



**2006 TROPICAL
OWNERS MANUAL
Domestic**

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LETTER OF INTRODUCTION

CONGRATULATIONS!

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

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.

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.

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.

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

IMPORTANT SAFETY INSTRUCTIONS

READ AND FOLLOW ALL INSTRUCTIONS

SAVE THESE 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 (8.4mm²) 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 may be 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 (8.4mm²) 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 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/video 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/video controls while inside the spa.
14. **WARNING – PREVENT ELECTROCUTION:** Do not connect any auxiliary components such as cable, additional speakers, headphones, additional audio/video components, etc. to the system.
15. These units are not provided with an outdoor antenna.
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/video 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 personnel 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.

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

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°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 at all times when not in use and locked, 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

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** – An electronic high limit switch, located in the spa water, which shuts off the heater, pumps, and accessories when the water temperature exceeds 112°F (44°C). This function resets when the spa water temperature drops below 109°F (42°C).
2. **Heater High Limit Protection** – An electronic high limit switch, located on the heater barrel, which turns off the heater and low speed pump if it senses a temperature of 119°F (48°C) or greater. Power to the spa must be interrupted to reset this safety device.
3. **Heater Dry Run Protection** – A water flow sensor that prevents the heater from turning on until there is sufficient water flow.
4. **Pump Dry Run Protection** – If the pump runs for 5 minutes and flow is not detected, the pump is turned off.
5. **Smart Winter Mode** – This freeze protection system will activate the jet pumps for 1 minute every 2 hours or less when the temperature in the equipment compartment drops to 55°F (12°C) or less. Once the freeze protection system has started, it will remain active for a 24-hour period.
6. **Timeouts** – The pumps, blower, and light turn off automatically after 30 minutes of continuous operation.

IMPORTANT SAFETY INSTRUCTIONS FOR CANADA
CSA SAFETY INFORMATION

READ AND FOLLOW ALL INSTRUCTIONS

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

1. A colored terminal or a terminal marked G, GR, Ground, Grounding, or the grounding symbol is located inside the supply terminal box/compartiment. To reduce the risk of electric shock, this terminal must be connected to the grounding means provided in the electric supply service panel with a continuous copper wire equivalent in size to the circuit conductors supplying this equipment.
2. At least two lugs marked “BONDING LUGS” are provided on the external surface or on the inside of the supply terminal box/compartiment. To reduce the risk of electric shock, connect the local common bonding grid in the area of the hot tub or spa to these terminals with an insulated or bare copper conductor not smaller than 6 AWG.
3. All field installed metal components such as rails, ladders, drains, or other similar hardware within 3 meters of the spa or hot tub shall be bonded to the equipment grounding bus with copper conductors not smaller than 6 AWG.

WARNING: Children should not use spas or hot tubs without adult supervision.

AVERTISSEMENT: NE PAS LAISSER LES ENFANTS UTILISER UNE CUVE DE RELAXATION SANS SURVEILLANCE.

WARNING: Do not use spas or hot tubs unless all suction guards are installed to prevent body and hair entrapment.

AVERTISSEMENT: POUR EVITER QUE LES CHEVEUX OU UNE PARTIE DU CORPS PUISSENT ETRES ASPIRES, NE PAS UTILISER UNE CUVE DE RELAXATION SI LES GRILLES DE PRISE D’ASPIRATION NE SONT PAS TOUTES EN PLACE.

WARNING: People using medications and/or having adverse medical history should consult a physician before using a spa or hot tub.

AVERTISSEMENT: LES PERSONNES QUI PRENNENT DES MEDICAMENTS OU ONT DES PROBLEMES DE SANTE DEVRAIENT CONSULTER UN MEDECIN AVANT D’UTILISER UNE CUVE DE RELAXATION.

WARNING: People with infectious diseases should not use a spa or hot tub.

AVERTISSEMENT: LES PERSONNES ATTEINTES DE MALADIES INFECTIEUSES NE DEVRAIENT PAS UTILISER UNE CUVE DE RELAXATION.

WARNING: To avoid injury, exercise care when entering and exiting the spa or hot tub.

AVERTISSEMENT: POUR EVITER DES BLESSURES, USER DE PRUDENCE EN ENTRANT DANS UNE CUVE DE RELAXATION ET EN SORTANT.

