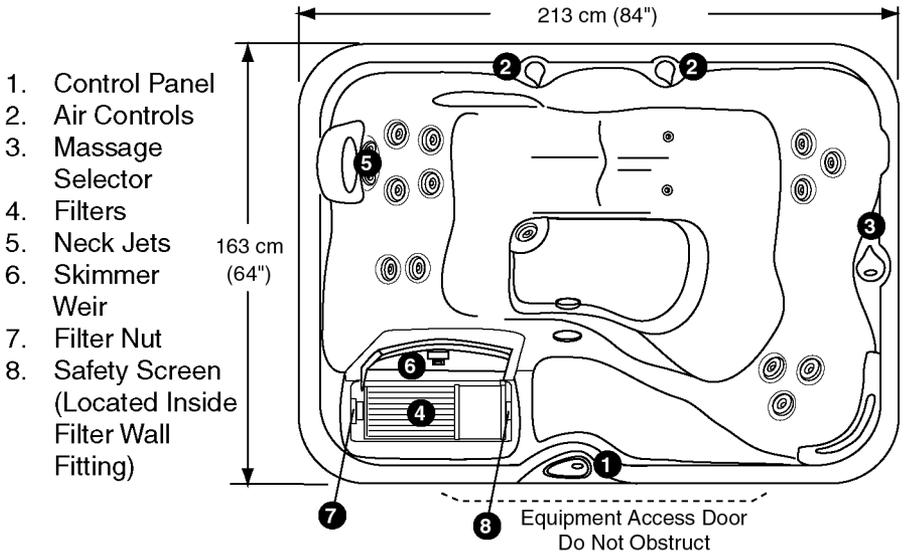
## 14.0 Spa Overhead Views

### 14.1 Solo Overhead View

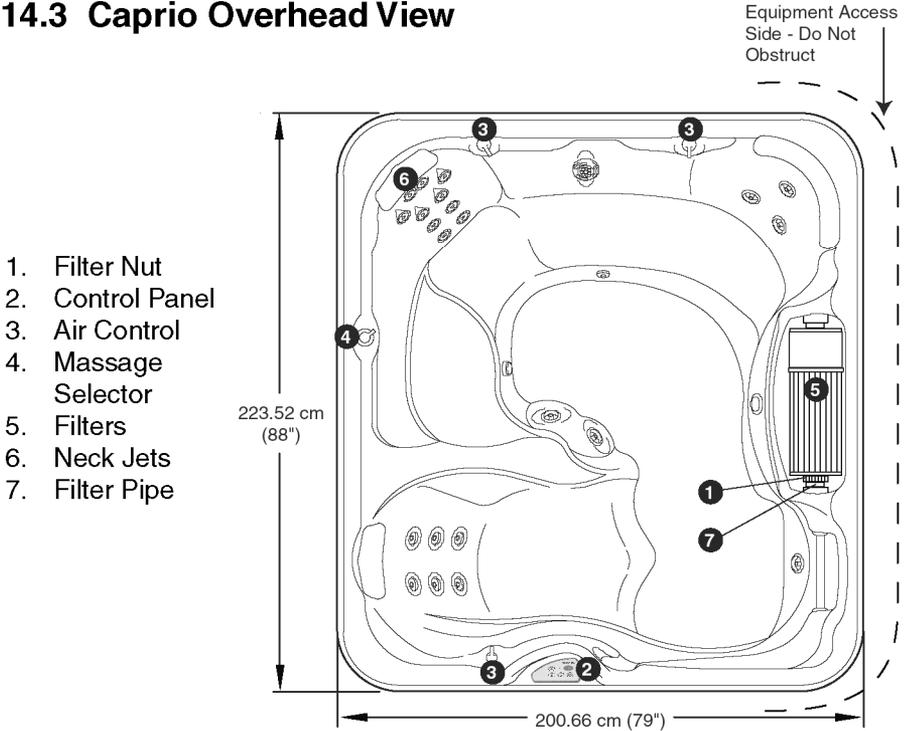
1. Overflow
2. Control Panel
3. Air Controls
4. Massage Selector
5. Skimmer Weir
6. Filter
7. Neck Jets
8. Filter Nut
9. Safety Screen (Located Inside Filter Wall Fitting)



