



*Relax. Revive. Restore.*

2008 MASTER SPAS® OWNER'S MANUAL



MASTER SPAS®

6927 Lincoln Parkway • Fort Wayne IN 46804

800.860.7727

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

pop08ownman  
Rev. 06/08



MASTER SPAS®





	DATE							
Drain & Clean Spa								
Clean Filter Cartridges								
Change ECO PUR™ Element Every 180 Days								
Soak Filter Cartridges in Solution								
Test GFCI								
Clean and Condition Spa Cover								
Miscellaneous Service								

## 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.

## 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, ensure that children cannot use this spa unless they are supervised at all times.
- \*NOTE:** A wire connector is provided on this unit to connect of a minimum No. 6 AWG solid copper conductor between this unit and any metal equipment, metal enclosures of electrical equipment, metal water pipe, or conduit within 5 feet (1.5m) of the unit.
3. **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 minimum No. 6 AWG (8.4mm) solid copper conductor attached to the wire connector on the terminal box. A grounding lug is provided for this purpose.
  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 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.
5. **DANGER** - To reduce the risk of injury to persons, do not remove the 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.

### 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.

- Be sure to lock down all straps on cover after each use to prevent wind damage.
- Do not allow spa to sit uncovered in direct sunlight. This may cause damage to exposed surfaces of spa and possible discoloration of spa fittings.
- Periodically hose off both sides of spa cover for maximum life of cover. Once a month use a vinyl cleaner and conditioner on the vinyl portion of your cover. Rinse residue off.
- Keep cover open for 15 minutes after adding chemicals to prevent off gas damage.

**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.**

**NOTE: The cover warranty is provided through the cover manufacturer and not through Master Spas. You will need to mail the cover warranty back to the cover manufacturer.**

### CARE OF YOUR SPA CABINET

Your DuraMaster™ Polymer Skirt, Master Select Skirt or Dreamstone Skirt is a maintenance free skirt. No conditioning is necessary. Simply hose off the waterproof / U.V. resistant material periodically.

### FILTER CLEANING

**NOTE: Never operate the spa without filters in place. If done, damage will result to pumps and other components. We recommend having an extra set of filters to install when cleaning the filters.**

1. Turn power off to the spa.
2. Remove any large or floating debris from the filter area.
3. Remove the filter(s). Remember, ECO PUR™ mineral filters and middle depth loading filter should only be rinsed down and never soaked in a cartridge cleaner. Outer filter(s) should be periodically rinsed and soaked in a cartridge cleaner. Follow cartridge cleaner instructions. Depth loading filters should be replaced every 6 months or as necessary depending on bather load.



*Legend Series Spas/Down East Spas Procedure*

5. Rinse filters and reinstall.

**DRAINING YOUR SPA**

The drain is located behind the front panel on the far right side. You can access the drain by unscrewing the black thumb screws and removing the corner panel. Grasp the drain cap, and pull the assembly out all the way. Unscrew the cap, then push the assembly back in half way to start the flow of water. Attach a garden hose, if desired. Draining times may vary by model using the external hose bib. A sump pump may also be used to drain the spa quickly.

**NOTE:** When pushing or pulling the assembly in or out, water will drip from the drain during the transition. This is normal.



*Spa Drain*

**REPLACING YOUR LIGHT BULB (NON L.E.D.)**

If your light bulb goes out, it is very easy to replace.

Use a 12 volt, 6 watt bulb that should be available through your dealer.

First, make sure the power to the spa is off. You can access the spa light fitting by removing the spa panel.

Once the panel is removed, unfasten the black fitting inside the white light assembly, by turning it counter clockwise.

Attached to the black fitting is the light bulb. Replace the bulb and reinsert the fitting, by turning it clockwise.

If the white lens cap needs to be removed, insert a flat head screw driver as shown in the picture below.



*This may also be necessary when installing an LED light.*

**NOTE:** To prevent premature failure of your spa cover, always turn Laminar Flow Jets down so that they do not hit the cover when the cover is closed. You do not want to completely turn jets off. Doing so may cause a build up of stagnant water in the water line if not used often.

**IMPORTANT SAFETY INSTRUCTIONS (CONT.)**

6. **WARNING.** Install the spa so that water can be easily drained out of the compartment containing electrical components so as not to damage equipment. Also, when installing spa, allow at least 2 feet of clearance around the perimeter of the spa to provide enough room to access for servicing. Contact your local dealer for their specific requirements.
7. **WARNING - TO REDUCE THE RISK OF INJURY:**
  - (A) Reminder - Never allow anyone to dive into a spa. Always enter feet first.
  - (B) Always enter and exit a spa slowly.
  - (C) Do not use the spa alone.
  - (D) 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).
  - (E) Persons suffering from obesity or with a medical history of heart disease, diabetes, high or low blood pressure or circulatory system problems should consult a physician before using the spa.
  - (F) Since excessive water temperatures have 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).
  - (G) Excessive water temperature can be dangerous. The water in the 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 extended use (exceeding 10 minutes) and for young children. Long exposures at higher temperatures can result in hyperthermia.
  - (H) The use of alcohol, drugs, or medication before or during spa use may lead to unconsciousness with the possibility of drowning.
  - (I) Persons using medication should consult a physician before using a spa since some medication may induce drowsiness while other medication may affect heart rate, blood pressure and circulation.



## IMPORTANT SAFETY INSTRUCTIONS (CONT.)

### HYPERTHERMIA

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

(I) 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.

**8. WARNING** - The use of alcohol, drugs, or medication can greatly increase the risk of hyperthermia.

(J) The use of alcohol, drugs, or medication before or during spa use may lead to unconsciousness with the possibility of drowning.

(K) Persons using medication should consult a physician before using a spa since some medication may induce drowsiness while other medication may affect heart rate, blood pressure, and circulation.

9. Reminder: A safe temperature for swimming or aquatic exercise is around 80° F.

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.

**Note:** These are areas that will require the spa owner to perform routine maintenance. These are not areas covered under the warranty of the spa.

### CLEANING JETS

The majority of jets in your spa can individually be turned on/off. If any of these jets become hard to turn, it will be necessary to remove the jet to clean it as grit/sand and mineral deposit may be present.

Jets in the Legend Series and Down East line are removed by turning the collar and then pulling out the jet.



#### To Clean Jets

Place the jet(s) in a bucket, fully immerse in white vinegar. Let the jet(s) soak overnight and then rinse with water. Reinstall the jet(s). It may also be necessary to clean the grit/deposit from the white jet body using an old toothbrush.

### CLEANING DIVERTER VALVES

Some Legend Series and Down East Spas have diverter valves. Due to mineral deposits and grit/sand that may get into the internal parts of the diverter valve, it may become hard to turn or freeze up completely. In this case, it is necessary to remove the handle and cap of the diverter valve. Before proceeding, make sure the power to the spa is turned off.

Turn the cap piece counter clockwise. It may be necessary to put a clean rag over the cap and turn it with a wrench.

Once loose, the cap and handle can be pulled up out of the white plumbing fitting.

Wipe down the internal piece that attaches to the cap and handle.

Soak the cap and handle in white vinegar.

The white plumbing fitting should also be wiped down. If the surface of the white plumbing has become too abrasive, you can take wet, fine sandpaper and smooth it out. It is also helpful to use a lubricant (use silicone based, not petroleum based) to allow for an easier turn of the diverter handle.

Rinse the diverter internals and reassemble.

In the future, it is helpful to turn the diverter valve only when the pump is not on. Cleaning your diverter valve should occur every time you drain your spa.

### SPA NOT HEATING

\* If the spas heater has failed, the majority of the time it will trip the GFCI breaker. If the spa is not heating and has not tripped the breaker, please follow these steps:

1. Check the control panel for diagnostic messages. Refer to your spa models diagnostic message area in previous sections. Follow steps to alleviate message.
2. Check water set temperature at control panel.
3. Check for dirty filters. Clean if necessary.
4. Check "heat mode" the spa is set in. Spa should be in standard mode.
5. Check the control panel for heater light indicator and / or thermometer icon. If the light is on or the indicator icon is moving, the spa should be heating. Wait a reasonable amount of time (approximately 1 hour) to see if the water temperature is changing.
6. Check to make sure that the pump is primed and all slice valves are open.
7. Reset power to the spa at GFCI breaker.
8. If spa is still not heating, contact your dealer for service.

### GFCI IS TRIPPING

The Ground Fault Circuit Interrupter (GFCI) is required, by NEC code (National Electrician Code), for your protection. The tripping of the GFCI may be caused by a component on the spa or by an electrical problem. Such electrical problems include, but are not limited to, a faulty GFCI breaker, power fluctuations, or a miswire. It may be necessary to contact an electrician if your local dealer recommends doing so.



## IMPORTANT SAFETY INSTRUCTIONS (CONT.)

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. **CAUTION - RISK OF ELECTRIC SHOCK.** Do not leave the CD compartment open.  
**CAUTION - RISK OF ELECTRIC SHOCK.** Replace components only with identical components.

The CD player controls are not to be operated while inside the spa.

**WARNING - PREVENT ELECTROCUTION.** Do not connect any auxiliary components (for example, additional speakers, headphones, additional audio/video components etc.) to the system. These units are not provided with an outdoor antennae.

Do not service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

If the power supply/supply cord(s) are damaged, water is entering the speaker, CD compartment, or any other component in the electrical equipment compartment area, the protective shield is showing signs of deterioration, or there are signs of other potentially hazardous damage to the unit, turn off the circuit breaker from the wall and refer servicing to a qualified service personnel.

The unit should be subjected to periodic routine maintenance once every quarter to make sure that the unit is operating properly.

14. **DANGER - RISK OF ELECTRIC SHOCK.** Do not permit any electric appliance, such as light, telephone, radio, or television, within 5 feet (1.5m) of a spa.



## IMPORTANT SAFETY INSTRUCTIONS (CONT.)

15. A green coloured terminal or a terminal marked G, GR, Ground, Grounding or the symbol shown in Figure 14.1 of UL1563 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.
16. At least two lugs marked "Bonding Lugs" are provided on the external surface or on the inside of the supply terminal box or compartment. To reduce the risk of electric shock, connect the local common bonding grid in the area of the spa to these terminals with an insulated or bare copper conductor not smaller than No. 6 AWG.
17. All field-installed metal components such as rails, ladders, drains, or other similar hardware within 3m of the spa shall be bonded to the equipment grounding bus with copper conductors not smaller than No. 6 AWG.

## SAVE THESE INSTRUCTIONS.

### NOTHING ON THE SPA OPERATES-

1. Check the control panel display for any messages. If there is a message, refer to the diagnostic section on that model spa. There you will find the meaning of the message and what action is to be taken.
2. If there is no message on your control panel, check and reset the GFCI and house breaker.



*\*The GFCI should be located in a weather proof box close to the spa, but no closer than 5 ft.*

If the spa does not respond, contact your local service company.

### PUMP(S) DO NOT OPERATE -

1. Press the "Jets" button on your control panel.  
*If you hear the pumps trying to operate:*
    - A. Check that all the slice valves are open. See photo on page 14.
    - B. Pump may need to be primed. See page 20.
    - C. Check that the air controls are open. See photo on page 12.
- If you do not hear anything from the pump, contact your local service company.*

### POOR JET PERFORMANCE

1. Make sure pump is operating
2. Check that the water level is adequate (up to minimum safe water level side)
3. Make sure the jets are open and the air controls are open. See page 12.
4. Check for dirty filters. Clean if necessary.

## DOLPHIN REMOTE

Device Modes / Feature Buttons

### CD Mode

- (F) Mode** This button will switch tuner to AM.
- (G) Enter** This button will switch tuner to FM.
- (C) Vol Up / Down** The main volume for the theater system is controlled through the stereo.
- (H) CH Up / Down** These buttons will scan radio station presets and CD audio tracks.
- (A) Power** Switches inputs.

