

**ThermoSpas®**

# **Executive Series Owner's Manual**

**Safety, Maintenance and Technical Information**



# Welcome to ThermoSpas

## Welcome To ThermoSpas

Congratulations! You are now the official owner of the finest spa built. All of us at ThermoSpas are looking forward to enjoying a relationship with you that will last for many years to come.

As you get to know your spa, you will quickly discover why ThermoSpas is the fastest growing spa manufacturer in the country. You have made the right decision in choosing ThermoSpas. We're betting our reputation on it. A reputation built on the foundation of our many strengths:

### Our Credentials

ThermoSpas has been manufacturing spas since 1983. We strive to stay on the cutting edge of spa design and maintenance technology. We are constantly looking for ways to bring our customers the latest features and products designed to enhance the enjoyment and therapeutic value of our spas. We are a member of the prestigious Association of Pool and Spa Professionals (APSP). One of the APSP's primary goals is, "To contribute to the health, safety, and welfare of the public in the installation, maintenance, and operation of swimming pools and spas." Our best credentials come from thousands of satisfied ThermoSpas owners who write and call us every day to tell us how happy they are with their spa and what a positive difference it has made in their lives.

### Our Quality

ThermoSpas' emphasis on quality will become crystal clear with each passing day you own your spa. We make our spas from only the highest quality materials, inside and out. Your spa was tested with hot water to meet our quality assurance standards.

### Our Customer Service

Our Customer Care Department is staffed by trained representatives who really care about helping you. They are knowledgeable in every facet of spa maintenance. And they are available to answer your call Monday - Friday 8:00 am - 6 :00 pm and Saturday 8:00 am - 1:00 pm, Eastern Time. The Technical Service Department is open Monday - Friday 8:00 am - 5:00 pm and Saturday 8:00 am - 1:00 pm, Eastern Time to answer any of your technical questions or needs.

### Your Responsibility To Your Spa

Now that we've told you about our priorities in providing you with an exceptional product and on-going support, we urge you to read through this manual completely. This manual, along with the information previously supplied in the Welcome Kit will familiarize you with the simple operation and maintenance of your spa (which will become second nature to you in no time). Most importantly, it will help you keep your spa running smoothly and in tip-top condition for many years to come.

### Have Fun and Enjoy!

## How To Contact Us

Office .....	800.876.0158
Fax .....	203.303.0029
Customer Care Department .....	800.876.0158, option 2
Technical Service Department .....	800.876.0158, option 2
Address .....	ThermoSpas • 10 Research Parkway Suite 300 • Wallingford, CT • 06492
Website .....	www.ThermoSpas.com

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## 1.0 Read and Follow These Important Instructions

When using the electrical equipment, basic safety precautions should always be followed. A green colored terminal marked G, GR, Ground, Grounding or the Symbol  $\perp$  is located inside the supply terminal box or compartment. To reduce the risk of electric shock, this terminal must be connected to the grounding means provided in the electric supply service panel with a continuous copper wire equivalent in size to the circuit conductors supplying this equipment. At least two lugs marked "BONDING LUGS" are provided on the external service or on the inside of the supply terminal box or compartment. To reduce the risk of electric shock, connect the local common bonding grid in the area of the spa or spa to these terminals with an insulated or bare copper conductor not smaller than No. 6 AWG. All field-installed metal components such as rails, ladders, drains, or other similar hardware within three meters of the spa or spa shall be bonded to the equipment grounding bus with copper conductors not smaller than No. 6 AWG.

## 2.0 Important Hot tub Owner Information

Your hot tub is constructed to the highest standards and is capable of providing many years of trouble-free use. However, because heat retentive materials are utilized to insulate the hot tub for efficient operation, an uncovered hot tub surface and wall fittings directly exposed to sunlight and high temperatures for an extended period are subject to permanent damage or discoloration. Damage caused by exposing the hot tub to this abuse is not covered under warranty. We recommend that you always keep the hot tub full of water when it is exposed to direct sunlight and that you keep the insulating cover in place at all times when the hot tub is not in use. Read and carefully follow the requirements for your hot tub's support base found in the Section titled, "Choosing a Location" (page 8).

## 3.0 FCC Notice

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B Digital Device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Rearrange or relocate the receiving antenna;
2. Increase the separation between the equipment and receiver;
3. Connect the equipment into an outlet on a circuit different from the circuit connected;
4. Consult the dealer or an experienced radio/TV technician for help. (Changes or modifications not expressly approved by the party responsible for FCC compliance could void the user's authority to operate this equipment.)

## 4.0 Important Safety Instructions for all Hot tub Owners

### READ AND FOLLOW ALL INSTRUCTIONS CAREFULLY!

This hot tub was manufactured to meet the standards and specifications outlined in the “Virginia Graeme Baker Pool and Spa Safety Act” (VGB Safety Act). When installing and using this hot tub, basic safety precautions should always be followed, including:

- 1. ⚠️ DANGER: RISK OF SEVERE INJURY OR DROWNING!**

  - Extreme caution must be exercised to prevent unauthorized access by children.
  - To avoid accidents, ensure that children do not use this hot tub unless supervised at all times. Adult supervision is a critical safety factor in preventing children from drowning.
  - Use the straps and clip tie downs to secure the hot tub cover when not in use. This will help discourage unsupervised children from entering the hot tub. Keep the hot tub cover secure in high-wind conditions.
  - There is no representation that the cover, clip tie-downs, or actual locks will prevent access to the hot tub.
- 2. ⚠️ DANGER: RISK OF SEVERE INJURY OR DROWNING!**

  - Keep hair, loose articles of clothing or hanging jewelry away from suction fittings, rotating jets or other moving components to avoid entrapment that could lead to drowning or severe injury.
  - Never use the hot tub unless all suction guards, filter, filter lid, or skimmer assembly are installed to prevent body and/or hair entrapment.
  - Never operate or use the hot tub if the filter, filter lid, or skimmer assembly are broken or any part of the skimmer assembly is missing. Please contact your dealer or nearest service center for service.
  - The suction fittings and suction covers in this hot tub are sized to match the specific water flow created by the pump(s). If it is necessary to replace the suction fittings, suction covers or pump(s), be sure that the flow rates are compatible and are in compliance with the VGB Safety Act.
  - Never replace a suction fitting or suction cover with one rated less than the flow rate marked on the original suction fitting. Using improper suction fittings or suction covers can create a body or hair suction entrapment hazard that may lead to drowning or severe injury.
- 3. ⚠️ DANGER: RISK OF SEVERE INJURY FROM ELECTRIC SHOCK OR DEATH FROM ELECTROCUTION!**

  - Install the hot tub at least 5 feet, from all metal surfaces. As an alternative, a hot tub may be installed within 5 feet of metal surfaces if each metal surface is permanently connected (bonded) by a minimum No. 8 AWG solid copper conductor attached to the wire connector on the grounding lug, inside the equipment compartment on the equipment box.
  - A grounding wire connector is provided on this unit to connect a minimum No. 8 AWG solid copper conductor between this unit and any metal equipment, metal enclosures of electrical equipment, metal water pipe, or conduit within 5 feet of the unit.
  - Never permit any electrical appliance, such as a light, telephone, radio, television, etc. within 5 feet of a hot tub unless such appliances are built-in by the manufacturer.
  - Never bring any electrical appliances into or near the hot tub.
  - Never operate any electrical appliances from inside the hot tub or when you are wet.
  - The electrical supply for this product must include a suitably rated switch or circuit breaker to open all ungrounded supply conductors to comply with Section 422-20 of the National Electrical Code/USA, ANSI/NFPA 70. The disconnecting means must be readily accessible and visible to the hot tub occupant but installed at least 5 feet, from the hot tub.
  - The electrical circuit supplied for the hot tub must include a suitable ground fault circuit interrupter (GFCI) as required by NEC Article 680-42.

4. **⚠ WARNING: RISK OF SEVERE INJURY OR DEATH!**
  - Extreme caution must be exercised to prevent diving or jumping into the hot tub or slipping and falling, which could result in unconsciousness, drowning, or serious injury. Remember that wet surfaces can be very slippery.
  - Never stand, walk or sit on the top railing of the hot tub.
5. **⚠ WARNING: RISK OF HYPERTHERMIA (OVER-HEATING) CAUSING SEVERE INJURY, BURNS, WELTS OR DEATH!**
  - Water temperature in excess of 104°F may be injurious to your health.
  - Refer to Hyperthermia Section for specific causes and symptoms of this condition.
  - The water in the hot tub should never exceed 104°F. Water temperatures between 100°F and 104°F are considered safe for a healthy adult.
  - Lower water temperatures are recommended for young children (children are especially sensitive to hot water) and when hot tub use may exceed 10 minutes.
  - The Consumer Products Safety Commission/USA has stated that the water temperature in a hot tub should not exceed 104°F.
  - Always test the hot tub water temperature before entering the hot tub. The user should measure the water temperature with an accurate thermometer since the tolerance of water temperature-regulating devices may vary as much as +/- 5°F.
6. **⚠ WARNING: RISK OF SEVERE INJURY OR DEATH!**
  - Since excessive water temperatures have a high potential for causing fetal damage during the early months of pregnancy, if pregnant or possibly pregnant, consult your physician before using a hot tub.
  - Pregnant or possibly pregnant women should limit hot tub water temperatures to 100°F.
  - Persons suffering from obesity or a medical history of heart disease, low or high blood pressure, circulatory system problems, diabetes, infectious diseases or immune deficiency syndromes should consult a physician before using a hot tub.
  - If you experience breathing difficulties in association with using or operating your hot tub, discontinue use and consult your physician.
  - Persons using medication should consult a physician before using a hot tub since some medication may induce drowsiness, while other medication may affect heart rate, blood pressure, and circulation.
  - Persons suffering from any condition requiring medical treatment, the elderly, or infants should consult with a physician before using a hot tub.
  - The use of alcohol, drugs, or medication before or during hot tub use may lead to unconsciousness with the possibility of drowning.
7. **⚠ WARNING: RISK OF SEVERE INJURY OR DEATH!**
  - Prolonged immersion in a hot tub may be injurious to your health.
  - Observe a reasonable time limit when using the hot tub. Exposures at higher temperatures can cause high body temperature (over-heating). Symptoms may include dizziness, nausea, fainting, drowsiness, and reduced awareness. These effects could possibly result in drowning or serious injury.
  - Never use a hot tub immediately following strenuous exercise. Enter and exit the hot tub slowly. Wet surfaces can be slippery.
8. **⚠ WARNING: TO DECREASE RISK OF INFECTION OR DISEASE!**
  - To reduce the risk of contracting a waterborne illness (e.g. an infection, bacteria or virus) and/or respiratory ailments, maintain water chemistry within the parameters listed on the inside cover of this manual and consult with a licensed engineer regarding proper ventilation if installed indoors or in an enclosed area.

## Executive Series

- People with infectious diseases should not use a hot tub to avoid water contamination, which could result in spreading infections to others.
  - Always shower before and after using your hot tub. Maintain water chemistry in accordance with manufacturer's instructions. Failure to do so may result in contracting a waterborne illness (e.g. an infection, bacteria or virus).
9. **⚠ WARNING:** In addition to maintenance of filters and water chemistry, proper ventilation is recommended to reduce the risk of contracting a waterborne illness (e.g. an infection, bacteria or virus) and/or respiratory ailments that could be present in the air or water. Consult a licensed architect or building contractor to determine your specific needs if installing your hot tub indoors.
10. **CAUTION: TO DECREASE RISK OF PRODUCT DAMAGE.**
- Maintain water chemistry in accordance with manufacturer's instructions.
  - Proper chemical maintenance of hot tub water is necessary to maintain safe water and prevent possible damage to hot tub components.
11. **⚠ WARNING: RISK OF SEVERE INJURY OR DEATH!** The appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience or knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
12. **NOTE:** This hot tub is not intended nor designed to be used in a commercial or public application. The hot tub buyer shall determine whether there are any code restrictions on the use or installation of this hot tub since local code requirements vary from one locality to another.

### Hot Tub Safety Literature

To ensure you have a safe and enjoyable hot tub experience, learn all you can about hot tub safety and emergency procedures. Especially useful are the brochures listed below:

- [Children Aren't Waterproof](#)
- [Pool and Spa Emergency Procedures For Infants and Children](#)
- [Layers of Protection](#)
- [The Sensible Way to Enjoy Your Spa or Hot tub](#)

The Association of Pool and Spa Professionals publishes these brochures. To acquire a brochure:

- Ask your hot tub dealer (they may have copies)
- Go to <http://apsp.org>
- Conduct your own search on the Internet
- Write to the following address:

The Association of Pool and Spa Professionals  
2111 Eisenhower Avenue  
Alexandria VA 22314  
703.838.0083

FOR CALIFORNIA RESIDENTS ONLY  
 NUR FÜR EINWOHNER KALIFORNIENS  
 POUR LES RÉSIDENTS DE LA CALIFORNIE SEULEMENT  
 PARA RESIDENTES DE CALIFORNIA ÚNICAMENTE



**WARNING:** Drilling, sawing, sanding or machining wood products can expose you to wood dust, a substance known to the State of California to cause cancer. Avoid inhaling wood dust or use a dust mask or other safeguards for personal protection. For more information go to [www.p65Warnings.ca.gov/wood](http://www.p65Warnings.ca.gov/wood)



**ACHTUNG:** Das Bohren, Sägen, Schleifen oder Zerspanen von Holzprodukten kann Stäube freisetzen. Diese Substanz gilt im US-Bundesstaat Kalifornien als krebserregend. Möglichst keinen Holzstaub einatmen bzw. eine Staubmaske oder anderweitige persönliche Schutzmaßnahmen einsetzen. Weitere Informationen finden Sie auf [www.P65Warnings.ca.gov/wood](http://www.P65Warnings.ca.gov/wood)



**AVERTISSEMENT:** Le forage, le sciage, le ponçage ou l'usinage des produits du bois peuvent vous exposer à la poussière de bois, une substance connue dans l'État de Californie pour causer le cancer. Éviter d'inhaler la poussière de bois ou utiliser un masque antipoussières ou d'autres mesures de protection personnelle. Pour de plus amples renseignements, consulter le site [www.P65Warnings.ca.gov/wood](http://www.P65Warnings.ca.gov/wood)



**ADVERTENCIA:** Perforar, cortar, lijar o usar máquinas con productos de madera le puede exponer a polvo de madera, una sustancia reconocida por el Estado de California como causante de cáncer. Evite inhalar polvo de madera o utilice una máscara antipolvo u otros resguardos para protección personal. Para más información, visite [www.P65Warnings.ca.gov/wood](http://www.P65Warnings.ca.gov/wood)

6530-460 Rev A (12/18)

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 POUR LES RÉSIDENTS DE LA CALIFORNIE SEULEMENT  
 PARA RESIDENTES DE CALIFORNIA ÚNICAMENTE



**WARNING:** Cancer and Reproductive Harm  
[www.p65Warnings.ca.gov](http://www.p65Warnings.ca.gov)



**ACHTUNG:** Krebserregend und mit fortpflanzungsschädigender Wirkung-[www.p65Warnings.ca.gov](http://www.p65Warnings.ca.gov)



**AVERTISSEMENT:** Cancer et danger pour la reproduction  
[www.p65Warnings.ca.gov](http://www.p65Warnings.ca.gov)



**ADVERTENCIA:** Cáncer y daño reproductivo  
[www.p65Warnings.ca.gov](http://www.p65Warnings.ca.gov)

6530-464 Rev A (12/18)

## 4.1 Entrapment Risk

The Consumer Products Safety Commission/USA has reported that users of pools and spas have become entrapped (stuck) to drain and/or suction fittings causing death, drowning, or serious injury (see diagram below). This spa was manufactured to meet the standards and specifications outlined in the “Virginia Graeme Baker Pool and Spa Safety Act” (VGB Safety Act). Entrapment risk can be minimized if proper precautions are taken.



### **DANGER: RISK OF PERSONAL INJURY OR DEATH!**

Never operate the hot tub if a suction fitting, suction cover, filter, filter lid or skimmer assembly are broken, damaged or missing.



Skimmer Cover

Skimmer location and appearance may vary from one shown

Suction Covers

**Note: Suction covers must be replaced every 7 years.**



### **DANGER: RISK OF PERSONAL INJURY OR DEATH!**

Never operate the spa if a suction fitting, suction cover, filter, filter lid or skimmer assembly are broken, damaged or missing.



### **DANGER: RISK OF SEVERE INJURY OR DROWNING!**

**Hair entrapment:** May occur if hair is entangled, knotted or snagged in a drain suction or skimmer assembly. This has been reported in persons who when submerge themselves underwater, allowing hair to come close and/or within the reach of the suction fittings, suction covers or skimmer assembly.

- Keep hair away from suction fittings, suction covers, filter, filter lid or skimmer assembly.
- Children are at risk for hair entrapment if swimming under water.
- Never allow children to play or get near the suction fittings, suction covers, filter, filter lid or skimmer assembly.



### **DANGER: RISK OF SEVERE INJURY OR DROWNING!**

**Limb entrapment:** May occur when a limb becomes entrapped, inserted or sucked into a suction or outlet opening.

- Always keep suction fittings, suction covers, filter, filter lid or skimmer assembly in place when operating to avoid limb entrapment.
- Never allow children to play or get near the suction fittings, suction covers, filter, filter lid or skimmer assembly.

**⚠ DANGER: RISK OF SEVERE INJURY OR DROWNING!**

**Body entrapment:** May occur when part of the torso becomes entrapped, inserted or sucked into a suction or outlet opening.

- Never allow children to play or get near the suction fittings, suction covers, filter, filter lid or skimmer assembly.

**⚠ DANGER: RISK OF SEVERE INJURY OR DROWNING!**

**Evisceration (disembowelment) entrapment:** May occur when the buttocks becomes entrapped, inserted or sucked into a suction or outlet opening.

- Never sit on suction fittings, suction covers, filter, filter lid or skimmer assembly.
- Never allow children to play or get near the suction fittings, suction covers, filter, filter lid or skimmer assembly.

**⚠ DANGER: RISK OF SEVERE INJURY OR DROWNING!**

**Mechanical entrapment:** May occur when jewelry, swimsuit, or hair accessories become entangled, knotted or snagged in a drain suction or skimmer assembly.

- Never allow your jewelry, swimsuit, or hair accessories to come close to the suction fittings, suction covers or skimmer assembly.
- Never allow children to play or get near the suction fittings, suction covers, filter, filter lid or skimmer assembly.

## 4.2 Be Aware of the Risk of Fatal Hyperthermia

The use of alcohol, drugs, or medications can greatly increase the risk of fatal hyperthermia. Hyperthermia occurs when the internal body temperature reaches a level several degrees above normal body temperature (98.6°F). The symptoms of hyperthermia include dizziness, fainting, drowsiness, lethargy, and an increase in the body's internal temperature.

The effects of hyperthermia include:

- Failure to perceive heat
- Physical inability to exit the spa
- Unconsciousness and danger of drowning
- Failure to recognize impending hazard
- Failure to recognize the need to exit the spa
- Fetal damage in pregnant women

## 5.0 Choosing A Location

**IMPORTANT:** Because of the combined weight of the spa, water and users, it is extremely important that the base upon which the spa rests be smooth, flat, level and capable of uniformly supporting this weight, without shifting or settling, for the entire time the spa is in place. If the spa is placed on a surface which does not meet these requirements, damage to the skirt and/or the spa shell may result. Damage caused by improper support is not covered under warranty. It is the responsibility of the spa owner to assure the integrity of the support over time. We recommend a poured, reinforced concrete slab with a minimum thickness of 4 inches. Wood decking is also acceptable provided it is constructed so that it meets the requirements outlined above.

**Note:** This spa is not intended nor designed to be used in a commercial or public application. Use of this spa in public or commercial application will **VOID** the warranty. The spa buyer shall determine whether there are any code restrictions on the use or installation of this spa since local code requirements vary from one locality to another.

Site preparation, alterations to home owner's property and permits (if any) are the sole responsibility of the owner. ThermoSpas spas are not intended for commercial applications.



**WARNING:** For spas that are to rest on balconies, roofs or other platforms not specifically tied into main structural support, consult a professional Structural Engineer with experience in this type of application.



**WARNING:** Proper drainage is required. The installation must not allow the spa equipment bay to become flooded or wetted (by external water). It is your responsibility, and the responsibility of any installation contractor you hire, to make sure that all applicable codes and/or local construction requirements are met. If in doubt, refer to the building authority responsible for approving the proposed installation site.

The spa must be installed in such a manner as to provide drainage away from it. Placing the spa in a depression without provisions for proper drainage could allow rain, overflow, leaks from spa plumbing, and other casual water to flood the equipment and create a wet condition in which it would sit in. For spas which will be installed below grade or recessed into a floor or deck, install so as to permit access to the equipment, either from above or below, for servicing. Make certain that there are no obstructions, which would prevent removal of all side cabinet side panels and access to the jet components, especially on the side with the equipment bay.



**CAUTION:** If the spa is indoors or located in an enclosed area, proper ventilation should be discussed with an Engineer or authority competent enough to understand the necessary provisions needed to vent moist or heated air and air associated with chemical odors outdoors. **When the spa is in use considerable amounts of moisture will escape potentially causing mold and mildew.** This can cause health risk. Over time, this can damage certain surfaces, surroundings, and equipment.

### 5.1 Outdoor Location

In selecting the ideal outdoor location for your spa, we suggest that you take into consideration the following:

- The proximity to changing area and shelter (especially in regions subject to cold weather).
- The pathway to and from your spa (this should be free of debris so that dirt and leaves are not easily tracked into the spa).
- The closeness to trees and shrubbery (remember that leaves and birds could create extra work in keeping the spa clean).

