MASTER SPAS OWNER'S MANUAL

MASTER SPAS®

Welcome To Ultimate Relaxation!

Thank you for choosing your new spa built by Master Spas. Please read the entire Owner's Manual before installing and using your spa. The goal of this manual is to provide you with safety and operational information plus some tips that will help you enjoy your spa to its fullest.

At the time of print, this manual is accurate in its information. Master Spas reserves the right to change or improve its product without prior notice. To check on updates or for other information, please visit www.masterspas.com and follow the links to the customer service section.

Record Of Ownership

Name _____

Address _____

City _____ State _____ Zip _____

Date Purchased _____ /_____ /_____

Model _____ Serial #_____

Dealer Name _____

Phone # (_____)_____-_____

Service Tech Rep_____

*Serial Number Location

The serial number for your spa is located in the filter area, on the spa system pack, or on the UL plate on the skirting. It will start with "M" followed by a 6-digit number. Ex. M404590

MASTER SPAS®

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MASTER SPAS

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SAFETY INSTRUCTIONS

MASTER SPAS

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!

SAFETY INSTRUCTIONS

MASTER SPAS

Important Safety Instructions

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

Read And Follow ALL INSTRUCTIONS

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

***NOTE:** Never operate the spa if the suction fittings are broken or missing. Never replace a suction fitting with one rated less than the flow rate marked on the original suction fitting.

6. **DANGER -** To reduce the risk of injury to persons, do not remove suction grate. Suction through drains and skimmers is powerful when the jets in the spa are in use. Damaged covers can be hazardous to small children and adults with long hair. Should any part of the body be drawn into these fittings, turn off the spa immediately. As a precaution, long hair should not be allowed to float in the spa.
7. Install spa so that water can be easily drained out of the compartment containing electrical components so as not to damage equipment. Also, when installing spa, allow enough room to access for servicing. Contact your local dealer for their requirements.

MASTER SPAS®

Important Safety Instructions (cont.)

8. WARNING - TO REDUCE THE RISK OF INJURY:

(A) Always enter and exit a spa slowly.

(B) Do not use the spa alone.

(C) Before entering the spa, always measure the water temperature with an accurate thermometer. Tolerance of water temperature regulating devices can vary as much as plus/minus 5° F (3° C).

(D) Persons suffering from obesity or with a medical history of heart disease, diabetes, high or low blood pressure or circulatory system problems should consult with their physician before using the spa.

(E) Since excessive water temperature has a high potential for causing fetal damage during early months of pregnancy, pregnant or possibly pregnant women should limit spa water temperatures to 100° F (38° C).

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

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

(G) Children's body temperature can increase more rapidly than adults in the same water with elevated temperatures (above 99° F). Children should spend less time in water above body temperature than adults.

(H) The use of a spa while under the influence of alcohol, drugs and/or medication may lead to unconsciousness with the possibility of drowning.

***NOTE:** Persons on medication should consult with their physician before entering the spa since some medication may induce drowsiness while other medication may affect heart rate, blood pressure and circulation.

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Important Safety Instructions (cont.)

9. 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.

10. **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.

11. **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.

12. **"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 / VCR 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 TV, speaker, CD compartment, or any other 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.

13. **SAVE THESE INSTRUCTIONS.**

GLOSSARY OF SPA TERMINOLOGY

MASTER SPAS

1. NECK JETS

2. SHOULDER JETS

3. THERAPY JETS

4. MASTER BLASTER FOOT THERAPY JET

Your new Master Spa features a variety of jet styles. All jets, regardless of style return the water to the spa. Air is mixed with the water by using the air controls creating a gentle to most vigorous massage. Water flow is adjusted by simply turning the outer face of the jet. Your Master Spa will have a combination of pulsating, rotating, dual pulsating and directional adjustable jets. The LS, LSI Series and Down East 2 and 3 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 (featured on the LSI, LSX and select Down East and Freedom models) 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.



Jet Diverter

GLOSSARY OF SPA TERMINOLOGY

6. **CASCADE WATERFALL VALVE -** Located on the topside of the spa, this valve adjusts water flow to the cascade waterfall. This feature is available in the LS Series only.

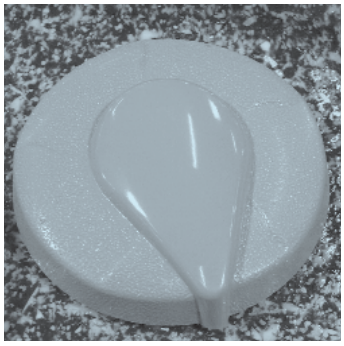


Cascade Waterfall Valve

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.



Air Control Valve



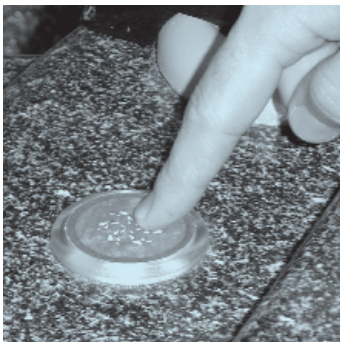
Air Control Valve

8. **TOPSIDE CONTROL PANEL -** You may safely control all functions from inside or outside your spa using the Topside Control Panel. This Panel is used to control the water temperature, pumps, the spa light, automatic filtration cycles and other advanced functions. The digital display will give you a constant temperature readout and will notify you in case of certain malfunctions. Several user programmable functions are also available.

GLOSSARY OF SPA TERMINOLOGY

MASTER SPAS®

9. **PERSONAL REMOTE CONTROL -** The Legend Series (LS) spas have additional remotes which allow the user to control the jet therapy while remaining in his/her seat. By pressing the control one time, you will activate low speed. Press the pad again for high speed and again to turn it off.



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. **EXTERNAL HOSE BIB -** Grasp the hose bib cap and turn it counter clockwise. The hose bib fitting will then be able to be pulled out slightly and the cap can be removed. Attach a garden hose, if desired. It will take most spas 3-4 hours to drain using the external hose bib.



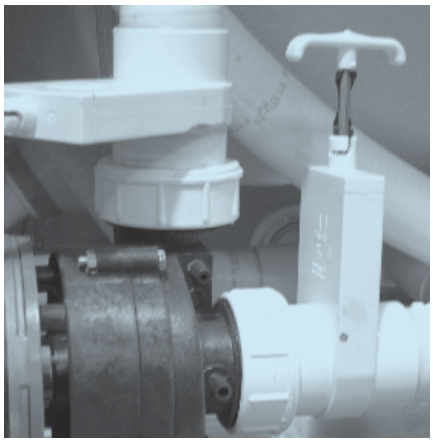
Hose Bib

GLOSSARY OF SPA TERMINOLOGY

MASTER SPAS®

13. **FILTER LID -** Your filter lid will serve to prevent major objects from entering your filter area and possibly damaging your filter elements which are located under the filter lid. These filter elements are designed to remove small debris and oils from your spa water.
14. **WEIR GATE -** The weir gate is the horizontal door located in front of the filter that traps debris and contains it in the filter area.
15. **SPA LIGHT -** Your spa light is designed for safety and is located in the interior wall of your spa. The on/off switch is located on the topside of the control panel.
16. **EQUIPMENT CONTROL SYSTEM -** This houses the wiring and electrical components necessary to operate the spa.
17. **SPA HEATER -** This element is a 5.5 kW-220v electric heater on systems with 2 or more pumps and a 4 kW-220v heater on 1 pump systems 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.

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



Slice Valve
and Pump Union

GLOSSARY OF SPA TERMINOLOGY

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 (LS Series only).

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 next to the reverse molded neck therapy seat (LS 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 Master Spa models and optional on 2 pump Down East Spa 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 Master Spas and optional on all Down East and Freedom 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.

ELECTRICAL INSTALLATION REQUIREMENTS

MASTER SPAS

HAVE YOUR ELECTRICIAN READ THE FOLLOWING INFORMATION BEFORE INSTALLATION BEGINS

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

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

All 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.