**NOTE:** AM stations will be very limited in reception and in most cases will be unavailable.

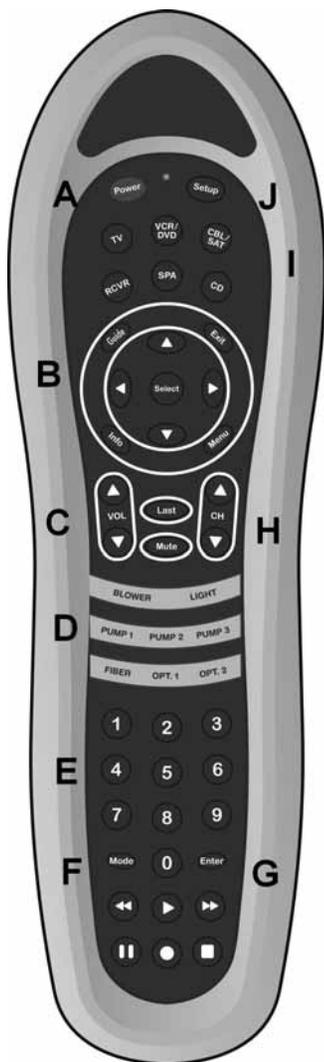
### DVD Mode

- (C) Vol Up / Down** Main audio is controlled through the CD stereo. These buttons will adjust DVD audio output level to the CD player.
- (A) Power** This button will control power to the unit.
- (B) Directional Buttons** These buttons will navigate through selections on the DVD menu.

### TV Mode

- (F) Mode** This button selects the video or tuner input on the TV.
- (A) Power** This button controls power to unit.
- (E) Numeric Key pad** These buttons will direct prompt individual TV Channels. For channels

Above 100, push the **LAST** button (**Between VOL and CH**), and then the final two digits of the desired channel.



## SAFETY INSTRUCTIONS

**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 ÉVITER QUE LES CHEVEUX OU UNE PARTIE DU CORPS PUISSENT ÊTRE ASPIRÉS, 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 AN ADVERSE MEDICAL HISTORY SHOULD CONSULT A PHYSICIAN BEFORE USING A SPA OR HOT TUB.

**AVERTISSEMENT:** LES PERSONNES QUI PRENNENT DES MÉDICAMENTS OU ONT DES PROBLÈMES DE SANTÉ DEVRAIENT CONSULTER UN MÉDECIN 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 OR EXITING THE SPA OR HOT TUB.

**AVERTISSEMENT:** POUR ÉVITER 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 ÉVITER L'ÉVANOUISSEMENT ET LA NOYADE ÉVENTUELLE, NE PRENDE 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 CONFIRMÉE OU NON, DEVRAIENT CONSULTER UN MÉDECIN AVANT D'UTILISER UNE CUVE DE RELAXATION

**WARNING:** WATER TEMPERATURE IN EXCESS OF 38°C MAY BE INJURIOUS TO YOUR HEALTH

**AVERTISSEMENT:** IL PEUT ÊTRE DANGEREUX POUR LA SANTÉ DE SE PLONGER DANS DE L'EAU À 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 TEMPÉRATURE DE L'EAU À L'AIDE D'UN THERMOMÈTRE PRÉCIS

## SAFETY INSTRUCTIONS

**WARNING:** DO NOT USE A SPA OR HOT TUB IMMEDIATELY FOLLOWING STRENUOUS EXERCISE  
**AVERTISSEMENT:** NE PAS UTILISER UNE CUVE DE RELAXATION IMMÉDIATEMENT APRÈS UN EXERCISE FATIGANT

**WARNING:** PROLONGED IMMERSION IN A SPA OR HOT TUB MAY BE INJUROUS TO YOUR HEALTH

**AVERTISSEMENT:** L'UTILISATION PROLONGÉE D'UNE CUVE DE RELAXATION PEUT ÊTRE DANGEREUSE POUR LA SANTÉ

**WARNING:** DO NOT PERMIT ELECTRIC APPLIANCES (SUCH AS LIGHT, TELEPHONE, RADIO, OR TELEVISION) WITHIN 1.5 M OF THIS SPA OR HOT TUB

**AVERTISSEMENT:** NE PAS PLACER D'APPAREIL ÉLECTRIQUE (LUMINAIRE, TÉLÉPHONE, RADIO, TÉLÉVISEUR, ETC) À MOINS DE 1.5 M DE CETTE CUVE DE RELAXATION

**CAUTION:** MAINTAIN WATER CHEMISTRY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTION

**ATTENTION:** LA TENEUR DE L'EAU EN MATIÈRES DISSOUTES DOIT ÊTRE CONFORME AUX DIRECTIVES DU FABRICANT

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

- (a) unawareness of impending hazard;
- (b) failure to perceive heat;
- (c) failure to recognize the need to exit spa;
- (d) physical inability to exit spa;
- (e) fetal damage in pregnant women; and
- (f) 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

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

## DOLPHIN REMOTE

System Operation – To Watch DVDs

### Turn on TV

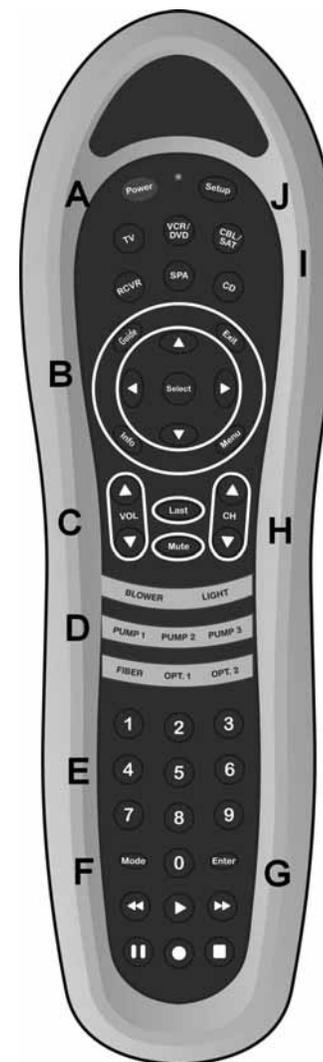
1. Select Device (TV). **(I)**
2. Press Power. **(A)**
3. Press Mode to select Video Input. **(F)**

### Turn on Stereo

Stereo is always on unless Master Power button is pressed on the stereo.

### Turn on DVD Player

1. Select Device (DVD). **(I)**
2. Press Power. **(A)**
3. Load disc into DVD Player.
4. Press Play Button.



# DOLPHIN REMOTE

System Operation – To Watch TV

## Turn on TV

1. Select Device (TV). **(I)**
2. Press Power. **(A)**
3. Select Tuner input using the Mode button. **(F)**

**Note:** You may need to step through several unused video inputs.

4. Select desired channel. **(E OR H)**

## Select input on CD player

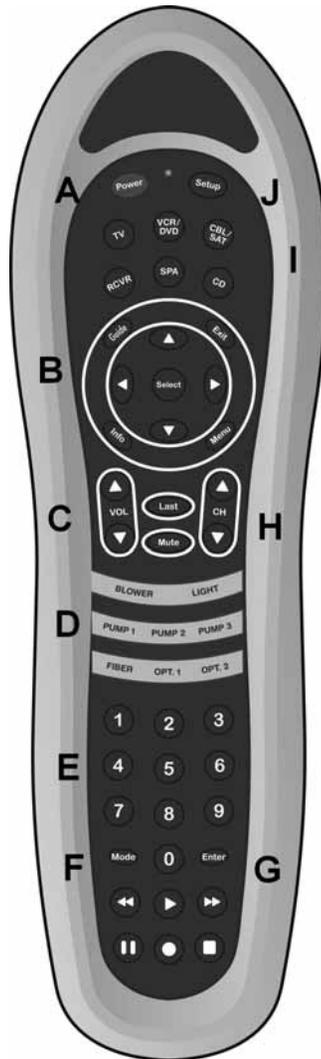
1. Press power to select proper input.

**NOTE:** The following procedure is for initial set up and programming of TV channels.

*(If using either a satellite receiver or cable box make sure unit is on before starting this procedure.)*

1. Select TV device. **(I)**
2. Press the Arrow up button **(B)** to bring up the TV menu.
3. Use the channel down button **(H)** to highlight setup.
4. Press the volume up button **(B)** to select either CATV or TV.
5. Use the channel down button **(H)** to highlight auto program.
6. Press the volume up button **(B)** to start programming.
7. Your TV will now program all available stations into memory.

**Note:** Menu will disappear after 10 seconds.



# 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 (if equipped) 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 Legend Series and most of the Down East 3 and 4 pump systems, feature the Master Blaster Foot Therapy System.



*Neck, Shoulder, Therapy Jets*



*Master Blaster*

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.

Be sure that no sand or particles are brought into the spa as they will cause the diverter to seize up. It is best to turn the diverter valve only when the pump is turned off.



*Down East Jet Diverter*



*Master Jet Diverter*

## 6. CASCADE WATERFALL / LAMINAR FLOW VALVE

Located on the topside of the spa, this valve adjusts water flow to the cascade waterfall and the Laminar Flow Jets. This feature is available on the Legend Series only. **NOTE:** See "Maintenance Recommendations" for instructions on cleaning your Laminar Flow Jets.

**NOTE:** When water features are not going to be used for an extended period of time, turn valve slightly to allow some water to flow when pump is on to prevent stagnant water from developing in the water lines.



*Cascade Waterfall / Laminar Flow Valve*



*Laminar Flow Jets*

## 7. AIR CONTROL VALVES

These are located around the top of your spa. You may increase or decrease the force 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. **NOTE:** Only available on Legend Series Spas. Down East Spas automatically inject air.



*Air Control Valve*

## 8. TOPSIDE CONTROL PANEL

You may safely control spa 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.

# DOLPHIN REMOTE

## Programming Device Codes

### Programming Device Codes:

**NOTE:** Your remote has been preprogrammed at the factory for all components. When the batteries are replaced, these components may need to be reprogrammed.

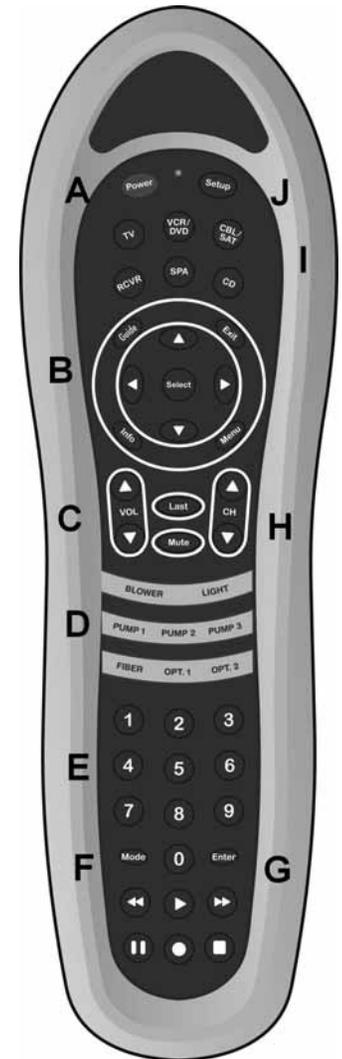
1. Select Device **(I)** The LED will blink once to confirm.
2. Press and Hold the "Setup" button **(J)**  
The LED will blink once, and then twice to continue.
3. Enter the four digit code on the Numeric keypad **(E)** – the LED will blink twice after the last digit to confirm.
4. To lock in the code press the "POWER" **(A)** button.

### Master Spas Device Codes

Kenwood CD / 0337

KEC DVD / 1146

Flat LCD TV / 1868



# DOLPHIN REMOTE

## Operation

### Power Key: (A)

Turns the power on and off to the TV and DVD.

**NOTE:** To turn on the Kenwood CD player, use the Power button on the stereo.

### Volume Buttons: (C)

Adjusts the volume in the selected device.

### Channel Buttons: (H)

In the CD mode, these buttons will scan CD tracks or scan radio presets. In TV mode, it will search through the TV channels.

### Spa Function Buttons: (D)

Will control the pump 1, 2, 3 and the light operations.

### Mode Button: (F)

In the CD device mode, controls power to the unit and serves as the "Function" button on the CD player. (Press and hold this button to turn off CD player.) In the TV device mode, this button will switch to the video input to watch DVDs and to the tuner for watching TV.

