



**2005  
OWNERS MANUAL  
Domestic  
366C & 366D EPROM**

# TABLE OF CONTENTS

<b>Letter of Introduction.....</b>	<b>2</b>	<b>Feature Operations.....</b>	<b>18-21</b>
<b>Spa Record keeping Information.....</b>	<b>3</b>	Diverter Valves.....	18
<b>Important Safety Instructions.....</b>	<b>4-5</b>	Air Controls.....	19
<b>Hyperthermia Information.....</b>	<b>5</b>	Waterfalls.....	19
<b>Safety Precautions.....</b>	<b>5</b>	Stereo.....	19
<b>Safety Signage.....</b>	<b>6</b>	Dynamic Jet Sequencer.....	19-21
<b>Spa Cautions.....</b>	<b>6</b>	<b>Water Balance.....</b>	<b>21-22</b>
<b>Spa Equipped Safety Devices.....</b>	<b>6</b>	Chemistry.....	21
<b>Installation Instructions.....</b>	<b>7-9</b>	Start-Up Procedures.....	21
“Canadian”.....	7-8	Water Quality.....	21
“USA”.....	9	PH.....	21-22
<b>Electrical Installation Requirements.....</b>	<b>9-10</b>	Alkalinity.....	22
<b>Start-Up Instructions.....</b>	<b>11</b>	<b>Water Treatment.....</b>	<b>22-24</b>
<b>Operating Instructions.....</b>	<b>12-18</b>	Sanitizers.....	22-23
Control Panel Types / Models.....	12-13	Shock.....	23
Control Panel Operation.....	14-15	Ozone.....	23
Filtration Standard Systems.....	16	Water Testing.....	23
The UWMS System.....	16	Stain & Scale Control / Foam Inhibitors.....	23
Filtration UWMS Systems.....	17	Keeping Water Safe.....	24
Programming & Operation Control System....	17-18	<b>Spa Care.....</b>	<b>24-29</b>
		Filter Maintenance.....	24
		Surface Protection.....	24
		Wood Panel Care.....	25
		Thermoguard Panel Care.....	25
		Cover Protection.....	25
		Draining Your Spa.....	25
		Cold Weather Protection “Winterizing” .....	25-26
		Trouble Shooting.....	27-29

# 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, LA 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 LA 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**

Name of Purchaser		Date of Purchase
Address		
City	State	Zip Code
Spa Model	Spa Color	Spa Serial #
Store Name		
Store Address		Telephone
City	State	Zip Code

### **SAVE THIS INFORMATION FOR FUTURE REFERENCE**

# **IMPORTANT SAFETY INSTRUCTIONS**

## **READ AND FOLLOW ALL INSTRUCTIONS**

### **SAVE THESE INSTRUCTIONS**

#### **READ THE ENTIRE OWNERS MANUAL & SAFETY INSTRUCTIONS BEFORE OPERATING SPA**

When installing the spa, basic safety precautions should always be followed to include the following:

- 1) **WARNING:** To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times by adults.
- 2) **WARNING:** A grounding wire connector is provided on this unit to connect a minimum No. 8 AWG (8.4 mm<sup>2</sup>) solid copper conductor between this unit and any metal equipment, metal enclosures 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 at all times by adults.
- 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 FITTINGS.**

- 5) **DANGER: RISK OF INJURY:** Do not remove suction grate. Suction through drains and skimmers are 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 (1.5M) from all metal surfaces. As an alternative, a spa may be installed within 5 feet (1.5M) of metal surfaces if, in accordance with the National Electrical Code, each metal surface is permanently connected by a minimum No. 8 AWG (8.4 mm<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 appliance, such as a 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 the 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 is recommended by your local LA Spas Authorized Dealer.

## **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  $\pm 5^{\circ}\text{F}$  ( $3^{\circ}\text{C}$ ). 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  $100^{\circ}\text{F}$  ( $38^{\circ}\text{C}$ ). 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  $99^{\circ}\text{F}$ ). 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 low 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 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:

LA Spas  
1311 N. Blue Gum Street  
Anaheim, CA 91806

## 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) **Over Heat Protection** -- An electronic high limit switch, located in the spa water, that 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, & light turn off automatically after 30-minutes of operation.

CANADIAN INSTALLATIONS  
**IMPORTANT SAFETY INSTRUCTIONS**  
CSA SAFETY INFORMATION

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

**READ AND FOLLOW ALL INSTRUCTIONS**

- 1) A colored terminal or a terminal marked G, GR, Ground, Grounding, or the grounding symbol is located inside the supply terminal box or compartment. 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/compartment. 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 No. 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 No. 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) may be injurious to your health.

**AVERTISSEMENT:** IL PEUT ETRE DANGEREUX POUR LA SANTE DE SE 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 (such as a 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 1.5 M 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.