WARNING: Do not use drugs or alcohol before or during the use of a spa or hot tub to avoid unconsciousness and possible drowning.

AVERTISSEMENT: POUR EVITER L'EVANOUISSEMENT ET LA NOYADE EVENTUELLE, NE PRENDRE NI DROGUE NI ALCOOL AVANT D'UTILISER UNE CUVE DE RELAXATION NI QUAND ON S'Y TROUVE.

WARNING: Pregnant or possibly pregnant women should consult a physician before using a spa or hot tub.

AVERTISSEMENT: LES FEMMES ENCEINTES, QUE LEUR GROSSESSE SOIT CONFIRMEE OU NON, DEVRAIENT CONSULTER UN MEDECIN AVANT D'UTILISER UNE CUVE DE RELAXATION.

WARNING: Water temperature in excess of 100°F (38°C) maybe injurious to your health.

AVERTISSEMENT: IL PEUT ETRE DANGEREUX POUR LA SANTE DE LE PLONGER DANS DE L'EAU A PLUS DE 38°C.

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

AVERTISSEMENT: AVANT D'UTILISER UNE CUVE DE RELAXATION MESURER LA TEMPERATURE DE L'EAU A L'AIDE D'UN THERMOMETRE PRECIS.

WARNING: Do not use a spa or hot tub immediately following strenuous exercise.

AVERTISSEMENT: NE PAS UTILISER UNE CUVE DE RELAXATION IMMEDIATEMENT APRES UN EXERCICE FATIGANT.

WARNING: Prolonged immersion in a spa or hot tub may be injurious to your health.

AVERTISSEMENT: L'UTILISATION PROLONGEE D'UNE CUVE DE RELAXATION PEUT ETRE DANGEREUSE POUR LA SANTE.

WARNING: Do not permit electric appliances (light, telephone, radio, television, etc.) within 1.5m of this spa or hot tub.

AVERTISSEMENT: NE PAS PLACER D'APPAREIL ELECTRIQUE (LUMINAIRE, TELEPHONE, RADIO, TELEVISEUR, ETC.) A MOINS DE 1.5M DE CETTE CUVE DE RELAXATION.

CAUTION: Maintain water chemistry in accordance with manufacturer's instructions.

ATTENTION: LA TENEUR DE L'EAU EN MATIERES DISSOUTES DOIT ETRE CONFORME AUX DIRECTIVES DU FABRICANT.

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

AVERTISSEMENT: LA CONSOMMATION D'ALCOOL OU DE DROGUE AUGMENTE CONSIDERABLERMENT LES RISQUES D'HYPERTHERMIE MORTELLE DANS UNE CUVE DE RELAXATION.

INSTALLATION INSTRUCTIONS

SAVE THESE 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 240V 60Hz 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 from the spa and not to exceed 50 feet from the spa. This requirement may be filled with the GFCI circuit breaker and sub-panel.
6. The electrical circuit to the spa must include a Class A type Ground Fault Circuit Interrupter (GFCI) as required by the NEC.
7. All supply wires must be copper and rated at a minimum of 167°F (75°C).
8. Input power wiring and circuit breaker selection:

IMPORTANT INFORMATION REGARDING ELECTRICAL INSTALLATION

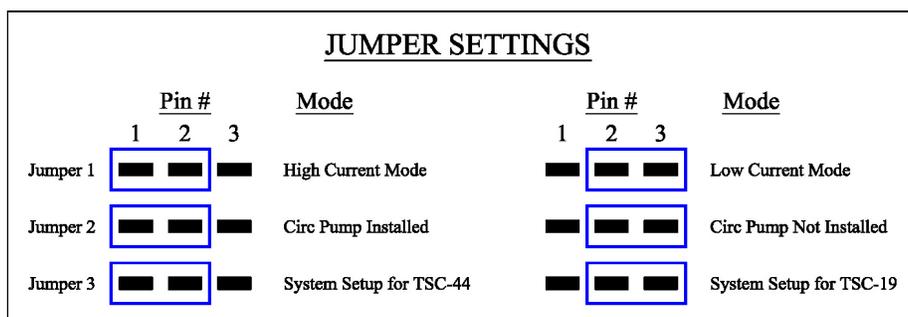
HC (High Current) Mode

Equipment Type ³	Electrical Rating	Branch Circuit	Circuit Breaker ¹	Wire Size ²
1 pump	240V 32A	3 wires + ground	40A	8 AWG
1 pump with blower	240V 40A	3 wires + ground	50A	6 AWG
2 pumps	240V 45A	3 wires + ground	60A	6 AWG
2 pumps with blower	240V 45A	3 wires + ground	60A	6 AWG

