



**2013 Export  
Owner's Manual**

# TABLE OF CONTENTS

<b>LETTER OF INTRODUCTION</b> .....	<b>3</b>
<b>SPA RECORD KEEPING INFORMATION</b> .....	<b>3</b>
<b>IMPORTANT SAFETY INSTRUCTIONS</b> .....	<b>4</b>
<b>HYPERTHERMIA INFORMATION</b> .....	<b>7</b>
<b>SAFETY PRECAUTIONS</b> .....	<b>7</b>
<b>SAFETY SIGN</b> .....	<b>7</b>
<b>SPA CAUTIONS</b> .....	<b>8</b>
<b>SPA EQUIPPED SAFETY DEVICES</b> .....	<b>9</b>
<b>INSTALLATION INSTRUCTIONS</b> .....	<b>10</b>
SURFACE AND PAD REQUIREMENTS .....	10
ELECTRICAL INSTALLATION REQUIREMENTS .....	10
ELECTRICAL CONNECTIONS .....	11
<b>INITIAL START-UP INSTRUCTIONS</b> .....	<b>12</b>
<b>OPERATING INSTRUCTIONS</b> .....	<b>13</b>
CONTROL PANEL TYPES AND MODELS .....	13
CONTROL PANEL OPERATION .....	13
ON/OFF MODE .....	14
STANDBY MODE .....	14
ECONOMY MODE .....	14
FILTRATION SYSTEM .....	15
PROGRAMMING THE CONTROL SYSTEM .....	15
<b>FEATURE OPERATIONS</b> .....	<b>16</b>
JET SELECTOR VALVES (DIVERTER VALVES) .....	16
AIR CONTROL VALVES .....	16
WATER FEATURE CONTROL VALVE .....	16
STEREO SYSTEM .....	16
<b>WATER BALANCE</b> .....	<b>17</b>
WATER CHEMISTRY .....	17
START-UP PROCEDURES .....	17
WATER QUALITY .....	17
PH CONTROL.....	17
TOTAL ALKALINITY .....	17
<b>WATER TREATMENT</b> .....	<b>17</b>
SANITIZERS .....	17
BROMINE .....	18
CHLORINE .....	18
SUPER CHLORINATION .....	18
SHOCK TREATMENTS (POTASSIUM PEROXYMONOSULFATE).....	18
OZONE .....	18
WATER TESTING .....	19
STAIN AND SCALE INHIBITOR .....	19
FOAM INHIBITOR .....	19
KEEPING YOUR WATER CLEAN AND SAFE .....	19

<b>SPA CARE.....</b>	<b>19</b>
FILTER CLEANING .....	19
CARE FOR SPA SURFACE .....	20
CARE FOR SPA PILLOWS .....	20
CARE OF SPA CABINET (THERMOPLUS CABINET) .....	20
CARE FOR THERM-RITE™ SPA COVER .....	20
DRAINING THE SPA .....	20
SPECIAL COLD WEATHER INSTRUCTIONS (WINTERIZING).....	20
WARRANTY SERVICE INFORMATION.....	21
<b>TROUBLESHOOTING.....</b>	<b>22</b>

**LETTER OF INTRODUCTION**

Dear Valued Customer:

Congratulations! On behalf of the entire L.A. Spas family, thank you for your decision to purchase one of our products.

The following pages contain valuable and helpful information for the care and safe operation of your new spa. Every effort has been made to insure optimum therapy and relaxation at minimal cost of operation, delivering maximum value for you, your family, and your home.

**Please take the time to read these instructions carefully.** When the spa is properly installed and maintained, your spa will provide years of enjoyable, trouble free operation.

Every effort has been made to ensure the accuracy of this owner's manual, however, L.A. Spas reserves the right to modify and improve the product without notice. This may create minor variations between this manual and your spa. If you have any questions regarding your spa, or the owner's manual, please contact your authorized L.A. Spas dealer.

We are confident that once you become familiar with the various options, maintenance features, and the general operation of your new spa, you will be completely satisfied that you made the right decision in purchasing an L.A. Spas product.

Sincerely yours,

L.A. Spas, Inc.

**SPA RECORD KEEPING INFORMATION**

**Serial Number Location**

The serial number is located in the lower right corner of the equipment access panel on the front of the spa.

**PLEASE FILL IN THE INFORMATION BELOW**

Spa Information:

Model \_\_\_\_\_ Color \_\_\_\_\_ Serial No. \_\_\_\_\_

Owner Information:

Name \_\_\_\_\_ Date of Purchase \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

Dealer Information:

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip Code \_\_\_\_\_

Telephone No. \_\_\_\_\_

**SAVE THIS INFORMATION FOR FUTURE REFERENCE**

**TO OFFICIALLY ACTIVATE YOUR WARRANTY, YOU MUST GO TO [www.LAspas.com](http://www.LAspas.com) AND REGISTER YOUR SPA BY CLICKING ON THE REGISTER YOUR SPA LINK UNDER THE CUSTOMER CORNER TAB AND FILL OUT ALL THE INFORMATION**

## IMPORTANT SAFETY INSTRUCTIONS

# IMPORTANT SAFETY INSTRUCTIONS READ AND FOLLOW ALL INSTRUCTIONS

READ THE ENTIRE OWNER'S MANUAL & SAFETY INSTRUCTIONS BEFORE OPERATING THE SPA. When installing the spa, basic safety precautions should always be followed, including the following:

1. **WARNING:** To reduce the risk of injury, do not permit children to use this product unless they are closely supervised by an adult at all times.
2. **WARNING:** A grounding wire connector is provided on this unit to connect a minimum 8 AWG (8.4mm<sup>2</sup>) solid copper conductor between this unit and any metal equipment, metal enclosure of electrical equipment, metal water pipe, or conduit within 5 feet (1.5 m) of the unit.
3. **DANGER – RISK OF ACCIDENTAL DROWNING:** Extreme caution must be exercised to prevent unauthorized access by children. To avoid accidents, ensure that children cannot use this spa unless they are closely supervised by an adult at all times.
4. **DANGER – RISK OF INJURY:** The suction fittings in this spa are sized to match the specific water flow created by the pump. Should the need arise to replace the suction fittings or the pump, be sure to replace with same model suction fittings for safety and compatible flow rates. NEVER OPERATE THE SPA IF THE SUCTION FITTINGS ARE BROKEN OR MISSING. NEVER REPLACE A SUCTION FITTING WITH ONE RATED LESS THAN THE FLOW RATE MARKED ON THE ORIGINAL SUCTION FITTING.
5. **DANGER – RISK OF INJURY:** Do not remove suction grate. Suction through drains and skimmers is powerful when the jets in the spa are in use. Damaged suction grate can be hazardous to children and adults with long hair. Should any part of the body or hair be drawn into these fittings or stuck onto the fittings, turn off the spa immediately. As a precaution, long hair should NOT be allowed to float freely in the spa.
6. **DANGER – RISK OF ELECTRIC SHOCK:** Install the spa at least 5 feet (1.5 m) from all metal surfaces. As an alternative, a spa maybe installed within 5 feet (1.5 m) of metal surfaces if, in accordance with the National Electrical Code, each metal surface is permanently connected by a minimum 8 AWG (8.4mm<sup>2</sup>) solid copper conductor to the wire connector on the terminal box that is provided for this purpose.
7. **DANGER – RISK OF ELECTRIC SHOCK:** Do not permit any electric appliances such as light, hair dryer, telephone, radio, or television within 5 feet (1.5 m) of the spa. Never operate any electrical appliances from inside the spa or while wet.
8. **DANGER:** To reduce risk of injury:
  - a. The water in a spa 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 young children and when spa use exceeds 10 minutes.