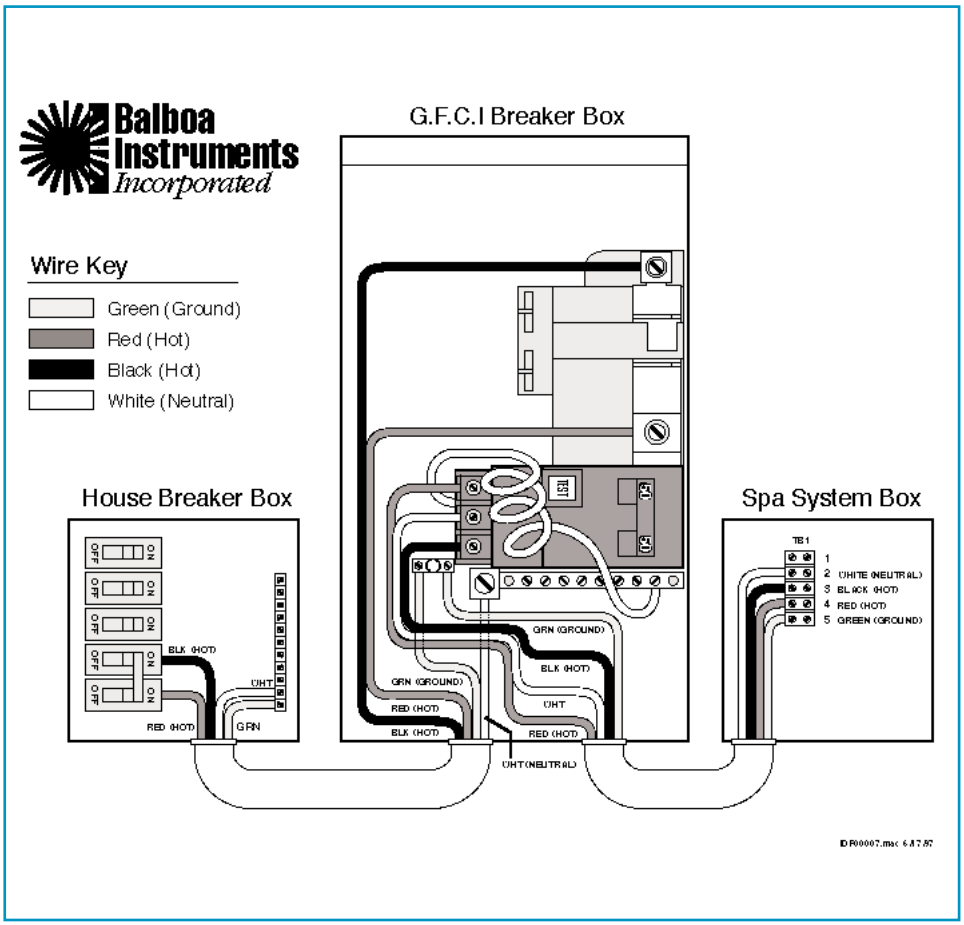
A Ground-Fault Circuit Interrupter (GFCI) must be used to comply with section 680-42 of the National Electrical Code. A ground fault is a current leak from any one of the supply conductors to ground. A GFCI is designed to automatically shut off power to a piece of equipment when a fault current is detected.

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.

WIRING SCHEMATIC - 240 VOLT SPA HOOK-UP

MASTER SPAS



* 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.

120/240 VOLT SYSTEMS

MASTER SPAS

Attn: All electrical connections must be made by a licensed electrician. Failure to do so will void the spa warranty.

Optional 120/240 Volt Models
Franklin / Revere / Madison

Special Note:
Franklin, Revere, and Madison Models are pre-wired for 240 Volt installations from the factory.

Electrical Requirements for 120 Volt

The spa must be connected to a "dedicated" 120 Volt, 15 amp grounded circuit. The term "dedicated" means the electrical circuit 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 breaker panel. The dedicated circuit must be properly wired; that is, it must have a 15 amp circuit breaker in the housebreaker panel, number 12 AWG or larger wire (including the ground wire) and the correct polarity throughout the circuit. **NEVER CONNECT THE SPA TO AN EXTENSION CORD!**

Installation Instructions Using An Optional GFCI Power Cord

For 120 Volt models with 15 feet of usable power cord (this is the maximum length allowed by Underwriters Laboratory and the National Electric Code.) When your electrician is installing the electrical outlet, please make sure it is located no further away than 10 feet from the equipment compartment door. For your safety, the National Electrical Code requires that the 15 amp single receptacle electrical outlet be located no closer than five (5) feet from the spa.

The Ground Fault Circuit Interrupter (G.F.C.I.) is located at the end of the power cord. This device is for your protection. It is very important to protect it from rain and other moisture. Once a month, with the plug connected to the power supply, push the test button located on the G.F.C.I. The reset button should pop out, shutting off power to the spa. Next, push the reset button back in. The button should stay in restoring power to the spa. If the Interrupter fails to operate in this manner, there may be a problem. Disconnect the plug from the receptacle until the source of the malfunction has been identified and corrected by an authorized service agent.

WARNING: Removal of the G.F.C.I. from the spa power cord at any time will result in an unsafe spa and void the warranty.

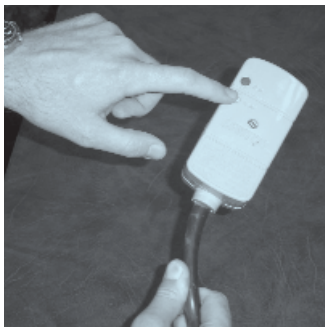
Special Note:
Heater needs to be converted from 240V to 120V when wiring spa 120V.
• See wiring diagram on equipment pack for 120 Volt conversion.

MASTER SPAS

Plug-In Instructions for 120V GFCI cord set (optional) Franklin / Revere / Madison

1. Electrical Requirements - Your spa requires a dedicated 120 volt AC 15 AMP electrical outlet and must have a separate, dedicated, grounded circuit having no other appliance connected in the circuit. If you do not have a dedicated 120 volt AC 15 AMP circuit, a licensed electrician should be called in to install the necessary wiring in conformity with all applicable codes. The outlet must also have a ground wire in order to take advantage of the designed safety features of the spa.

2. Electrical Precautions - Your spa can be supplied with an optional 15 ft. line cord with a built in GFCI. Locate the spa near a weather protected outlet, but no closer than 5 ft. **Do not use an extension cord!** Using an extension cord is hazardous and will decrease the amount of power to the unit, causing slow heating, poor pump performance, or system malfunction and will void the warranty.



Make sure the line cord does not lie across a walkway or in a heavily traveled area where it may be a safety hazard or become damaged. To prevent the skirt from resting on the cord, make sure that the cord passes through a cord opening in the bottom of the equipment compartment.

WARNING

The continuous service ground wire is located in the line cord supplied. DO NOT modify this cord in any way! Tampering with the ground wire or using an adaptor which would make the built in grounding device ineffective would cause electrical shock. Such modification would also nullify the warranty.

SITE PREPARATION / GENERAL GUIDELINES

MASTER SPAS

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 or 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.

MASTER SPAS®

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

INSTALLATION INSTRUCTIONS

MASTER SPAS®

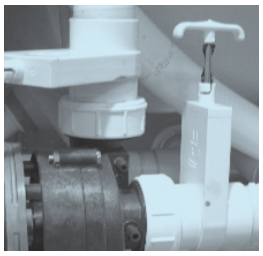
1.) Put spa in final position that allows for access to equipment of spa components.

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.



Removing of Panels

4.) 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

Be sure outside drain fitting is fully closed.

5.) Fill spa to the "minimum safe water level" sticker. We recommend filling the spa through the filter area.

6.) Turn the power on to the spa. Spa will go through its priming mode. This lasts approximately 5 minutes.

7.) Be sure the jets in your spa are opened.

