



MASTER SPAS®

# OWNER'S MANUAL

2002 MODEL YEAR

THE LEGEND SERIES  
THE LEGEND SERIES INSIDER  
THE LEGEND SERIES XTREME

*The ultimate relaxation machine...*

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# RECORD OF OWNERSHIP

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

DATE PURCHASED \_\_\_\_\_

MODEL \_\_\_\_\_ SERIAL # \_\_\_\_\_

DEALER NAME \_\_\_\_\_

DEALER ADDRESS \_\_\_\_\_

DEALER PHONE # \_\_\_\_\_

SERVICE TECH REPRESENTATIVE \_\_\_\_\_

COMMENTS \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

*Manufactured by:*



**MASTER SPAS<sup>®</sup>**

6927 Lincoln Parkway  
Fort Wayne, IN 46804

260-436-9100

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## SAVE THESE INSTRUCTIONS

Included with your new spa is a safety sign. The sign is for you and your guest's protection and is suitable for outdoor use in wet locations. The sign should be placed in a location visible to all users of the spa.

Please take time to point out the physical location of the safety sign and the importance of the safety precautions displayed on the safety sign to all of your guests. Remember your safety and the safety of anyone who enjoys the use of your spa is our utmost concern.

The sign should be mounted with screws or another type of permanent fastener. Additional or replacement signs can be obtained from your dealer or direct from the factory.

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# INTRODUCTION

It's time to relax! You now have your very own portable spa by Master Spas, Inc. By fully understanding the operation of each of the features of your new Master Spa you will be assured of many years of hassle-free, hot water therapy and fun.

Your safety is of paramount importance to the MasterSpas family. We urge you to read and become thoroughly familiar with all safety aspects addressed in this manual.

Through reading and totally understanding the important information in your owner's manual; you will realize that you now own THE ULTIMATE RELAXATION MACHINE!

## IMPORTANT SAFETY INSTRUCTIONS

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

### READ AND FOLLOW ALL INSTRUCTIONS

1. **WARNING.** To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.
2. **DANGER – RISK OF CHILD DROWNING.** Extreme caution must be exercised to prevent unauthorized access by children. To avoid accidents, insure that children cannot use a spa or hot tub unless they are closely supervised at all times.
3. A pressure wire connector is provided on the surface of the control box inside the spa to permit connection of a minimum No. 8 AWG solid copper bonding wire between this point and any metal equipment, metal enclosures of electrical equipment, metal water pipe or conduit within 5 feet (1.5M) of the unit.
4. **DANGER – RISK OF ELECTRIC SHOCK.** Install spa at least five (5) feet (1.5M) from all metal surfaces. A spa may be installed within five (5) feet (1.5M) of metal surfaces if, in accordance with the National Electrical Code, each metal surface is permanently connected by a No. 6 AWG (8.4mm) solid copper conductor attached to the wire connector on the terminal box. A grounding plug is provided for this purpose.
5. **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 fitting or the pump be sure that the flow rates are compatible.

**\*NOTE:** 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.

6. **DANGER –** To reduce the risk of injury to persons, do not remove suction grate. Suction through drains and skimmers is powerful when the jets in the spa are in use. Damaged covers can be hazardous to small children and adults with long hair. Should any part of the body be drawn into these fittings, turn off the spa immediately. As a precaution, long hair should not be allowed to float in the spa.
7. Install spa so that water can be easily drained out of compartment containing electrical components so as not to damage equipment. Also, when installing spa, allow enough room to access for servicing.
8. **WARNING – TO REDUCE THE RISK OF INJURY:**
  - 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 plus/minus 5° F (3° C).

- d. 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.
- e. 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).
- f. Excessive water temperature can be dangerous. The water in the spa should never exceed 104° F (40° C). Water temperatures between 100° and 104° F are considered safe for a healthy adult. Lower water temperatures are recommended for extended use (exceeding 10 minutes) and for young children. Long exposures at higher temperatures can result in hyperthermia.

## HYPER THERMIA

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

### 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

- g. Children's body temperature can increase more rapidly than adults in the same water with elevated temperatures (above 99° F). Children should spend less time in water above body temperature than adults.
- h. The use of a spa while under the influence of alcohol, drugs and/or medication may lead to unconsciousness with the possibility of drowning.

**\*NOTE:** 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.

10. People with infections, sores or the like should not use the spa. Warm and hot water temperatures may allow the growth of infectious bacteria if not properly disinfected.
11. **DANGER – RISK OF ELECTRIC SHOCK.** Do not permit any electric appliance, such as a light, telephone, radio or television, within five (5) feet of the spa. Never operate any electrical appliances from inside the spa or while wet.
12. **WARNING – RISK OF SUFFOCATION.** If this spa is equipped with a gas heater, it is intended for outdoor use only, unless proper ventilation can be provided for an indoor installation.
13. **SAVE THESE INSTRUCTIONS.**

# ELECTRICAL INSTALLATION REQUIREMENTS

## HAVE YOUR ELECTRICIAN READ THE FOLLOWING INFORMATION BEFORE INSTALLATION BEGINS

Electrical connections made improperly, or the use of wire gauge sizes for incurring power which are too small, may continually blow fuses in the electrical equipment box, may damage the internal electrical controls and components, may be unsafe and in any case will void your warranty.

It is the responsibility of the spa owner to ensure that electrical connections are made by a qualified electrician in accordance with the National Electric Code and any local and state electrical codes in force at the time of installation. These connections must be made in accordance with the wiring diagrams found inside the control box. This equipment has been designed to operate on 60 HZ alternating current only, 240 volts are required. Make sure that power is not applied while performing any electrical installation. A copper bonding lug has been provided on the electrical equipment pack to allow connection to local ground points. The ground wire must be at least 6 AWG copper wire and must be connected securely to a grounded metal structure such as a cold water pipe.

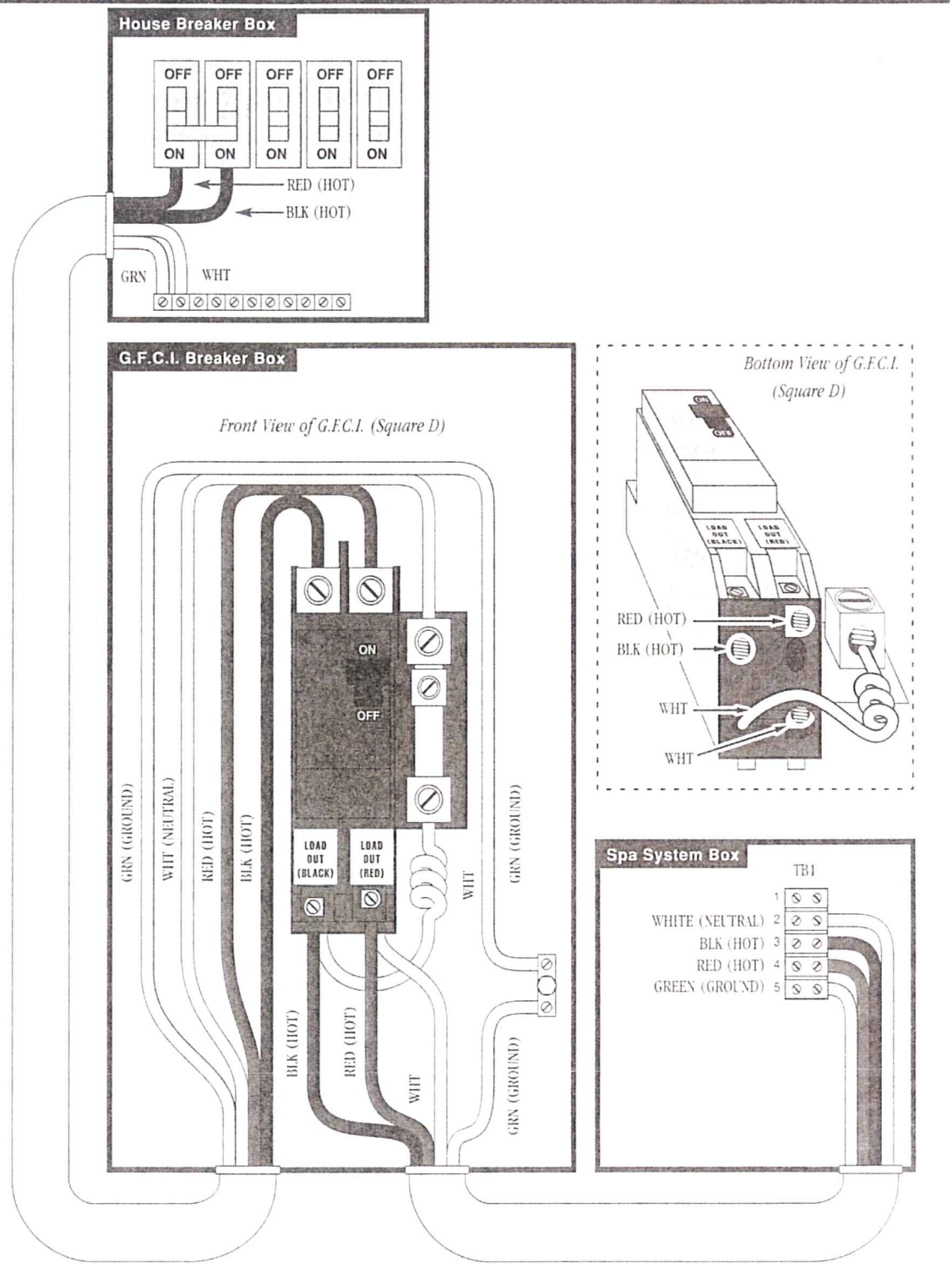
All MasterSpas equipment packs are wired for 240 VAC only.