- A sheltered environment (less wind and weather exposure can result in lowered operation and maintenance costs).
- The overall enhancement of your environment. It is preferable not to place the spa under an unuttered roof overhang since run-off water will shorten the life expectancy of the spa cover.
- For spas that are to rest on balconies, roofs or other platforms not specifically tied into main structural support, consult a professional Structural Engineer with experience in this type of application.
- In the unlikely event that you should ever need to access or gain entry to any portion of the spa for servicing, it is highly recommended that you plan your outdoor installation to provide full access to the entire spa. Please take this into consideration when placing the spa in a deck or enclosed by a surrounding.
- Consider locating your spa away from any reflective surface or glass to prevent any damage to the synthetic skirt.
- Do not shim the spa. To ensure proper support the spa must sit flat on the intended foundation.
- Floor load capacity must be a minimum of 100 lbs. per square foot and must meet your local building codes. Swim spas and spas over 39" in depth require higher load capacity. Reference page 68 for information.
- Spa can not be installed on asphalt, laid in dead sand or on stone dust.
- Spa can not be placed directly on a gravel or lawn surface.
- Delivery crew is not equipped to level and/or repair spa sites.
- Most spa servicing is performed on the spa equipment that is located behind the side cabinet panels of the spa. It is important to install the spa to allow easy access to the spa equipment. We recommend an 18" minimum clearance around all sides of the spa to avoid additional service charges. Providing service access is the responsibility of the owner.
-  **WARNING:** Do not rest your spa directly on top of a power line. Electrical shock or power failure may result. The power line to the spa should be routed through the side wall by drilling a hole.

## 5.2 Indoor Location

For indoor installations many factors need to be considered before installing a spa indoors:



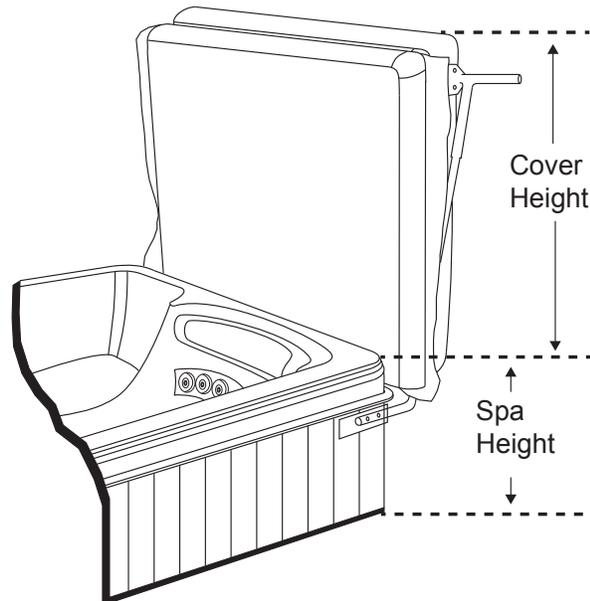
**WARNING:** In addition to maintenance of filters and water chemistry, proper ventilation is recommended to reduce the risk of contracting a waterborne illness (e.g. an infection, bacteria or virus) and/or respiratory ailments that could be present in the air or water. Consult a licensed architect or building contractor to determine your specific needs if installing your spa indoors.

- **PROPER FOUNDATION: Consult a Structural Engineer when considering a foundation that will adequately support the spa the entire time it is in place.** Proper support is critical especially if the spa is to rest on a second story or higher. For spas that are to rest on balconies, roofs or other platforms not specifically tied into the main structural support, you should consult a professional Structural Engineer with experience in this type of application.
- **PROPER DRAINAGE: It is extremely important to have in place measures to sufficiently handle excessive water spillage.** Be sure the flooring in which the spa rests on has adequate drainage and can handle draining of the entire contents of the spa. Be sure to make provisions for ceilings or any other structures that may be below the spas installation. Areas around your spa can become wet or moist so all flooring and subsequent furniture, walls and adjacent structures should be able to withstand or resist water and moisture.

## Executive Series

- **PROPER VENTILATION: Proper ventilation should be discussed with an Engineer or authority competent enough to understand the necessary provisions needed to vent moist or heated air and air associated with chemical odors outdoors.** When the spa is in use considerable amounts of moisture will escape potentially causing mold and mildew, over time this can damage certain surfaces and or surroundings.
- **SUFFICIENT ACCESS:** In the unlikely event that you should ever need to access or gain entry to any portion of the spa for servicing, it is highly recommended that you plan your indoor installation to provide full access to the entire spa.
- **WARRANTY:** Damage caused by not following these guidelines or any improper installation not in accordance with local codes or authorities is not covered under the spas warranty. Please consult your local state or city building ordinances.
- **DO NOT SHIM THE SPA:** To ensure proper support the spa must sit flat on the intended foundation.
- Spas installed indoors must be placed on a non-porous surface with a drain.
- Do not put the spa on a carpet or hardwood floors due to possible splash out from the tub. Water will accumulate around the spa, so flooring materials must provide a good grip when wet. Water damage to the home owner's property from splashing or leaks are at the home owner's risk. This is not covered under any ThermoSpas warranty.
- Adequate ventilation must be provided in order to allow for chemical fumes to escape. Take into consideration that these fumes could enter other indoor areas.
- When the spa is installed indoors or outdoors, adequate room must be provided to allow the cover and lifter to operate and function properly. Depending of the lifter used, up to 50% of the cover is exposed. There should be sufficient room accounted for the spa height plus cover lifter measurement, Figure 1.
- Consult your local state or city building ordinances to ensure installation is in accordance with local codes. Any damage caused if you do not follow these guidelines voids the spa's warranty.
- Most spa servicing is performed on the spa equipment that is located behind the side cabinet panels of the spa. It is important to install the spa to allow easy access to the spa equipment. We recommend an 18" minimum clearance around all sides of the spa to avoid additional service charges. Providing service access is the responsibility of the owner.

Figure 1  
(Cover lifter and  
spa can vary from  
the one shown)



## 6.0 Electrical Set Up

**Before beginning the wiring process turn off the circuit breaker so that no power is connected to the controller.** ThermoSpas recommends all spa wiring to be done by a licensed electrician. Improper wiring may void your warranty. Incorrect or incomplete wiring will very likely create a dangerous hazard. Performing a conversion or any other modification to the original hardware or installation configuration mandates that the owner assumes full responsibility for assuring that the resulting system complies with all applicable national, state, and local wiring codes and ordinances for the location of the unit. Be aware that there are major differences in wiring codes if this unit is to be installed at any location other than a private residence.



### The Safe Electrical Hook-up of Your Spa

- The electrical installation of your spa must be done by a qualified electrician in accordance with the National Electrical Code (NEC), and all local codes effective at the time of installation.
- Your spa must be installed on a dedicated electrical circuit. No other appliances or electrical equipment may be used on this circuit.

**⚠ WARNING:** If your spa is not installed in accordance with the NEC, it may create a dangerous safety hazard. Improper electrical installation may also damage the inner workings of a spa and void your warranty.

**⚠ WARNING:** If your electrician is not absolutely sure how to correctly connect your system, call the ThermoSpas Technical Service Department at 800.876.0158, option 2. Mistakes may be costly and will void your equipment warranty. Before beginning the wiring process turn off the circuit breaker so that no power is connected to the controller. ThermoSpas recommends all spa wiring to be done by a licensed electrician. Improper wiring may void your warranty.

### Electrical Service Requirements

Before wiring for a spa, one of the first considerations is whether or not your main service or sub-panel feeding your spa has the capacity to provide sufficient power to your spa. A licensed electrician will be able to perform a load calculation to determine this.

Select the inlet you want to use, drill a hole large enough for the wires on the skirt panel and then feed the power cable through to the control box. To allow access you will have to trim/cut the ThermoFoil blanket under the skirt. For access from underneath the spa, please contact the Service Department for help (800.876.0158).

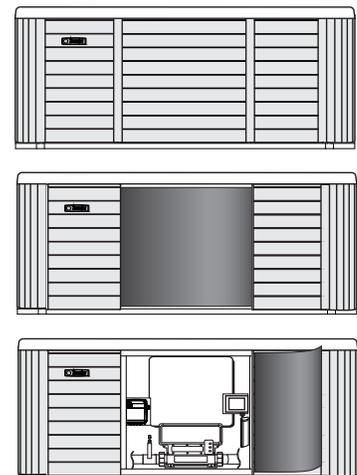
**Note:** You can use any of the four side of the spa to drill a hole for the power cable. The panels are not predrilled.

The electrical requirements for your spa are found on the Electrical Guide Sheet contained in the Welcome Kit for your specific model. It is very important to review your electrical requirements before starting installation.

### Removing the cabinet panels

#### A. Standard Cabinet:

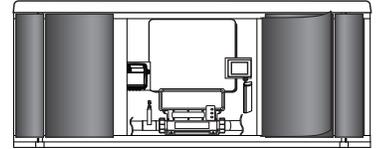
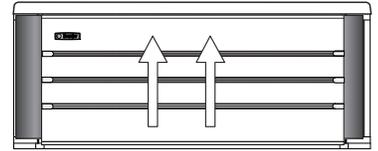
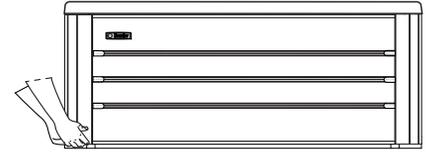
1. Remove screws from the trim pieces and front center panel. Place the panels in a safe location to prevent from damaging it.
2. Carefully fold back the ThermoFoil and remove the foam insert to expose the controller.
3. Remove screws from the controller to expose the wiring terminal.
4. To reinstall the panel just follow the steps above in reverse order.



## Executive Series

### B. Deluxe Cabinet:

1. Grab one of the corner panels, from the bottom, where it touches the bottom pan. Then gently pull the panel forward to unsnap it from the holding clip then pull down to remove. Place the panel in a safe location to prevent from damaging it. Repeat the steps to remove the other corner panel.
2. Grab the bottom of the panel and slightly lift to release it from the top mount. Tilt the panel and pull down to remove. Before completely removing the panel, take hold of the indicator light wire and gently pull on it to slide the light from the housing. Place the panel in a safe location to prevent from damaging it.
3. Carefully fold back the ThermoFoil and remove the foam insert to expose the controller.
4. Remove screws from the controller to expose the wiring terminal.
5. To reinstall the panel just follow the steps above in reverse order.



### Electrical Service Considerations

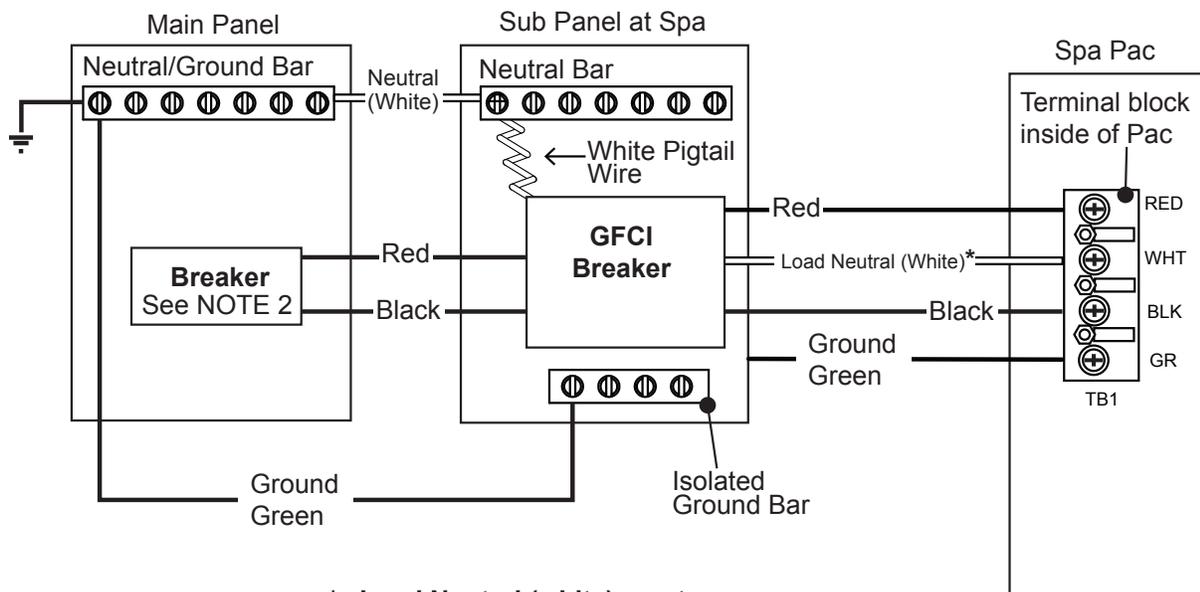
The Electrical Service determines how many pumps can run in conjunction with the heater. If the dedicated GFCI circuit was installed with a smaller breaker than the recommended size (typically 60 amps), your heater will automatically shut off to avoid tripping your circuit breaker if too many pumps are activated (including the blower). Heating will automatically turn back on after pumps have been shut off. The heater will also automatically shut off on larger spas when 3 or more pumps (including the blower) are turned on. All of this may occur even though the circulation pump continues to run – when the heater is on, progressing bars will be indicated from the bottom to the top of the heater icon.

**⚠ WARNING:** Wiring to your spa must be COPPER ONLY! Note that the wiring from a main panel to a sub-panel for the spa must be copper and the sub-panel is rated for copper (CU).

The length of the wiring from the panel or feed to your spa also has to be determined. If the total run exceeds 75 feet, the wire size must be increased by one wire size to adjust for the corresponding voltage drop. To make future service work easier we recommend leaving at least 6' of slack in the main electrical wire which may be coiled inside the cabinet. Ground Fault Circuit Interrupt (GFCI) Requirements: All spa electrical circuits must be GFCI protected on a dedicated circuit.

It is common practice for electrical service for a spa to be supplied by a regular two-pole breaker at the rated amperage at the main panel, and the disconnecting means (NEC Article 100) is usually a 125-amp sub-panel with the required GFCI breaker(s) mounted inside. The GFCI breaker becomes the required disconnecting means. These sub-panels sometimes will not have a ground bar included and it must be purchased separately. The ground bar is a small metal bar with holes provided for ground wires and screws to secure the wires to the ground bar. This ground bar is NOT to be bonded or connected to the neutral bar, and the neutral bar must be isolated from any grounding source. The GFCI pigtail in this instance is connected into the neutral bar—not the ground bar.

### Ground Fault Circuit Interrupt (GFCI) Wiring Diagram

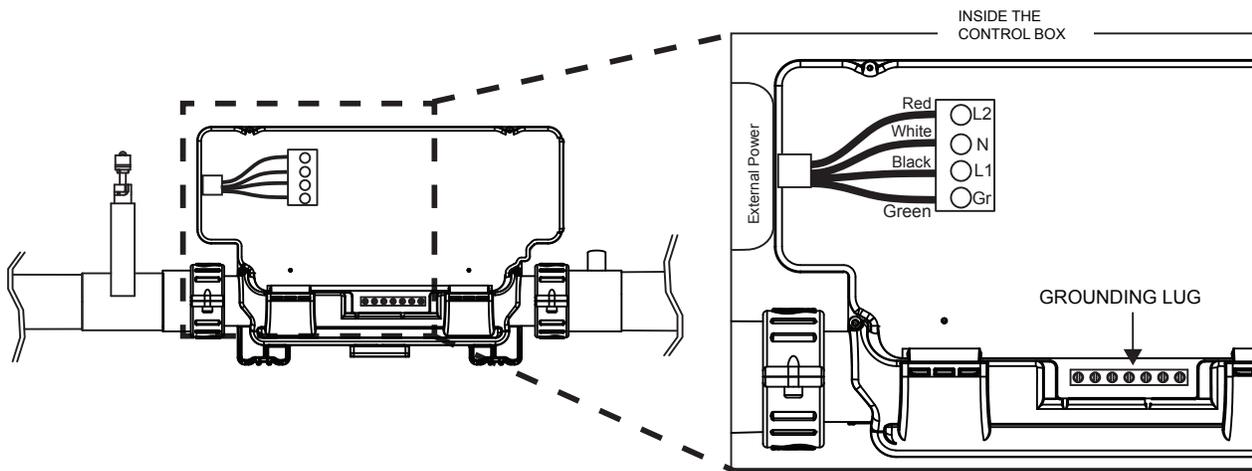


\* Load Neutral (white) must connect to the GFCI breaker at the Sub Panel NOT the neutral bar

**NOTES:**

1. NEUTRAL AND GROUND MUST BE ISOLATED AT THE SUB PANEL.
2. Positions of electrical connections may vary by breaker manufacturer.
3. For specific breaker and wire size refer to page 69.

### Spa Pack Connections



## 7.0 Spa Start Up

Please read through all steps before beginning. This section explains the necessary procedures required to start up your spa. Familiarize yourself with this procedure prior to beginning the process. Use this procedure as a guideline.

- Make sure you have any instructions along with the Welcome Kit and Chemical Starter Kit prior to filling your spa.
- If your water is acidic, hard, or has a high mineral content it is recommended to contact one of our trained Customer Care Representatives prior to filling your spa.
- Failure to follow these start-up instructions for your spa and observe the recommended maintenance time periods may result in pump damage or require draining and refilling the spa.

Chemical balancing may take 3-7 days to settle in, based on the following variables.:

1. Incoming water temperature and water pressure (fill rate)
2. Size and type of spa
3. Water characteristics (hardness, mineral content)
4. Desired final water temperature
5. Ambient conditions

### Inspect and Filling you spa

Once your spa is in its final location it is time to inspect it to ensure it is ready to be filled. Gently remove all packing and crating materials from the spa.

**Step 1:** Remove the panels/insulation of the spa so you can see the interior.

**Step 2:** Remove filters, the accessory bag and the spa chemical starter kit located inside the spa shell.

**Step 3:** Wipe spa clean with a soft damp sponge. Be careful not to scratch the surface with any particles that may have fallen into the tub.

**Step 4:** Make sure the “T” valves on each water pump are open by pulling them up as far as they will go and locking them in the open position, page 53.

**Step 5:** Make sure all water pump and heater unions are tight, page 53.

**Step 6:** Make sure the drain valve is closed, page 53.

**Step 7:** Install the filter(s).

**Step 8:** In certain situations, if your water is extremely “hard,” it is preferable to fill half-way with hard water and the rest of the way with softened water. Water that is too soft can be corrosive to metal components.

**Step 9:** Let the water run out of your garden hose for several minutes before filling the spa. This will flush out stagnant water in the line that may cause bacteria.

**Note:** We suggest putting a sock over the end of your hose to act as a strainer and protect the spa shell acrylic from the hose.

**Step 10:** Begin filling your spa up to 1" below the pillows. The actual water level may vary depending on the bather load. When there are no bathers in the spa, the water must be high enough to prevent pump surge and low enough that when the recommended number of bathers are in the tub that the water is not overflowing out of the spa. The recommended water level is half way up the filter area with no bathers. While spa is filling periodically check underneath to be sure unions are tight and not leaking.

**Note:** Unions are located on both the spa's water pump(s) and heater. It is imperative that they are checked and tightened before filling the spa. Although every spa is thoroughly tested twice in our factory during final inspection, some connections may loosen during transport from the factory to your home.

### Heat Water

**Step 1:** Set desired temperature by pressing the Warm ( ▲ ) or Cool ( ▼ ) button.

**Step 2:** Install insulated cover, close it over spa, and secure it with the lock down straps.

**Step 3:** Allow between 5 and 24 hours for the water to reach the desired temperature. A 240-volt service will raise it approximately 4° to 8°F per hour.



### **DANGER: RISK OF PERSONAL INJURY.**

Check water temperature carefully before entering hot tub! Excessive water temperature can cause burns, welts and body temperature to rise, hyperthermia (over-heating).

### **Prep Water: Maintaining Correct Water Chemistry and Safety**

Improper use of spa chemicals may be dangerous and could damage your spa and its cover. Since this damage is not covered by your warranty; it is extremely important to take precautions when using these products. Only use chemicals and cleaning agents designed for spas. Damage resulting from the use of non-recommended chemicals and/or cleaning agents is not covered under the warranty. Following the procedures in this guide will make the maintenance and care of your spa simple and economical.

Avoid using any biguanide or copper-based algaecide with your spa. Use of these products is not recommended by ThermoSpas and may void your warranty.



### **CAUTION: RISK OF PERSONAL INJURY OR SPA DAMAGE!**

Never add chlorine tablets (trichlor) or acid to your hot tub for any reason! These chemicals may damage components within your hot tub, burn or irritate your skin, create a rash, and void the manufacturer warranty for your spa.

## Executive Series

**Proper Handling of Chemicals**

1. Keep all chemicals out of reach of children.
2. Always keep lids on chemicals when not in use and store them in a cool, dry location away from direct sunlight.
3. Do not store chemicals within the interior of the spa's cabinet.
4. Do not interchange caps or measuring scoops for different types of chemicals.
5. Do not smoke around chemicals. Some can emit highly flammable fumes.
6. In case of contact or if a chemical is swallowed, call a doctor or local Poison Control Center. If a doctor is required, bring the chemical container with you so the doctor can determine the appropriate treatment.
7. Never mix chemicals or chemical solutions directly with each other.
8. Always add chemicals to water when mixing them. Never add water to chemicals.
9. When in doubt, call Customer Care at 800-876-0158.

**WARNING: RISK OF POISONING OR DEATH.**

Never leave chemicals opened and accessible to anyone. Use chemicals according to the vendors instructions. Always store chemicals in a safe and/or locked location. Keep away from and out of reach of children.

**Proper Procedure for Adding Chemicals**

Proper water chemistry is essential to the safety of the user as well to the life of the spa components. Improper water chemistry may cause skin irritation or facilitate the transmittal of disease. Proper water chemistry is the sole responsibility of the spa owner. The costs incurred from injury or damage resulting from improper water chemistry are not covered under the ThermoSpas, Inc. warranty.

1. Turn on jets pump(s) when adding chemicals to ensure proper mixing and leave your spa cover open until the sanitizer level becomes stable to protect pillows and plastic knobs from chemical attack.
2. **Do not add chemicals through the skimmer.**
3. Only add one chemical at a time. Unless otherwise specified always wait at least 10 minutes after adding chemicals to your spa before adding more chemicals.