## **HYPERTHERMIA**

Prolonged immersion in hot water may induce hyperthermia. A description of the cause, symptoms, and effects of hyperthermia are as follows:

Hyperthermia occurs when the internal temperature of the body reaches a level several degrees above the normal body temperature of 98.6°F (37°C). The symptoms of hyperthermia include drowsiness, lethargy, and an increase in the internal temperature of the body. The effects of hyperthermia include:

- 1) Unawareness of impending hazard
- 2) Failure to perceive heat
- 3) Failure to recognize the need to exit spa
- 4) Physical inability to exit spa
- 5) Fetal damage in pregnant women
- 6) Unconsciousness and danger of drowning

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

**AVERTISSEMENT:** LA CONSOMMATION D'ALCOOL OU DE DROGUE AUGMENTE CONSIDERABLEMENT 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) Your new spa **MUST BE PLACED ON A 4" THICK REINFORCED CONCRETE PAD**. Ensure that the concrete has cured for at least one week before setting the spa in place. A typical spa, filled with water, could weigh as much as 2.5 tons, and if the concrete is not fully cured, it could easily crack. **AN UNEVEN OR CRACKED PAD 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 240 volts, 60Hz alternating current.
- 4) The 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 194°F (90°C).
- 8) Input Power Wiring and Circuit Breaker Selection:

**IMPORTANT INFORMATION REGARDING ELECTRICAL INSTALLATION!**

**HC Mode**

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

**LC Mode**

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

*Notes: \*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 rated GFCI circuit breaker and service installation.*

*Please be aware that the Min. Wire Size does not account for the distance of wire run to the spa from the service input.*

*Only a licensed electrician should size and install the electrical connections to the Spa.*

*The Equipment Type column does not include the circulation pump*



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.

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 3/4" flexible, non-metallic conduit for a spa requiring #10 AWG or #8 AWG wire or 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 PARTIALLY FILLED OR EMPTY.**

- 1) Ensure that the circuit breaker to the spa is off.
- 2) Rotate all the jets in the spa to a counter clockwise 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" of metal rod visible. Each pump is supplied with one (1) 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 inches above the top of the filter.
- 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 jets 1 keypad to turn on the low speed pump. On units not equipped with the Ultimate Water Management System, the low speed of pump one 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 jets 1 keypad and the pump will turn on high speed. Observe to ensure adequate water flow. Press the jets 2 key pad and pump 2 will turn on high speed. Observe to ensure adequate water flow. Press the jets 3 key pad 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) On units equipped with the Ultimate Water Management System, check to ensure that water is flowing through the system. Observing the foot well for bubbles will determine if there is 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 equipment access panel.
  - 11) 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.
  - 12) After completing the above steps, it is necessary to ensure proper water chemistry. See the Water Chemistry section in this 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 thermal cover on the spa to conserve energy and to keep it ready for use.

# OPERATING INSTRUCTIONS

## CONTROL PANEL TYPES AND MODELS

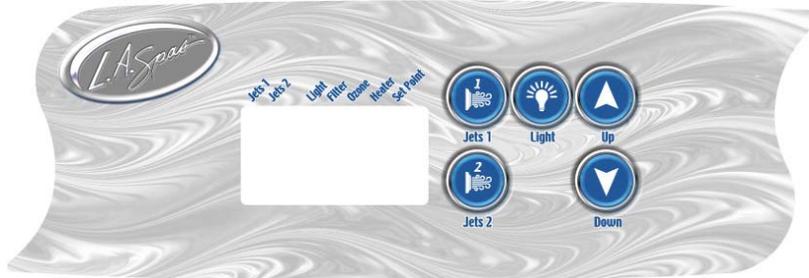
Single Pump TSC-44 LA Control System



Single Pump TSC-44 LA Control System With Air



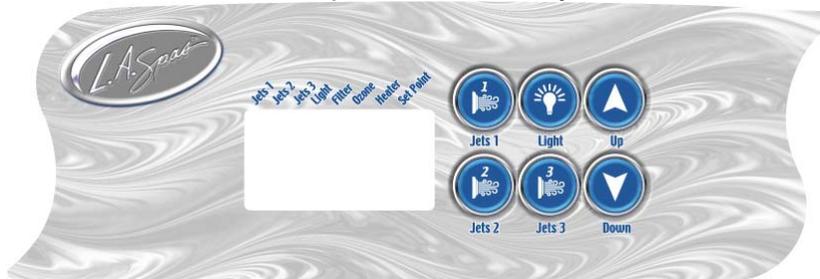
Dual Pump TSC-44 LA Control System



Dual Pump TSC-44 LA Control System With Air



Three Pump TSC-44 LA Control System



### Single Pump TSC-18 Tropical Control System



### Dual Pump TSC-18 Tropical Control System



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, (shutoff), thirty (30) minutes after the Jet is activated. On standard systems without the Ultimate Water Management System (**UWMS**) the jets 1 low speed pump may stay running if there is a call for heat and will continue to do so until the set temperature is reached.



### 1) **JETTS 1 KEY:**

When the **JETTS 1** key is Pressed the first time, the low speed of the spa jet pump is turned on.