The only electrical supply for your spa must include a 50 AMP switch or circuit breaker to open all non-grounded supply conductors to comply with section 422-20 of the National Electrical Code. The disconnect must be readily accessible to the spa occupants, but installed at least five feet from the spa.

A Ground-Fault Circuit Interrupter (GFCI) must be used to comply with section 680-42 of the National Electrical Code. A ground fault is a current leak from any one of the supply conductors to ground. A GFCI is designed to automatically shut off power to a piece of equipment when a fault current is detected.

Power hook-up to the spa must be 240 volt AWG-3 – 6 copper wire. Route the cable into the equipment for final hook-up to terminals inside the control panel.

# Wiring Schematic





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# SITE PREPARATION/GENERAL GUIDELINES

Portable spa installation is simple when properly planned. To that end it is important that you read the following information carefully and consult with your MasterSpas dealer.

- 1) Access - The actual dimensions of your new spa will determine the amount of space that is needed in moving the spa from curbside to its final installation area. Be sure to measure side yard dimensions, gates or doors and vertical obstructions such as roof overhangs and overhead cables. Any other space limiting obstacles such as trees or shrubs must be evaluated.

If the spa is being installed indoors, dimension limitations such as stairs, ceilings and walls must be taken into consideration. Please have your MasterSpas dealer or delivery service review site or installation plans prior to delivery.

- 2) Surface/Pad Requirements - When your new spa is filled with water and bathers, it may weigh as much as several tons. It is imperative that the base beneath the spa can support the actual weight. The spa must be on a uniformly firm and continuous surface. The recommended foundation is a concrete pad with a minimum thickness of four (4) inches with steel reinforcement bars crossed throughout the pad.

## IMPORTANT

When installing your spa indoors or on a wood deck or balcony, the same load requirements must be met. Total load may be as much as 75 pounds per square foot. Your MasterSpas dealer should be consulted or you should speak with a qualified contractor or your local building department. Be sure to locate your spa so that equipment remains above grade and is not subject to flooding.

The equipment side of the spa must be accessible in the event that future service is needed. Periodical maintenance checks require entry into the equipment bay. When possible, it is wise planning for the future to leave access to all sides of the spa in the event your spas plumbing requires maintenance. Your spa warranty does not cover the cost of providing access for service.

## GENERAL CONSIDERATIONS FOR OUTDOOR INSTALLATION

Again, proper planning will increase your total enjoyment factor with your new spa. Listed below are some additional items to consider when planning your installation.

- How spa will complement landscaping and vice versa
- View from inside spa and view of spa from inside of home
- Exposure to sunlight and shading from trees
- Privacy
- Getting to spa from house and return
- Proximity to dressing rooms and bathrooms
- Storage for spa chemicals
- Local building codes ( if applicable)
- Power cable (see electrical requirements)

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## GENERAL CONSIDERATIONS FOR INDOOR INSTALLATION

Installing your spa indoors creates an entirely different set of considerations. Here again, with proper planning, no matter what room your spa goes in, it will be your favorite room.

- Work with your MasterSpas dealer and contractor to insure all local building, electrical and plumbing codes are met
- Plan for a floor drain to drain off excess water or for draining and cleaning your spa
- A ventilation fan may be necessary due to high humidity created by your spa
- Finished material in your spa room should also be capable of withstanding increased humidity

## INITIAL START-UP PROCEDURE

Now that all electrical connections to your new Master Spa are complete, start-up procedures may begin. This is the fun part!

**CAUTION - DO NOT APPLY POWER TO OR OPERATE THE SPA WHEN THE SPA IS PARTIALLY FILLED OR THERE IS NO WATER IN THE SPA!**

- 1) Be sure that the circuit breaker in you breaker panel is off.
- 2) Be sure all jets in the spa are fully open by turning the jet face clockwise.
- 3) **LOCATE AND OPEN ALL VALVES.** *NOTE: There are two valves per pump.* Pump locations vary depending on model of spa.
- 4) Be sure drain fitting is fully closed.
- 5) Fill your new Master Spa with water. Fill to waterline, which is approximately three inches above bottom of filter/skimmer opening (*See "Filter Cartridge Diagram," Insert 4*).
- 6) Bleed air from system by briefly opening the external drain fitting then close. Turn breaker switches on. You may then press any of the spa function switches. After power has been applied for one minute your spa will automatically move into its pre-set filter cycle. (See operation section for further information.)

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# GLOSSARY OF SPA TERMINOLOGY

1. **NECK JETS**
2. **SHOULDER JETS**
3. **THERAPY JETS**
4. **MASTER BLASTER FOOT THERAPY JET**

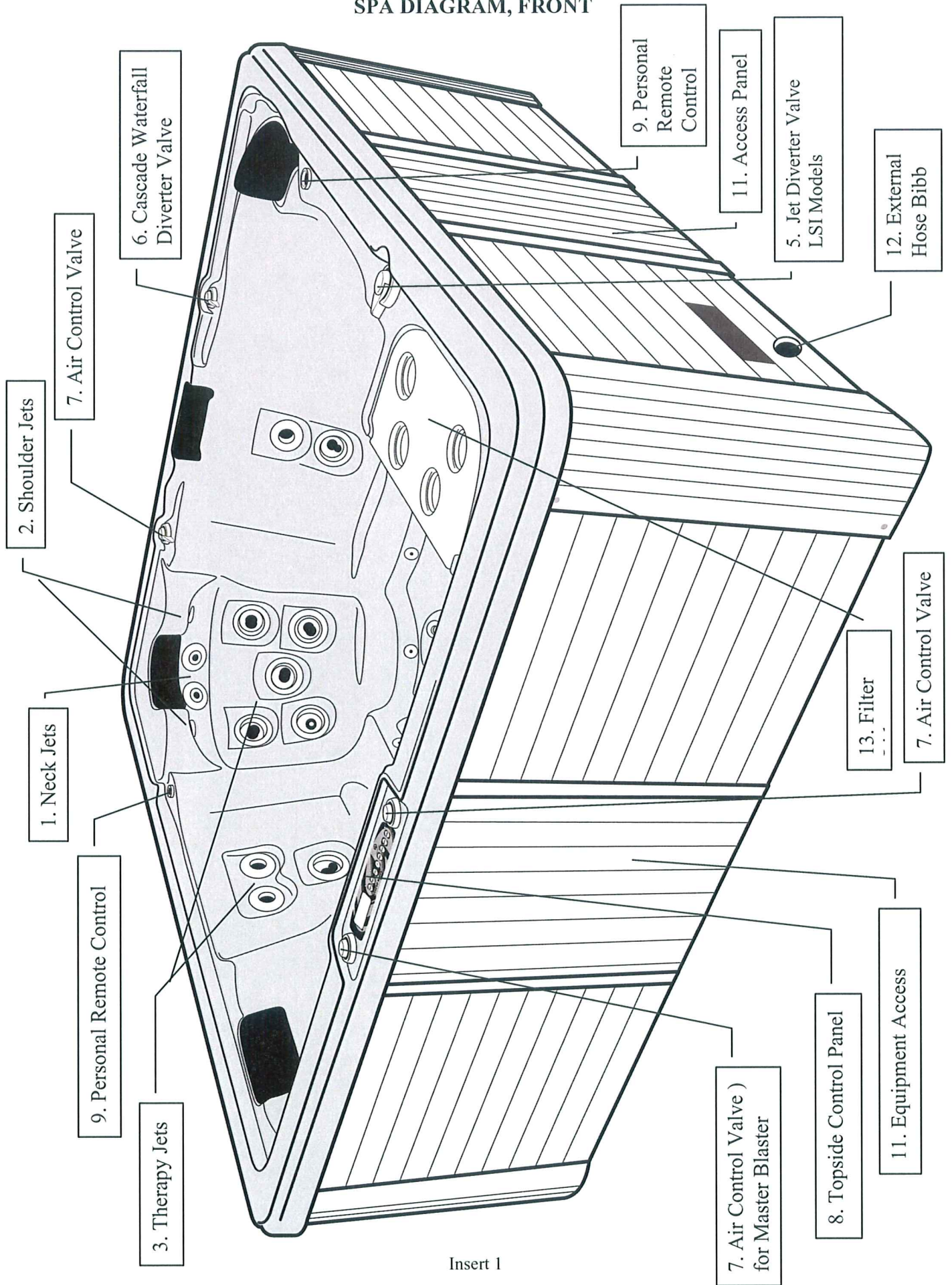
Your new Master Spa features a variety of jet styles. All jets, regardless of style return the water to the spa. Air is mixed with the water by using the air controls creating a gentle to most vigorous massage. Water flow is adjusted by simply turning the outer face of the jet. Your Master Spa will have a combination of pulsating, rotating, dual pulsating and directional adjustable jets. The LS and LSI Series' feature the Master Blaster Foot Therapy System, which produces over 220 gallons per minute of soothing jet action.

