Thank you!

Our team at Blue Oasis Spas extends their sincere thanks to you for your business and we hope you enjoy your spa for many years to come.

The following Operation Manual will help you with the operation and general maintenance of your new spa. We suggest that you carefully read the entire manual before using your spa to ensure safe start up and use.

If you have any questions about the start up, operation or maintenance of your spa, please contact your authorized dealer for Blue Oasis Spas or you may contact the factory directly at (909) 349-0355. To expedite service when you call, please have the following information available.

DATE OF PURCHASE:

_____

DATE OF DELIVERY:

_____

ADDRESS:

_____

TELEPHONE:

_____

DEALER NAME & LOCATION:

_____

SPA MODEL:

_____

SPA SERIAL NUMBER*:

_____

**The serial number is written on the placard located on the inside cabinet panel near the spa equipment.*

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SAFETY

READ AND FOLLOW ALL INSTRUCTIONS PRIOR TO USE

DISCLAIMER:
This manual is intended for use by residential spa users and is designed to provide basic information for your spa. Since no manual can address every possible issue, situation or safety concern, it is your responsibility to exercise care with all aspects of this product.

RISK OF DROWNING: Caution must be taken by all users of this product to avoid accidents. Children and persons unaccustomed to water and/or using a spa need to be supervised at all times. However, the risks of accidents or drowning are high for spa users of all ages if reasonable caution is not taken.

ALCOHOL & PRESCRIPTION DRUGS: Hot water amplifies the effects of alcohol and certain drugs, and the result can be dangerous. Alcohol use is not recommended while using your spa. Consult your doctor regarding the use of prescription drugs.

CHILDREN & INFANTS: Small children and infants should not use a spa. Consult with your family doctor before use allowing older children to use the spa. Children are more sensitive to heat and it is recommended that they should not be exposed to water of more than 95° F. To reduce the risk of accidents and drowning, NEVER, UNDER ANY CIRCUMSTANCES leave children unattended.

PREGNANCY: If you are pregnant or trying to become pregnant, do not use a spa without first consulting your physician. If your physician allows use of a spa, ask him/her what is a safe water temperature and amount of time you can be exposed.

MEDICAL CONDITIONS: Persons with heart disease, diabetes, obesity, high or low blood pressure, or any other serious illness should not enter a spa without first consulting with, and obtaining the advice of a physician. Anyone on medication should consult a physician before using spa. Some medications can be dangerous combined with prolonged exposure to hot water. People taking medications that induce drowsiness, such as tranquilizers, antihistamines or anticoagulants should not use the spa.

WATER TEMPERATURE & HYPERTHERMIA: Soaking for too long in elevated water temperatures can raise body heat to hazardous levels. The National Spa and Pool Institute considers 104° F to be the maximum safe water temperature for adults. Our spas strictly adheres to this industry regulation. A safe soaking time should not exceed 30 minutes. Some medical authorities have recommended a lower maximum temperature of 100° to 102° F. Consult your doctor prior to use. You should always test water temperature with your hand before entering the spa for comfort level and to avoid excess temperatures which can cause serious burns.

Prolonged immersion in hot water can result in HYPERTHERMIA, a dangerous condition which occurs when the internal temperature of the body reaches a level above 98.6F for a prolonged time. Symptoms include confusion, combativeness, bizarre behavior, faintness, staggering, strong and rapid pulse, and possible delirium or coma. Avoid hyperthermia by not soaking for long periods of time. If someone is exhibiting any symptoms, contact emergency assistance immediately.

RISK OF ELECTROCUTION:

- All electrical work must be performed by a licensed electrician according to the most recent revisions of the National Electric Code (NEC).
- Connect spa power supply to a grounded source.
- Do not bury a power cord unless done by a licensed electrician. Improper burial of a power cord may result in death or serious personal injury due to electrocution if direct burial-type cable is not used, or if improper digging occurs.
- A ground terminal (pressure wire connector) is provided on the control box inside the unit to permit connection of a minimum #10 AWG solid copper bonding conductor between this point and any metal equipment, metal water pipe, metal enclosures of electrical equipment, or conduit within five feet (1.5 m) of the spa.

- NEC requires the installation of a manual disconnect device for your hot tub be installed at least 5 ft. away, and within 50 ft. of the spa for safety.
- Some of our spas have a built-in 20 or 50 amp Ground Fault Circuit Interrupter (GFCI) in the electrical control box.

Cord-Connected 120 volt, 20 amp models: A special 20 amp receptacle is required for 20 amp service and my need to be ordered. Consult your electrician, for local, state and national codes.

240 volt permanently installed or converted models: A ground terminal is provided on the terminal block located inside the control box. To reduce the risk of electric shock, connect this terminal to the grounding terminal of your electrical service or supply panel with a continuous insulated copper wire. The wire must be equivalent in size to the circuit conductors supplying the equipment. In addition, a bonding terminal (pressure wire connector) is provided on the outside of the control box for bonding to local ground points. To reduce the risk of electric shock, this connector should be bonded with a #10 AWG solid copper wire to any metal ladders, water pipes, or other metal within 5 feet (1.5 m) of the spa to comply with local requirements. The means of disconnection must be readily accessible, but must be installed at least 5 feet (1.5 m) away.

RISK OF ELECTRICAL SHOCK:

- Install spa at least 5 feet (1.5 m) from all metal surfaces. A spa may be installed within 5 feet of a metal surface if each metal surface is permanently connected by a minimum #10 AWG solid copper conductor attached to the wire ground connector on the terminal box that is provided for this purpose if in accordance with National Electrical Code.
- NEVER handle a corded phone, radio, TV, hair dryer or any other electrical device while you are around spas or pools, in contact with water, when hands or feet are wet, or when barefoot. Locate all electrical outlets a safe distance away from your spa or hot tub, as specified in local building codes. Keep electrical devices away from the water, and never place them on the spa edge. If an electrical appliance should fall into the water, or be touched by a bather, electrical shock/electrocution could result.
- Install your spa in such a way that drainage is away from the electrical compartment and from all electrical components.
- Replace damaged cords or wires immediately. Failure to do so may result in death or serious personal injury due to electrical shock/electrocution.
- A GFCI may be included with your spa for user and equipment protection. To ensure proper operation of this important safety device, test according to the following instructions per electrical configuration.

DO:

- Be sure your spa is connected to the power supply correctly by a licensed electrician.
- Disconnect the spa from the power supply before draining the spa or servicing the electrical components.
- Test the GFCI(s) before each use:
  - Press the “Test” button on the GFCI to turn off the spa.
  - Wait 30 seconds.
  - Press the “Reset” button on the GFCI to turn on the spa.
  - The spa is now safe to use.

Note: Failure to wait 30 seconds before resetting the GFCI may cause the spa’s control system to be damaged.

DON’T:

- Use the spa if equipment compartment panel or door are not completely closed or secured or if it has been removed.
- Place electrical appliances within 5 feet (1.5m) of the spa.
- Attempt to open the electrical control box. There are no user serviceable parts inside.

--SEE THE INSTALLATION/DELIVERY SECTION FOR ADDITIONAL ELECTRICAL INFORMATION--

SPA COVER: Always use a locked safety cover when the spa is not in use. Your spa is equipped with a locking cover that meets the ASTM F1346-91 Standard for Safety. Keep young children away from spas unless there is constant adult supervision. As an added precaution, consider installing a pair of extra locking straps for more security.

SAFETY RAILS & STEPS: Getting in and out of a spa with wet, slippery feet can pose a hazard. Consider the addition of sturdy spa steps and a handrail. Both are available from your dealer.

TUB TOGETHER: It is always wiser for adults to enjoy the spa together. With two or more persons bathing, someone will be there to help if there is a problem.

OTHER RISKS TO AVOID: Do not spa immediately following strenuous exercise. People with infectious deceases should not use the spa. Never operated the spa with broken or damages filters or suctions as injuries can occur.

WARNING SIGN: It is extremely important that this sign be permanently placed in clear view of any persons using the spa. A Warning Sign, which comes on every unit, is located to the right of the access door and/or on the entrance to the spa. Occasional spa users may not be aware of some of the dangers of hot water. If you did not receive a warning sign or your sign has become damaged, please contact your spa dealer or the manufacturer.

ADDITIONAL SAFETY INFORMATION: The NSF, National Public Health and Safety Company, has additional information for consumers regarding spa safety at www.nsf.org.

INSTALLATION/DELIVERY

READ AND FOLLOW ALL INSTRUCTIONS

The installation of your spa is not included in the cost of the spa unless specifically noted on your invoice by your dealer.

PLANNING YOUR INSTALLATION/DELIVERY: Proper planning is an important consideration when installing your new spa. Site selection is a critical step and should be given serious thought. Planning ahead, before the delivery of your spa, will make the process easier. The following information is provided to assist you in site preparations.

GENERAL: Review local building codes regarding gates, fences etc. Be sure that the spa will have proper access to water, drainage and electrical service. The spa must have a proper foundation underneath to support the weight. In most cases, the best foundation is a 4-inch thick cement pad. However, there are other ways to support your spa. Please consult your spa dealer and qualified contractor before constructing a foundation. Additionally, make sure you have adequate clearance to move the spa into its location. If you are having the spa delivered, ensure a smooth delivery by:

- Measuring all pathways, gate widths, etc., and noting obstructions such as rain gutters, meters, air conditioners, tight corners, or any other obstacle that might impede the safe passage of your spa. If obstructions or lack of space exist during delivery, you may incur additional charges. Some deliveries require a crane/boom truck. Contact your dealer with concerns.

- Take measurements in several locations along the path to ensure proper clearance is provided.

- On the day of delivery, be sure the path for the spa is clear of cars, bikes, motorcycles, snow, ice or other obstacles. The delivery team is not responsible for removing obstacles. Planning ahead will help you avoid any additional delivery charges.

INDOOR INSTALLATIONS: Be sure your spa will fit into the space you have chosen. Proper access into the home is needed to move the spa into place. Ventilation may be needed because of the humidity from the spa. In most cases, a proper fitting spa cover is sufficient. Be sure to confirm the load carrying capabilities of the floor on which you will be installing your spa, as most homes meet the requirement of 150 lbs per square foot. Insure you have proper drainage in the event of a leak.

OUTDOOR INSTALLATIONS: Assure that your spa is on a flat and level surface. Never put spa on blocks or shims. If the spa is not supported evenly over the entire bottom surface, structural damage will occur and is not covered under warranty.

Alternate foundations for select models can be made with stepping stones or bricks, although it is not recommended since it is difficult to ensure a uniform, level surface. The entire spa base must be supported evenly; no gaps can exist. A 4”x4” framed pea gravel bed can also be used as a foundation for your spa. The frame must be on solid and level ground with at least 3” of pea gravel with no gaps between the spa base and foundation. All foundations need to be maintained to prevent structural problems.

Protect pump and equipment from the weather (Keep access panel/door closed at all times). Assure access to spa’s service door, filter, entry and power connection.

PROXIMITY TO HAZARDS: Do not place your spa within 10 feet of overhead power lines. Be certain that your installation will meet all city codes and requirements.