When the **JETTS 1** key is pressed a second time, the high speed of the spa jet pump is turned on.

Pressing the **JETTS 1** key a third time (or second for **UWMS**) will turn the spa pump off.

**Please Note:** A ▲ symbol will appear in the upper part of the LED window below the jets 1 designator when it is in an **ON** condition.

The **JETTS 1** 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 point light indicator will be on when the display is showing the water temperature set point. It will be off when the display is showing the actual water temperature. A new 30-minute cycle begins each time the **JETTS 1** key is pressed. This auto shut-off cycle is a safety device and allows for convenient filtration, immediately after use of the spa.



### 2) **JETTS 2 KEY:**

(If equipped): Press the **JETTS 2** key once to turn on the pump. Press the **JETTS 2** key a second time to turn the pump off.

**Please Note:** A ▲ symbol will appear in the upper part of the LED window below the jets 2 designator when the pump has been turned on.

The **JETTS 2** key will activate a 30 minutes automatic shut-off. A new 30-minute cycle begins each time the **JETTS 2** key is pressed.



### 3) **AIR /JETTS 3 KEY:**

(If equipped): Press the **AIR /JETTS 3** key once to turn on the blower or pump. Press the **AIR /JETTS 3** key a second time to turn the blower or pump off.

**Please Note:** A ▲ symbol will appear in the upper part of the LED window below the air/pump 3 designator when it is in an on condition.

The **AIR /JETS 3** key will activate a 30-minute automatic shut-off. A new 30-minute cycle begins each time the **AIR /JETS 3** 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 the light off.

**Please Note:** A ▲ symbol will appear in the upper part of the LED window below the light designator when the light has been turned on.

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

**Fiber Optic** (for spas equipped with optional fiber optics): Press the **LIGHT** key once to turn the light and color wheel on. The light color will change continually. Press the **LIGHT** key a second time to turn the color wheel off and the light will remain on (the light color will stop changing). Press the light key a third time to turn the light off.

**Please Note:** A blinking ▲ symbol will appear in the upper part of the LED window below the light designator when the light and color wheel is on.

A steady ▲ symbol will appear in the upper part of the LED window below the light designator when just the light is on and the color wheel is off.

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



5) **TEMPERATURE KEYS:**

Pressing the **UP** key increases the temperature and pressing the **DOWN** key decreases the temperature. Press the respective key one time for each degree of temperature change. Alternatively, you can press and hold the key down to adjust the temperature rapidly.

The current temperature of the spa water will remain in the digital display window (LED) until a temperature key is pressed.

**Please Note:** When the **UP** or **DOWN** key is Pressed, the ▲ symbol appears below the set point designator and the numerical LED readout indicates the set temperature is being accessed and will stay lit for 5 seconds after the last press of an **UP** or **DOWN** key. After the 5-second timeout, the current spa water temperature will be indicated in the LED readout.

Once set, the spa will begin to heat to the set temperature.

NOTE: When selecting the spa operating temperature it is important to factor in the outside ambient temperature conditions. 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 of the spa should be utilized.

## **FILTRATION STANDARD SYSTEMS**

Spas not equipped with The Ultimate Water Management System are preprogrammed to filter two times each 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, & 3 or Blower (if provided) will run for 1 minute each at high speed operation and then turn off. The sequence will start with pump #2 in high speed, followed by pump #3 in high speed or blower if equipped, 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 (12) hours after the start of the first.

In order to determine the start time for each filtration cycle subsequent to the first, simply divide the number of cycles selected into a 24-hour period. I.E. If you have chosen 2 cycles you have a product of twelve (12), which incurs that the next filter cycle will begin twelve (12) hours from the start of the last. To continue with the example, if 10:00 AM is the start of the first filter cycle, the second cycle will begin at 10:00 PM.

**Please Note:** A ▲ symbol will appear in the upper part of the LED window below the filter designator when a filtration cycle is active. To cancel the cycle, Press any of the **JET** keys. Press the **JET** key again and the pump will turn off.

*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 106F the system will engage the pre-programmed safety logic and reduce the filter cycle time to 20 minutes twice per day. If the user selected filtration is less than the pre-programmed safety default of 20 minutes twice per day the system will ignore the pre-program and run the users selected filter cycle. If the users 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 110F 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 .5 seconds, off for .5 seconds, on for .5 seconds and then off for 1.5 seconds and the pattern will be repeated.

## **THE ULTIMATE WATER MANAGEMENT SYSTEM “UWMS”**

The Ultimate Water Management System™ (UWMS) is a comprehensive solution for maintaining crystal clear water, at the desired temperature, with minimal effort. At the heart of the system, a silent circulation pump with a flow rate of 5 GPM, filters, circulates, and ozonates 100% of the water continuously. When there is a requirement to add heat to the water, the circulation pump is used instead of the main jet pump; therefore the operation is completely silent and more economical.