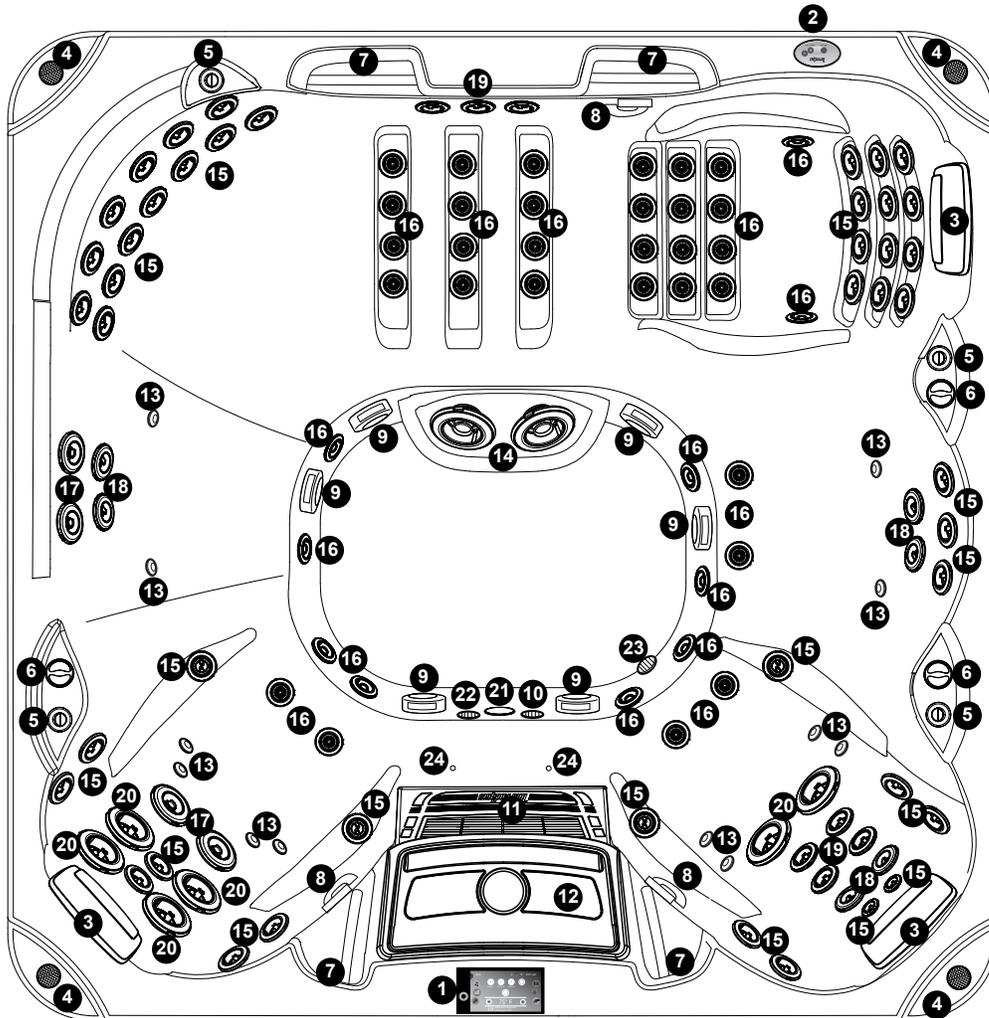
**Note:** Depending on the metals or mineral content of your tap water, one of the chemicals in the treatment may react to cause a discoloration or formation of a precipitate. In this event you should not have to drain your spa. There are treatments to solve this problem. If you have any questions contact Customer Care.

**WARNING: BECAUSE OF THE RISK OF INHALING CHEMICAL VAPORS.**

- To decrease the risk of injury, drowning or entrapment, never leave your hot tub unattended for any reason while the cover is open and accessible, especially to small children and animals!
- Precautions should be taken to minimize your exposure to chemical vapors (that could cause lung, brain, or skin damage).

## 8.0 Spa Diagram

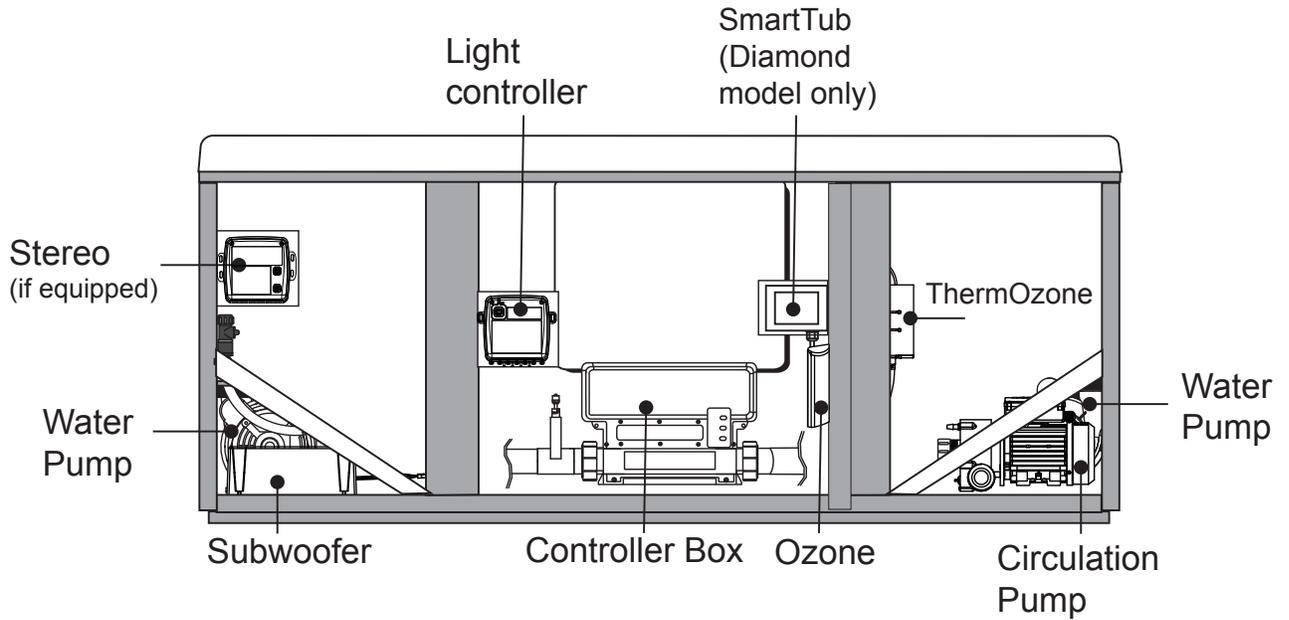
The illustration below shows a typical 6-7 person spa with multiple jet styles, a bubbling system, an ozone system upgrade and an independent circulation/filtration pump system. If your spa was not ordered with any of these features, the system components will not be found in your spa. These illustrations are designed to help you identify key components.



- |  |                             |
|--|-----------------------------|
| 1. EasyTouch Control                   | 13. Air injector (12)       |
| 2. Wave Lounge Control                 | 14. Whirlpool Jet (2)       |
| 3. Pillow with Pillowfall (3)          | 15. Pulsator Jet (43)       |
| 4. Optional Audio System Speakers (4)  | 16. Laser Jet (42)          |
| 5. Jet Air Boots Controls (4)          | 17. Therapy Jet (4)         |
| 6. Pillowfall Control Valve (3)        | 18. Cyclone Jet (6)         |
| 7. Grab Bar (4)                        | 19. Swirl Jet (7)           |
| 8. Throttle Control Diverter Valve (3) | 20. Cyclone XL Jet (6)      |
| 9. Suction Cover (6)                   | 21. Footwell Light          |
| 10. Filtration Return                  | 22. Ozone Return            |
| 11. Filter Weir                        | 23. Circulation Pump Return |
| 12. Filter Lid                         | 24. Bullet lighting         |

## 9.0 Equipment Diagram

The illustration below shows a typical equipment compartment. If your spa was not ordered with any of these features, the system components will not be found in your spa. These illustrations are designed to help you identify key components. Use the legend to locate a particular component's page number to see more details.



Part	Page	Part	Page
Air Pump (Blower) - not shown	53	Mixing Vessel (ThermOzone)	48
Circulation/Filtration Pump	53	Ozone Generator	48
De-gas Vessel (ThermOzone)	48	Controller and Heater	54
Light Controller	24	Water Pump	53

## 10.0 Topside Control Panel (Gold and Diamond Wave Models)

### 10.1 Start-up Sequence

During the start-up sequence, the initializing screen will appear showing the software information, then a blow-out cycle will begin. After the cycle ends, the hot tub will display the Home Menu.

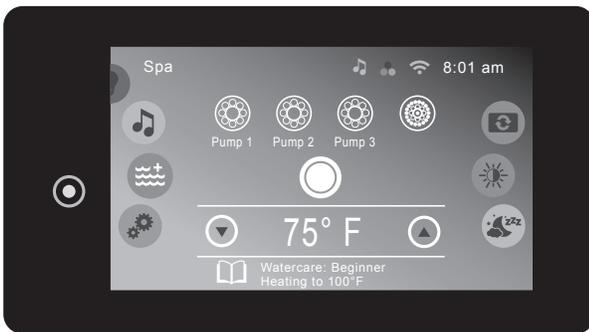
### 10.2 EasyTouch Control Panel

Your ThermoSpas® hot tub is equipped with a state-of-the-art LCD touch screen control panel. Access to all menus can be achieved by using the touch screen. Programming features can be easily programmed with our user-friendly design. With the ease of use, there will more time to enjoy the benefits of your hot tub.

#### A. Home Menu

The Home Menu provides access to hot tub functions and programming. Operation is made easy by the interactive touch-screen control panel. If there is no activity for 2 minutes, the display will time-out into a sleep mode. To reactivate the display, just tap and briefly hold the display then drag the ThermoSpas logo into the box.

**NOTE:** When a feature is on, the icon will be animated.



- = **Temperature Control:** Allows you to adjust the set temperature of the hot tub:
- Increase the temperature by tapping ▲ in 1° increments.
  - Decrease the temperature by tapping ▼ in 1° increments.

**Note:** The temperature range for the hot tub is 59 to 104°F (15 to 40°C). When the hot tub is heating a message will appear on the Home Menu.



- = **Light Button:** Tap once to activate the lights.



- = **Jet Button:** Tap one of the Jets pumps button to activate, page 21.



- = **Blower Button:** Tap button to activate the blower ON and OFF.



- = **Lighting Effects Button:** Tap to access the menu to operate the various lighting options, page 24.

## Executive Series

-  = **Music Button:** Tap to access the menu to operate the audio system and settings, page 25. If the hot tub does not have the stereo option, there will not be a button on the control panel.
-  = **Home Button:** Tap any time to return to the Home Menu.
-  = **Settings Button:** Tap to access the programming and setting menus, page 27.
-  = **Invert Button:** Tap to enter the invert selection menu.
-  = **Contrast Button:** Tap to enter the contrast selection menu.
-  = **Sleep Button:** Tap to enter a sleep mode. A message is displayed prompting you to tap the icon to continue.

**B. Status Notifications**

The status notifications display is at the top of the Home Screen menu. When certain components, features or programs are on, their icons are represented there. No icons will display if a feature is not installed.

-  = **Stereo System Icon:** Displays if the spa is equipped with a stereo option, page 25.
-  = **Lighting System Icon:** Will displayed to show that a lighting system is connected, page 24.
-  = **Error Indicator Icon:** Displays when there is error message that needs to be addressed. The icon will also appear under the temperature reading as a reminder, page 55.
-  = **Wi-Fi Icon:** Displays when there is a network connection to the spa. Diamond Wave models only.

**6:45am = Time Indicator:** The time will always be shown when the Home Menu is displayed. The appearance will vary depending on whether the clock is set to a 12-Hour or 24-Hour configuration, page 31. The default setting is 12-Hour.

**Note:** The time will automatically adjust for daylight saving time.

## 10.3 Control Valves

Several components have dedicated valves that give you more control over their function. The operation of each valve is described below.

1. **Jet Air Boost Control Valve**  
Controls the water to air ratio to vary the intensity of the jet. ON/OFF rocker button.
2. **Pillowfall Control Valve**  
Controls the water intensity flow to the pillowfall. Turn the valve clockwise to decrease the intensity; counterclockwise to increase the intensity.
3. **Throttle Control Diverter Valve**  
Rotate valve to divert flow to specific sections of the spa.



Jet Air Boost Control



Pillowfall Control



Throttle Diverter Control

## 10.4 Jets

### Therapy Jets

Popular spa jets with powerful directional streams. These are easily controllable to give you just the right amount of massage. Turn the outer ring to open or close the jet to control the power. The nozzle can be adjusted by simply touching it and pointing it to the desired location on your body.



Therapy Jet

### Swirl Jets

Pamper you with a swirling massage. The nozzle design swirls the water around in a circular pattern, giving you an overall massage in a wide area. Power from the jet is also controlled by turning the outer ring to open or close the jet stream.



Swirl Jet

### Cyclone Jets

Air and water move in circles evoking the sensation of thumbs pressing and deliberate pulsing action that rhythmically loosens muscles and eliminates stress.



Cyclone Jet

**NOTE:** The Therapy Jet, Swirl Jet and Cyclone Jet are interchangeable and allow you to customize the feel of your water therapy. To remove the Jet from the Jet Body, turn the Jet counter-clockwise to unthread it from the jetback. Thread in the new jet until you feel a resistance.

## Executive Series

### Whirlpool Jets

Large round jets that are particularly good for those with special therapy needs. Each has the power of up to 6 Therapy Jets or 12 Laser Jets. Whirlpool Jets are an absolute must for those in need of massage therapy.



Whirlpool Jet

### Laser Jets

Pinpoint and soothe individual joints. These are smaller than the rest of the jets, but they are very powerful. When clustered together and positioned properly, you will get a one-of-a-kind massage.



Laser Jet

### Pulsator Jets

Gently knead tired muscles. The same size as the Laser Jet, but includes the unique ability to pulsate. Imagine the feeling of the magical fingers of a master masseuse.



Pulsator Jet

### Cyclone XL Jets

Powerful spinning jet provide a unique and deliberate kneading action that is both therapeutic and soothing. They can cover a large area at a time and feel like a steady pulse against large portions of your body.



Cyclone XL Jet

**NOTE:** The Laser Jet and Pulsator Jet are interchangeable and allow you to customize the feel of your water therapy. To remove the Jet from the Jet Body, turn the Jet counter-clockwise to unthread it from the jetback. Thread in the new jet until you feel a resistance.

### Pillowfall

Gives an unbeatable neck massage and include a control valve to adjust the intensity. This is a favorite feature among many ThermoSpas customers. Nothing compares to a nice neck massage, so the Pillowfall was created to do just that. No need to put your head under water – just sit back in your therapy seat, put your head on the pillow, push the button and you receive a nice flow of warm water across the back of your neck.



# 11.0 Operating Instructions (Gold and Diamond Wave Models)

## 11.1 EasyTouch Control Panel

Your ThermoSpas hot tub is equipped with a EasyTouch Control panel that offers an advanced high resolution interactive touch screen. Many of the hot tub functions can be access through the Home Menu.



## 11.2 Activating the Jets Pumps

From the Home Menu tap  to turn the Jets pumps on. Anytime a pump has been manually turned on, it will automatically turn off after approximately 30 minutes. If at this time you desire more jet operation you may simply turn the pump(s) back on.



Pump 1

= **Jet Pump 1 Button**



Pump 2

= **Jet Pump 2 Button**



Pump 3

= **Jet Pump 3 Button (if equipped)**

JETS ICON  
WHEN OFFJETS ICON  
WHEN ON

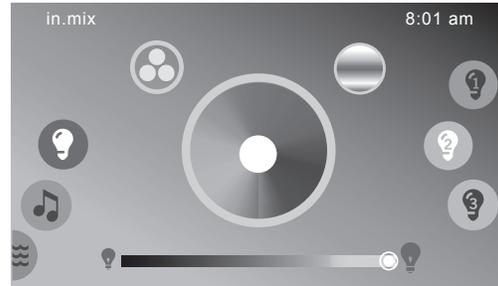
1. Tap the Jet 1 button to turn the pump #1 on and off.
2. Tap the Jet 2 button to turn the pump #2 on and off.
3. Tap the Jet 3 button to turn the pump #3 on and off.

**Note:** When a jets pump is on, the jets icon will spin.

## 11.3 Lights Menu

From the Home Menu slide the left wheel until the light icon (  ) is selected to enter the Light submenus. Then screen will display the Light Submenu. The default setting when you enter the submenu is zone 2. From this menu, you can control the interior lighting and blending effect. When you slide the right wheel, the lights will turn on, either in zone 1, zone 2 or zone 3 (if equipped).

**Note:** The lights automatically turn off after 1 hour. They can be reactivated if needed.



= **Light Button:** Tap once to activate the lights.



= **Zone 1 Button:** Tap to turn ON the main light. When feature is ON the light bulb is be illuminated.



= **Zone 2 Button:** Tap to turn ON all internal lights. When feature is ON the light bulb is be illuminated.



= **Zone 3 Button:** Tap to turn ON the external lights. When feature is ON the light bulb is be illuminated. The only light color option is white. Feature only available with the deluxe cabinet option.



= **Synchronization/De-synchronization Button:** Tap to either synchronize or desynchronize the main and all around lights. They can be independently controlled. When the synchronizing feature is on the icon be illuminated in yellow.



= **Blending Button:** Tap to turn ON the blending modes. Once to turn ON the slow blending mode, tap a second time to turn ON the fast blending mode, tap a third time to turn OFF.

**Note:** When the blending mode is turned OFF the lights will default to the last solid color used.



= **Slow Blending Button:** Turns on when the you tap the blending mode. The lights will blend in a slow and calm mode.



= **Fast Blending Button:** Tap the blending mode again to blend the lights in a quick blending mode.



= **Color Selection Wheel:** Tap a color from the wheel to turn it ON.

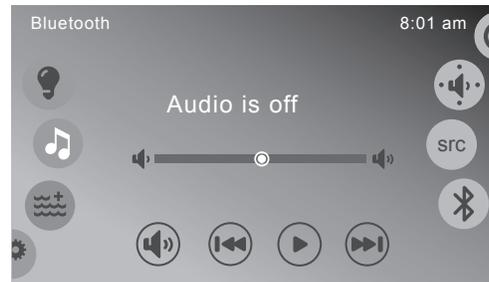


= **Intensity Slider:** Slide from side to side to increase and decrease the intensity level. Slide to the left to turn OFF.

## 11.4 Music Menu

Models equipped with the optional audio system offer an enhanced hot tub experience. The Bluetooth® Stereo System works with most Bluetooth wireless devices and provides access to local FM stations. These models also include four hot tub engineered speakers for unsurpassed sound quality and long-life, and an integrated subwoofer for a superb acoustical sound.

**Note:** If the hot tub does not have the stereo option, there will not be a button on the control panel.



To access the Music Menu, slide the left wheel to the music button (  ). Once you enter the Music Menu, slide the right wheel to select a feature.



**WARNING: RISK OF ELECTRICAL SHOCK HAZARD EXISTS AND EQUIPMENT DAMAGE!** Never install or remove electrical devices while hands are wet or while sitting partially immersed or fully immersed in hot tub!



= **Power Button:** Tap to turn the stereo on and off, page 26.



= **Bluetooth Button:** Tap to use your Bluetooth device with the stereo. Can also be accessed by using the “src” source button.



= **Source Button:** Tap to access the source submenu, page 26.



= **Audio Settings Button:** Tap to access the audio submenu, page 26.



= **Forward:** Tap to advance forward through tracks.



= **Rewind:** Tap to move back through tracks.



= **Pause/Play:** Tap to pause and play tracks.



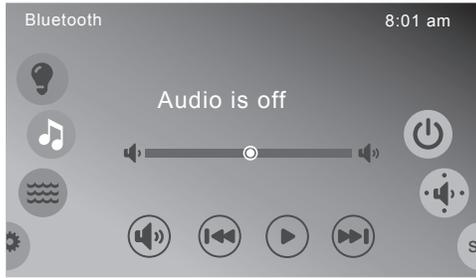
= **Volume Slider:** Slide from side to side to increase and decrease the volume level. Slide to the left to turn OFF.

Artist Information

= **Track Information:** Will display the track, artist and album information, if it is available. If the information is not available this part will be blank. If the information provided is too long, the maximum number of characters will be display follow by dots (“...”).

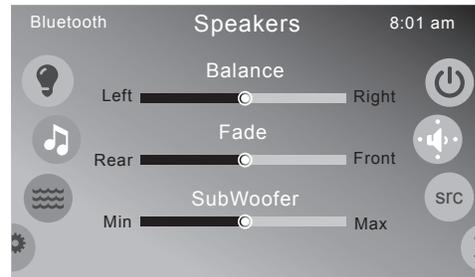
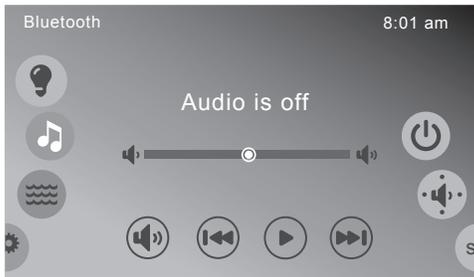
## 11.5 Turning the Stereo ON

1. From the stereo menu, press the power button (  ) to bring up the power on display.
2. Press the power icon (  ) in the middle of the display.



## 11.6 Audio Settings Submenu

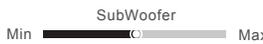
To enter the Audio Settings Menu, slide the right wheel to the settings button (  ). The Audio Settings menu offers an enhanced audio experience by providing adjustments to certain settings.



**Balance Slider:** Slide from side to side to increase and decrease the balance level between the left and right.



**Fade Slider:** Slide from side to side to increase and decrease the fade level between the front and back.



**Subwoofer Slider:** Slide from side to side to increase and decrease the subwoofer level from minimum to maximum.

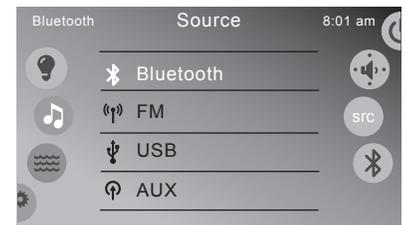
## 11.7 Source Menu

Slide the right wheel to the source icon (  ) to select an audio source to listen to. Only the Bluetooth and FM devices are available.