### Setup Button: (J)

Use this button to program device codes (see page 65). Your Dolphin Remote has been preprogrammed at the factory for all components included. When the batteries are replaced, the code for each component may need to be reprogrammed.

### Device Mode Buttons: (I)

Select unit to control by pressing device button once.

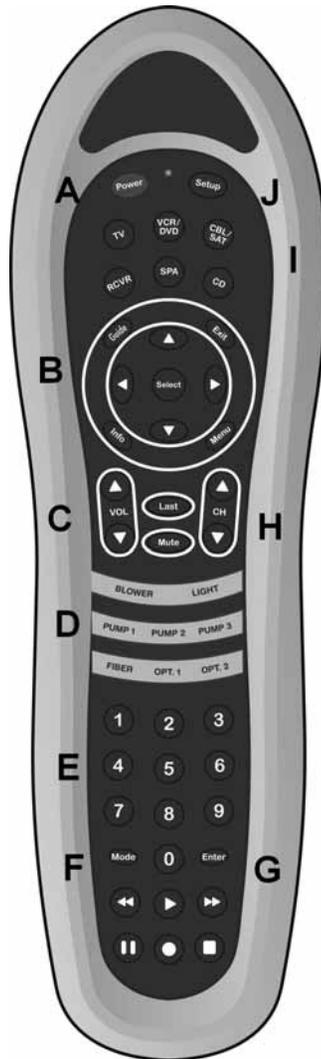
### Directional Buttons: (B)

These buttons will navigate through "Menu" options in the DVD device mode.

### Numeric Keypad: (E)

These buttons will change the TV channel manually in the TV device mode.

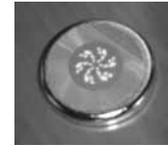
**NOTE:** If utilizing a satellite receiver it is necessary to point the Dolphin Remote directly at the receiver as the RF portion of the Dolphin remote is not programmable.



# GLOSSARY OF SPA TERMINOLOGY

## 9. PERSONAL REMOTE CONTROL

The Legend Series spas have additional remotes which allow the user to control the jet therapy while remaining in his/her seat (if applicable). By pressing the control one time, you will activate the pump. Press the pad again for high speed and again to turn it off.



Personal Remote Control

## 10. EQUIPMENT ACCESS PANEL

Located behind the side panel 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 LED light system (if applicable). Pump and equipment placement may vary by model.

## 11. ACCESS PANELS

These are located on all four sides of the spa. All of the panels are removable should service be required.

## 12. DRAINING YOUR SPA

The drain is located behind the front panel on the far right side. You can access the drain by unscrewing the corner screws and removing the corner panel. Grasp the drain cap, and pull the assembly out all the way. Unscrew the cap, then push the assembly back in half way to start the flow of water. Attach a garden hose, if desired. Draining times may vary by model using the external hose bib. A sump pump may also be used to drain the spa quickly. **NOTE:** When pushing or pulling the assembly in or out, water will drip from the drain during the transition. This is normal.



Spa Drain

## 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 filters that trap debris 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 control panel.

## 16. EQUIPMENT CONTROL SYSTEM

This houses the wiring and electrical components necessary to operate the spa.

## 17. SPA HEATER

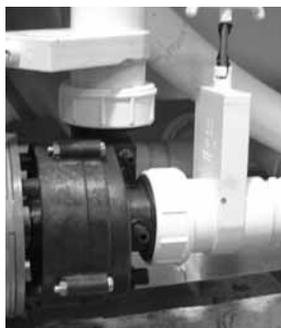
This element is an electric heater housed in a stainless steel tube. It is thermostatically controlled and equipped with a high-limit temperature safety shut-off sensor. The high-limit sensor cannot be reset until the temperature within the heater assembly drops several degrees below the shut-off temperature of 108° - 110° F (varies by model). Should the high-limit switch trip repeatedly, contact your dealer or qualified service representative to diagnose the problem.

## 18. SLICE VALVES

These valves are used by service personnel to shut off water to the heater, main pump system and secondary pump system so that the water does not need to be drained should the spa require service (varies by model).

**NOTE:** Slice valves must be completely open during normal operations.

**NOTE:** Legend Series spas are the only models that come with slice valves on all pumps.



*Slice Valve and Pump Union*

## 19. 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 "Jets" or "Jets I" button on the Topside Control Panel or by using the Personal Remote Control next to the Aqua Pressure Seat (Legend Series only).

Your STS spa (and any spa with a stereo) comes equipped with a locking, water resistant enclosure for the DVD player and stereo.



*Figure 1*



*Figure 2*



*Figure 3*

We have installed an F-81 television coaxial cable connector located under the front panel for your convenience. This can be utilized if you wish to add a cable connection or satellite connection to your STS.

**Note:** Due to the brightness of daytime light, it may be difficult to view the TV during daytime hours. Please consider this when placing your spa outdoors. It also may be difficult to operate the dolphin remote due to UV rays.

**Note:** If your STS Spa is equipped with the optional Dreamstone cabinet, your equipment access to the A/V system will utilize the housing shown in figure 3 and will be equipped with a Dim mount stereo.

### WARNING:

Never remain in your spa longer than 15 minutes per session when the water temperature is above 98° F. If you wish to spend more time in your spa, whether enjoying music, watching tv, or just lounging, be sure to keep the spa water at or below body temperature (98.6° F).

**Legend Series**

All STS spas come with a Dolphin Remote Control. This remote uses both radio frequency and infrared signal to control TV, DVD, and Stereo functions. It will also operate the therapy pumps and LED lights. The blower, fiber and opt. 2 buttons are not used.

The Dolphin Remote has 2 AA replaceable batteries. These may be replaced by removing the 5 screws on the back of the Dolphin. Care should be taken when replacing the cover so that the water seal is not damaged.

**Note:** Any time the batteries are replaced, the TV, DVD, and Stereo components may need to be reprogrammed into the Dolphin Remote.

**Note:** The Dolphin Remote should not be left floating in the spa for extended periods and should not be stored under the spa cover or left outside exposed to the weather.



**20. SECONDARY PUMP**

This produces water flow through the other jet system in the spa (if applicable). The second pump operates similar to the main pump and is controlled by the "Jets II" button on the Topside Control Panel or by using the Personal Remote Control (Legend Series only).

**21. 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 for 24 hours of efficient filtration and heating. This pump is standard on all Legend Series and Down East models.

**22. PUMP UNION**

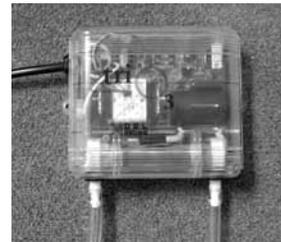
These are used by service personnel to easily service the pumps.

**23. HEATER UNION**

These are used by service personnel to easily service the heater.

**24. OZONATOR**

Your ozonator will operate in conjunction with your filtration system and circulation pump (if applicable). It will deactivate when any other control function is manually activated and will reactivate after one hour of inactivity. The ozonator is standard on all spas.



*Ozonator*

**25. THIRD PUMP (on select models)**

This produces water flow through the Master Blaster Jets located in the foot well of your spa. This pump functions on high speed only.

**NOTE:** On the Legend Series LSX 1000, water is diversified between the Master Blasters and the seat to the right of the control panel.

**26. EXTERIOR SCENCE LIGHTING**

Exterior sconce lighting illuminates the front of the spa to allow you to safely approach your spa. This light stays on indefinitely.

## 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 Electrical 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 60Hz, 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 Master Spas 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 current fault is detected.

Power hook-up to the spa must be 240 volt 3 wire plus ground (6 AWG copper).

Route the cable into the equipment area for final hook-up to terminals inside the control panel. The spa must be hooked up to a “dedicated” 240 volt, 50 amp breaker and GFCI. The term “dedicated” means the electrical circuit for the spa is not being used for any other electrical items (patio lights, appliances, garage circuits, etc.). If the spa is connected to a non-dedicated circuit, overloading will result in “nuisance tripping” which requires resetting of the breaker switch at the house electrical panel.

Rev. 05/01/06

Permanently Connected Equipment Assembly with Pump(s), Heaters, Luminaine, Ozone, Spa Side Control(s), Pump shut off device, and Audio/Video Components.

**Note:** Some of the above components may be optional or not available with every spa model.

Your STS spa (and any spa with a stereo) comes equipped with a locking, water resistant enclosure for the DVD player and stereo.



Figure 1



Figure 2



Figure 3

We have installed an F-81 television coaxial cable connector located under the front panel for your convenience. This can be utilized if you wish to add a cable connection or satellite connection to your STS.

**Note:** Due to the brightness of daytime light, it may be difficult to view the TV during daytime hours. Please consider this when placing your spa outdoors. It also may be difficult to operate the dolphin remote due to UV rays.

### WARNING:

Never remain in your spa longer than 15 minutes per session when the water temperature is above 98° F. If you wish to spend more time in your spa, whether enjoying music, watching tv, or just lounging, be sure to keep the spa water at or below body temperature (98.6° F).

# SPA THEATER SYSTEM (STS)

Windsor

**Note:** We have included the stereo and DVD owner's manual with your spa. This should be read to see the specific operation of these components.

**Note:** Do not place wet DVD's or CD's into the players at any time. Resulting damage will not be covered under warranty.

System includes a 15" H.D. flat screen color television, DVD player, Kenwood CD/FM Stereo system with subwoofer, two pop up marine grade speakers, two exterior speakers and a gas shock driven T.V. lift.



The TV and pop up speakers can be raised and lowered by pressing the buttons near each speaker and the TV. (See page 56 for instructions on lifting and lowering speakers). Be sure the TV and speakers are down before placing the cover on the spa. Resulting damage is not covered under warranty if the cover is installed while the TV and speakers are still in the upright position.

To lift and lower your Windsor TV follow these simple instructions;

- To lift, press and hold round button next to the TV until the TV raises completely.
- To lower the television, press down on the top of the television until it stops and is completely hidden in the acrylic shell. Press straight down when lowering lift to avoid damage to the lift assembly and the TV housing.

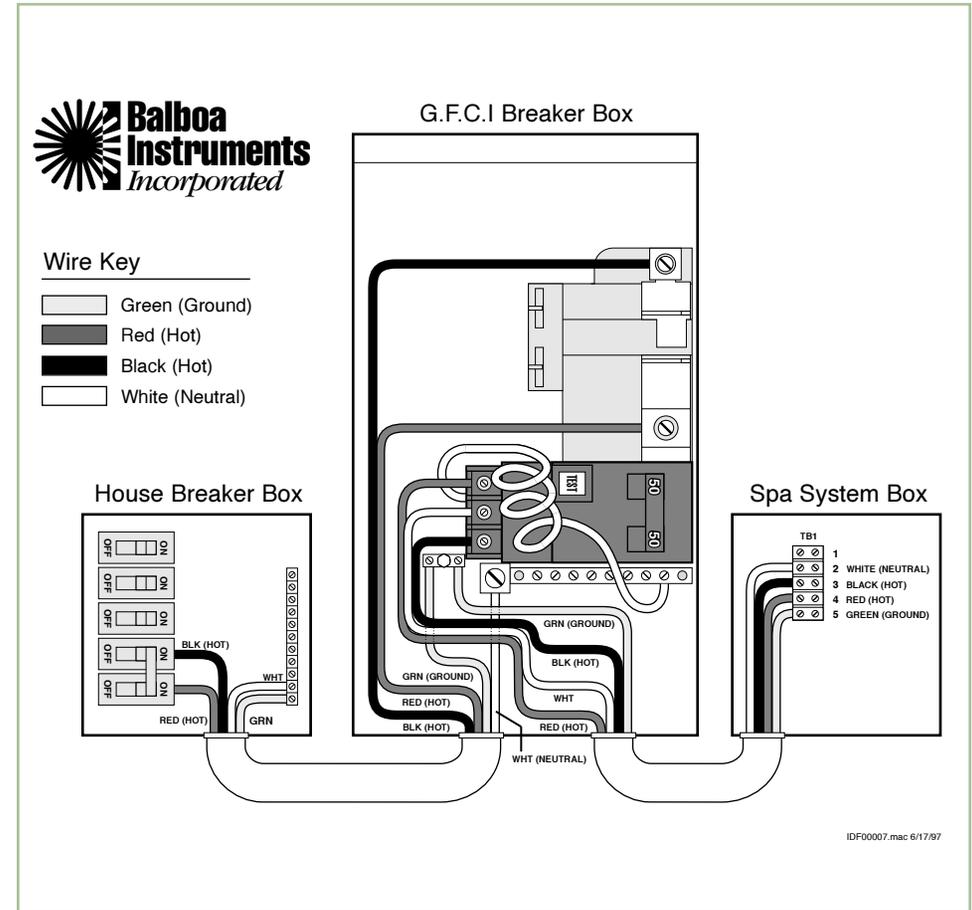
**Note:** Do not sit on television.