Ensuring the highest level of energy efficiency, the Ultimate Heater converts all of the electrical energy into heating the water, unlike less efficient heating systems that must transfer the heat through a housing, before it is absorbed by the water. Complimenting high-energy efficiency, the UWMS uses an array of contact chambers and (12) mixing points to enhance the transfer of ozone into the water. No other water management system is as effective in transferring ozone into solution. The effective transfer of ozone into solution is the most critical attribute of a successful water management system.

The UWMS circulation pump system is designed to operate 24 hours a day. In the case of excessively high ambient outside temperature the system has built in safety logic to prevent an overheat condition. Above 110F the circulation pump will disable. The circulation pump will resume normal operation when the water temperature drops to 106F.

Note: Even in overheat condition, if a jet pump is turned on, the circulation pump will start and will remain on for another 30 minutes, after the jet pump has turned off.

## **FILTRATION UWMS SYSTEMS**

Spas equipped with The Ultimate Water Management System are pre-programmed to purge and then filter two times each day for 20 minutes. In most cases, this is sufficient filtration because of the 24-hour filtration of the Circulation Pump, which is part of The Ultimate Water Management System. However, the filter cycle frequency can be modified from 1 - 2 cycles per day and the cycle duration can be modified from 10 - 60 minutes per cycle in increments of 10 minutes. (See below, Filter Cycle Duration)

## **FILTRATION SEQUENCE**

At the beginning of each filtration cycle a purge cycle will occur. Pumps 1, 2, & 3 or Blower (if provided) will run for 1 minute each at high speed operation and then turn off. The sequence will start with pump #2 in high speed, followed by pump #3 in high speed or blower if equipped, 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 (12) hours after the start of the first.

In order to determine the start time for each filtration cycle subsequent to the first, simply divide the number of cycles selected into a 24-hour period. I.E. If you have chosen 2 cycles you have a product of twelve (12), which incurs that the next filter cycle will begin twelve (12) hours from the start of the last. To continue with the example, if 10:00 AM is the start of the first filter cycle, the second cycle will begin at 10:00 PM.

**Please Note:** A ▲ symbol will appear in the upper part of the LED window below the filter designator when a filtration cycle is active.

To cancel the cycle, Press any of the **JET** keys. Press the **JET** key again and the pump will turn off.

*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 106F the system will engage the pre-programmed safety logic and reduce the filter cycle time to 20 minutes twice per day. If the user selected filtration is less than the pre-programmed safety default of 20 minutes twice per day the system will ignore the pre-program and run the users selected filter cycle. If the users 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 110F 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 .5 seconds, off for .5 seconds, on for .5 seconds and then off for 1.5 seconds and the pattern will be repeated.

## **PROGRAMMING THE CONTROL SYSTEM**

To initiate the programming sequence at any time, press and hold the **LIGHT** key for 5 seconds. If, within 10 seconds, you do not proceed with the spa programming, the spa will automatically exit the programming sequence and revert to the pre-set 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** or **DOWN** key to cycle through the choices of 10, 20, 30, 40, 50, or 60 minutes per cycle on spas equipped with the Ultimate Water Management System. Program default on spas equipped with UMWS are preset to purge and then filter for 20 minutes two times per day. For spas without the Ultimate Water Management System the choices are 30 – 240 minutes in increments of 10 minutes. Program default is preset to filter for 60 minutes twice per day. 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 the **UP** or **DOWN** key to cycle through the number of filter cycles, 1 or 2. Once the desired number of filter cycles 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 spa temperature set point or when the spa reaches the minimum temperature of 59°F (15°C). For the first 24 hours after initial power up of the spa, the economy mode is disregarded. To place the spa into the economy mode, press the **UP** or **DOWN** key to select either Ec 0 or Ec 1. When Ec 1 is visible in the control panel display the spa is on, in economy mode. When Ec 0 is visible in the display economy mode is off. During economy mode the control panel display will toggle back and forth every 5 seconds displaying the spa water temperature and Ec 1. Once the desired mode is displayed, press the **LIGHT** key again to accept the selection and move to programming the Temperature Units. Economy mode can also be utilized during warmer months as the preferred method of maintaining a lower spa water temperature.

## **TEMPERATURE UNITS**

To adjust the temperature units, press the **UP** or **DOWN** key to select either 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 Summer Protection mode pump #1 low speed will engage every 2 hours and run for one minute. This is designed to flush the heater of warming water avoiding a build up of heat due to excessively high outside ambient conditions. To place the spa into the Summer Protection mode, press the **UP** or **DOWN** key to select either Sp 0 or Sp 1. When Sp 1 is visible in the control panel display the spa is on, in Summer Protection mode. When Sp 0 is visible in the display Summer Protection mode is off. Summer Protection mode should be utilized during warmer months. Once the desired Summer mode selection is made, 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 failure and the programming has reverted to their 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 not function. The LED will display the message LOC. To lock and unlock the panel press all of the following keys within 3 seconds: **JETS 1** key, **LIGHT** key, **JETS 1** key. Turning the power off and back 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 turned off. The LED will display the message SUS. To place the control in the suspend mode hold down the **JETS 1** key for 5 seconds. Press the **JETS 1** key for 5 seconds to turn the spa back on. The LED display will now show the water temperature.