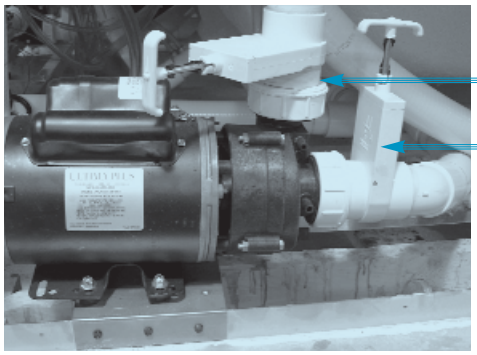
On all Master Spas: The jets open by turning the jet collar clockwise.
On all Down East / Freedom Spas: The jets open by turning the jet collar counter clockwise. The smaller jets on the Down East line will open by turning the jet collar clockwise. The smallest jets in the Freedom line cannot be opened or closed.

Note: The Master Blasters are only turned on/off through the use of the "Jets 3" button or the divertor valve.

8.) 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 possiblilty 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.



9.) Adjust water chemistry according to the instructions provided in the "Spa Water Maintenance Section" (page 22) for Master Spas and Down East Spas. Freedom Spa models should follow the " Spa Water Maintenance-Initial Start-Up Section" (page 26).

10.) Your spa water will heat approximately 5° - 8° per hour, for all 240V spas. This varies depending on the size of the spa. On 120V spas, the water will heat approximately 1 1/2° per hour.
Step into the soothing waters of your new Master Spa!
Relax and enjoy.

WATER CHEMISTRY TERMS YOU SHOULD KNOW

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

MASTER SPAS

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, 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.).

WATER CHEMISTRY TERMS YOU SHOULD KNOW

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

MASTER SPAS®

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 with out 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.
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
         a. Sodium dichlor which is a granule, fast disolving, and pH neutral
      2. Chlorine is an immediate sanitizer.
   B. Bromine
      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.
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.

SPA WATER MAINTENANCE
Master Spas and Down East Spas

MASTER SPAS®

*** All Down East and Master Spas use the Eco Pur mineral filter(s). This section pertains specifically to maintaining water chemistry in spas that have the Eco Pur mineral filters.**



SPECIAL NOTE

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

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

WATER QUALITY MAINTENANCE START-UP

Master Spas and Down East Spas

MASTER SPAS®

For ECO PUR™ Water Purification System

Optional: Fill spa using ECO PUR™ Charcoal Pre-filter.

Step 1: 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 2: 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 3: Adjust pH, total Alkalinity (TA) and Calcium hardness utilizing the directions on the chemical bottles provided by your dealers start up kit.

Step 4: It may be necessary to retest and add additional chemicals to get to the proper levels in Step 3.

Step 5: 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 intitial removal of heavy contaminents in source water.

THE ADVANTAGES OF ECO PUR™ MINERAL PURIFICATION

Master Spas and Down East Spas

MASTER SPAS®

- Destroys most bacteria, pathogens, algae, and fungi.
- Removes many heavy metals like lead and mercury from water.
- Removes calcium carbonate and hydrogen sulphide from spa water to protect heaters and equipment from precipitation.
- Helps stabilizes the pH and alkalinity of the spa water.
- Reduces up to 90% of chemical usage and still provides safe odor-free water.
- Depletes excess chlorine after chemical shock to prevent damage to skin, hair, and swimwear.
- Produces ultra clean clear water.

SPECIAL NOTES

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

- ECO PUR™ water purification will not alter the pH of spa water. The mineral combination will actually aid in stabilizing the pH. ECO PUR™ does not alter the (TDS) total dissolved solids as it performs sanitization in the filter and does not add anything to the water. The use of sequestrants and stain and scale inhibitors is not required for regular maintenance and should only be used in the start up procedures.

- The main function of the ECO PUR™ water purification system is to provide clean and clear spa water. The ECO PUR™ system is effective at destroying most bacteria and algae that will be found in the spa water, but proper chemical balance and filtration are also key components in maintaining healthy spa water. Always ensure that the pH and TA of the spa water is checked and balanced at all 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 buildup of containments. (Do not soak ECO PUR™ mineral cartridge in filter cleaner.) If water appears to be visually cloudy or dull or has an odor, shock water with 2 oz of chlorine to remove excessive containments.

WATER QUALITY MAINTENANCE SCHEDULE-ECO PUR™

Master Spas and Down East Spas

MASTER SPAS®

BEFORE EACH USE - Add 1 tablespoon of non-chlorine shock or 1/3 tea spoon of Dichlor to spa per 250 gallons.

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.

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

* Depending on bather load and frequency of use, drain and refill times may vary as well as the frequency of cleaning your filters.
* Spa Clarifier may be used (use only recommended doses per bottle).
* 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.

SPA WATER MAINTENANCE - START-UP

Freedom Spas

MASTER SPAS®

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

Freedom Spas

MASTER SPAS

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.

(cont. next page)

SPA WATER MAINTENANCE - SCHEDULE

Freedom Spas

MASTER SPAS

DAY FOUR SKIP

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

MASTER SPAS

Problem	Possible Causes	How To Fix It
Chlorine / Bromine Odor	• Excessive Chlorine or bromine levels	• Shock water with non-chlorine shock treatment
	• Low pH	• Adjust pH if necessary
Water Odor	• Low levels of sanitizer	• Shock water with non-chlorine shock treatment or adjust sanitzer levels
	• pH out of range	• Adjust pH level if necessary
	• Bacteria or algae growth	• Adjust sanitizer if necessary
Cloudy Water	• Dirty filters or inadequate filtration	• Clean filters and adjust filtration times
	• Water chemistry not balanced	• Adjust chemistry levels
	• suspended particles or organic materials	• Add spa clarifier (see dealer)
	• Old water	• Change spa water
Scum Ring Around Spa	• Build up of oils, dirt and organic elements	• Wipe off with a clean towel
Eye / Skin Irritation	• Unsanitary water	• Shock spa with non-chlorine shock
	• Free chlorine level above 5 ppm	• Allow level to drop below 5 ppm
	• Poor sanitizer / pH levels	• Adjust according to spa test strip results
Foaming	• High levels of body oils, lotions, soap, etc.	• Add small amount of defoamer

RECOMMENDED LEVELS OF CHEMICAL

Chlorine 1.0 - 3.0 ppm

Bromine 4.0 - 6.0 ppm

pH 7.2 - 7.8

Total Alkalinity 80 - 150 ppm

Calcium Hardness 180 - 250 ppm

WHY ARE CHEMICALS IMPORTANT IN A SPA

MASTER SPAS®

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

MASTER SPAS®

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 9.

TO CLEAN YOUR SPA SURFACE

- With a soft cloth, wipe down the spa surface with a non-abrasive cleaner such as "409," "Fantastik" or equivalent. 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 located on the exterior cabinet wall.
- 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 70)

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) by turning counter-clockwise.
- 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™ element with water.

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.

WINTERIZING YOUR SPA

MASTER SPAS

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 square 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 cleaner (409, Fantastik, Glass Plus, etc.).

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.*

MASTER SPA- SPECIFICATIONS

MASTER SPAS®

Spa Model	Spa Dimensions	Electrical Required	Water Capacity	Weight Dry/Full	Therapy Pumps	Jet Count
LSI 557	66"x84"x32"	240 volt 50 amp	230 gallons	535lbs/2375lbs	2 pump	37
LS 650	78"x84"x36"	240volt 50amp	370 gallon	740lbs/3700lb	4 pump	61
LS 700	84"x84"x36"	240 volt 50 amp	410 gallons	820lbs/4100lbs	4 pump	63
LS 750	84"x84"x36"	240 volt 50amp	435 gallons	830lbs/4310lbs	4 pump	63
LS 800	94"x94"x36"	240 volt 50 amp	485 gallons	860lbs/4740lbs	4 pump	63
LS 850	94"x94"x36"	240 volt 50 amp	510 gallons	870lbs/4950lbs	4 pump	66
LSX	94"x94"x36"	240 volt 50 amp	450 gallons	895lbs/4495lbs	4 pump	77
LSX 1050	94"x120"x39"	240 volts 50 amp	595 gallons	1055lbs/5815lbs	4 pump	84
LS 750 FST	84"x84"x36"	240 volts 50 amp	435 gallons	880lbs/4360lbs	4 pump	63
STS	94"x94"x36"	240 volts 50 amp	405 gallons	925lbs/4165lbs	4 pump	65
LSX 1050 FST	94"x120"x39"	240 volt 50 amp	595 gallons	1115lbs/5875lbs	4 pump	84



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.