- b. Since excessive water temperatures have a high potential for causing fetal damage during the early months of pregnancy, pregnant women should limit spa water temperatures to 100°F (38°C).
  - c. Before entering a spa, the user should check the water temperature with an accurate thermometer since tolerance of water temperature regulating devices can vary and not reflect the proper temperature.
  - d. The use of alcohol, drugs, or medication before or during spa use is prohibited and may lead to unconsciousness with the possibility of drowning.
  - e. Obese persons and persons with a history of heart disease, low or high blood pressure, circulatory system problems, or diabetes should consult a physician before using a spa.
  - f. Persons using medication should consult a physician before using a spa since some medication may induce drowsiness while other medications may affect heart rate, blood pressure, and circulation.
9. Do not use spa immediately after strenuous exercise.
10. Maintain water chemistry as recommended by your local L.A. Spas authorized dealer.

*-For models equipped with audio system-*

- 11. **CAUTION – RISK OF ELECTRIC SHOCK:** Do not leave stereo compartment door open.
- 12. **CAUTION – RISK OF ELECTRIC SHOCK:** Replace components only with identical components.
- 13. Do not operate the audio controls while inside the spa.
- 14. **WARNING – PREVENT ELECTROCUTION:** Do not connect any auxiliary components such as cable, additional speakers, headphones, additional audio components, etc. to the system.
- 15. These units are not provided with an outdoor antenna. If provided, it should be installed in accordance with Article 810 of the National Electrical Code.
- 16. Do not service this product yourself as opening or removing covers may expose you to dangerous voltage or other risk of injury. Refer all servicing to qualified service personnel from your local L.A. Spas authorized dealer.
- 17. When the power supply connections or power supply cord(s) are damaged; if water is entering the audio compartment or any electrical equipment compartment area; if the protective shields or barriers are showing signs of deterioration; or if there are signs of

other potential damage to the unit, turn off the unit and refer servicing to a qualified service person from your local L.A. Spas authorized dealer.

18. The system should be subjected to periodic routine maintenance (for example, once every 3 months) to make sure that the system is operating properly.
19. For more information on spa safety you can visit [www.APSP.org](http://www.APSP.org) and go to their Safety section to download free brochures.

## **SAVE THESE INSTRUCTIONS**

## **HYPERTHERMIA INFORMATION**

Hyperthermia occurs when the internal temperature of the body reaches a level several degrees above normal body temperature of 98.6°F (37°C).

The symptoms of hyperthermia include:

- ❖ Dizziness
- ❖ Fainting
- ❖ Drowsiness
- ❖ Lethargy
- ❖ Increase in internal body temperature

The effects of hyperthermia include:

- ❖ Unawareness of impending hazard
- ❖ Failure to perceive heat
- ❖ Failure to recognize the need to exit spa
- ❖ Physical inability to exit spa
- ❖ Fetal damage in pregnant women
- ❖ Unconsciousness resulting in a danger of drowning

**WARNING** – The use of alcohol or drugs can greatly increase the risk of fatal hyperthermia in hot tubs and spas.

## **SAFETY PRECAUTIONS**

- a. Always enter and exit a spa slowly.
- b. Do not use the spa alone.
- c. Before entering the spa, always measure the water temperature with an accurate thermometer. Tolerance of water temperature regulating devices can vary as much as  $\pm 5^{\circ}\text{F}$  ( $3^{\circ}\text{C}$ ). Always check the spa water temperature before entering.
- d. Since excessive water temperature has a high potential for causing fetal damage during early months of pregnancy, pregnant or possibly pregnant women should limit spa water temperatures to 100°F (38°C). Always consult your doctor prior to using a spa.
- e. Children's body temperature can increase more rapidly than adults in the same water with elevated temperatures above 99°F (37°C). Children should spend less time in water above body temperature than adults.
- f. The use of alcohol, drugs, and/or medication before or during spa use may lead to unconsciousness, hypothermia, serious injury, or the possibility of drowning.
- g. Persons suffering from obesity or with a medical history of heart disease, diabetes, high or lower blood pressure, or circulatory system problems should consult with their physician before using the spa.
- h. Persons on medication should consult with their physician before entering the spa since some medication may induce drowsiness while other medication may affect heart rate, blood pressure, and circulation.
- i. People with infections, sores, or skin abrasions should not use the spa. Warm and hot water temperatures may allow the growth of infectious bacteria if not properly disinfected.
- j. Test the GFCI (Ground Fault Circuit Interrupter) unit before each use. (Refer to instructions provided by GFCI manufacturer.)
- k. Do not service or repair any equipment without making sure the circuit breaker and/or all power to the spa is turned off.
- l. Cover must be kept on the spa and locked at all times when not in use, especially if children are present.

## **SAFETY SIGN**

Each spa has been provided with a warning sign that outlines safety precautions. This sign should be permanently placed in a location that is visible to all spa users. This sign has been mounted permanently to the front of the spa. Replacement signs can be obtained from:

L.A. Spas, Inc.  
1311 N. Blue Gum Street  
Anaheim, CA 92806  
U.S.A.



## **SPA CAUTIONS**

1. Persons suffering from heart disease, diabetes, high or low blood pressure, any condition requiring medical treatment, pregnant women, the elderly, or infants should consult with a physician before using a spa.
2. The Consumer Product Safety Commission has stated that the water temperature in a spa or hot tub should not exceed 104°F (40°C). Immersion in water in excess of 104°F (40°C) can be hazardous to your health.
3. Observe a reasonable time limit when using the spa. Long exposures at higher temperatures can cause high body temperature. Symptoms may include dizziness, nausea, fainting, drowsiness, and reduced awareness. These effects could result in possible drowning.
4. Do not use the spa under the influence of alcohol, narcotics, or other drugs. Use of the spa under these conditions may lead to serious consequences.
5. Always test the spa water temperature before entering the spa. Enter and exit the spa slowly. Wet surfaces can be very slippery.
6. Never bring any electrical appliance into or near the spa. Never operate any electrical appliance from inside the spa or when you are wet.
7. Proper chemical maintenance of spa water is necessary to maintain safe water and prevent possible damage to spa components.
8. Use the spa straps and clip tie downs to secure the cover when not in use. This will help to discourage unsupervised children from entering the spa and keep the spa cover secure in high wind conditions. There is no representation that the cover, clip tie downs, or actual locks will prevent access to the spa.