LC (Low Current) Mode

Equipment Type ³	Electrical Rating	Branch Circuit	Circuit Breaker ¹	Wire Size ²
1 pump	240V 24A	3 wires + ground	30A	10 AWG
1 pump with blower	240V 24A	3 wires + ground	30A	10 AWG
2 pumps	240V 32A	3 wires + ground	40A	8 AWG
2 pumps with blower	240V 32A	3 wires + ground	40A	8 AWG

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. The minimum wire size does not account for the distance of wire run to the spa from the service input.
3. Only a licensed electrician should size and install the electrical connections to the spa.
4. A jumper in the equipment control box configures the mode. In the HC mode, the heater will operate with two pumps operative. In the LC mode, the heater turns off if either pump is in high speed or if the blower is turned on.



ELECTRICAL CONNECTIONS

To hook up your spa, follow these instructions:

1. Remove the screws holding the equipment access panel to the front of the spa cabinet and set the panel aside.
2. Loosen the 2 screws on the bottom front of the equipment control enclosure.
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 and into the equipment control box.
4. After pulling all four wires through the conduit and into the equipment control box, connect them to the proper terminals as indicated by the wiring diagram on the lid of the equipment control box.
5. Configure the jumpers to the correct position as indicated by the wiring diagram on the lid of the equipment control box. Make sure the wires are properly tightened.
6. Close the lid on the equipment control box and secure with screws.
7. Electrical hook up is now complete. Do not replace the equipment door 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. If the spa is equipped with gate valves (a "T" handle located near the jet pumps), ensure that the "T" handle is pulled up or open. 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, 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 center of the equipment compartment. This is used for draining the spa.
6. Fill the spa with water to a level of approximately 4" (10 cm) above the top of the filters.
7. Turn on the circuit breaker. The water temperature will be flashing on the upper control panel if no other keys have been pressed. Set the desired temperature by using the up or down keys.
8. Press the Jets1 key to turn on the low speed pump. On units not equipped with the Ultimate Water Management System, 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 some of the jets. Press the Jets1 key and the pump will turn on high speed. Observe to ensure adequate water flow. Press the Jets2 key and pump 2 will turn on high speed. Observe to ensure adequate water flow. Press the Jets3 key and pump 3 will turn on high speed. Observe to ensure adequate water flow. **DO NOT ALLOW THE PUMPS TO RUN FOR MORE THAN 1 MINUTE WITHOUT WATER FLOWING FROM 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.

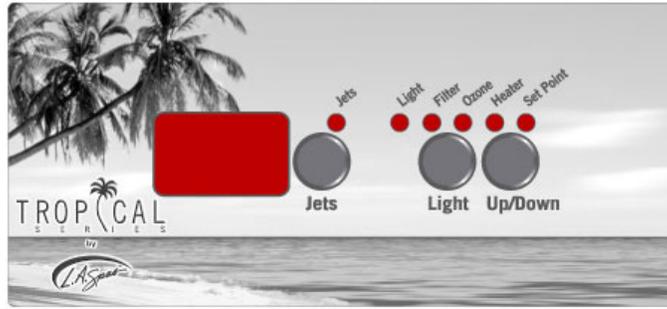
Pump Priming

- Turn off the power to the spa.
 - Remove the handle from the jet selector valve supplied by the pump you are priming.
 - Loosen the massage selector's cap slightly (counterclockwise), listening for the air to seep out.
 - Tighten the cap finger-tight, replace the handle and turn the spa's power back on.
9. Re-attach the equipment access panel.
 10. Depending upon the size of the spa and the size of the electrical circuit, heating will occur at a rate of approximately 5°F (2°C) per hour.
 11. After completing the above steps, it is necessary to ensure proper water chemistry. See the Water Chemistry section in the manual.
 12. 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.
 13. Place the thermal cover on the spa to conserve energy and to keep it ready for use.