Light Icon - Indicates light is on; On spas with a rotating LED light system, the light icon will rotate if the color wheel is changing.



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

Temp Set (80˚F - 104˚F / 26.0˚C - 40.0˚C)

The factory preset 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 "Mode/Prog". Use the "Warm" and "Cool" buttons to adjust the time.

Mode/Program

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

Note: Jets 2 and Jets 3 not available on 557 LSI model.

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. *

**15-minute timeouts may be changed to 30 minutes and 2-hour timeouts may be changed to 4 hours. • Consult your dealer for more information.*

Indicator Lights

The top indicator ligh will be lit up if the spa is in its first filter cycle. The next down will be lit if the spa is in the second filter cycle. The third will be lit when the panel is locked. The bottom indicator will be lit when the temperature lock is enabled.

Invert

Press the "Warm" or "Cool" button, followed by the "Jet 3" button to change the number in the display to read upside down. This feature is not available on the LSI 557 model.

Light (Icon) LED Light

Press the "Light" button to turn the spa light on and off. If a LED light system is installed, press the "Light" button once to start the color cycle, press it again to stop the cycle, and then again to turn the light off. The light icon stands still when the LED light is on by itself, and rotates when the color wheel is on. If either light is left on, it will automatically turn off after 4 hours. The LSI 557 with the LED light option will only continuously change colors when on.

Circ Pump

Your system is equipped with a circ pump, it maybe configured to work in one of two 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). Contact your dealer if you would like it to operate this way.

2.) The circ pump stays on continuously, regardless of water temperature. **Note: Standard setting from factory**

Preset Filter Cycles

On all systems, the pump and the ozone generator will run during filtration. At the start of each filter cycle, the lowest speed of pump 2 and pump 3 will run for 5 minutes.

Secondary Filter Cycle Programming

You are not required to set filter cycles; however, it is an option available to you.

To change the filter cycle settings:

Press "Time" Mode/Prog" "Mode/Prog" "Mode/Prog" 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 "Mode/Prog". 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 "Mode/Prog".

Press "Mode/Prog" to see the "Program", "Filter 1", and "End Time" icons. Adjust the time as done above. (cont. next page)

Secondary Filter Cycle Programming (cont.)

Press "Mode/Prog" to see the "Program", "Filter 2", and "Start Time" icons. Proceed as above.

Press "Mode/Prog" to see "Program", "Filter 2", and "End Time" icons. Adjust the time as done above.

Pressing "Mode/Prog" 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.

Setting the Time

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

Press Time **Then** Mode

Select the hour by pressing Warm or Cool

(Each press changes the time by 1 hour)

Press Mode to enter.

Select minutes by pressing Warm or Cool

(Each press changes the time by 1 hour)

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

Press Time to exit programming.

Filtration Cycle Programming for LSI557 only

The first filter cycle ("day") begins 6 minutes after the spa is powered up. The second filter cycle ("night") begins 12 hours later. Filter duration is programmable for 1 - 12 hours (F1 - F12). The default filter time is 2 hours. To program, press "Warm" or "Cool" then "Jets 1". Press "Warm" or "Cool" to select the filter duration. Press "Jets 1" to select the number of filter cycles. The display will show "dn" (both "day" and "night" cycles); "d" (day cycle only); or "n" (night cycle only). Press "Warm" or "Cool" to adjust, then press "Jets 1" to exit the programming mode. For continuous filtration, use F12 and "dn".

Clean-up Cycle

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

The ozone generator runs during normal circ pump operation. Your system is configured with the ozone disable feature, the ozone generator will turn off for 1 hour any time a function button (Jets 1, Jets 2, Jets 3, etc.) is pressed.

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.

Locking the Panel (PL - see page 36 under Indicator Light)

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" within 3 seconds.

Locking the Set Temperature (TL - see page 36 under Indicator Light)

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" within 3 seconds.

MASTER SPAS

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.
OHH	"Overheat" - The spa has shut down. One of the sensors has detected 118˚F (approximately 47.8˚C).	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.
OHS	"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 (approximately 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.
ICE	"Ice" - potential freeze condition detected.	No action required. The pumps will automatically activate regardless of spa status.
SNA	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.)
SNB	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.)
SNS	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.
HFL	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. Check for a dirty filter and clean if necessary. If problem persists, contact your dealer or service organization.
LF	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.

Diagnostic Messages (cont.)

Message	Meaning	Action Required
dR	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. Check for a dirty filter and clean if necessary. Press any button to reset.
dR4	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.
PR	When your spa is first actuated, it will go into Priming mode.	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.
--F --C	Temperature unknown.	After the pump has been running for 2 minutes, the temperature will be displayed. Temperature display is current after pump has been running for at least 2 minutes.
---	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 2 minutes.
SBY	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)

Message	Frequency	Action Required
RPH	Every 7 days	Test and adjust pH chemical levels per manufacturer's instructions.
RSA	Every 7 days	Test and adjust sanitizer chemical levels per manufacturer's instructions.
RCL	Every 30 days	Remove, clean, and reinstall filter per manufacturer's instructions.
RTG	Every 30 days	Test & reset GFCI per manufacturer's instructions.
RDR	Every 90 days	Drain and refill spa per manufacturer's instructions.
RCO	Every 180 days	Clean and condition cover per manufacturer's instructions.
RTR	Every 180 days	Clean and condition wood per manufacturer's instructions.
RCH	Every 180 days	Install new Eco Pur™ 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.

DOWN EAST SPA - SPECIFICATIONS

MASTER SPAS®

Spa Model	Spa Dimensions	Electrical Required	Water Capacity	Weight Dry/Full	Therapy Pumps	Jet Count
Concord	66"x84"32"	240 volt 50 amp	220 gallons	410lbs/1510lbs	1 pump	19
Westport	77"x77"x32"	240 volt 50 amp	260 gallons	510lbs/2590lbs	1 pump	28
Bar Harbor	78"x78"x35"	240 volt 50 amp	290 gallons	525lbs/2845lbs	1 pump	19
Providence	78"x84"x36"	240volt 50 amp	370 gallons	605lbs/3565lbs	1 pump	26
Cape Cod	84"x84"x36"	240 volt 50 amp	425 gallons	715lbs/4115lbs	2 pump	57
Cape Cod SE	84"x84"x36"	240 volt 50amp	425 gallons	745lbs/4145lbs	3 pump	72
Exeter	84"x84"x36"	240 volt 50 amp	410 gallons	705lbs/3985lbs	2 pump	55
Exeter SE	84"x84"x36"	240 volt 50 amp	410 gallons	735lbs/4015lbs	3 pump	70
Windsor	94"x94"x36"	240 volt 50 amp	510 gallons	760lbs/4840lbs	2 pump	57
Windsor SE	94"x94"x36"	240 volt 50 amp	510 gallons	790lbs/4870lbs	3 pump	72
Portsmouth	94'x94"x36"	240 volts 50 amp	485 gallons	750lbs/4630lbs	2 pump	56
Portsmouth SE	94"x94"x36"	240 volt 50 amp	485 gallons	780lbs/4660lbs	3 pump	71
East Hampton	120"x94"x39"	240 volt 50 amp	620 gallons	940lbs/5900lbs	2 pump	59
East Hampton SE	120"x94"x39"	240 volt 50 amp	620 gallons	970lbs/5930lbs	3 pump	74

* Circ. pump is optional on all 2 pump Down East Spas. Circ. pump is not available on the SE models.

DOWN EAST (2 -3 PUMP SYSTEM)

MASTER SPAS

East Hampton / Portsmouth / Windsor / Exeter / Cape Cod (2 Pump System Plus Optional Circ. Pump Feature)



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



Initial Start-up

When your spa is first activated, 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 the spa and maintain the water temperature in the Standard mode. You can exit Priming mode early by pressing "Cool".