**Note:** The television communicates with the wireless remote via IR. Please note that the IR is a line of sight communication method and the range and functionality can be compromised by sunlight and other wireless communications interferences that are not controlled by Master Spas.

**Note:** Your new spa's T.V. lift is tied down with zip ties to prevent damage during shipping. The lift will not operate until these ties are removed.

# WIRING SCHEMATIC - 240 VOLT SPA HOOK-UP



\* Actual wiring of GFCI will vary by manufacturer of GFCI. The GFCI shown is a Square D. Improper wiring of GFCI may result in permanent damage to spa system box. Repair / replacement of spa system box is not covered under warranty when damage results from improper wiring.

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 Master Spas 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.
- 2) If the spa is being installed indoors, dimension limitations such as stairs, ceilings and walls must be taken into consideration. Please have your Master Spas dealer or delivery service review site or installation plans prior to delivery.
- 3) 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, continuous, and level 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, on a wood deck, or balcony, the same load requirements must be met. Total load may be as much as 90 pounds per square foot. You should speak with a qualified contractor or your local building department to confirm that your surface is adequate for supporting a spa. Be sure to locate your spa so that equipment remains above grade and is not subject to flooding.

The equipment side(s) 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

### 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 Master Spas 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

**Note:** Speakers should be in the down position before covering your spa. Failure to do so will result in damage not covered under the warranty.

**Note:** UV rays may interfere with the operation of the remote.



**Note:** Do not place wet CD's into the stereo at anytime.

**Note:** Do not place wet DVD's into the DVD player at anytime.

**Note:** AM channels will be very limited in reception and in most cases be unavailable.

**CAUTION** — Risk of Electric Shock. Do not leave compartment door open.

**CAUTION** — Risk of Electric Shock. Replace components only with identical components; and Do not operate the Audio / Video controls while inside the spa.

**WARNING** — Prevent Electrocutation. Do not connect any auxiliary components (for example cable, additional speakers, headphones, additional Audio / Video components, etc.) to the system.

**NOTE:** These units are not provided with an outdoor antennae; when provided, it should be installed in accordance with article 810 of the National Electrical Code, ANSI / NFPA 70.

**NOTE:** Do not service this product yourself as opening or removing covers may expose you to dangerous voltage or other risk of injury. Refer all servicing to qualified service personnel.

**NOTE:** When the power supply connections or or power supply cord(s) are damaged; if water is entering the Audio / Video compartment or any electrical equipment area; if the protective shields or barriers are showing signs of deterioration; or if there are signs of other potential damage to the unit, turn off the unit and refer servicing to a qualified service personnel.

**NOTE:** This unit should be subjected to periodic routine maintenance (for example, once every 3 months) to make sure that the unit is operating correctly.

## MAX STEREO SYSTEM / SPA THEATER SYSTEM (STS)

LSX 850 STS, LSX 825 STS, LSX 1000 STS and LSX 1050 STS

**Note:** We have included the stereo and DVD owner's manual with your spa. This should be read to see the specific operation of these components.

**Note:** Do not place wet DVD's or CD's into the players at any time. Resulting damage will not be covered under warranty.

System includes a 19" flat screen color television, DVD player, Kenwood CD/FM Stereo system with subwoofer, and two pop up marine grade speakers (4 on some models), two exterior speakers, water resistant Dolphin remote, and one touch up and down for TV and speaker housing.

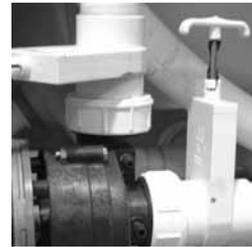


The TV and pop up speakers can be raised and lowered by pressing the one touch up and down STS auxillary button. Be sure the TV and speakers are down before placing the cover on the spa. Resulting damage is not covered under warranty if the cover is installed while the TV and speakers are still in the upright position.

**Note:** The television communicates with the wireless remote via IR. Please note that the IR is a line of sight communication method and the range and functionality can be compromised by sunlight and other wireless communications interferences that are not controlled by Master Spas.

## INSTALLATION INSTRUCTIONS

1. Put spa in final position that allows for access to equipment and spa components.
2. Remove front side panel (This is the side where the main topside control panel is located) so electrical can be hooked up to the spa system pack. Panels are removed by unscrewing the screws in the corner sections and then lifting up the panels out of the retaining tracks. **NOTE:** If your spa is equipped with Master Select panels, you will need to remove the Phillips mounting screws instead of the corner screws.
3. Be sure all pump and heater unions are secure. Each pump has 2 unions and the heater has 2 unions. A newly delivered spa may have loose unions caused in transporting the spa. Check that all slice valves are open, in the up position. Again, the slice valves may become closed during transportation of the spa.



*Slice Valve  
and Pump Union*

4. Fill spa at least 1" above the filters. We recommend filling the spa through the filter area.
5. Turn the power on to the spa. Spa will go through its priming mode. This lasts approximately 5 minutes.
6. Be sure the jets in your spa are open by turning the face of the jet.

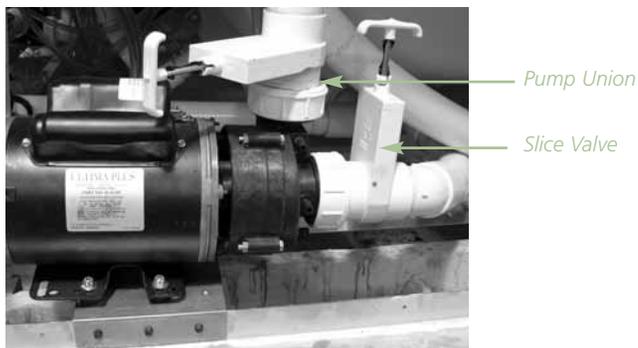
**Note:** The Master Blasters are only turned on/off through the use of the "Jets 3" button or the diverter valve (if equipped).

## INSTALLATION INSTRUCTIONS

- It may be necessary to bleed air from the motor(s) on your spa if, after start up, your spa pumps do not operate.

Due to the nature of water flow and hydro-therapy pumps, please be advised that air locking of pumps may occur. Master Spas has taken measures to reduce the possibility of this, but it still may occur, especially after refilling a spa. This is not a service covered under warranty.

To relieve an airlock situation, loosen the union (see picture) on the discharge of the pump (the end of the pump that water is being pushed through). Water should leak out. Tighten the union and test the pump for proper jet flow. If needed repeat process.



Airlock

- Adjust water chemistry according to the instructions provided in the "Spa Water Maintenance Section".
- Your spa water will heat approximately 5° - 8° per hour, for all 240V spas. This varies depending on the size of the spa. Step into the soothing waters of your new Master Spa!  
*Relax and enjoy.*

## MAX STEREO SYSTEM / SPA THEATER SYSTEM (STS)

Available on select Master Spa and Down East Models

**Note:** Speakers should be in the down position before covering your spa. Failure to do so will result in damage not covered under the warranty.

**Note:** UV rays may interfere with the operation of the remote.



**Note:** Do not place wet CD's into the stereo at anytime.

**Note:** Do not place wet DVD's into the DVD player at anytime.

**Note:** AM channels will be very limited in reception and in most cases be unavailable.

**CAUTION** — Risk of Electric Shock. Do not leave compartment door open.

**CAUTION** — Risk of Electric Shock. Replace components only with identical components; and Do not operate the Audio / Video controls while inside the spa.

**WARNING** — Prevent Electrocutation. Do not connect any auxiliary components (for example cable, additional speakers, headphones, additional Audio / Video components, etc.) to the system.

**NOTE:** These units are not provided with an outdoor antennae; when provided, it should be installed in accordance with article 810 of the National Electrical Code, ANSI / NFPA 70.

**NOTE:** Do not service this product yourself as opening or removing covers may expose you to dangerous voltage or other risk of injury. Refer all servicing to qualified service personnel.

**NOTE:** When the power supply connections or or power supply cord(s) are damaged; if water is entering the Audio / Video compartment or any electrical equipment area; if the protective shields or barriers are showing signs of deterioration; or if there are signs of other potential damage to the unit, turn off the unit and refer servicing to a qualified service personnel.

**NOTE:** This unit should be subjected to periodic routine maintenance (for example, once every 3 months) to make sure that the unit is operating correctly.

## MAX STEREO SYSTEM / SPA THEATER SYSTEM (STS)

Available on select Master Spa and Down East Models

### WARNING:

Never remain in your spa longer than 15 minutes per session when the water temperature is above 98° F. If you wish to spend more time in your spa, whether enjoying music, watching tv, or just lounging, be sure to keep the spa water at or below body temperature (98.6° F).

\* Please refer to the Kenwood Stereo Owner's Manual for specific operations.

The Max Stereo System includes a Kenwood CD/FM Stereo with subwoofer, two pop up speakers, (4 on the LSX 800, 1000 & 1050 models) and two exterior speakers.



### STEP 1

To use the pop-up speaker system, press down on the button located in the corner. This will automatically raise the speaker for use.



### STEP 2

You can control the stereo selections via an optional remote (see your local dealer for details), or on the stereo itself.



### STEP 3

When finished using the stereo speakers, pressing on the top speaker will then lock it in the down position.

### Stereo Remote

Your Max Stereo System is also equipped with a shell mounted auxiliary stereo remote control to easily control most functions of your stereo while inside your spa.

**NOTE:** Shell mounted remote not available on STS models.

## WATER CHEMISTRY TERMS YOU SHOULD KNOW

Before jumping into the Spa Water Maintenance, here are some terms to help you.

- 1. Parts per million, or ppm:** This is a form of measurement used in most pool or spa chemical readings. Best described as any one million like items of equal size and make up, next to one unlike item, but of equal size. This would be one part per million.
- 2. Average size spa:** What is it? The national spa and pool institute (NSPI) states; 350 to 400 U.S. gallons is average. As a general rule, chemical dosages are the same for any spa between 100 and 500 U.S. gallons. Spas over 500 U.S. gallons the dosage would be double. Under 100 U.S. gallons would be on a case by case basis.
- 3. Total Alkalinity:** This is a measurement of the ability of the water to resist changes in pH. Put another way, it is the water's ability to maintain proper pH. Total alkalinity is measured in parts per million from 0 to 400 plus, with 80 to 150 ppm being the best range for spas. With low alkalinity, the pH will flip, or change back and forth, and be hard to control. With high alkalinity it becomes extremely difficult to change the pH.
- 4. pH or potential hydrogen:** This is a measurement of the active acidity in the water, or it is the measurement of the concentration of active hydrogen ions in the water. The greater the concentration of active hydrogen ions, the lower the pH. pH is not measured in parts per million, but on a scale from 0 to 14, with 7 being the neutral. In spas when ever possible, a measurement between 7.2 and 7.8 is best. Whenever possible, it should be between 7.4 and 7.6. With low pH, the results can be corroded metals, etched and stained plaster stained fiberglass or acrylic, eye / skin irritation, rapid chlorine or bromine loss, and total alkalinity destruction. With high pH, the results can be cloudy water, eye / skin irritation, scale formation and poor chlorine or bromine efficiency.
- 5. Shocking:** This is when you add either extra chlorine (superchlorinate) by raising the chlorine level above 8 ppm, or add a non-chlorine shock (potassium monoperoxysulfate or potassium monopersulfate) to burn off the chloramines or bromamines. A non-chlorine shock acts by releasing oxygen in the water, which serves the same function as chlorine. The advantage to using non-chlorine shock, is you can enter the water within 15 minutes after shocking. Using chlorine, you must wait until the total chlorine reading is below 5 ppm. One thing to remember, a non-chlorine shock will not kill bacteria or disinfect.
- 6. Sequestering:** This can be defined as the ability to form a chemical complex which remains in solution, despite the presence of a precipitating agent (i.e. calcium and metals). Common names for sequestering chemicals are; minquest, stain and scale control, metal-x, spa defender, spa metal gone, (etc.).
- 7. Filtration:** Filters are necessary to remove particles of dust, dirt, algae, etc. that are continuously entering the water. If the spa is not operated long enough each day for the filter to do a proper job, this puts a burden on the chemicals, causing extra expense. Filtration time will depend on the spa size, pump and filter size, and of course, bather load. A spare cartridge should be kept on hand to make it easy to frequently clean the cartridge without the need for a long shut down. This will also allow the cartridge to dry out between usages, which will increase the cartridge life span as much as twice. Replace the cartridge when the pleats begin to deteriorate. Cartridge cleaning should be done a minimum of once a month. More often with a heavy bather load.