**Note:** The USB and AUX features do not function.

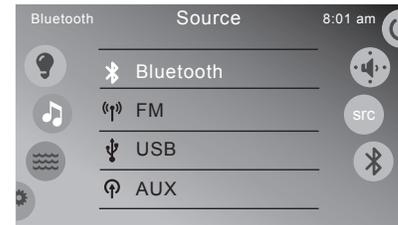
### A. Listening to devices

1. While in the source menu, tap the Bluetooth tab or “FM” tab.
2. Tap the icons on the menu to operate the functions for that device.



## 11.8 Bluetooth® Pairing Instructions

If you experience a connection problem with your Bluetooth device, make sure that the Bluetooth antenna is secure and located at the highest point within the equipment bay.

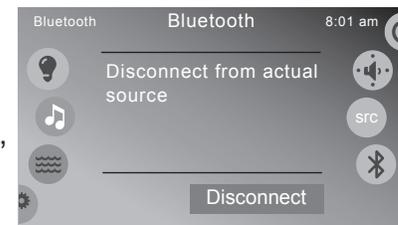


### A. To pair your Bluetooth device to the Bluetooth Stereo System, follow these steps:

1. Tap the music icon on the control panel screen then tap either the Bluetooth or SRC button to select the Bluetooth option.
2. From your Bluetooth device, make sure that the Bluetooth setting is ON.
3. Follow the pairing instructions for your Bluetooth device and connect to the “in.stream 2” device that appears on your screen.
4. If asked for a pin code, enter the code “5555” and then connect.
5. If the pairing process is successful, your Bluetooth device will show “Connected” right next to “Bluetooth Stereo System”.

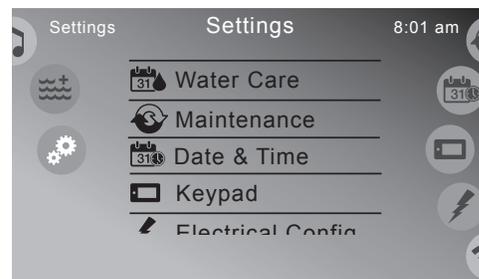
### B. To disconnect your Bluetooth device, follow these steps:

1. Tap the music icon on the control panel screen then tap either the Bluetooth or SRC button to select the Bluetooth option.
2. The display will show the disconnect menu. Tap the “Disconnect” tab.



## 12.0 Programming Instructions (Gold and Diamond Wave Models)

Your hot tub is equipped with setting menus that allow you to program and activate different components of the hot tub. With our Easy Touch Control programming your hot tub has never been easier. In the sections that follow, we will guide you through the process of programming the hot tub to fit your personal comfort. Slide the left wheel to the settings icon (  ) to enter the Settings Menu. Slide the right wheel to select one of the settings options.



 Water Care = **Water Care:** Provides access to the water care programming, page 28. You can also access the menu by tapping .

 Maintenance = **Maintenance:** Provides access to the reminders and error log menu, page 30. You can also access the menu by tapping .

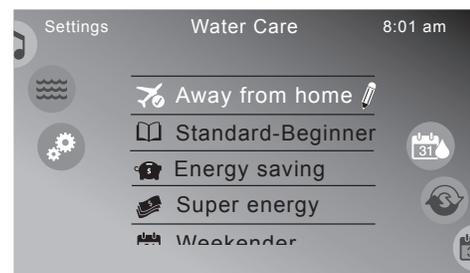
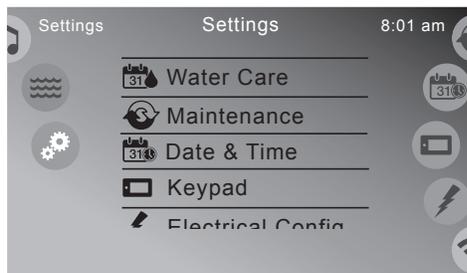
 Date & Time = **Date and Time:** Provides access to the date and time programming, page 31. You can also access the menu by tapping .

## Executive Series

-  Keypad = **Keypad:** Provides access to the units, contrast, display view and language settings, page 31. You can also access the menu by tapping .
-  Electrical Config. = **Electrical Configuration:** Provides access to the electrical programming, page 32. **This menu is to be accessed by a qualified and authorized technician only.**
-  Wi-Fi = **Wi-Fi:** Provides access to the Wi-Fi settings, page 32. Diamond Wave Models only.
-  Miscellaneous = **Miscellaneous:** Lets you program a “Warm weather” setting that allows filtering to occur even though the water temperature is high, page 34. You can also access the menu by tapping .
-  About = **About:** Displays software and system information, page 22. You can also access the menu by tapping .

## 12.1 Water Care

Your hot tub is equipped with 5 programmable modes. Each of the modes are described below.



**Note:** Economy mode will not allow the heater to turn on until the water temperature reaches 20°F below the set temperature; unless programmed otherwise.

-  Away from home = **Away from home:** In this economy mode, the heater will not turn on until the water temperature reaches 20°F below the set temperature.
-  Standard-Beginner = **Standard-Beginner:** In this standard mode, the heater will maintain the set temperature.
-  Energy saving = **Energy saving:** In this economy mode, during the peak hours from Monday to Friday, the heater will not turn on until the water temperature reaches 20°F (11°C) below the set temperature. On the weekend, the temperature will be maintained as programmed.
-  Super energy = **Super energy:** In this economy mode, every day during the peak hours, the heater will not turn on until the water temperature reaches 20°F below the set temperature.
-  Weekender = **Weekender:** In this economy mode, from Monday to Friday, the heater will not turn on until the water temperature reaches 20°F (11°C) below the set temperature. On the weekend, the temperature will be maintained as programmed.
-  = **Water Care button:** Multi-purpose button. It can be used to select an option, to go back to the previous menu, and to exit and return to the settings menu.

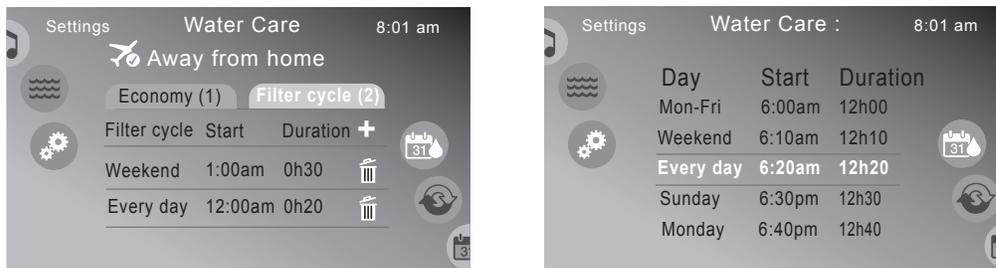
-  = **Pencil Icon:** This icon will appear next to the water care mode that has been programmed. Tap to enter that mode to make changes.
-  = **Trash Can Icon:** This icon will appear next to an economy or filter cycle that has been programmed. Tap to delete that cycle.

### A. Programming the economy cycles for all modes



1. Tap **Economy (2)** to program cycles.
2. Then tap the plus sign, **+**, to add a new cycle or tap the cycle to change, Weekend 1:00am 3:00am .
3. Slide each column (Day, Start or Stop) and select the day and time to program. When done, tap  to return to the previous screen. Tap again to return to the settings menu.

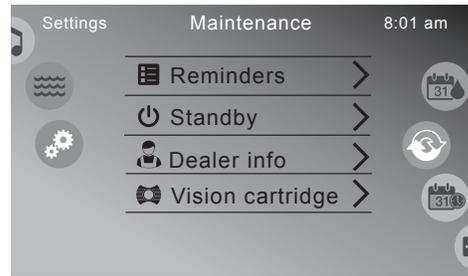
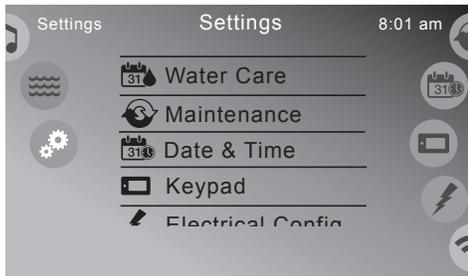
### B. Programming the filter cycles for all modes



1. Tap **Filter cycle (2)** to program cycles.
2. Then tap the plus sign, **+**, to add a new cycle or tap the cycle to change, Weekend 1:00am 1h30 .
3. Slide each column (Day, Start or Duration) and select the day and duration to program. When done, tap  to return to the previous screen. Tap again to return to the settings menu.

## 12.2 Maintenance Menu

Scheduled maintenance will keep your hot tub working at an optimal level. To help you accomplish this, reminders can be set to stay on track.



-  Reminders > = **Reminders:** Allows you to set a timer, for a preprogrammed amount of time, that will countdown to remind you to either clean or replace certain components.
-  Standby > = **Standby:** A setting that will turn off all pumps for service. To return to normal operation, just cancel the function. This setting will time out in 30 minutes.
-  = **Maintenance button:** Multi-purpose button. It can be used to select an option, to go back to the previous menu, and to exit and return to the settings menu.

### A. Reminders

To enter one of the maintenance menus, tap the tab. To reset the timer, tap the tab to enter the reset menu and tap the confirm tab. To reset tap **Confirm** ; to cancel tap **Cancel** to return to the reminders menu. When a time allotted expires, a message will appear on the Home menu.



= **Rinse filter:** A 30-day reminder to rinse the filters.



= **Clean filter:** A 60-day reminder to soak the filters in a cleaning solution.



= **Change water:** A 120-day reminder to change out the hot tub water.



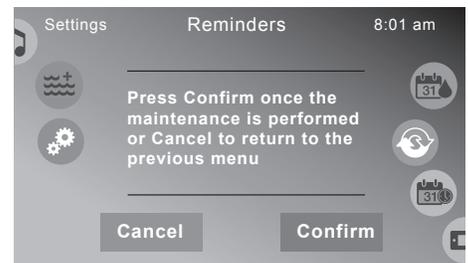
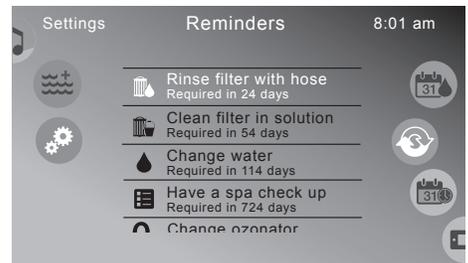
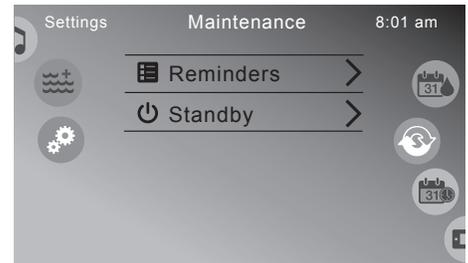
= **Spa check:** A 730-day reminder to have a general check up performed.



= **Change ozonator:** A 540-day reminder to change out the ozonator with a new unit.

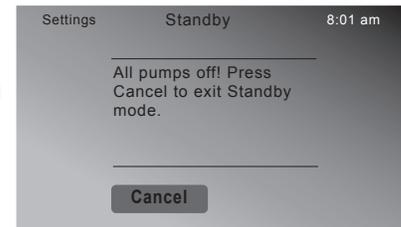


= **Reset all reminders:** Will reset all the reminders, at the same time, to the maximum setting.



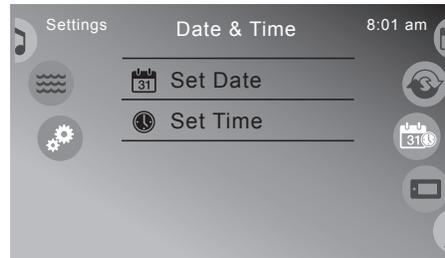
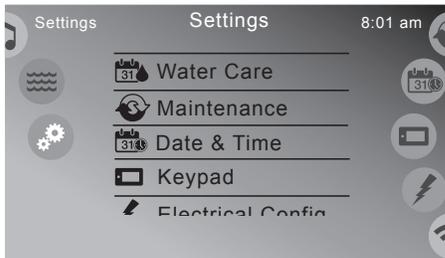
## B. Standby

When you tap the “Standby” tab, this will turn the pumps OFF to perform routine maintenance such as cleaning the filters. To return to normal operations, press **Cancel**. This feature will timeout in 30 minutes. During the 30 minutes the display will remain in the Standby menu.



## 12.3 Date & Time Menu

Programming the date and time is a simple and fast process. From the settings menu press the “Date & Time” tab.

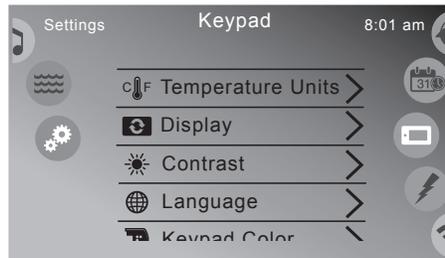
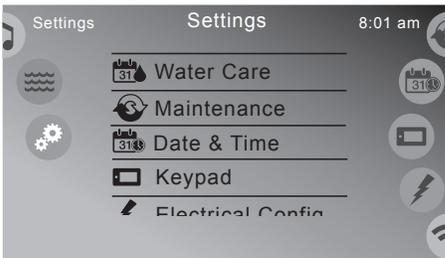


Tap either the “Set Date” or “Set Time” tab. Once the tab is pressed, the display will change and self-adjust to the current date or time. You can also scroll the columns if you would like to make changes.



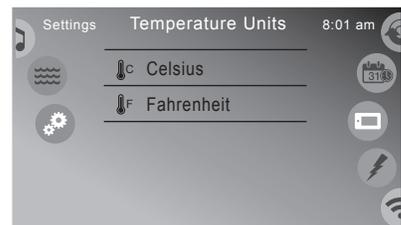
## 12.4 Keypad Menu

From the keypad menu, you can program features that the control panel will display. Tap the “Keypad” tab to enter the programming features.



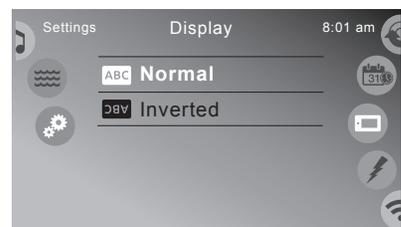
### A. Temperature Units

When you tap the “Temperature Units” tab, you program the units of temperature to display. Tap either the Celsius or Fahrenheit tab to select the units to display.



### B. Display

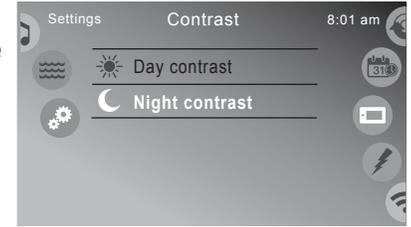
When you tap the “Display” tab, you can select a viewing orientation for the control panel. Tap either Normal or Inverted to invert the display. This feature can also be accessed by tapping the  button from the Home menu.



## Executive Series

### C. Contrast

When you tap the “Contrast” tab, you can change the contrast for the control panel. Tap either Day or Night contrast to determine the best viewing option for the control panel. This feature can also be accessed by tapping the  button from the Home menu.



### D. Language

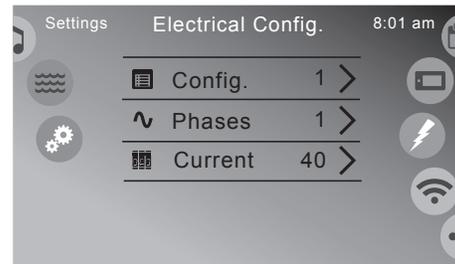
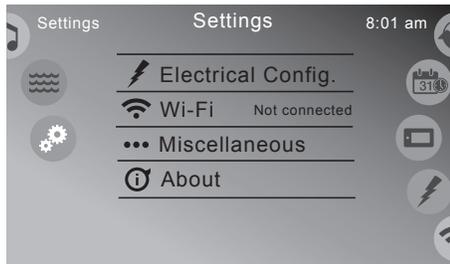
When you tap the “Language” tab, you select the display language for the control panel. Tap the language you want to display on the control panel. Scroll the language list to view all the available languages.



## 12.5 Electrical Configuration Menu

The electric configuration menu is a feature that should only be access by a qualified technician.

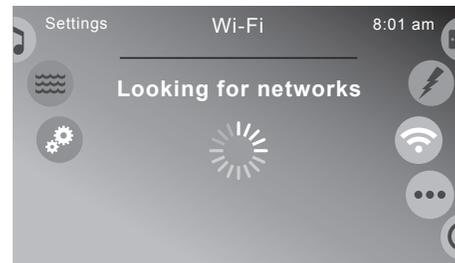
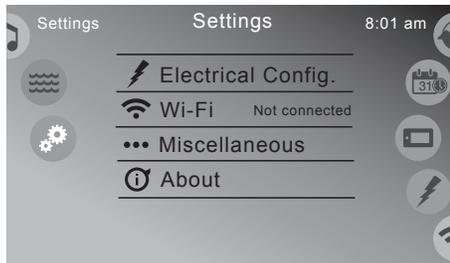
**Note: DO NOT** make any changes to the configuration once the hot tub has been installed and running. Contact ThermoSpas if you have any questions.



## 12.6 SmartTub™ System (If Equipped)

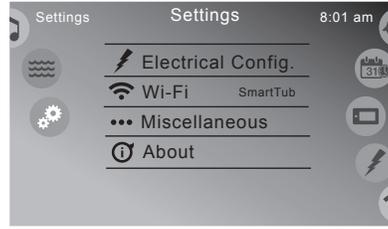
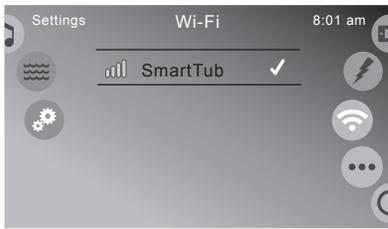
**IMPORTANT:** The spa must have the optional SmartTub™ system installed.

Advances in technology have allowed us to create a better and smarter hot tub. Our SmartTub™ system operates on a cellular network. The advantages of this system are:



- A more stable connection to Internet for outdoor environment. The SmartTub™ device uses much less data than a typical voice connection via cellular networks. We contract through the largest wireless carriers to ensure maximum uptime. The system enables firmware updates via the cell connection so your system’s performance will continuously be optimized remotely.
- Maintenance is made easy by alerts sent to your phone.
- Diagnostic alerts are sent to you and ThermoSpas when attention is required.
- Visit <https://smarttub.io/terms-of-service-html> for more information.

Tap the “Wi-Fi” tab to load the available networks. Make sure that you have the SmartTub app installed on your device.



### A. Pairing process

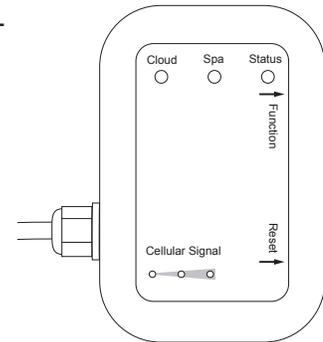
1. Download the SmartTub™ app from the Google Play store or Apple App store.
2. Open the app and create an account.
3. Locate the SmartTub™ sticker next the control panel of the hot tub. You can either scan the QR code with the SmartTub™ app or manually input the serial number located below the QR code on the sticker.
4. After you pair the hot tub's serial number to the SmartTub™ app, the app will load and connect the hot tub to the Internet.
5. Follow the instructions on the app to begin enjoying the benefits of your Internet connected hot tub.

**Note:** The first year of data service is included. You will need to renew the subscription after the first year. Please refer to the terms of service and privacy policy links in the SmartTub™ app for additional information.

### B. Indicator Lights

There are indicator lights on the SmartTub™ controller that relay the status of the system. Below are meanings of the lights.

1. Cloud:
  - Blue light on - connected to cloud.
  - Blue light off - not connected to cloud.
2. Spa:
  - Blue light on - connected to spa controller
  - Blue light off - not connected to spa controller
3. Status:
  - Cyan light - breathing (slow pulsing) indicates the status is good.
  - Cyan light - flashing indicates that the system is completing a connection to the cloud.
  - Green light - flashing indicates waiting for a connection to the cellular tower.
  - Dark blue light - flashing indicates a SIM error.
4. Cell signal strength:
  - 3 blue LED lights indicates cell signal strength.



### C. Resetting the SmartTub™ controller

Should the SmartTub™ controller need to be reset, hold the magnet (located on the cord) to the reset label on the side of the SmartTub device.

Executive Series

## 12.7 Miscellaneous Menu

This menu offers two features.

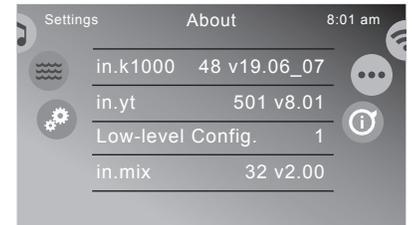
### A. Warm weather

When the pumps run, they generate heat that is transferred to the water creating an overheat situation. This setting will allow filtering although the temperature is high.



## 12.8 About Menu

This menu provides the software and electrical information about the hot tub.



## 12.9 Wave Lounge Control (Diamond Wave Model Only)

All Manhattan Diamond Wave models are equipped with an auxiliary wave lounge control. Use this to control the wave action massage that continuously flows down the lounge jets.



- 
 = **Pump Button:** Press to turn jets pump 3 ON and OFF.
- 
 = **Wave Button:** Press to turn the wave action massage ON and OFF. You can stop the wave lounge at any desired location.
- 
 = **Light Button:** Press to activate the lights.

## 13.0 Topside Control Panel (Silver Model)

### 13.1 Start-up Sequence

During the start-up sequence, the initializing screen will appear showing the software information and then display the Home menu.