SOLID LOAD BEARING SITE & FOUNDATION: The site must provide a solid foundation with a minimum load bearing capacity of 150 lbs per sq. ft. Concrete slabs and decks must be designed to support this weight. Do not select a site composed of individual unsupported bricks, blocks or other materials, which will shift unevenly and cause damage to the spa. An adequate foundation is completely in contact with the entire base of the spa. STRUCTURAL DAMAGE

CAUSED BY IMPROPER FOUNDATION SUPPORT IS NOT COVERED UNDER WARRANTY. It is strongly recommended that a qualified, licensed contractor prepare the foundation for your spa.

LEVEL SITE/FLAT SURFACE: A level site is critical to both the performance and enjoyment of your spa. Water is unforgiving and will always settle level. A flat and level site provides the surface necessary to properly dispense weight between the foot-well, which bears most of the spa's weight, and the structural frame, which primarily provides stabilization and secondary support. The importance of proper support for the foot well in conjunction with spa cabinet cannot be over stressed.

INSPECTION & MAINTENANCE: The foundation of a spa should be checked and maintained regularly to prevent shifting or wash-out which might cause structural damage to spa.

SERVICE ACCESS: If you're installing your tub with custom decorative trimming, remember to allow for access to the service compartment. Should you need service, a technician may need to remove the tub's side panels. It's always best to design special installations so that the tub can still be moved, or lifted from the ground. Service accessibility is the spa owner's responsibility. Failure can result in unnecessary service charges, additional service trips, and delays if fixing the spa.

IN-GROUND OR DECK INSTALLATIONS: Have a licensed electricians and contractors install all equipment. Always water test your new in-ground spa for five days before completing any decking or finish work. Leave all trenches open for final inspection by your local inspector. Self contained in-ground spas do not fall under traditional installation applications. Consult your dealer for information and instructions.

NOTE: Never leave an in-ground spa drained. In-ground spas need to be refilled immediately due to the possibility that ground water may cause an in-ground spa to become dislodged and float out from its installation. Always use caution when draining; never drain under wet conditions. In-ground installation is the responsibility of the consumer and not covered under warranty. Consult your contractor if problems occur.

ELECTRICAL REQUIRMENTS

CODE COMPLIANCE: The electrical wiring must meet the requirements of the National Electric Code (NEC) and any applicable state or local codes. The electrical circuit must be installed by a licensed electrical contractor and approved by a local building / electrical inspection authority.

GENERAL REQUIRMENTS: Electrical connection point is located on the left side of the control box. A 1" knock out is provided. All 240V spas must be permanently connected (hard wired) to power supply. Refer to the model's specifications for power supply requirements (located on the Control Box) or contact your dealer. Supplying power to the spa which is not in accordance with these instructions will void both the independent testing agency's listing and the manufacturer's warranty.

- Always follow all applicable Local, State and Federal Codes and Guidelines.
- The power of the spa must be a dedicated circuit with no other appliances or lights sharing the power.
- The electrical supply for the spa must include a suitably rated switch or circuit breaker to open all ungrounded supply conductors to comply with the NEC.
- The electrical circuit for the spa must include a suitable ground fault interrupter (GFCI) as required by the NEC. (See illustrations on the following pages for proper wiring configuration or contact your dealer.)
- The wire size and length must be appropriate THHN copper core wire per NEC code. Never use aluminum wire.
- All wire installations must meet NEC requirement.
- Never under wire a spa. Under sized electrical wiring may cause a safety hazard, as well as damage to your spa which is not covered under warranty.
- It recommended that your electrician uses #6 gauge copper wire.
- Never have your spa within 10 feet of the receptacle.
- Do not bury the power cord unless done by a licensed electrician.
- Damaged cord or wires must be replaced before next usage.
- The GFCI should be tested prior to use:
    - Press the "Test" button on the GFCI to turn off the spa.
    - Wait 30 seconds.
    - Press the "Reset" button on the GFCI to turn on the spa.
    - The spa is now safe to use.

    If the GFCI ever turns off (or trips) while the spa is in use, press the reset button. If the GFCI will not reset, unplug the GFCI and call your Dealer for service. DO NOT USE THE SPA.

120 VOLT INSTALLATION INFORMATION:

- All 120V powered models use a 20 amp (15 foot) GFCI cord plugged directly into a dedicated 20 amp grounded wall outlet or must be hard wired.
- The 15 foot cord refers to its length from the load box to electrical outlet. Actual exposed cord length will vary by model but will never be less than 10 feet.
- Never lengthen a supplied GFCI cord or use an extension cord for any reason.
- Use only a dedicated electrical line with a 20 amp breaker.
- Always use a 20 amp grounded weatherproof/covered receptacle.
- All 120V spas must have a GFCI. This can either be a 20 amp GFCI receptacle or a GFCI cord or plug kit, sold separately.

240 VOLT INSTALLATION INFORMATION:

- Your 240V spa requires a DEDICATED 50 AMP GFCI SERVICE WITH FOUR #6 AWG COPPER WIRES. This will include a black wire (hot line #1) and red wire (hot line #2) for incoming power, a white wire (neutral) and a green wire (ground).
- SERVICE OVER 50 AMPS MAYBE REQUIRED on models with 2 pumps and/or additional options. Refer to the model's specifications for power supply requirements (located on the Control Box/Electronics/Spa Pack) or contact your dealer.

CONSULT YOUR LICENSED ELECTRICIAN BEFORE ANY ELECTRICAL WORK IS DONE

START-UP & PROGRAMMING INSTRUCTIONS

FOR BEST RESULTS, READ THIS ENTIRE SECTION BEFORE BEGINNING WITH FIRST STEP. FAILURE TO FOLLOW OPERATION MANUAL MAY RESULT IN DAMAGE NOT COVERED BY YOUR WARRANTY.

Preparation

After your spa has been connected to the appropriate power source by a licensed electrician, confirm the following:

1. The GFCI is off.
2. The spa interior has been wiped with a damp towel to remove dust and debris.
3. All plumbing and electrical connections in equipment area are securely fastened and did not loosen during shipment. DO NOT OVERTIGHTEN PLUMBING UNIONS.
4. Indicator light "A" is lit. (This confirms 120V power)
5. Indicator light "B" is lit. (This confirms 240V power)
6. Both gate valves are pulled out in the open position.
7. Ensure all jets are in the open position by rotating the jet counter-clockwise.

Filling Your Spa

NOTE: Never fill your spa directly from the hot water heater in your house. This will prevent scale from heater from entering spa and will also prevent damage to spa from excessive water temperature.

NOTE: Never fill your spa with soft water. The water chemistry of soft water will attack metal components in your spa equipment. Soft water makes it difficult to maintain proper water chemistry.

NOTE: Never turn your spa on when it is empty or not filled to the correct level. This may damage the pump, heater and other equipment.

NOTE: Avoid filling or re-filling your spa on a cold day (near or below freezing temperatures) as this may only add complications to the process of starting or re-starting your spa.

Follow these steps in order:

1. Remove filter(s) from the filter compartment.
2. Flush your garden hose for approximately 1 minute (or until stagnant water has been purged.)
3. If you purchased a pre-filter with your spa, attach it to the end of your garden hose now. Flush the pre-filter for a few seconds outside of spa before lowering it into filter compartment for filling.
4. **WARNING –** If you are filling your spa in freezing temperatures, you must pour 10 gallons of warm water (80-115°F) directly down the filter area. This should help thaw any residual test water in equipment area that may not have drained completely and later froze. Immediately begin filling with water. Waiting even a short while may allow the 10 gallons to begin freezing.
5. Insert garden hose directly into filter compartment and turn hose on. (If fill water is below 45°F, the message "COLD" may be displayed. Because spa temperature should never get this low, the status of the heater element is unknown to the onboard computer and, as a safety measure; the low speed pump will run continuously until temperature rises above 45° F. The low speed pump can heat the spa by approximately ½ ° F per hour. During this error condition, the spa is functional except for the heater. Call your dealer if the temperature does not begin rising within 4 hours.)
6. Fill the spa until the water level is approximately 4" above the bottom of the weir gate (the moveable gate in the filter compartment area) or filter area opening. The water level should be approximately 1" below the neck jets, when not in use.
7. **WARNING –** WATER LEVEL SHOULD NEVER BE ABOVE NECKJETS. IF WATER LEVEL EXCEEDS NECKJETS, WATER MAY BEGIN DRIPPING OUT OF THE AIR INTAKE PLUMBING LINES INSIDE SPA CABINET.
8. **WARNING** – IF SEVERAL PEOPLE USE SPA AT ONCE, YOU MAY NEED TO ADD WATER AFTER THEY

EXIT TO ENSURE PROPER WATER LEVEL IS MAINTAINED.

Turning Spa On

9. Turn on the power to the spa by pressing the red button on the GFCI breaker. The computer will turn on and after a few seconds it will engage the pump's low speed.
10. Press the Pump button to turn on the high speed. This will help establish the necessary flow in the beginning and purge trapped air from the plumbing lines.
11. Water should start to flow from the jets within a few seconds. If water is flowing from jets, reinstall the filter(s) and proceed to Step 12.
12. If water is not flowing, you may have an "air lock" and the message PSOL or PSOH may be displayed. Turn the diverter valve (if equipped on your spa) all the way to the left, or counter clockwise. Make sure all jets are open and both handles of the gate valves (shut off valves) are in the open position. If you still cannot establish water flow, loosen (do not disconnect) the pump union on the high side of the pump to vent trapped air. You may hear a hissing sound, followed by water dripping out. This should solve the problem.
13. If water is still not flowing, see TROUBLE SHOOTING section, or call your dealer immediately.

Programming Instructions for Digital Control Systems

Time & Temperature

14. Press and hold the **UP** Arrow/Temp button until it starts flashing.
15. Use the **UP** and **DOWN** arrows to set the desired temperature. (The factory default is 100°F)
16. Press **SET** to store the information.
17. Press and hold the **DOWN** Arrow/Time button until it starts flashing.
18. Use the **UP** and **DOWN** arrows to set the correct time of day. (NOTE: The "AM" indicator light is located at the top right of the LED display.)
19. Press **SET** to store the information.

Filtration Cycles

NOTE: To program the filtration cycles, you must enter the Programming Mode. When you are in this mode, you cannot stop for longer than 15 seconds or the computer will revert back to the original settings and any changes you have made will be erased. The following lists of times are only examples; you may choose any time of day but it is recommended that you spread out the filtration periods throughout a 24-hour period. **PLEASE READ THIS ENTIRE SECTION BEFORE ENTERING PROGRAMMING MODE.**

20. To enter Programming Mode, push the **DOWN** Arrow/Time button and **SET** button **simultaneously**.
21. **FP1** (Filtration Period #1) should appear, if it doesn't, try again.
22. Push **SET** and the display will look like a time clock.
23. Use the **UP** or **DOWN** arrows and scroll to **5:00AM** and push **SET** twice. It should read **FP1**.
24. Scroll up to **FP2** and set the time to **11:00AM**, then press **SET** twice. It should read **FP2**.
25. Scroll up to **FP3** and set the time to **5:00PM**, then press **SET** twice. It should read **FP3**.
26. Scroll up to **FP4** and set the time to **11:00PM**, then press **SET** twice. It should read **FP4**.
27. Scroll up until you see **FP1d** (the "d" stands for duration) and press **SET**.
28. Change the number to **90 minutes** and press **SET**.
29. Do the same for **FP2d, FP3d and FP4d.** (NOTE: You may choose to filter your spa for longer time periods to maintain clean, sanitary water. Spas with Genesis Bromine Generators must have Filtration Period Durations of 120 minutes per cycle.)
30. Scroll to **SEND** and press the **SET** button. This saves the programming changes. If you do not do this, the changes will not be saved and the spa will revert back to the original settings. **ANY TIME YOU CHANGE A SETTING YOU MUST "SEND" THE CHANGE TO MEMORY.** (This does not apply to setting the temperature or time of

day.)