## WATER CHEMISTRY TERMS YOU SHOULD KNOW

Before jumping into the Spa Water Maintenance, here are some terms to help you.

8. **Sanitizers:** This is what kills the germs and bacteria that enter the water from the environment and the human body.
  - A. Chlorine
    1. Only one type is good for spa use: Sodium dichlor which is a granule, fast dissolving, and pH neutral
    2. Chlorine is an immediate sanitizer.
  - B. Bromine (Note: Bromine use is not recommended with Eco Pur filters.)
    1. Two types of tablets.
      - a. Hydrotech
      - b. Lonza
    2. Bromine is a slow dissolve chemical and may take a few days to develop a reserve or reading in the water.
9. **Total dissolved solids (TDS):** Materials that have been dissolved by the water. i.e. Like what happens when you put sugar in coffee or tea.
10. **Useful life of water (in days):** Water should be drained at least once every 180 days. Useful life may vary by usage and bather load.
11. **Defoamer:** Foaming may be caused by body oils, cosmetics, lotions, surface cleaners, high pH or algeacides as well as other organic materials. Low levels of calcium or sanitizer can also cause foaming. Also, double rinse your bathing suits as they will hold residual soap after being washed.
12. **Calcium hardness:** Water that is too hard (over 250 ppm) can promote scale formation in components and on spa surface. Water that is too low (below 180 ppm) may also shorten the life of metal components on the spa.

**NOTE:** Always leave spa cover open for 15 minutes after adding chemicals to prevent the off gas from damaging your spa cover, spa pillows and other critical parts.

## DOWN EAST – MYSTIC

Diagnostic Messages

Message	Meaning	Action Required
<b>dr</b>	Possible inadequate water, poor flow, or air bubbles are detected in the heater. Spa is shut down for 15 minutes.	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, or this message will automatically reset within 15 minutes. If problem persists, contact your dealer or service provider.
<b>dy</b>	Inadequate water detected in heater. (Displays on third occurrence of "dr" message.) Spa is shut down.	Follow action required for "dr" message. Spa will not automatically reset; you may press any button to reset.

**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.

## DOWN EAST – MYSTIC

### Diagnostic Messages

Message	Meaning	Action Required
	No message on display. Power has been cut off to the spa.	The control panel will be disabled until power returns. Time of day will be preserved for 30 days on your system. Spa settings are preserved on all systems.
--	Temperature is unknown.	After the pump has been running for 2 minutes, the temperature will be displayed.
HH	“Overheat” - The spa has shut down. One of the sensors has detected 118°F/48°C 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.
OH	“Overheat” - The spa has shut down. One of the sensors has detected that the spa water is 110°F/43°C.	DO NOT ENTER THE WATER. Remove the spa cover and allow water to cool. At 107°F/ 42°C, the spa should automatically reset. If spa does not reset, shut off the power to the spa and call your dealer or service organization.
IC	“Ice” - Potential freeze condition detected.	No action required. The pumps will automatically activate regardless of spa status.
SA	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.)
Sb	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.)
Sn	Sensors are out of balance. If alternating with spa temperature, it may just be a temporary condition. If flashing by itself, spa is shut down.	If the problem persists, contact your dealer or service organization.
HL	A significant difference between the temperature sensors has been 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.
LF	Persistent low flow problems. (Displays on the fifth occurrence of “HL” message within 24 hours.) Heater is shut down, but other spa functions continue to run normally.	Follow action required for “HL” message. Heating capacity of the spa will not reset automatically; you may press any button to reset.

## SPA WATER MAINTENANCE

### Legend Series Spas and Down East Spas

\* All Down East and Legend Series Spas use the ECO PUR filter(s). This section pertains specifically to maintaining water chemistry in spas that have the ECO PUR filters.



### SPECIAL NOTE

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

**Note: Eco-Pur filters are not recommended for use with Bromine. This manual references bromine as well as chlorine in case you decide to remove the Eco-Pur filters and sanitize your spa with bromine. Consult your dealer for additional information.**

*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.*

## WATER QUALITY MAINTENANCE START-UP

Legend Series Spas and Down East Spas

### For ECO PUR™ Water Filter System

- Step 1:** Your spa should be filled using a Pre-filter, which can be obtained from your local dealer. This Pre-filter will help remove many of the minerals existing in the water, which will make adjusting the water balance easier after a new fill.
- 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 at least 12 hours.
- 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 (TA) 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. It is important not to add the chlorinating granules until the pH, alkalinity and calcium hardness have been adjusted to their proper levels.

### SPECIAL NOTE:

We recommend a level of 1.0 ppm chlorine residual be maintained.

*\* It may be necessary to rinse your filters within the first few days after filling your spa to ensure that they are not restricting water flow due to the initial removal of heavy contaminants in source water.*

## DOWN EAST – MYSTIC - CONTROLS

### Mode

Mode is changed by pressing the “Temp” button, then pressing the “Light” button.

**Standard mode** is programmed to maintain the desired temperature. Note that the last measured spa temperature displayed is current only when the pump has been running for at least 2 minutes. “St” will be displayed momentarily when you switch into Standard mode.

**Economy mode** heats the spa to the set temperature only during filter cycles. “Ec” will display solid when the temperature is not current, and will alternate with the temperature when the temperature is current.

**Sleep mode** heats the spa to within 20°F /10°C) of the set temperature only during filter cycles. “SL” will display solid when the temperature is not current, and will alternate with temperature when temperature is current.

### Preset Filter Cycles (if configured)

The first filter cycle begins 6 minutes after the spa is energized. The second filter cycle begins 12 hours later. Filter duration is programmable for 2, 4, 6, 8 hours or for continuous filtration (indicated by “FC”). The default filter time is 2 hours.

To program, press “Temp” then “Jets.” Press “Temp” to adjust. Press “Jets” to exit programming.

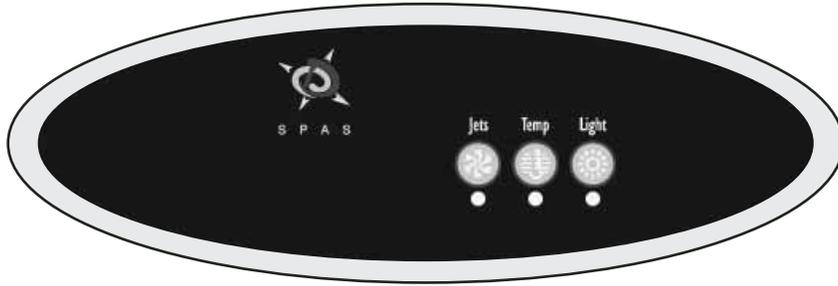
At the beginning of each filter cycle the pumps purge for 30 seconds. The only effect filter duration has is: In Economy and Sleep Modes, heating only occurs during the filter cycle.

### Freeze Protection

If the temperature sensors detect a drop to below 44°F /6.7°C within the heater, the pump automatically activates to provide freeze protection. The equipment stays on until 4 minutes after the sensors detect that the spa temperature has risen to 45°F /7.2°C 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 a 4-minute delay in turnoff. See your dealer for details.

### Initial Start-up

When your spa is first actuated, it will go into Priming mode, indicated by “Pr.” The Priming mode will last for less than 5 minutes (press “Temp” to skip Priming Mode) and then the spa will begin to heat the spa and maintain the water temperature in the Standard mode.



### Warm/Cool (80°F - 104°F / 26°C - 40°C)

The start-up temperature is set at 100°F/37°C. The last measured temperature is constantly displayed on the LCD.

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

To display the set temperature, press the “Temp” pad once.

To change the set temperature, press the pad a second time before the LCD stops flashing. Each press of the “Temp” pad will continue to either raise or lower the set temperature.

If the opposite direction is desired, release the pad and let the display revert to the current water temperature. Press the pad to display the set temperature, and again to make the temperature change in the desired direction.

After three seconds, the LCD will stop flashing and display the current spa temperature.

### Jets

Touch the “Jets” button once to turn pump 1 on or off. If left running, the pump will automatically turn off after 15 minutes.

### Light

Press the “Light” button to turn the light on and off. If left on, the light automatically turns off after 4 hours.

### L.E.D. Light (if equipped)

Press the “Light” button to turn the light on and off. If you wish to change the “function” of the lights, turn the lights off, then on within 5 seconds. If you wish to leave the lights in the same “function” setting for the next use, turn the lights off and do not turn back on for at least 5 seconds.

### Legend Series Spas and Down East Spas

- Helps remove calcium carbonate and hydrogen sulphide from spa water to protect heaters and equipment from precipitation.
- Helps stabilize the pH and alkalinity of the spa water.
- Helps reduce chemical usage and still provide safe odor-free water.
- Helps deplete excess chlorine after chemical shock to prevent damage to skin, hair, and swim wear.
- Helps to produce ultra clean and clear water.

### SPECIAL NOTES

The ECO PUR™ filter system will not oxidize organic compounds and will require periodic doses of chlorine to assist in the sanitization and oxidation processes required to maintain clear spa water.

- ECO PUR™ filter system will not alter the pH of spa water. The ECO PUR™ filter system will actually aid in stabilizing the pH. ECO PUR™ does not alter the (TDS) total dissolved solids. The use of sequestrants and stain & scale inhibitors is not required for regular maintenance and should only be used in the start up procedure.
- The main function of the ECO PUR™ filter system is to provide clean and clear spa water. Proper chemical balance and filtration are also key components in maintaining healthy spa water. Always ensure that the pH and total alkalinity of the spa water is checked and balanced at all times. 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 any buildup of containments. (Do not soak the ECO PUR™ cartridge in filter cleaner.) If water appears to be visually cloudy, dull, or has an odor, shock the spa water with 2 ounces of chlorine to remove excessive containments.

## WATER QUALITY MAINTENANCE SCHEDULE-ECO PUR™

Legend Series Spas and Down East Spas

### BEFORE EACH USE

Check spa water with a test strip for proper sanitation levels and adjust accordingly to the proper levels.

### ONCE A WEEK

Add 3 Tablespoons of a non-chlorine shock or 1 tea spoon of Dichlor to spa per 250 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 with a new ECO PUR™ element, repeat start up procedure.

### AFTER EACH USE

Add 1 tablespoon of non-chlorine shock or 1/3 teaspoon of Dichlor to spa per 250 gallons.

### AS NEEDED

If water looks hazy, shock treat with 1 teaspoon of Dichlor per 500 gallons.

\* These are general recommendations for water quality maintenance that may vary by usage and or bather load. Depending on bather load and frequency of use, drain and refill times may vary as well as the frequency of cleaning your filters.

\* Foam Gone may be used when excessive foaming occurs. Be sure to use only a drop or two at a time. Over use of Foam Gone will result in cloudy, milky water.

**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).

\* when cleaning filters, be sure to never have the pumps (including the circulation pump) running without the filters in place. Failure to do so may result in debris in the pumps causing unwarranted damage.