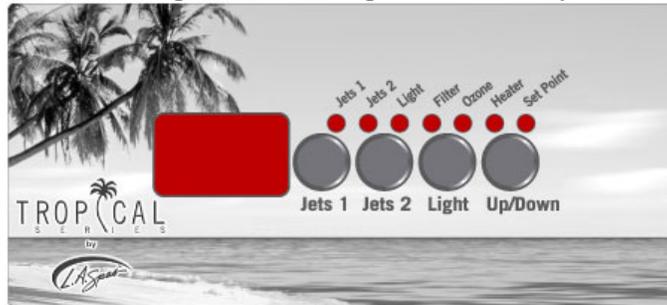
OPERATING INSTRUCTIONS

CONTROL PANEL TYPES AND MODELS

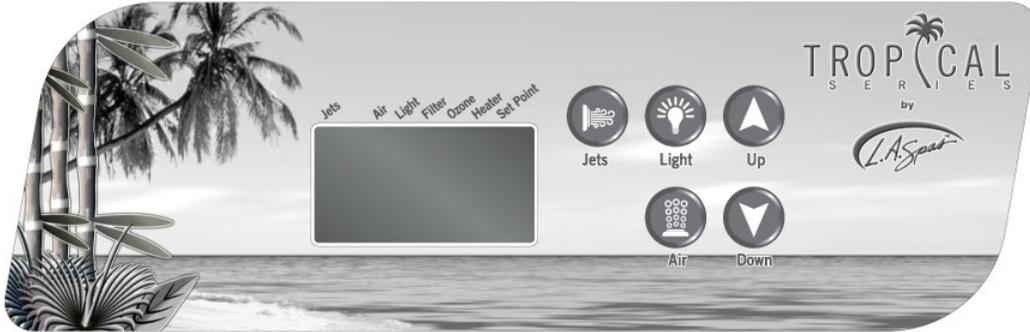
Single Pump TSC-18 Tropical Control System



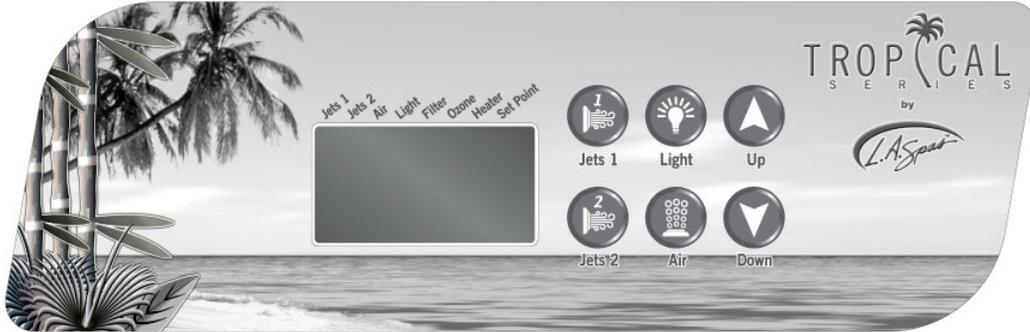
Two Pumps TSC-18 Tropical Control System



Single Pump TSC-44 Tropical Control System with Air



Two Pumps TSC-44 Tropical Control System with Air



These easy to use controls have 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 jets (pumps) have an automatic timeout (shut-off) programmed 30 minutes after the jet (pump) is activated. The Jets 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. **Jets1 key:**

When the **Jets1** key is pressed the first time, the low speed of jet pump #1 is turned on.

When the **Jets1** key is pressed the second time, the high speed of jet pump #1 is turned on.

Pressing the **Jets1** key the third time will turn the pump off.

Please Note: A blinking LED light symbol will appear on the control panel at the Jets1 designator when pump #1 is on low speed. The LED will be on solid when pump #1 is on high speed.

The **Jets1** key will activate a 30-minute automatic shut-off cycle (unless the spa is heating). If the spa is heating, pump #1 will run continuously at low speed until the pre-set temperature is reached. The Set Temp indicator on the control panel will be on when the temperature is being adjusted. It will be off when the display is showing the actual water temperature of the spa. A new 30-minute automatic shut-off cycle will begin each time the **Jets1** key is pressed. This automatic shut-off cycle is a safety device and allows for convenient filtration, immediately after use of the spa.