Programming Economy Cycle Length (ECL)

The Economy Cycle Length refers to the energy saving mode programmed into your spa's computer. The default setting is 180 minutes. This means that your spa will turn on automatically every 180 minutes to circulate the water. By circulating the water, the thermostat will have a more accurate reading of the spa water temperature. If the water temperature is below your desired setting, it will add heat. If the water does not need heating, it will automatically shut off to save energy. If you live in warm weather climates, you do not need to change the default setting. But, if you live where temperatures dip below freezing, follow these steps for shortening the ECL in the winter months.

31. To enter Programming Mode, push the **DOWN** Arrow/Time button and **SET** button **simultaneously**.
32. Scroll up until it says **ECL**.
33. Change the number to **120 instead of 180**. This means the Economy Mode will engage every 120 minutes to circulate the water and add heat if needed. Circulating the water more often in the colder months will allow the thermostat to more accurately read the temperature, thereby preventing the spa from entering a "freeze protection" mode unnecessarily.

Programming Instructions for Pneumatic Control Systems (Mechanical Air Systems)

**** If your spa has a digital topside control panel, skip this section.***

Time & Temperature

1. The timer is located on the gray equipment pack inside the spa. It is a black square shape with red pins on a circular dial. Spin the dial to the correct time of day.
2. Select the "Heat/Freeze Protect" mode during your initial fill and any future refill by pressing the black switch located on the equipment box. The Heat/Freeze Protect mode is used when you want the spa to only heat and filter when the temperature of the water falls below a set temperature.
3. Once the ideal temperature is reached, then switch over to the "Timer" mode unless you are in freezing conditions.
4. To set the temperature, turn the thermostat knob all the way to the right and then back it off ¼ of a turn. You can see what the temperature is by using a floating thermometer. Adjust the knob up or down now, according to the temperature you like.

Programming Filtration Cycles

5. When the spa is set to Timer mode, it will turn on to filter and heat (if needed) the water only when the red pins on the dial are in the pulled out position.
6. Each red pin represents ½ hour. LIGHTLY pull out one red pin (do not pull it off) to indicate the time you wish your spa to turn on for ½ hour. We recommend pulling 2 pins at a time (1 hour), 4 different times throughout the day to allow for 4 hours of filtration per day.
7. If you are experiencing freezing temperatures or have a high bather load or are experiencing cloudy/discolored water, you should double or triple the amount of filtration time per day.
8. Ozone generators work best with at least 6 to 8 periods of ½ hour time frames. (Ozone systems only clean the water when the pump is engaged.)

Additional Programming Functions

Your spa's control system has advanced programming features that allow the user to control many functions of the spa. For a complete programming guide, please refer to the Acura Spa Systems Programming Manual.

Adding Chemicals

See Water Quality & Care Section

GENERAL MAINTENANCE

Spa Shell

Your spa shell is made from the highest quality acrylics or Ultra-tec™ thermal plastic. To clean your spa shell, use a non abrasive cleaner (Vinegar, Simple Green®, Windex®, etc.) and a soft rag to remove dirt and grime. Make sure to rinse the dirty rag away from the spa water to prevent debris from entering the spa water. (Note: Abrasive cleaners like Soft Scrub®, Comet ®, Ajax®, etc., might damage the shell appearance.) Sodium bicarbonate (baking soda) can also be used for minor surface cleaning. Once finished, completely rinse the spa shell with fresh water. Never use citrus products to clean your spa.

WARNING:

1. Minerals in your water, such as iron, copper, manganese, etc., can stain the spa shell if not treated and cause a ring around your spa near the waterline. Your dealer can offer products, like Carbon Block Pre-Filters, Stain and Scale Remover and/or Metal Gone, to help prevent and rid discoloration and staining.
2. The use of cleaners not mentioned above is NOT recommended. DO NOT use any cleaning products containing harsh abrasives or solvents as they may damage the shell surface. Damage to the spa shell, jets and fittings by the use of harsh abrasives or chemicals is not covered under the warranty.

Cover

Make sure you cover your spa when not in use. Not only will this reduce your energy bill, it will reduce water and chemical loss from evaporation, protect your spa jets and fittings from the elements and cause the spa water to heat more rapidly. (NOTE: For customers in hot climates, it may be necessary to place 2”-3” blocks under the cover on extremely hot days to prevent spa from exceeding your desired temperature setting. This will help excess heat to escape. Watch closely and when temperatures drop to desired setting, remove the blocks.)

- Be sure to lock all straps on cover after each use for safety and to prevent wind damage.
- **Do not allow spa to sit uncovered in direct sunlight when not in use**. This may cause damage to exposed surfaces and will void your warranty.
- We recommend rinsing both sides of the spa cover with water and a mild cleaner or vinegar to increase the life of the spa cover and reduce the possibility of mold and bacteria growth. Once a month, use a vinyl cleaner and conditioner, like 303 Vinyl Protectant®, Leisure Time Cover Care® or Saddle Soap, on the exterior of your cover.
- **Never sit on your cover or allow pets or children onto the cover as this may crack the foam inserts.**
- Remove snow after a storm to prevent excess load on cover which may cause it to break.

WARNING: FOR SAFETY REASONS, NEVER LEAVE THE SPA COVER PARTIALLY OPEN WHILE CLEANING, ADDING CHEMICALS OR USING THE SPA. WIND CAN CAUSE COVER TO SWING CLOSED AND MAY RESULT IN INJURIES. ALWAYS REMOVE COVER COMPLETELY.

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: Please refer to the Winterizing/Decommissioning section of this manual for cover care during prolonged periods of non-use.

Cabinet

Duratemp Cabinet

The Duratemp cabinet is made from a heavy-duty hard board siding that is coated with a plastic resin style paint finish which helps prevent fading and discoloration over time. Use a rag and water to remove any topical dirt. If you have a stain, gouge or if you plan to repaint the entire cabinet, use an exterior paint-stain blend that matches the color of the cabinet. You can also contact your dealer for a touch-up kit.

Plastic/Synthetic Cabinets
We use top quality durable plastics to ensure the life of your spa cabinet. To clean the plastic cabinet, use your garden hose to remove dirt and grime. For dirt spots that remain, use a rag or non-abrasive scrubber and mild soap. (Note: Products that contain citrus or abrasives are not recommended. These products might cause damage or discoloration to the surface.)

Heater & Pump

Ensure that no foreign objects are introduced into the plumbing system which could damage the pump or heater. On very hot days, you should open the cabinet to allow added ventilation for the pump. Check your heater and pump unions at least twice per year. These are the fittings that attach to the pump and the heater manifold. They may need to be hand tightened from time to time due to vibration.

WARNING: If your water chemistry is unbalanced, you will wear out your pump seals and heater elements prematurely. This kind of damage is not covered in your warranty.

Foundation

Periodically check your foundation to ensure that no erosion, shifting, etc. has occurred. Your spa bottom frame should always be in direct contact with the ground. If you can slide a sheet of paper between the frame and foundation, your spa may have problems in the future that won't be covered under warranty.

Draining Spa Water

1. If possible, never attempt to drain and refill your spa on a cold day (below freezing temperatures.)
2. Turn off the power at the GFCI by pressing the black "Test" button.
3. Turn off the power at the breaker box.
4. Remove the filter. (Take this time to clean it thoroughly. Never store a dirty filter. See filter cleaning instructions in Maintenance Section.)
5. Connect your garden hose to drain valve.
6. Open the drain valve and drain spa water. This might take a while but using a bucket or water/submersible pump will speed up the process. NOTE: As long as spa water is properly balanced, it is safe to water lawn and plants; but not for drinking.
7. Refill the spa. (Refer to filling procedure in Start up Section.)

If you do not plan to refill immediately, continue to Winterizing/Decommissioning section—especially at or near freezing temperatures. Not removing all water from system, even for a few hours, can cause damage from freezing.

WARNING: If you purchased a Convertible model spa and it is installed in-ground or partially in-ground, do not leave drained for extended time periods. Never drain your Convertible spa during periods of or when rain is forecast in the near future. Ground water, rain, or flooding can lift convertible spa out of its installation, and you may need to re-install your spa over again.

Winterizing / Decommissioning

Your spa is engineered to operate in freezing temperatures and we recommend using your spa year round. If you choose to winterize or decommission your spa, you must remove all water from the system. Improperly winterizing your spa could cause extensive damage from water freezing in the piping and/or equipment. Please follow the instructions carefully and thoroughly. If you have any questions, consult your dealer. NOTE: The following procedures are primarily for above-ground portable spas. If you have a Convertible in-ground spa, contact your dealer for information on winterizing.

1. Complete steps 1 – 5 of the DRAINING procedure.
2. Remove, clean, and store filter(s) in a dry place.
3. Loosen the unions/couplings on the heater manifold and the pump. Allow water to drain. (This also applies to spas with more than one pump.)
4. Using a large wet-dry vacuum, suck water from the ends of the spa's plumbing lines as well as the main drain outlet, automatic bleeder valve, filter compartment, and suction inlets to be sure all water is removed from the plumbing system.
5. Remove drain plugs from pump(s) housing. Pumps can be easily damaged when water freezes inside. Removing the plugs will ensure that all water is removed from pump housing.
6. A five gallon combination wet/dry shop vac (capable of blowing air as well as vacuuming) must be used to effectively remove water that is trapped inside the plumbing lines.
    a. Attach the vacuum's hose to the output (blower) side of the shop vac.
    b. Remove the spa filter by removing the strainer basket taking out of filter well.
    c. Place the end of the vacuum hose into the filter opening which would be at the base of the filter.
    d. Turn on the blower and allow it to blow out any water remaining in the plumbing lines (should take approximately 3 to 5 minutes).
    e. If your spa is equipped with a two pump system, each pump system must be purged.
    f. Allow the vacuum's blower to run for 3 to 5 minutes for each pump system in order to be sure the plumbing has been completely purged of any remaining water.
    g. Once no more water is being blown out of the jets, the blower can be turned off and the vacuum hose can be reversed to the suction inlet.
    h. Attach the vacuum hose to the **vacuum side** of the shop vac and suck any excess water from jets and drains. When removing the water from jet openings, you may notice suction coming from another jet. Block off any suction from the other jets by turning the jets off. This will help pull out the water that is trapped deeper inside the main line.
7. Clean your shell with a non-abrasive cleaner ((Simple Green®, Windex®, 409®, vinegar, etc.) Cleaning your spa shell is very important and will make the job of re-starting your spa easier. Wipe down all surfaces and rinse with clean water.
8. Any remaining water inside the spa should now be wiped up with towels.
9. Clean your cover both inside and out, and apply a non-alcohol vinyl protectant such as 303 Protectant.
10. Replace cover to keep spa clean. (NOTE: For warm weather climates, you must place small blocks between cover and spa shell to allow proper ventilation. Call your dealer for more information.)
11. Leave main drain valve open.
12. When ready to refill your spa, reinstall the clean filter cartridge(s), close the main drain and follow the Start Up procedure located in this manual.

