Owner's Manual

United States and Canada

LTR50001106, Rev. C
3/21/12

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3/21/12

100-1109

CONTACT INFORMATION

For customer service, please contact your authorized dealer immediately. If you need additional information and/or assistance, contact:

LMS Customer Service Department
1462 East Ninth Street
Pomona, CA 91766.

Toll Free: 1-800-225-7727
Fax: 1-909-629-3890

Important Safety Instructions

READ AND FOLLOW ALL INSTRUCTIONS.

WARNING:

To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.

DANGER -- Risk of accidental drowning:

Do not allow children to be in or around a spa unless a responsible adult supervises them. Keep the spa cover on and locked when not in use. See instructions enclosed with your cover for locking procedures.

DANGER -- Risk of injury:

The suction fittings in this spa are sized to match the specific water flow created by the pump. Should the need arise to replace the suction fittings, or the pump, be sure the flow rates are compatible.

Never operate the spa if the suction fitting or filter baskets are broken or missing. Never replace a suction fitting with one that is rated less than the flow rate marked on the original suction fitting.

DANGER -- Risk of electric shock:

Install the spa at least 5 feet (1.5 meters) from all metal surfaces. As an alternative, a spa may be installed within 5 feet of metal surfaces if each metal surface is permanently bonded by a minimum #8 AWG solid copper conductor to the outside of the spa's control box.

DANGER -- Risk of electric shock:

Do not permit any external electrical appliances, such as lights, telephones, radios, televisions, and etc., within five feet (1.5 meters) of the spa. Never attempt to operate any electrical device from inside the spa.

WARNING -- To reduce the risk of injury:

The spa water should never exceed 104°F (40°C). Water temperatures between 100°F (38°C) and 104°F (40°C) are considered safe for a healthy adult. Lower water temperatures are recommended for young children and when spa use exceeds 10 minutes.

High water temperatures have a high potential for causing fetal damage during pregnancy. Women who are pregnant, or who think they are pregnant, should always check with their physician prior to spa usage.

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

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

Persons using medications should consult a physician before using the spa since some medications may induce drowsiness while others may affect heart rate, blood pressure and circulation.

HYPERTHERMIA DANGER:

Prolonged exposure to hot air or water can induce hyperthermia. Hyperthermia occurs when the internal temperature of the body reaches a level 3°F to 6°F above the normal body temperature of 98.6°F (or 2°C to 4°C above 37°C). While hyperthermia has many health benefits, it is important not to allow your body's core temperature to rise above 103°F (39.5°C).

Symptoms of excessive hyperthermia include dizziness, lethargy, drowsiness and fainting. The effects of excessive hyperthermia may include:

- Failure to perceive heat
- Failure to recognize the need to exit spa or hot tub
- Unawareness of impending hazard
- Fetal damage in pregnant women
- Physical inability to exit the spa
- Unconsciousness

WARNING: The use of alcohol, drugs, or medication can greatly increase the risk of fatal hyperthermia.

DANGER -- Risk of electric shock:

- Replace a damaged power cord immediately.
- Do not bury the power cord.
- Connect to a grounded, grounding-type receptacle only.

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

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

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

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

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

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

SAVE THESE INSTRUCTIONS.

Preparing for Your New Portable Spa

Most cities and counties require permits for exterior construction and electrical circuits. In addition, some communities have codes requiring residential barriers such as fencing and/or self-closing gates on property to prevent unsupervised access to the property by children. Your dealer can provide information on which permits may be required and how to obtain them prior to the delivery of your spa.

Preparing a Good Foundation

Damage caused by inadequate or improper foundation support is not covered by the warranty.

It is the responsibility of the spa owner to provide a proper foundation for the spa.

We strongly recommended that you have a qualified, licensed contractor prepare the foundation for your spa.

Place the spa on a level foundation (preferably a 4" concrete slab). If you are installing the spa indoors, pay close attention to the flooring beneath it. Choose flooring that will not be damaged or stained.

If you are installing your spa on an elevated wood deck or other structure, consult a structural engineer or a contractor to ensure the structure will support the weight of 150 pounds per square foot.

Planning the Best Location

Safety First

Do not place your spa within 10 feet (3 m) of overhead power lines.

Consider How You Will Use Your Spa

How you intend to use your spa will help you determine where you should position it. For example, will you use your spa for recreational or therapeutic purposes? If your spa is mainly used for family recreation, be sure to leave plenty of room around it for activity. If you will use it for relaxation and therapy, you will probably want to create a specific mood around it.

Plan for Your Environment

If you live in a region where it snows in the winter or rains frequently, place the spa near a house entry. By doing this, you will have a place to change clothes and not be uncomfortable.

Consider Your Privacy

In a cold-weather climate, bare trees won't provide much privacy. Think of your spa's surroundings during all seasons to determine your best privacy options. Consider the view of your neighbors as well when you plan the location of your spa.

Provide a View with Your Spa

Think about the direction you will be facing when sitting in your spa. Do you have a special landscaped area in your yard that you find enjoyable? Perhaps there is an area that catches a soothing breeze during the day or a lovely sunset in the evening.

Keep Your Spa Clean

In planning your spa's location, consider a location where the path to and from the house can be kept clean and free of debris.

Prevent dirt and contaminants from being tracked into your spa by placing a foot mat at the spa's entrance where the bathers can clean their feet before entering your spa.

Allow for Service Access

Many people choose to install a decorative structure around their spa. If you are installing your spa with any type of structure on the outside, such as a gazebo, remember to allow access for service. It is always best to design special installations so that the spa can still be moved, or lifted off the ground.

120 Volt Electrical Installation

Always follow applicable local, state and federal codes and guidelines.

Use only a dedicated electrical line with a 15 amp breaker.

Cord-and-plug connections may not use a cord longer than 15 feet (4.6 m) and must be plugged into a dedicated 15 amp GFCI connection (NEC 680.42(A)(2)). Do not use extension cords!

Always use a weatherproof-covered receptacle.

Receptacle shall be located not less than 5 feet (1.5 m) from and not exceeding 10 feet (3.0 m) from the inside wall of the spa. (NEC 680.43(A))

Do not bury the power cord. If your cord becomes damaged, replace it before next usage.

All 120V spas must have a GFCI. This can be either a 20 amp GFCI receptacle or a 20 amp GFCI cord and plug kit as shown (CKIT110 - P/N ELE09700086).

Test the GFCI plug prior to first use and periodically when the spa is powered. To test the GFCI plug version, follow these instructions. (Spa should already be plugged in and operational.)

1. Press the TEST button on the GFCI. The GFCI will trip and the spa will stop operating.
2. Press the RESET button on the GFCI. The GFCI will reset and the spa will turn back on.

The spa is now safe to use.

If the GFCI trips while the spa is in use, press the RESET button. If the GFCI does not reset, unplug the spa and call customer service. DO NOT USE THE SPA!

240 Volt Electrical Installation

All 240V spas must be permanently connected (hardwired) to the power supply. See the wiring diagram on page 6.

These instructions describe the only acceptable electrical wiring procedure. Spas wired in any other way will void your warranty and may result in serious injury.

When installed in the United States, the electrical wiring of this spa must meet the requirements of National Electric Code, ANSI/NFPA 70-2008 and any applicable local, state, and federal codes.

The electrical circuit must be installed by an electrical contractor and approved by a local building or electrical inspector.

Failure to comply with state and local codes may result in fire or personal injury and will be the sole responsibility of the spa owner.

The power supplied to the spa must be on a dedicated GFCI protected circuit as required by ANSI/NFPA 70 with no other appliances or lights sharing the power.

Use copper wire with THHN insulation. Do not use aluminum wire.

Use the table on the next page to determine your GFCI and wiring requirements.

When NEC requires the use of wires larger than #6 AWG, install a junction box near the spa and use #6 AWG wire between the junction box and the spa.

Wire runs over 85 feet must increase wire gauge to the next lower number. For example: A normal 50 amp GFCI with four #8 AWG Copper wires run over 85 feet would require you to go to four #6 AWG copper wires.

Read and follow the heater manufacturer's safety and installation instructions prior to installation and operation. Incorrect installation may damage the heater and void its warranty.

Testing the GFCI Breaker

Test the GFCI breaker prior to first use and periodically when the spa is powered. To test the GFCI breaker follow these instructions (spa should be operating):

1. Press the TEST button on the GFCI. The GFCI will trip and the spa will shut off.
2. Reset the GFCI breaker by switching the breaker to the full OFF position, wait a moment, then turn the breaker back on. The spa should have power again.

240V GFCI and Wiring Requirements

The control system is set at the factory to run on the low power setting for 40 amp operation. This is the default setting. Spa owners can have their installer change this setting so the spa will run on high power for 50 amp operation.

Warning: Never set a spa to run on high power without installing a properly rated GFCI.