2. **Jets2 key (if equipped):**

Press the **Jets2** key once to turn on jet pump #2. Press the **Jets2** key a second time to turn the pump off.

Please Note: A solid LED light symbol will appear on the control panel at the Jets2 designator when pump #2 is turned on.

The **Jets2** key will activate a 30-minute automatic shut-off cycle. A new 30-minute automatic shut-off cycle will begin each time when the **Jets2** key is pressed.

3. **Air key (if equipped):**

Press the **Air** key once to turn on the blower. Press the **Air** key a second time to turn off the blower.

Please Note: A solid LED light symbol will appear on the control panel at the Air designator when the blower is turned on.

The **Air** key will activate a 30-minute automatic shut-off cycle. A new 30-minute automatic shut-off cycle will begin each time the **Air** key is pressed.

4. **Light key:**

Standard incandescent lamp: Press the **Light** key once to turn the light on. Press the **Light** key a second time to turn off the light.

LED lighting option (for spas equipped with optional LED color light): 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, *immediately* turn on the LED light to change to the next color selection. Continue until the desired color is reached. The color setting will store in the memory when the LED light is turned off for more than 30 seconds. This feature allows the user to retain a favorite color setting. A total of 10 color settings are available:

- Ice
- Blue
- Red
- Green
- Sunburst (yellow and orange glow)
- Magenta (blue and red glow)
- Tidal (fade between blue and green)
- Afterburner (fade between red and yellow)
- Color Burst Fast (entire color spectrum)
- Color Burst Slow (entire color spectrum)

Please Note: A solid LED light symbol will appear on the control panel at the Light designator when the light is turned on.

The light will automatically turn off after 30 minutes of continuous operation. A new 30-minute automatic shut-off cycle will begin each time the **Light** key is pressed.

5. Temperature key:

For spas with TSC-18 control panels:

Press the **Up/Down** key to set temperature. Depressing the key will either increase or lower the temperature depending on the setting sequence. Press and hold the key until either the minimum temperature of 59°F or maximum temperature of 104°F is reached. The control will then switch direction in temperature selection. Continue depressing the **Up/Down** key until the proper temperature is achieved.

For spas with TSC-44 control panels:

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.

Please Note: A solid LED light symbol will appear on the control panel at the Set Temp designator for 5 seconds after the last press of a temperature key. After the 5-second timeout, the current spa water temperature will be indicated in the control panel.

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. If cooler water is desired, the Economy mode function should be utilized.

FILTRATION

Spas are programmed to filter two times a day for 60 minutes. In most cases, this is sufficient filtration. However, the number of cycles can be modified to 1 or 2 cycles per day, and the cycle duration can be modified from 30-240 minutes per cycle in increments of 10 minutes.

FILTRATION SEQUENCE

At the beginning of each filtration cycle, a purge cycle will occur. Pumps 1, 2, and the blower (if equipped) will run for one minute each at high speed and then turn off. The sequence will start with pump #2 in high speed, followed by the blower, followed by pump #1 in high speed. After one minute, pump #1 will engage low speed for the remainder of the filtration cycle. In the factory pre-programmed mode, the second filtration cycle will begin twelve hours after the start of the first cycle.

Please Note: A solid LED light symbol will appear on the control panel at the Filter designator when a filtration cycle is active. To cancel the filtration cycle, press any of the jet keys.

Special notice pertaining to over temperature regulation:

To prevent excessive water temperature, if for any reason (long filtration during warm temperatures and/or thermal creep, a rise in water temperature created by the pump, not the heater) causes the water temperature to reach 106°F, the system will engage the pre-programmed safety logic and reduce the filter cycle time to 20-minute cycle twice per day. If the user-selected filtration is less than the pre-programmed safety default of 20-minute cycle twice per day, the system will ignore the pre-programmed safety default and run the user-selected filter cycle. If the user-selected filter cycle is more than 20 minutes, the filter cycle will be reduced to the pre-programmed default. This filtration design feature will assure water quality is maintained without adding additional thermal heat creep to the spa. Above 110°F, the filter cycle will disable or suspend until the temperature drops. During the default filtration cycle or filter cycle suspension, the filter LED will blink. The blinking pattern will be on for 0.5 second, off for 0.5 second, on for 0.5 second, off for 1.5 seconds, and the pattern will repeat.