5. **JET DIVERTER VALVE** – Located on the topside of the spa, this valve physically diverts the flow of water from one jet zone of the spa to another jet zone (*LSI and LSX Models only*).
6. **CASCADE WATERFALL DIVERTER VALVE** – Located on the topside of the spa, this valve diverts water from the top jet in the cascade waterfall seat to provide soothing over the shoulder therapy. This feature is available in the LS Series only. A similar top mount valve operates the skimmer waterfall.
7. **AIR CONTROL VALVES** – These are located around the top of your spa. You may increase or decrease the velocity of your jets by opening or closing the air control valves. Typically, one dial controls the air to water ratio and mix to one group of jets. When not in use the air controls should be kept in the closed position, as air bubbles tend to cool the water.
8. **TOPSIDE CONTROL PANEL** – You may safely control all functions from inside or outside your spa using the Topside Control Panel. This Panel is used to control the water temperature, pumps, the spa light, automatic filtration cycles and other advanced functions. The digital display will give you a constant temperature readout and will notify you in case of certain malfunctions. Several user programmable functions are also available.
9. **PERSONAL REMOTE CONTROL** – The LS Series spas have additional remotes which allow the user to control the jet therapy while remaining in his/her seat. By pressing the control one time, you will activate low speed. Press the pad again for high speed and again to turn it off.
10. **EQUIPMENT ACCESS PANEL** – Located behind the door below the Topside Control Panel, this area houses the major components responsible for the spas operation. Those components include the pumps, heater, control panel box, Ozonator, and fiber optics (if applicable).
11. **ACCESS PANELS** – These are located on all four sides of the spa within the cabinetry. All of the panels are removable should service be required.
12. **EXTERNAL HOSE BIB** – This device simply pulls away from your spa cabinet and is connected to a dedicated drain line used for draining your spa. By attaching a garden hose and opening the drain-fitting valve, you are able to quickly drain your spa.
13. **FILTER LID** – Your filter lid will serve to prevent major objects from entering your filter area and possibly damaging your filter elements which are located under the filter lid. These filter elements are designed to remove small debris and oils from your spa water.
14. **WEIR GATE** – The weir gate is the horizontal door located in front of the filter that traps debris and contains it in the filter area.
15. **SPA LIGHT** – Your spa light is designed for safety and is located in the interior wall of your spa. The on/off switch is located on the topside of the control panel. Colored lenses may be installed over the clear lens and simply snap into place.

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16. **SERIAL NUMBER AND WARNING LABELS** – The serial number given to your spa will be located within the Filter bay and will be needed when communicating with your dealer or our service technicians. The serial number is also located on the U.L. plate attached to the outside of the Equipment Access Panel.
  17. **EQUIPMENT CONTROL SYSTEM** – This Control bay houses the wiring electrical components necessary to operate the control system.
  18. **SPA HEATER** – This element is a 5.5 kW-220v electric heater, thermostatically controlled and equipped with a high-limit temperature safety shut-off switch. The high-limit switch cannot be reset until the temperature within the heater assembly drops several degrees below the shut-off temperature of 110° F. Should the high-limit switch trip repeatedly, contact your dealer or qualified service representative to diagnose the problem.
  19. **SLICE VALVES** – These valves are used by service personnel to shut off water to the heater, main pump system and secondary pump system.  
\*NOTE – Slice valves must be completely open during normal operations.
  20. **MAIN PUMP** – This produces water flow through the main jets in the spa. The first pump may be operated on two speeds. Low speed will produce efficient water circulation during filtration and gentle jet action. High speed should be used for maximum jet action. The main pump is controlled by the “*Therapy I*” button on the Topside Control Panel or by using the Personal Remote Control next to the Aqua Pressure Seat (LS Series only).
  21. **SECONDARY PUMP** – This produces water flow through the other jet system in the spa (LS Series only). The second pump operates similar to the main pump and is controlled by the “*Therapy II*” button on the Topside Control Panel or by using the Personal Remote Control next to the reverse molded neck therapy seat (LS Series only). Aqua Pressure Seat (LS Series only).
  22. **CIRCULATION PUMP** – This produces water flow through the heater in the spa and provides the water flow necessary to actuate the ozone generator. This fractional HP pump runs silently for 24 hours of efficient filtration and heating.
  23. **PUMP UNION** – These are used by service personnel to easily service the pumps.
  24. **HEATER UNION** – These are used by service personnel to easily service the heater.
  25. **OZONATOR** – Your ozonator will operate in conjunction with your filtration system and circulation pump. It will deactivate when any other control function is manually activated and will reactivate after one hour of inactivity. This is a standard feature on all models.
  26. **SPA LIGHT** – Bulb replacement access may be found within the Equipment Control bay area. (See LIGHT BULB REPLACEMENT for additional information)

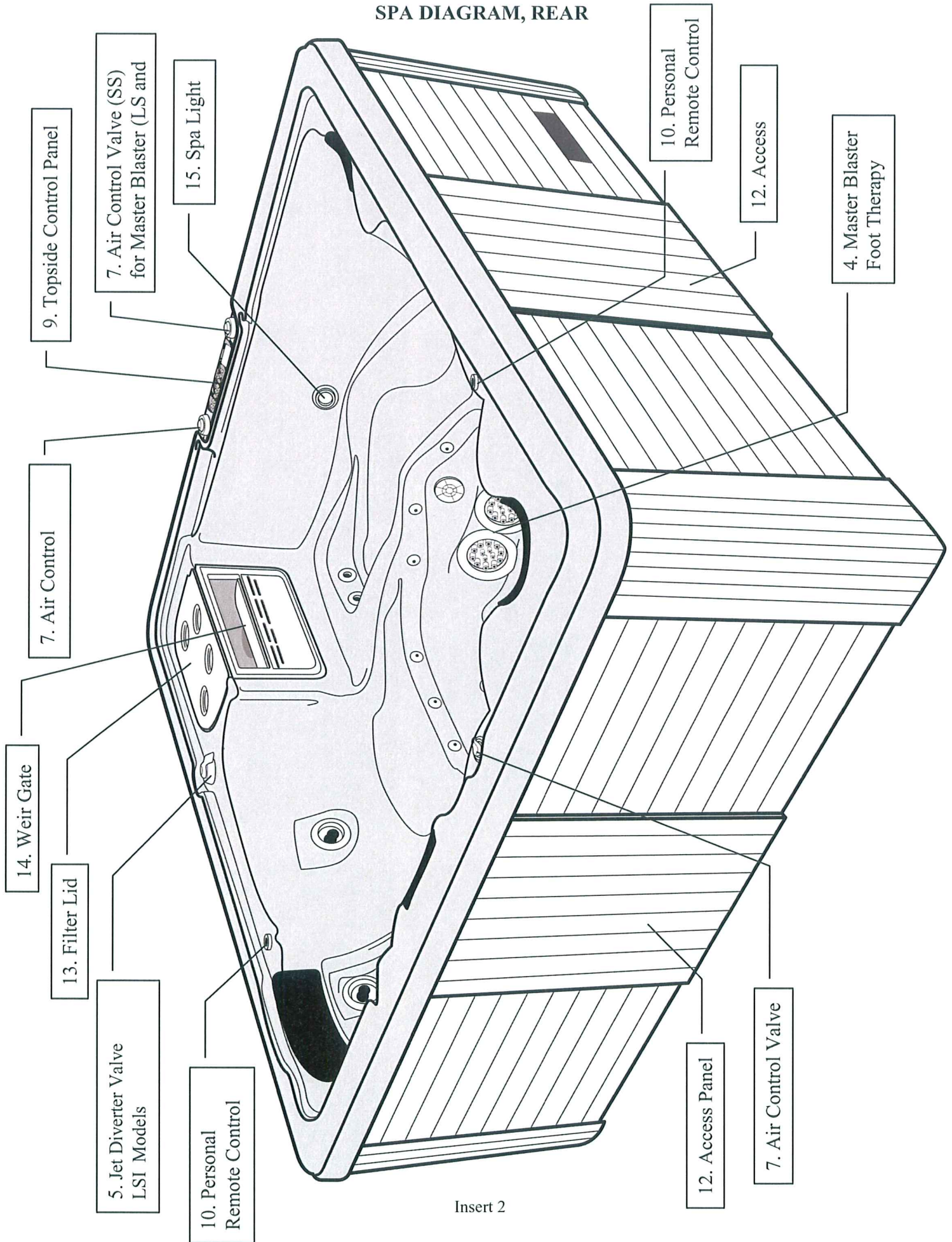
**THIRD PUMP (not shown in diagram)** - This produces water flow through the Master Blaster Jets located in the foot well of your spa. This pump functions on high speed only.