Power Mode	GFCI Required	Wires Required
Power saver mode *This is the factory default setting.*	One 40 amp GFCI	Four #8 AWG copper wires
High power setting *See configuration instructions below.*	One 50 amp GFCI	Four #8 AWG copper wires

High Power Configuration

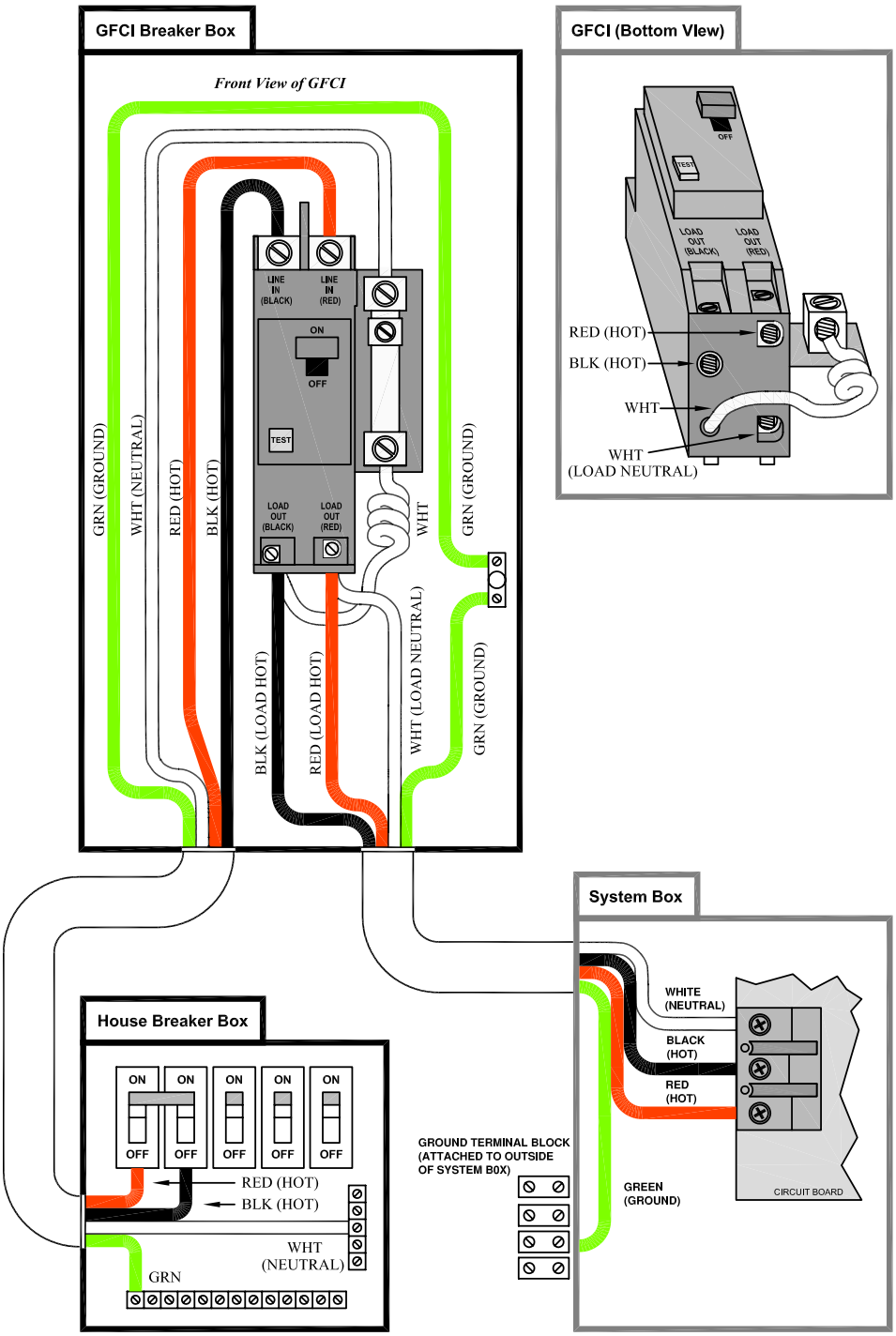
OFF Position (Down)	Default setting	ON Position (Up)
Test Mode OFF	◀ **A1**	Test mode (normally OFF)
Button layout will be: Unused, Pump 1, Temp, Light	**A2** ▶	Button layout will be: Pump 1, Light, Temp Down, Temp UP
Use Lite Duplex or Digital Duplex panel	**A3** ▶	Use Mini Panel
N/A (must be OFF)	◀ **A4**	
Pump 1 high-speed timeout *See table below*	**A5**	
60Hz operation	◀ **A6**	50Hz operation
Standard/Economy/Sleep mode changes allowed	◀ **A7**	Standard mode oly
Temperature displayed in Fahrenheit	◀ **A8**	Temperature displayed in Celsius
Pump 1 low-speed timeout *See table below*	**A9**	
Heater can run while the high-speed pump is running (HIGH amperage mode)	◀ **A10**	Heater is disabled while the high-speed pump is running (LOW amperage mode)

Note: Arrow indicates factory default setting.

Pump 1 Timeouts

A7	A10	Low speed	High speed
OFF	OFF	2 hours	15 minutes
ON	OFF	2 hours	30 minutes
OFF	ON	15 minutes	15 minutes
ON	ON	30 minutes	30 minutes

GFCI Wiring Diagram



Filling and Powering Up Your Portable Spa

Never fill your spa with soft water.

Soft water makes it impossible to maintain the proper water chemistry and may cause the water to foam, which will ultimately harm the finish of the spa and void your warranty.

1. Once the spa has been placed on an approved surface and has been correctly wired by a licensed electrician, inspect all plumbing connections in the equipment area of your spa. Ensure that these connections are secure and that they did not loosen during shipment.
2. If equipped, open all gate valves in the equipment area. Before operating the spa, these valves must be in the up or "open" position.

VERY IMPORTANT!

Never run the spa with the gate valves closed or without water circulating for long periods of time. Be careful not to over-tighten the plumbing fittings.

3. Remove the cartridge from filter canister.
4. Place a garden hose in the filter canister and fill your spa with ***regular tap water*** about six inches from the top.

VERY IMPORTANT!

Always fill the spa through the filter canister! Failure to do so may cause air to be trapped in the filtration system and prevent the pumps from operating properly.

5. Presoak the filters in spa water.

VERY IMPORTANT!

You must presoak the filters before inserting them in the filter canister. Dry filters can allow air into the filtration system which can cause pump failure.

6. Once the water is at the correct level and air is bled, turn on the power at the GFCI breaker. (Ensure that the 120V spas are connected to the proper electrical outlet.)

   Note: Depending on the model, when the power is turned on to the spa, the controls will perform a diagnostic check for approximately five minutes. When the diagnostic is complete, the spa will automatically operate at filter speed and continue heating until the spa water temperature reaches the default temperature of 100˚F.

8. If no water is flowing when the pump is running, there could be an air pocket at the suction side of the pump. Shut off power to the spa and loosen the pump union on the suction side of the pump to bleed the air. When air is bled, turn power back on.
9. Install the pre-soaked filters into the filter canister.

The spa is now ready for use.

Priming the Pump

New spa owners often have difficulty the first time they start their spa and the pump fails to prime. This

can be frustrating, but these simple instructions can help you.

Sometimes air can become trapped in the pump while filling the spa. You will know this has happened when after you have filled and started the spa, the pump does not seem to function. You will hear the pump operating, but no water will be moving.

There are two methods of priming the pump.

The first method will remove small air bubbles trapped in the pump.

1. Turn the spa on and wait for PR (Priming Mode) to appear on the topside display.
2. Press the JETS1 button to turn on the pump and let it run for 10 seconds. The pump should be running in low speed.
3. Press the JETS1 buttons again and let the pump run in high speed for 10 seconds.
4. Press the JETS1 button again to turn off the pump. The pump should be left in the off position for 10 to 15 seconds.
5. Repeat steps 1 through 4 until water is flowing through all the jets and all air is removed from the plumbing.

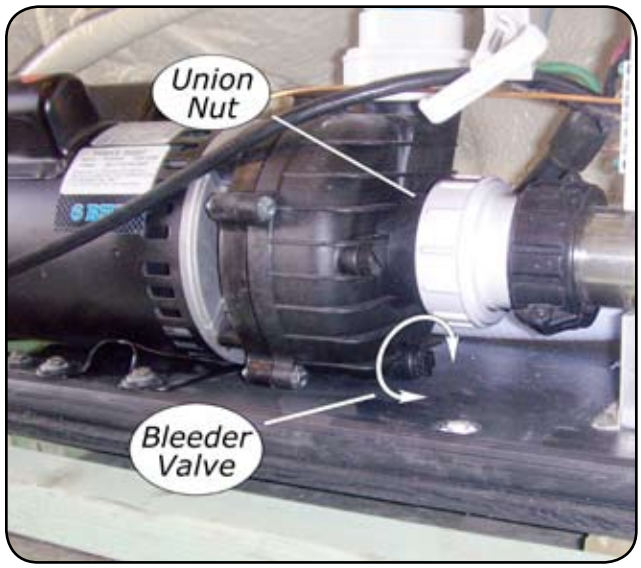
The second method will remove a large air lock within the pump.