## DOWN EAST (3 -4 PUMP SYSTEMS)

Diagnostic Messages

Message	Meaning	Action Required
<b>dr</b>	Possible inadequate water, poor flow, or air bubbles are detected in the heater. Spa is shut down for 15 minutes.	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, or this message will automatically reset within 15 minutes. If problem persists, contact your dealer or service provider.
<b>dy</b>	Inadequate water detected in heater. (Displays on third occurrence of "dr" message.) Spa is shut down.	Follow action required for "dr" message. Spa will not automatically reset; you may press any button to reset.

**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.

## DOWN EAST (3 -4 PUMP SYSTEMS)

### Diagnostic Messages

Message	Meaning	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 are preserved on all systems.
OH	Temperature is unknown.	After the pump has been running for 2 minutes, the temperature will be displayed.
<b>OHH</b>	"Overheat" - The spa has shut down. One of the sensors has detected 118°F/48°C 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.
<b>OHS</b>	"Overheat" - The spa has shut down. One of the sensors has detected that the spa water is 110°F/43°C.	DO NOT ENTER THE WATER. Remove the spa cover and allow water to cool. At 107°F/ 42°C, the spa should automatically reset. If spa does not reset, shut off the power to the spa and call your dealer or service organization.
<b>ICE</b>	"Ice" - Potential freeze condition detected.	No action required. The pumps will automatically activate regardless of spa status.
<b>SnA</b>	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.)
<b>SnB</b>	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.)
<b>SnS</b>	Sensors are out of balance. If alternating with spa temperature, it may just be a temporary condition. If flashing by itself, spa is shut down.	If the problem persists, contact your dealer or service organization.
<b>HFL</b>	A significant difference between the temperature sensors has been 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.
<b>LF</b>	Persistent low flow problems. (Displays on the fifth occurrence of "HFL" message within 24 hours.) Heater is shut down, but other spa functions continue to run normally.	Follow action required for "HFL" message. Heating capacity of the spa will not reset automatically; you may press any button to reset.

## SPA WATER MAINTENANCE - START-UP

### For Spas without Eco Pur™ Filtration System

1. Read the spa owners manual first.
2. Clean the surface with a spa general purpose cleaner or wipe down with a clean wet towel.
3. Begin filling the spa with fresh water. If possible, do not use softened water.
4. When the spa has 2 to 4 inches of water on the bottom, add the recommended amount of a sequestering chemical for that size spa. See the chemical bottle for correct amounts.
5. When the spa is full, run the pump on high speed for 30 minutes without air controls open. This will give the sequestering chemical time to mix well with the water. Allow sequestering chemical 12-24 hours to properly filter in the water before proceeding with any further steps.
6. Using test strips or a test kit, test for total alkalinity, and adjust if necessary to between 80 to 150 ppm using the pH / alkalinity increaser or decreaser 1oz. at a time. Wait 15 minutes, retest, and adjust if necessary. The pump should be running on high speed during this time without air controls open.
7. Using test strips or a test kit, test for pH, and adjust if necessary to within the 7.2 and 7.8 range using the pH / alkalinity increaser or decreaser 1/2oz. at a time. Wait 15 minutes, retest, and adjust if necessary. The pump should be running on high speed during this time, without air controls open.
8. Add the sanitizer of choice, following label directions. If chlorine is used, broadcast the recommended amount across the surface of the water, with the pump running on high speed. Wait 15 minutes, retest, and adjust if necessary to a total chlorine reading of 1 to 3 ppm. If bromine is used, add bromine tablets to the bromine feeder following label directions. With the pump running on high speed, add 2oz. of sodium bromide, and shock the spa with 2oz. of non chlorine shock. It may take several days adjusting the bromine feeder to obtain a total bromine reading of 3 to 5 ppm. A bromine reading may not be obtained on the first day.
9. If any foam develops, add a defoamer at the base of the problem area. Use only enough defoamer to get rid of the foam. This is usually one or two drops Do not pour large amounts of defoamer into water.
10. Wait two days, and begin a three day a week maintenance program.

## SPA WATER MAINTENANCE - SCHEDULE

For Spas without Eco Pur™ Filtration System

### Day One

1. Test and adjust total alkalinity if necessary to between 80 to 150 ppm using the pH / alkalinity increaser or decreaser 1oz. at a time. Wait 15 minutes, retest and adjust if necessary. The pump should be running on high speed during this time with the air controls closed.
2. Test and adjust pH, if necessary, to within the range of 7.2 to 7.8 using the pH / alkalinity increaser or decreaser, 1/2oz. at a time. Wait 15 minutes, retest and adjust if necessary. The pump should be running on high speed during this time with the air controls closed.
3. Test and adjust sanitizer level. Add chlorine following label directions to maintain a free chlorine level of 1 to 3 ppm. If using bromine, adjust feeder to maintain a total bromine level of 3 to 5 ppm. Add bromine tablets to the dispenser if necessary, following label directions.
4. Add a water clarifier following label directions. If the spa is equipped with an ozone unit, we recommend adding an enzyme product in place of the clarifier, following the label directions.
5. Use a small amount of defoamer only if necessary.

### Day Two Skip

### Day Three

1. Test and adjust total alkalinity, if necessary, to between 80 and 150 ppm using the pH / alkalinity increaser or decreaser, 1oz at a time. Wait 15 minutes, retest and adjust if necessary. The pump should be running on high speed during this time with the air controls closed.
2. Test and adjust the pH, if necessary, to within the range of 7.2 to 7.8 using the pH / alkalinity increaser or decreaser, 1/2oz at a time. Wait 15 minutes, retest and adjust if necessary. The pump should be running on high speed during this time with the air controls closed.
3. Test and adjust sanitizer level. Add chlorine following label directions to maintain a free chlorine level of 1 to 3 ppm. If using bromine, adjust feeder to maintain a total bromine level of 3 to 5 ppm. Add bromine tablets to the dispenser if necessary, following label directions.
4. Add sequestering chemical, following label directions for maintenance.
5. If necessary, clean water line with a spa general purpose cleaner or enzyme product.
6. Use a defoamer only if necessary.

### Day Four Skip

*(cont. next page)*

## DOWN EAST (3 -4 PUMP SYSTEMS) - CONTROLS

### Jets 1

Touch the "Jets 1" button once to turn pump 1 on or off. If left running, and the pump will automatically turn off after 15 minutes.

### Jets 2

Touch the "Jets 2" button once to turn pump 2 on or off. If left running, pump 2 will automatically turn off after 15 minutes.

### Jets 3 (if equipped)

This button is used to turn the pump 3 on and off. If left on, this device automatically turns off after 15 minutes.

### Light

Press the "Light" button to turn the light on and off. If left on, the light automatically turns off after 4 hours.

### L.E.D. Light (if equipped)

Press the "Light" button to turn the light on and off. If you wish to change the "function" of the lights, turn the lights off, then on within 5 seconds. If you wish to leave the lights in the same "function" setting for the next use, turn the lights off and do not turn back on for at least 5 seconds.

### Mode

Mode is changed by pressing the "Warm" or "Cool" button, then pressing the "Mode" button.

**Standard mode** is programmed to maintain the desired temperature. Note that the last measured spa temperature displayed is current only when the pump has been running for at least 2 minutes. "Std" will be displayed momentarily when you switch into Standard Mode.

**Economy mode** heats the spa to the set temperature only during filter cycles. "Ecn" will display solid when temperature is not current, and will alternate with temperature when temperature is current.

**Sleep mode** heats the spa to within 20°F/10°C of the set temperature only during filter cycles. "SLP" will display solid when temperature is not current, and will alternate with temperature when temperature is current.

### Filtration

The circulation pump runs constantly for filtration and the ozone generator (if installed) will be enabled.

### Freeze Protection

If the temperature sensors detect a drop to below 44°F/6.7°C within the heater, the pump(s) will 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/7.2°C or higher.

### Initial Start-up

When your spa is first actuated, it will go into Priming mode, indicated by "Pr." Be sure the pumps and heating system are free of air by cycling the pumps on and off with the spa-side panel buttons. The spa will not heat during priming mode, allowing time to verify all air is purged from the heater. The Priming mode will last for less than 5 minutes (press "Warm" or "Cool" to skip Priming Mode) and then the spa will begin to heat the spa and maintain the water temperature in the Standard mode.

### East Hampton 3 / Portsmouth 3 / Windsor 3 / Exeter 3 / Cape Cod 3 / Westbrook 3 (3 Pump System)



### East Hampton SE / Portsmouth SE / Windsor SE / Windsor STS / Exeter SE / Westbrook SE /Cape Cod SE (4 Pump System)



**Note:** Refer to pg. 52 for Mystic operations.

Your system has a 24-hour circ pump. The circ pump and the ozone generator run continuously.

### Warm/Cool (80°F - 104°F / 26°C - 40°C)

The start-up temperature is set at 100°F/37°C. The last measured temperature is constantly displayed on the LCD.

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

To display the set temperature, press the "Warm" or "Cool" pad once.

To change the set temperature, press the pad a second time before the LCD stops flashing. Each press of the "Warm" or "Cool" pad will continue to either raise or lower the set temperature. After three seconds, the LCD will stop flashing and display the current spa temperature.

### Day Five

1. Test and adjust total alkalinity, if necessary, to between 80 and 150 ppm using the pH / alkalinity increaser or decreaser, 1oz. at a time. Wait 15 minutes, retest and adjust if necessary. The pump should be running on high speed during this time with the air controls closed.
2. Test and adjust the pH, if necessary, to within the range of 7.2 to 7.8 using the pH / alkalinity increaser or decreaser, 1/2oz. at a time. Wait 15 minutes, retest and adjust if necessary. The pump should be running on high speed during this time with the air controls closed.
3. Test and adjust sanitizer level. Add chlorine following label directions to maintain a free chlorine level of 1 to 3 ppm. If using bromine, adjust feeder to maintain a total bromine level of 3 to 5 ppm. Add bromine tablets to the dispenser if necessary, following label directions.
4. Shock with 2oz. of non chlorine shock, or superchlorinate following label directions. A spa should be shocked at least once a week even if it is not used. If using chlorine as the sanitizer, the spa should be shocked whenever a free chlorine reading of 1 to 3 ppm cannot be obtained without raising the total chlorine level above 5 ppm. Always shock a spa after any heavy bather load.
5. Check filter cartridge and clean if necessary. Clean with cartridge filter cleaner, following label directions. It is best to have a spare cartridge on hand, to prevent long spa down times while the cartridge is being cleaned. Never operate your spa without the filters in place.
6. Use a defoamer only if necessary.

### Day Six and Seven Skip

With a spa, you are working with a small volume of hot water, which causes chemicals to have a shorter life span, and bacteria, along with other things, to grow faster. A spa is less forgiving than a pool, and requires that whatever is put into it have a pH as close to neutral as possible. That is why only chemicals made for spas should be used.