SPA DIAGRAM, FRONT

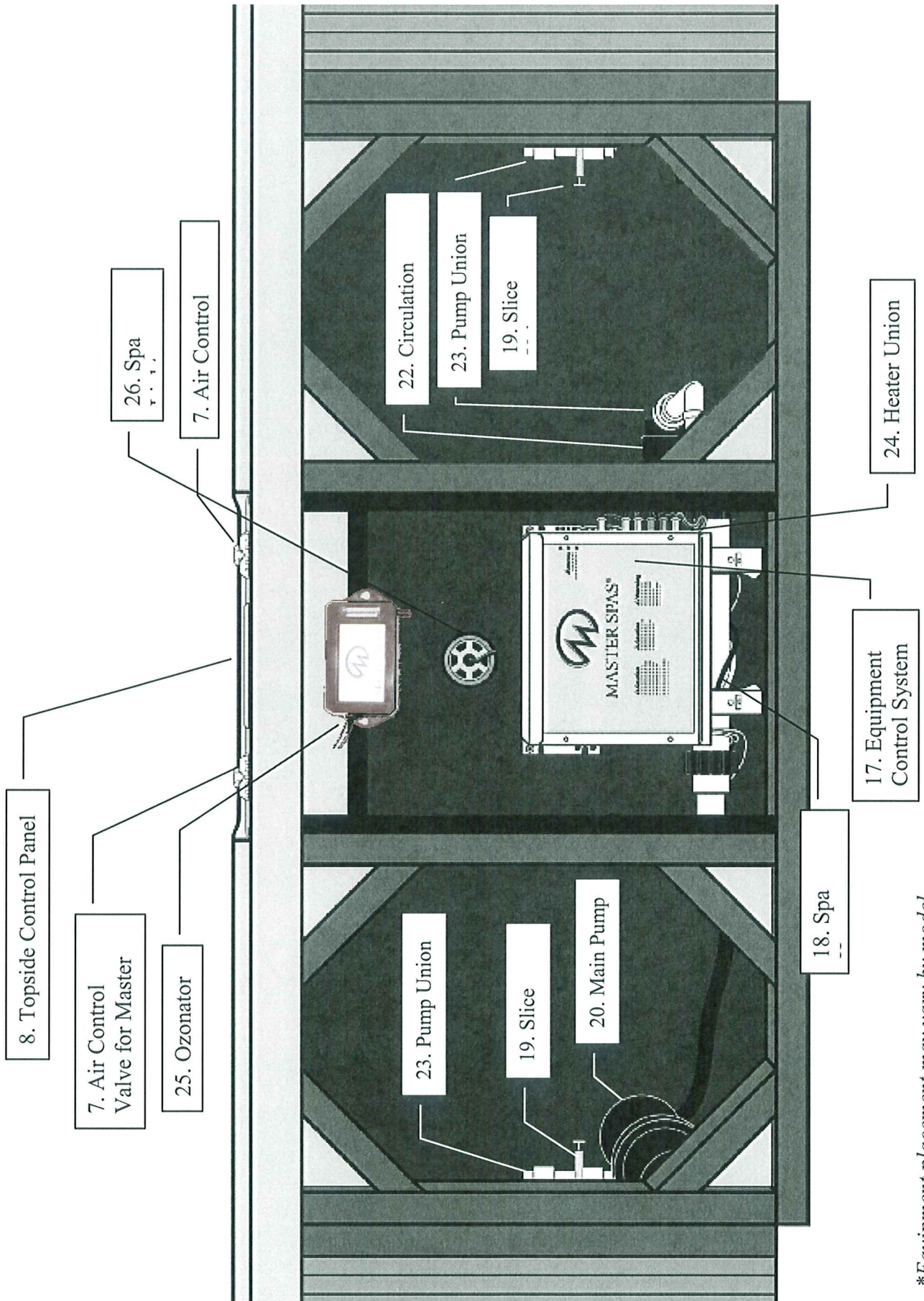


Insert 1

# SPA DIAGRAM, REAR

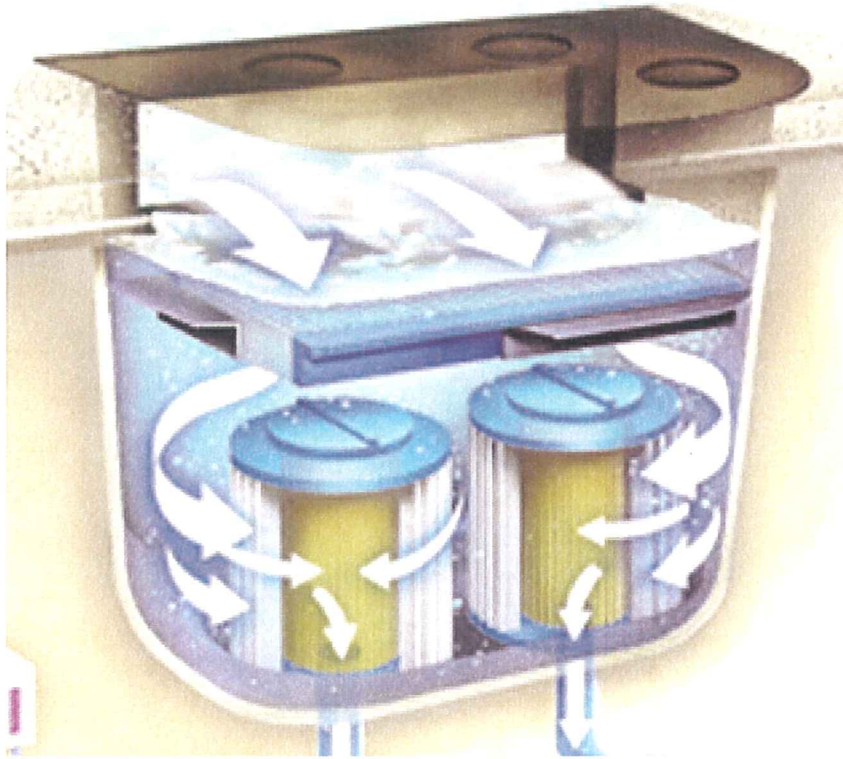


FRONT PANEL CUTAWAY



*\*Equipment placement may vary by model.*

## 4-STAGE ECO PUR™ FILTRATION SYSTEM



The filter elements are located under the filter lid. The first stage of filtration utilizes a horizontal filter element using a macro or coarse filter, similar to a natural gravel filter, to remove all large contaminants and debris that enter the filter area. With the use of set pins held in place, simply turn the pins a quarter turn in either direction and lift the element out for cleaning. The next stage use 2 micro or fine filter elements, similar to sand and silt filters, to scrub the water by removing the finer particles. To service and clean the micro filter elements, turn counter clockwise 6 –8 revolutions. To reinstall, turn clockwise 6-8 revolutions. For more instruction, see “To Clean Your Filter Elements, page 22.



# LEGEND SERIES CONTROL

## LS1050, LS850, LS800, LS750, LS700, LS650, LSX MODELS

Circ Operation 3-Pump Version

### Initial Start-up

When your spa is first actuated, it will go into Priming mode. Indicated by Pr on the display. The Priming mode will last for less than 5 minutes and then the heater will begin to heat the spa and maintain the water temperature in the Standard mode.