## 14.2 Metro Overhead View

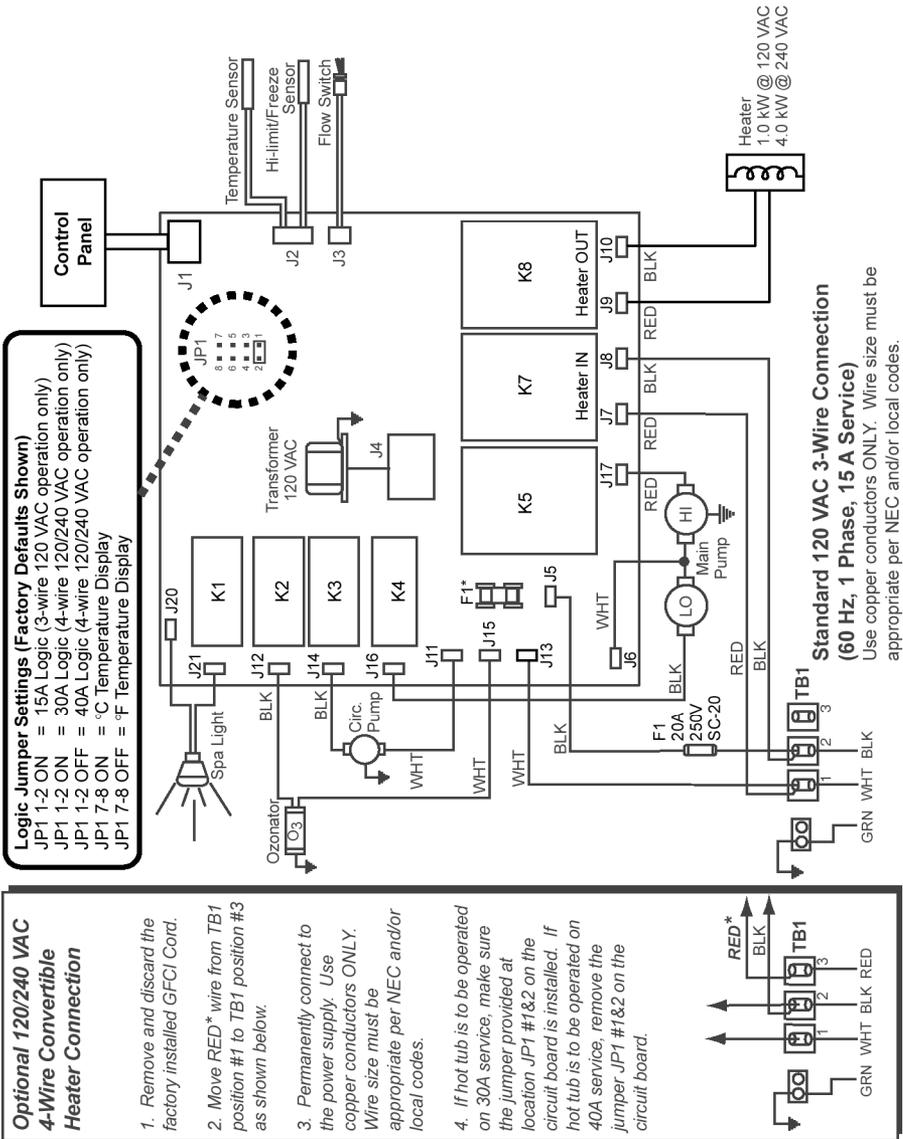


## 14.3 Caprio Overhead View



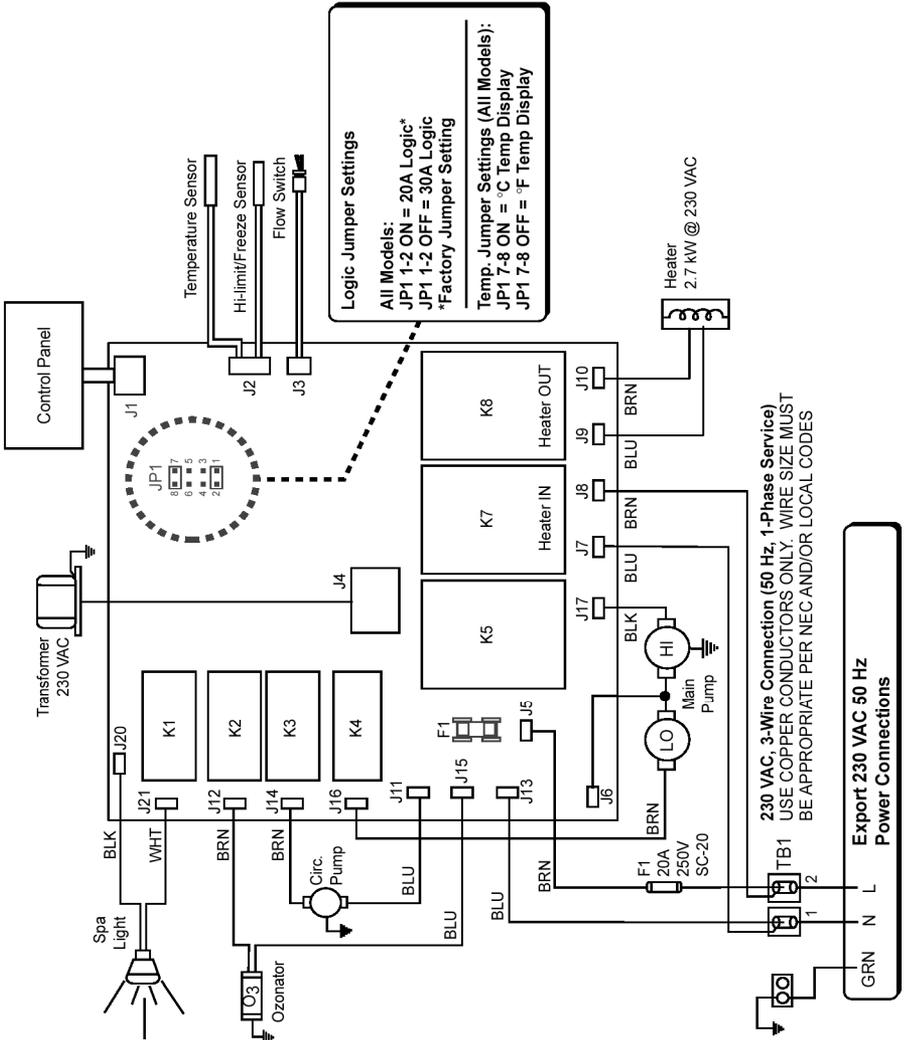
# 15.0 120/240 VAC 60 Hz Convertible Circuit Diagram