## **FEATURE OPERATIONS**

### **JET SELECTOR VALVES / “DIVERTER VALVES”**

Your spa may be equipped with a spa side jet selector valve or “diverter valve”. This valve can be used to divert jet power from one area in the spa to another. This valve is fully adjustable and can be used to suit the bather’s desired affect. The valve may be slightly harder to turn when the spa pump is on high speed. This is normal and is caused by the 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 jetting configuration resulting in more vigorous jet action. Turn the valve handle clockwise to turn the air on and counter clockwise 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 counter clockwise to turn the waterfall off. Waterfalls are always supplied by the JETS 1 pump.

## **STEREO AND CONTROLS “Optional”**

Your spa may be equipped with a stereo sound system and a spa side control panel. The stereo manufacturer’s owner’s manual is provided within the spa owner’s manual. In addition to the following instructions, please refer to this manual for the operation of the stereo system.

### **LA Series Stereo Remote**



## **HOW TO USE THE STEREO SPA SIDE CONTROL “Optional”**

**On/Off (Radio/CD)** The first press on the Radio/CD key will turn on the stereo radio. Once the stereo has been turned on, this key is used to toggle between the Radio or CD mode. To turn the stereo off, press the same key for more than 5 seconds.

**Seek + / Skip +** In the radio mode, the Seek+ key is used to automatically seek upward to the next radio station. Holding this key to increment the frequency selection. In the CD player mode, pressing and releasing the Skip+ key will move forward to the next track on the CD. Holding the Skip+ key will fast forward the track already playing.

**Volume+** The + key is used to increase the volume.

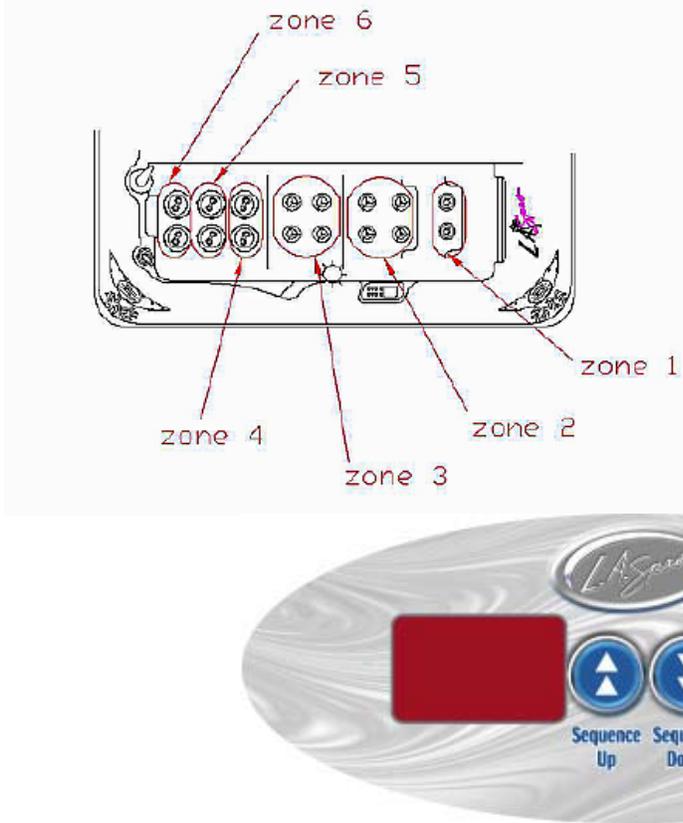
**Volume-** The - key is used to decrease the volume.

## **DYNAMIC JET SEQUENCER™ “Optional”**

Sequencer feature benefits:

- The system has a variety of ten programmed sequences.
- The system controls 6 different zones and up to 14 total jets.
- The sequencer uses an auxiliary TSC-9 upper control panel.
- For ease of use, there is a directional sequence up key or down key.
- The pause key will select a desired zone to focus on a particular muscle group.
- The sequencer has three speeds of 5, 15 and 30 second durations.

- The system will automatically turn off 30 seconds after the jet pump turns off.



## **HOW TO USE THE DYNAMIC JET SEQUENCER**

**SEQUENCE UP/DOWN KEY:** These keys are used to select the type of massage to be performed by the system. A total of 9 different massages are preprogrammed in the system plus 1 where all of the valves are open. The following table shows the relationship between the massage mode and the valves.

Each press on the key will direct the sequence mode from one to another. The sequence number will be displayed on the keypad LED. Example: "SE 1" will be displayed in the LED and will blink for 5 seconds before the sequence begins.

To activate the selected massage sequence pattern, the user may leave the keypad untouched for 5 seconds, while the LED is blinking, and the system will then accept the new selected massage sequence pattern. The LED display will stop blinking and the new sequence will actuate the valves according to the selected pattern.