## SPA EQUIPPED SAFETY DEVICES

Your spa is equipped with the following safety features:

1. **Overheat Protection** – All pumps and heater are shut off when the water temperature reaches 112.5°F (44.7°C). This protection is turned off when the water temperature drops below 112°F (44.4°C).
2. **High Limit Protection** – When the water temperature reaches 119°F (48°C), the high limit circuit has tripped. All pumps and heater are shut off. This protection requires the power to be reset at the circuit breaker.
3. **Ambient Overheat Protection** – All outputs are shut off when an on-board temperature sensor reaches 194°F (90°C). This protection automatically turns off when the on-board temperature sensor drops back down to 185°F (85°C).
4. **Heater Dry Run Protection** – This protection is a water flow detection algorithm of the heater that prevents the heater from turning on until there is sufficient water flow.
5. **Filter Cycle Overheat Protection** – During the clean step of the filter cycle, the pump associated with the clean cycle may generate enough heat to overheat the water. If this occurs, the filter cycle duration is reduced to a minimum until the water temperature drops back down to the set temperature. This protection is enabled only when the set temperature is 95°F (35°C) or above, and will be triggered when the water temperature is 2°F (2°C) warmer than the set temperature. If this protection is triggered, the minimum filtering is divided amongst all cycles in a day. For example, the default Filter Overheat Duration is set at 2, if the filter frequency is 2, then there will be two 1-hour filter cycles per day. If the filter frequency is 4, then there will be four 30-minute filter cycles per day.
6. **Circulation Pump Overheat Protection** – (*Applicable to SE models only*) The circulation pump is designed to run 24 hours a day, however it may generate enough heat to overheat the water. If this occurs, the circulation pump will be shut off for 4 hours, comes back on for 2 hours, and continues this off/on period until the water temperature drops back down to the set temperature. This protection is enabled only when the set temperature is 95°F (35°C) or above, and will be triggered when the water temperature is 2°F (2°C) warmer than the set temperature.
7. **Smart Winter Mode** – The Smart Winter Mode is used to prevent water from freezing in the plumbing. When SWM is enabled, the system periodically starts a purge of all pumps to ensure there is always warm water in the plumbing. This function is achieved by measuring the temperature of an on-board sensor to estimate the temperature in the equipment area. This protection starts as soon as there is a risk of freezing. The SWM protection will turn back off only after 24 hours without a risk of freezing. The delay between each SWM purge cycle depends on the pumps' idle time (see table below).

Freeze Risk	Temperature Range at On-Board Sensor	Temperature Range in Equipment Area	Max. Idle Time
None	> 62°F (16.7°C)	> 42°F (5.6°C)	N/A
Low	62 – 53°F (16.7 – 11.7°C)	42 – 33°F (5.6 – 0.6°C)	120 minutes
Medium	53 – 48°F (11.7 – 8.9°C)	33 – 28°F (0.6 – -2.2°C)	60 minutes
High	48 – 44°F (8.9 – 6.7°C)	28 – 24°F (-2.2 – -4.4°C)	30 minutes
Severe	< 44°F (6.7°C)	< 24°F (-4.4°C)	15 minutes

8. **Timeouts** – The pumps and light turn off automatically after 30 minutes of continuous operation.

## **INSTALLATION INSTRUCTIONS**

Read all instructions in this manual prior to having your spa installed at the selected location, whether indoors or outdoors. IMPROPER INSTALLATION MAY RESULT IN EQUIPMENT DAMAGE AND VOID THE WARRANTY.

### **SURFACE AND PAD REQUIREMENTS**

1. L.A. Spas recommends your new spa be placed on a 4" (10 cm) thick reinforced concrete pad or level foundation capable of supporting the total filled weight of your specific spa model. The foundation should support the entire base of the spa and must offer structural integrity for the life of the spa. A typical spa, filled with water, could weigh as much as 3 tons, and if the concrete is not fully cured, it could easily crack. **AN UNEVEN OR UNSTABLE FOUNDATION OR THE USE OF SHIMS OF ANY KIND MAY CAUSE THE SPA TO BUCKLE, DISTORT, AND/OR CRACK, AND WILL VOID THE WARRANTY ON YOUR SPA.**
2. If your spa is located near water sprinklers, adjust or cap them so the water will not hit the wood cabinet of the spa.
3. Balconies and decks must be constructed to current state and local codes to safely support the maximum load of your water filled spa and the number of people using the spa. Check with your construction contractor for these safety specifications.
4. Access gates "fencing/wall" must be self-closing and self-locking. Check your local codes for regulations regarding fences and gates.
5. Ensure that the spa installation and location allows a clear and unobstructed access to the spa. It is the responsibility of the owner to provide clear access on **all sides** of the spa for service. Failure to do so may result in additional charges or assessments to service and/or repair the spa.
6. Ensure that water drains away from the spa in order to keep water out of the equipment compartment and away from all electrical components.
7. Assure accessibility is maintained to your spa should the need arise. Your spa is an appliance and may require occasional service requirements. Assure the installation allows access to the equipment area, side panels, and removal of the spa if possible. Construction or reconstruction costs associated with spa removal or reinstallation are not covered by the warranty.

### **ELECTRICAL INSTALLATION REQUIREMENTS**

IMPROPER INSTALLATION MAY RESULT IN EQUIPMENT DAMAGE AND VOID THE WARRANTY.

NOTE: Do not turn on electrical power to your spa until you are told to do so later in the Owner's Manual.

1. We strongly recommend that only a licensed and bonded electrician perform the electrical installation. Improper electrical connections may damage the equipment, cause injury, cause a fire, and void your spa warranty.
2. It is the responsibility of the spa owner to ensure that a qualified electrician performs the electrical installation. This installation must be in accordance with the National Electrical Code; local and state electrical codes; and the manufacturer's instructions.
3. This equipment has been designed to operate on 230V 50Hz alternating current.
4. This spa must be connected to a dedicated branch circuit.
5. The electrical supply for this spa must include a suitably rated switch or circuit breaker to open all ungrounded supply conductors to comply with Section 422-20 of the National Electric Code (NEC). A disconnect switch must be located where visible, not less than 5 feet (1.5 m) from the spa and not to exceed 50 feet (15 m) from the spa. This requirement may be filled with the GFCI circuit breaker and sub-panel.
6. For spa use in other than single-family dwellings, a clearly labeled emergency switch shall be provided as part of the installation. The switch shall be readily accessible to the occupants and shall be installed at least 5 feet (1.5m) away, adjacent to, and within sight of the spa.
7. The electrical circuit to the spa must include a Class A type Ground Fault Circuit Interrupter (GFCI) as required by the NEC.

8. Wire size must be appropriate for your spa and per NEC and/or local codes. Refer to the table below for the electrical ratings. All supply wires must be copper and rated at a minimum of 167°F (75°C). Do not use aluminum wires.
9. Input power wiring and circuit breaker selection:

**IMPORTANT INFORMATION REGARDING ELECTRICAL INSTALLATION**

Equipment Type	Electrical Rating	Branch Circuit	Circuit Breaker <sup>1</sup>
1 pump	230V 32A	2 wires + ground	32/40A
2 pumps	230V 32A	2 wires + ground	32/40A

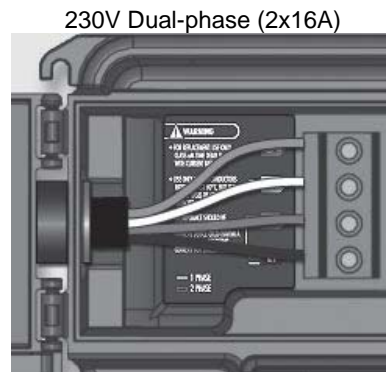
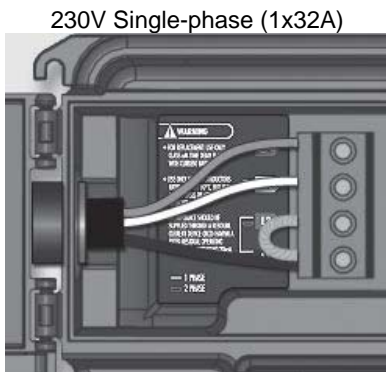
1. Circuit breaker amperages may vary according to the area of installation. Please check local electrical codes to verify requirements and assure compliance. Spas purchased not fully equipped may operate at a reduced total amp rating thus allowing installation of a lower rate GFCI circuit breaker and service installation.