This wiring diagram is used for all US/Canada convertible power Caprio, Metro, and Solo Models with 120/240 VAC (60 Hz) power requirements.



# 16.0 230VAC 50 Hz Dedicated Circuit Diagram

This wiring diagram is used for all Export Caprio, Metro, and Solo Models with dedicated 230 VAC (50 Hz) power requirements.



# 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 Gallons / 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

- **Filter:** Double-End Cartridge, 20” Slipstream™ Weir with Automatic Brominator™
- **Water Treatment:** Brominator Chemical Feeder
- **Lighting:** Underwater with Two Colored Lenses; Optional Sun-Glow™ Multi-Color LED Light Kit
- **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 @ 30 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 Metro Specifications

- **Dimensions:** 62" x 82" x 30.5"  
(157 cm x 208 cm x 78 cm)
- **Seating Capacity:** 2 Adults
- **Dry Weight:** 498 lbs / 226 kg
- **Filled Weight:** 2083 lbs / 945 kg
- **Water Capacity (Avg. Fill):**  
190 US Gallons / 719 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:** 17
- **Therapy Jets:** 5 Rotating Pro-Touch II™
- **Vertical Jets:** 2 Pulsator™
- **Therapy Seat Jets:** 8 Directional Pro-Touch II, 2 Mini-Mag Jets



- **Air Controls / Massage Selectors:** 2 / 1
- **Filter:** 2-Stage MicroClean™ Cartridge, 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 Sun-Glow™ Multi-Color LED Light Kit
- **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 @ 30 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 Specifications

- **Dimensions:** 77" x 86" x 33"  
(196 cm x 218 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 Gallons / 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 by Model:**
  - US/Canada Convertible Model (60 Hz): 2-Speed/1.5 hp Continuous, 13.6 A Max.
  - Export Model (50 Hz/60 Hz): 2-Speed / 2.0 hp Continuous, 8.7 A Max.
- **Pump 2:** Circulating Pump
- **Total Hydrojets:** 23
- **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™



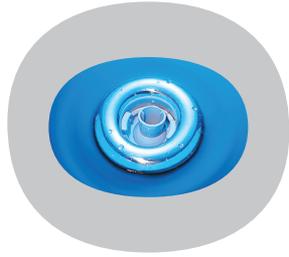
- **Air Controls/Massage Selectors:** 3/1
- **Filter:** 2-Stage MicroClean™ Cartridge, 20" Slipstream™ Weir with Automatic Brominator™
- **Water Treatment:** Brominator Chemical Feeder; Ready for Perma-Clear™ or SunZone™ CD Installation
- **Lighting:** Underwater, with Two Colored Lenses; Optional Sun-Glow™ Multi-Color LED Light Kit
- **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
  - Export Model (50 Hz/60 Hz): Low Flow, 2.7 kW @ 230-240 VAC
- **Electrical Requirements:**
  - US/Canada Convertible Model (60 Hz): 120 VAC @ 15 A or 240 VAC @ 30 A or 40 A
  - Export Model (50 Hz / 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.

**Notes:**

**Notes:**

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## Sundance® Spas

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