ANTIFREEZE: Although there are pipe antifreeze products on the market, we do not recommend them because of the difficulty of removing the residues left behind from the antifreeze.

WARNING: IF THESE INSTRUCTIONS ARE NOT FOLLOWED, DAMAGE DUE TO FREEZING WATER IN THE PLUMBING LINES MAY OCCUR.

Freeze Prevention (for cold climates)

If your GFCI trip approximately 1 minute after spa is turned on, the heater may be defective. Follow these instructions to ensure the water in your spa and plumbing will not freeze:

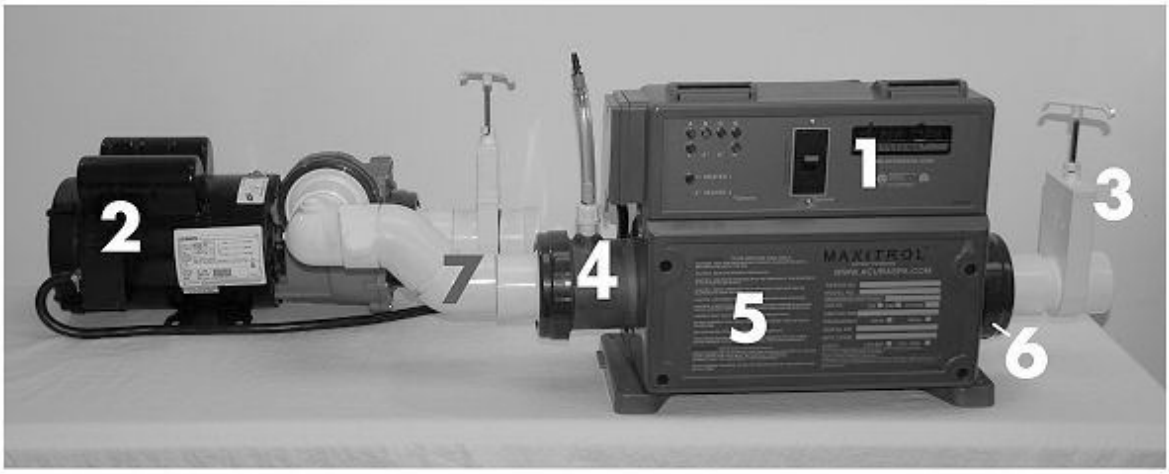
1. **DO NOT DRAIN WATER** (unless you are prepared to completely winterize your spa.)
2. Press the red **Reset** button on GFCI to turn on the spa.
3. Decrease spa temperature to **50 degrees** by pressing the Temp button for 2 seconds until it begins to flash. Use the Down Arrow to decrease temperature and press **SET**. (You have 60 seconds to complete this action.) Now your spa will run normally without engaging the heater and tripping the GFCI.
4. Now press the **Temp** and **Time** button simultaneously. The display should read CANC. Scroll up using the **Up Arrow** to until it reads **U2 0**. Press **SET** so it reads **U2 1**. Scroll down to **SEND** and press **SET**. You have now programmed the computer to engage the low speed pump continuously. This will ensure that your spa will not freeze. **Contact your spa dealer immediately.**
5. If you are unable to complete the previous step and your spa is not circulating and the outside temperature is below freezing, you need to put a small space heater, drop light, or some other safe heat source into the spa cabinet below. DO NOT PUT BULB OR HEATER NEAR OR ON PLUMBING LINES OR CONTROL PACK OR YOU MIGHT CAUSE BURN DAMAGE AND/OR INCREASE RISK OF FIRE. There is enough space to the right of the control pack for a small heater or drop light.
6. If you are without power for more than a day, you may need to drain and winterize your spa to prevent ice damage.

Chemical Use & Filter Cleaning **(See Water Quality & Care Section)**

FEATURES & CONTROLS

Equipment Diagram

Below is a diagram to help you understand your equipment better. This will also assist you in case of questions from service support.



1. Control Box (Equipment Pack)
2. Pump and Motor
3. Gate Valves (shown open) (optional)
4. Auto-Bleeder Valve
5. Heater Manifold
6. Heater Unions
7. Flexible PVC

Control Box (Equipment Pack)

MEGATROL™ **Indicator Lights**

A = 120V Power supply to terminal block (L1, N)
B = 240V Power supply to terminal block (L1, L2)

C = Low Pump "ON"
D = High Pump "ON"
E*= 2nd Pump High "ON"
F*= 3rd Pump High "ON" or 2nd Pump Low "ON"
G*= 4th Pump High "ON"
H*= Blower "ON"

I = Heater 1 "ON"
J = Heater 2 "ON"

*** Optional Items**
MT 150-D

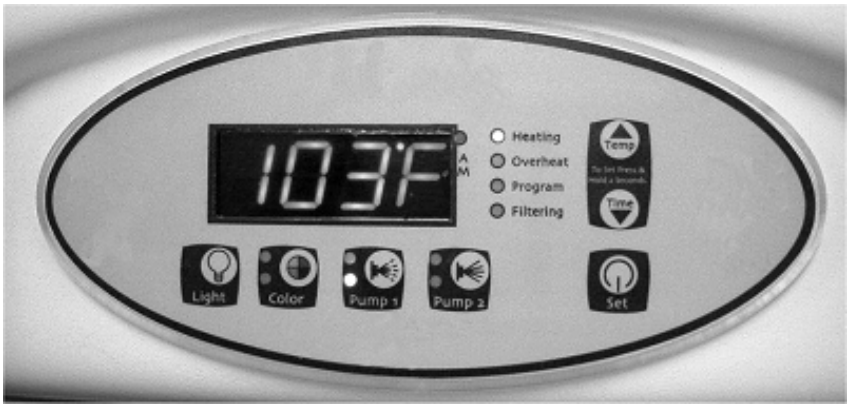
Acura Spa Systems electronic control box we proudly offer today represents over 25 years of research and experience in manufacturing systems for the spa industry. Since 1981, the goal has been to design and manufacture reliable and easy-to-use controls. We have achieved those goals and gone far beyond them in our newest models. **MEGATROL™** offers features unmatched by any other system: For the manufacturer – reliability and functionality. For the dealer – dependability, easy to explain. For the serviceman – simple to diagnose, easy to repair. For the consumer – value, simple to operate.

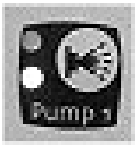
MEGATROL™ includes self diagnostics that are simple to understand. Refer to the label on the control box titled "Megatrol Indicator Lights" to explain what each indicator light represents. When troubleshooting with a repair technician over the phone, it will help to know the status of each indicator light.

NOTE: Your spa may have different controls and/or equipment installed as per order. In this case, refer to your equipment owner's manual that came with the spa, or contact your dealer for questions.

TOPSIDE CONTROL & SETTINGS

ACURA SPA SYSTEMS' controls offer many advanced features for your convenience. Some examples are the Real Time Clock that samples the current cycles and adjusts to give you personalized accurate cycle timing. Push the "Set" button after using the spa and it will start a special maintenance cycle to filter the water and it will also remind the microprocessor of the temperature and time of day you last used the spa. This way it will be ready the same time the next day. The display will also flip so you won't have to read it upside down when in the spa. FOR FULL DETAILS ON ALL THE FEATUERS, PLEASE REFER TO THE ACURA OPERATIONS.





Pump Key(s): The Pump key(s) is used to turn the pump on and off and select speeds. Press the key once to engage the LOW speed. Press the key again to engage the HIGH speed. Press the key a third time to turn tethe indicator light will illuminate beside the Pump key(s). The lower light indicates the LOW speed and the upper light indicates HIGH speed. **NOTE: You may not be able to turn the pump off if it has started a filtration cycle or if the spa is calling for additional heating. This is easily identified by observing the status of the "Heating" or "Filtering" indicator lights. Spa will also circulate every 24 hours automatically if it hasn't been used.**

Light Key: The Light key is used to turn the light on and off. If you forget to turn the light off, it will automatically turn itself off after 2 hours. If you have an LED system, you can change the mode (or light color) by

pressing the Light key repeatedly. You may need to wait approximately 1 second after turning light off before turning back on to change the mode.

Time Program Button: The Time key allows you to adjust the spa's time clock. To set the time, hold down the Time key for 2 seconds. The hours will flash. Scroll up or down to the correct hour of the day (check the "AM" light in the upper right corner LED display) and push the Set button. Scroll arrows to set minutes and then press the Set button again to save the setting.

Temperature Program Key: The Temperature key is used to set the desired water temperature. To set the temperature of the spa, hold down the Temp key for 2 seconds. Press the Up or Down Arrow keys to increase (or decrease) the desired temperature setting. The temperature can be adjusted in 1ºF increments from 40ºF to 104º (or -04ºC to 40ºC). When you reach the desired temp you want, press the set button and the desired temperature setting will remain in the display for 5 seconds as confirmation of the new value. After 5 seconds the display will return to display the present water temperature. (See above picture)

NOTE: The flashing temperature reading indicates the programmed temperature setting, not the actual water temperature. The actual water temperature appears as the non-flashing readout. When you first turn the spa on, the temperature readout will probably be lower than your desired temperature setting, but after a few minutes of circulating the water, the temperature readout will probably increase to your desired temperature setting or very near it. This is because the thermostat is positioned near the heat source and, for safety reasons, the heaters are not insulated. This means the water temperature in the heater chamber will likely be lower than the temperature inside the insulated spa. A few minutes of circulating will allow for a more accurate temperature reading.

Heating Times

Your spa will heat up in about 6 to 24 hours depending on the starting water temperature, voltage hook up and size of your spa. In warm weather we recommend leaving the door to the motor compartment open during the initial heating. Also, if using the tub for long periods of time you should open the spa cabinet to prevent the pump(s) from entering a Overheat Safety Shutdown mode prematurely. The added ventilation is especially needed when outside temperatures exceed 90˚F. Ask your dealer for information about installing optional vent accessories for warm climates.

Freeze Protection

When the system senses cold temperatures (below 50˚F), it will automatically engage Freeze Protection mode for a monitoring period of 24 hours. During this time, the pump and heater will turn on to heat the water and will continue to operate for 1 minute every 2 hours to circulate warm water through the plumbing. When the pump is running due to this feature, the Filtering indicator light on the Topside display will blink. Filtration cycles will operate as determined by the programming and will not be affected by the Freeze Protection.

Additionally, the Freeze Protection mode will not allow the pump to turn on if the thermostat reads a temperature less than 32˚F (a possible scenario in the event of a long power outage.) This will prevent the motor from burning up in case the impeller is frozen. Call your dealer for instructions on safely thawing your spa.