### 13.2 Color Control Panel

Your ThermoSpas® hot tub is equipped with a state-of-the-art control panel. You will be able to access sets of multi-level menus. Familiarize yourself with the following information, so you can gain the full benefits of your spa. By learning the key features of the control panel, you will navigate through the menus and programming with ease. Please pay close attention to the key points below. With the ease of use, there will more time to enjoy the benefits of your hot tub.



**Note:** Although the graphics on the LCD display are vivid and colorful, the screen is not a touch-screen. These menus are activated by the button located just to the side of them; such as the Light button, Jets Pump 1, Jets Pump 2, and the Up and Down buttons.



= **Settings Button:** Press to enter the programming menus.



= **Mode Button:** Continuously tap to scroll and select one of three modes - Spa, Light, or Stereo mode.



= **Light Button:** Press to activate the lights. Will default to last color used. Also used to make selections when navigating through the menus, page 36.



= **Jets 1 Button:** Press to turn ON and OFF jets pump 1. Also used to make selections when navigating through the menus.



= **Jets 2 Button:** Press to turn ON and OFF jets pump 2. Also used to make selections when navigating through the menus.



= **Temperature Control:** Allows you to adjust the set temperature of the hot tub:

- Increase the temperature by tapping ▲ in 1° increments. Also used to make selections when navigating through the menus.
- Decrease the temperature by tapping ▼ in 1° increments. Also used to make selections when navigating through the menus.

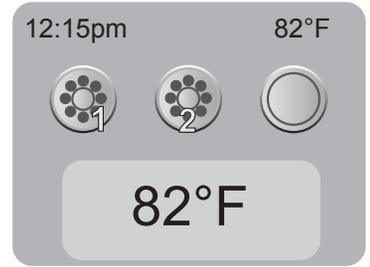
**Note:** The temperature range for the hot tub is 59 to 104°F (15 to 40°C). When the hot tub is heating or cooling a message will appear on the Home Menu.

# 14.0 Operating and Programming Instructions (Silver Model)

## 14.1 Home and Jets Menu

The Home Menu is the menu displayed at all times. If there is no activity for 30 minutes, the display will time-out into a sleep mode. To reactivate the display, press any button on the control panel.

**NOTE:** When a feature is on, the icon will be animated.



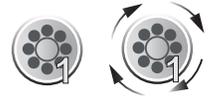
= **Jet 1 Button:** Press the Jets Pump 1 button to turn the pump #1 on and off. Will be animated when the pump is ON.



= **Jet 2 Button:** Press the Jets Pump 2 button to turn the pump #2 on and off. Will be animated if the pump is ON.



= **Light Icon:** Press to turn the lights ON. Will illuminate when the lights are ON.



JETS ICON WHEN OFF      JETS ICON WHEN ON

12:15pm = **Time Icon:** Displays the current time, page 43.

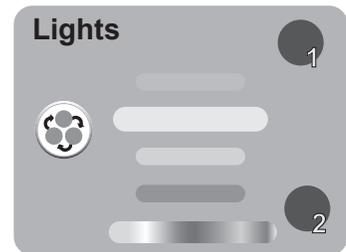
82°F = **Current Temperature Icon:** Displays the current water temperature.

82°F = **Set Temperature Icon:** Displays the current set temperature and its status.

## 14.2 Lights Menu

There are many lighting options that help enhance your hot tub experience.

**Note:** The lights automatically turn off after 1 hour. They can be reactivated if needed.



= **Light Button:** Press to turn ON the lights. Both the main and step lights will activate.



= **Mode Button:** Press to enter the lighting options menu.



= **Jets Pump 1 Button:** Press to turn ON zone 1 lights. This will activate the main spa light and bullet lights. When feature is ON the zone 1 icon will be illuminated.



= **Jets Pump 2 Button:** Press to turn ON zone 2 exterior lights. The only light color option is white. Feature only available with the deluxe cabinet option. When feature is ON the zone 2 icon will be illuminated.



= **Synchronization/De-synchronization Icon:** Press the light button (  ) to either synchronize or desynchronize the main and all around lights (if equipped). They can be independently controlled.



= **Up or Down Button:** Use to scroll through all the lighting options from a solid color to a blending of all colors.



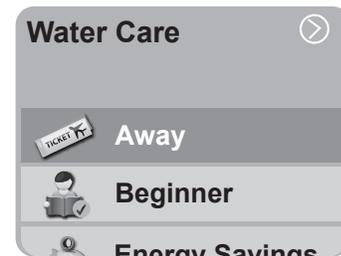
= **Zone 1 Icon:** When feature is ON the icon will be illuminated.



= **Zone 2 Icon:** When feature is ON the icon will be illuminated.

### 14.3 Water Care

Your hot tub is equipped with 5 programmable water care modes. Each of the modes are described below.



**Note:** Economy mode will not allow the heater to turn on until the water temperature reaches 20°F below the set temperature; unless programmed otherwise.

 **Away** = **Away from home:** In this economy mode, the heater will not turn on until the water temperature reaches 20°F below the set temperature, unless programmed otherwise. You can program one economy cycle and one filtration cycle.

 **Beginner** = **Standard-Beginner:** In this standard mode, the heater will maintain the set temperature. You can program two filtration cycles.

 **Energy Savings** = **Energy saving:** In this economy mode, during the peak hours from Monday to Friday, the heater will not turn on until the water temperature reaches 20°F (11°C) below the set temperature, unless programmed otherwise. You can program one economy cycle and one filtration cycle. On the weekend, the temperature will be maintained as programmed.

 **Super Energy Savings** = **Super energy:** In this economy mode, every day during the peak hours, the heater will not turn on until the water temperature reaches 20°F below the set temperature, unless programmed otherwise. You can program one economy cycle and one filtration cycle.

 **Weekender** = **Weekender:** In this economy mode, from Monday to Friday, the heater will not turn on until the water temperature reaches 20°F (11°C) below the set temperature, unless programmed otherwise. You can program one economy cycle and one filtration cycle. On the weekend, the temperature will be maintained as programmed.

## Executive Series

### A. Programming the economy and filtration cycles for Away, Energy, Super Energy, and Weekender modes

**Note:** All economy modes has the option to program one economy cycle and one filtration cycle. Pressing (  ) will exit the menu and return to the Water Care Menu at any time.

- Press (  ) or (  ) to scroll through the water care options.
- Press the light button (  ) to select one of the water care modes, (  ).
- Press (  ) to enter the programming for that cycle.
- Press the light button (  ) to select the day option, 

Day	Every day
-----	-----------

.
- Press (  ) or (  ) to scroll through - Every Day, Sun, Mon, Tue, Wed, Thu, Fri, Sat, Mon-Fri, or Weekend. Once a selection is made, press the light button (  ) to save and move down to program the start time, 

Start	12:00am
-------	---------

.
- Press (  ) or (  ) to scroll through the time, in increments of 30 minutes. Once a selection is made, press the light button (  ) to save and move down to program the stop time, 

Stop	12:00am
------	---------

.
- Press (  ) or (  ) to scroll through the time, in increments of 30 minutes. Once a selection is made, press the light button (  ) to save.
- Press (  ) to move down to the Filtration menu and program the settings.
- Press the light button (  ) to select the day option, 

Day	Every day
-----	-----------

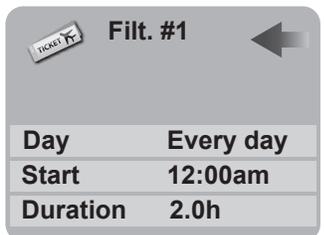
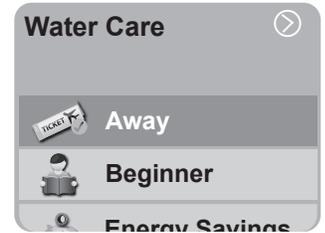
.
- Press (  ) or (  ) to scroll through - Every Day, Sun, Mon, Tue, Wed, Thu, Fri, Sat, Mon-Fri, or Weekend. Once a selection is made, press the light button (  ) to save and move down to program the start time, 

Start	12:00am
-------	---------

.
- Press (  ) or (  ) to scroll through the time, in increments of 30 minutes. Once a selection is made, press the light button (  ) to save and move down to program the duration time, 

Duration	2.0h
----------	------

.
- Press (  ) or (  ) to scroll through the time, in increments of 30 minutes for a time period between 0.5h to 24h. Once a selection is made, press the light button (  ) to save.
- Press (  ) to exit and return to the water care menu. Press (  ) return to the main menu.



### B. Programming the filter cycles for all modes

**Note:** Beginner mode is the only option that has two filtration programs. Pressing (  ) will exit the menu and return to the Water Care Menu at any time.

- Press the light button (  ) to select the beginner water care mode, (  ).
- Press (  ) to enter the programming for that cycle.
- Press the light button (  ) to select the day option, 

Day	Every day
-----	-----------

.
- Press (  ) or (  ) to scroll through - Every Day, Sun, Mon, Tue, Wed, Thu, Fri, Sat, Mon-Fri, or Weekend. Once a selection is made, press the light button (  ) to save and move down to program the start time, 

Start	12:00am
-------	---------

.
- Press (  ) or (  ) to scroll through the time, in increments of 30 minutes. Once a selection is made, press the light button (  ) to save and move down to program the duration time, 

Duration	2.0h
----------	------

.



- Press (▲) or (▼) to scroll through the time, in increments of 30 minutes for a time period between 0.5h to 24h. Once a selection is made, press the light button (☀) to save.
- Press (▼) to move down and program the second filtration cycle. Follow the steps above to program.
- Press (⚙) to exit and return to the water care menu. Press (⚙) return to the main menu.



## 14.4 Music Menu

Models equipped with the optional audio system offer an enhanced hot tub experience. The Bluetooth® Stereo System works with most Bluetooth wireless devices and provides access to local FM stations. These models also include four hot tub engineered speakers for unsurpassed sound quality and long-life, and an integrated subwoofer for a superb acoustical sound.

### Note:

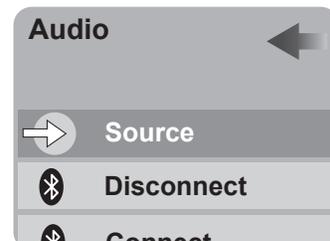
- The Auxiliary and USB features are not available.
- If the hot tub does not have the stereo option, there will not be a button on the control panel.



**WARNING: RISK OF ELECTRICAL SHOCK HAZARD EXISTS AND EQUIPMENT DAMAGE!** Never install or remove electrical devices while hands are wet or while sitting partially immersed or fully immersed in hot tub!

### Audio Submenu

To enter the submenu, press (⚙) to enter the settings menu. Press (▼) to move down and select the audio submenu. Press (☀) to select and enter the audio menu.



= **Light Button:** Press to select one of the audio settings.



= **Up or Down Button:** Use to scroll through all the audio options from Source, Disconnect, Connect, Fader, Balance, Sub, and Power. Make sure to turn power ON to start using the stereo, page 39. Go to the bottom of the Audio menu and select the power tab  Power by pressing (☀).



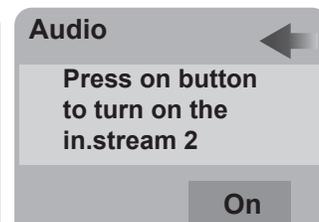
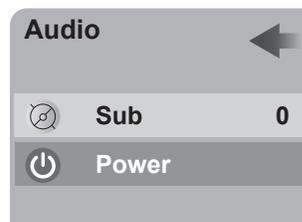
= **Jets Pump 1 Button:** Press to exit and return to the previous screen.



= **Settings Button:** Press to exit and return to the main menu.

### Turning the stereo ON

- From the Audio Submenu, use the up/down buttons to select the "Power" tab  Power. Tap (☀) to enter the menu.
- Press (⚙) to turn the stereo ON.



## Executive Series

### Turning the stereo OFF

- From the Audio Submenu, use the up/down buttons to select the "Power" tab  **Power**. Tap (  ) to enter the menu.
- Press (  ) to turn the stereo OFF.



### A. Source Options

From the Audio submenu, make sure that the Source tab  **Source** is the selected. If not use the up/down buttons to navigate to it. Press (  ) to enter the source options.



= **Light Button:** Press to select one of the source options.



= **Up or Down Button:** Use to select either the Bluetooth or FM option.



= **Settings Button:** Press to exit and return to the main menu.

### 1. Bluetooth Operation

From the Source submenu, make sure that the "Bluetooth" tab  **Bluetooth** is the selected. If not use the up/down buttons to navigate to it. Press (  ) to enter the Bluetooth options.

**Note:** Range for the Bluetooth device is approximately 30 ft.

Artist Information

= **Track Information:** Will display the track, artist and album information, if it is available.



= **Light Button:** Press to play or pause.



= **Jets Pump 1 Button:** Press to fast forward tracks.



= **Jets Pump 2 Button:** Press to rewind tracks.



= **Up or Down Button:** Use to control the volume level from 0 to 40.



= **Settings Button:** Press to exit and return to the main menu.



### 2. FM Radio Option

From the Source submenu, make sure that the "FM" tab  **FM** is the selected. If not use the up/down buttons to navigate to it. Press (  ) to enter the FM radio options.



= **Jets Pump 1 Button:** Press to seek forward for stations.



= **Jets Pump 2 Button:** Press to seek backwards for stations.



= **Up or Down Button:** Use to control the volume level.

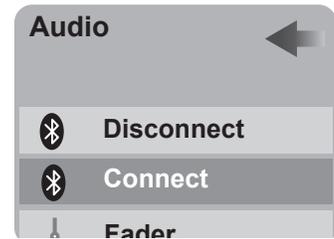


= **Settings Button:** Press to exit and return to the main menu.

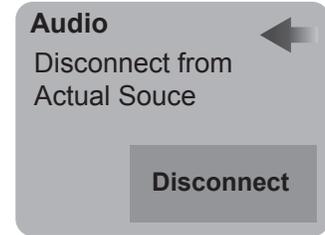


**B. Connecting and Disconnecting your Bluetooth® Device**

- To pair your Bluetooth device to the Bluetooth Stereo System, follow these steps:
  1. From the Audio Submenu, use the up/down buttons to select the “Connect” tab  **Connect** . Press (  ) to select start the connection.
  2. From your Bluetooth device, make sure that the Bluetooth setting is ON.
  3. Follow the pairing instructions for your Bluetooth device and connect to the “in.stream 2” device that appears on your screen.
  4. If asked for a pin code, enter the code “5555” and then connect.
  5. If the pairing process is successful, your Bluetooth device will show “Connected.”

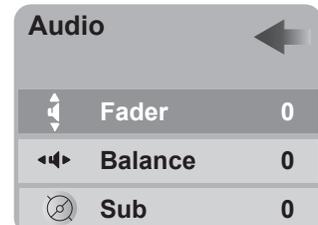


- To disconnect your Bluetooth device, follow these steps:
  1. From the Audio Submenu, use the up/down buttons to select the “Disconnect” tab  **Disconnect** . Press (  ) to enter the submenu.
  2. The display will show the disconnect menu. Press (  ) to disconnect. Press (  ) to exit the menu if you choose not to disconnect.



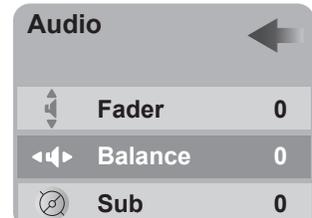
**C. Adjusting the Fader Setting**

1. From the Audio Submenu, use the up/down buttons to select the “Fader” tab  **Fader** 0 . Press (  ) to adjust the fade. The tab will change to  **Fader** 0 .
2. Use the up/down buttons to adjust from -10 to 10.
3. Press (  ) to save changes.
4. Use the up/down buttons to move to the next selection.



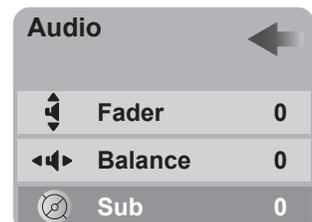
**D. Adjusting the Balance Setting**

1. From the Audio Submenu, use the up/down buttons to select the “Balance” tab  **Balance** 0 . Press (  ) to adjust the fade. The tab will change to  **Balance** 0 .
2. Use the up/down buttons to adjust from -10 to 10.
3. Press (  ) to save changes.
4. Use the up/down buttons to move to the next selection.



**E. Adjusting the Subwoofer Setting**

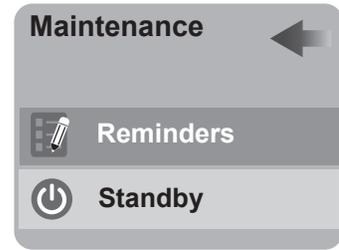
1. From the Audio Submenu, use the up/down buttons to select the “Sub” tab  **Sub** 0 . Press (  ) to adjust the fade. The tab will change to  **Sub** 0 .
2. Use the up/down buttons to adjust from -10 to 10.
3. Press (  ) to save changes.
4. Use the up/down buttons to move to the next selection.



Executive Series

### 14.5 Maintenance Menu

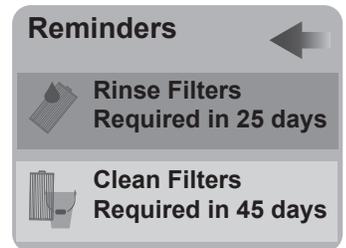
Scheduled maintenance will keep your hot tub working at an optimal level. To help you accomplish this, reminders can be set to stay on track. From the Settings menu, use the up/down buttons to select the “Maintenance” tab  press (  ) to enter the submenu. To make changes, press (  ) again to enter the reminders or standby options.



-  Reminders > = **Reminders:** Maintenance reminders that will countdown to remind you to either clean or replace certain components.
-  Standby > = **Standby:** A setting that will turn off all pumps for service. To return to normal operation, just cancel the function. This setting will time out in 30 minutes.

#### Reminders

-  = **Rinse filter:** A 30-day reminder to rinse the filters.
-  = **Clean filter:** A 60-day reminder to soak the filters in a cleaning solution.
-  = **Change water:** A 120-day reminder to change out the hot tub water.
-  = **Spa check:** A 730-day reminder to have a general check up performed.

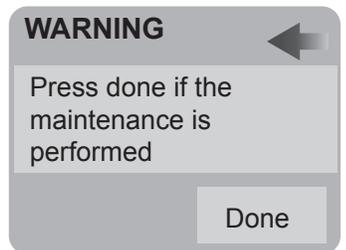


#### Resetting the timer for the reminders

Once a timer has expired, a message will appear on the main menu. Make sure to preform the action required to maintain your hot tub at an optimum level. To reset the timer follow the steps below.

**Note:** Pressing (  ) will exit the menu and return to the Water Care Menu at any time.

1. While in the reminder options, select the tab that needs to be reset (  ). Use the up/down buttons to navigate through the options. Press (  ) to enter the reset option for that tab.
2. The menu will change to a warning message. If the task has been performed, press (  ) to select done and reset the timer. If not, press (  ) to exit the menu and return to the reminders menu.

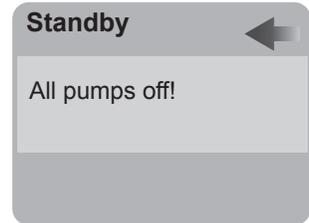


### Standby

This feature turns the pumps OFF to perform routine maintenance such as cleaning the filters. This feature will timeout in 30 minutes. During the 30 minutes the display will remain in the Standby option.

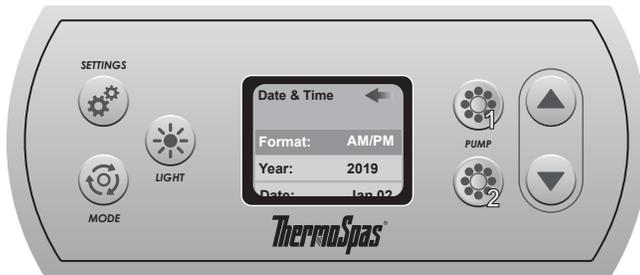
**Note:** Do not exit this menu, doing so will cancel the Standby mode and allow the pumps to be activated.

1. From the maintenance menu, press (  ) to navigate to the “Standby” tab, .
2. Press (  ) to enter the submenu. A screen will display “All pumps off!”.
3. Press (  ) to exit the menu and return to the Maintenance Menu.

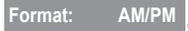


## 14.6 Date and Time Menu

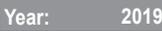
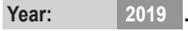
Programming the date and time is a simple and fast process. From the settings menu, use the up/down buttons to select the “Date & Time” tab . Press (  ) to enter the submenu.



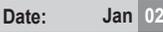
### A. Selecting the time format

1. While in the Date & Time options, use the up/down buttons to navigate through the options and select the “Format” tab, .
2. Press (  ) to enter the format option, .
3. Use the up/down buttons to navigate through the options,  or .
4. Press (  ) to save your selection.
5. Press (  ) to exit the menu and return to the Date & Time Menu.

### B. Selecting the year

1. While in the Date & Time options, press (  ) to navigate to the year tab, .
2. Press (  ) to enter the year option, .
3. Use the up/down buttons to navigate through the years.
4. Press (  ) to save your selection.
5. Press (  ) to exit the menu and return to the Date & Time Menu.

### C. Selecting the date

1. While in the Date & Time options, press (  ) to navigate to the date tab, .
2. Press (  ) to enter the month option, . Use the up/down buttons to navigate through the months.
3. Press (  ) to enter the day option, . Use the up/down buttons to navigate through the days.
4. Press (  ) to save your selection.
5. Press (  ) to exit the menu and return to the Date & Time Menu.

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### D. Selecting the time

1. While in the Date & Time options, press (  ) to navigate to the time tab, Time: 10:35 AM.
2. Press (  ) to enter the hour option, Time: 10:35 AM. Use the up/down buttons to navigate through the hours.
3. Press (  ) to enter the minutes option, Time: 10:35 AM. Use the up/down buttons to navigate through the minutes.
4. Press (  ) to enter the AM/PM option, Time: 10:35 AM. Use the up/down buttons to switch between AM or PM.
5. Press (  ) to save your selection.
6. Press (  ) twice to exit the menu and return to the Settings Menu.