## SPA WATER MAINTENANCE TROUBLE-SHOOTING GUIDE

Problem	Possible Causes	How To Fix It
Chlorine / Bromine Odor	<ul style="list-style-type: none"> <li>Excessive Chlorine or bromine level</li> <li>Low pH</li> </ul>	<ul style="list-style-type: none"> <li>Shock water with non-chlorine shock treatment</li> <li>Adjust pH if necessary</li> </ul>
Water Odor	<ul style="list-style-type: none"> <li>Low levels of sanitizer</li> <li>pH out of range</li> <li>Bacteria or algae growth</li> </ul>	<ul style="list-style-type: none"> <li>Shock water with non-chlorine shock treatment or adjust sanitizer levels</li> <li>Adjust pH level if necessary</li> <li>Adjust sanitizer if necessary</li> </ul>
Cloudy Water	<ul style="list-style-type: none"> <li>Dirty filters or inadequate filtration</li> <li>Water chemistry not balanced</li> <li>Suspended particles or organic materials</li> <li>Old water</li> </ul>	<ul style="list-style-type: none"> <li>Clean filters and adjust filtration</li> <li>Adjust chemistry levels</li> <li>Add spa clarifier (see dealer)</li> <li>Change spa water</li> </ul>
Scum Ring Around Spa	<ul style="list-style-type: none"> <li>Build up of oils, dirt and organic elements</li> </ul>	<ul style="list-style-type: none"> <li>Wipe off with a clean towel</li> </ul>
Eye / Skin Irritation	<ul style="list-style-type: none"> <li>Unsanitary water</li> <li>Free chlorine level above 5 ppm</li> <li>Poor sanitizer / pH levels</li> </ul>	<ul style="list-style-type: none"> <li>Shock spa with non-chlorine shock</li> <li>Allow level to drop below 5 ppm</li> <li>Adjust according to spa test strip results</li> </ul>
Foaming	<ul style="list-style-type: none"> <li>High levels of body oils, lotions, soap, etc.</li> </ul>	<ul style="list-style-type: none"> <li>Add small amount of defoamer</li> </ul>

### RECOMMENDED LEVELS OF CHEMICAL

Chlorine 1.0 - 3.0 ppm

pH 7.2 - 7.8

Total Alkalinity 80 - 150 ppm

Calcium Hardness 180 - 250 ppm

## DOWN EAST SPAS - SPECIFICATIONS

Spa Model	Spa Dimensions	Electrical Required	Water Capacity	Weight Dry/Full	Number of Pumps	Jet Count
Mystic	82" x 60" x 32"	240V 50A	185 gallons	450lbs/ 2590lbs	2 pump	24
Cape Cod 3	84" x 84" x 36"	240V 50A	425 gallons	715lbs/ 4115lbs	3 pump	58
Cape Cod SE	84" x 84" x 36"	240V 50A	425 gallons	745lbs/ 4145lbs	4 pump	73
Exeter 3	84" x 84" x 36"	240V 50A	410 gallons	705lbs/ 3985lbs	3 pump	57
Exeter SE	84" x 84" x 36"	240V 50A	410 gallons	735lbs/ 4015lbs	4 pump	72
Windsor 3	94" x 94" x 36"	240V 50A	510 gallons	760lbs/ 4840lbs	3 pump	66
Windsor SE	94" x 94" x 36"	240V 50A	510 gallons	790lbs/ 4870lbs	4 pump	81
Portsmouth 3	94" x 94" x 36"	240V 50A	485 gallons	750lbs/ 4630lbs	3 pump	67
Portsmouth SE	94" x 94" x 36"	240V 50A	485 gallons	780lbs/ 4660lbs	4 pump	82
East Hampton SE	120" x 94" x 39"	240V 50A	620 gallons	970lbs/ 6135lbs	4 pump	74
Westbrook 3	94" x 94" x 36"	240V 50A	460 gallons	760lbs/ 4592lbs	3 pump	57
Westbrook SE	94" x 94" x 36"	240V 50A	460 gallons	790lbs/ 4602lbs	4 pump	72
Manchester	94" x 94" x 36"	240V 50A	460 gallons	605lbs/ 3500lbs	4 pump	72

Message	Meaning	Action Required
<b>dr</b>	Possible inadequate water, poor flow, or air bubbles are detected in the heater. Spa is shut down for 15 minutes.	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, or this message will automatically reset within 15 minutes. If problem persists, contact your dealer or service provider.
<b>dy</b>	Inadequate water detected in heater. (Displays on third occurrence of "dr" message.) Spa is shut down.	Follow action required for "dr" message. Spa will not automatically reset; you may press any button to reset.

**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.

## 1. Evaporation:

As water evaporates, only pure water evaporates, leaving the salts, minerals, metals, and any unused chemicals behind. Adding water adds more salts, minerals, and metals. In time, the water can become saturated with these dissolved solids and can cause stains or scale to form on the walls of the spa or a scale build up inside the equipment. Colored or cloudy water, and possible corrosion of plumbing and fittings may also occur.

## 2. Heat:

Heat causes evaporation to happen faster. Heat also causes certain minerals and metals to precipitate out of solution.

## 3. Air:

Dust and airborne dirt particles are introduced into the spa.

## 4. Environment:

The environment surrounding the spa is also a consideration. Watch for pollen, grass, sand, dirt, lawn fertilizer, dust storms, insects, dogs, cats, etc.

## 5. Consider the human next:

In a heated spa, the average adult sweats 3 pints per hour. This person also brings in the spa surface dirt, soap, body oils, deodorant, hair spray, hand and body lotion, perfume and cologne, make up, lipstick, and suntan lotion. To this you can add spit, urine, bacteria and virus germs from open sores or certain body parts. To this let's add spilled drinks, cigarette ash, and various play things. Now multiply this times 4 or 6 people in an average 375 gallon spa and then try to use the water for a few months!

## Remember:

The maintenance routines set forth in this manual may need to be adjusted depending on how much the spa is being used.

## MAINTENANCE RECOMMENDATIONS

Your spa requires periodic draining and cleaning to ensure a safe, healthy environment. It is recommended that you clean your spa at least every 180 days. Heavy bather load will require cleaning it more often.

### TO DRAIN YOUR SPA

- See page 13.

### TO CLEAN YOUR SPA SURFACE

- With a soft cloth, wipe down the spa surface with a non-abrasive spa surface cleaner that may be purchased through your local spa dealer. Do not use paper towels. Be sure to rinse residue from spa surface.
- 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

- Be sure to close the drain valve.
- Fill the spa with water. Be sure water level is above skimmer opening to the minimum safe water level label.
- Refer to your spas corresponding start-up section with any questions.

### TO CLEAN YOUR FILTER ELEMENTS (also reference page 73)

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. Never have the spa running when removing your filters as debris can be pulled through into the equipment causing unwarranted damage.
- Remove filter element(s).
- With a garden hose, spray each element under pressure. Periodically, the elements need to be soaked in a filter cleaner compound. Check with your dealer for details on cleaning and/or filter replacement recommendations.
- Replace filter elements.
- Be sure water level is adequate.
- Turn spa on.
- Only clean ECO PUR™ and middle depth loading element with water.
- Depth loading filter is a disposable filter and should be replaced as water conditions require.

### 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.
- Always leave the cover open for 15 minutes in order to prevent off gas from damaging your spa pillows, cover and other critical parts. Signs of off gas damage include but are not limited to pillows peeling and bubbling, cover failing prematurely, plastics failing, etc.

## MASTER SPA – LEGEND SERIES – LSX 557

### Diagnostic Messages

Message	Meaning	Action Required
	No message on display. Power has been cut off to the spa.	The control panel will be disabled until power returns. Time of day will be preserved for 30 days on your system. Spa settings are preserved on all systems.
--	Temperature is unknown.	After the pump has been running for 2 minutes, the temperature will be displayed.
HH	“Overheat” - The spa has shut down. One of the sensors has detected 118°F/48°C 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.
OH	“Overheat” - The spa has shut down. One of the sensors has detected that the spa water is 110°F/43°C.	DO NOT ENTER THE WATER. Remove the spa cover and allow water to cool. At 107°F/ 42°C, the spa should automatically reset. If spa does not reset, shut off the power to the spa and call your dealer or service organization.
IC	“Ice” - Potential freeze condition detected.	No action required. The pumps will automatically activate regardless of spa status.
SA	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.)
Sb	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.)
Sn	Sensors are out of balance. If alternating with spa temperature, it may just be a temporary condition. If flashing by itself, spa is shut down.	If the problem persists, contact your dealer or service organization.
HL	A significant difference between the temperature sensors has been 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.
LF	Persistent low flow problems. (Displays on the fifth occurrence of "HL" message within 24 hours.) Heater is shut down, but other spa functions continue to run normally.	Follow action required for "HL" message. Heating capacity of the spa will not reset automatically; you may press any button to reset.

### Light

Press the "Light" button to turn the light on and off. If left on, the light automatically turns off after 4 hours.

### L.E.D. Light

Press the "Light" button to turn the light on and off. If you wish to change the "function" of the lights, turn the lights off, then on within 5 seconds. If you wish to leave the lights in the same "function" setting for the next use, turn the lights off and do not turn back on for at least 5 seconds.

### Mode

Mode is changed by pressing the "Warm" or "Cool" button, then pressing the "Mode" button.

**Standard mode** is programmed to maintain the desired temperature. Note that the last measured spa temperature displayed is current only when the pump has been running for at least 2 minutes. "St" will be displayed momentarily when you switch into Standard mode.

**Economy mode** heats the spa to the set temperature only during filter cycles. "Ec" will display solid when the temperature is not current, and will alternate with the temperature when the temperature is current.

**Sleep mode** heats the spa to within 20°F /10°C) of the set temperature only during filter cycles. "SL" will display solid when the temperature is not current, and will alternate with temperature when temperature is current.

### Preset Filter Cycles (if configured)

Your spa comes standard with a 24 hour circulation pump that filters and maintains heat as programmed/configured.

### Freeze Protection

If the temperature sensors detect a drop to below 44°F /6.7°C within the heater, the pump automatically activates to provide freeze protection. The equipment stays on until 4 minutes after the sensors detect that the spa temperature has risen to 45°F /7.2°C 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 a 4-minute delay in turnoff. See your dealer for details.

### CARE OF LAMINAR FLOW JETS:

- In order to keep your Laminar Flow Jets operating properly, following these instructions in sequence:
  - Turn off Laminar Flow Jets
  - Remove outer ring by turning face counter clockwise
  - Remove internal Jet insert with a pair of needle nose pliers
  - Clean plastic filter at the back of the Jet insert so all holes are free of debris
  - Reinstall Jet insert and outer ring



**NOTE:** To prevent premature failure of your spa cover, always turn Laminar Flow Jets down so that they do not hit the cover when the cover is closed. You do not want to completely turn jets off. Doing so may cause a build up of stagnant water in the water line if not used often.

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:

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 winterizing plug from the face of the pump(s).
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 spa surface cleaner.
9. Replace access panels.
10. Cover spa to prevent water from entering the spa.

*\*Disclaimer: Master Spas does not recommend winterizing your spa. If you choose to do so, any damage that may result is not covered under the spa warranty.*

### Initial Start-up

When your spa is first actuated, it will go into Priming mode, indicated by "Pr." The Priming mode will last for less than 5 minutes (press "Warm" or "Cool" to skip Priming Mode) and then the spa will begin to heat the spa and maintain the water temperature in the Standard mode.



This system is equipped with a 24-hour circ pump. The circ pump and ozone generator (if installed) run continuously.

### Warm/Cool (80°F - 104°F / 26°C - 40°C)

The start-up temperature is set at 100°F/37°C. The last measured temperature is constantly displayed on the LCD.

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

To display the set temperature, press the "Warm" or "Cool" pad once.

To change the set temperature, press the pad a second time before the LCD stops flashing. Each press of the "Warm" or "Cool" pad will continue to either raise or lower the set temperature. After three seconds, the LCD will stop flashing and display the current spa temperature.

### Jets 1

Touch the "Jets 1" button once to activate pump 1. Press the "Jets 1" button again to turn off the pump. If left running, the pump will automatically turn off after 15 minutes.

### Jets 2

Touch the "Jets 2" button once to activate the pump. Press the "Jets 2" button again to turn off the pump. If left running, the pump will automatically turn off after 15 minutes.

## MASTER SPAS

### Diagnostic Messages

Message	Meaning	Action Required
<b>drY</b>	Inadequate water detected in heater. (Displays on third occurrence of "dr" message.) Spa is shut down.	Follow action required for "dr" message. Spa will not automatically reset; you may press any button to reset.
<b>P_r</b>	When your spa is first actuated, it will go into Priming mode.	See the M-7 Installation Instruction Manual for complete instructions on Power-up and Pump Priming. The Priming mode will last for up to 4 minutes and then the spa will begin to heat and maintain the water temperature in the Standard mode.
<b>--F</b> <b>--E</b>	Temperature unknown.	After the pump has been running for 2 minutes, the temperature will be displayed.
<b>--</b>	Temperature not current in Economy or Sleep mode.	In Economy or Sleep mode, the pump may be off for hours outside a filter. If you wish to see the current spa temperature, either switch to Standard mode or turn Jets 1 on for at least two minutes.
<b>Sby</b>	Standby Mode has been activated by pressing a button combination on the user panel.	Press any button to leave Standby mode and return to normal operation.