Temp Set (80˚F - 104˚F / 26.0˚C - 40.0˚C)

The preset temperature is set to 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.

Cool / Warm

Press the "Cool" or "Warm" 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.

DOWN EAST (2 -3 PUMP SYSTEM)

MASTER SPAS

Mode

This button is used to switch between standard, economy, and sleep modes. Press "Mode" to enter mode programming, press "Cool" to cycle through to desired mode (LCD flashes until confirmed), then press "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. "Std" will appear on the display momentarily when you switch into Standard Mode.

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

Pressing "Jets 1" while in Economy mode puts the spa in **Standard-In-Economy mode,** ("SE") which operates the same as Standard Mode, then reverts to Economy Mode automatically after 1 hour. During this time, pressing "Cool" or "Warm" followed by "Light" will revert the mode to Economy immediately.

Sleep mode heats the spa to within 20°F (11°C) of the set temperature only during filter cycles. "SLP" will appear on the display until mode is changed.

Standby Mode

Pressing "Cool" or "Warm" followed by "Jets 2" or "Jets 3" will turn off all spa functions temporarily. This is helpful when changing a filter. Pressing any button exits 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 to the set temperature if needed, depending upon mode. When the low speed turns on automatically, such as during the filter cycle, it cannot be deactivated from the panel; however, the high speed may be started.

**15-minute timeouts may be changed to 30 minutes and 2-hour timeouts may be changed to 4 hours. • Consult your dealer for more information.*

DOWN EAST (2 -3 PUMP SYSTEM)

MASTER SPAS

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

Jets 3
Note: For SE models only. Press the "Jets 3" button once to turn pump 3 on or off. If left running, the pump will turn off after 15 minutes. *

Light
Depending upon how your spa is equipped and configured, the "Light" button will operate in one of the following ways:

1.) Press the "Light" button to turn the spa light on and off.

2.) If an LED light with color rotation is installed, press the "Light" button once to start the light and wheel, and then again to turn the light off.

If any light is left on, it will automatically turn off after 4 hours.

Circ Pump *(optional on 2 pump models, not available on SE models)*

If your system is equipped with a circ pump, it may be configured to work in one of the following 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. **(Standard factory setting.)**

The pump and the ozone generator will run during filtration. At the start of each filter cycle, the lowest speed of pump 2 will run for 5 minutes.

Setting Filter Cycles
The first filter cycle ("day") begins 6 minutes after the spa is powered up. The second filter cycle ("night") begins 12 hours later. Filter duration is programmable for 1 -12 hours (F1-F12). The default filter time is 2 hours. To program, press "Cool" or "Warm" then "Jets 1". Press "Cool" or "Warm" to select the filter duration. Press "Jets 1" to select the number of filter cycles. The display will show "dn" (both "day" and "night" cycles); "d" (day cycle only); or "n" ("night" cycle only). Press "Cool" or "Warm" to adjust, then continuous filtration, use F12 and "dn".

**15-minute timeouts may be changed to 30 minutes and 2-hour timeouts may be*

DOWN EAST (2 -3 PUMP SYSTEM)

MASTER SPAS

Clean-up Cycle

When the pump is turned on by a button, 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 *(optional)*

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.

Your system is configured with the ozone disable feature, the ozone generator will turn off for 1 hour anytime a function button (Jets 1, Jets 2, etc.) is pressed.

Freeze Protection

If the temperature sensors detect a drop to 44˚F (approximately 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 (approximately 7.2˚C) or higher.

**15-minute timeouts may be changed to 30 minutes and 2-hour timeouts may be changed to 4 hours. • Consult your dealer for more information.*

DOWN EAST (2 -3 PUMP SYSTEM)

MASTER SPAS

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 with a battery back-up on. EL2000 and EL1000 systems reset the time of day on each power-up. Spa settings are preserved on all systems.
OHH	"Overheat" - The spa has shut down. On some systems, an alarm may sound. One of the sensors has detected 118˚F (approximately 47.8˚C).	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.
OHS	"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 (approximately 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.
ICE	"Ice" - potential freeze condition detected.	No action required. The pumps will automatically activate regardless of spa status.
SNA	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.)
SNB	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.)
SNS	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.
HFL	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. Check for a dirty filter and clean if necessary. If problem persists, contact your dealer or service organization.
LF	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.

Diagnostic Messages (cont.)

Message	Meaning	Action Required
dr	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. Check for a dirty filter and clean if necessary. Press any button to reset.
dr4	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.
PR	When your spa is first actuated, it will go into Priming mode.	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.
--	Temperature not yet known.	This is normal within the first few minutes of the spa power-up.
STD	The spa is operating in Standard Mode.	Temperature display is current after pump has been running for at least 2 minutes.
Ecn	The spa is operating in Economy Mode.	"Ecn" will appear solid on the display when the temperature is not current. "Ecn" will alternate with the temperature when the temperature is current.
SE	The spa is operating in Standard-in-Economy Mode.	Operates the same as Standard mode, then reverts to Economy mode after 1 hour. Press "Mode" to switch directly to Economy Mode.
SLP	Sleep Mode has been activated by pressing a button combination on the user panel.	"SLP" will appear solid on the display when the temperature is not current. "SLP" will alternate with the temperature when the temperature is current.
SBY	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.

DOWN EAST (2 -3 PUMP SYSTEM)

MASTER SPAS

Periodic Reminder Messages
(Press the "Mode" button to reset a displayed reminder)

Message	Frequency	Action Required
RPH	Every 7 days	Test and adjust pH chemical levels per manufacturer's instructions.
RSA	Every 7 days	Test and adjust sanitizer chemical levels per manufacturer's instructions.
RCL	Every 30 days	Remove, clean, and reinstall filter per manufacturer's instructions.
RT9	Every 30 days	Test & reset GFCI per manufacturer's instructions.
RDR	Every 90 days	Drain and refill spa per manufacturer's instructions.
RCO	Every 180 days	Clean and condition cover per manufacturer's instructions.
RTR	Every 180 days	Clean and condition wood per manufacturer's instructions.
RCH	Every 180 days	Install new Eco Pur™ Filter.

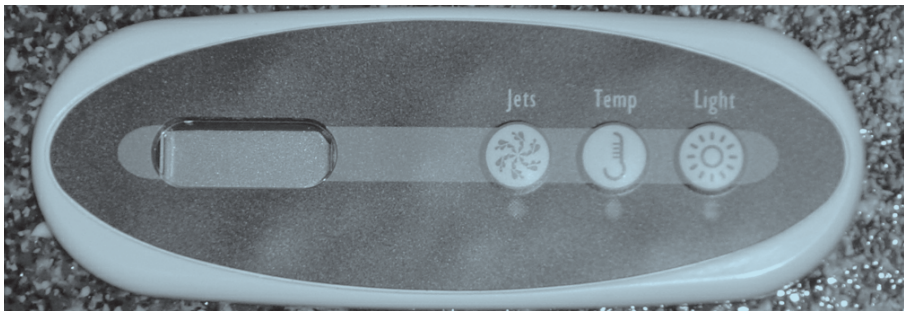
WARNING! SHOCK HAZARD! NO USER SERVICEABLE PARTS.

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.

FREEDOM SPA- SPECIFICATIONS

MASTER SPAS®

Spa Model	Spa Dimensions	Electrical Required	Water Capacity	Weight Dry/Full	Therapy Pumps	Jet Count
Franklin	59"x78"x32"	120/240 volt 15/50 amp	160 gallons	450lbs/1730lbs	1 pump	10
Revere	76"x76"x33"	120/240 volt 15/50 amp	200 gallons	490lbs/2090lbs	1 pump	19
Madison	77"x77"x32"	120/240 volt 15/50 amp	230 gallons	495lbs/2335lbs	1 pump	20
Washington	84"x84"x36"	240 volt 50 amp	290 gallons	660lbs/2980lbs	1 pump	32
Jefferson	91"x94"x 36"	240 volt 50amp	480 gallons	780lbs/4620lbs	1 pump	37



Initial Start-up

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

Temp Set (80˚F - 104˚F / 26.0˚C - 40.0˚C)

The factory preset 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.