**SPEED KEY:** This key is used to change the time duration between each step in a sequence. The default time duration is factory programmed for 5 seconds intervals. The first press of the speed key will change the step interval time to 15 seconds, the second press of the speed key will change the step intervals to 30 seconds, and the third press of the speed key will reset the speed to 5 second step intervals (default). This pattern will be repeated with each additional press of the speed key. An LED speed indicator, with three different blinking rates, will show the speed for which the system will operate. During a pause condition the speed LED indicator will be OFF.

**PAUSE KEY:** This key is used to interrupt the massage sequence. For example, if the user likes the jet massage at a particular moment and wants to keep it for an extended period of time, the user simply presses the pause key to hold the sequencer in the specific configuration desired. The sequencer will resume automatic operation when the pause key is pressed a second time. An LED light indicator will show when the system is in the pause mode.

## **SEQUENCER OPERATION MATRIX**

Each numbered "Sequence" Column represents the programmed sequence and shows the zone that is actuated during the corresponding step. *For example, with sequence 1 chosen, Zone 1 is actuated first then turns off while zone 2 is actuated and so on working the zones in a motion from your feet to your shoulders where at step number 7 it re-actuates zone six and then progresses down to your feet again.*

# Sequence Programs

Step	1	2	3	4	5	6	7	8	9
	Zone	Zone	Zone	Zone	Zone	Zone	Zone	Zone	Zone
1	1	1&2	1,2&3	1,2,3,4&5	1,3&5	All	1	1	1&2
2	2	2&3	4,5&6	1,2,3,4&6	2,4&6	1,2,3,4&5	2	1&2	2&3
3	3	3&4	1,2&3	1,2,3,5&6	1,3&5	1,2,3&4	3	1,2&3	3&4
4	4	4&5	4,5&6	1,2,4,5&6	2,4&6	1,2&3	4	1,2,3&4	4&5
5	5	5&6	1,2&3	1,3,4,5&6	1,3&5	1&2	5	1,2,3,4&5	5&6
6	6	1&2	4,5&6	2,3,4,5&6	2,4&6	1	6	All	5&6
7	6	2&3	1,2&3	1,2,3,4&5	1,3&5	All	1&2	2,3,4,5&6	4&5
8	5	3&4	4,5&6	1,2,3,4&6	2,4&6	2,3,4,5&6	2&3	3,4,5&6	3&4
9	4	4&5	1,2&3	1,2,3,5&6	1,3&5	3,4,5&6	3&4	4,5&6	2&3
10	3	5&6	4,5&6	1,2,4,5&6	2,4&6	4,5&6	4&5	5&6	1&2
11	2	1&2	1,2&3	1,3,4,5&6	1,3&5	5&6	5&6	6	1&6
12	1	2&3	4,5&6	2,3,4,5&6	2,4&6	6	1&6	All Off	2&6
13	1	3&4	1,2&3	1,2,3,4&5	4,5&6	All	1,2,3,4&5	1	2&5
14	2	4&5	4,5&6	1,2,3,4&6	1,2&3	1,2,3,5&6	1	1&2	3&5
15	3	5&6	1,2&3	1,2,3,5&6	4,5&6	1,2,5&6	2	1,2&3	3&4
16	4	1&2	4,5&6	1,2,4,5&6	1,2&6	1,2&6	3	1,2,3&4	2&4
17	5	2&3	1,2&3	1,3,4,5&6	4,5&6	1&6	4	1,2,3,4&5	2&5
18	6	3&4	4,5&6	2,3,4,5&6	1,2&3	1	5	All	1&5
19	6	4&5	1,2&3	1,2,3,4&5	4,5&6	6	6	2,3,4,5&6	1&6
20	5	5&6	4,5&6	1,2,3,4&6	1,2&6	1&6	1&2	3,4,5&6	2&5
21	4	1&2	1,2&3	1,2,3,5&6	4,5&6	1,2&6	2&3	4,5&6	3&4
22	3	2&3	4,5&6	1,2,4,5&6	1,2&3	1,2,5&6	3&4	5&6	3&4
23	2	4&5	1,2&3	1,3,4,5&6	4,5&6	1,2,3,5&6	4&5	6	2&5
24	1	5&6	4,5&6	2,3,4,5&6	1,2&6	All	5&6	All Off	1&6

## 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 inches 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 1/2 hour.
- 4) Test and adjust pH- run pump for 1/2 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 1/2 hour.

### WATER QUALITY

Your L.A. 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.

Note: Some Tropical Series spa models are not available with Aqua Klean® Filtration.

We recommend that you purchase your chemicals from your authorized LA 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 # 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 decriaser. 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. TA (total alkalinity) affects and buffers the pH of the water. With high TA above 160, pH resists adjustment. With low TA below 130, pH is unstable and difficult to keep in the ideal range. Proper TA levels allow other chemicals to work at their opportunity.