## 14.7 Keypad Menu

From the settings menu, use the up/down buttons to select the “Keypad” tab Keypad. Press (  ) to enter the submenu.

**Note:** The lock feature is not available.



### A. Selecting the temperature display

1. When you enter the submenu, the temperature display tab is selected, °C °F.
2. Press (  ) to enter and change the option, °C °F.
3. Use the up/down switch between °C or °F.
4. Press (  ) to save your selection.
5. Press (  ) to exit the menu and return to the Keypad Menu.

### B. Selecting the language

1. While in the Keypad options, press (  ) to navigate to the language tab, English.
2. Press (  ) to enter and change the option, English.
3. Use the up/down to scroll through all the language.
4. Press (  ) to save your selection.
5. Press (  ) to exit the menu and return to the Keypad Menu.

### C. Selecting the orientation of the display

1. While in the Keypad options, press (  ) to navigate to the normal tab, Normal.
2. Press (  ) to enter and change the option, Normal.
3. Use the up/down switch between a normal or inverted screen display.
4. Press (  ) to save your selection.
5. Press (  ) to exit the menu and return to the Keypad Menu.

## 14.8 Electrical Configuration Menu

The electric configuration menu is a feature that should only be access by a qualified technician.

**Note:** **Do not** make any changes to the configuration once the hot tub has been installed and running. Contact ThermoSpas if you have any questions.

## 15.0 Basic Spa Maintenance

Keeping your spa operating for maximum enjoyment requires a simple maintenance routine. Following the procedures below at the recommended intervals will insure that your spa provides years of service. If you have any questions concerning the maintenance of your spa please contact ThermoSpas' Customer Care department at 800-876-0158.

Cleaning and chemical products for your spa can be purchase at ThermoSpas' online store at [online.ThermoSpas.com](http://online.ThermoSpas.com).

Item	Frequency
Water level and Condition Of Spa	Daily
Cover	Daily
Spa Temperature	Daily
Foreign Objects or Debris in Spa	Daily
Clean Shell Above Water Line	Weekly
Clean Filter(s)	3 weeks Max. and at each drain & refill
Drain and Refill Spa	4 months Max.
Flush and Clean Lines	Each Drain & Refill
Clean the Spa Cover	Monthly
Clean and Protect Cabinet	As recommended

1. Daily Maintenance
  - Check for leaks by walking around the spa and looking at the base of the cabinet for signs of water.
  - Be sure the spa cover is in place and tied down to the spa.
  - Check spa temperature.
  - Look for any signs of external damage to the spa and spa cover.
  - Remove any foreign objects or debris that may have fallen into the spa.
2. Check Sanitizer Level
  - Check sanitizer level and adjust as necessary, two to three times a week.
3. Weekly Maintenance
  - Add Stain and Scale.
  - Add Protection Plus or Natural and Clean.
  - Shock Spa.
4. Scheduled Maintenance
  - A. Clean the shell above the water line with ThermoSpas All Purpose Cleaner once a week.
    - All Purpose Cleaner will not alter the water chemistry, or scratch the acrylic shell.
    - ThermoSpas does not recommend the use of household cleaners on the spa shell. Most will alter the water chemistry and some contain abrasives that will scratch and dull the spa shell.
    - The Scum Mitt offered by ThermoSpas is ideal for use with the All Purpose Cleaner.
  - B. Clean the spa filter(s) at least every 1-3 weeks depending upon usage.
    - Follow the cleaning process outlined in this manual.
    - If the spa is used heavily the filters should be cleaned at more frequent intervals.
    - Having a second set of filters on hand is strongly recommended as they greatly reduce the down time the spa requires for filter maintenance.

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- C. Drain and refill the spa every 3 to 4 months
- Follow the drain and refill procedures in this manual.
  - Each time the spa is drained and refilled the lines should be flushed and cleaned. Follow the procedure outlined in this manual.
  - It is recommended the entire shell surface be cleaned and protected each time the spa is drained and refilled. Use ThermoSpas All Purpose Cleaner and ThermoGloss as outlined in the procedure in this manual.
  - The filter(s) should be cleaned with each drain and refill.
  - Spas that are used heavily will require more frequent drain and refill cycles.
  - Conditioning the Cover Monthly.
  - The cover should be thoroughly cleaned and conditioned once a month using ThermoSpas Cover Conditioner.
  - Cleaning and Protecting the Cabinet.
  - Cabinets constructed of ThermoBoard require hosing and wiping down once or twice a year.

Cleaning and chemical products for your spa can be purchase at ThermoSpas' online store at [online.ThermoSpas.com](http://online.ThermoSpas.com).

## 16.0 Changing/Cleaning Filters

We strongly recommend that you clean the filter every one to three weeks depending on how often your spa is used. Just because a filter is dirty does not mean it needs to be replaced. Filters that are cleaned regularly can last up to 12 months. To determine whether your filter needs replacing look within the pleats of the filter inspecting for any build up of grime and dirt particles after cleaning. If dirt particles remain the filter should be replaced. Filters are not designed to last more than 12 months. We recommend using ThermoSpas Filter Clean to clean the filter(s) in your spa.

**Note:** Some ThermoSpas spas use two or more filters.



### **DANGER: RISK OF SEVERE INJURY OR DROWNING BY ENTRAPMENT!**

- Keep hair, loose articles of clothing or hanging jewelry away from suction fittings, rotating jets or other moving components to avoid entrapment that could lead to drowning or severe injury.
- Never use the spa unless all suction guards, filter, filter lid, or skimmer assembly are installed to prevent body and/or hair entrapment.
- Never operate or use the spa if the filter, filter lid, or skimmer assembly are broken or any part of the skimmer assembly is missing. Please contact your dealer or nearest service center for service.
- The suction fittings and suction covers in this spa are sized to match the specific water flow created by the pump(s). If it is necessary to replace the suction fittings, suction covers or pump(s), be sure that the flow rates are compatible and are in compliance with the VGB Safety Act.
- Never replace a suction fitting or suction cover with one rated less than the flow rate marked on the original suction fitting. Using improper suction fittings or suction covers can create a body or hair suction entrapment hazard that may lead to drowning or severe injury.
- Owners must alert all spa users to the potential risk of Hair, Limb, Body, Evisceration (disembowelment) and Mechanical Entrapment.

## Cleaning The Filter

**DANGER: TURN POWER TO SPA OFF! TO DECREASE RISK OF DEATH, DROWNING, OR ENTRAPMENT, NEVER OPERATE SPA WHEN FILTER IS NOT PROPERLY INSTALLED OR IF SKIMMER ASSEMBLY IS DAMAGED OR ALTERED!**

During filtration and automatic cycles, water flows through the spa skimmer and into the filter cartridge(s) to trap suspended particles and oils on their surface pleats. To ensure optimum performance, it is necessary to remove and clean the filter cartridge(s) once a month or sooner depending on spa use and water quality.

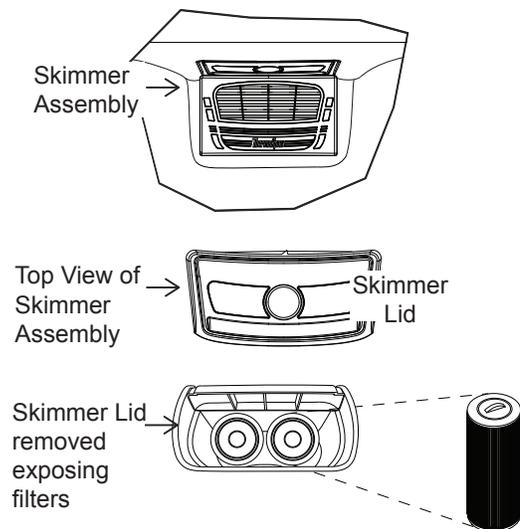
Cleaning products for your spa can be purchase at ThermoSpas' online store at [online.ThermoSpas.com](http://online.ThermoSpas.com).

### Easy Top-Access Filter Cleaning Procedure (Do not use a pressure washer):

1. **TURN POWER TO SPA OFF!**
2. Remove filter lid by pulling it upward.
3. Remove filter cartridges by grasping top filter handle and unscrewing it from the fitting.
4. Clean filter cartridges by first filling the bucket with water, adding 8 oz. of ThermoSpas Filter Clean. Mix solution by moving filter cartridges up and down several times. For best results, allow filters to soak for 12 to 24 hours (never less than 3).
5. After soaking, remove filter and rinse out any remaining debris. You can do this using a garden hose with high-pressure nozzle. After rinsing, allow filters to air dry.

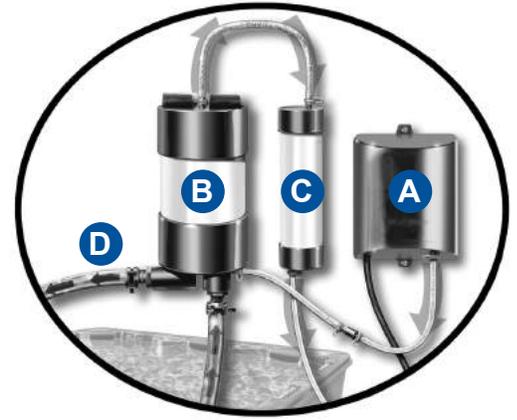
**Note:** If you are experiencing calcium deposits on your filter, (a white, chalk-like substance), you may need to soak your cartridge in "Filter Clean" for an extended period of time. Calcium deposits are an indication of very hard water. For instructions on what to do if your water is unusually hard, please refer to the Chemical Care Guide that comes with your hot tub. If you are still experiencing problems, contact the ThermoSpas Customer Care Department at 800.876.0158.

6. To install cartridges, grasp top filter handle and screw the filter back onto fittings.



## 17.0 Spas with ThermOzone

ThermOzone accomplishes water sanitation by using a powerful oxidant, Ozone. This 100% organic compound reacts with and destroys bacteria, mold, fungus, etc. Through a proprietary process, ozone effectiveness and air quality are maximized to provide optimal sanitation of your spa.



### Components

- A Ozone Generator** : Using Corona discharge technology, the Ozone generator delivers 250 mg of Ozone per hour to the Mixing Vessel.
- B Mixing Vessel** : Using Venturi action, the Mixing Vessel pulls ozone from the Generator and mixes it with Spa water fed from the circulation pump. This is where the sanitation occurs. An overflow tube feeds unused ozone to the carbon filter but an internal valve keeps water from entering the carbon filter. Treated water is sent back to the spa via the ozone jet.
- C Carbon Filter** : Any excess ozone is passed through the Carbon Filter and is neutralized of its oxidation effectiveness, releasing harmless oxygen underneath your cabinet.
- D Ozone Jet** : A special laser jet provides a return back to the spa for the treated water, reference page 17 for location.

### Operation

In spas equipped with a circulation pump, the ThermOzone system is active any time the circulation pump is running.

### Chemical Usage

1. Spas that have ThermOzone installed should maintain a 1.0-3.0 ppm Chlorine level or a 1.0-3.0 ppm Bromine Level.
2. Depending on your usage, and if your water is clear, you can continue to reduce the amount of chemicals you are using by trying to add sanitizer on a once weekly schedule, and performing the rest of your weekly maintenance (Stain and Scale, Natural and Clear etc...) on a bi-weekly basis.  
**Note:** Chemicals must be maintained at a proper level. Take into consideration how often the hot tub is used and the number users.
3. For ThermOzone to work more efficiently, please remember to clean your filters weekly. Make sure you go no longer than one month between filter cleanings.

**Note:** If water becomes cloudy, please resume all chemical maintenance on a regular weekly basis. If your usage increases, you may have to add an additional sanitizer treatment in the middle of the week.

## 18.0 Drain and Refill

Drain and refill the spa at least every 4 months. It is recommended that the plumbing lines be flushed and cleaned each time the spa is drained, page 50.

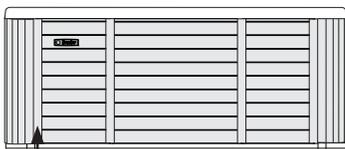
**Note:** This is also an excellent time to change and clean the spa's filter(s).

1. **Turn the spa circuit breaker off.**
2. **Standard Cabinet:** Remove the trim pieces from the left corner. Remove the left corner and place it in a safe location.  
**Deluxe Cabinet:** Grab one of the corner panels, from the bottom, where it touches the bottom pan. Then gently pull the panel forward to unsnap it from the holding clip then pull down to remove. Place the panel in a safe location to prevent from damaging it.
3. Pull back the ThermoFoil to expose the foam inserts.
4. Gently pull out the foam inserts to expose the equipment bay.
5. Locate the drain valve. Normally the drain valve will be attached to a 2 x 6 wood slat with tie wraps. Cut the wraps and gently pull the drain valve from the equipment bay.
6. Hold the drain hose above the water line, then unthread the drain cap from the hose. Place the drain valve and hose on the ground to direct the water away from the spa.
7. Turn the flow valve to the open position to allow the spa to start draining. Use a foam sponge, mop, or wet/dry vacuum to remove any remaining water left in the bottom of the spa footwell or in seating areas.

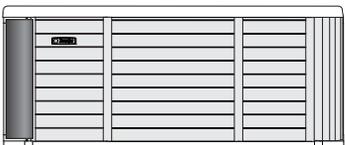
**Note:** You can use a submersible pump.

8. Completely dry the shell surface with a soft, clean cloth.
9. Clean the shell surface of any debris or mildew using ThermoGloss and ThermoSpas' All Purpose Cleaner.
10. Once you have completed all task above, make sure the drain valve is in the "OFF" position and reinstall the drain cap. Place the drain valve back in the equipment bay. Reinstall the foam inserts, ThermoFoil, skirt panel and trim.
11. You are now ready to refill the spa.
12. Periodic visual inspection must be made to detect any leaks within the cabinet.

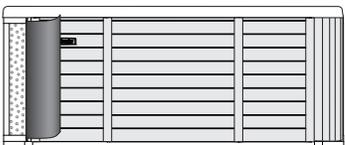
### Standard Cabinet



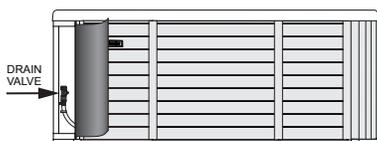
Trim piece



Left corner panel removed



ThermoFoil folded back to reveal foam inserts



Foam inserts removed

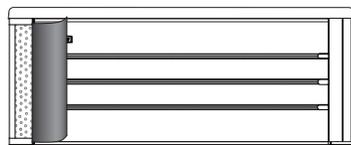
### Deluxe Cabinet



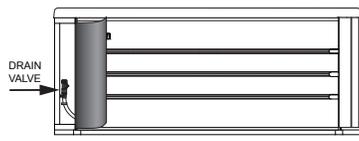
Unclip left corner panel



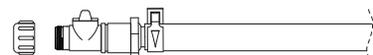
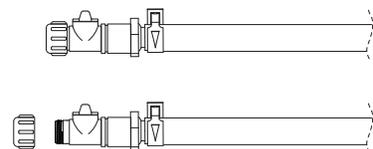
Left corner panel removed



ThermoFoil folded back to reveal foam inserts



Foam inserts removed



Drain valve

## 19.0 Cleaning the Cover

While your vinyl cover is made to withstand the elements, it is important to care for it by keeping it clean at all times. Many contaminants may stain the vinyl if left on over a period of time. Remove stains immediately!

### Conditioning the Cover

Conditioning the spa cover monthly will prolong its life. We recommend using ThermoSpas Cover Conditioner. It helps keep vinyl from hardening and cracking, and is especially effective for covers exposed to harsh outdoor elements like the sun's ultra-violet rays, snow, and sleet. Cover Conditioner should only be used on the topside of the cover. To clean the underside of the cover simply use a garden hose and a 2:1 mix of water and vinegar. You can use bleach, simply spray and clean the underside and rinse thoroughly. Allow cover to dry.

**Note:** Do not use petroleum-based vinyl cleaning products because they may be harmful to the cover and will void its warranty.

1. Apply ThermoSpas Cover Conditioner full strength with a damp sponge or soft brush, make sure to use gloves.
2. Leave the conditioner on the cover for three minutes. Areas with excessive dirt or residue build-up may need extra scrubbing.
3. Wipe the cover clean with a damp sponge or cloth.
4. Rinse the cover with water.

Cleaning products for your spa can be purchase at ThermoSpas' online store at [online.ThermoSpas.com](http://online.ThermoSpas.com).

## 20.0 Flushing Lines

There are many plumbing lines in a spa. No matter how clean you keep the water, chemicals clean only the water, not the plumbing lines. Bacteria and mildew-attracting scum can accumulate in the vast number of spa plumbing lines and fittings. You need to flush and clean them to prolong the life of your spa and keep it running smoothly.

Flushing and cleaning needs to be done every 6 months to one year, or if you notice a film developing around the spa fittings. You should perform this procedure just before you drain your spa. We recommend using ThermoSpas Jet Line Cleaner to dissolve the build up of body oils, dirt, hair, soap, scum, rust and mineral deposits which are the perfect breeding ground for bacteria and mold.

**Note:** Some residual foaming may occur, if so, use ThermoSpas Foam Away to suppress foam.

1. Remove filter(s) and clean.
2. Before spa is drained, empty contents (16 fl. oz.) of ThermoSpas Jet Line Cleaner in to warm spa water.
3. Turn pump(s) "on" and run jets for 15 minutes. (Ensure filter is not in spa and cover is closed.)
4. Turn pump(s) and jets "off" and let sit for 1 hour.
5. Turn pump(s) "on" and run jets and blower for 15 minutes.
6. Drain the spa, hosing off the inside walls while draining.
7. Proceed to clean the spa shell as instructed in the "Drain and Refill" section, page 49.

Cleaning products for your spa can be purchase at ThermoSpas' online store at [online.ThermoSpas.com](http://online.ThermoSpas.com).

## 21.0 Shell Surface Cleaning

### Cleaning Above the Water Line

The perfect product for cleaning the shell surface above the water line (when the spa is filled) is ThermoSpas All Purpose Cleaner. This helps to prevent a scum line from forming. Because it is a natural enzyme, it will not affect the water's chemistry, it's safe to use, it won't scratch the acrylic, and it helps to eliminate mold or mildew odors without bleaching the surface.

**Note:** Beware of using products such as Windex, as they will alter the water's chemistry; or other abrasive cleansers that can scratch the acrylic surface.

1. Spray the exposed surface area of the shell above the waterline with All Purpose Cleaner. This will not affect the water chemistry.
2. Wait a few minutes and then simply wipe away the grime with a soft cloth or damp sponge. For heavily soiled areas, spray generously, wait five minutes and scrub with a two-textured sponge. ThermoSpas offers an accessory called the Scum Mitt, which is perfect for this use.

### Deep Cleaning the Entire Shell Surface

Anytime the spa is drained and dry, we recommend two products when cleaning the entire shell surface: ThermoGloss and All Purpose Cleaner. ThermoGloss helps create a hard, durable, protective coating on the shell that seals the surface and hides scratches in the acrylic. All Purpose Cleaner is ideal for ridding the surface of any dry residue.

**Note:** Do not use car wax of any kind.

1. Remove any scum lines using All Purpose Cleaner.
2. Shake ThermoGloss well before using and apply only on the shell surface. The surface should be completely dry upon application.
3. Spread evenly using an overlapping circular motion.
4. Allow the ThermoGloss to dry, spray All Purpose Cleaner on the dry residue left by the ThermoGloss, and wipe the shell surface clean with a dry, soft cloth.

Cleaning products for your spa can be purchase at ThermoSpas' online store at [online.ThermoSpas.com](http://online.ThermoSpas.com).

## 22.0 Winterizing (Closing Your Spa)

If you do not plan to use your spa during freezing weather, you will have to winterize it. Failure to winterize your spa will cause irreversible damage (in freezing temperatures) to the pump and plumbing lines.

Winterization of your spa is easy. Follow the steps below each time you drain the water from your spa in freezing temperatures to prevent serious damage from occurring to your spa:

1. **Turn the spa circuit breaker off.**
2. Open all therapy control valves and all jets, page 21.
3. Drain your spa, page 49. You can use a submersible pump.
4. Remove the cabinet panel(s) in front of the spa's equipment compartment.
5. Open the drain valve to drain any remaining water and leave open afterwards.
6. Locate the heater and open the heater unions at both ends by turning counter-clockwise, page 54.
7. Clear water from the water pump(s) suction and return lines using a canister-type wet vacuum. You **MUST** use a canister type wet vacuum in order to ensure that the lines are cleared of all remaining water.
8. Remove the drain plug(s) from all water pump(s), page 53.
9. Replace the drain plug(s) after all the water has drained.
10. Reconnect the heater unions on the heater at both ends by turning clockwise until they are tight. Make sure o-ring gaskets are sealed properly so as not to pinch o-rings. Do not over-tighten.
11. Put the cabinet panel in front of the equipment compartment back on.
12. Turn the spa circuit breaker on.
13. Briefly turn the blower, if equipped, ON to expel water from the plumbing and air channels.
14. Turn the spa circuit breaker off.
15. Use a wet vacuum at EACH fitting/jet/suctions to assist in removing any existing water in fittings, water lines and spa shell.
16. Sponge out remaining water from spa shell.
17. Clean the shell and remove any debris.
18. Clean the filter. Store the filter basket and filter(s) element indoors.
19. Install the insulated spa cover and check to ensure that rain water and/or snow is not entering the spa through the cover.
20. You must cover the spa with a tarp to keep water out while unit is down.
21. Remove snow load for longer cover life expectancy.

### Customer Responsibilities

Any spa is subject to freezing in cold weather. You must follow these procedures during a power failure or if the spa is not operating properly in order to prevent your spa from freezing. **Freezing is not covered under the warranty.**

**Note:** To assist with water circulation you can use a submersible pump. Place the pump in the footwell of the spa, facing upwards. (Do not attach water hose to the pump.) This creates a waterfall and keeps the water moving. Leave the pump running until the spa is repaired. Keep the spa covered and all panels on the unit. The submersible pump will also generate heat and protect the spa for a period of time.