PROGRAMMING THE CONTROL SYSTEM

To initiate the programming sequence at any time, press and hold the **Light** key for 5 seconds. If you do not proceed with the spa programming within 10 seconds, the spa will automatically exit the programming sequence and revert to the factory default settings. To exit the programming sequence at any time, do not press any key for 10 seconds. Any programming changes made up to that point would be saved.

FILTER CYCLE DURATION

Press and hold the **Light** key for 5 seconds to engage the programming mode. Then press the **Up/Down** key to cycle through the choices of 30-240 minutes per cycle in increments of 10 minutes. Program default is preset to filter for 60 minutes. Once the desired duration is displayed, press the **Light** key again to accept the selection and move to programming the filter cycle frequency.

FILTER CYCLE FREQUENCY

To adjust the number of filter cycles per day, press and hold the **Light** key for 5 seconds. Then press the **Light** key again to access filter cycle programming. Press the **Up/Down** key to cycle through the number of filter cycles, 1 or 2 cycles. The default setting is 2 cycles per day. Once the desired number filter cycle is displayed, press the **Light** key again to accept the selection and move to programming the economy mode.

ECONOMY MODE

In economy mode, the heater will only engage when the spa reaches a temperature equal to 20°F (11°C) below the set temperature or when the spa reaches a temperature of 59°F (15°C). For the first 24 hours after initial power up of the spa, the economy mode is disabled. To place the spa into the economy mode, press and hold the **Light** key for 5 seconds. Then press the **Light** key twice to get into the economy mode programming. Press the **Up/Down** key to select between Ec0 or Ec1. When Ec1 is selected, Ec1 will appear on the control panel. The spa is now in economy mode. When Ec0 is selected, Ec0 will appear on the control panel, and the spa is operating in standard mode. In standard mode, the spa will heat each time the spa water temperature drops to one degree below the set temperature. Once the desired mode is displayed, press the **Light** key again to accept the selection and move to programming the temperature unit. Economy mode can be utilized during warmer months as the preferred method of maintaining a lower spa water temperature.

TEMPERATURE UNIT

To adjust the temperature unit, press and hold the **Light** key for 5 seconds. Then press the **Light** key three times to access the temperature unit programming. Press the **Up/Down** key to select between Fahrenheit (°F) or Celsius (°C). Once the desired temperature unit is displayed, press the **Light** key again to accept the selection and move to the summer protection programming mode.

SUMMER PROTECTION MODE

In the summer protection mode, pump #1 low speed will engage every 2 hours and run for one minute. This is designed to cool down the heater piping and avoid heat build-up due to excessively high ambient temperature. To place the spa into summer protection mode, press and hold the **Light** key for 5 seconds. Then press the **Light** key again four times to access summer protection programming. Press the **Up/Down** key to select between Sp0 or Sp1. When Sp1 is selected, the spa is in summer protection mode. When Sp0 is selected, the summer protection mode is off. Summer protection mode should be utilized during warmer months. Once the desired summer protection mode has been selected, press the **Light** key again to accept the selection and exit the programming mode. At this time, the first filter cycle will begin.

NOTE: After power-up, the display will blink until a key is pressed. This feature is to alert you that there has been a power interruption, and the programming has reverted to factory defaults.

COMMAND CONTROL SYSTEM LOCK AND UNLOCK

To help prevent unauthorized use of the spa, the command control system can be locked. When the system is locked, all system functions such as filter cycles and temperature regulation will operate normal but the control panel buttons will be disabled. The control panel will display LOC. To lock or unlock the control panel, press the following keys in sequence within 3 seconds: **Jets1** key, **Light** key, then **Jets1** key again. Turning the power off and on will also reset this function.

COMMAND CONTROL SYSTEM SUSPEND MODE

On occasion, there will be a need to turn off your spa for maintenance such as changing water or cleaning filters. When the system is in the suspend mode, all functions are disabled. The control panel display will read SUS. To place the spa in suspend mode, press and hold the **Jets1** key for 5 seconds. To turn the spa back on, press and hold the **Jets1** key for 5 seconds. The control panel display will now show the water temperature.