# **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 your water clean, clear and odor-free. To ensure maximum effectiveness add 1/2 oz. of sodium bromide per 100 gal 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 strips 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 PPM, allow PPM to drop to proper range before using the spa. Read the instructions on your chlorine container carefully, or consult your local LA 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 1/2 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 manufacturers 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 ineffective 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.

## **OZONE**

Your spa may be equipped with an ozonator. L.A. Spas requires that only their ozonator be used on spas due to the design of the mixing chamber system. Ozone related failures due to use of other manufacturers ozonators will not be covered under warranty. On spas equipped with UWMS ozone delivery occurs when the circulation pump is running. On spas without UWMS or standard systems ozone delivery occurs any time the low speed pump engages or operates either during a heat call or filter cycle.

## **WATER TESTING**

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

## **STAIN & SCALE INHIBITOR (CONTROLLING STAIN & SCALE)**

Staining and scaling may be common problems in spa. 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 bather'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 (bubbles) 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 place and in such a manner to prevent contact by children or pets.***

You should consult your authorized LA 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 and Scale control		

STEP# 1: Adjust Total Alkalinity - ideal range = 130 - 160. Test water, follow directions on manufacturer's label, and add @required amount with jets on. Wait 30 minutes before performing additional tests.

STEP# 2: Adjust pH - ideal range = 7.4 - 7.6. Test water, follow directions on manufacturer's label, and add required amount of chemicals with jets on.

STEP# 3: Adjust Bromine/Chlorine - ideal range = 2 – 3 PPM Chlorine & 3 - 5 PPM Bromine (4 - 6 PPM for heavy bather loads for Bromine) and 2 - 3 PPM for chlorine. Fill Bromine floater or adjustable feeder and shock spa as necessary.

STEP# 4: Stain and Scale Control - Add required amount with jets on, weekly.

**NOTE:** The chemical chart above is a simple schedule for moderate spa use. Depending on the bather load and frequency of use, chemical balancing may be required more often.

## SPA CARE

### FILTER CLEANING

Always be sure the spa is off before removing and cleaning the Aqua Klean® filter bags. We recommend you clean the Aqua Klean filters 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 filters, 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 Tropical Series spa models are not available with Aqua Klean® Filtration and utilize filter cartridges. Cartridges should be removed and hosed off once weekly. A soaking in filter cartridge cleaner should be performed every 2 – 4 weeks depending upon spa use and bather load.

Aqua Klean® Patent # 6,685,843

### CARE FOR THE SPA SURFACE

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

### 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 LA Spas dealer.

### CARE OF THE SPA CABINET (WOOD CABINETS)

When properly cared for, the wood cabinet of your spa will maintain beauty 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 LA 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 THE SPA CABINET (THERMOGUARD CABINETS)**

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 and void your warranty.

## **CARE FOR THE 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 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 YOUR 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 about every 4 months. For heavier spa use, you may wish to change the water more frequently. With the Ultimate Water Management System, you may find that the average draining is approximately every 6 months, depending on bather load. 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...this section).
- 4) Refill spa - follow initial start-up procedures to reheat spa.

## **SPECIAL COLD WEATHER INSTRUCTIONS "WINTERIZING"**

Winter can be one of the most enjoyable times of the year to enjoy your LA 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 LA Spa turn off the main power to the spa. Drain as completely as possible. You may want to use a wet-vac 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 winter months, you may want to build a protective cover cap for the spa cover. This may be done with a .5" or .75" 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 LA Spas dealer.