NOTE: The Freeze Protection mode is in effect at all times that there is power applied to the system and will

automatically engage if needed. (See Acura Spas Systems Manual for additional information.)

High Temperature Protection

If the water temperature exceeds 104˚F, the temperature readout will flash 105˚F, 106˚F, etc. If the water temperature exceeds 108˚F, the Topside display will read OH (overheat) and power to the heater will be terminated by the computer. If the water exceeds 112˚F at the High Temperature probe, the system will display the message HLER and will terminate all spa functions. The spa is still operational, but the water is hotter than anyone should be subjected to. After the water temperature has cooled down, press SET on the Topside control to allow the system to restart. (See Acura Spas Systems manual for additional information.)

Jets

Most jets on your spa are adjustable for your comfort. (Exception: systems built with micro jets) The therapeutic jets help reach the most important pressure points maximizing the hydrotherapy benefits for your entire body.

To completely open a jet to allow full flow, rotate outer ring of jet from right to left. Do not over rotate or you will remove jet. If this happens, turn pump off and reinsert the jet by lining up the tab on the back of the jet with the groove in the jet housing and snap into place. To close a jet and stop the flow, rotate from left to right. Some jets are also directional; this varies depending on spa model.

WARNING: Do not operate spa with less than 5 jets turned on (opened completely) otherwise this can damage the plumbing and the equipment and this will not be covered under the warranty.

Jets inserts (faces) may need to be removed and cleaned periodically to insure maximum efficiency. It is very important to keep water conditions and chemicals in the proper range (see chemical info) for jet longevity. Damage from improper water chemistry is not covered under manufacturer's warranty.

Diverter & Venturi Valves

Your spa may be equipped with one or more Diverter Valves which can direct all water flow to different sections of the spa or share the flow equally throughout the spa. With the pump on high speed, rotate the Diverter Valve(s) to see how it effects the water flow.

Your spa may also be equipped with one or more Venturi Valves which control the air injected into the spa via the jets. With the pump on high, rotate the Venturi Valve(s) to see how it effects the water flow.

Lighting

Standard Spa Light
If your spa came with a light, colored light lenses may also be included. To install or remove lenses, simply push them on or pull them off from the light on the inside of the spa.

LED Lighting Systems (Optional)
You can illuminate your spa with a multi-colored LED Light which will replace the original light bulb. To change colors, press the Light key repeatedly. You may need to wait approximately 1 second after turning light off before turning back on to change the mode.

Pumps & Motors

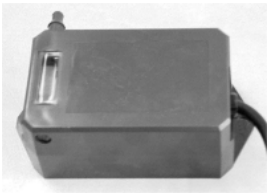
The performance rating and number of pumps will vary depending upon model and specifications of your order. Ensure that no foreign objects are introduced into the plumbing system which could damage the pump. On very hot days, you should open the cabinet to allow added ventilation for the motor(s).

WARNING: If your water chemistry is unbalanced, you will wear out your pump seals prematurely. This is not covered in your warranty.

Heating Element

Your spa uses the best parts available to maximize performance, durability and value. Heaters range between 1.5 kW to 5.5 kW depending on the voltage and specifications of your spa.

WARNING: If your water chemistry is unbalanced, you will wear out your heater element prematurely. This is not covered in your warranty.



Ozone Systems

Ozone gas is produced when oxygen is exposed to ultraviolet light or by "corona-discharge" in newer ozone systems. It is the same gas that provides the protective layer around the earth's atmosphere. When your spa pump is on, ozone gas will be injected into your spa water acting as a powerful sanitizer that destroys bacteria. By using an ozone system, you will be able to reduce the levels of bromine or chlorine in your spa water.

If your spa is equipped with a corona discharge ozone system, it includes a replaceable chip that typically lasts for 5,000 hours, or approximately 1-2 years of service. They are easily replaced for minimal cost. You can confirm that your ozone system is working by looking at the clear plastic window on the ozone unit. You should see a faint purple light when the pump is on and the system is working.

FILTRATION CYCLES / SETTINGS

(Please refer to the Programming Filtration Periods & Durations in the Start Up & Refill Procedures section of the manual.)

Water Quality and Care

Disclaimer

Proper use of spa chemicals is vital to the operation and enjoyment of your spa. The following information is intended to provide you with basic assistance and understanding of safe chemical use. However, it is solely your responsibility to maintain proper water chemistry, not the manufacturer or your dealer. Your water maintenance routine will depend on several factors including but not limited to the quality of the source water, how often the spa is used, the number of bathers, and the amount of contaminants introduced to the spa water from bathers (ex. lotions, soaps, detergents from bathing suits, sweat, urine, etc.). NEVER USE POOL CHEMICALS IN YOUR SPA.

FAILURE TO MAINTAIN CLEAN AND BALANCED WATER WILL MOST CERTAINLY SHORTEN THE LIFE OF THE SPA EQUIPMENT. DAMAGE AS A RESULT OF NEGLIGENT WATER CARE IS EASILY IDENTIFIED BY A SPA TECHNICIAN AND IS NOT COVERED UNDER YOUR WARRANTY.

Basic Chemical Safety

When using chemicals, read the labels carefully and follow directions precisely. Though chemicals protect you and your spa when used correctly, they can be hazardous in concentrated form. Always observe the following guidelines:

- Allow only a responsible adult to handle spa chemicals. **KEEP THEM OUT OF THE REACH OF CHILDREN.**
- Accurately measure the exact quantities specified, never more. **Do not overdose your spa**.
- Handle all containers with care and store them in a cool, dry, well ventilated place.
- Always keep chemical containers closed when not in use. Always replace caps correctly.
- Do not inhale fumes or allow chemicals to come in contact with your eyes, nose, or mouth. Wash your hands immediately after use.
- Follow the emergency advice on the product label in case of accidental contact, or if the chemical is swallowed. Call a doctor or the local Poison Control Center. If a doctor is needed, take the product container along with you so that the substance can be identified.
- Do not let chemicals come in contact with surrounding surfaces or landscaping. Do not use a vacuum cleaner to clean up chemical spills, as this may harm your vacuum.
- Never smoke around chemicals. Some fumes can be highly flammable.
- Never store any chemicals or supplies in the spa equipment compartment. In addition the being extremely dangerous, the high temperature environment will adversely affect the chemicals.

General Information

Keeping your spa water clean and balanced is crucial not only for a healthy and enjoyable spa experience, but also to extend the life the spa equipment. There are several means for achieving proper water chemistry ranging from the more traditional bromine or chlorine methods because of their history, availability, affordability, and ease of use, to more sophisticated or organic methods such as automatic bromine generators or natural enzyme-based solutions. The following information mainly focuses on bromine/chlorine methods, but no matter which method you choose, three fundamentals apply to water maintenance:

1. ***Water Sanitization –*** Water sanitation is the most frequent need your spa will have and is achieved through the routine periodic (daily, if necessary under excess conditions or use) addition of an approved sanitizer or other solution to rid the spa of bacteria. The sanitizer will chemically control the bacteria and viruses present in the water or introduced during use of the spa. Bacteria and viruses can grow quickly in under sanitized spa water.

2. ***Water Chemistry/Balance –*** The water's chemical balance and pH control are also the responsibility of the spa owner. You must regularly test for and maintain proper levels of Bromine, pH, Total Alkalinity and Calcium Hardness. Proper water balance will minimize scale buildup, corrosion of metals, extend the life of the spa and allow the sanitizer or other approved solution to work at maximum efficiency.

3. ***Water Filtration –*** Circulation is needed to flow water through the filter and also to mix sanitizing chemicals with bacteria in your spa. Otherwise, hot stagnant water will produce bacteria very quickly. We recommend programming your spa's filtration periods immediately after filling your spa. (See Start-up & Refill Procedures section.)

Chemicals, Their Importance & How To Test / Adjust

pH: pH is the measure of acidity in your spa. Low pH/High acidity is harmful, not only to people using the spa, but also to the spa itself. This can lead to chemical corrosion and will damage heaters, jets and pumps if not kept at the proper levels. Also, High pH/Low acidity will inhibit the ability of bromine to sanitize water efficiently and lead to cloudy, turbid water. (The ideal pH range for spas is 7.2 - 7.8 for chlorine/bromine sanitizers, slightly higher for enzyme-based solutions)

Alkalinity: Alkalinity is NOT a pH measurement. Total Alkalinity refers to the buffering capacity of the water or how well the water can resist changes in pH. For example, if your Alkalinity is low and five people use your spa in an hour, the acidity will increase dramatically. If your Alkalinity is high, and five people use your spa in an hour, the acidity will NOT increase as dramatically. Therefore, Alkalinity needs to be in balance to help with pH problems described above. (The ideal alkalinity range for spas is 80 -120 ppm)

Bromine/Chlorine: Bromine and Chlorine are used to kill bacteria and keep water clean and clear. Bromine has a higher evaporation point than Chlorine, 102˚F versus only 97˚F for Chlorine, which means it lasts longer in the spa water, however, either one will work. (The ideal range for bromine in spas is 3-6 ppm). NEVER USE TRI-CHLOR in your spa.

Total Water Hardness: Total hardness refers to the level of dissolved calcium and magnesium in the water. At adequate ranges, calcium protects your metal components, such as heaters, from corrosion. If hardness levels are too low, you'll have to replace your heater and other metal parts more often. If hardness levels are too high, the water can become cloudy and scale may form on spa surfaces and equipment. If left uncorrected, scale can clog pipes, jets and filters, as well as damage heaters. (The ideal total hardness range for spas is 180-350 ppm.)

Methods for Testing The Spa Water

Accurate water testing and analysis are an important part of effectively maintaining your spa water. You must have the ability to test for pH, Alkalinity, Bromine and Total Water Hardness. You will need one of the following:

Liquid Test Kits

- Liquid Test Kits can deteriorate over time and will eventually give you false results. Always check the expiration dates and follow the manufacturer's instructions for usage and storage.
- Make sure to clean your test kit after each use. Residual chemicals can falsify future tests.
- Circulate the water before testing and take a water sample at least 12 inches below the surface.
- Read your results immediately using a brightly lighted background, preferably white.
- Do not use your fingers in place of a test vial cap. Oils from your skin can skew your results.

Test Strips

- Test strips will also deteriorate over time and will eventually give you false results. Always check the expiration dates and follow the manufacturer's instructions for usage and storage.
- Circulate the water before testing and take a water sample at least 12 inches below the surface.
- Do not place your fingers on the strips indicators. (Oils from your skin can contaminate the test strips.)

- Keep container tightly closed. Allowing moisture into the container can ruin the test strips.

IMPORTANT: Always read and carefully follow the directions included with the Test Kit or Test Strips to ensure the accuracy of the test results.

How to Add Chemicals to the Water

IMPORTANT: All spa water chemicals, including granulated dichlor, MPS, granulated pH increaser or decreaser, granulated total alkalinity increaser, liquid stain and scale inhibitor, and liquid defoamer must **always be pre-diluted or dissolved** before adding them into the spa water. This should be done while the jet pump is running in its high speed mode, and it must run for a minimum of ten minutes. Chemical solids are concentrated and can cause damage to the spa surface, jets and equipment, which would not be covered under warranty. Never use your filter basket in place of a floater. So use caution if using a floating dispenser, as they will sometimes allow undissolved solid chemicals to fall out and rest on the spa surface.

1. Remove spa cover.
2. Push the pump button and turn on the pump into high position.
3. Carefully measure the recommended amount of chemical and slowly pour it into a bucket of water. Mix and then pour into the center of spa. **ALWAYS ADD CHEMICALS TO WATER. NEVER ADD WATER TO CHEMICAL!** Use care not to splash chemicals on your hands, in your eyes, on the spa shell surface, or on the spa cabinet.
4. Run pump on high speed for 10 minutes to allow adequate circulation
5. Replace and secure the spa cover. **Risk of Drowning: Never leave an open spa unattended! You should also mark the bucket for SPA CHEMICAL USE ONLY and not for other uses due to safety reasons.**

IMPORTANT "SUPER CHLORINATION/NON-CHLORINE SHOCK TREATMENT" NOTE: After administering a super chlorination treatment or non-chlorine shock to your spa, leave the cover open for a minimum of 20 minutes to allow the oxidizer gas to vent. A high concentration of trapped oxidizer gas which may exist as a result of the shock treatment (not daily sanitation) may eventually cause discoloration and/or vinyl degradation to the bottom of the cover. This type of damage is considered chemical abuse and is not covered under the terms of the limited warranty.

Filter Maintenance

Spa Filtration
Filtration starts on electronically-controlled spas as soon as the pumps are primed and water flow is steady. As the flow of water goes through the filter, dirt and debris are removed and trapped in the filter cartridge. As the filter cartridge accumulates dirt and debris, water flow is restricted and jet production is reduced. This can cause your spa not to run or heat as efficiently.

Filter Cleaning
You will increase the life of your filter with a frequent cleaning routine. This will also improve jet performance and heating time and reduce chemical use. Your spa has been designed for quick and easy filter maintenance. The filter cartridge(s) should be cleaned two to four times per month depending on use and water quality.

1. Remove the filter compartment cover, if applicable.
2. Remove the filter(s) basket, if applicable.
3. Remove the filter(s) by pulling up and out or unscrewing counter-clockwise.
4. Clean the filter with a garden hose.
    A. Hold the filter vertically.
    B. Spray the filter cartridges with a pressure nozzle, starting from the top and spraying down each pleat.
    C. Turn the filter cartridge over and repeat Step 5B.

D. Reinstall the filter cartridge in reverse order of removal.

TIP: For best results, it is recommended that you use spare filter(s) as part of your maintenance routine. Let the original filter(s) soak in a bucket of water with a cup of bleach or filter cleanser while the replacement filter(s) are used in the spa. Keep rotating the filters every 1-2 weeks between the cleaning phase and usage phase to ensure that your spa always has clean filter(s) in it. See your dealer for filter and cartridge cleaners.

Replace your filter(s) if the pleated cartridge becomes worn, has tears in the pleats, or is un-cleanable. Average filter life is 12-18 months depending on use and frequency of cleaning.

Maintenance Schedules / Checks

Test and adjust chemicals 1-3 times per week: This seems like an obvious tip, but you'd be surprised by how many people don't test their spa water for weeks on end! The number one repair in the spa industry is the replacement of heater elements that prematurely failed due to chemical rot. If you don't maintain proper water chemistry (especially pH & Alkalinity), you will corrode your heater element. Ensure all chemical levels are within the proper ranges.

Clean filter(s) 2 to 4 times a month as needed: Clogged or dirty filters will not only strain your pump, but can also cause inadequate heat problems and make it difficult to maintain clean, healthy water. Replace every 12-18 months.

Clean cover once a month: Use a vinyl cleaner and conditioner, like 303 Vinyl Protectant®, Leisure Time Cover Care® or Saddle Soap, on the exterior of your cover. Clean the inside of the cover with vinegar and water. Never let animals or people onto cover. Remove snow immediately.

Change water quarterly: It is a good idea to completely drain and refill your spa every 8-16 weeks. If you do not use the spa often, you may be able to go longer between water changes. Replacing old spa water with fresh water periodically will also assist in maintaining balanced water, thereby reducing the possibility of your heater element corroding prematurely. Use this time to clean the spa shell according the information above. **For Convertible Spas, see WARNING** below on draining spa.

Know your equipment: You don't have to be an expert spa technician, but it does help to re-read this instruction manual and familiarize yourself with the basic components of your system. You should be able to at least identify the heater, pump, GFCI, timer, control box, filter, thermostat and high limit reset. Feel free to give us a call if you have questions.

Common Water Chemistry Questions

Question: When I open my spa, I smell chlorine. How do I get rid of this smell?
Answer: There are two types of chlorine in your spa. The first is the Free Available Chlorine (FAC), which is the chlorine available to sanitize your spa. This type of chorine does not have an odor. The second is Chloramines, which is residue from chlorine already expended. Chloramines have a strong chlorine odor. The smell from Chloramines can be eliminated by “shocking” the water. If you smell chlorine in the water, your spa is reminding you to add a shock treatment.

Question: Why can’t I fill my spa with soft water?
Answer: Soft water is essentially the same as regular water except that most or all of the calcium has been replaced by sodium. Soft water may be corrosive to the heater and other components. Replacement of spa components damaged by soft water is extremely expensive.

Question: I am trying to reduce the number of chemicals to which my family is exposed. Do I really need to use so many chemicals and in such large amounts?
Answer: While over-exposure to any chemical can be unhealthful, many low levels of chemicals are effective and beneficial. They are needed to protect the user from water-borne pathogens
(disease-causing microbes) and to prevent corrosion of spa components.

Question: Why isn’t water chemistry damage covered by the warranty?
Answer: The chemical levels and water quality of the water in the spa are under your direct control. With proper basic care, the spa will provide many years of hot water relaxation. If you are unsure about any chemical or its usage in the spa, read all spa chemical labels before use or contact your spa chemical dealer.

CHEMICAL TROUBLESHOOTING CHART

Problem	Possible Cause	Resolution
Cloudy, Milky, Hazy Water	Total Alkalinity in high range	Add alkalinity decreaser (acid). Target 100.
	pH too high or too low.	Add pH adjuster.
	Too little sanitizer in water.	Test and adjust pH & Sanitizer to range.
	Fine particles won't filter out.	Remove and clean filter. Put clean filter in and run pump.
	Circulation restricted. Pump sucking air.	Check skimmer basket; clean. Make sure intakes are open and water is at proper level.
	Filter dirty.	Remove and clean filter. Check for tears, fiber breakdown, clogging or collapse. Replace
	Filter cycle too short.	Run filter system 24 hours & reprogram and/or run main pump longer each day.
	Total Dissolved Solids have reached chemical saturation point.	Test TDS at dealer. Drain and refill spa.
	White scale sluffing off inside of spa.	Reduce calcium hardness, pH and Alkalinity to avoid scale build up from excess calcium. Clean filter.
	White chips scaling off heater: calcium level is too high.	Drain an inch of water off, add fresh water. Test and adjust calcium to range. Add calcium decreaser.
Foam	Detergent in water via soap in swimming suit, or on bathers' body and hair.	Add anti-foam/defoamer over the water surface via spray bottle.
	Detergent in water via soap in swimming suit, or on bathers' body and hair.	Advise spa users to rinse soap off more thoroughly in the shower before getting into spa. Double rinse bathing suits. Consider draining and refilling spa. Do not wash bathing suits in detergent.
	Air leaking into filter system.	Find and fix leaks; use a pro if necessary. Raise water to proper level.
	Too little hardness in water.	Add calcium increaser to correct level.
	Too much sanitizer in water.	Drain some water and add new. Retest. Continue until levels are correct.
	Total Dissolved Solids have reached chemical saturation point.	Test TDS at dealer. Drain and refill spa.
Discolored Water	Green or Brown water due to copper, iron or manganese in spa water.	Add Stain & Scale remover or bonding/chelating/sequestering agent. Bonded particles should filter through the filter. Clean filter.
	Green water due to algae forming in spa water.	Check all water chemistry levels. Probably add more sanitizer and/or shock treatment. Clean filter.
	Too much bromine	Leave off cover so bromine dissipates more rapidly.
Staining	Possible algae: yellow-green, pink, brown or black	Treat with algaecide. Worse cases, tetraborates.
	Minerals such as copper, iron or maganese making green, black or brown stains.	Add Stain & Scale remover or bonding/chelating/sequestering agent. Bonded particles should filter through the filter. Clean filter.

Odor	Bromamines or chloramines from non-oxidized organic matter.	Shock with non-chlorine oxidizer such as potassium peroxymonosulfate or Di-Chlor.
	Mold/mildew on cover – either inside or out.	Clean cover inside and out with diluted vinegar. Leave cover off for a while for vinegar to evaporate.
Scum Deposit on Waterline	Build-up of oils, lotions or soaps.	Wipe off with water soaked rag.
Eye/Skin Irritation	Chloramines or excessive microbial growth.	Shock with non-chlorine oxidizer such as potassium peroxymonosulfate. Check chlorine/bromine level and adjust accordingly.
White Scale Deposits	Mineral content of water is high.	Reduce calcium hardness, pH and Alkalinity. Test water at dealer.
Sandy/Gritty/Scaly on Surface of Spa	Total Water Hardness (Calcium hardness), pH and Alkalinity are too high.	Reduce calcium hardness, pH and Alkalinity. Test water at dealer. Consider drain and refill.

Water Terminology

The following chemical terms are used in this Water Quality and Maintenance section. Understanding their meaning will help you to better understand the water maintenance process.

Bromamines: Compounds formed when bromine combines with nitrogen from body oils, urine, perspiration, etc.
Bromine: A halogen sanitizer (in the same chemical family as chlorine). Bromine is commonly used in stick, tablet, or granular form.
Calcium Hardness: The amount of dissolved calcium in the spa water. The standard range of 175-225ppm is recommended. Above this range the water can be cloudy and/or cause scaling on the tub surface, equipment or piping. Low levels can cause harm to the spa equipment.
Chloramines: Compounds formed when chlorine combines with nitrogen from body oils, urine, perspiration, etc. Chloramines can cause eye irritation as well as having a strong odor. Unlike bromamines, chloramines are weaker, slower sanitizers.
Chlorine: An efficient sanitizing chemical for spas. Most recommended is the use of sodium dichlor-type granulated chlorine. This type is preferred because it is totally soluble and nearly pH neutral.
Chlorine (or Bromine) Residual: The amount of chlorine or bromine remaining after chlorine or bromine demand has been satisfied. The residual is, therefore, the amount of sanitizer which is chemically available to kill bacteria, viruses and algae.
Corrosion: The gradual wearing away of metal spa parts, usually caused by chemical action. Generally, corrosion is caused by low pH or by water with levels of TA, CH, pH or sanitizer which are outside the recommended ranges.
DPD: The preferred reagent used in test kits to measure the Free Available Chlorine.
Halogen: Any one of these five elements: fluorine, chlorine, bromine, iodine, and astatine.
Nitric Acid: The formulation of nitric acid, a highly corrosive chemical, is a byproduct of the ozone generating process. Nitric acid is produced in very small quantities and is readily dissolved in the water stream with ozone.
Oxidizer: The use of an oxidizing chemical is to prevent the buildup of contaminants, maximize sanitizer efficiency, minimize combined chlorine and improve water clarity.
Ozone: Ozone is a powerful oxidizing agent with some sanitizing qualities which is produced in nature and artificially by man. Ozone forms no byproducts of chloramines (ozone actually oxidizes chloramines) and will not alter the water's pH.
Pathogen: A microorganism such as bacterium that causes disease.
pH: The measure of the spa water's acidity and alkalinity. The recommended pH for the spa water is 7.4 to 7.6. Below 7.0 (considered neutral), the spa water is too acidic and can damage the heating system. Above 7.8, the water is too alkaline and can result in cloudy water, and scale formation on the shell and heater.
pH Adjusters: Raise or lower pH to correct level to help sanitizers work better, reduce scaling and corrosion and improve eye and skin comfort.

ppm: The abbreviation of “parts per million”, the standard measurement of chemical concentration in water. Identical to mg/l (milligrams per liter).
Sanitizer: Sanitizers are added and maintained at recommended residuals to protect bathers against pathogenic organisms which can cause disease and infection in spa water.
Sequestering/Chelating/Bonding Agents: Prevent spa surface stains and water discoloration from metals in the water.
Scale: Rough calcium-bearing deposits that can coat spa surfaces, heaters, plumbing lines, and clog filters. Generally, scaling is caused by mineral content combined with high pH. Additionally, scale forms more readily at higher water temperatures.
Super-Chlorination: Also known as “shock treatment.” Super-Chlorination is a process of adding significant doses of a quick dissolving sanitizer (“dichlor” is recommended) to oxidize non-filterable organic waste and to remove chloramines and bromamines.
Tetraborate Compounds: Another way to kill algae, slime and water mold. Rarely needed in spas.
Total Alkalinity: The amount of bicarbonates, carbonates, and hydroxides present in spa water. Proper total alkalinity is important for pH control. If the TA is too high, the pH is difficult to adjust. If the TA is too low, the pH will be difficult to hold at the proper level. The desired range of TA in spa water is 125 to 150 ppm.
TDS (Total Dissolved Solids): refers to the dissolved solids found in water. Tap water, for instance, contains 50-330ppm. If the level of TDS increases to 1500 ppm the effectiveness of spa sanitizing chemicals is greatly reduced and corrosion is accelerated.

Trouble Shooting

Disclaimer

This manual is intended for use by residential spa users and is designed to provide basic information for your spa. Since no manual can address every possible issue, situation or malfunction, this information is provided to help you diagnose and solve problems on your own. If a service technician is dispatched and discovers that the problem is not related to a spa malfunction, but rather some other problem (ex. improper electrical installation to power spa) subsequent service call charges will be applied. However, help is just a phone call away from your dealer or the manufacturer, so please call immediately for professional troubleshooting.

Error Messages

Error Messages will be displayed on the Topside Control shown in this picture where the temperature is displayed.

There are several error messages that may be generated. Following is a list of common messages and a description of the error condition.

CoLd Temperature in the spa heater housing is below 40ºF. Because the spa temperature should never get this low, the status of the heater element is unknown. Therefore the low speed pump or circulation pump will run continuously until temperature rises above 45ºF. A spa should not be filled with water below 40ºF. Please note that a running pump can heat the spa at approximately ½ degree F per hour. During this error condition, the spa is functional except for the heater.

OH *Overheat*. The spa is at a temperature that is above 108ºF. The Topside Control will not accept a temperature setting above 104ºF. If for some reason the water temperature rises over the maximum level, the controller will display a flashing 105ºF to 108ºF. If the temperature goes past 108 ºF then the OH message will be displayed instead of temperature. The spa is still operational but it will be hotter than any person should be subjected to**. DO NOT USE YOUR SPA WHEN THE TEMPERATURE IS FLASHING OR THE OH MESSAGE IS DISPLAYED.**

In the summer and especially in warm regions, ambient temperature may be high enough to overheat the spa naturally. Spas are usually well insulated and can store a lot of heat in the equipment compartment. Open equipment compartment vents (optional item) to allow more ventilation.

HLoH Hi Limit Over Heat. Our digital electronic controls have a backup water temperature sensor called the Hi Limit. If the sensor is disconnected or shorted or if the spa temperature should reach above 112ºF the Hi Limit protection circuitry will force all spa functions off and will flash the HLoH message on the display. It is not possible to use the spa when this error is in effect, even after the temperature goes down to an acceptable level or the sensor is repaired / replaced. When the error has been corrected, you must press the SET key to acknowledge that you, the spa user, are aware of the error condition and should have the proper repairs done.

SEoP Sensor Open or disconnected and the controller cannot determine the spa temperature. The heater is disabled but the spa is operational. The sensor must be replaced or reconnected for this message to go away.

SESH Sensor Short. The sensor is shorted and is non functional. Temperature cannot be determined, the heater is disabled, but the spa is still operational. The sensor must be replaced to get rid of message.

PSoC, PSoL, PSoH Pressure Switch Open with Circulation, Low or High pump(s). The pressure switch is a device sensitive to pressure inside the heater manifold. Pressure in the heater manifold is generated by a pump pushing water though the manifold. If a pump is running and the pressure switch does not sense any pressure then there is an indication of no water flow. To prevent the heater from being turned on when there is no water running through it, the heater is turned off and one of these messages will be displayed indicating which pump is supposed to be running.

A pressure switch error may also be indicated if the switch is out of adjustment or there is an air lock in the heater manifold. Adjusting the pressure switch is best left to a trained technician. An air lock may happen whenever the spa is drained and refilled with water, or if the water level in the spa is so low as to permit air to be sucked in by the pump. To bleed an air lock, loosen one of the heater fittings a quarter of a turn while the pump is off. You will hear the sound of escaping air, and then water will start dripping. Re-tighten the fitting.

CboH Control Box Over Heat. Summer temperatures and a well insulated spa can cause the ambient temperature in the control box to rise, more so if one or more pumps are running. This error code indicates that the ambient temperature inside the control box is over 115º degrees and the spa water temperature may not be accurately measured. To eliminate this error, turn the spa off for a time and/or vent the equipment compartment.

ToE Time Out Error. It is not likely that you will ever see this error. It indicates that the system's heartbeat is out of control, all devices will be shut down and the spa is unstable. This message will rarely ever occur. If it does, please contact your local spa dealer.

Electrical Problems / No Power

At start-up, often times why a spa isn't working is related to an electrical problem. Every spa has passed a vigorous hydro test at our factory to ensure a defective spa is not delivered. Over 100 points are inspected on the spa. **Please check electrical first**! **Check the voltage at the spa and/or contact your electrician. You can avoid unnecessary Service Call charges by first determining whether there is truly a manufacturing defect, or if the problem is related to the power supply to the spa.**

Equipment not Operating

1. Make sure the pump and any other components are plugged in.
2. Check main breaker panel; make sure it's in the "on" position.
3. Check voltage at the spa by opening the cabinet and making sure the red "A" and "B" indicator lights are lit on the Control Box. This ensures that you are getting the proper voltage. If one or neither is/are lit, the spa is not getting the proper voltage and you need to contact an electrician.
4. If A & B are lit on the Control Box, press the BLACK "Test" button on the GFCI and then firmly press and hold the RED "Reset" button in. If the RED button does not stay in, contact an electrician. You might have a ground somewhere within the circuit or a bad GFCI. Remember, a spa technician will have to charge a service fee if the problem is not due to manufacturer error.

For spa owners with Acura Spa Systems' controls, please see Acura Spa Systems Owners Manual for more detailed information.

GFCI is Tripping

1. If this is the first time you are using the spa and you have a second GFCI, the second GFCI is likely wired incorrectly. Call an electrician to verify that the wiring of the house panel, sub-panel, GFCI on house and disconnect box are all wired properly. **(See GFCI Wiring Diagram in the Electrical Schematics section of this manual.)**
2. The heater takes about 60 seconds to turn on after the button on the GFCI is depressed. See if the GFCI trips once the heater light turns on. If so, there may be a problem with the electrical installation or your heater element may need to be replaced.

Topside Control Problems

If the Topside Control panel (on digital control systems only) is not responding, make sure it is plugged into control box by inspecting gray ribbon cable inside cabinet. It should be securely connected to the control box. You can also try resetting power to spa at GFCI to "reboot" the computer.

Pump Problems

1. If your spa has been properly wired, both "A" and "B"(for 240V) lights on the control box are lit, and you can hear the pump engage when the button on the GFCI is depressed but no water is moving, you most likely have an air lock. **Proceed to "Bleeding Trapped Air & Priming Pump information in Startup & Refill Procedures section of this manual.**

2. Pump Surges (Pump running and the heater light is blinking)
   a. Check water level. It should be 4 inches above the bottom of the filter opening. Water may need to be added to the spa.
   b. Remove the filter, if it quits surging or blinking the filter needs to be cleaned or replaced.
   c. Make sure all gate valves are pulled all the way up in the open position.

3. Pump running, but the heater doesn't work:
   a. On 120 Volt systems – heater will work on low pump only.
   b. On 240 Volt systems – heater will work on low and high pump if you are using a 50 AMP breaker or larger.
   c. Check the water level; it should be 4 inches above the filter opening.
   d. Be sure the thermostat control is set correctly and the temperature is correct.
   e. Push the Pump key on the Topside Control of the spa for low or high speed pump. Heater light should be on when pump is running and the water temperature is lower than what you have it set for. If the heater light will not turn "on", try it without the filter. If the heater light turns "on" without the filter, the filter needs to be cleaned or replaced.
   f. If the heater is still not working after following the above steps, please call for your dealer or the manufacturer.

4. Pump is running on low or high speed only or light doesn't turn "on" or "off":
   a. On digital control systems, make sure you pressed the correct key on the Topside Control panel.
   b. If the digital Topside Control is not responding, make sure it is plugged into control box by inspecting gray ribbon cable inside cabinet. Try resetting power to spa at GFCI.
   c. On pneumatic systems (air controls), make sure clear tubing is connected to the air button and control box in the cabinet.
   d. On Pneumatic systems, make sure air is coming out of the clear tubing when you push the air button located on the top of the spa shell. Disconnect tubing from control box and push air button on top of spa shell.

1. If no air is coming out of the tubing – the tubing is not hooked up to the air button or the tubing is broken. Reattach or replace as necessary.
2. If air is coming out of the tubing, reconnect the tubing to the control box and listen for a clicking sound when you push the air button. If you hear a click and it doesn't change the pump speed, you might have a defective air switch or relay.
3. Light Only: If you push the light button to turn the light "on" or "off" and you hear a clicking sound, you might have a bad light bulb. Replacement light bulbs are available at you spa dealer or hardware store.

Air Problems

No air coming out of the jets (or only coming out of one side of the spa):

1. Make sure pump is running, preferably in high speed.
2. Make sure the air control(s) are opened (turn counter clockwise for open position.)
3. Make sure all the jets are opened (turn counter clockwise for open position.)
4. Make sure all jet inserts are not missing any parts and jet housings are well tightened.
5. Make sure if you have an optional handheld jet it is not missing the "O" ring and it is well tightened.
6. Call for service if it is still causing a problem.

Air control is leaking:

Turn pump off completely. If air controls stop leaking and it's only leaking when the pump is running, you might have a problem with one of the following 3 items:

1. It is most likely that your water level is (or was at sometime) too high and water was introduced back into the air lines. You might see water dripping from the air intake lines located inside the spa cabinet near the pump. Try lowering the water level slightly, turning the directional valve to one side (if your spa is equipped with one) and turning pump on high to try to create enough velocity to pull the water out of the air lines.
2. One or more of the air valve may be missing a gasket or is loose allowing the needed seal to be lost.

Air switch is stuck: (Pneumatic equipment only)

1. Locate clear tubing that connects air switch to the equipment pack.
2. Unplug clear tubing from control box and blow air into the clear tubing. Plug tubing back into control box. This should correct the problem.
3. Try spraying some WD-40 on the air button.

Light Problems

1. For digital control systems, make sure Topside Control panel is plugged into control box via the gray ribbon cable inside cabinet. It should be securely connected to the control box. If it is securely fastened and other functions on the Topside Control panel are working properly, the light bulb may have been damaged in transit. Replace bulb and retest.
2. For pneumatic controls (air buttons), ensure the tubing is properly connected between the air button and control box and listen for a clicking sound when you press the button. If you hear the click, you might have a bad light bulb. Replace bulb and retest.

Leaking Water

1. Determine exactly where the water is leaking from by removing the necessary cabinet panels and shining a light into cabinet.
2. You may need to poke the foam insulation with you hand to feel for wetness.

3. If water is leaking from the air venturi intake pipes (located near the pump), you may find water dripping in that area and/or resting on the bottom near the equipment. This was most likely caused by overfilling your spa or water rising over the neckjets due to the number of people in spa causing displacement. Once the water level is lowered to the proper level (approximately 4" above bottom of filter housing), the problem should subside.
4. If water is leaking from an ozone unit (optional equipment), then somebody inside the spa blocked the small ozone jet near footwell causing a reverse siphon. Disconnect the power to the spa by pressing the Test button on the GFCI. Disconnect the clear tubing from the ozone unit and blow hard into the spa. Once you see (or hear) air bubbling inside the spa, the problem has been solved. Reconnect the ozone tube and press Reset button on GFCI.
5. If water is leaking from someplace else in the spa, it's possible that a jet or fitting may have loosened during transit or from vibration and is not sealing 100%. Call your dealer for the manufacturer for instructions on tightening the jet body.

Temperature Problems

1. Temperature of water is different from the Topside display: Remember, when you first turn the spa on, the temperature readout will probably be lower than your desired temperature setting, but after a few minutes of circulating the water, the temperature readout will probably increase to your desired temperature setting or very near it. This is because the thermostat is positioned near the heat source and, for safety reasons, the heaters are not insulated. This means the water temperature in the heater chamber will likely be lower than the temperature inside the insulated spa. A few minutes of circulating will allow for a more accurate temperature reading.
2. Temperature fluctuates up and down: You may have a bad thermostat probe. Call your dealer or the manufacturer.
3. Spa not heating to desired temperature or not heating at all:
    a. Check indicator lights "A" and "B" on control box to verify correct power.
    b. If "Heating" indicator light on Topside display is lit…
        i. Confirm your desired temperature setting by pressing the Temp button for 2 seconds until it begins to flash. Use Up and Down arrows to adjust as needed and press SET.
        ii. A sensor wire may be defective and needs to be replaced. Call your dealer or the manufacturer.
    c. If "Heating" indicator light on Topside display is not lit…
        i. Confirm that there are no error messages displayed on the Topside. For example, a message of "COLD" will need to be resolved first before the heater can perform properly. (See Error Messages above for more information.)
        ii. A relay on the motherboard may be defective and needs to be replaced. Call your dealer or the manufacturer.

Frozen Pipes

Contact your spa dealer immediately if you suspect you have ice in your spa or plumbing lines. A simple test is the attempt to close one or both isolation valves (with the spa turned off) to see if the valves will shut. If something is blocking the valve from closing all the way and the temperatures are below freezing, you probably have ice in the plumbing lines.

You can attempt to thaw the ice by placing a small space heater, drop light, or some other safe heat source into the spa cabinet below. There is usually enough space to the right of the control pack for a small heater or drop light. **DO NOT PUT BULB OR HEATER NEAR OR ON PLUMBING LINES OR CONTROL PACK OR YOU MIGHT CAUSE BURN DAMAGE AND/OR INCREASE RISK OF FIRE.**

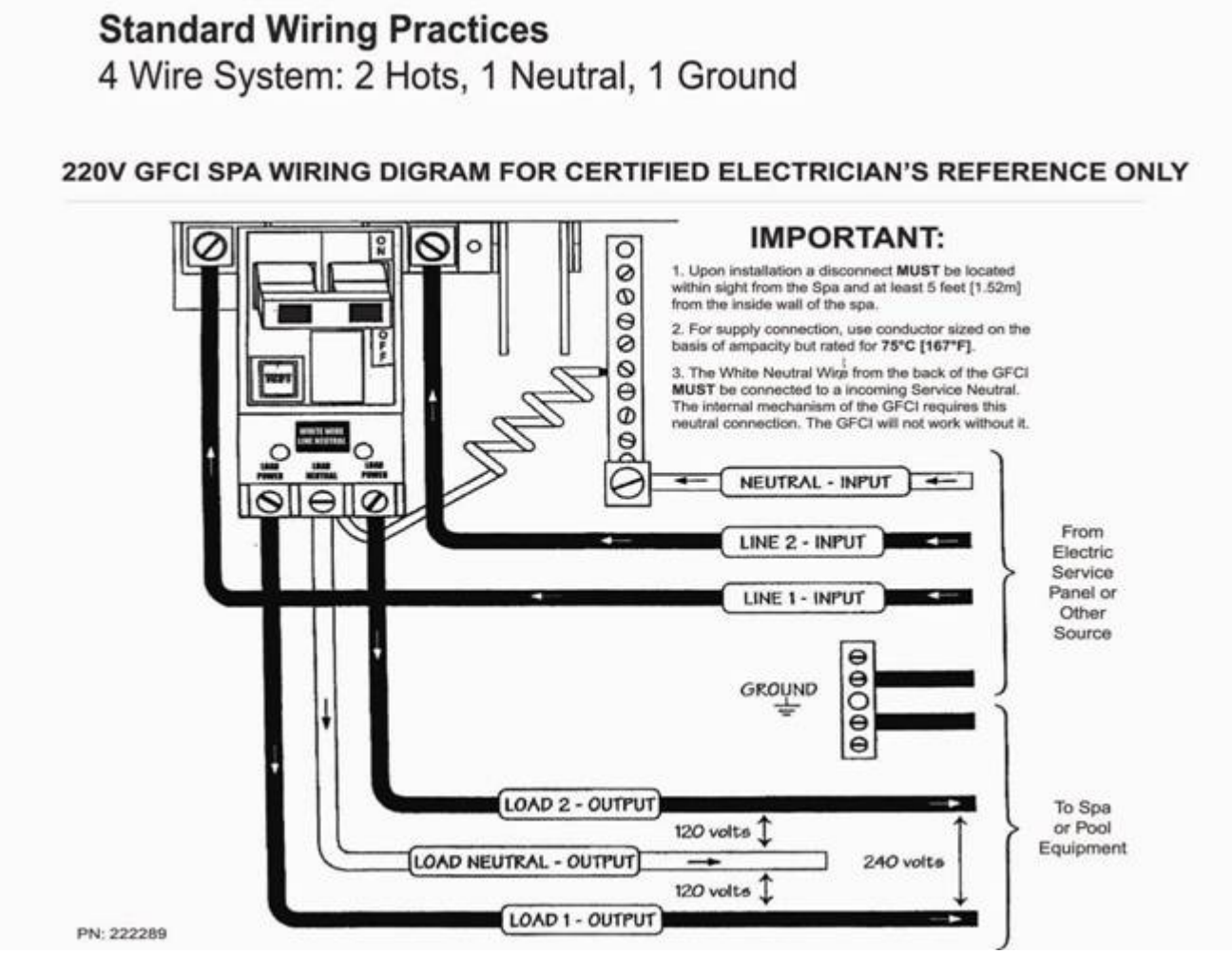
Once your spa water is thawed, you may find leaks from cracked fittings, damaged pumps, defective heaters, and/or other problems.

Electrical Schematics

Control Box Wiring Diagrams are located inside the Acura Equipment Pack. Also available online at www.acuraspas.com/wiring_diagrams.html

Remember these wiring diagrams are for hook up and service purposes only. Do not in any way alter wiring without written consent of the manufacturer. This may void your warranty.

GFCI Wiring Diagram



Warranty & Service

Please refer to the original manufacturer's warranty card that came with your spa for specific details, periods of time, inclusions, exclusions and other warranty information. If you have lost your warranty card, please contact your dealer or the manufacturer.

Acts Invalidating Warranty

This limited warranty becomes void if spa is damaged by ground movements, accidents, negligence, civil disturbance or acts of God or has been subjected to alterations, neglect, misuse, abuse or if any repairs have been attempted by anyone other than authorized dealer an authorized service agent. Damage to any spa surface and/or equipment due to abuse or misuse of chemicals or the use of non-recommended chemical products such as Tri-Chloro chlorine. Any surface damage caused by the use of cleaning and/or abrasive products. Discoloration or damage to surface caused by prolonged exposure to direct sunlight. Improper installation and/or failure to follow state and local building codes, in which area the spa is being installed. Failure to provide adequate and level support to the spa. Damages caused by prolonged exposure to extreme temperatures whether hot or cold which are not directly related to product failure will not be covered under this warranty. Expendable items subject to normal wear and tear including but not limited to light bulbs, filter cartridges, pump seals, o-rings and spa covers are not covered under this warranty. Damage to internal jets due to water chemistry and/or chemical abuse will not be covered under warranty.

Warranty Disclaimer

Any and all implied warranties other than in the original manufacturer's warranty, whether written or verbally implied is not the responsibility of the manufacturer. Manufacturer will only cover defects and/or failures as stated within the manufacturer's warranty. The warranty excludes liabilities for any and all incidental, accidental or consequential damages which may result from any use, defect, failure or malfunction of the warranted product. The warranty herein is contingent upon full payment of the original purchase price. Some states do not allow the exclusion on incidental, accidental or consequential damages, so the above limitations may not apply to you. The warranty gives you specific legal rights, and you may also have other rights, which will vary, from state to state.

Customer Service

If you have any questions about any aspect of your spa set-up, operation or maintenance that have not been answered by this manual, consult the manufacturer or your local spa dealer. Please have available the information that is requested on the inside cover of this manual. For customers needing service for spas that are no longer covered under warranty, please contact your dealer for an estimate to provide service.