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.

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 a more vigorous jet action. 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.

WATERFALLS AND WATERFALL CONTROL VALVES

Your spa may be equipped with waterfalls. There will be one waterfall control valve for each waterfall. Turn the valve handle clockwise to turn the waterfall on, and counterclockwise to turn the waterfall off. Waterfalls are always supplied by pump #1.

STEREO SYSTEM

Your spa may be equipped with a stereo system. The system is designed to provide high quality sound delivered through two pop-up style tower speakers. The stereo manufacturer's owner's manual is provided within the spa owner's manual. 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 spa is equipped with a self-closing stereo door to protect the unit from moisture intrusion. Stereo equipped spa should be protected from direct contact with water streams from irrigation systems. During use the stereo door should remain closed. Audio CD should dry before inserting into the stereo unit.

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 4" above the top of the filter cartridge).
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 in this 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 in this 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 the wrong 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 7.2-7.8. 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 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. Maintaining a proper 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 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 also is a water sanitizer, 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 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.

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.

SUPER CHLORINATION

Super chlorination (or shock treatment) 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 a adequate treatment.

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. 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 & SCALE INHIBITOR

Staining and scaling may be 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 and air blower (if equipped) operating simultaneously. 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 & 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 – idea 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 7.4-7.6. 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.

NOTE: Some models are not available with Aqua Klean® Filtration and utilize filter cartridges. Cartridges should be removed and hosed off weekly. A soaking in filter cartridge cleaner should be performed every 2-4 weeks depending on spa usage.

Aqua Klean® Patent No. 6,685,843

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.

SPA COVER

CAUTION – Keep your spa cover installed at all times when not in use.

Do not use any cleaning products containing abrasives or solvents since these could damage the surface and void your warranty.

You may wax the spa surface if you choose. This adds a protective coating on the finish. Use a spa wax only. Follow the instructions on label of wax product. Consult your L.A. Spas dealer.

CARE OF SPA CABINET (WOOD CABINET)

When properly cared for, the wood cabinet of your spa will maintain beautiful for many years. All wood reacts to the elements differently by expanding and contracting. Re-staining and sealing the wood every 3-4 months will help to protect it. Consult your L.A. Spas dealer for recommended stains to use in your area.

Please note that the cabinet is not warranted against reaction to natural weather conditions. The wood must be properly maintained.

CARE OF SPA CABINET (THERMOGUARD CABINET)

Your optional ThermoGuard 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 since these could damage the surface of the ThermoGuard spa skirt and void your warranty.

CARE FOR SPA COVER

The thermal cover for your spa is an extremely durable foam insulated product. See the manufacturer's literature for proper cleaning and care instructions. When the spa is not in use, it is recommended that the cover tie downs always be utilized to discourage unsupervised children from entering the spa and to minimize heat loss. Small locks are available for the cover tie downs. In either case these locking methods are not considered adequate to keep unauthorized people from entering the spa.

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.

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 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 any sealed areas in the system that may contain water.

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"x4" 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

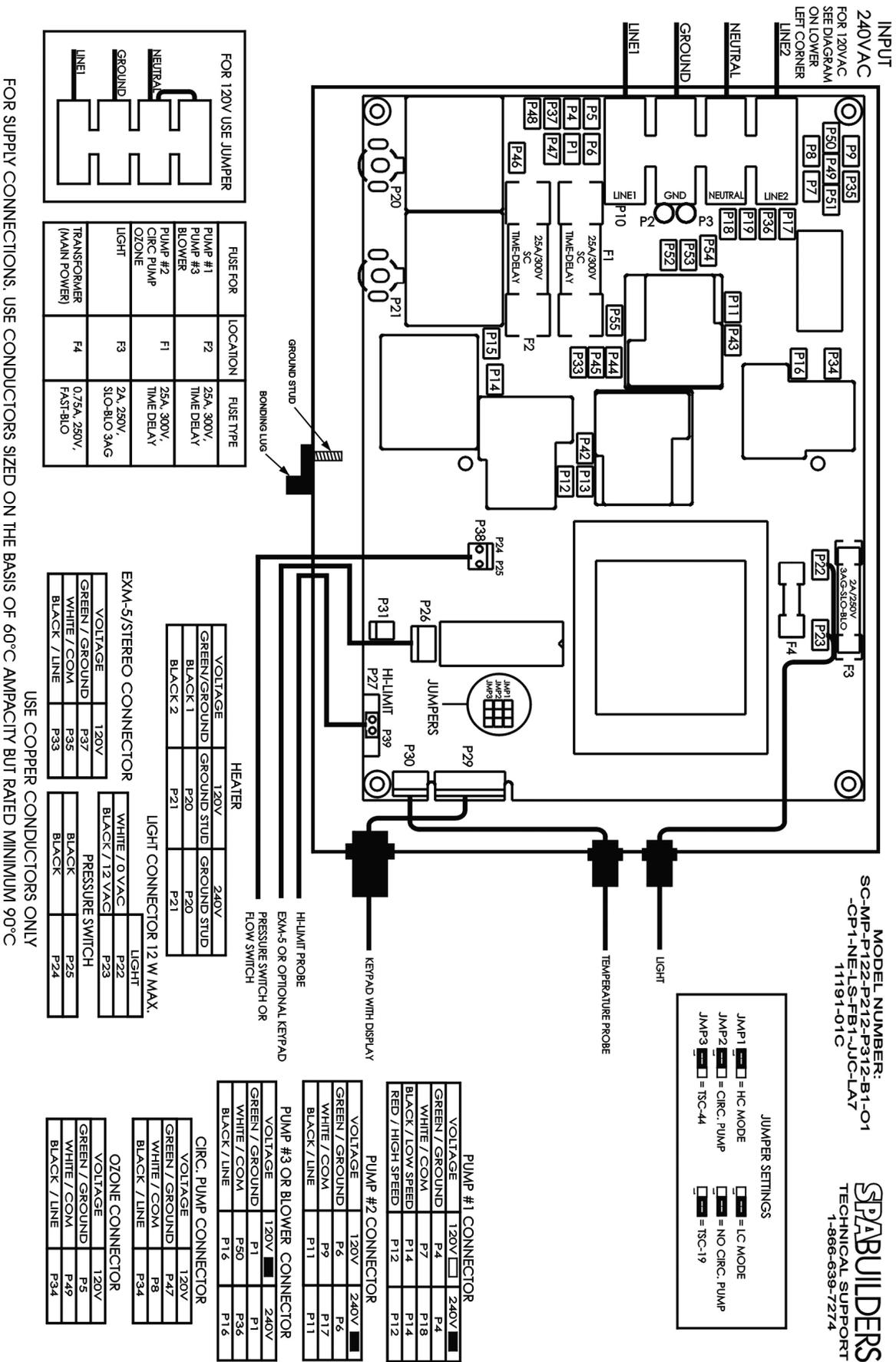
Symptom	Problem	Corrective Action
Spa water cold / spa not heating	1. Temperature setting is not at user select. Power reset caused default setting.	1. Increase temperature
	2. Spa in economy mode	2. Reset to standard mode.
	3. Dirty filters	3. Clean filters
	4. Air lock	4. Prime pump (see page 13)
	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 3"-4" (7-10 cm) above top of the filters
	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 3"-4" (7-10 cm) above top of the filters
	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 3"-4" (7-10 cm) above top of the filters
	4. Dirty filters	4. Clean filters
	5. Pump gate valve closed	5. Open gate valve
	6. Air lock	6. Prime pump (see page 13)

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. Control panel locked	2. Unlock control panel or power off spa then back on
	3. Control panel in suspend mode	3. Return to normal operating mode or power off spa then back on
	4. Overheat occurred	4. 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.
Three flashing LED appear on the control panel display	1. Low water level	1. Fill with water to 3"-4" (7-10 cm) above top of the filters
	2. Dirty filters	2. Clean filters
	3. Air lock	3. Prime pump (see page 13)
	4. Jets closed obstructing flow	4. Open jets
	5. Pump gate valve closed	5. Open gate valve
	6. Equipment malfunction	6. Call for service
Three flashing LED appear on the control panel display and pump #1 low speed is disabled	1. High limit condition	1. Turn off power, wait 5 seconds, then turn on power. This a system reset. If problem persists, call for service.



Note: Original wiring diagram is attached to the back of the control box cover.