### Preventative Maintenance

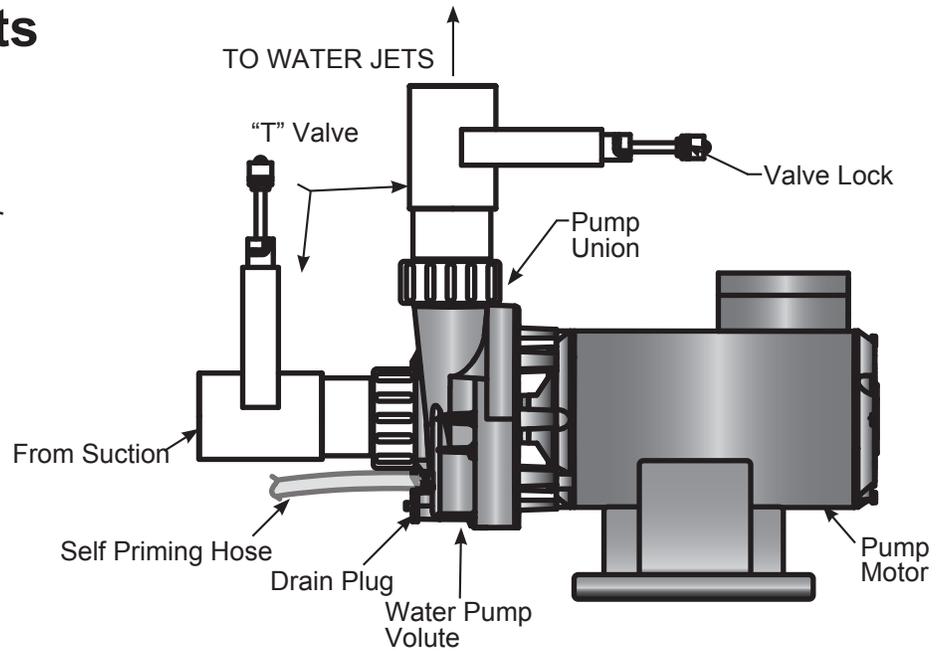
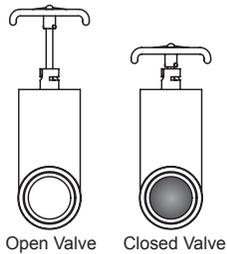
During the cold weather season, you should inspect your spa every day to ensure it is running properly. If you detect a problem and the temperature is dropping, contact the service department immediately during regular working hours. It is the customer's responsibility to follow the procedures listed above in order to prevent a freeze up.

**Note:** Spa should be covered with a tarp after closing process. Covering your spa with a tarp might protect and keep the spa from getting water into it as it sits dormant.

## 23.0 Components

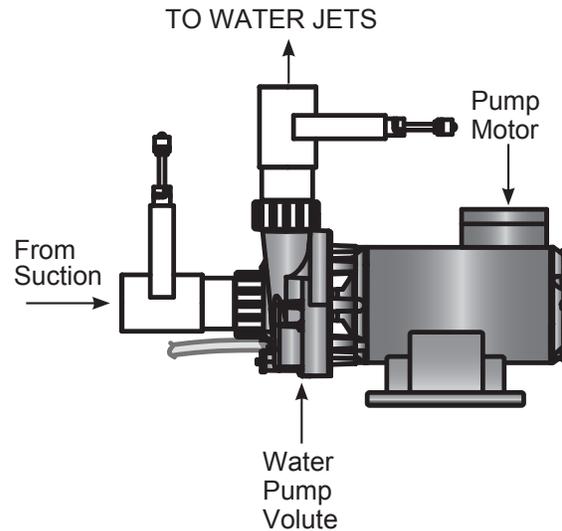
### Water Pump

NOTE: On some water pumps, pipes heading to water jets may be located on the top of the pump. However, the configuration of the hose, "T" valve, remains the same. Pump configuration vary by model.



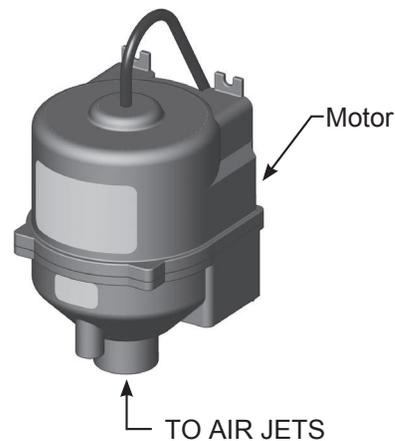
### Circulation/Filtration Pump

Manhattan II Spas are equipped with a circulation pump for continuous filtration. Pump configuration vary by model.



### Air Pump (Blower)

Manhattan II Series Spas are equipped with an air blower for the Bubbling System (not included with the Silver Models).

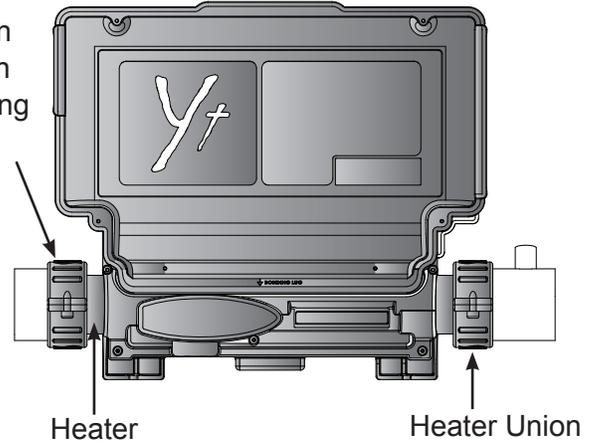


## Executive Series

### Spa Pack and Heater (Electronic Center of Spa)

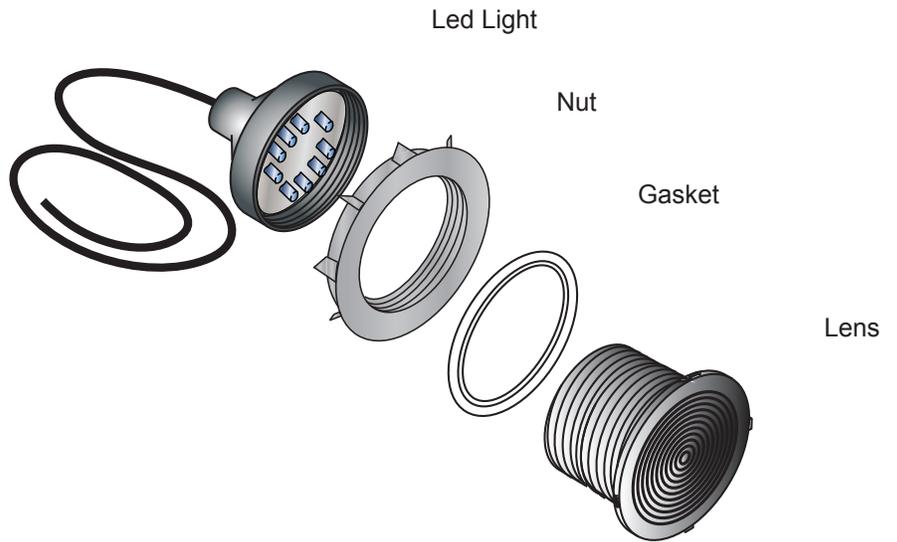
The Spa pack is normally behind the cabinet located underneath the topside control panel.

Heater Union  
(hand tighten  
only by turning  
clockwise)



### Spa Light Assembly

The LED light is attached to the light lens by screwing on to it. The light housing is accessible from underneath the skirt panel for ease of replacement.



## 24.0 Common Diagnostic Messages

Error Code	Meaning	Action
OH	Overheat - The spa water temperature has reached 108°F (42°C).	 <b>DO NOT ENTER THE WATER!</b> Remove the spa cover and allow water to cool. If spa does not reset, turn off the power to the spa and contact Thermo-Spas Service Department 800.876.0158.
HL	High Limit circuit has tripped?	If the problem persists, contact Thermo-Spas Service Department 800.876.0158.
ICE	A potential freeze condition exists. Activates when the temperature goes below 44°F (6.7°C)	No Action required. The pumps and blower will automatically activate to circulate the water regardless of spa status.
FLO	<u>FLO Condition</u> - Flow restriction.	Check filter, pump, blockage, air lock, and water level
FLC	The pressure switch is closed	If the problem persists, contact Thermo-Spas Service Department 800.876.0158.

## 25.0 Troubleshooting - Water Chemistry

Problem	Possible Cause	Solution
Cloudy Water	<ul style="list-style-type: none"> <li>• Dirty Filter</li> <li>• High TDS Levels</li> <li>• High pH or alkalinity</li> <li>• High calcium count</li> <li>• Dissolved solids</li> <li>• Dissolved solids</li> </ul>	<ul style="list-style-type: none"> <li>• Clean filter with filter cleaner</li> <li>• Drain and refill with fresh water</li> <li>• Check and adjust using pH/Alkalinity Down</li> <li>• Drain halfway and refill</li> <li>• Add clarifier to your water</li> <li>• Shock with sanitizer you currently use</li> </ul>
Brown Water	<ul style="list-style-type: none"> <li>• High mineral count</li> <li>• Low alkalinity level</li> <li>• Low sanitizer level</li> </ul>	<ul style="list-style-type: none"> <li>• Add "Stain &amp; Scale"</li> <li>• Test and add pH/Alkalinity Up</li> <li>• Test and add sanitizers</li> </ul>
Green Water	<ul style="list-style-type: none"> <li>• Algae growth</li> </ul>	<ul style="list-style-type: none"> <li>• Shock with sanitizer</li> </ul>
Yellow Water	<ul style="list-style-type: none"> <li>• Low pH</li> </ul>	<ul style="list-style-type: none"> <li>• Add pH Up</li> </ul>
White Scale Deposits	<ul style="list-style-type: none"> <li>• Low sanitizer level</li> </ul>	<ul style="list-style-type: none"> <li>• Test and add sanitizer</li> </ul>
Excessive Foaming	<ul style="list-style-type: none"> <li>• Soft water</li> <li>• High TDS level</li> <li>• High contaminant level</li> </ul>	<ul style="list-style-type: none"> <li>• Test and add "Liquid Calcium"</li> <li>• Drain and refill the hot tub</li> <li>• Add one capful of "Foam Away"</li> </ul>
Waterline Scum Ring	<ul style="list-style-type: none"> <li>• Inadequate filtration</li> <li>• High content of oils</li> </ul>	<ul style="list-style-type: none"> <li>• Check and clean filter(s)</li> <li>• Add "Natural and Clear"</li> </ul>
Pitting of Metal Fixtures	<ul style="list-style-type: none"> <li>• Low alkalinity or pH</li> </ul>	<ul style="list-style-type: none"> <li>• Check and add pH/Alkalinity Up</li> </ul>
Erratic pH Test Results	<ul style="list-style-type: none"> <li>• Low alkalinity</li> <li>• Sanitizer level too high</li> <li>• Old pH indicator strip</li> </ul>	<ul style="list-style-type: none"> <li>• Add pH/Alkalinity Up</li> <li>• Remove cover and turn on bubbling system</li> <li>• Check expiration date and replace</li> </ul>
Musty Odor	<ul style="list-style-type: none"> <li>• Bacteria/algae growth</li> </ul>	<ul style="list-style-type: none"> <li>• Shock the water with sanitizers</li> </ul>
Eye Irritation	<ul style="list-style-type: none"> <li>• Low pH level</li> <li>• Low sanitizer level</li> </ul>	<ul style="list-style-type: none"> <li>• Test and add pH/Alkalinity Up</li> <li>• Test and add sanitizer</li> </ul>
Skin Irritation	<ul style="list-style-type: none"> <li>• Low sanitizer level</li> <li>• Sanitizer irritation</li> <li>• Water temperature too high</li> <li>• Soaking too long</li> </ul>	<ul style="list-style-type: none"> <li>• Test and add sanitizer</li> <li>• After adding sanitizer always wait 20 minutes before entering hot tub</li> <li>• Reduce water temperature</li> <li>• Soak for shorter intervals</li> </ul>

## 26.0 Troubleshooting - Mechanical Systems

Problem	Possible Cause	Solution
Pump(s) will not start	<ul style="list-style-type: none"> <li>• “T” valve(s) not open</li> <li>• Pump(s) not primed</li> <li>• Frozen pump impeller</li> </ul>	<ul style="list-style-type: none"> <li>• Check both “T” valves on all pumps. Be sure valve is open by pulling up on handle until detent click is felt. Detent prevents valve from vibrating shut.</li> <li>• Open suction side pump union until water begins to trickle.</li> <li>• Use hairdryer to warm pump volute in area of drain plug. Keep hairdryer 6 inches from volute and heat using a side to side motion. Do not allow volute to become hot to the touch.</li> </ul>
Spa Pump(s) surging	<ul style="list-style-type: none"> <li>• Air being pulled through</li> <li>• Water level low</li> </ul>	<ul style="list-style-type: none"> <li>• If spa is equipped with a Skimmer basket, it should be all the way down. Door should move freely.</li> <li>• Fill spa to recommended level.</li> </ul>
No Water Pressure in Sections of the Spa	<ul style="list-style-type: none"> <li>• Water not being Diverted Correctly</li> <li>• Pump not on</li> <li>• Jets not Open</li> </ul>	<ul style="list-style-type: none"> <li>• Turn whirlpool jet or valve to divert water.</li> <li>• Turn on correct pump. Refer to “pump(s) will not start” (above) Water temperature is 3 or more above set temperature - wait to cool.</li> <li>• Turn jets counter-clockwise to open.</li> </ul>
Spa Not Heating (Heat Icon On)	<ul style="list-style-type: none"> <li>• Pump(s) not on</li> <li>• Closed T Valve open to allow water to go through it.</li> <li>• Spa maybe in Economy Mode (Icon/Bulb Not On)</li> <li>• Dirty Filters</li> <li>• Pump Malfunction</li> <li>• Inadequate Water Level</li> <li>• Heater Malfunction</li> </ul>	<ul style="list-style-type: none"> <li>• Refer to “pump(s) will not start” (above)</li> <li>• Lift “T” Valve up so it is all the way</li> <li>• Put spa in Standard mode.</li> <li>• Replace filters with clean or new filters.</li> <li>• Repair or replace pump.</li> <li>• Add water until it reaches proper level.</li> <li>• Replace heater.</li> </ul>
Circulation Pump Not Working	<ul style="list-style-type: none"> <li>• Water Temperature is 3° or more above set temperature.</li> </ul>	<ul style="list-style-type: none"> <li>• Open cover and wait for spa to cool. If spa is equipped with a blower, turn it on.</li> </ul>

## 27.0 Troubleshooting - Mechanical Systems

<b>Problem</b>	<b>Possible Cause</b>	<b>Solution</b>
"FLO" Appears on Control Panel or "FLO" flashes and alternates with Temperature	<ul style="list-style-type: none"> <li>• Pump(s) not running</li> <li>• Water level low</li> <li>• Pump Surging</li> <li>• Dirty or Clogged</li> </ul>	<ul style="list-style-type: none"> <li>• See "Pump(s) will not Start."</li> <li>• Fill spa to correct level.</li> <li>• See "Pump Surging" Section above.</li> <li>• Check filter installation Filters Clean filter(s), page 46.</li> </ul>
Breaker keeps tripping or will not Reset	<ul style="list-style-type: none"> <li>• Improperly wired ground</li> <li>• Spa Controller needs repair</li> <li>• Spa Heater needs repair</li> </ul>	<ul style="list-style-type: none"> <li>• Contact your electrician or ThermoSpas 800.876.0158.</li> <li>• Customer Care</li> </ul>
Spa Leaks	<ul style="list-style-type: none"> <li>• Loose union, drain valve open</li> <li>• Leaking Barb Fitting</li> <li>• Leaking Glue fitting</li> </ul>	<ul style="list-style-type: none"> <li>• Check and tighten all unions, close drain valve.</li> <li>• Check hose to barb connection. Clamp hose if required, call ThermoSpas for service 800.876.0158.</li> <li>• Call ThermoSpas for service 800.876.0158.</li> </ul>

## 28.0 Water Chemistry Maintenance

<b>Action</b>	<b>Frequency</b>
<p><b>1. Test and Balance Alkalinity:</b></p> <p>There are three products needed to test and balance alkalinity:</p> <ul style="list-style-type: none"> <li>• Test Strip: provides a reading on the alkalinity level;</li> <li>• pH/Alkalinity Up: raises the alkalinity level; and</li> <li>• pH/Alkalinity Down: lowers the alkalinity level</li> </ul> <p>The acceptable alkalinity level must range between 80-120 ppm (parts per million). Follow the Adjust Alkalinity/pH.</p>	<b>Bi-Weekly</b>
<p><b>2. Test and Balance pH</b></p> <p>There are three products needed to test and balance pH:</p> <ul style="list-style-type: none"> <li>• Test Strips: tests the pH level;</li> <li>• pH/Alkalinity Up: raises the pH level; and</li> <li>• pH/Alkalinity Down: lowers the pH level</li> </ul> <p>The acceptable pH level must range between 7.2 – 7.8. Do not enter your spa if the pH level is out of range, or you risk the possibility of skin and eye irritation.</p>	<b>Bi-Weekly</b>
<p><b>3. Test Total Dissolved Solids (TDS)</b></p> <p>Increases in Total Dissolved Solids will cause your sanitizer to become ineffective. Once TDS have reached a level of 3000 your water should be changed.</p> <ul style="list-style-type: none"> <li>• Use test strips to check level of TDS.</li> <li>• If the reading is 3,000 ppm or less, the spa requires no maintenance.</li> </ul>	<b>Monthly</b>
<p><b>4. Treatment of Minerals and Metals</b></p> <p>Control any staining or discoloring of the water caused by minerals. Using these chemicals help prevent scale from forming on the shell's surface and/or any corrosion occurring to the heater element.</p> <ul style="list-style-type: none"> <li>• Have your water tested for mineral content, send a water sample to ThermoSpas' Customer Care Department for a free analysis.</li> <li>• For weekly water maintenance add 1 oz. of "Stain and Scale."</li> </ul>	<b>Weekly</b>
<p><b>5. Treatment of Oils and Organics</b></p> <p>Bathers bring lotions, skin, hair and other organics into spas. Using a natural enzyme that breaks down and devours oils and other organics that sanitizers cannot destroy is essential to maintaining clear water. "Natural and Clear" immediately breaks down the organics by converting them into a gas before they can interfere with the sanitizers' performance. Because it dissolves the organics as opposed to coagulating the organics like most other clarifiers used by competitors, "Natural and Clear" helps rid the acrylic shell of the unsightly "scum line" above the water's surface.</p> <ul style="list-style-type: none"> <li>• For weekly water maintenance add 1/2 oz. of "Natural and Clear."</li> </ul>	<b>Weekly</b>
<p><b>6. Excessive Foaming</b></p> <p>To correct foaming caused by soap or other residues, use ThermoSpas "Foam Away." Make certain to shake container and disperse only ONE capful where foaming is occurring while water is circulating. Wait 30 minutes and repeat treatment if foaming continues. It is recommended to clean your filter within 24 hours of using "Foam Away." Using too much "Foam Away" will cloud your water, taking as much as 24 hours to dissipate. Add only 1 capful at a time and please be patient.</p>	<b>As Required</b>
<p><b>7. Cleaning Biofilm in your spa plumbing lines</b></p> <p>Over time biofilm can accumulate in your spas plumbing lines. Using ThermoSpas "Jet Line Cleaner" at least twice a year is recommended to ensure excessive growth of bacteria does not cause increased use of sanitizers.</p>	<b>Drain and Refill</b>

## 29.0 Glossary

**Activator (Potassium Monopersulfate)** - Also known as non-chlorine shock, it is a strong oxidizer capable of eliminating contaminants from your spa. It is a non-chlorine chemical compound often used for shock treatments in spas and pools. It is very popular for use in mineral purification systems.

**Algae** - Algae may form on your spa surfaces or it may bloom in suspension. We typically know algae to be green, but it may also be yellow (mustard algae), black, blue-green or any shade in between. It may form separate spots, or seem to grow in sheets. Pink algae, is not algae at all, but a form of bacteria. Algae are living, breathing organisms that need warmth, sunlight and CO<sub>2</sub> to thrive.

**Bather Load** - The number of individuals using a spa in a 24 hour period. This is the primary source of bacterial and organic contamination.

**Bromine Liquid Salts** - In 2-Part Bromine, a compound called sodium bromide (Liquid Salts) is first introduced into the water. Sodium bromide is NOT a sanitizer by itself. To work as a sanitizer the sodium bromide needs an oxidizer, such as monopersulfate, to activate it. The addition of an oxidizer sets the bromide in motion, turning the bromide into the killing form of bromine. After destroying bacteria, algae and other organisms, it can become bromide once again. The oxidizer shocks the water and off-gases the physical waste. Adding additional oxidizer can start the process all over, converting bromide into a sanitizer. This cycle can occur repeatedly.

### Bromine Liquid Salts Advantages

- Does not create an offensive odor
- Is pH neutral
- If tub is not in use, no chemicals need to be added for up to 1 week
- Considered the most effective Bromine system on the market

### Disadvantages

- Requires the use and knowledge of two separate chemicals
- Cannot be used with ThermoClear

**Bromine Tablets** - Bromine tablets are a combination of 70% bromide and 30% chlorine. Tablets are inserted into a dispenser that floats in the water providing continuous coverage. As the tablet dissolves, it releases the bromide and chlorine. The two work together immediately to produce bromine, the active chemical used in sanitation.

### Advantages

- Easy to use
- Scent of chlorine is reduced

### Disadvantages

- Bromine can potentially bleach out the shell's surface
- Odor of 30% chlorine still exists
- Tablets are not pH neutral
- Cannot be used with ThermoClear

**Calcium** - One of the principal elements making up the earth's crust; its compounds, when dissolved, make the water hard. The presence of calcium in water is a factor contributing to the formation of scale.

**Copper** - Copper in water is a common problem in many households. Copper is present due to the corrosion of plumbing materials from Acidic (low pH) or Aggressive water (low TDS). Common problems associated with copper due corrosion are leaks in the plumbing system or blue-green staining. High copper content can also cause some health concerns by effecting the stomach and intestines. The EPA has set a maximum contaminant level of 1.3 ppm.

**Disinfect** - To kill living organisms on contact. The difference between a disinfectant and a sanitizer is the “kill time”: a disinfectant kills 99.9% of living organisms instantly. Chlorine and bromine are the only two sanitizers classified as disinfectants.

**Enzymes** - Used in spa formulations designed to break down and digest oils similar to the way enzymes are used in oil spill clean-up efforts.

**Fill Water** - Used in filling or adding to the water level. Whether from the hose or from a well, your fill water brings its own chemical make up and water balance (or lack thereof).

**Filter** - A device used to remove particles suspended in the water by pumping water through a porous substance or material.

**Filter Cleaner** - A deep cleaning filter soak that includes a releasing agent to relax the filter media and allow dirt and grim to be dissolved and cleaned.

**Filter Media** - A pleated, porous synthetic fabric in filter cartridges, used to trap foreign matter. Filter cartridges must be cleaned regularly with filter cleaning compounds.

**Foam Away** - Excessive foaming is typically caused by swim wear used when bathing in a spa. Using a capful of “Foam Away” instantly reduces foam and will allow detergents to be filtered out of your water.

**Foaming** - A term used to describe surface foam on your water, especially in spas/hot tubs. Foaming is caused by high TDS levels working in combination with soft water and oils. Certain low grade algaecides can foam when added to the spa. Use enzymes for foam control.

**Iron** - An element often found discolored in ground water (in the form of ferrous iron) in concentrations usually ranging from zero to 10 ppm (mg/1). It is objectionable in water supplies because it can effect water taste and cause unsightly colors produced when iron reacts with tannins in beverages such as coffee and tea. Iron causes staining after oxidation and precipitation, as ferric hydroxide (yellow, brown, and red on clothing, dishes, fixtures, and bathroom tile). Iron can also be found in a bacterial form which will appear as black or brown slime and can effect the odor of your water. Iron is a common water problem throughout the United States, it can be found in well water and municipal water. The EPA has set a maximum level for Iron of 0.3 ppm in water, iron concentrations at this level or higher can cause staining.

**Jet Line Cleaner** - This anti-bacterial cleaner is added to spa water prior to draining and refilling. Left in the spa for an extended period (3 – 24 hrs), this cleaner will break down accumulated biofilm in spa plumbing. This product can also be used in jetted bath tubs.

**Manganese** - An element sometimes found in ground water, usually with dissolved iron but in lower concentrations. Manganese is a typical natural occurring mineral found in municipal and well water. Manganese effects the taste and the color of water. Manganese can also cause staining of clothes and dish ware and black stains and other problems similar to iron. The EPA has determined that concentrations greater than 0.05 ppm can cause these aesthetic problems.

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**Media** - The selected materials in a filter that form the barrier to the passage of certain suspended solids or dissolved molecules.

**Mineral Purification System (ThermoClear Cartridge)** - Mineral cartridges are placed in your filter core and release silver and copper ions into the spa water. These ions kill bacteria and virus's. Activator must be used to oxidize the organic material the silver and copper ions have killed. Very low levels of chlorine (0.5 ppm) or Bromine (1 ppm) are recommended as a safety precaution.

**Mineral Sanitizer** - A sanitation system that releases very low levels of silver ions into the water which assist in controlling bacteria 24 hours per day. ThermoClear cartridges trap bacteria that approach it's surface. Activator then assists in cremating (oxidizing) the dead bacteria within the cartridge. The cartridge should be placed in the filter area.

**Multi Purpose Cleaner** - An enzymatic cleanser used to clean scum lines and mineral deposits off the shell and cabinet surface. This cleanser is pH neutral and will not affect water chemistry. It should be used on a weekly basis and is also a good cleaner to prep your shell for a coating of Acrylic Gloss.

**Natural and Clear** - A natural enzyme used to devour oils and organic material (skin,hair etc..) left in the spa by bathers that cannot be burned off by oxidizers, sanitizers or disinfectants used in spa sanitation.

**Oxidize** - To destroy and burn off all the dirt and inorganic or dead organic matter in the water. A sanitizer can oxidize materials such as ammonia, nitrogen-containing contaminants and swimmer waste.

**Ozone** - is "active oxygen", nature's special molecule (an ozone molecule consists of three oxygen atoms). It is created in nature by the combination of oxygen in the air, and ultraviolet rays or by the electrical discharge during a lightning storm. Ozone is a natural purifier (meaning no harmful chemical by-products are created during purification), it has a clean, fresh scent noticed after a rainstorm. Ozone is the most powerful oxidizer that can be safely used in a spa and is the alternative water purifier to traditional spa chemicals such as chlorine and bromine. Because ozone is a disinfectant it will allow you to reduce your sanitizer usage. It is always recommended that a 1 – 3 ppm sanitizer level be maintained with any ozone system.

**pH** - The scale of relative acidity. Measurements are expressed in numbers from 0 - 14, with 7.0 being neutral. Acceptable spa ranges are 7.2 – 7.8

**pH Down** - Used to decrease both the pH and Alkalinity levels of your spa water

**pH Up** - Used to Increase both the pH and Alkalinity levels of your spa water.

**PPM** - Abbreviation for 'parts per million', the unit of measurement used in chemical testing which indicates the parts by weight in relation to one million parts by weight of water.

**Protection Plus** - A high powered metal sequestering agent used to keep mineral and metal deposits from forming on the shell. This product also adds a clarifier to screen the water of fine particulate unable to be caught by your filter.

**Safety Cover** - A spa cover which meets strict ASTM standards for strength, construction, and anchoring, which reduces the drowning risk to small children. (Our covers are built to the ASTM safety standard). Not all hot tub covers on the market meet this important rating.

**Sanitize** - Means to kill all bacteria, algae, disease-causing organisms, and any other uninvited guests. One important job of any sanitizer is to provide a sanitizer residual, a level of sanitizer that hangs around (resides) in the water for some period of time to destroy any living organisms as they are introduced into the hot tub.

**Scale** - Forms on surfaces in contact with water when the calcium hardness, pH or total alkalinity levels are too high. Scale may appear as gray, white or dark streaks. It may also appear as a hard crust around the tile.

**Sequestering Agent** - A sequestering agent ties-up minerals tightly in solution, preventing their precipitation, which colors the water and/or stains the spa. You can use Stain and Scale, Protection Plus and/or Natural and Clear.

**Shock** - This word is used two ways in the pool and spa industry. As a noun it loosely describes the products used in shocking, such as hypochlorites, potassium permonysulfate or hydrogen peroxide. As a verb it describes the act of bringing the sanitizer level up so high that breakpoint chlorination is reached. When breakpoint is reached, a “shock” or perhaps a “lightning bolt” is a better analogy, is sent through the water, tearing apart molecules and slashing through cell walls.

**Skimmer** - A surface skimmer is a plumbing fitting set at water level, containing a weir mechanism and a debris basket. The skimmer is part of the suction side circulation system.

**Skimmer Basket** - Beneath the lid, the basket strains debris, as the first line of defense in filtering the water.

**Sodium Bicarbonate** - Another base, however its properties will increase alkalinity more than pH. Used to raise total alkalinity levels.

**Sodium Bisulfate** - An granular form of acid, used to counteract a scaling condition by lowering pH and/or alkalinity.

**Spa Cover Conditioner** - This product is specially formulated for vinyl spa covers. It will not dry out vinyl as automobile cleaners might. “Spa Cover Conditioner” will deep clean your cover while providing a bright, durable shine that will inhibit harmful UV rays.

**Spa Fragrance** - Special perfumes designed to enhance the hot tub experience and overcome chemical odors. These are designed for spas, and will not alter water balance or clog filters.

**Stain and Scale** - A metal sequestering agent used to keep mineral and metal deposits from forming on spa equipment.

**Superchlorination** - Applying 7 - 10 times the normal amounts of chlorine to the spa as an added “boost” for contaminant removal. Some refer to superchlorinating as being less than shocking, in that breakpoint thresholds are not reached, or the terms may be used synonymously.

**Test Strips** - Easy-to-use dip strips for measuring the pH, total alkalinity and sanitizer levels of spa water. Strips are also available for testing water hardness and Total Dissolved Solid levels.

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**ThermoGloss** - This product is an acrylic gloss that provides a tough coating to protect your shell from scratches and scale build up. Designed for hot water environments, this product will not break down and cause problems in spa water.

**ThermOzone** - The only automatic ozonator with an EPA approved, built-in de-gasser tank that eliminates all offensive and potentially dangerous gases. This makes it safe to use while you're in your hot tub, and it is the only one recommended for indoor hot tub installations. ThermOzone produces eight times more ozone per hour than other ozonators, and it minimizes the creation of excess "off-gas" by using a Mixing Degas Vessel (MDV) to safely mix ozone into the water. Ozone only disinfects water while it is in contact with it, and the MDV provides an area where the ozone contacts the water for a longer period of time, making it more effective. If any excess off-gas is produced, ThermOzone eliminates it with a charcoal/carbon canister, safely converting the off-gas back into oxygen.

**Total Alkalinity** - The ability of the spa water to resist changes in pH. The "buffering" capacity of the water. Additions of Sodium Bicarbonate will increase the levels, expressed in ppm. Additions of Sodium Bisulfate decrease Alkalinity levels. Acceptable measurements range from 80 – 120.

**Total Dissolved Solids (TDS)** - Is a measurement of the total amount of minerals, residue, and other particles that cannot be oxidized from the water and remain. When water evaporates, dissolved salts, minerals, etc. are left behind. These levels of dissolved solids increase in the spa as water evaporates over time. Tubs that have a high TDS level means that the water is over saturated and cannot receive any more chemicals. TDS should never be higher than 3000 ppm. The water needs to be drained at this point, and the tub cleaned and refilled.

**Water Hardness** - A characteristic of natural water due to the presence of dissolved calcium and magnesium; water hardness is responsible for most scale formations. Hardness is usually expressed in parts per million. The ideal range for Water Hardness is 100-250 ppm, though 250-400 is acceptable. Soft water in spa will cause instant foaming and staining of water and shell. Water with low hardness is highly corrosive, causing significant damage to any metal. Water will dissolve other minerals rapidly until it gets to saturation point. Large, coarse soft-water scale will form as a result. Hardness levels can be brought up by using Liquid Calcium. Water that has hardness that is too high, can cause excessive scale formation. Water may also become cloudy or slightly discolored hardness levels can only be reduced by using an in-home water treatment system or removing water from the tub, and adding distilled water.

**Weir** - The device in a skimmer that controls the amount of water coming into the skimmer, and keeps debris inside, otherwise known as a "flapper-gate."

**Winterizing** - The procedure of preparing spas for freezing weather, in cold climates when the spa will not be operated. May include draining and cleaning the shell, and opening connections to release water from plumbing and heaters. Most people continue to heat and operate their spas in winter; for them, winterizing is not necessary if appropriate measures are taken to prevent freeze-up.

## 30.0 F.A.Q.s

Q: What happens if I don't change my ThermoClear cartridge in four months?

A: The ThermoClear cartridge will start to become ineffective after four months. So, along with having water that could potentially have a high TDS reading, prohibiting chemicals from being effective, you will have no method of sanitizing your water leading to potential health risks.

Q: Which is better to use on a weekly basis with ThermoClear: Spa Activator or Chlorine?

A: If you are not in any way allergic to Chlorine, then we strongly recommend using it. Chlorine has a higher ORP rating (oxidation reduction potential) which is the measure of oxidizing power. The oxidizing power is the ability to burn away organic matter. However, you must continue to use the Spa Activator each time you use your hot tub.

Q: What should I do if my dog or cat jumps into the hot tub?

A: Unfortunately animals in hot water produce over 50 times more bacteria than humans, because of this you have to drain and refill your spa.

Q: What happens if I put too much sanitizer into the water?

A: Too much Spa Activator can cause the skin to itch and potentially produce a skin rash. Over-shocking your water could potentially damage your hot tub cover, and this would not be covered in the warranty. Also, an excess of sanitizer might not produce any reading on your test strip because you have gone beyond its reading capabilities. This has led people to add more Spa Activator which can make matters worse.

Q: How can I reduce my sanitizer level?

A: There are two simple methods to reduce sanitizer levels:

1. Drain 1/2 of your water and refill the hot tub; or
2. Remove the cover and turn on the air bubbling system. Monitor the sanitizer level with test strips until the recommended level is achieved.

Q: Why does ThermoSpas recommend against the use of Biguanide or copper based algaecides in my spa?

A: There are two reasons:

1. Biguanide and copper based algaecide products may attack critical parts of the pumps and plumbing leading to premature failure of the spa.
2. Chlorine may not be used with Biguanide based sanitizers. Over time certain bacteria will develop a tolerance to Biguanide. When this occurs chlorination of the spa is the most effective means of destroying these bacteria. At this time, it is common for most spas to switch to a chlorine and/or bromine sanitizer.

Q: Can I change sanitizers?

A: The use of ThermoClear and Chlorine can be interchanged in the same spa water. All other sanitizers require the draining of the hot tub. We recommend the use of ThermoSpas' Jet Line Cleaner for cleaning out the lines.

Q: Why can't I use swimming pool chemicals?

A: A hot tub is dramatically different from a swimming pool because you are working with water that is both heated and also aerated. The ratios of people are also quite different. For example, four people in a hot tub is equivalent to 300 people in an average size pool. The heated water and higher bather load ratio can cause organic contaminants not found

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in swimming pools. Because of this, the chemical make-up of swimming pool chemicals is usually quite different from that of hot tub chemicals. One example is that swimming pool chemicals are not buffered so they can create havoc on the pH level of your hot tub water.

Q: Why are my pillows/headrests discolored or bleached out?

A: Headrests that are constantly submerged in spa water that is not properly treated with chemicals may discolor. However, even if you have been performing your water maintenance faithfully and correctly, the pillows will still naturally discolor over time. ThermoSpas does not provide warranty coverage for bleaching or discoloration of spa pillows.

Q: I have done everything I could and my water is still messed up.

A: ThermoSpas offers free computerized testing of your water. If you reach the point of having no luck with keeping your water in balance, and have tried draining and refilling your tub, you can send us a sample of your hot tub water for analysis. Please contact our customer care department 800.876.0158.

Q: What can I do if the pH in my spa is high (over 8.0) and will not come down?

A: Follow the steps below.

1. Turn on all pumps and add 1 ounce of ThermoSpas pH Down. Wait 15 minutes and retest the pH.
2. If the pH is still out of the acceptable range add 1/2 ounce of pH down and retest after 15 minutes. Pumps should continue to run.
3. If the pH reading is still high, Step 2 may be repeated an additional two times.
4. Upon completion of Step 3, if the pH is still high, contact ThermoSpas Customer Care Dept.

Q: Why do I need any chemicals if Ozonators work so well?

A: Ozone is a powerful oxidizer and is considered to be 25 times more effective and works 100 times faster than traditional sanitizers like Chlorine or Bromine. However, ozone only lasts about 20 minutes in a hot tub when the filtration pump shuts off. There are many contaminants (i.e. algae, ammonia, nitrogen laden compounds, and bather wastes) that are not controlled by ozone. Also, Ozonators have no effect on reducing the use of any other chemical but sanitizers. Proper chemical use is recommended, take into consideration the how often the hot tub is used and the number of bathers that use it.

Q: How do you prime a pump?

A: The best way to prime a pump is to put pump into high speed and loosen pump union just a little bit to let the air escape from pump then tighten the union back up.

Q: What do I do if I have FLO on display?

A: (FLO) First make sure filters are clean and seated properly. Make sure water level is to correct line on filter assay. Prime pump to free air pocket if any.

Q: How come 24-hour circulation pump turns on for 3 minutes then shuts off?

A: With the new addition of the 24-hour circulation pump they are set to turn on for 3 minutes then shut off once the spa goes over the desired set temperature to eliminate heat gain from pump.

Q: How do I change my filters if my pump circulation pump runs for 24 hours?

A: On some models of ThermoSpas it is almost impossible to change the filters while the pump is on so the spa must be put into standby mode or power turned off at the circuit breaker.

Q: What does O3 mean on the control panel?

A: O3 simply means if you have an ozonator in your spa it is on. If you do not have one and wish to order one or to have one installed please call the service department.

**NOTE:** If O3 doesn't show up on your control panel this doesn't mean your ozonator isn't working O3 shows up periodically and ozonator works even when light isn't on.

Q: I am going away on vacation, should I winterize?

A: Winterizing your spa while your on vacation is not only smart but it could save you operation cost. You won't have to have someone check it every 24 hours. Also, if the power goes out or spa freezes this will eliminate any freeze damage which isn't covered under any warranty.

**NOTE:** It is the customers responsibility to keep the spa from freezing. With the SmartTub feature you will be notified to a possible freeze condition.

Q: Why is my pump always running?

A: If your spa has a circulation pump it is set to run 24/7, unless the spa temperature goes 3 degrees above the set temperature. Another reason is heater malfunction, please contact the service department.

Q: How do I troubleshoot an instant tripping breaker?

A: The proper way to troubleshoot is first turn GFCI breaker off. Access spa pack and unplug all components except for light. All water pumps, blowers, and ozonator if spa has one. Then turn GFCI breaker back on. If breaker does not hold the only components that are still connected is the heater since heater wires are inside spa pac. If breaker does hold, replug in components (one at a time) and which ever one is failing will trip breaker when you plug it in. At this point second, third, fourth pump can be left unplugged. Also if blower or ozonator is causing the problem, they can be left unplugged. Only spas heater and primary pump are necessary to maintain heat and filter cycle.

Q: I have no pressure to one of my seats, what is the problem?

A: Try your top side diverter valve to direct water flow to that seat(s). Check the jets for that seat(s). Your jets may be in the closed position. Most of the jets in your spa have an outer ring that turns to the left and right. This will open or close the jets.

Q: My pump isn't working properly and it doesn't seem to be pushing any water at all, what can I do?

A: Remove the skirt panel and find your pump. Chances are a gate valve might be closed, which will shut the pump off. Open the valve by lifting the handle. Your pump may need to be primed. Open the union connection slightly to bleed the air out of the line.

Q: I need a service appointment, but I'm only available after 5 PM. Is there any way that you can come later?

A: If your spa and circuit breaker are outdoors, you don't need to be home. We can easily set up an appointment and you will not need to lose time at work. Our technicians work to be sure that all of their scheduled stops are completed to satisfaction every day, and that includes scheduling time of their stops.

Q: I have a brand new hot tub and it is leaking. I need a service man right away.

A: Firstly, there are a few things we will ask you to do. Describe that area of the spa where the leak seems to be coming from. Remove one of the skirt panels in that area and check your pump(s) union connections. If you have a loose union, simply tighten the connection and the leak should stop. This is a part of your spa start up and is the responsibility of all of our

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customers to make sure that this is done.

### 31.0 Floor Load Determination

All structures must comply with local and national building requirements. The following recommended measurements represent maximum spans for decking floor joints (shown in feet and inches), assuming the following:

- Modulus > 0.9 MM psi (represents the majority of wood species)
- Static Load ≤ 10psf (standard for decking design)
- Moisture Load ≤ 19.0% (standard for pressure treated wood)
- Deflection = L/360 (standard for building codes)

**NOTE** These specifications are subject to change without notice and are for reference only.

100 pounds/sq. foot live load					
Joint Size (inches)	Joint Spacing (inches on center)	Wood Grade			
		Select Structural	No. 1	No. 2	No. 3
2 x 6	12	7-11	7-9	7-6	6-3
	16	7-2	7-1	6-6	5-5
	24	6-4	6-1	5-3	4-5
2 x 8	12	10-5	10-3	9-8	8-0
	16	9-6	9-4	8-4	6-11
	24	8-4	7-8	6-10	5-8
2 x 10	12	13-4	12-10	12-6	9-5
	16	12-1	11-1	10-10	8-2
	24	10-4	9-1	8-10	6-8
2 x 12	12	16-3	15-4	14-8	11-3
	16	14-9	13-3	12-8	9-9
	24	10-4	10-4	10-4	8-0

## 32.0 Electrical Requirements Chart

Model	Voltage	Breaker Size	No. of Wires	Wire Gauge
Manhattan Diamond Wave	240V	50A GFCI	4 Wire	6/4
Manhattan Gold	240V	50A GFCI	4 Wire	6/4
Manhattan Silver	240V	50A GFCI	4 Wire	6/4

## 33.0 Spa Measurements Chart

**NOTE** These specifications are subject to change without notice and are for reference only.

Model	Length	Width	Height	Average Filled Weight	Min. Pad Size
Manhattan Diamond Wave	93 in. (236.2 cm)	93 in. (236.2 cm)	38 in. (96.52 cm)	4,683 lb. (2,124 kg)	4 in. (102 mm)
Manhattan Gold	93 in. (236.2 cm)	93 in. (236.2 cm)	38 in. (96.52 cm)	4,560 lb. (2,068 kg)	4 in. (102 mm)
Manhattan Silver	93 in. (236.2 cm)	93 in. (236.2 cm)	38 in. (96.52 cm)	4,390 lb. (1,991 kg)	4 in. (102 mm)

## 34.0 Water Capacity Chart

Model	*Approximate Average Fill
Manhattan Diamond Wave	430 US gal. (1,628 Liters)
Manhattan Gold	425 US gal. (1,609 Liters)
Manhattan Silver	420 US gal. (1,590 Liters)

### Water Capacity Reference For Chemicals

\* Use approximate average fill for chemical measurement





The logo for ThermoSpas, featuring the brand name in a stylized, italicized font. The 'T' is large and bold, and the 'S' at the end is also large and bold. A registered trademark symbol (®) is located to the upper right of the 'S'.

**ThermoSpas**®

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**SAVE THESE INSTRUCTIONS**