## PERIODIC REMINDER MESSAGES

Press the "Mode" button to reset a displayed reminder (if configured)

Message	Meaning	Action Required
<b>rPH</b>	Every 7 days	Test and adjust ph chemical levels per manufacturer's instructions.
<b>rSA</b>	Every 7 days	Test and adjust sanitizer chemical levels per manufacturer's instructions.
<b>rCL</b>	Every 30 days	Remove, clean, and reinstall filter per manufacturer's instructions.
<b>rEG</b>	Every 30 days	Test and reset GFCI per manufacturer's instructions.
<b>rdr</b>	Every 90 days	Drain and refill spa per manufacturer's instructions.
<b>rCO</b>	Every 180 days	Clean and condition cover per manufacturer's instructions.
<b>rEr</b>	Every 180 days	Clean and condition wood per manufacturer's instructions.
<b>rCH</b>	Every 365 days	Install new filter.

**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.

## MASTER SPA - LEGEND SERIES - SPECIFICATIONS

Spa Model	Spa Dimensions	Electrical Required	Water Capacity	Weight Dry/Full	Number of Pumps	Jet Count
LSX700	84"x 84"x 36"	240V 50A	410 gallons	820lbs/ 4235lbs	4 pump	53
LSX800	94"x 94"x 36"	240V 50A	485 gallons	860lbs/ 4900lbs	4 pump	52
LSX800STS	94"x 94"x 36"	240V 50A	485 gallons	870lbs/ 4910lbs	4 pump	49
LSX850	94"x 94"x 36"	240V 50A	510 gallons	870lbs/ 5118lbs	4 pump	57
LSX	94"x 94"x 36"	240V 50A	450 gallons	895lbs/ 4644lbs	4 pump	60
LSX557	66"x 84"x 32"	240V 50A	210 gallons	565lbs/ 2314lbs	3 pump	31
LSX1000	94"x 120"x 39"	240V 50A	550 gallons	1115lbs/ 5697lbs	5 pump	115
LSX1000STS	94"x 120"x 39"	240V 50A	540 gallons	1145lbs/ 5643lbs	5 pump	112
LSX1050	94"x 120"x 39"	240V 50A	595 gallons	1055lbs/ 6011lbs	4 pump	62
LSX 1050 STS	94"x 120"x 39"	240V 50A	595 gallons	1115lbs/ 6071lbs	4 pump	62

Timeouts refer to a preset length of time that a function is programmed to operate before shutting off automatically. Certain conditions (filters or freeze) can cause a function to operate longer, while faults can cause a function to operate for a shorter length of time. The system keeps track of timeouts regardless of other conditions occurring.

In multi-button sequences, if buttons are pressed too quickly in sequence, they may not register.



## Initial Start-up

When your spa is first actuated, it will go into Priming mode (after displaying some configuration information). The Priming mode will last for up to 4 minutes and then the spa will begin to heat and maintain the water temperature in the Standard mode. You can exit Priming mode early by pressing "Warm" or "cool".

## Icon Legend



**Heat Icon** – Indicates different stages of heating.



**Jets Icon** – Spins fast on high speed; spins slow on low speed.



**Light Icon** – Press the "Light" button to turn the light on and off. If you wish to change the "function" of the lights, turn the lights off, then on within 5 seconds. If you wish to leave the lights in the same "function" setting for the next use, turn the lights off and do not turn back on for at least 5 seconds.

Message	Meaning	Action Required
	No message on display. Power has been cut off to the spa.	The control panel will be disabled until power returns. Time of day will be preserved for 30 days on your system. Spa settings are preserved on all systems.
<b>OHH</b>	"Overheat" - The spa has shut down. On some systems, an alarm may sound. One of the sensors has detected 118°F (approx. 47.8°C) 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.
<b>OH5</b>	"Overheat" - The spa has shut down. One of the sensors has detected that the spa water is 110°F (approximately 43.3°C).	DO NOT ENTER THE WATER. Remove the spa cover and allow water to cool. At 107°F (approx. 41.7°C), the spa should automatically reset. If spa does not reset, shut off the power to the spa and call your dealer or service organization.
<b>ICE</b>	"Ice" - Potential freeze condition detected.	No action required. The pumps will automatically activate regardless of spa status.
<b>SnA</b>	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.)
<b>Snb</b>	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.)
<b>Sn5</b>	Sensors are out of balance. If this is alternating with the temperature, it may just be a temporary condition. If the display shows only this message (periodically blinking), the spa is shut down.	If the problem persists, contact your dealer or service organization.
<b>HFL</b>	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.
<b>LF</b>	Persistent low flow problems. (Displays on the fifth occurrence of the "HFL" message within 24 hours.) Heater is shut down, but other spa functions continue to run normally.	Follow action required for "HFL" message. Heating capacity of the spa will not reset automatically; you may press any button to reset.
<b>dr</b>	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.

### Preset Filter Cycles

On your MS5000 system, the circ pump, low speed of pump 1, and the ozone generator will run during filtration. At the start of each filter cycle, the lowest speed of all pumps will run for 5 minutes.

*(The following is specific to all systems that are programmed according to time)*

There are two filter cycles per day. The start/end times of each cycle are programmable. To program, set time as instructed above, then press "Program/Mode" 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 operates the pump until 10:00 AM.

The filter 1 indicator icon will light when filter 1 is running.

The second filter cycle is automatically activated at 8:00 PM and operates the pump until 10:00 PM.

The filter 2 indicator icon will light when filter 2 is running.

### Clean-up Cycle (optional)

When the pump is turned on by a button press, a clean-up cycle begins 30 minutes after the pump is turned off or times out. The pump and the ozone generator will run for one hour.

### Ozone

On most systems, the ozone generator (if installed) runs during filter cycles (except when pump 1 is operating at high speed on a non-circ system) and during clean-up cycles.

On some systems, the ozone generator operates whenever the pump runs.

If your system is configured with the optional ozone suppress feature, the ozone generator will turn off for 1 hour any time a function button (Jets 1, Jets 2, etc.) is pressed. Ozone enabled is indicated by the O<sub>3</sub> icon on the display.

### Freeze Protection

If the temperature sensors detect a drop to 44°F (approximately 6.7°C) within the heater, then the pump automatically activates to provide freeze protection. The equipment stays on until 4 minutes after the sensors detect that the spa temperature has risen to 45°F (approximately 7.2°C) 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 a 4-minute delay in turnoff. See your dealer for details.

### Locking the Panel (PL)

Press "Time" "Jets 1" then "Warm" within 3 seconds. When locked, the PL indicator light will light. All buttons are frozen except the "Time" button. To unlock the panel, press "Time" "Jets 1" then "Cool."

### Locking the Set Temperature (TL)

Press "Warm" or "Cool" then "Time," "Jets 1," and "Warm" within 3 seconds to activate the lock. The TL indicator light will light when the set temperature is locked.

To unlock the set temperature, press "Warm" or "Cool" then "Time", "Jets 1" and "Cool."

### Setting the Time

Once the spa has been properly connected the first time, notice the "Time" icon appearing on the screen.

Press  Then 

Select the hour by pressing  or  (Each press changes the time by 1 hour)

Press  to enter.

Select minutes by pressing  or  (Each press changes the time by 1 hour)

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

Press  to exit programming.

### Optional Filter Cycle Programming

- You are not required to set filter cycle; however, it is an option available to you. To change the filter cycle settings:
- Press "Time" "Program/Mode" "Program/Mode" "Program/Mode" within 3 seconds. You will see the "Program," "Filter 1" and "Start Time" icons appear on the display.
- Press "Warm" or "Cool" to choose the filter start time hour. Enter the hour by pressing "Program/Mode". Press "Warm" or "Cool" to choose the filter start time minutes. Each press changes the start time by 5 minutes.
- Enter the minutes by pressing "Program/Mode."
- Press "Program/Mode" to see the "PROGRAM," "FILTER 1" and "END TIME" icons. Adjust the time as done above.
- Press "Program/Mode" to see the "PROGRAM," "FILTER 2" and "START TIME" icons. Adjust the time as done above.
- Press "Program/Mode" to see the "PROGRAM," "FILTER 2" and "END TIME" icons. Adjust the time as done above.
- Pressing "Program/Mode" will enter the new filter cycle times into the system and display the current water temperature.
- Pressing "Time" at any time during this programming sequence will save the values entered up to that point and exit programming.
- If you would like to select continuous filtration, set the filter 1 start and end times to be the exact same time.

*Continued on page 38.*

### Temp Set (80°F - 104°F / 26.0°C - 40.0°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 pump has been running for at least 2 minutes.

### Warm / Cool

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

When time hasn't been programmed, the TIME icon flashes. To set the time, press "Time" then "Program/Mode". Use the "Warm" and "Cool" buttons to adjust time. See previous page for more detailed instructions.

### Program/Mode

This button is used to switch between standard, economy, and sleep modes. Press "Program/Mode" to enter mode programming, press "Cool" to cycle through to desired mode (LCD flashes until confirmed), then press "Program/Mode" to confirm selection.

**Standard mode** maintains the desired temperature. Note that the last measured spa temperature displayed is current only when the 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 the set temperature only during filter cycles. The "ECONOMY" icon will display until mode is changed.

Pressing "Jets 1" while in Economy mode puts the spa in **Standard-In-Economy mode**, which operates the same as Standard Mode, then reverts to Economy Mode automatically after 1 hour. During this time, a press of the "Program/Mode" button will revert to Economy Mode immediately.

**Sleep Mode** heats the spa to within 20°F (11°C) of the set temperature only during filter cycles. The "SLEEP" icon will display until mode is changed.

### Standby Mode

Pressing "Warm" or "Cool" then "Jets 2" will turn off all spa functions temporarily. This is helpful when changing a filter. Press any button to exit Standby mode.

### Jets 1

Press the "Jets 1" button once to turn pump 1 on or off, and to shift between low and high speeds. If left running, the low speed turns off after 2 hours and the high speed turns off after 15 minutes.

It may also activate for at least 2 minutes every 30 minutes to detect the spa temperature (polling) and then to heat the set temperature if needed, depending upon mode. When the low speed turns on automatically, it cannot be deactivated from the panel; however, the high speed may be started.

*Continued on page 39.*

### Jets 2

Press the "Jets 2" button once to turn pump 2 on or off, and to shift between low and high speeds. If left running, the pump will turn off after 15 minutes.

### Jets 3

Press the "Jets 3" button once to turn pump 3 on or off. If left running, the pump will turn off after 15 minutes.

**NOTE:** Air is injected into Master Blaster jets automatically on all equipped spas.

### Jets 4 (if equipped)

Press the round auxiliary button designated for jets 4 once to turn pump 4 on and off. If left running, the pump will turn off after 15 minutes.

**NOTE:** An icon will not appear on the display when Pump 4 is activated. Please note that this is normal.

### TV Lift (if equipped)

Press the "STS" button once to raise the TV;  
Press the "STS" button again to lower the TV.

### Invert

Press the "Warm" or "Cool" button, followed by the "Jets" button to change the numbers in the display to read upside down.

### Quick Reference LEDs

There are four LEDs on the left side of the panel that offer quick references to what spa functions are activated. From top to bottom, these lights indicate the following: Filter Cycle 1, Filter Cycle 2, Panel Lock, Temperature Lock.

### L.E.D. Light

Press the "Light" button to turn the light on and off. If you wish to change the "function" of the lights, turn the lights off, then on within 5 seconds. If you wish to leave the lights in the same "function" setting for the next use, turn the lights off and do not turn back on for at least 5 seconds.

### Circ Pump

Your system may be configured to work in one of three different ways:

1. The circ pump operates continuously (24 hours) with the exception of turning off for 30 minutes at a time when the water temperature reaches 3° F (1.5°C) above the set temperature (most likely to happen in very hot climates).
2. The circ pump stays on continuously, regardless of water temperature.
3. The circ pump will come on when the system is checking temperature (polling), during filter cycles, during freeze conditions, or when another pump is on.

**NOTE:** Factory configuration is chosen based on what the majority of users will need. If you would like your spa to operate in a different configuration setting, your dealer can change your setting for a fee.