Press the "Temp" button to display the temperature previously set. This set temperature is flashed on the display. Pressing the "Temp" button a second time, while it is still flashing, will cause the set temperature to increase or decrease depending on which direction was last chosen. Each press to follow will change the set temperature in the same direction. If the opposite direction is desired, release the pad and let the display revert to the actual water temperature. Press the button to display the set temperature and again to make the temperature change in the desired direction.

Jets

Touch the "Jets" button once to activate the low speed of the pump and again for the high speed. Press the "Jets" button again to turn off the pump. If left running, the pump's low speed will automatically turn off after 4 hours, and the pump's high speed will automatically turn off after 15 minutes. The low speed pump may also activate for at least 2 minutes every 30 minutes to detect the spa temperature and then to heat, to 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.

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 set temperature only during filter cycles. "Ec" 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 of the set temperature only during filter cycles. The "SL" will display solid when temperature is not current and will alternate with temperature when temperature is current.

Preset Filter Cycles

The first filter cycle begins 6 minutes after the spa is energized. The second filter cycle begins 12 hours later.

Filter duration is programmable at the Master Control Pad 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.

The low speed of the pump runs during filtration and the ozone generator (if installed) will be enabled.

Freeze Protection

If the temperature sensors detect a drop below 40° F within the heater, then the pump (as well as the heater, if necessary) will automatically activate to provide freeze protection. The equipment stays on until the sensors detect that the spa temperature has risen to within 15° F of the set temperature.

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 until next power up.
-- --	Temperature 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 (approximately 47.8˚C).	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 (approximately 43.3˚C).	DO NOT ENTER THE WATER. Remove the spa cover and allow water to cool. At 107˚F (approximately 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.
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 this is alternating with the 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 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. Check for a dirty filter and clean if necessary. If problem persists, contact your dealer or service organization.
LF	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 "HL" message. Turn spa off, then back on to restore heating capability.

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.

MAX STEREO SYSTEM

Available on select Master Spa and Down East Models

MASTER SPAS

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 Sony Stereo Owner's Manual for specific operations.

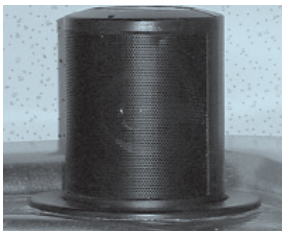
The Max Stereo System includes a Sony CD/FM Stereo with subwoofer, two pop up speakers (4 on the LSX 1050 model), two exterior speakers (Master line only), and Sony remote with water resistant wet suit.

STEP 1



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

STEP 2



You can control the stereo selections by pointing the remote at the speaker located on the same side of spa as the stereo enclosure.

STEP 3



When finished using the stereo speakers, align the arrow on the popup speaker with the arrow on the speaker enclosure. Depressing the speaker will then lock it in the down position.

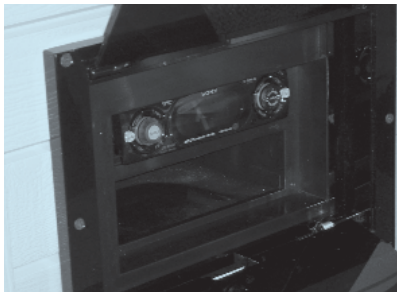
Sony Remote in wet suit is water resistant. For longevity, do not leave remote floating in spa for extended periods and do not leave outside,exposed to the weather.The Sony Stereo Remote in the wet suit is not covered under the spa warranty.

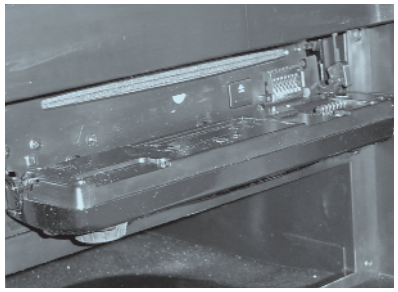
MAX STEREO SYSTEM - (continued)

Available on select Master Spa and Down East Models

MASTER SPAS

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 Sony remote.





The Sony Stereo is shipped with the detachable stereo face in the spa's luggage pack. The stereo face must be inserted to operate any stereo funtions.

Note: Do not place wet CD's into the Sony 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.

FREEDOM LINE STEREO SYSTEM

System includes a Sony CD/FM Stereo with two marine grade speakers. Available on Washington and Jefferson models only.

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

FLAT SCREEN TV (FST) / STEREO SYSTEMS

STS, LS 750 FST, and LSX 1050

MASTER SPAS

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" flat screen color television, DVD player, Sony CD/FM Stereo system with subwoofer, and two pop up marine grade speakers (4 on the LSX 1050 FST), two exterior speakers, waterproof Dolphin remote, and one touch up and down for TV and speaker housing.









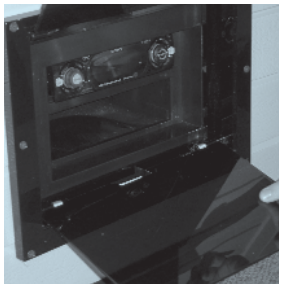


The TV and pop up speakers can be raised and lowered by pressing the one touch up and down FST auxillary button. Be sure the TV and speakers are down before placing the cover on the spa. Resulting damage is not covered under warranty if the cover is installed while the TV and speakers are still in the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

FLAT SCREEN TV (FST) / STEREO SYSTEMS (continued)
STS, LS 750 FST, and LSX 1050

MASTER SPAS

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





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 FST.

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).

Note: To play a DVD, you must remove any CD's from the stereo.

DOLPHIN REMOTE

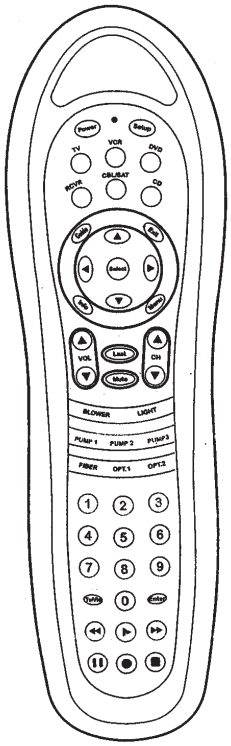
MASTER SPAS

All FST spas come with a Dolphin Remote Control. This remote operates off an RF frequency and controls TV, DVD, and Stereo functions. It will also operate the therapy pumps and the light (using the "light" button). The blower, fiber, and opt. 2 buttons are not used. Opt. 1 will cause the TV/speakers to lift or lower.

The Dolphin Remote has replaceable batteries. Please refer to the Dolphin Owner's Manual on page 7 for specific instructions on replacing the batteries.

Note: Any time the batteries are replaced, the TV, DVD, and Stereo components, will need to be reprogrammed into the Dolphin Remote (see page 61).

Note: The Dolphin Remote should not be left floating in the spa for extended periods and should not be kept outside, exposed to weather elements.



DOLPHIN REMOTE

MASTER SPAS

Power Key: (A)
Turns the power on and off to the TV and DVD.

NOTE: To engage power to the Sony CD player, use the TV/VID button in the CD device mode.

Volume Keys: (B)
Adjusts the volume in the selected device mode.

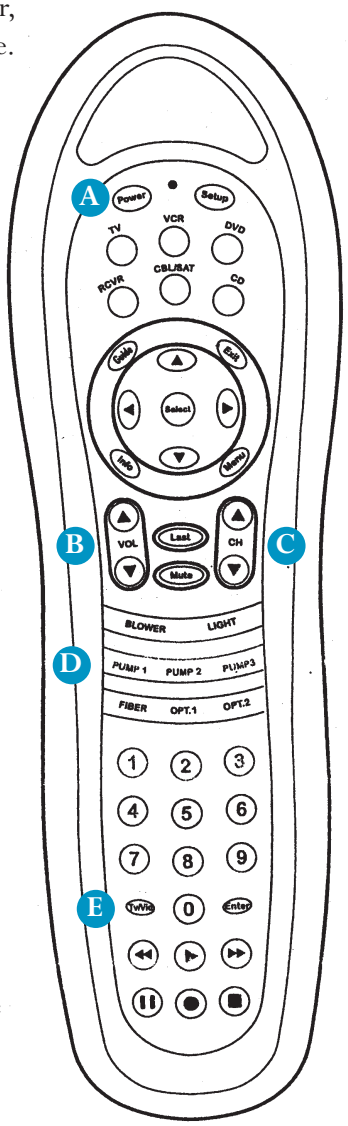
Channel Keys: (C)
In the CD mode, these keys will scan CD tracks or scan radio stations. In TV mode, it will scroll through the channels.