2. Only a licensed electrician should size and install the electrical connections to the spa.

**ELECTRICAL CONNECTIONS**

To hook up your spa, follow these instructions:

1. Remove the front center cabinet panel.
2. Loosen the 2 screws of the equipment control pack door and open it.
3. Use ¾" flexible non-metallic conduit for a spa requiring 10 AWG or 8 AWG wire. Use 1" flexible non-metallic conduit for a spa requiring 6 AWG wire. Run the conduit from the power source to the spa, through the hole in the left or right front corner of the spa and into the equipment control pack.
4. Pull the wires/cable through the conduit and through the cutout of the equipment control pack. Secure the wires/cable with a 1" strain relief. Make sure only the uncut sheathing is clamped at this opening.
5. Connect the wires to the proper terminals as shown below:



6. Secure the wire connections. Push the wires into the equipment control pack.
7. Close the equipment control pack door and tighten the 2 screws.
8. Electrical hook up is now complete. Do not re-attach the front center cabinet panel yet.

## INITIAL START-UP INSTRUCTIONS

DO NOT TURN ON THE POWER TO THE SPA WHEN THE SPA IS EMPTY OR PARTIALLY FILLED.

1. Ensure the circuit breaker to the spa is off.
2. Rotate all the jets in the spa to a counterclockwise position (fully open position).
3. Ensure the gate valves are fully open. Pull the "T" handle on the gate valve (located near the jet pump, Fig.1) all the way up. When opened, there will be approximately 2" (5 cm) of metal rod visible. Each pump is supplied with one valve.
4. Check the heater unions, pump unions (Fig.2), and pump plugs to assure that they are tight to prevent the possibility of leakage in the equipment bay.
5. Close and cap the hose bib located in the equipment compartment (Fig.3). This is used for draining the spa.
6. Fill the spa with water to a level of approximately 5" (13 cm) below the top of spa. To prevent the pumps being air locked, it is recommended to fill the water at the filter bucket area.
7. Turn on the circuit breaker. The upper control panel display will alternate between the clock and three dashes ---. The system takes up to 3 minutes to register the water temperature. The display will then alternate between the clock and the water temperature. Set the desired temperature by using the **Up** or **Down** arrow key.
8. Press the **Pump1** key to turn pump #1 on low speed. For LS models, the low speed of pump #1 and the heater will turn on automatically when the system requires heating. Check to ensure that water is coming out of the jets. Press the **Pump1** key to turn pump #1 on high speed. Observe to ensure adequate water flow. Press the **Pump2** key to turn on pump #2 (if equipped). Observe to ensure adequate water flow. **DO NOT ALLOW THE PUMPS TO RUN FOR MORE THAN 1 MINUTE WITHOUT WATER FLOWING OUT OF THE JETS. PUMPS WITH DRY RUN PROBLEMS WILL NOT BE COVERED UNDER WARRANTY.** If there is no water flow through the jets, the pumps need to be primed to eliminate air lock.

### Pump Priming

- Turn off the power to the spa.
  - Remove the handle from the jet selector valve supplied by the pump you are priming.
  - Loosen the pump union on the suction side of the pump until some water starts gushing out of the pump union.
  - Tighten the pump union.
9. For SE models, check to ensure that water is flowing through the system. Observing the footwell for bubbles will determine if there is water flow. If there are no bubbles, turn off the spa, disconnect the hose above the circulation pump and allow any trapped air to escape.
  10. Re-attach the front center cabinet panel.
  11. Depending upon the size of the spa and the size of the electrical circuit, heating will occur at a rate of approximately 3°F (1.7°C) per hour.
  12. After completing the above steps, it is necessary to ensure proper water chemistry. See the Water Balance section in the manual.
  13. Because the Aqua Klean® Filtration System is so efficient and there is no by-pass for proper filter maintenance, the filters should be cleaned every other day for the first two weeks of operation.
  14. Place the spa cover on to conserve energy and to keep it ready for use.

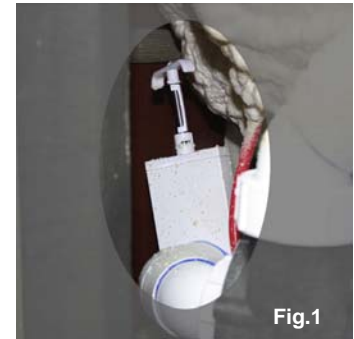


Fig.1

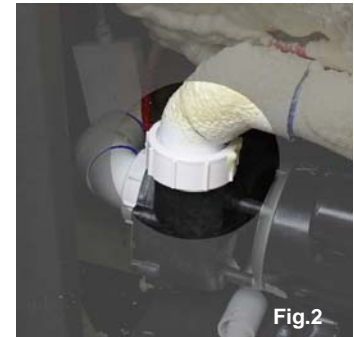


Fig.2

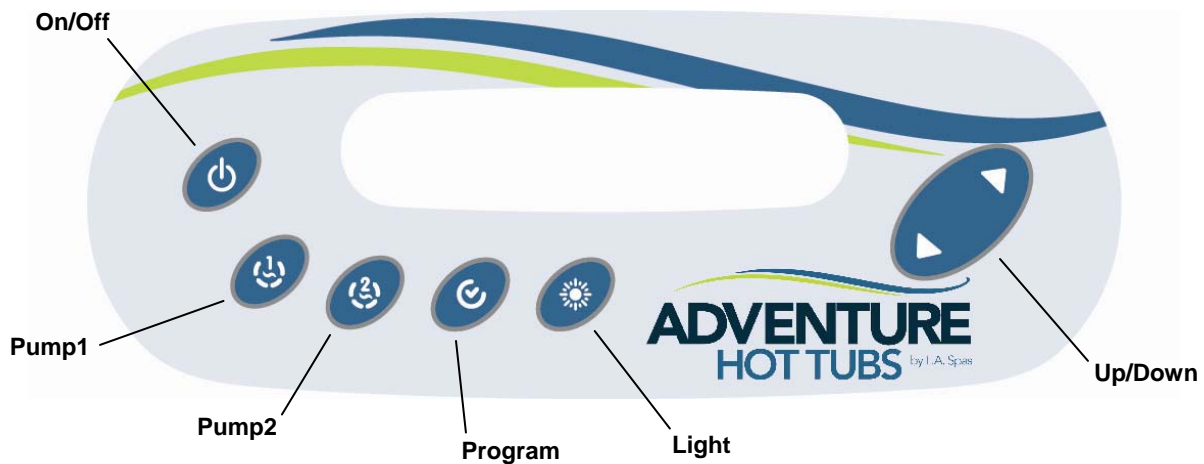


Fig.3

## OPERATING INSTRUCTIONS

### CONTROL PANEL TYPES AND MODELS

in.k450 Control Panel



#### Pump icons

The icons become fast animated when the pumps are in high speed, slower animated icon when the pump is in low speed.

#### Service icon

A problem has been detected. Do not enter the spa! Call for service.