**Your system has a 24-hour circ pump. The circ pump runs continuously. The ozone generator runs during the first half of each hour, except when the ozone generator turns off for an hour due to a Therapy button being pressed.**

### Temp Set (80°F - 104°F / 26°C - 40°C)

The start-up temperature is set at 100°F/37.5°C. The last measured temperature is constantly displayed on the LCD.

**Note that the last measured spa temperature displayed is current only when the circ pump has been running for at least 2 minutes.**

Press the “Warm” or “Cool” button once to display the set temperature. Each time either button is pressed again, the set temperature will increase or decrease depending on which button is pressed. After three seconds, the LCD will automatically display the last measured spa temperature.

### Time

Press this button once to display the current time of day. When time hasn't been programmed, the TIME icon flashes. See page 16 for instructions on “Setting the Time.”

### Therapy 1

Press the “Therapy 1” button once to turn pump 1 on or off, and to shift between low and high speeds if it is a two-speed pump. If left running, the low speed turns off after 4 hours and the high speed turns off after 30 minutes.

### Therapy 2

Press the “Therapy 2” button once to turn pump 2 on or off, and to shift between low and high speeds if it is a two-speed pump. If left running, the pump will turn off after 30 minutes.

### Therapy 3

Press the “Therapy 3” button once to turn pump 3 on or off. If left running, the pump will turn off after 30 minutes.

### Invert

Press the “Invert” button to reverse the display if you are looking at it and it appears upside down.

### Light

Press the “Light” button to turn the spa on and off. If a fiber optic light is installed, press the “Light” button once to start the light and wheel, press it again to stop the wheel, and then again to turn the light off. The fiber icon stands still when the fiber optic light is on by itself, and rotates when the color wheel is also on. If either light is left on, it will automatically turn off after 4 hours.

### Fiber

## Program

This button is used to switch between standard, economy, and sleep modes. Press “Program” to select desired mode (LCD flashes until confirmed), then press “Cool” to confirm selection.

**Standard mode** is programmed to maintain the desired temperature. Note that the last measured spa temperature displayed is current only when the circ pump has been running for at least 2 minutes. The “STANDARD” icon will display until the mode is changed.

**Economy mode** heats the spa to set temperature only during filter cycles. The “ECONOMY” icon will display until mode is changed.

**Sleep mode** heats the spa to within 15°F of the set temperature only during filter cycles. The “SLEEP” icon will display until mode is changed.

## STANDBY MODE

Pressing “Warm” or “Cool” then “Therapy 1” will turn off all spa functions temporarily. This is helpful when changing a filter. Pressing any button resets the spa.

## PRESET FILTER CYCLES

There are two filter cycles per day. The start/end times of each cycle are programmable. To program start/end times, continue following prompts after setting time as instructed above, pressing “Program” to advance to the next setting (or to exit after the last setting). The default filter cycles are as follows:

The first filter cycle is automatically activated at 8:00 AM and lasts until 10:00 AM. The LCD above the “Time” button will light when filter 1 is running.

The second filter cycle is automatically activated at 8:00 PM and lasts until 10:00 PM. The LCD above the “Program” button will light when filter 2 is running.

\*30-minute timeouts may be changed to 45 minutes in some models/installations.

At the beginning of each filter cycle pump 1 runs at low speed for 2 hours while pumps 2 and 3 purge for 5 minutes. The only effect filter duration has is: 1) During the filter, the circ pump never turns off, and 2) In Economy and Sleep Modes, heating only occurs during the filter cycle.

## Freeze Protection

If the temperature sensors detect a drop to 44°F or lower within the heater, then all the pumps automatically activate to provide freeze protection. The equipment stays on until 4 minutes after the sensors detect that the spa temperature has

risen to 45°F or higher. In colder climates, an optional additional freeze sensor may be added to protect against freeze conditions that may not be sensed by the standard sensors. Aux freeze sensor protection acts similarly except with the temperature thresholds determined by the switch and without the 4-minute delay in turnoff. See your dealer for details.

## Locking the Panel

Press “Time” “Therapy 1” then “Warm” within 3 seconds. When locked, the LED indicator light above the “Warm” button will light. All buttons are frozen except the time button.

To unlock the panel, Press “Time” “Therapy 1” then “Cool.”

## Locking the Temperature

Press “Warm” or “Cool,” then “Time,” “Therapy 1” and “Warm” within 3 seconds to activate the lock. The LED indicator light above the “Cool” button will light when the temperature is locked.

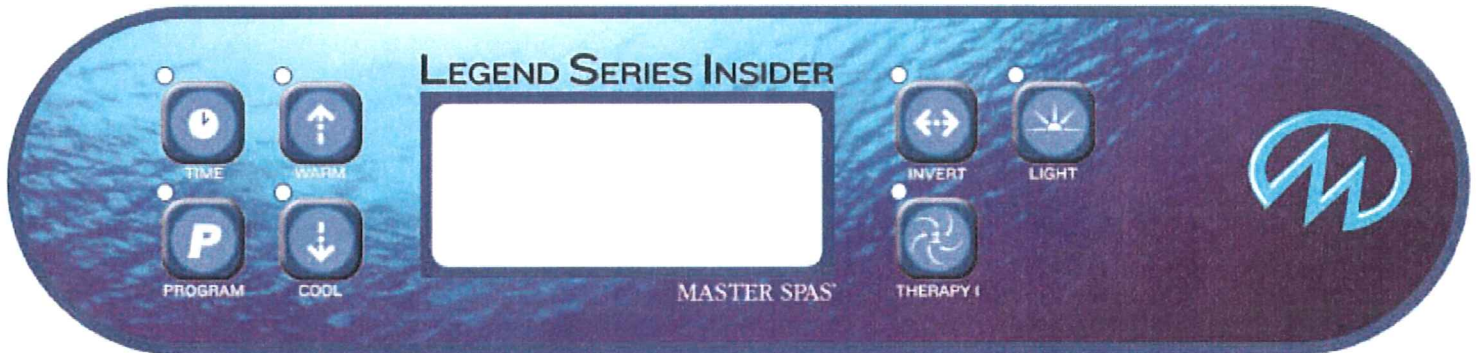
To unlock the panel, press “Warm” or “Cool,” then “Time,” “Therapy 1” and “Cool.”

# LEGEND SERIES INSIDER CONTROL LSI 557 AND LSI 650 MODELS

Circ Operation 1-Pump Version

## Initial Start-up

When your spa is first actuated, it will go into Priming mode. Indicated by Pr on the display. The Priming mode will last for less than 5 minutes and then the heater will begin to heat the spa and maintain the water temperature in the Standard mode.



**Your system has a 24-hour circ pump. The circ pump runs continuously. The ozone generator runs during the first half of each hour, except when the ozone generator turns off for an hour due to the Therapy button being pressed.**

### Temp Set (80°F - 104°F / 26°C - 40°C)

The start-up temperature is set at 100°F/37.5°C. The last measured temperature is constantly displayed on the LCD.

**Note that the last measured spa temperature displayed is current only when the circ pump has been running for at least 2 minutes.**

Press the “Warm” or “Cool” button once to display the set temperature. Each time either button is pressed again, the set temperature will increase or decrease depending on which button is pressed. After three seconds, the LCD will automatically display the last measured spa temperature.

### Time

Press this button once to display the current time of day. When time hasn't been programmed, the TIME icon flashes. See page 16 for instructions on “Setting the Time.”

### Therapy

Press the “Therapy” button once to turn the pump on or off, and to shift between low and high speeds if it is a two-speed pump. If left running, the low speed turns off after 4 hours and the high speed turns off after 30 minutes.

### Invert

Press the “Invert” button to reverse the display if you are looking at it and it appears upside down.

TV Lift Motor (Aux Button Only)

Press this button to start the TV Lift. It will stop moving automatically when it reaches maximum height, or you can press the button again to stop it earlier. Press this button again to move the lift in the opposite direction.

### Light

Press the “Light” button to turn the spa on and off. If a fiber optic light is installed, press the “Light” button once to start the light and wheel, press it again to stop the wheel, and then again to turn the light off. The fiber icon stands still when the fiber optic light is on by itself, and rotates when the color wheel is also on. If either light is left on, it will automatically turn off after 4 hours.

### Fiber

### Program

This button is used to switch between standard, economy, and sleep modes. Press “Program” to select desired mode (LCD flashes until confirmed), then press “Cool” to confirm selection.

**Standard mode** is programmed to maintain the desired temperature. Note that the last measured spa temperature displayed is current only when the circ pump has been running for at least 2 minutes. The “STANDARD” icon will display until the mode is changed.