1. Using a Phillips screwdriver, remove the front panel from the spa and locate the pump.
2. While the spa is operating, turn the bleeder valve counter clockwise with a small pair of pliers or a flat head screwdriver until the air has been released from the pump.
3. If this is unsuccessful, loosen the white union nut on side of the pump with channel locks. When air is bled out, tighten the nut and set the pump on high speed.

⚠ The pump will not work properly while air is trapped in it. Continuing to operate the pump in this way will cause damage.

Whenever you fill your spa, fill it through the filter canister and make sure all jets are open.

Note: If you press the ***Temp*** button any time during Priming Mode, it will exit that mode and begin Standard Mode.



Operating Your Spa

Electronic Control Operation

Initial Start up

When first powered up, your hot tub will perform a self-diagnostic check and go into priming mode. When the control panel displays ***PR***, IMMEDIATELY do the following:

1. Press the JETS 1 button to turn on the pump and let it run for 10 seconds. The pump should be running in low speed.
2. Press the JETS 1 button again and let the pump run in high speed for 10 seconds.
3. Press the JETS1 button again to turn off the pump. The pump should be left in the off position for 10 to 15 seconds.
4. Repeat steps 1 through 3 until water is flowing through all the jets and all air is removed from the plumbing.

When the hot tub has finished priming, the heater will be activated and the water temperature will be maintained in standard mode. The hot tub will heat to 100°F (37.5°C) at start up until the set temperature is changed as described below.

Temperature Adjustment

(Range 80°F to 104°F, 26°C to 40°C)

The electronic control panel displays the actual water temperature in degrees Fahrenheit. The displayed temperature will only be current after the pump has been running for at least two minutes.

To display the temperature that the hot tub is set to:

- Press the **Temp** button. The temperature setting will flash.
- While the display is flashing, each time you press **Temp** button, the set temperature will change up or down one degree.
- If the desired temperature is opposite of the direction each press of the button is making, release button, allow display to stop flashing and then press **Temp** button to change temperature the other direction.

Standard, Economy and Sleep Heating Modes

Your new hot tub is equipped with a heating feature that gives you complete control of the heating system. When the hot tub is powered up, it will automatically start in standard heating mode.

- ***St*** will light briefly on the main display. In this mode, the heating system will automatically maintain the set temperature. In the economy-heating mode, the heating system will only activate during filtration times.
- ***Ec*** will display solid if temperature is not current and will alternate with water temperature if measured temperature is current.
- Economy mode will heat the water to the set temperature while Sleep mode, indicated by a ***SL*** on the main display, will also only activate the heater during the filtering cycles but will only heat the water to within 20°F (10°C) of the set temperature. Like Economy mode, ***SL*** will display solid when temperature is not current and will alternate with actual temperature when it is current.

NOTE: Displayed temperature will only be current after the pump has been running for at least two minutes.

Switching Modes

- Press the **Temp** button followed by the **Light** button.
- Press the same sequence to switch to the next mode.

Activating the Jets

Press the **Jets 1** button:

- Once to activate low speed pump.
- Twice to activate high speed.
- Three times to return to turn pump off.

Jets 2

Press the **Jets 2** button to turn pump 2 on. Press it once again to turn the pump 2 off.

Light

Press the **Light** button to turn on the light. Press it once again to turn the light off.

Automatic Time-outs

These features will automatically turn themselves off during periods of continuous use:

- Low speed pump — After 4 hours
- High speed pumps — After 15 minutes
- Hot tub light — After 15 minutes

Ozonator

This is for your information only. The ozonator works automatically and does not require you to change any settings.

For single pump systems, the ozonator will operate any time pump 1 is on in low speed.

For two pump systems, the ozonator will operate with pump 1 on low speed during the filtration cycle only.

Setting Filtration Cycles

Your hot tub is programmed to filter twice a day. The first cycle will begin six minutes after the hot tub is turned on and the second cycle 12 hours later.

The factory has programmed the cycle to last for one hour for single pump systems and two hours for two pump systems, but this can be changed to your preference.

To change the filtration cycle, press the **Temp** button then the **Jets** button. Press **Temp** button again to change the filtering cycle duration. See the table below for filtration settings and duration.

When desired duration is selected press the **Jets** button to exit.

Single pump systems		**Two pump systems**	
Setting	Duration	Setting	Duration
F1	1 hour	F2	2 hours
F2	2 hours	F4	4 hours
F3	3 hours	F6	6 hours
F4	4 hours	F8	8 hours
F5	5 hours	FC	Continuous
F6	6 hours		
F7	7 hours		
F8	8 hours		

Note: Single pump systems do not have continuous filtration.

To set the time of day you want filtration to begin, turn off the power to the hot tub at the time of day you would like one of the filtration cycles to begin, then turn it back on after 30 seconds. When power has been restored, set the filtration cycle as described above.

During filtration, the water temperature will appar on the main display.

Electrical Power Efficiency

Your new spa comes equipped with an electric heater. Following the directions listed below will ensure the most efficient operation:

NOTE: This method is only for spa usage under two hours a week.

- Keep the spa's operating temperature 5°F below the desired usage temperature when not in use. One or two hours before use, set the temperature to the desired temperature.
- If the spa usage exceeds two hours a week, the set temperature should remain at the desired usage temperature.
- The air venturis should be used sparingly. When open, water temperature drops quite rapidly and can also dissipate chemicals.

Allowing the water temperature to lower more than 10°F below the desired usage temperature and reheating it prior to usage will cause the heater to operate longer than it normally would maintaining the desired temperature. Doing this will increase your operating cost and makes your heater work more than necessary.

Diagnostic Messages

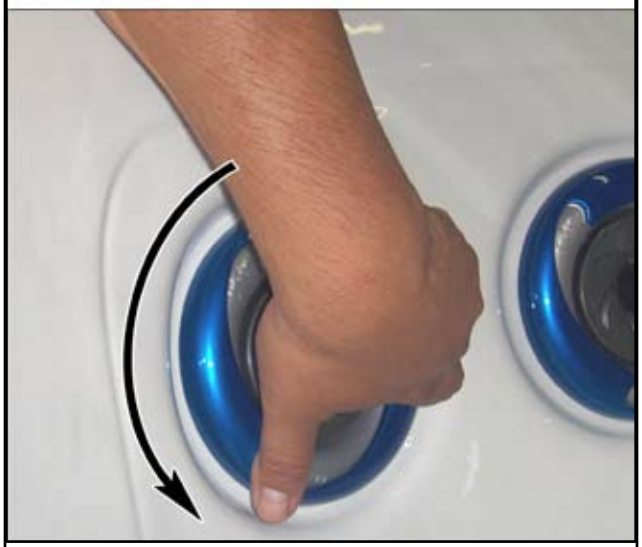
Message	Meaning	Action Required
No message on display	1) Spa temperature is unknown. 2) Spa is in Economy or Sleep mode. 3) Power has been cut off to the spa.	1) After pump has been running for 2 minutes temperature will be displayed. 2) In Economy or Sleep mode, the pump may be off for hours outside a filter cycle. If you wish to see the current spa temperature, either switch to Standard mode or turn Jets1 on for at least two minutes. 3) The control panel will be disabled until power returns. Spa settings and time of day will be preserved for 30 days with a battery back-up.
BUF	Internal problem detected.	Repair required. Contact your dealer or service organization.
dr	Insufficient water detected in heater. Spa will be shut down for 15 minutes.	Check water level in spa. Refill if necessary. Make sure pumps are been primed and filter cartridges are clean. Press any button to reset or wait 15 minutes and spa will automatically reset. If message spa does not reset, call your dealer or service organization.
dry **dY**	Insufficient water detected in heater. Spa is shut down. (Displays on third occurrence of dr message.)	Follow directions for dr message and press any button to reset spa. Spa will not automatically reset when dry or dY is displayed.
Ec	Indicates heater is in Economy Mode.	None.
--F or --C	Temperature unknown	After the pump has been running for two minutes, the temperature will be displayed.
HL **HFL**	A difference in readings between temperature sensors has been detected indicating a possible water flow problem.	Make sure spa is filled to proper level and that pumps are primed and filter cartridges are clean. If message does not reset, call your dealer or service organization.
IC **ICE**	Potential freeze condition detected.	No action required. The pumps and the blower will automatically activate regardless of spa status.

Message	Meaning	Action Required
LF	Persistent low flow problems. Heater is shut down, but other spa functions continue to run normally. Displays on the fifth occurrence of the HL or HFL message within 24 hours.	Follow action required for HL or HFL message. Heating capacity of the spa will not reset automatically. Press any button to reset.
OH **OHS**	Overheat protection. The spa has shut down. One of the sensors has detected that the spa water is 110°F.	DO NOT ENTER THE WATER. Remove the spa cover and allow water to cool. At 107°F, the spa should automatically reset. If spa does not reset, shut off the power to the spa and call your dealer or service organization.
HH **OHH**	Overheat protection (spa is shutdown). One sensor has detected 118˚F (48˚C) at the heater.	DO NOT ENTER THE WATER! Remove the spa cover and allow spa to cool below 107˚F (42˚C). Press any button on the topside display to reset spa. If spa will not reset after spa has cooled, turn off power for approximately 30 seconds and then turn power back on. If display message is repeated then shut the power off to the spa and call your dealer or service organization.
Pr	When your spa is first actuated, it will go into priming mode.	The priming mode will last for up to four minutes and then the spa will begin to heat and maintain the water temperature in the Standard mode.
SF	Safety Suction. Spa is shut down.	The display will show SF when a vacuum switch closes. All functions will turn off and the system will be disabled until a panel button is pressed.
SL	Indicates heater is in Sleep Mode.	None.
SA **Sb** **SNA** **Snb**	Spa is shut down. The sensor that is plugged into the sensor "A" or "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 **Sn**	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.	Contact your dealer or service organization.
ST	Indicates heater is in Standard Mode.	None.
Stby	Pressing a button combination on the user panel has activated Standby Mode.	Press any button to leave Standby Mode and return to normal operation.

Jets

Almost all of the jets in your spa are adjustable. Rotating the face of an adjustable jet to the left (counter-clockwise) will decrease the amount of water flow through the jet. Rotating the face of an adjustable jet to the right (clockwise) will increase the amount of water flow through the jet. (See example shown below.)

Neck jets adjust in the opposite directions (counter-clockwise to increase, clockwise to decrease).



Water Diverter

The water diverter has a 2" cap located around the top of your spa. They allow you to divert water through jets from one side of the spa to the other, or in most cases from floor jets to wall jets. This is accomplished by rotating the diverter knob to the left (counterclockwise), decreasing the amount of water flow through a section of jets. To increase the amount of water flow through the other section of jets, rotate the handle to the right (clockwise).

Cover Latches

When your hot tub is not in use, make sure you place the cover on top and latch it securely. Besides protecting your hot tub from sun damage and keeping out contaminants, it will prevent small children from drowning in the hot tub.

Your cover will have four clips attached to the ends of the four latches, two on each end of the hot tub cover. There will also be a small bag with eight wood screws.

After you place the cover on the hot tub, attach the clips to the side of the hot tub using the wood screws.

Optional Cover Lift Installation

The optional cover lift attaches to the back of the hot tub cabinet, either on the back wall of the cabinet or on the pedestal base.

The bridge arm lies across the hot tub parallel to the seam of the cover. After you fold back the cover, lift up on the side arm and the cover lift will lift the cover off the hot tub and hold it in an upright position behind the hot tub.

You will need a Phillips screwdriver and a tape measure for installation.

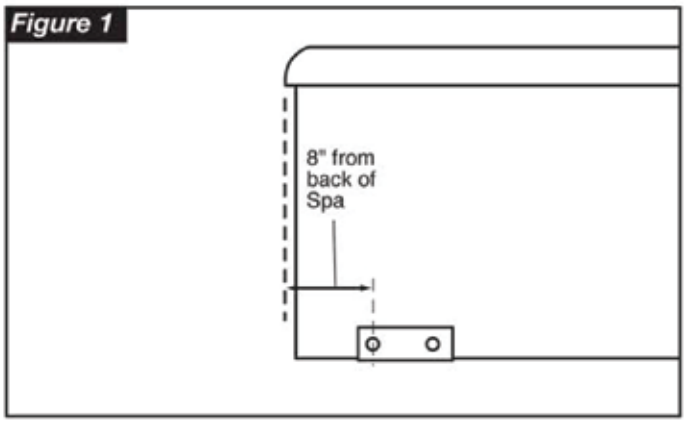
1. **Step One**

   Position your hot tub cover (in the closed position) on the hot tub, making sure all four corners are lined up with the corners on the hot tub.

2. **Step #2**

   Slide the Under-Mount Base Brackets under the hot tub. (See Fig. 1)

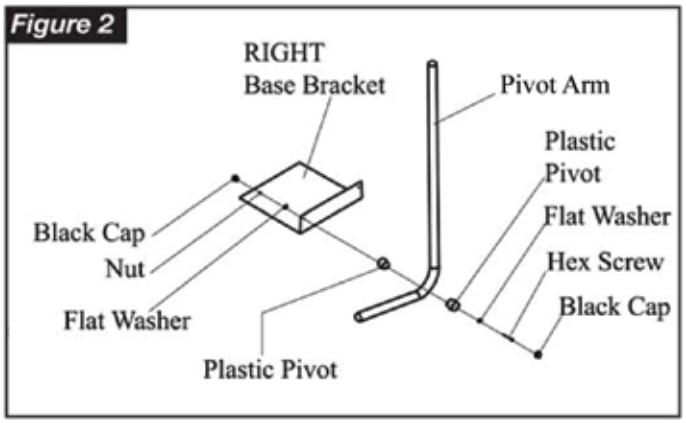
   Note: Be sure to use the Pivot Hole closest to the back of the hot tub.



3. Step #3

Attach the Pivot Arms to the Base Bracket. (See Fig. 2) After arms are attached, tilt them to the upright/vertical position.

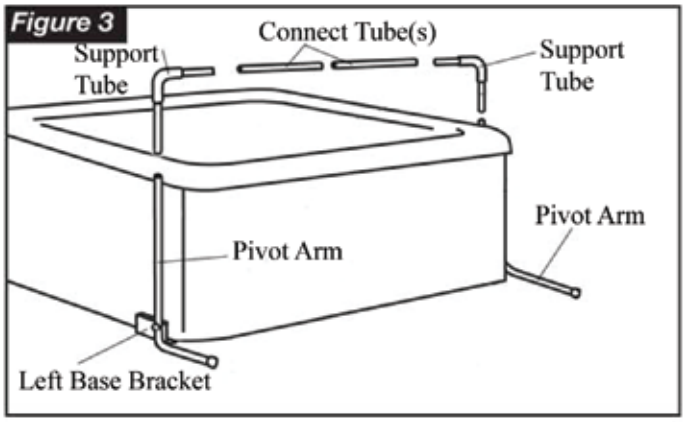
Figure 2



4. Step #4

Insert the LONG end of the Support Tube in to each Pivot Arm. (See Fig. 3) Next (depending on the size of your hot tub,) use 1 or both of the supplied Connect Tubes to join the Top Support Tubes.

Figure 3



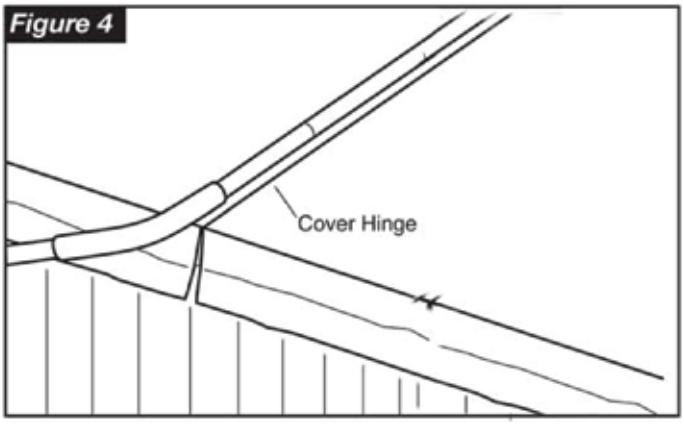
5. Step #5

Lay the Cover Rock-it on the closed hot tub cover. Adjust and center the Connect Tube(s) and Support Arms so that the Connect Tube(s) is lying parallel to the hot tub cover's hinge about 1/2" away. (See Fig. 4)

Use the Self Tapping Screws to fasten the Pivot Arms to the Support Arms and the Support Arms to the Connect Tube(s)

Note: The Support Tube should be rotated so that the Self Tapping Screws are horizontal so as not to damage the cover with the screw head.

Figure 4



Clear Water Plan

This section is intended for new spa owners with no experience with water chemistry. Everyone's experience with maintaining water quality is different, but there are some general concepts you need to know.

Water maintenance is not difficult, although it requires regular attention. The most important thing to understand about taking care of your spa water is that preventive action is much easier than correcting water quality issues.

Contents of this section:

The Key to Clear Water

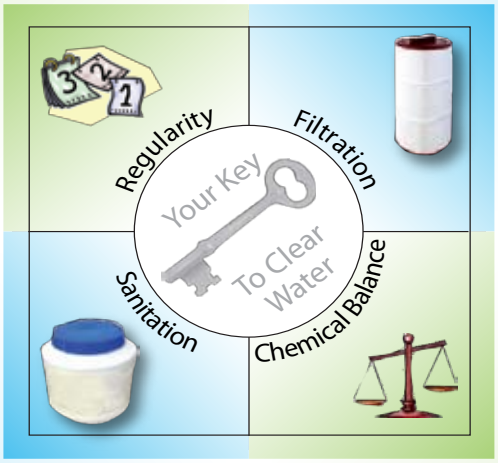
Excellent water quality is a simple matter of four things:

Regularity

Clear water requires regular maintenance. Establish a routine based on a regular schedule for your spa water maintenance.

Maintaining your water quality helps the enjoyment of your spa and extends your spa's life by preventing damage from neglect and chemical abuse.

See page 21 for the schedule of recommended maintenance.



Filtration

Cleaning your filter regularly is the easiest and most effective single thing you can do to keep your water clear.

A clogged or dirty filter will cause the heater and pump to work harder than they need to, possibly causing them to fail.

The spa's heating system will only function with the proper amount of water flow through the system.

See page 19 for filter cleaning instructions.

Sanitation

Sanitizers kill bacteria and viruses and keep the water clean. A low sanitizer level will allow microbes to grow quickly in the spa water.

We recommend using either chlorine or bromine as your sanitizer.

Spa owners with an ozonator also need to add sanitizer, although their requirements are different.

See page 18 for learn how to use sanitizer.

Chemical Balance

You will need to test and adjust the chemical balance of your spa water. Although this is not difficult, it needs to be done regularly.

Depending on your choice of sanitizer, you need to test the level of calcium hardness, total alkalinity, and pH.

See page 18 for learn how to balance your spa water.

Testing and Adjusting Spa Water

You have two types of testing methods to choose from:

- The **reagent test kit** is a method which provides a high level of accuracy. It is available in either liquid or tablet form.
- **Test strips** are a convenient testing method commonly used by spa owners.

Balancing the Total Alkalinity

Total alkalinity (TA) is the measure of the total levels of carbonates, bicarbonates, hydroxides, and other alkaline substances in the water. TA can be considered a "pH buffer". It is the measure of the ability of the water to resist changes in pH level.

The recommended total alkalinity is 80 - 120 ppm.

If the TA is too low, the pH level will fluctuate widely from high to low. Low TA can be corrected by adding a pH-alkalinity increaser

If the TA is too high, the pH level will tend to be too high and may be difficult to bring down. High TA can be corrected by adding a pH-alkalinity reducer.

When the TA is balanced, it normally remains stable, although adding water with high or low alkalinity will raise or lower the TA level.

Balancing the Calcium Hardness

Calcium hardness (CH) is a measure of the total amount of dissolved calcium in the water. Calcium helps control the corrosive nature of the spa's water and is why soft water is not recommended. The low calcium content of soft water is very corrosive to the equipment and can cause staining of the spa shell.

The recommended calcium hardness is 150 - 200 ppm.

If the CH is too low, add water hardness increaser.

If the CH is too high, dilute the spa water with soft water or, if this is not available, add stain and scale treatment.

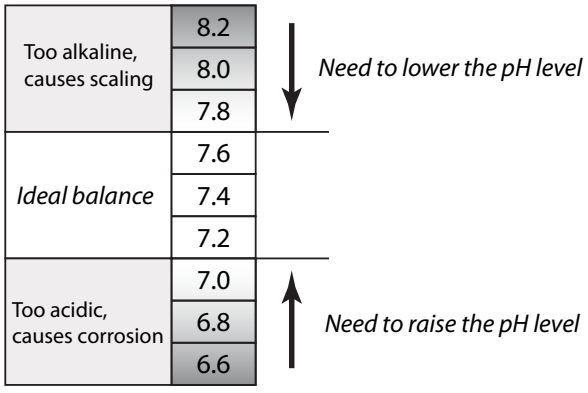
When the CH is balanced, it normally remains stable, although adding soft water or very hard water will raise or lower the CH level.

Balancing the pH

The pH level is the measure of the balance between acidity and alkalinity.

If the pH is too low, it can cause corrosion of metal fixtures and the heating element. Low pH can be corrected by adding a pH-alkalinity increaser.

If the pH is too high, it can cause scaling by allowing metals or minerals to form deposits and stain spa surfaces. High pH can be corrected by adding a pH-alkalinity reducer.



Testing For:	Ideal Range (ppm)		Chemicals To Use:	
	Minimum	Maximum	To Raise	To Lower
Total Alkalinity	80	120	pH-alkalinity increaser	pH-alkaliity reducer
Calcium Hardness	150	200	Water hardness increaser	Soft water, or stain and scale treatment
pH	7.4	7.6	pH-alkalinity increaser	pH-alkaliity reducer

Sanitation

After you fill your spa, you need to decide which chemical sanitizer you wish to use.

We recommend either **bromine** or **chlorine** as your sanitizer. Both work well when maintained regularly.

DO NOT use trichlor. Trichlor is very acidic and the hot temperature of the spa causes it to dissolve too quickly. It will cause damage to your spa and will void your warranty.

Sanitizers kill bacteria and other organic waste by breaking them down to non-harmful levels and are filtered out.

Whichever plan you decide on, follow it completely and don't take shortcuts. It will provide you with clean, safe, clear spa water with a minimum of effort.

Using Chlorine as a Sanitizer

If you choose to use chlorine as a sanitizer, only use granulated chlorine, not liquid chlorine.

Once a week, check the chlorine level using either a test strip or a reagent kit. See the table on the following page for the ideal range.

Add one or two tablespoons of granulated chlorine to the spa water weekly. Note that chlorine dissipation rate will be faster at higher water temperatures and slower at lower temperatures.

When you add chlorine, open all of the jets and run the spa at high speed with the cover open for at least 30 minutes.

Follow the maintenance schedule on page page 21.

Shocking the Water

In addition to using a chemical sanitizer, you will periodically need to shock the water. Shocking the water helps remove burned-out chemicals, bacteria, and other organic material from your spa's water and improves your sanitizer's effectiveness.

Do not use chlorinating shock, which will damage your spa's jets and pump seals. The only shock you should use is oxidizer shock. It is an easy way to maintain either chlorine or bromine chemical plans.

For best results use the directions below.

Add one ounce of oxidizer shock:

- Once a week
- After heavy bather loads
- If water has a strong odor

Spa must be running with all of the jets on high for 30 minutes with the cover open. If necessary, repeat oxidizer shock in 30 minute intervals.

Using Bromine as a Sanitizer

Bromine is a very effective sanitizer that produces low chemical odors. Unlike chlorine, it can break down bacteria and other impurities to a safe level with a low burn-out rate.

Bromine is available in both granulated and tablet form. Use granulated bromine to establish your bromine base. Use tablets to maintain it. The filter cartridge provided with your spa has an internal chamber for bromine tablets. Do not use a floater.

When you begin with fresh water, add 2 ounces of bromine increaser. Open all of the jets and run the spa at high speed. This is your base bromine level as the tablets will take a while to dissolve.

Add two ounces of oxidizer shock. Open all of the jets and run on high speed with the cover half open for at least 30 minutes.

Follow the maintenance schedule on page page 21.

Testing For:	Ideal Range (ppm)	
	Minimum	Maximum
Chlorine level		
Without ozonator	3.0	5.0
With ozonator	2.0	4.0
Bromine level		
Without ozonator	6.7	11.0
With ozonator	5.7	10.0

Chemical Safety

Read and follow all printed instructions listed on bottles and packages. Failure to follow chemical directions may result in serious injury, sickness, or even death.

Do not exceed chemical dosages as recommended in the clear water plan or on chemical bottles and packages.

Never change chemical brands or types without completely draining, flushing and thoroughly cleaning the spa and cover first.

Never mix chemicals together.

Do not allow chemicals to come in contact with skin, eyes or clothing. Remove and wash clothing that may have been exposed to chemical contact prior to wearing them again.

Inhaling or ingesting chemicals will cause serious injury, sickness, or even death.

Chemicals must be stored completely out of the reach of children in an area that is well vented, cool, and dry. Failure to provide a proper area for chemical storage may result in serious injury, sickness, fire explosion and even death. Do not store your chemicals inside the equipment area of your spa.

Filter Cleaning

The filter is the part of your spa that removes the debris from the water and needs to be cleaned on a regular basis to maximize your spa's filtering performance and heating efficiency.

In addition to spraying off the filter weekly to remove surface debris, your filter should be deep cleaned periodically to dissolve scale and particles that get lodged deep within the filter fibers and impede the filtration process. Even if the filter looks clean, scale and particles can clog the fibers and prevent water from flowing through the filter resulting in the most common spa problem—no heat, caused by a dirty filter.

We recommend you clean your filter once a month and replace it once a year or as necessary.

1. Remove the filter by turning it counterclockwise, unscrewing the bottom threads, then pulling it up and out.
2. Place the dirty filter into a bucket of water deep enough to cover the filter. Add 8 oz of liquid filter cleaner to the bucket of water.

   Note: It is a good idea to keep a spare filter to use in the spa while the dirty filter is being deep cleaned. This way, you can rotate the filters and both will last longer.
3. Twist off the tablet tube and set it aside.
4. Soak the filter for a minimum of 24 hours.
5. Spray the filter with a water hose. Spray each pleat carefully.
6. Put fresh bromine in the tablet tube (if you use it as a sanitizer) and twist it back on top of the filter.
7. Reinstall the filter. Do not overtighten.

Bather Load

"Bather Load" is the term used to describe the number of people using a spa, combined with the length of usage, and the frequency of usage. All these factors have a great effect on the spa water. The higher the bather load, the more chemicals need to be added and a longer filtration time will be needed.

All versions of the clear water plan are designed for spas with average bather load (3 to 4 people, 15 minutes of usage, three times a week at 100 degrees) If your bather load exceeds these guidelines, and you experience water quality problems, increase the amount of filtration first, (go to the next higher filtration number) then if water quality is still not adequate, consult the advice of a spa dealer for additional chemical or system recommendations. Be sure to give them your bather load information.

Starting the Spa with Fresh Water

Damage to the spa or spa's components from improper chemicals or chemical usage is not covered under the spa's warranty.

Prior to filling a spa for the first time, or after a routine draining, you will want to follow this start-up plan to extend water life and performance.

As with all chemical dosages listed in these clear water plans, start-up dosages are intended for 500-gallon spas. Please adjust the chemical dosages to the capacity of your particular spa.

1. Clean the surface of the spa with non-abrasive multi-purpose cleaner.
2. Apply a surface protectant to the acrylic surface.
3. Fill the spa to the proper water level with normal tap water. (Do not use soft water.)
4. Use test strip and balance the spa water.
   - Adjust total alkalinity (acceptable range is 80-120ppm).
   - Adjust pH if necessary (between 7.2 to 7.8).
5. Add either chlorine or bromine (but not both).

Chlorine: Add two tablespoons of chorine granules to the spa water.

Bromine: Add 2 oz of granulated bromine to establish a bromine base.

Add 2 bromine tablets to bromine floater.

Set floater opening at #2.

6. Turn on jets for 15 minutes. Leave spa uncovered during this time.
7. Put cover on spa and allow to heat up to desired temperature.

Water level is very important to the operation of your spa. If the water level is too low or too high, your spa will not operate properly. The water level should be about six inches from the top when the spa is not being used.

Maintenance Schedule

Each time you refill the spa	Follow the section "Starting the Spa with Fresh Water".
Prior to each use	Test the spa water using either test strips a reagent test kit. Adjust chemical levels as necessary.
Once a week	Test the spa water using either test strips a reagent test kit. Adjust chemical levels as necessary.
Once a month	Deep clean your spa's filter. (Follow filter cleaning instruction at beginning of clear water plan)
Every two to four months	Drain and clean your spa with a non-abrasive multi-purpose cleaner. Polish the acrylic surface with a surface protectant. Clean and treat spa cover, pillows, and cabinet with a vinyl and leather treatment for use with spas. Refill your spa, following the section "Starting the Spa with Fresh Water".
Once a year	Replace filter cartridges if the pleats appear frayed. You may need to replace the ozone cartridge.

We recommend that your spa water be changed every 4 to 6 months. You may find the need to change your spa water more frequently with heavy use. When empty, your spa should be cleaned with a non-abrasive all surface cleaner, and then rinsed thoroughly.

Ozonator

The ozone generator releases ozone into the spa water. You will still need to test for chlorine and occasionally replenish it to return the chlorine level to the baseline.

Follow the spa start up procedure on page 20.

Set the spa's filtration time for "F4". This activates the ozonator and produces the ozone gas. Note: Filtration time may need to be increased with heavy bather load.

Troubleshooting Water Clarity Problems

Problem	Probable Causes	Possible Solutions
Cloudy Water	• Dirty filter • Excessive oils / organic matter • Improper sanitization • Suspended particles / organic matter • Overused or old water	• Clean filter • Shock spa with sanitizer • Add sanitizer • Adjust pH and/or alkalinity to recommended range • Run jet pump and clean filter • Drain and refill the spa
Water Odor	• Excessive organics in water • Improper sanitization • Low pH	• Shock spa with sanitizer • Add sanitizer • Adjust pH to recommended range
Chlorine Odor	• Chloramine level too high • Low pH	• Shock spa with sanitizer • Adjust pH to recommended range
Musty Odor	• Bacteria or algae growth	• Shock spa with sanitizer – if problem is visible or persistent, drain, clean and refill the spa
Organic buildup / scum ring around spa	• Buildup of oils and dirt	• Wipe off scum with clean rag – if severe, drain the spa, use a spa surface and tile cleaner to remove the scum and refill the spa
Algae Growth	• High pH • Low sanitizer level	• Shock spa with sanitizer and adjust pH • Shock spa with sanitizer and maintain sanitizer level
Eye Irritation	• Low pH • Low sanitizer level	• Adjust pH • Shock spa with sanitizer and maintain sanitizer level
Skin Irritation / Rash	• Unsanitary water • Free chlorine level above 5 ppm	• Shock spa with sanitizer and maintain sanitizer level • Allow free chlorine level to drop below 5 ppm before spa use
Stains	• Total alkalinity and/or pH too low • High iron or copper in source water	• Adjust total alkalinity and/or pH • Use a stain and scale inhibitor
Scale	• High calcium content in water – total alkalinity and pH too high	• Adjust total alkalinity and pH – if scale requires removal, drain the spa, scrub off the scale, refill the spa and balance the water • Use a stain and scale inhibitor

Removing and Reseating the Pillows

You can remove the pillows for cleaning and maintenance quickly and easily. This method works for all types of pillows.

Grab the lower edge of the pillow with both hands firmly and pull up. As you do this, the pillow inserts will pop out of the holes.

Reseat the pillows by aligning the pillow inserts with the holes and striking the pillow hard enough to insert the pegs back into the holes.

Spa Cover

Important! Keep the spa covered when not in use!

- Covered spas will use less electricity in maintaining your set temperature.
- Covering your spa will protect your spa's finish from the sun's ultraviolet rays.
- You are required to keep the spa covered to maintain warranty coverage.
- Covering your spa helps prevent children from drowning in the spa.

See the manual enclosed with your cover for instructions on mounting the locks and how to lock and unlock the cover.

In addition, while the spa cover is rigid, it is not designed to support any weight. Therefore, as a safety precaution and to preserve the life of your cover, you must not sit, stand, or lie on it, nor should you place objects of any kind on top of it.

Draining Your Portable Spa

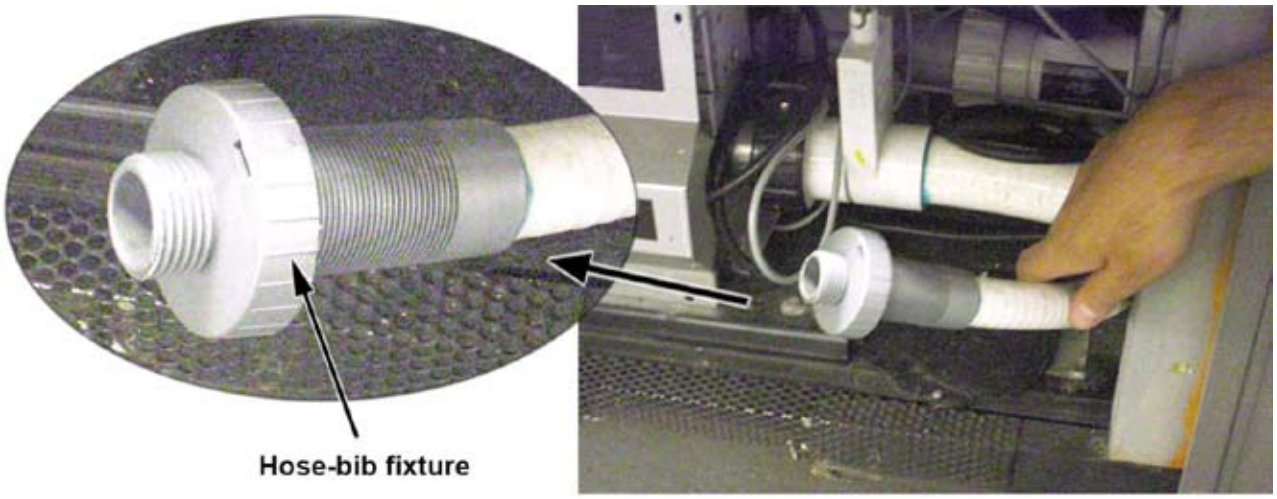
Your spa should be drained every four to six months, and refilled with fresh tap water. The following is the recommended method for draining your spa.

1. Turn off the power at the breaker.
2. Remove all filters.

If your drain valve is mounted on the side of the spa cabinet as shown at right, proceed to step 5.

If your drain valve is located inside the spa cabinet:

3. Using a Phillips screwdriver, remove the screws to the access panel and open it.
4. Locate hose ending with the 3/4 inch hose-bib fixture.



5. Hook up the female end of a garden hose to the drain fitting.
6. Place the other end of the garden hose where you would like the water to drain to.
7. Twist the hose-bib fixture counterclockwise and pull to open the drain.
8. Let spa drain completely, then remove garden hose.
9. Twist the hose-bib fixture clockwise to close it.

Cleaning and Replacing the Filter

Filtration is one of the most important steps you can take to ensure clean, clear water. It is far less expensive to fix water clarity problems by filtering your spa than by using excessive amounts of chemicals, excessive filtration times, or by water replacement.

See the section "Clear Water Plan" for more information on cleaning your filter.

Winterizing (Cold Climate Draining)

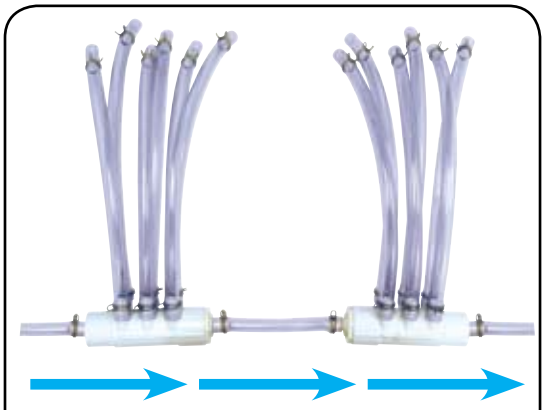
In many areas of the country, the temperature drops below 32˚F (0°C). We recommend that you always have your spa full of water and running at normal spa temperatures (80˚F to 100˚F, 26.7°C to 37.8°C). This will help reduce the risk of freezing in your spa and your spa's equipment.

Warning: If you find the need to drain your spa, please be aware of the potential of freezing in your spas equipment and plumbing. Even if the directions below are followed perfectly, there is no guarantee that your spa will not suffer freeze damage.

Freeze damage is not covered by your warranty.

1. Open all filter covers.
2. Remove the filter baskets and filters.
3. Drain your spa completely as described in the instructions above.
4. Vacuum water from the spa's main drain fitting with a wet/dry vacuum.
5. Remove drain plugs from the front of the pumps.
6. Disconnect the unions from both sides of the pump.
7. Blow any remaining water out of the jets and equipment area with the wet/dry vacuum.
8. Cover your spa with a good spa cover and an all-weather tarp to ensure that neither rain nor snow enters the spa.

NOTE: All manifolds are plumbed in series directly to the main drain (see example at right), making it easier to remove water and reducing the possibility of freeze damage.



Continuous water flow and drainage

Vacation Care

You can leave your spa unattended for up to two weeks if you follow these instructions.

ALWAYS lock your cover using the cover locks if you plan to be away from home and the spa is filled with water.

1. Set the spa to Sleep Mode. (See instructions on page 9 for changing modes.)
2. Following the water quality instructions starting on page 16, adjust the pH.
3. Shock the water (add either chlorine or bromine sanitizer).
4. When you return, check and adjust the pH and shock the water.

If you will not be using your spa for longer than 14 days and a spa maintenance service is not available, we strongly recommend you drain or winterize your spa.

Cleaning Your Spa

Spa Cover and Pillows

Due to the constant punishment your spa cover and pillows receive, you should protect them by applying a vinyl and leather cleaner as part of your monthly maintenance plan. It is specifically designed to protect spa covers and pillows from chemical and ultraviolet light damage. It accomplishes this without leaving an oily residue behind that is normally associated with common automotive vinyl protectants.

Warning: *Do not* use automotive vinyl protectants on spa covers or pillows. These products are generally oil-based and will cause severe water clarity issues that are difficult to correct.

Spa Shell

Each time you drain your spa, before you refill it you should clean your spa shell with a non-abrasive all-purpose cleaner and apply a surface protectant to the acrylic.

A non-abrasive all-purpose leaner is a low detergent, non-abrasive cleaner specifically formulated to clean the spa without damaging its acrylic finish.

A surface protectant is a non-oil based wax that is specifically formulated to protect the spa's finish from the chemicals and minerals associated with normal spa use.

1. Spray multi-purpose leaner directly to the spa's finish.
2. Wipe clean with a soft cloth.
3. Repeat on heavily calcified areas.
4. Wipe spa thoroughly with a wet sponge, rinsing often in a bucket of clean water.
5. Allow the spa to dry completely.
6. Apply a coat of acrylic surface protectant to the spa's entire finish with a soft cloth or sponge.
7. Allow Fast Sheen to dry until white and powdery.
8. Buff clean with a soft cloth, rotating frequently.

IMPORTANT: Do not use any of these products on spas full of water. Only apply to clean, cool, dry surfaces. Incorrect product usage may cause water clarity issues.

Jet Removal and Replacement

Rotate the jet face counterclockwise until you feel some resistance.

Continue to rotate the jet for another quarter turn. You will feel the jet snap out of position. Continue to rotate the jet as you pull it out of the jet well.

To replace jets, insert the jet in the jet well and push and rotate it clockwise until you feel it snap into position. When the jet face can be rotated freely, it is properly seated.

Using the Entertainment System

Some spas may be equipped with audio/visual entertainment options. Several options are available and include marine grade CD players and an iPod docking station. Each spa equipped with an audio/visual system is delivered with the manufacturer's operating instructions in a clear plastic bag.

The instructions contained in this manual describe only basic functions. See the manufacturer's operating instructions for other features and functions. We strongly recommend that you read the manufacturer's instructions prior to operating this unit.

Observe the following precautions for your entertainment system:

- Make sure that hands and CDs are dry before coming in contact with this or any electronic option.
- Always close the CD protective door.
- Do not place wet CD's into this unit at any time.
- Water damage is not covered by American Spas or the manufacturer's warranty.

Although the marine grade entertainment system is encased in a plastic housing with weather seals, the system is **water resistant** and **NOT waterproof**. You must take every precaution to keep this system dry! Water damage is not covered by American Spas or the manufacturer's warranty.

AQ-DB-2 iPod Docking Station

The AQ-DB-2 iPod and MP3 player docking station is fully integrated with your spa. The docking station is tailored to the needs of Apple iPod owner, although it will play most other MP3 players. The docking station is specially configured to accommodate currently available iPods, using five interchangeable inserts in the docking bay.

The docking station comes with its own owner's manual. It describes parts included, installation, and proper use. Owners of this sytem must read the manufacturer's instructions prior to operating this unit. The instructions are shipped inside the docking station behind the remote control.

Note: The system includes an MP3 docking station and remote control and does NOT INCLUDE an MP3 player such as an iPod.

Appendix

Troubleshooting

Symptom	Possible Causes	Possible Solutions
System / Power Problems		
System does not work	Power is turned off	Reset spa
Control pad and spa equipment do not operate	No electrical power to spa	Turn on or reset the GFCI circuit breaker. If this does not solve the problem, have a qualified electrician check the electrical service.
	The 20 or 30A fuse, depending on the system, has blown	Contact your dealer
The spa does not turn off	Spa is trying to heat up	Check the temperature setting is in Standard mode
	Spa is in filter cycle	Normal. No adjustment necessary
	Spa is in Standard mode	Check setting
Control panel displays a message	An error may have has occurred	See Diagnostic Messages on page 11 for message code meanings
GFCI breaker trips repeatedly	Improper wiring to spa or GFCI breaker is defective	Consult with a qualified electrician
	There is a defective component on the spa	Contact your dealer
Heat Problems		
Spa does not heat	Heating mode not selected	See control panel instructions on page 9
	Water level is too low	Add water to correct level
	No electrical power to spa	Turn on or reset the GFCI circuit breaker. If this does not solve the problem, have a qualified electrician check the electrical service.
	Heater is defective	Contact your dealer
	Gate valve is partially or fully closed	Open gate valves. Note: Never operate your spa with the gate valves closed!
Spa gets warm but does not get hot	Thermostat has been turned down	Set control panel to a higher temperature
	Insufficient filtration time	Increase filtration time
	Water level is too low	Add water to correct level
	No electrical power to spa	Turn on or reset the GFCI circuit breaker. If this does not solve the problem, have a qualified electrician check the electrical service.
	Dirty filter cartridge	Clean filter cartridge
	Gate valves closed	Open gate valves
	Spa cover improperly positioned	Align spa cover
Spa gets too hot	Filtration time is set too long	Reduce filtration cycles, especially during summer months
Water Problems		

Symptom	Possible Causes	Possible Solutions
Water is not clean	For all water clarity problems, see page 16.	
High water consumption	Very high evaporation or heavy splashing	Use the cover and refill as necessary
Low water stream from the jets	Running in FILTER mode - slow speed	Select high speed jets
	Block wall suctions or skimmer	Clean the wall suction/skimmer. Remove blockage
	Dirty filter	Clean filter and replace
	Jets are closed	Open jets
	Valves closed	Open valves
No water stream from the jets	Pump has airlock	Remove airlock by priming spa (page 7)
	Jets are closed	Open jets
	Power switched off, system off	Reset power
	Pump is defective	Contact your dealer
	Pump fluctuations	Low water. Check level on skimmer flap
Water leakage from below the spa	Check the connections and empty the hoses	Close or turn off empty cycle if necessary
Water Pressure Problems		
Jets surge on and off	Water level is too low	Add water to normal level
Jets are weaker than normal or do not work at all	Jet valves are partially or fully closed	Open jet valves
	Filter cartridge is dirty	See Cleaning the Filter
	Air is trapped in the pump	Open the air bleed valve on each pump's housing and allow air to bleed out of the system. Be sure to tighten each air bleed valve as soon as water starts to flow.
	The suction fittings are blocked	Remove any debris that may be blocking the suction fittings
	Gate valve is closed	Open gate valves. Note: Never operate your spa with the gate valves closed!
Air and Jets Problems		
No airstream from the jets	Air control not open	Open the control
	Jet spout opening not fixed properly	Check jet spout openings
	Jet spout opening missing	Check jets and replace as necessary
Light Problems		
Standard spa light does not work	Light bulb has burned out	Replace light bulb
	Lighting system is defective	Contact your dealer
Pump Problems		

Symptom	Possible Causes	Possible Solutions
Pump runs constantly – will not shut off	Problem with circuit board	Contact your dealer
Noisy pump	Water level is too low	Add water to normal level
	Block wall suctions or skimmer	Clean the wall suction/skimmer
	Damaged or worn-out motor block	Contact your dealer
	Clogged floor suction or skimmer	Clean floor suction or skimmer
	Leakage of air into suction line	Contact your dealer
	Debris is inside pump	Contact your dealer
	Gate valves are closed	Open gate valves. Note: Never operate your spa with the gate valves closed!
	Damaged or worn motor bearings	Contact your dealer
	Improper or defective wiring	Contact your dealer
Pump turns off during operation	Automatic timer has completed its cycle	Start the cycle again
	Pump has overheated due to the vents on the equipment door being blocked	Clear items away from vents
	The pump motor is defective	Contact your dealer
Pump has a burning smell while running	Damaged or worn motor bearings	Contact your dealer
Pump does not work	Power may be turned off	Reset power
	Pump has over heated	Let cool for one hour
	Incorrect or faulty wiring of electrical supply	Contact your dealer
	Switch is off	Auto reset after the motor has cooled down
	House circuit breaker tripped or in OFF position	Reset circuit breaker Contact your dealer
	Motor overload condition	Motor overload will reset automatically. If problem persists, contact your dealer
	Damaged electrical cord	Contact your dealer
	Pump cord not plugged in	Plug pump cord into red receptacle
	GFCI tripped or in OFF position	Reset GFCI

LIMITED WARRANTY

Acrylic Spa Warranty

American Spas portable spas are warranted to be free from defects in material and workmanship. This warranty starts ***from date of manufacture*** and ends either by specified time-frame listed below, owner-transfer, relocation, or installation of any component other than by manufacturer.

This limited warranty is only valid on portable spas delivered in the United States and Canada. However, it does not apply to special offers and events and extends through the selling dealer to the original purchaser at the original site of installation.

Spa Shell / Structural LMS Inc. warrants against the loss of water through the spa's shell due to defects in materials and / or workmanship.	2 Years
Interior Surface LMS warrants against cracks, blisters, peeling, discoloration and delamination of interior acrylic surfaces.	2 Years
Equipment LMS warrants the spa's electrical and electronic components, specifically: the control system, pumps and air blowers against malfunction due to defects in materials and/or workmanship. Leaking caused by operating pump while dry is specifically excluded from this warranty.	2 Years
Plumbing LMS Inc. warrants all factory installed plumbing from loss of water due to defects in material and/or workmanship.	2 Years
Cabinets LMS warrants cabinet panels against cracking and warping. Cabinet surface peeling, blistering, fading, or delamination are specifically excluded from this warranty.	2 Years
Components LMS warrants manufacturer-installed ozonator against malfunction due to defects in materials and/or workmanship. Specifically excludes replacement ozone cartridge, which has a one year warranty.	2 Years

Electrical and Electronic Components

LMS warrants stereos and the LED light source one year.

Manufacturer Warranty

Hot tub cover warranty is extended through the manufacturer of the product. Hot tub cover is warranted for one year unless otherwise specified. For more information, see their warranties in the owner's information package that was delivered with your hot tub.

Warranty Performance

In the event of a malfunction or defect covered under the terms of this warranty, the factory authorized service agent is responsible for performing all necessary repairs. To obtain service, contact customer service.

In the event of any warranty replacement, all labor costs (not limited to removal, replacement, and installation) and shipping costs are the responsibility of the hot tub owner. There will be no charge for parts on a covered item. However, the service agent may assess a reasonable travel or mileage charge per service call, which may include diagnostic time. If LMS Inc. determines that repair of a covered item is not feasible, LMC Inc. reserves the right to replace the defective merchandise with merchandise equal in value to the original purchase price.

Warranty Limitations and Exclusions

This warranty is void if the hot tub has been subject to negligence, alteration, misuse, abuse, repairs by non-authorized personnel, incorrect electrical installation, installation by unqualified personnel, installation without a permit if required by local codes, installation of any component other than by the manufacturer, acts of God (including, but not limited to, acts of nature and surrounding environments), and any other cases beyond the control of LMS Inc..

Examples of common acts invalidating this warranty include, but are not limited to:

- Use of hot tub in a non-residential application
- Scratches caused by normal use or delivery
- Operation of hot tub's water temperature out of the normal operating range of 32˚F to 118˚F (0°C to 47.8°C)
- Damage caused by incorrect water level (low, overflow, etc.)
- Damage caused by extreme weather conditions (hot, cold, etc.)
- Damage caused by dirt, sand and calcium
- Damage caused by clogged filter cartridges (see filter cleaning recommendations in this owner's manual)
- Damage caused by continued operation of this hot tub with either a known or an unknown problem
- Damage caused by tri-chlor, acids, chlorine tablets, and any other hot tub chemicals not authorized by LMS Inc.
- Damage caused by improper water chemistry, such as high levels of chlorine, bromine, calcium, pH and other excessive chemical levels
- Acrylic damage caused by direct sunlight. Hot tubs should always be covered when not in use.
- Damage caused as a result of failure to follow operating instructions as described within this owner's manual
- Damage caused by incorrect electrical installation, electrical brownout, voltage spikes, or operation of hot tub out of voltage range by more than ±10%
- Hot tubs placed on non-approved surfaces

Although shell cracks, which are breaks in the shell that go all the way through, are covered by this limited warranty, cosmetic scratches, gouges and crazing are not considered cracks and are not covered.

The Limited Warranty applies only to hot tubs normally used for personal, family or household purposes.

For relocating your hot tub without voiding your warranty, contact Customer Service for relocation procedures.

Replaceable service items such as filters, light bulbs, pillows, jet inserts, and filter covers are specifically excluded from the limited warranty.

Equipment adjustments, such as tightening electrical connections, draining or filling the hot tub, are specifically excluded from this warranty.

Disclaimers

This limited warranty is made with the express understanding that the hot tub is not an essential device or medical device as defined under State and Federal Law. LMS Inc. shall not be liable for loss of use of the hot tub or other incidental or consequential costs, expense or damages, which may include but are not limited to removal of permanent deck or other custom fixtures or the necessity for crane removal. Any implied warranty shall have duration equal of the applicable warranty stated above. Under no circumstances shall LMS Inc. or any of its representatives be held liable for injury to any person or damage to any property, however arising.

Legal Remedies

This limited warranty gives you specific legal rights and you may have other rights, which may vary from state to state.

Customer Service

Contact customer service for a copy of the applicable warranty, details, and any questions you may have regarding the warranty coverage on your hot tub.

LMS Customer Service Department
1462 East Ninth Street
Pomona, CA 91766

Toll Free: 1-800-225-7727
Fax: 1-909-629-3890

Appendix

Locating the Product Serial Number

The serial number of your spa is located on a metal plate attached to the lower right front panel of the spa. You will need this number to properly register your spa and activate coverage. Write this information in the space provided below.

Spa Model: _____

Spa Serial Number: _____

Date Purchased: _____

Date Installed: _____

Dealer's Phone Number: _____

Dealer's Address: _____

Removing the Support Blocks

There are two wooden support blocks attached to the frame of your hot tub. They are necessary during ship to keep the hot tub stable while it is on the pallet. When your hot tub is on the ground and placed on its foundation, these blocks may be removed. Use a Philips screwdriver to remove the six screws that attach them to the frame.

AMERICAN Spas™