## **WARRANTY SERVICE INFORMATION**

Your LA 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

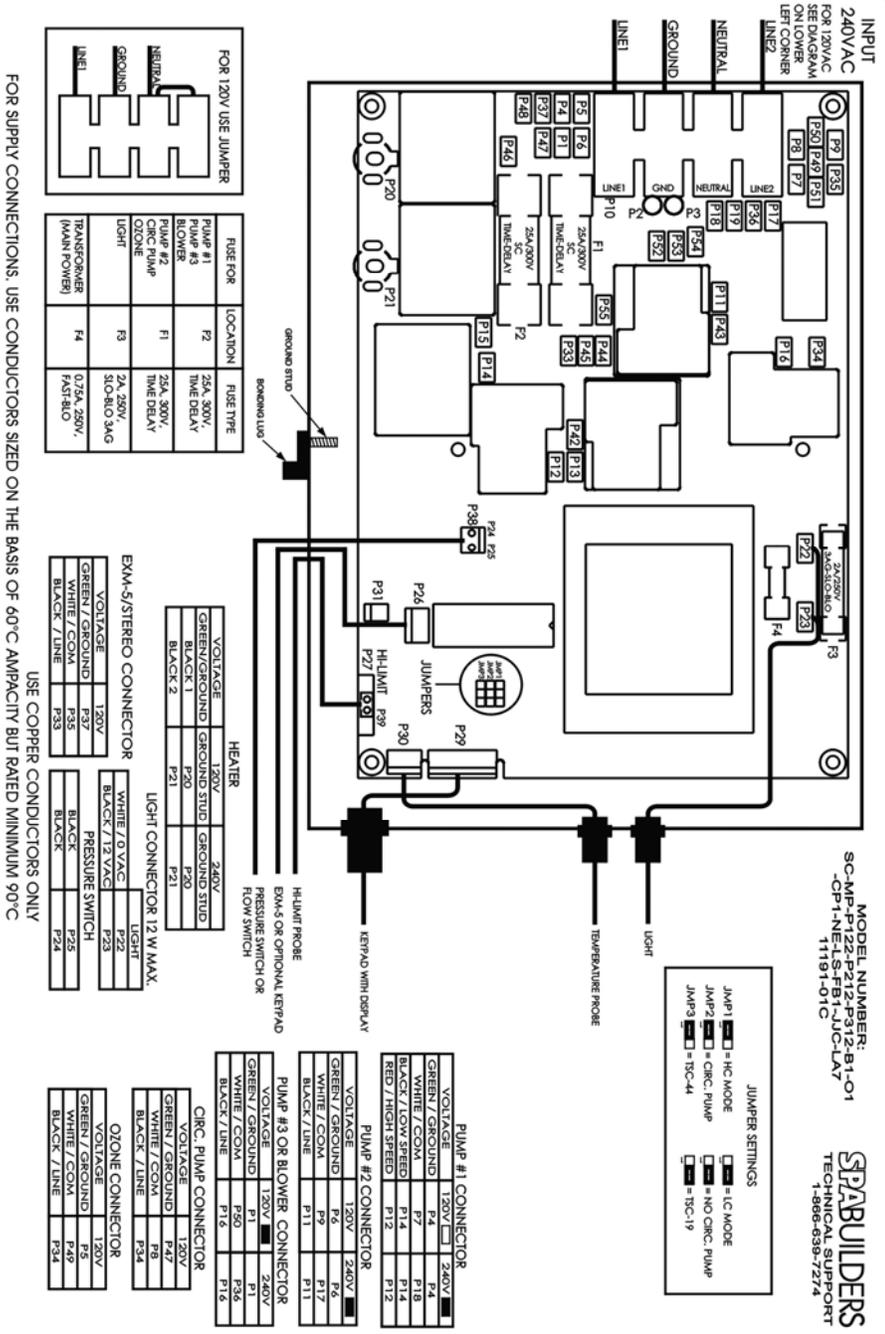
Symptom	Problem	Corrective Action
Spa water cold / Spa not heating	1. Temperature setting is not at user select. Power reset caused default setting.	1. Increase temperature.
	2. Spa in economy mode.	2. Reset to standard mode.
	3. Dirty filter	3. Clean filter
	4. Air Lock	4. Prime pump See page 15
	5. 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" (7 cm) to 4" (10 cm) above top of the filter.
	2. Spa in economy mode.	2. Reset to standard mode.
	3. Dirty filter.	3. Clean filter.
	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" (7 cm) to 4" (10 cm) above top of the filter
	2. Filter dirty.	2. Clean filter.
	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 counter clockwise
	2. Diverter valve turned.	2. Turn the jet diverter valve clockwise or counter clockwise
	3. Water level low.	3. Fill with water to 3" (7 cm) to 4" (10 cm) above top of the filter.
	4. Dirty Filters.	4. Clean Filters.
	5. Pump gate valve closed.	5. Open gate valve.
	6. Air lock.	6. Prime pump.

## ELECTRICAL SYSTEM

Symptom	Problem	Corrective Action
Will not turn on in any mode	1. No power	1. Check circuit breaker and/or GFCI.
	2. Control panel locked.	2. Unlock or power down and back up.
	3. Control panel in suspend mode.	3. Return to normal operating mode or power down and back up.
	4. Overheat occurred.	4. Call for service.
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 light off.	1. Press Light Button again to start another cycle.
	2. Burned out bulb.	2. Replace bulb.
Pump shuts down unexpectedly while in use	1. Automatic timeout has shut pump off.	1. Press JETS Button again to start another cycle
	2. Motor over-heated, and protective device has shut down pump(s).	2. Allow pumps too cool. If pump(s) will not restart when JETS Button is pressed, call for service.
3 flashing L.E.D.s appear on the Top Side Control	1. Low water level.	1. Fill with water to 3" (7 cm) to 4" (10 cm) above top of the filter Check water level.
	2. Dirty Filters.	2. Clean filters.
	3. Air Lock	3. Prime pump See page 15
	4. Jets closed obstructing flow.	4. Open jets.
	5. Pump gate valve closed.	5. Open gate valve.
	6. Equipment malfunction.	6. Call for service.
3 flashing L.E.D.s appear on the Top Side Control and low speed pump is disabled.	1. High Limit Condition	1. Turn off power, wait 5 seconds turn on power. This is a system reset.  *If problem persists, call for service:



Attention: Original wiring diagram is attached to the control box cover.