**Economy mode** heats the spa to set temperature only during filter cycles. The “ECONOMY” icon will display until mode is changed.

**Sleep mode** heats the spa to within 15°F of the set temperature only during filter cycles. The “SLEEP” icon will display until mode is changed.

## **STANDBY MODE**

Pressing “Warm” or “Cool” then “Therapy” will turn off all spa functions temporarily. This is helpful when changing a filter. Pressing any button resets the spa.

## **Preset Filter Cycles**

There are two filter cycles per day. The start/end times of each cycle are programmable. To program start/end times, continue following prompts after setting time as instructed above, pressing “Program” to advance to the next setting (or to exit after the last setting). The default filter cycles are as follows:

The first filter cycle is automatically activated at 8:00 AM and lasts until 10:00 AM. The LCD above the “Time” button will light when filter 1 is running.

The second filter cycle is automatically activated at 8:00 PM and lasts until 10:00 PM. The LCD above the “Program” button will light when filter 2 is running.

At the beginning of each filter cycle the pump runs at low speed for 2 hours. The only effect filter duration has is: 1) During the filter cycle, the circ pump never turns off, and 2) In Economy and Sleep Modes, heating only occurs during the filter cycle.

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## SETTING THE TIME

Once the spa has been properly connected the first time, notice the word "TIME" flashing on the screen.

Press



*TIME*

Then



*PROGRAM*

Then



*WARM*

Or



*COOL*

After either pad is pressed once, hours will increase or decrease automatically in one-minute increments. Press either pad again to stop the display's time-setting cycle.

Press



*PROGRAM*

to exit the time setting procedure and enter the optional filter cycle programming.

Or



*TIME*

to exit programming.

# OPTIONAL FILTER CYCLE PROGRAMMING

While you are not required to set filter cycles, if you want

to change them, press



*TIME*



*PROGRAM*



within 3 seconds. "SET FILTER 1" (AM cycle) along with flashing "START TIME" icon will appear on the display.



*PROGRAM*

Press



or



to reset the filter start time.

*WARM*

*COOL*

Press



to see "SET FILTER 1" along with flashing

*PROGRAM*

"END TIME" icon and adjust the time with the



or



as done above.

*WARM*

*COOL*

Press




to see "SET FILTER 2" (PM cycle) along

*PROGRAM*

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with flashing “START TIME” icon and proceed as above.

Press  to see “SET FILTER 2” along with flashing  
*PROGRAM*

“END TIME” icon and adjust the time with the



or  as done above.  
*COOL*

Pressing  will enter the new filter cycle times into  
*PROGRAM*

the system and display the current water temperature.

Press to exit programming.

## PERIODIC REMINDER MESSAGES

Message	Frequency	Action Required
<i>CHECK PH</i>	Every 7 days	Test and adjust chemical levels per manufacturer's instructions.
<i>CLEAN FILTER</i>	Every 30 days	Remove, clean, and reinstall filter per manufacturer's Instructions.
<i>TEST GFCI</i>	Every 30 days	Test & reset GFCI per manufacturer's instructions.
<i>DRAIN WATER</i>	Every 90 days	Drain and refill spa per manufacturer's instructions.
<i>CHANGE MINERAL CARTRIDGE</i>	Every 180 days	If applicable, change mineral cartridge. (fourth line blank before message repeats)
<i>CLEAN COVER</i>	Every 180 days	Clean and condition cover per manufacturer's instructions.
<i>NEW FILTER</i>	Every 364 days	Install new filter.

## DIAGNOSTIC MESSAGES

Message	Frequency	Action Required
	No message on display. Power has been cut off to the spa.	The control panel will be disabled until power returns. Spa settings will be preserved for 30 days with a battery back-up.
<i>HTR TEMP LMT</i>	"Overheat" - The spa has shut down. One of the Sensors has detected 118°F at the heater.	DO NOT ENTER THE WATER. Remove the spa cover and allow water to cool. Once the heater has cooled, reset by pushing any button. If spa does not reset, shut off the power to the spa and call your dealer or service organization.
<i>SPA TEMP LMT</i>	"Overheat" - The spa has shut down. the sensors has detected that the spa water is 110°F.	DO NOT ENTER THE WATER. Remove One of the spa cover and allow water to cool. At 107°F the spa should automatically reset. If spa does not reset, shut off the power to the spa and call your dealer or service organization.
<i>FREEZE COND</i>	"Ice" - Potential freeze condition detected	No action required. Freeze protection (see above) has initiated. The pumps will automatically activate regardless of spa status.
<i>SENSOR A SERVICE RQD</i>	Spa is shut down. The sensor that is plugged into the Sensor "A" jack is not working.	If the problem persists, contact your dealer or service organization. (May appear temporarily in an overheat situation and disappear when the heater cools.)



<i>SENSOR B SERVICE RQD</i>	Spa is shut down. The sensor that is plugged into the Sensor "B" jack is not working.	If the problem persists, contact your dealer or service organization. (May appear temporarily in an overheat situation and disappear when the heater cools.)
<i>SENSOR SYNC</i>	Sensors are out of balance. If by itself, it may just be a temporary condition. If it also says "SERVICE REQ'D," spa is shut down.	If the problem persists, contact your dealer or service organization.
<i>HTR FLOW LOW</i>	A substantial difference between the temperature sensors was detected. This could indicate a flow problem.	Check water level in spa. Refill if necessary. If the water level is okay, make sure the pumps have been primed. If problem persists, contact your dealer or service organization.
<i>LOW FLOW</i>	Persistent low flow problems. (Occurs on the third occurrence of the "HTR FLOW LOW" message.) Heater is shut down, but other spa functions continue to run normally.	Follow action required for "HTR FLOW LOW" message. Turn spa off then back on again to restore heating capability.
<i>HEATER MAY BE DRY -- WILL RETEST SHORTLY</i>	Inadequate water detected in heater.	Check water level in spa. Refill if necessary. If the water level is okay, make sure the pumps have been primed. Press any button to reset.
<i>HEATER DRY SERVICE RQD</i>	Inadequate water detected in heater. (Displays on third occurrence of "HEATER MAY BE DRY - WILL RETEST SHORTLY" message.) Spa is shut down.	Follow action required for "HEATER MAY BE DRY - WILL RETEST SHORTLY" message. Spa not automatically reset; you may press any button to reset.
<i>PRIMING MODE TAKES 4 MIN</i>	When your spa is first actuated, it will go into Priming mode.	The Priming mode will last for less than 5 minutes and then the spa will begin to heat and maintain the water temperature in the Standard mode.
<i>BACKUP FAIL</i>	Internal problem detected.	Repair required. Contact your dealer or service organization.
<i>STANDBY MODE</i>	Standby Mode has been activated by pressing a button combination on user panel.	Press any button to leave Standby Mode and return operation.

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**Warning! Shock Hazard! No User Serviceable Parts.**

Do not attempt service of this control system. Contact your dealer or service organization for assistance. Follow all owner's manual power connection instructions. Installation must be performed by a licensed electrician and all grounding connections must be properly installed.

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# MAINTENANCE RECOMMENDATIONS

Your spa requires periodic draining and cleaning to ensure a safe, healthy environment. It is recommended that you clean your spa every 60-90 days. Heavy bather load will require cleaning a more often.

## TO DRAIN YOUR SPA

- Turn off power at breaker box.
- Pull out the drain valve located on the exterior wall of the cabinet.
- Turn the black knob counter-clockwise.
- Attach a garden hose and turn the valve counter-clockwise to open and drain.

## TO CLEAN YOUR SPA SURFACE

- With a soft cloth, wipe down the spa surface with a non-abrasive cleaner such as “Windex” or glass cleaner, or equivalent. Do not use paper towels.
- If your spa has developed an oily or chalky residue at the waterline it may require special treatment. Consult your dealer.

## TO REFILL YOUR SPA

- Fill spa using ECO PUR™ Charcoal Pre-Filter.
- Be sure to close the drain valve located on the exterior cabinet wall.
- Be sure all valves are fully opened located next to the pump(s).
- Fill the spa with water. Be sure water level is above skimmer opening.
- Refer to “*Initial Start-Up Procedure*” section with any questions.

## TO CLEAN YOUR FILTER ELEMENTS

The filter in your spa is one of the most important components of your spa. It not only is essential for clean water, but also for extending the life of the spa equipment. Your filter elements must be cleaned regularly (once a month on average) with normal spa use. With heavy use, they will need to be cleaned more often.