Spa Function Keys: (D)
Will control the pump 1, 2, 3 and the light operations. Opt. 1 controls the TV/Speaker lift system. All other buttons are not used.

TV / Video Key: (E)
In the CD device mode, enables power to the unit and serves as the "Source" button on the CD player.

In the DVD device mode, this key will cycle through the auxiliary functions - DVD / Tuner / AV1.

In the TV device mode, this key will enable the Video mode on the TV to view DVD features.



DOLPHIN REMOTE

MASTER SPAS

Setup Key: (F)

Use this key to program device codes and sequences (see page 61). Your Dolphin Remote has been preprogrammed at the factory for all components included. When the batteries are replaced, these components need to be reprogrammed.

Device Mode Keys: (G)

Select unit to control by pressing device key once. The TV, DVD, CD, and (if applicable) CBL/SAT buttons are used on the FST spa.

Directional Keys: (H)

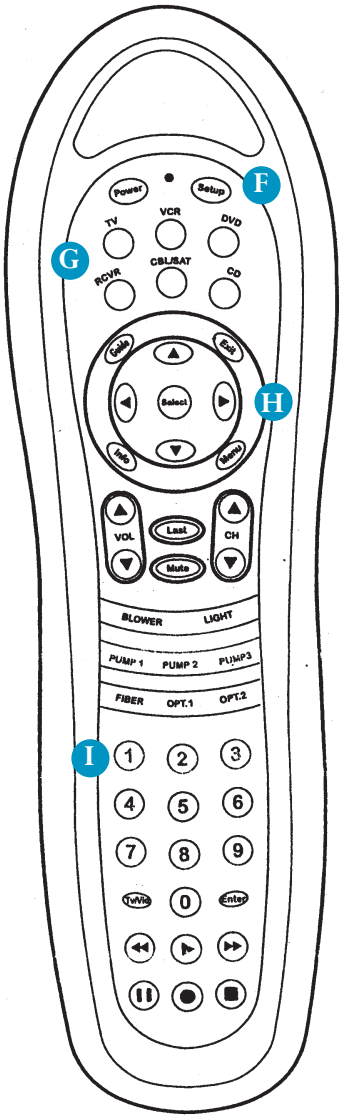
These keys will scroll through "Menu" options in the DVD device mode.

Numeric Keypad: (I)

These keys will change the TV channel manually in the DVD device mode.

In the CD device mode, #1 on the keypad will change / serve as the "MODE" select feature on the Sony CD Player.

NOTE: If utilizing a satellite decoder, it is necessary to point the Dolphin Remote directly at the decoder.



DOLPHIN REMOTE

MASTER SPAS

Programming Device Codes:

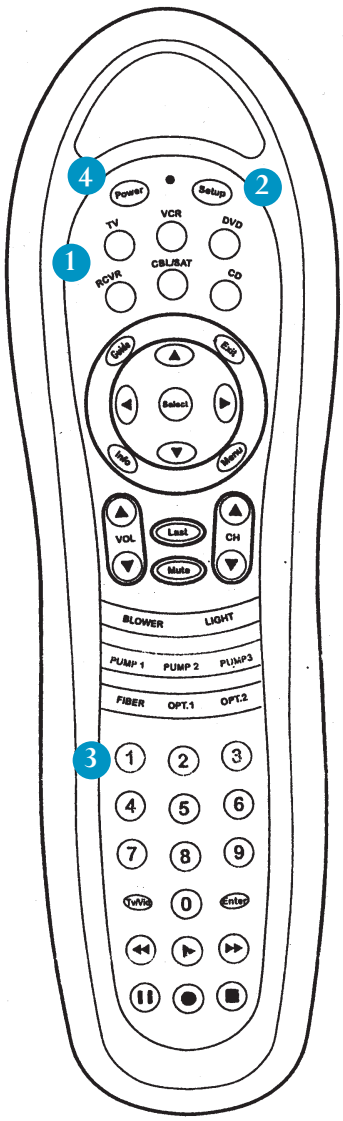
NOTE: Your remote has been preprogrammed at the factory for all components. When the batteries are replaced, these components need to be reprogrammed.

1.) Select Device: The LED will blink once to confirm. Manually engage power to selected device.

2.) Press and Hold the "Setup" key: The LED will blink once, then will blink twice to continue.

3.) Enter Numeric Code: Enter the four digit code on the Numeric keypad - the LED will blink twice after the last digit to confirm.

4.) Lock in the Code: To lock in the code, disengage power to device by pressing "POWER" key.



Master Spas Device Codes

Sony / CD	1397
T.View / DVD	0813
Farenheit / DVD	0887
Farenheit / DVD	1054
Farenheit / DVD	1066
15" Flat / TV	0801

SYSTEM PROMPT

To View TV Channels:

Engage Power To Monitor

1) Select Device Mode (TV). (G)
2) Press Power. (A)
3) Select Guide. (H)
4) Select desired channel. (C or I)

Engage Power to CD Player

1) Select Device Mode (CD). (G)
2) Press TV / Vid to engage power. (E)
3) Press TV / Vid to select CD2. (E)
   CD2 will prompt TV audio.

NOTE on Initial Start Up to detect incoming channel reception.

1) Select TV device mode. (G)
2) Select menu (H) to prompt the TV menu.
3) Use the right directional prompt. (H)
4) Press select. (H)

To View DVD Movie:

Note: DVD will not play if there is a CD in the stereo system.

Engage Power to Monitor

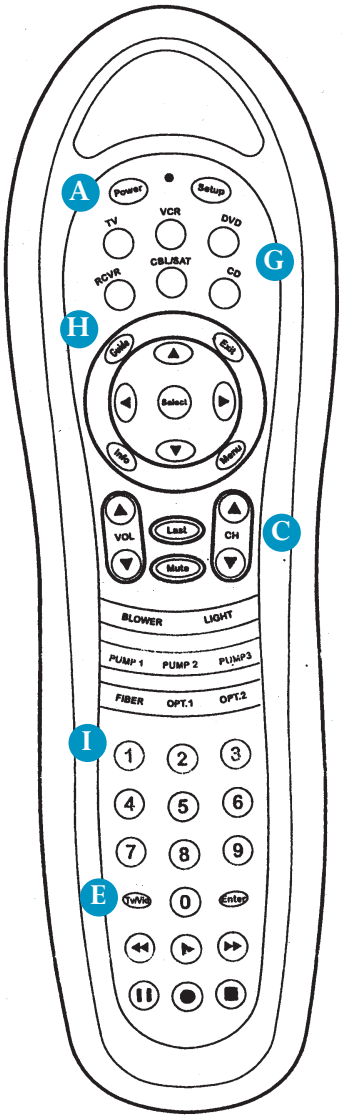
1) Select Device Mode (TV). (G)
2) Press Power. (A)
3) Select TV / Vid. (E)

Engage Power to CD Player

1) Select Device Mode (CD). (G)
2) Press TV / Vid to engage power. (E)
3) Press TV / Vid to select CD2. (E)
4) Press 1 on keypad to select CD3. (I)
   CD3 will prompt DVD audio.

Engage Power to DVD Player

1) Select Device Mode (DVD). (G)
2) Press Power. (A)
3) Load disc into DVD Player.
4) Press Play Key.



MASTER SPAS

DEVICE MODES / FEATURE KEYS

CD Device Mode

(E) **TV / Vid = Source - Aux / Power** (A)
This key will engage power to the unit, as well as scroll between radio / CD mode.