#### Light icon

The icon lights up when the light is turned on.

#### Progress bar

A visual indication of the time remaining before equipment is turned off or before the end of the standby mode.

#### Time, temperature, & error code

AM/PM, °F/°C

#### Filtration icon

The icon lights up when the filter cycle is on.

#### Smart Winter Mode icon

The icon automatically comes on when freeze protection is active. It flashes while the system is purging the spa plumbing.

#### Heater icon

The icon lights up when the heater is on. It flashes when:

1. There is a demand for heat, and heater has not started yet,
2. Heater has just turned off, and the element is cooling down, or
3. Not enough available current to start the heater.

#### Set point icon

The icon automatically turns on when set point setting menu is activated.

This easy to use control has been pre-programmed to be “plug and play”. Turn the power on, adjust the desired temperature and the system is ready to go. If there are situations that require additional filtering time, the filter settings can be customized to any special requirements. Simple to use and easy to read, the Command Control System makes controlling the spa effortless.

### CONTROL PANEL OPERATION

Please note: All pumps and light have an automatic timeout (shut-off) programmed 30 minutes after the pump or light is activated. For ES and LS models, pump #1 low speed will remain running if there is a call for heat, and will continue to do so until the set temperature is reached.

#### 1. ON/Off key

This key activates On/Off Mode, Standby Mode, or quick enable of the Economy Mode. Please refer to the respective sections below.

## 2. **Pump1 key**

For LS models, press the **Pump1** key to turn on the low speed of jet pump #1. Press the **Pump1** key a second time to turn on the high speed of jet pump #1. A third press of the key to turn the pump off. For SE models, press the **Pump1** key once to turn on jet pump #1. Press the **Pump1** key a second time to turn the pump off.

## 3. **Pump2 key**

Press the **Pump2** key once to turn on jet pump #2. Press the **Pump2** key a second time to turn the pump off.

Note: This key may be non-operational in some models.

## 4. **Program key**

Use the **Program** key to display the time or enter Programming menu by press and hold the key for 3 seconds. In Programming mode, the following parameters can be set: time, filter cycle start time, filter cycle duration, filter cycle frequency, and temperature unit. Refer to the Programming the Control System section for the programming instructions.

## 5. **Light key**

Press the **Light** key once to turn on the LED light. Press the **Light** key a second time to turn off the LED light. To select a specific color, after the LED light has been turned off, press the **Light** key within 10 seconds to change to the next color selection. Continue until the desired color is reached. A total of 10 color settings are available:

- Color Morph (slow color wheel)
- White (all LEDs on)
- Turquoise (blue and green glow)
- Violet (red and blue glow)
- Blue
- Mantis (green and red glow)
- Green
- Red
- Color Flash (color changes every few seconds)
- Strobe

## 6. **Up/Down keys**

Press the **Up** key to increase the set temperature. Press the **Down** key to decrease the set temperature. Press the respective key one time for each degree of temperature change. Press and hold the key to adjust the temperature rapidly. The current spa water temperature will remain in the control panel display until a temperature key is pressed. Once the desired water temperature has been set, the spa will begin to heat.

Note: When selecting the spa operating temperature, it is important to factor in the outside ambient temperature. A spa cannot operate at temperatures lower than that of the surrounding conditions, or the operating environment of the spa. For the hot summer months, if cooler water is desired, the Economy mode can be utilized.

## **ON/OFF MODE**

The system is always on by default. Press and hold the **On/Off** key for 5 seconds to shut the system down for 30 minutes. The display will toggle between the *OFF* and water temperature. Press the **On/Off** key to restart the system before the expiration of the 30 minutes delay.

## **STANDBY MODE**

Quick press and release the **On/Off** key to shut the system down (i.e. to set it to Standby mode) for 30 minutes. The display will toggle between the *SBY* message and water temperature. All keys are then disabled unless the **On/Off** key is pressed again to reactivate the system before the expiration of the 30 minutes delay. In order to warn the user, the spa light will flash for a few seconds before the exit of Standby mode.

## **ECONOMY MODE**

The economy mode is used to reduce power consumption when the spa is not in use. In economy mode, the heater will only engage when the water reaches a temperature equal to 20°F (11°C) below the set temperature during a certain period of the day. The factory default period is from midnight to 6AM. If a different period is desired, please refer to the Programming the Control System section for programming instructions.

While the Economy mode is engaged, the display will toggle between  $E_{CD}$  and the water temperature. The Economy mode can be cancelled by a press of the **On/Off** key. The display will show  $n_{OE}$ . The Economy mode can also be manually enabled immediately outside the pre-programmed period. It will stop at its next programmed stop time. Press and hold the **On/Off** key for 10 seconds to manually enable the Economy mode.

## FILTRATION SYSTEM

For SE models, the spa is equipped with a 24-hr circulation pump, therefore the water is being filtered continuously. The spa is also factory programmed to purge two times a day. During the purge cycle, typically, all pumps are turned on for one minute to purge the spa plumbing and agitate the water such that heavy debris can be collected in the filters. The number of purge cycles can be modified between 1, 2, 3, 4, 6, 8, 12, and 24 cycles per day. Refer to the Programming the Control System section for programming instructions.

For LS models, the spa is factory programmed to filter two times a day for 1 hour. In most cases, this is sufficient filtration. However, the number of cycles can be modified between 1-4 cycles per day, and the cycle duration can be modified between 0-6 hours per cycle in increments of 1 hour. Refer to the Programming the Control System section for programming instructions.

Filter cycles occur in two steps: a purge and a clean step. During the purge step, typically, all pumps are turned on for one minute to purge the spa plumbing. For the remainder of the filter cycle, pump #1 low speed will operate to perform the clean step.

The filtration cycle can be suspended by pressing any of the jet keys. The filtration icon will blink on the control panel display. The filtration cycle will resume after 40 minutes from the last key press.

## PROGRAMMING THE CONTROL SYSTEM

### 1. **Clock:**

Press and hold the **Program** key for 3 seconds to enter the programming mode. Then press the **Up** or **Down** arrow key to change the hour setting. Once the desired hour is displayed, press the **Program** key again to accept the selection, and move to programming the minute setting. Use the **Up** or **Down** arrow key to change the minute setting. Once the desired minute is displayed, press the **Program** key again to accept the selection and move to programming the filter cycle start time.

### 2. **Filter/Purge Cycle Start Time:**

Press and hold the **Program** key for 3 seconds to initiate the programming mode. Then press the **Program** key twice to access the filter cycle start time programming. The display will show  $F5\ i2$ . Press the **Up** or **Down** arrow key to cycle through the hour between 0 and 23 in increments of 1 hour. Program default setting is 12, which depicts 12PM start time. For a midnight start time, select 0. Once the desired start time is displayed, press the **Program** key again to accept the selection and move to programming the filter cycle duration.

### 3. **Filter Cycle Duration:**

*The option is not applicable to SE models.* Press and hold the **Program** key for 3 seconds to initiate the programming mode. Then press the **Program** key three times to access the filter cycle duration programming. The display will show  $Fd\ 1$ . Press the **Up** or **Down** arrow key to cycle through 0-6 hours in increments of 1 hour. Program default is 1 hour. Once the desired duration is displayed, press the **Program** key again to accept the selection and move to programming the filter cycle frequency. It is not recommended to set the filter cycle duration to 0.

### 4. **Filter/Purge Cycle Frequency:**

Press and hold the **Program** key for 3 seconds to initiate the programming mode. Then press the **Program** key four times to access the filter cycle frequency programming. The display will show  $FF\ 2$ . Press the **Up** or **Down** arrow key to cycle through the number of filter cycles, 1-4 cycles. The default setting is 2 cycles per day. Once the desired number of filter cycles is displayed, press the **Program** key again to accept the selection and move to programming the economy mode.

### 5. **Economy Mode:**

Press and hold the **Program** key for 3 seconds to initiate the programming mode. Then press the **Program** key five times to access the economy mode programming. Press the **Up** or **Down** arrow key to enable or disable the economy mode. The display will show  $EP\ 1$  when the economy mode is enabled. When the economy mode is disabled, the display will show  $EP\ 0$ . Program default is  $EP\ 1$ . Once the desired setting is displayed, press the **Program** key again to accept the selection and move to programming the economy start time.



**6. Economy Start Time:**

Press and hold the **Program** key for 3 seconds to initiate the programming mode. Then press the **Program** key six times to access the economy start time programming. Press the **Up** or **Down** arrow key to cycle through the hour between 0 and 23 in increments of 1 hour. Program default setting is 0 (E500 will be shown on the display), which depicts a midnight start time. Once the desired start time is displayed, press the **Program** key again to accept the selection and move to programming the economy duration.

**7. Economy Duration:**

Press and hold the **Program** key for 3 seconds to initiate the programming mode. Then press the **Program** key seven times to access the economy duration programming. Press the **Up** or **Down** arrow key to cycle through 0-24 hours in increments of 1 hour. Program default is 6 hours (E605 will be shown on the display). Once the desired duration is displayed, press the **Program** key again to accept the selection and move to programming the temperature unit. It is not recommended to set the economy duration to 0 hour.

**8. Temperature Unit:**

To adjust the temperature unit, press and hold the **Program** key to initiate the programming mode. Then press the **Program** key eight times to access the temperature unit programming. Press the **Up** or **Down** arrow key to toggle between Fahrenheit (°F, shown as E U F) and Celsius (°C, shown as E U C). Program default is °C. Once the desired temperature unit is displayed, press the **Program** key again to accept the selection and exit the programming sequence.

**FEATURE OPERATIONS**

**JET SELECTOR VALVES (DIVERTER VALVES)**

Your spa may be equipped with a jet selector valve (diverter valve). This valve can be used to divert jet power from one area in the spa to another area. This valve is fully adjustable and can be used to suit the user's desired effect. The valve may be slightly harder to turn when the jet pump is on high speed. This is normal due to high rate of water flow and pressure present in the valve.



**Jet Selector Valve (Diverter Valve)**

**AIR CONTROL VALVES**

Your spa may be equipped with air controls. The air control is an on/off valve that allows air to be introduced into a specific jet configuration resulting in a more vigorous jet action. This valve looks similar to the jet selector valve (diverter valve), however it is smaller in size. Turn the valve handle clockwise to turn the air on, and counterclockwise to turn the air off. Opening the valve increases jet pressure and closing the valve decreases the jet pressure.



**Air Control Valve**

**WATER FEATURE CONTROL VALVE**

Your spa is equipped with two water features that provide two water streams into the center of the spa. This valve looks identical to the air control valve, however it has a triangular arrow on the valve handle. Turn the valve handle clockwise to turn the water features on, and counterclockwise to turn the water features off. Water features are always supplied by pump #1.



**Water Feature Control Valve**

**STEREO SYSTEM**

Your spa may be equipped with a stereo system. Please refer to the stereo manufacturer's owner's manual for the operation of the stereo system.

Note: It is imperative that you keep your stereo system clean and dry. The iPod® docking station is equipped with a door to protect the unit from moisture intrusion. Stereo equipped spas should be protected from direct contact with water streams from irrigation systems.

## WATER BALANCE

### WATER CHEMISTRY

Maintaining proper water chemistry is imperative to maintaining safe water and preventing possible damage to your spa and spa components.

### START-UP PROCEDURES

1. Fill spa to correct level (approximately 5" below the top of spa).
2. When utilizing the Aqua Klean® filter bag, you may add stain and scale control, or a similar sequestering agent, such as Metal Gone.
3. Test and adjust total alkalinity – run pump for ½ hour.
4. Test and adjust pH – run pump for ½ hour.
5. If sanitizing with bromine, add sodium bromide with jets running (see Bromine section).
  - a. Fill and set bromine floater or adjustable bromine feeder and place in the spa water.
  - b. Shock water with potassium peroxydisulfate (such as "Renew") with jets running.
6. If sanitizing with chlorine, use only a granular "Dichlor" compound (see Chlorine section).
  - a. Fill and set chlorine floater or chlorine feeder and place in the spa water.
  - b. Shock water with potassium peroxydisulfate (such as "Renew") with jets running.
7. Run pump for ½ hour.

### WATER QUALITY

Your spa is equipped with a specially designed Aqua Klean® filter system. Filtering the water helps maintain water cleanliness and clarity. While the filter traps most solid materials, it is still necessary to add a sanitizer such as bromine or chlorine to the water in order to control bacteria, algae, and to oxidize any organic materials in the water.

We recommend that you purchase your chemicals from your authorized L.A. Spas dealer. The dealer can also advise you on alternative methods for water sanitation. **Use of incorrect chemicals can be dangerous and may void the warranty on your spa.**

Aqua Klean® Patent No. 6,685,843

### pH CONTROL

All water has a pH value determined by a scale of 0-14, which is a measure of the acid to alkaline relationship. While a pH reading of 7.0 is considered neutral, a lower reading is considered acidic and a higher reading is alkaline. The proper pH for spa water is between 7.2-7.6. High pH (above 7.8) can reduce sanitizer efficiency, cloud the water, promote scale formation on spa surface and equipment and interfere with filter operations. When pH is too high, add a pH decreaser. Low pH (below 7.2) is equally damaging and can cause equipment corrosion, water that is irritating, and rapid sanitizer dissipation. Add pH increaser to adjust the level. Follow the chemical manufacturer's directions and procedures when adding chemicals to spa water.

NOTE: Always add pH adjuster with jets operating and circulate all chemicals for at least 30 minutes. Remember that good pH control and sanitation are absolutely essential for proper spa water treatment.

### TOTAL ALKALINITY

Total alkalinity is the amount of carbonate, bicarbonate, and hydroxyl ions in the water. Total alkalinity affects and buffers the pH of the water. With high total alkalinity (above 160), pH resists adjustment. With low total alkalinity (below 130), pH is unstable and difficult to keep in the ideal range. Proper total alkalinity levels allow other spa chemicals to work effectively.

## WATER TREATMENT

### SANITIZERS

The importance of maintaining an adequate level of sanitizer in your spa cannot be overemphasized. Warm water presents a fertile environment for the growth of bacteria and viruses. This growth is prevented when adequate sanitizer levels are continuously maintained.

**WARNING** – Sanitizers such as tri-chlor (tablets or sticks), calcium hypochlorite, sodium hypochlorite, and any chemical that dissolves on or remains un-dissolved in contact with the spa surface will damage your spa surface and will void the warranty completely.

## **BROMINE**

Bromine is the most common sanitizer used in spas. Adjust the floater to maintain a total bromine level of 3.0-5.0 ppm. If the reading is below the minimum, raise the level before using the spa. If the reading is above 5.0 ppm, allow ppm to drop to the proper range before using the spa. Brominating tablets are a convenient and effective source of bromine for your spa. Do not drop bromine tablets directly into the water as this may damage the spa surface. A chemical "floater" safely and properly dispenses the tablets into the spa water. When used properly, brominating tablets will keep you water clean, clear, and odor-free. To ensure maximum effectiveness, add ½ oz. of sodium bromide per 100 gallons of water every time you fill your spa. This will establish a bromide reserve.

## **CHLORINE**

Chlorine is a water sanitizer also, however it is more sensitive to pH than bromine. To be effective, you must have a pH range of 7.2-7.6. Any reading outside this range will greatly reduce chlorine effectiveness.

Use a chlorine test kit or test strip to maintain a reading of 2.0-3.0 ppm of free chlorine. If the reading is below the minimum, raise the level before using the spa. If the reading is above 5.0 ppm, allow ppm to drop to the proper range before using the spa. Read the instructions on your chlorine container carefully, or consult your local L.A. Spas dealer if you are having difficulty adjusting your chlorine level.

The best chlorine for your spa is a granular "Dichlor" compound. It dissolves quickly in moving water and has a nearly neutral pH. Add chlorine while jets are running and let the jets run for ½ hour. Generally, heavily contaminated water can be disinfected using large chlorine doses, in the range of 8-10 ppm, but a more practical method is to drain the spa and refill it with fresh water.

The effectiveness of chlorine is decreased when the cover is left off the water for two reasons: (1) sunlight decays chlorine rapidly, and (2) organic debris is blown into the spa and taxes the effectiveness of the chlorine. In addition, the higher the water temperature, the faster chlorine will decay.

**NOTE:** Two or more individuals in a spa may reduce the level of sanitizer rapidly.

## **SUPER CHLORINATION**

Super chlorination quickly oxidizes the spa water to burn out wastes such as perspiration, hairspray, lotions, etc. that cannot be removed by the spa filter. This waste build-up reduces the power of the sanitizer, making the water dull and irritating to the eyes and skin. It may also produce an odor. When this occurs, the free chlorines have become chloramines which are much less effective as a sanitizer. This can be eliminated by super chlorination as needed. An application of 5 times the normal chlorine dosage will act as an adequate treatment.

## **SHOCK TREATMENTS (POTASSIUM PEROXYMONOSULFATE)**

Even with regular sanitization, shock treatment may be necessary on occasion. Shock is recommended over super chlorination because it does not add additional sanitizer to the water. It is also effective in oxidizing wastes and will reduce chloramines or bromamines. Follow the manufacturer's instructions listed on the label.

## **OZONE**

Your spa maybe equipped with an ozone generator. L.A. Spas requires that only their ozone generator be used on spas due to the design of the mixing chamber system. Ozone related failures due to use of other manufacturer's ozone generators will not be covered under warranty. For SE models, ozone delivery occurs when the circulation pump is running. For ES and LS models, ozone delivery occurs any time the low speed of pump #1 engages or operates either during a heat cycle or filter cycle.

## WATER TESTING

It is recommended that you test your spa water regularly with an accurate test kit or test strip. These are available from your local authorized L.A. Spas dealer. Be sure to follow the chemical manufacturer's instructions for chemical use.

## STAIN AND SCALE INHIBITOR

Staining and scaling may be a common problem in spas. Because the water is hot, scale may be deposited more quickly. The circulation of water can cause the erosion of metals from spa equipment, which can stain interior surfaces. A weekly dose of a stain and scale fighter will help control these problems.

A sequestering agent, such as Metal Gone, can be added to the spa water when filling a spa (for the first time or when draining and refilling). This will help eliminate metals in your water and increases the life of your spa equipment.

## FOAM INHIBITOR

Soap residue from a user's body, hair, and swimsuit combined with rapid circulation of spa water may cause foaming in your spa. Foam inhibitors will suppress foam, but cannot remove soap from the water. When foaming occurs, a shock treatment can oxidize the soap in your water and help prevent this condition. If foam remains a problem, change the water. Consult the directions on the foam inhibitor container for usage amount. When adding chemicals to your spa water, add to the center of the spa with the pump operating. Never add chemicals directly into the skimmer. Make sure the water is heated. Never add chemicals to cold water, as this will affect the chemical reaction.

Store all chemicals in a cool dry location and in such a manner to prevent contact by children or pets.

You should consult your local authorized L.A. Spas dealer prior to any chemical use.

## KEEPING YOUR WATER CLEAN AND SAFE

Monday		Friday	
Test:	Bromine/Chlorine pH Total Alkalinity	Test:	Bromine/Chlorine pH Total Alkalinity
Adjust:	Follow steps 1-4	Adjust:	Follow steps 1-3
Add:	Stain & Scale control		

Step 1: Adjust total alkalinity – ideal range is between 130-160. Test water, follow directions on manufacturer's label, and add the required amount of spa chemicals with the jets on. Wait 30 minutes before performing additional tests.

Step 2: Adjust pH – ideal range is between 7.2-7.6. Test water, follow directions on manufacturer's label, and add the required amount of spa chemicals with the jets on.

Step 3: Adjust bromine/chlorine – ideal range is between 2-3 ppm chlorine and 3-5 ppm bromine (4-6 ppm for heavy spa usage). Fill bromine floater or adjustable feeder and shock spa as necessary.

Step 4: Stain and scale control – add the required amount of spa chemicals with jets on weekly.

NOTE: The chemical chart above is a simple schedule for moderate spa use. Depending on the usage, chemical balancing may be required more often.

## SPA CARE

### FILTER CLEANING

Always make sure the spa is off before removing and cleaning the Aqua Klean® filter bags. We recommend the Aqua Klean® filter bags to be cleaned every two weeks to avoid a decrease in jet performance. On initial start-up, the filters should be cleaned every other day for the first two weeks of operation.

To clean the filter bags, simply place them into the washing machine on a gentle cycle. Water temperature selection should be warm wash. Clean using ¼ cup of bleach, and ½ capful of liquid detergent. Do not machine dry.

## **CARE FOR SPA SURFACE**

L.A. Spas have a very high quality finish. Stains and dirt will generally not adhere to the surface. After draining the spa, wipe the surface with a soft damp cloth (or sponge) using household soap or liquid detergent. Stubborn dirt and stains maybe removed by using Spic & Span adequately dissolved in water. Be sure to rinse detergent well as this will cause suds when refilling the spa.

## **CARE FOR SPA PILLOWS**

Due to the nature of a spa's environment, spa pillows are exposed to chemicals, which in turn can affect the pillow's useful life. To be extra careful, we encourage you to always remove the spa pillows when adding chemical treatments to your spa's water. The spa pillows can then be re-installed to the spa when the chemical level is at the recommended parts per million (PPM). For most spas, this is between 3-5 PPM.

Furthermore, spa pillows should be cleaned regularly. To do this, remove the pillows from your spa, and then wipe the pillows with a soft damp cloth using mild dish washing soap and warm water. Rinse off the excess soapy water, and then simply re-install the pillows onto your spa.

## **CARE OF SPA CABINET (THERMOPLUS CABINET)**

Your ThermoPlus cabinet requires little or no maintenance of any kind. To clean, simply wipe cabinet with a clean towel and mild detergent soap solution.

**CAUTION** – Do not use any cleaning products containing abrasives or solvents. Do not stain, paint or otherwise cover the cabinet with any substance since these can and will damage the ultraviolet clear coat used on the surface of the ThermoPlus spa skirt and void your warranty.

## **CARE FOR THERM-RITE™ SPA COVER**

Your Therm-Rite™ spa cover is an extremely durable foam insulated product. When your spa is not in use, it is highly recommended that the cover tie downs always be utilized to discourage unsupervised children from entering the spa and to minimize heat loss. See your Therm-Rite™ spa cover Owner's Manual for proper installation instructions.

Spa covers should be cleaned regularly. To clean the cover, simply wipe the cover using a clean towel with a mild detergent or soap solution. Do not use any cleaning products containing abrasives or solvents since these could damage the cover surface and void your warranty. You may wax the spa cover surface as desired. Use a spa wax only. This adds a protective coating on the finish of your spa cover. Follow the instructions on the label of the wax product. Lastly, consult your L.A. Spas Authorized Dealer for further questions regarding your Therm-Rite™ spa cover.

## **DRAINING THE SPA**

All L.A. Spas are gravity drained. Do not drain water onto your lawn or plants unless all of the bromine or chlorine has dissipated from the spa water. The sanitizer in your spa water can be dissipated very quickly by leaving the spa cover off and exposing the water to direct sunlight. Drain and refill your spa every 4 months. For heavier spa use, you may wish to change the water more frequently. With the UWMS, you may find that the average draining is approximately every 6 months, depending on spa usage. For heavier spa use, you may wish to change the water more frequently.

1. Turn power off to spa.
2. Attach a hose to the hose bib located in the equipment area of your spa. Open the valve and allow the water to drain away from the spa.
3. Clean the spa surface (see care of spa surface in this section).
4. Refill spa, and follow initial start-up procedures to reheat the spa.

## **SPECIAL COLD WEATHER INSTRUCTIONS (WINTERIZING)**

Winter can be one of the most enjoyable times of the year to enjoy your spa. As it is difficult to get water out of the plumbing lines, WE DO NOT RECOMMEND DRAINING YOUR SPA FOR THE WINTER. However, if you decide not to use your spa during the winter, we recommend you winterize as follows:

1. If you drain your spa, turn off the main power to the spa. Drain as completely as possible. You may want to use a wet-vacuum or high-pressure blower to evacuate as much water as possible.
2. When the spa is completely empty, leave the hose bib open and open the pump drain plug located on the bottom side of the front end of the pump. Loosen all pump unions and fittings to allow air and water to expand freely within the system. This should help prevent water from freezing and damaging pipes and fittings. The idea is to try to eliminate water from any sealed areas in the system.

Should you have a heavy snowfall during the winter months, you may want to build a protective cover cap for the spa cover. This may be done with a ½" or ¾" piece of plywood and a few 2" x 4" cross members.

Although your spa is equipped with an automatic freeze protection, a power outage can cause your spa equipment system to freeze quickly. During freezing conditions, check your spa frequently to ensure proper operation. Be sure to check your spa after any power failure to ensure the spa is operational.

For additional information on winterizing your spa, contact your local L.A. Spas dealer.

### **WARRANTY SERVICE INFORMATION**

Your L.A. Spas warranty gives you specific coverage. Be sure you read your warranty carefully. The warranty does not cover problems resulting from misuse, abuse, or neglect, and it does not cover problems caused by improper installation or perceived problems caused by failure to read the spa owner's manual.

## TROUBLESHOOTING

### HEATING SYSTEM

Symptom	Problem	Corrective Action
Spa water cold / spa not heating	1. Temperature setting is not at user select. Power reset caused default setting.	1. Increase temperature
	2. Spa in economy mode	2. Reset to standard mode.
	3. Dirty filters	3. Clean filters
	4. Air lock	4. Prime pump (see page 12)
	5. Jets closed obstructing flow	5. Open jets
	6. Pump gate valve closed.	6. Open gate valve
	7. Equipment malfunction	7. Call for service
Spa water too warm / spa heating above set point	1. Temperature setting too high	1. Decrease temperature
	2. Too much filtration	2. Reduce the number of filter cycles and/or the filter cycle duration
	3. Dirty filters	3. Clean filters
	4. Overheat or high limit occurred	4. Call for service
	5. Equipment malfunction	5. Call for service
Spa temperature erratic	1. Water level low	1. Fill with water to 5" (13 cm) below the top of spa
	2. Spa in economy mode	2. Reset to standard mode
	3. Dirty filters	3. Clean filters
	4. Jets closed obstructing flow	4. Open jets
	5. Pump gate valve closed	5. Open gate valve
	6. Equipment malfunction	6. Call for service

### WATER SYSTEM

Symptom	Problem	Corrective Action
Pulsating jets	1. Water level low	1. Fill with water to 5" (13 cm) below the top of spa
	2. Dirty filters	2. Clean filters
	3. Filter intake / pump intake restricted	3. Remove obstruction
	4. Pump gate valve closed	4. Open gate valve
	5. Equipment malfunction	5. Call for service
No jet action or action is poor	1. Jets are turned off	1. Turn jets on by turning jet face counterclockwise
	2. Diverter valve turned	2. Turn the diverter valve clockwise or counterclockwise
	3. Water level low	3. Fill with water to 5" (13 cm) below the top of spa
	4. Dirty filters	4. Clean filters
	5. Pump gate valve closed	5. Open gate valve
	6. Air lock	6. Prime pump (see page 12)

### ELECTRICAL SYSTEM

Symptom	Problem	Corrective Action
Spa will not turn on in any mode	1. No power	1. Check circuit breaker and/or GFCI
	2. Equipment malfunction	2. Call for service
Spa turns on by itself	1. Normal automatic daily filtration cycle	1. No action required
	2. Spa required heat to maintain temperature	2. No action required
	3. Freeze protection engaged	3. No action required
	4. Equipment malfunction	4. Call for service
Light is out	1. Automatic time out has shut off light	1. Press Light key again to start another cycle
	2. Burned out light bulb	2. Replace light bulb
Pump shuts down unexpectedly while in use	1. Automatic timeout has shut pump off	1. Press Jets keys again to start another cycle
	2. Motor overheated and protective device has shut down pump	2. Allow pump to cool. If the pump does not restart when Jets key is pressed, call for service.

**ERROR CODES**

<b>Error Code</b>	<b>Description</b>	<b>Corrective Action</b>
<i>Hr</i>	A hardware error was detected in the control pack.	Reset power to spa. Check for operations of all pumps and accessories. If error code remains, call for service.
<i>HL</i>	The high limit circuit has tripped.	Add cold water to spa and let the heater cool down, reset power to spa.
<i>FLO</i>	Occurs when no flow is detected at the heater.	Reset power to spa. Make sure that the pump associated to the heater is running. Check and clean filters. Air locked, prime the pump (see page 12).
<i>OH</i>	Water temperature is above 108°F (42°C). <b>DO NOT ENTER THE SPA.</b>	Remove spa cover. Add cold water if necessary.
<i>Prr</i>	Temperature probe is defective.	Change the set temperature. The system will check for flow. If error code remains, call for service.
<i>AOH</i>	Internal temperature of the control pack is too high.	Remove front cabinet panel and allow the equipment to cool. Reset power to spa.