- Turn spa off.
- Remove filter element(s) by turning counter-clockwise 6-8 revolutions.
- With a garden hose, spray each element under pressure. Periodically, the elements need to be soaked in a filter cleaner compound. Check with your MasterSpas dealer for details on cleaning and/or filter replacement recommendations.
- Be sure to remove any debris from between filter pleats.
- Replace filter elements.
- Be sure water level is adequate.
- Turn spa on and refer to “*Initial Start-Up Procedure*” with any questions.
- Do not clean mineral elements in filter clean. Use only Water.
- Only clean ECO PUR™ element with water. For directions, see page 30.

## CARE OF YOUR SPA PILLOWS

- Your spa pillows need to be rinsed periodically to remove any chemical residue. This should help to eliminate pillows becoming stiff and discolored.
- If spa is not to be used for a period of time pillows should be removed. Pillow life will be extended.

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## CARE OF YOUR SPA COVER

Always cover your spa when not in use. This will greatly reduce energy consumption and will cause spa water to heat more rapidly. Water loss and chemical usage will also be reduced.

- Do not allow spa to sit uncovered in direct sunlight. This may cause damage to exposed surfaces of spa.
- Periodically hose off both sides of spa cover for maximum life of cover.

**NOTE: IF YOUR SPA IS GOING TO BE LEFT EMPTY FOR PROLONGED PERIODS, DO NOT REPLACE COVER DIRECTLY ON SURFACE OF SPA. PLACE 2"-3" BLOCKS BETWEEN COVER AND SPA. THIS ALLOWS FOR ADEQUATE VENTILATION OF COVER AND SPA.**

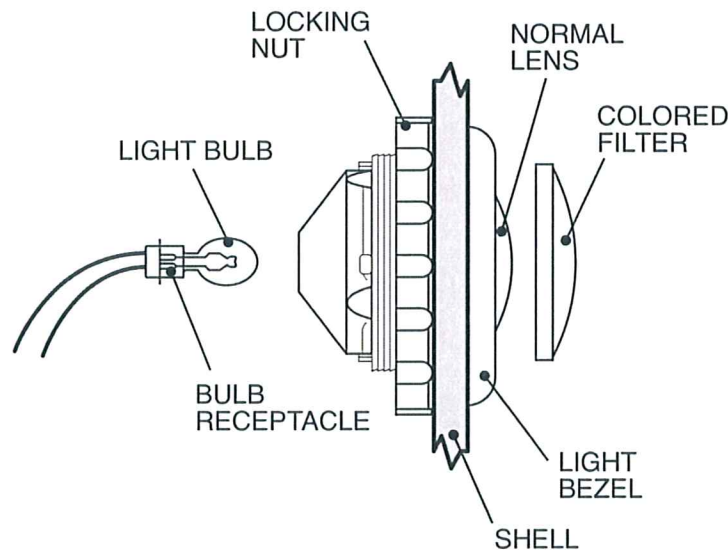
## CARE OF YOUR SPA CABINET

Your quality spa cabinet is produced from hand-crafted cedar. It has been factory treated with a stain/sealer to maintain its appearance and to preserve its life. Several times a year (especially if located outdoors) it is recommended that your cabinet be re-treated. Your local dealer or service center can recommend the appropriate product based on your cabinet finish. Periodically, remove dust, dirt and grime with clean water.

If your spa has the DuraMaster Polymer Skirt option it just needs to be hosed off periodically. No other maintenance is required.

## LIGHT BULB REPLACEMENT

Replacing a light bulb in your spa is not difficult. Access to the light fixture is through your equipment door and behind the electrical panel box. Simply twist (turn counter clockwise) the holding fixture and remove. The bulb will then pull loose. Replace with new 12 volt bulb (available through your dealer). Reverse process for fixture replacement.



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# WINTERIZING YOUR SPA

Many people find they enjoy using their spa more in the winter than any other time. Your spa is designed to be used year round in any type of climate.

However, if you decide you don't want to use your spa in the winter, you must drain it and follow the winterizing steps listed below:

**NOTE: FAILURE TO WINTERIZE YOUR SPA COULD CAUSE FREEZE DAMAGE TO YOUR PLUMBING WHICH WILL VOID YOUR WARRANTY. FOLLOW THESE STEPS CAREFULLY.**

- 1) Drain your spa completely using the drain valve (see "*To Drain Your Spa*") or use an inexpensive submersible pump that you can buy from your dealer or your local hardware store.
- 2) Use a shop vac to get all standing water out of your unit.
- 3) Remove access panels from equipment area.
- 4) Loosen all pump unions
- 5) Remove square winterizing plug from the face of the pump.
- 6) Using your shop vac in a blowing mode, insert the hose into the nozzle of each jet and blow the trapped water from the lines into the interior of the spa.
- 7) After this is completed, use the shop vac to remove any standing water in the spa and in the equipment area.
- 8) Clean the spa with a soft cloth and a non-abrasive cleaner (409, Fantastik, Glass Plus, etc.).
- 9) Replace access panels.
- 10) Cover spa to prevent water from entering the spa.

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# CHEMICAL MAINTENANCE

## GUIDELINES

There are certain variables to proper chemical application in spas. This information, as it states, is to be used as a general guideline. Your spa dealer or service center will assist you with properly detailed recommendations and instructions.

**NOTE: IT IS IMPERATIVE THAT pH, TOTAL ALKALINITY AND CALCIUM HARDNESS LEVELS BE PROPERLY MAINTAINED. FAILURE TO MAINTAIN PROPER LEVELS WILL DAMAGE YOUR SPAS EQUIPMENT AND MAY VOID YOUR WARRANTY.**

## SAFETY CONSIDERATIONS

- ⇒ Always follow the manufacturer's instructions with any chemical application.
- ⇒ If you are to dilute a chemical, always add the chemical to the water, never the water to the chemical.
- ⇒ **DO NOT EVER MIX TWO CHEMICALS TOGETHER.**
- ⇒ Avoid contact with skin.
- ⇒ Always add chemicals with pump in operation. Leave pump running for 30 minutes.

**NOTE: USING A GOOD CHEMICAL TEST KIT RECOMMENDED BY YOUR DEALER IS ESSENTIAL FOR PROPER WATER CARE. ALSO, CHANGING YOUR WATER ON A REGULAR BASIS IS A VERY INEXPENSIVE CHEMICAL TREATMENT.**

## ADDITIONAL INFORMATION / RECOMMENDATIONS

### CHEMICAL ADDITIVE BENCHMARKS

♦ Sanitizer	2.0 - 3.0 PPM free available Chlorine or 4.0 - 6.0 PPM Bromine
♦ pH	7.4 - 7.6
♦ Shock Treatment	Weekly/consult your dealer
♦ Total Alkalinity	120 - 150 PPM
♦ Calcium Hardness	180 - 250 PPM

## SANITATION

Sanitation is the process of killing bacteria, algae and other organisms that will multiply in water. Several methods of sanitation are available - Organic Bromine or Chlorine. Consult your dealer. Always be sure to read and understand chemical instructions.

## pH CONTROL

- ▶ pH is the measure of the relative acid/base content of the water.
- ▶ If the pH indicator is below 7.4, your water is too acidic and may corrode your spa equipment and/or cause irritation to bathers.
- ▶ If the pH indicator is above 7.6, the water is too basic and may result in cloudiness and a scale formation in the spa. High pH also reduces the effectiveness of chlorine as a sanitizer.
- ▶ Proper pH control is essential.

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## TOTAL ALKALINITY

“TA” is the amount of carbonate, bicarbonate and hydroxyl ions in the water. Increasing TA increases water pH and acts as a buffer against pH changes. High TA promotes high pH and makes the water resistant to adjustment. Low TA makes the pH unstable and difficult to keep in ideal range.

Consult your dealer for methods to measure and control TA.

## CALCIUM HARDNESS, STAIN AND SCALE

Calcium hardness can be very important. Water that is too hard (dissolved calcium over 250 PPM) can promote scale formation, making deposits in the spa and reducing your heaters efficiency. Water that is too low in calcium hardness may also be harmful. Soft water (under 180 PPM) will more rapidly dissolve metals, shortening the life of your spas heater or other metal components.

Staining and scaling are common problems. Hot water causes calcium to deposit more rapidly. Some local water conditions may require the use of a stain and scale remover. Please consult your dealer.

**NOTE: IF YOU HAVE READ THROUGH YOUR SPA CARE MAINTENANCE SECTION TO THIS POINT, “GO TO THE HEAD OF THE CLASS!” YOU ARE GOING TO ENJOY MANY HAPPY, PROBLEM-FREE YEARS OF ENJOYMENT IN YOUR MASTER SPA.**

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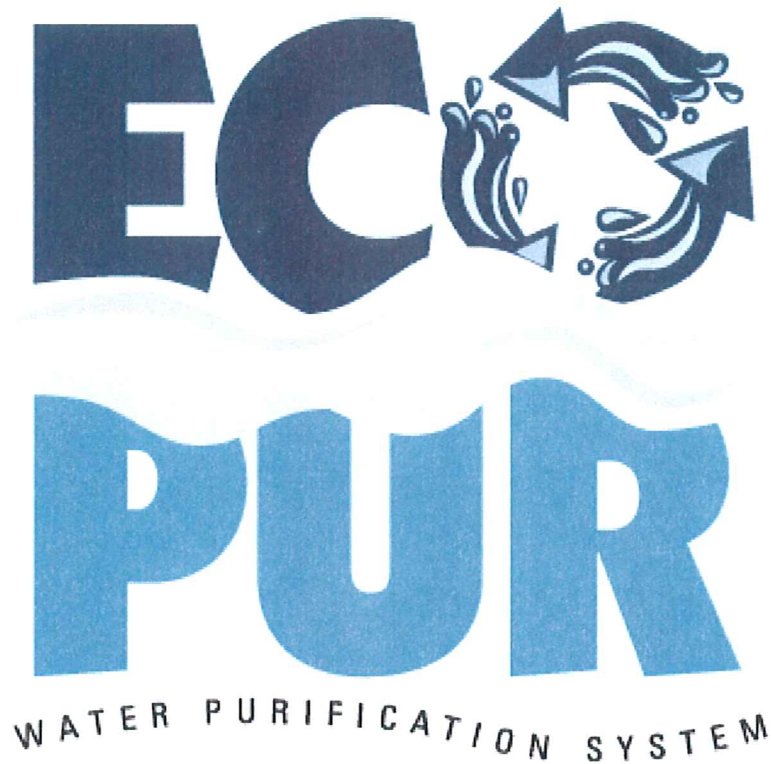
# TROUBLE SHOOTING / PROBLEM SOLVING

<u>SYMPTOM</u>	<u>SOLUTION</u>
SYSTEM NOT OPERATING-	<ul style="list-style-type: none"><li>a) Check circuit breaker in panel box.</li><li>b) Check GFCI. If GFCI has been tripped, reset. If it trips repeatedly, locate cause of problem or consult your dealer.</li><li>c) Check for correct wiring.</li></ul>
HEATER NOT WORKING-	<ul style="list-style-type: none"><li>a) Be sure temperature is set to the desired temperature.</li><li>b) Be sure adequate time has been allowed for heating.</li><li>c) Refer to heater control instructions.</li></ul>
“OH” IS DISPLAYED ON READOUT SUBSEQUENTLY TRIPPING HIGH LIMIT-	<ul style="list-style-type: none"><li>a) Be sure filter is clean.</li><li>b) Be sure water level is adequate.</li><li>c) Be sure shut off valves are fully open.</li><li>d) Contact dealer or service center.</li></ul>
LOW FLOW RATE FROM JETS OR “FLOW SENSOR”-	<ul style="list-style-type: none"><li>a) Be sure pump(s) are on high speed.</li><li>b) Be sure valves in equipment compartment are fully open.</li><li>c) Remove filter cartridge. If flow then improves, clean or replace cartridge(s).</li><li>d) Be sure jets are open.</li><li>e) Check suction for any blockage.</li></ul>



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## SPECIAL NOTE

ECO PUR™ water purification system is designed to reduce the use of conventional sanitizers. You may still be required, periodically, based on usage to add a small amount of chlorine to oxidize organic compounds. ECO PUR™ will not eliminate the need to maintain proper water chemistry but can make the maintenance a more natural experience.

Master Spa Products are not designed to be used with Biquanides. These chemicals are found in SoftSwim® and Baqua Spa. Due to adverse effects from these types of products, the warranty of the spa may be void.

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## WATER QUALITY MAINTENANCE START-UP FOR ECO PUR™ WATER PURIFICATION SYSTEM

- Step 1: Fill spa using ECO PUR™ Charcoal Pre-filter.
- Step 2: During initial filling of the spa with fresh water, add a sequestering agent such as Mineral Clear or Stain and Scale, etc. depending on the brand name. Allow to circulate and filter for 24 hours , if practical.
- Step 3: Test water for pH, total Alkalinity, and Calcium hardness. The pH should be 7.2 – 7.8 and the total Alkalinity 80-150 PPM. Calcium hardness levels should be maintained between 150 and 250 PPM (part per million).
- Step 4: Adjust pH, total Alkalinity and Calcium hardness utilizing the directions on the chemical bottles provided by your dealers start up kit.
- Step 5: It may be necessary to retest and add additional chemicals to get to the proper levels in Step 3.
- Step 6: Add 2 oz. of concentrated chlorinating granules (sodium Dichlor-s-triazinetreone) per 500 gallons on initial start up to begin sanitizing the spa water.

**SPECIAL NOTE: If you choose to maintain a chlorine residual, we recommend a level of 0.5 ppm being maintained.**

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## THE ADVANTAGES OF ECO PUR™ MINERAL PURIFICATION

- Completely destroys most bacteria, pathogens, algae, and fungi, protecting you from disease.
- Removes heavy metals like lead and mercury from water to reduce the risk of skin absorption.
- Removes calcium carbonate and hydrogen sulphide from spa water to protect heaters and equipment from precipitation.
- Leaves residual mineral sanitation in the spa to protect pipe systems and equipment from bacterial growth.
- Helps stabilize the pH and alkalinity of the spa water.
- Reduces 95% of chemical usage and still provides safe odor-free water.
- Depletes excess chlorine after chemical shock to prevent damage to skin, hair, and swimwear.
- All-natural, environmentally safe sanitizing system that does not require chemical registration with the EPA.
- Produces ultra-pure water.
- Requires maintenance only after usage.

### SPECIAL NOTES

The ECO PUR™ water purification system contains specific minerals found in nature that when combined create an effective bactericide and algicide that will protect your spa water. Mineral purification will not oxidize organic compounds and will require periodic doses of chlorine to assist in sanitization and oxidation processes required to maintain clear spa water:

- ECO PUR™ water purification will not alter the pH of spa water. The mineral combination will actually aid in stabilizing the pH. ECO PUR™ does not alter the (TDS) total dissolved solids as it performs sanitization in the filter and does not add anything to the water. The use of sequestrants and stain and scale inhibitors is not required for regular maintenance and should only be used in the start up procedures.
- The main function of the ECO PUR™ water purification system is to provide clean and clear spa water. The ECO PUR™ system is effective at destroying almost all bacteria and algae that will be found in the spa water, but proper chemical balance and filtration are also key components in maintaining healthy spa water. Always ensure that the pH and TA of the spa water is checked and balanced at all time. To ensure proper filtration, clean the outer filter cartridge with a “filter cleaner” every 30 days and rinse the ECO PUR™ cartridge with a hose to remove buildup of contaminants. (Do not soak ECO PUR™ mineral cartridge in filter cleaner.) If water appears to be visually cloudy or dull or has an odor, shock water with 2 oz of chlorine to remove excessive contaminants and allow the ECO PUR™ to concentrate on removing bacteria.

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# WATER QUALITY MAINTENANCE SCHEDULE

- ◆ EVERY DAY – Your spa is equipped with a 24 hour cir pump so you don't need to worry about filter time.
- ◆ BEFORE EACH USE – Add 1 tablespoon of non-chlorine shock to spa per 500 gallons.
- ◆ ONCE A WEEK – Add 3 Tablespoons of a non-chlorine shock or 1 teaspoon of Dichlor to spa per 500 gallons.
- ◆ 3 TIMES A WEEK – Test water using chemical test strips. Adjust sanitizer, pH and Alkalinity accordingly.
- ◆ ONCE A MONTH – Soak your filter elements overnight in a bucket with spa Filter Cleaner and then rinse with clean water before re-inserting. (The ECO PUR™ mineral element should never be cleaned in a filter cleaner. Just rinse with water.)
- ◆ EVERY 180 DAYS – Drain and refill your spa, replace the ECO PUR™ element, repeat start up procedure.
- ◆ AS NEEDED – If water looks hazy, shock treat with 1 teaspoon of Dichlor per 500 gallons.
- ◆ Depending on bather load and frequency of use, drain and refill may vary.

*Note:* As an alternative to non chlorine shock, Dichlor may be substituted.  
1 tsp. Dichlor = 3 tablespoons of non chlorine shock

**USE ONLY SPA CHEMICALS (some pool chemicals are not suitable for spa use).**



MASTER SPAS, INC.  
6927 Lincoln Parkway  
Fort Wayne, IN 46804

(260) 436-9100

[www.masterspas.com](http://www.masterspas.com)