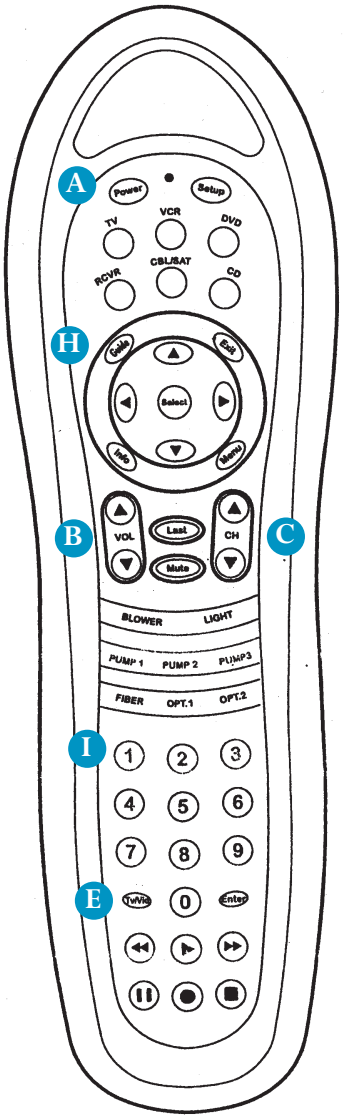
(B) **Vol Up / Down = Volume**
The main volume for the theater system is controlled through the CD Device Mode.

(C) **CHN Up / Down = Scan / Seek**
These keys will scan / seek radio station presets and CD audio tracks.

(A) **Power = Off**
This key will disengage power to the unit.

(I) **#1 = Mode**
The #1 key on the numeric keypad enables the scroll feature between CD2 / CD3 / CD4, or FM1 / FM2 / FM3 / AM1 / AM2.

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



DVD Device Mode

(E) **TV / Vid = Aux Modes**
This key scrolls through the Aux modes for the DVD unit, DVD - Tuner - Aux.

(B) **Vol Up / Down = Level**
Main audio is controlled through the CD Player. These keys will adjust DVD volume level to the CD Player. An optimum level is 10 - 13.

(A) **Power = On / Off**
This key will engage / disengage power to the unit.

(H) **Directional Keypad = Select**
These keys will prompt selections from the DVD main menu page.

Disc Prompt = Features
These keys will prompt the functions of the DVD, Play, Stop, Forward, Reverse, and Pause.

DOLPHIN REMOTE

MASTER SPAS

TV DEVICE MODE

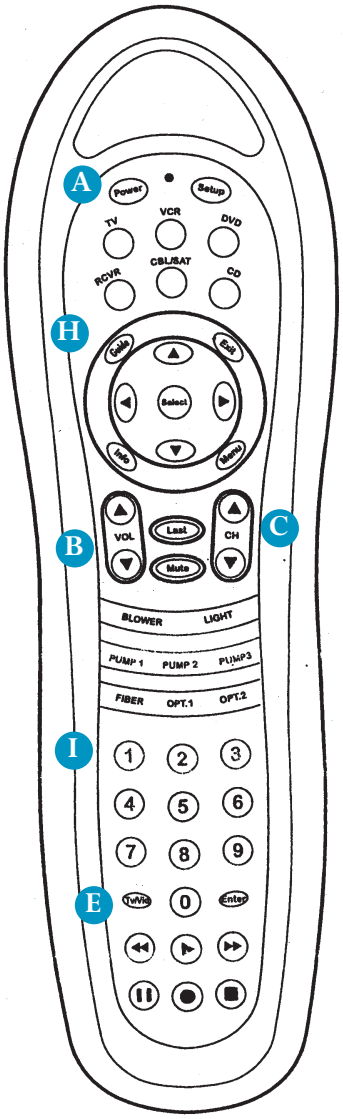
(H) **Guide = TV / Catv**
This key will prompt TV to antenna or cable feed.

(E) **TV / Vid = DVD / Video / Aux**
This key will prompt monitor to DVD channel.

(A) **Power = On / Off**
This key will engage / disengage power to unit.

(B) **Vol Up / Down = Level**
These keys will adjust volume level from TV. An optimum level for the TV is 35 - 40.

(I) **Numeric Keypad = Manual**
These keys will direct prompt individual TV Channels. For channels in the +100 range, prompt the **LAST,** and then the final two digits of the desired channel.



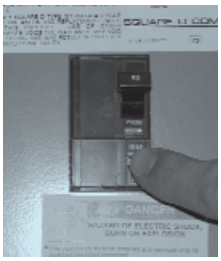
SPA TROUBLE SHOOTING GUIDE

MASTER SPAS

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 10.
B. Pump may need to be primed. See page 19.
C. Check that the air controls are open. See photo on page 8.

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 pages 8 and 18.

4.) Check for dirty filters. Clean if necessary.

SPA TROUBLE SHOOTING GUIDE

MASTER SPAS

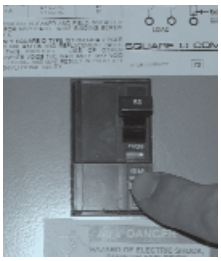
SPA NOT HEATING

* 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 "heating mode" the spa is set in. Heat mode should be in "std".
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.



REGULAR MAINTENANCE PROCEDURES

MASTER SPAS

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 Master Spa line are removed by turning the grey collar counter clockwise and then pulling out the jet.

Most jets in the Down East and Freedom Spas can be removed by turning the collar clockwise, then pulling the jet out. The smallest jets in the Down East line are removed by turning the collar counter clockwise and then pulling the jet out. The smallest jets in the Freedom Spa line are fixed and cannot be removed.



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 Master Spas, Down East Spas, and Freedom 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 totally. 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. (cont. next page)

CLEANING DIVERTER VALVES - cont.



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, but 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.

DRAINING YOUR SPA

Your spa is equipped with an outside drain fitting. To access this drain, turn the black cap piece counter clockwise. The hose bib fitting will then be able to be pulled out slightly (approximately 1/4 inch) and the cap can be removed. Attach a garden hose if desired. It will take most spas 3-4 hours to drain.

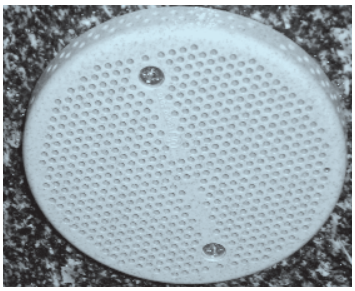


Before refilling your spa be sure the drain is closed securely.

CIRC PUMP DISCHARGE FITTING NEEDS TO BE CLEANED

The circ pump discharge screen should be removed and cleaned if your spa is equipped with a circ pump. This screen can get clogged up due to mineral deposit or debris. It should be cleaned at least once every 180 days or when the spa is drained.

Directions to remove the screen:



With the power to the spa off, remove the two screws holding the screen in place. Soak the screen in white vinegar and rinse thoroughly with water.

Clean out any debris that you may see clogging the fitting under the screen and reinstall the screen.

REPLACING YOUR LIGHT BULB

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.

REGULAR MAINTENANCE PROCEDURES

MASTER SPAS

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.

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

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

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.

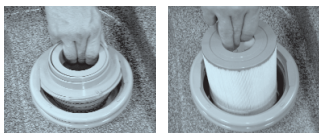
3.) Remove the filter retainer (on Master Spa and Down East Spas) by turning counter clockwise. Remove the basket in the Freedom Spas.

4.) Remove the filter(s). Remember, ECO PUR™ mineral filters should only be rinsed down and never soaked in a cartridge cleaner. All other filters should be periodically rinsed and soaked in a cartridge cleaner. Follow cartridge cleaner instructions.

Master Spas/Down East Spas Procedure



Freedom Spas Procedure



5.) Rinse filters and reinstall.

SPA CARE AND MAINTENANCE RECORD

MASTER SPAS®

	DATE	*DATE*	*DATE*	*DATE*	*DATE*	*DATE*	*DATE*	*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 and Cabinet								
Miscellaneous Service								

SPA CARE AND MAINTENANCE RECORD

MASTER SPAS®

DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE