

# *ThermoSpas*®

Designed to Improve Your Life

## 2023 Genesis 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 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 9:00 am - 6:00 pm and Saturday 9:00 am - 1:00 pm, Eastern Time. The Technical Service Department is open Monday - Friday 9:00 am - 5:00 pm and Saturday 9:00 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                               |
| Delivery Department .....          | 866.551.9054   |
| Address .....                      | ThermoSpas, 14525 Monte Vista Ave<br>Chino, CA 91710 |
| Website .....                      | www.ThermoSpas.com                                   |

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## 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.

## Proper Use and Installation

ThermoSpas has made every effort to provide you with a safe and reliable product. The detailed instructions provided previous to, and with the receipt of, your spa will explain how to safely install, operate and maintain your spa. Safety in using a spa ultimately lays with you the customer. There is no substitute for the use of good judgment and common sense when it comes to safety in and around your spa.

### Safety In and Around Your Spa

READ AND FOLLOW ALL INSTRUCTIONS CAREFULLY!

#### **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 spa 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 spa cover when not in use. This will help discourage unsupervised children from entering the spa. Keep the spa cover secure in high-wind conditions.
- There is no representation that the cover, clip tie-downs, or actual locks will prevent access to the spa.

#### **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 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.



## **DANGER: RISK OF SEVERE INJURY FROM ELECTRIC SHOCK OR DEATH FROM ELECTROCUTION!**

- Install the spa at least 5 feet (1.5m), from all metal surfaces. As an alternative, a spa may be installed within 5 feet of metal surfaces if each metal surface is permanently connected (bonded) by a minimum No. 8 AWG (8.4 mm<sup>2</sup>) 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 (8.4 mm<sup>2</sup>) solid copper conductor between this unit and any metal equipment, metal enclosures of electrical equipment, metal water pipe, or conduit within 5 feet (1.5m) of the unit.
- Never permit any electrical appliance, such as a light, telephone, radio, television, etc. within 5 feet (1.5m) of a spa unless such appliances are built-in by the manufacturer.
- Never bring any electrical appliances into or near the spa.
- Never operate any electrical appliances from inside the spa 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 spa occupant but installed at least 5 feet (1.5m), from the spa.
- The electrical circuit supplied for the spa must include a suitable ground fault circuit interrupter (GFCI) as required by NEC Article 680-42.

## **WARNING: RISK OF SEVERE INJURY OR DEATH!**

- Extreme caution must be exercised to prevent diving or jumping into the spa 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 spa.

## **WARNING: RISK OF HYPERTHERMIA (OVER-HEATING) CAUSING SEVERE INJURY, BURNS, WELTS OR DEATH!**

- Water temperature in excess of 104°F (40°C) may be injurious to your health.
- Refer to the Hyperthermia for specific causes and symptoms of this condition.
- The water in the spa should never exceed 104°F (40°C). Water temperatures between 100°F (38°C) and 104°F (40°C) are considered safe for a healthy adult.
- Lower water temperatures are recommended for young children (children are especially sensitive to hot water) and when spa use may exceed 10 minutes.
- The Consumer Products Safety Commission/USA has stated that the water temperature in a spa should not exceed 104°F (40°C).
- Always test the spa water temperature before entering the spa. 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 (2°C).

## **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 spa.
- Pregnant or possibly pregnant women should limit spa water temperatures to 100°F (38°C).
- 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 spa.
- If you experience breathing difficulties in association with using or operating your spa, discontinue use and consult your physician.



- Persons using medication should consult a physician before using a spa since some medication may induce drowsiness, while other medication may affect heart rate, blood pressure, and circulation.
- Persons suffering from any condition requiring medical treatment, the elderly, or infants should consult with a physician before using a spa.
- The use of alcohol, drugs, or medication before or during spa use may lead to unconsciousness with the possibility of drowning.

**⚠ WARNING: RISK OF SEVERE INJURY OR DEATH!**

- Prolonged immersion in a spa may be injurious to your health.
- Observe a reasonable time limit when using the spa. 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 spa immediately following strenuous exercise. Enter and exit the spa slowly. Wet surfaces can be slippery.

**⚠ 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.
- People with infectious diseases should not use a spa to avoid water contamination, which could result in spreading infections to others.
- Always shower before and after using your spa. 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).

- ⚠ 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.

**CAUTION: TO DECREASE RISK OF PRODUCT DAMAGE.**

- Maintain water chemistry in accordance with manufacturer's instructions.
- Proper chemical maintenance of spa water is necessary to maintain safe water and prevent possible damage to spa components.

**⚠ 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.

**NOTE:** This spa is not intended nor designed to be used in a commercial or public application. 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.

## Spa Safety Literature

To ensure you have a safe and enjoyable hot tub experience, learn all you can about hot tub safety and emergency procedures.

The Pool & Hot Tub Alliance has a great source of safety literature.

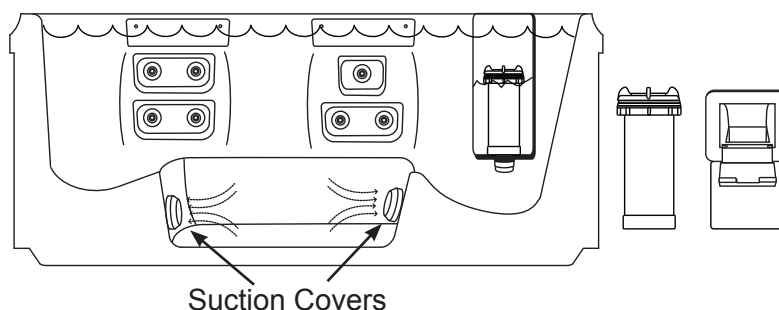
- Go to <http://phta.org>
- Conduct your own search on the internet
- Write to the following address:

Pool & Hot Tub Alliance  
2111 Eisenhower Avenue  
Alexandria VA 22314  
703.838.0083

## 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.

**NOTE:** Suction covers must be replaced every five 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.

**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

**PRECAUTIONS-Important Chemical Safety**

Do not use this device with bromide products.

**PRECAUTIONS FOR USE OF PRODUCTS CONTAINING SODIUM BROMIDE**

- Do not use any Product containing Sodium Bromide with an electrolysis device (for example, a chlorine generator).
- Do not use any Product containing Sodium Bromide with ozonation.
- Do not use any Product containing Sodium Bromide with ultraviolet (UV).

FOR CALIFORNIA RESIDENTS ONLY



**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)

FOR CALIFORNIA RESIDENTS ONLY



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

## 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 (10 cm). 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.

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 and other casual water to flood the equipment and create a wet condition in which it would sit in. For spas which will be 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 panels and access to the jets 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.

### 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 unguttered 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 58 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 to come up through the bottom of the spa cabinet or through the side wall by drilling a hole.

## Indoor Location

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



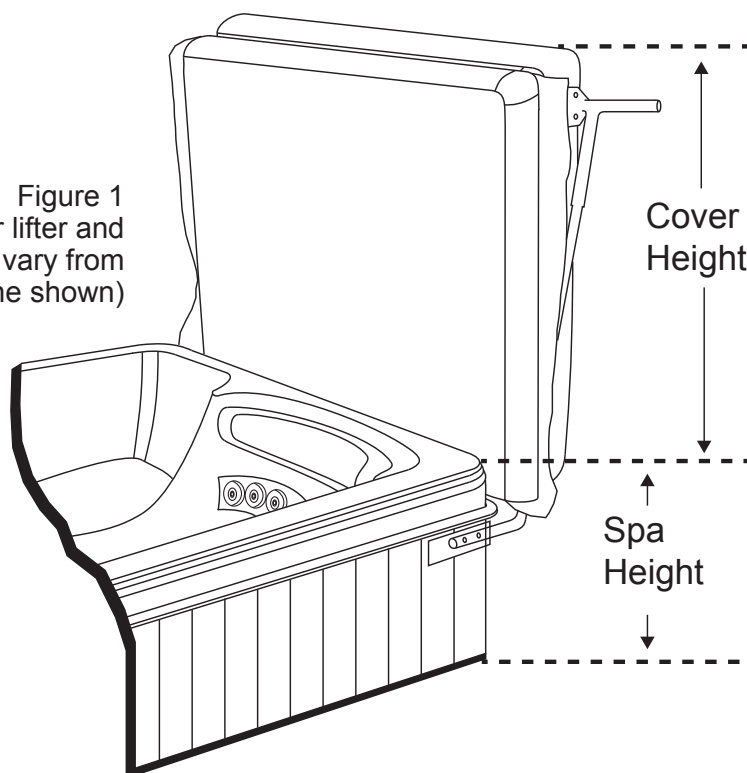
**WARNING:** In addition to maintenance of filters and water chemistry, proper ventilation is recommended to reduce the risk of contracting a waterborne illness (e.g. an infection, bacteria or virus) and/or respiratory ailments that could be present in the air or water. Consult a licensed architect or 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.
- **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, 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 may vary from  
the one shown)



## 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

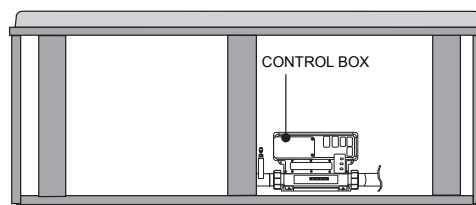
- The electrical installation of your spa must be done by a qualified electrician in accordance with the National Electrical Code (NEC), and all local codes effective at the time of installation.
- Your spa must be installed on a dedicated electrical circuit. No other appliances or electrical equipment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

General location of the spa pack. Location varies by model.



### 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).

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.



## 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.

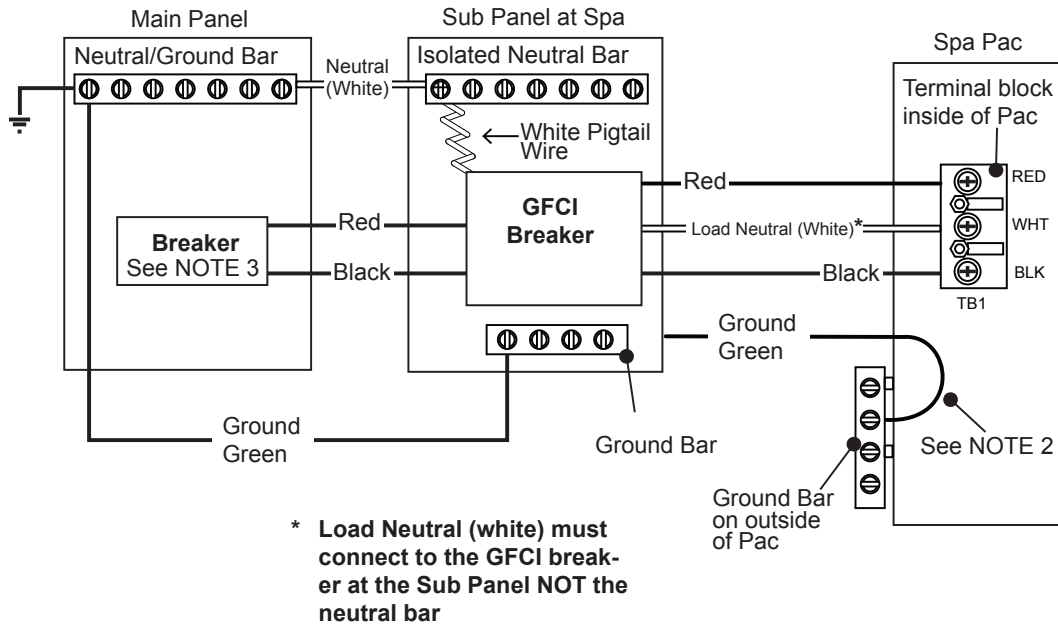
 **WARNING:** Wiring to your spa must be COPPER ONLY! Note that the wiring from a main panel to a sub-panel for the spa must be copper and the sub-panel is rated for copper (CU).

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.

## 400 Trim Level Models

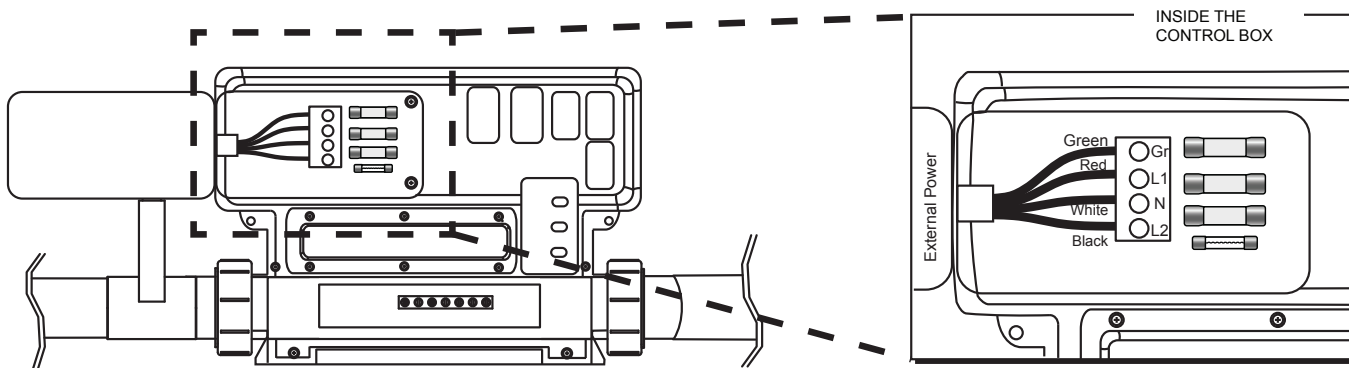
### 240V Ground Fault Circuit Interrupt (GFCI) Wiring Diagram



#### NOTES:

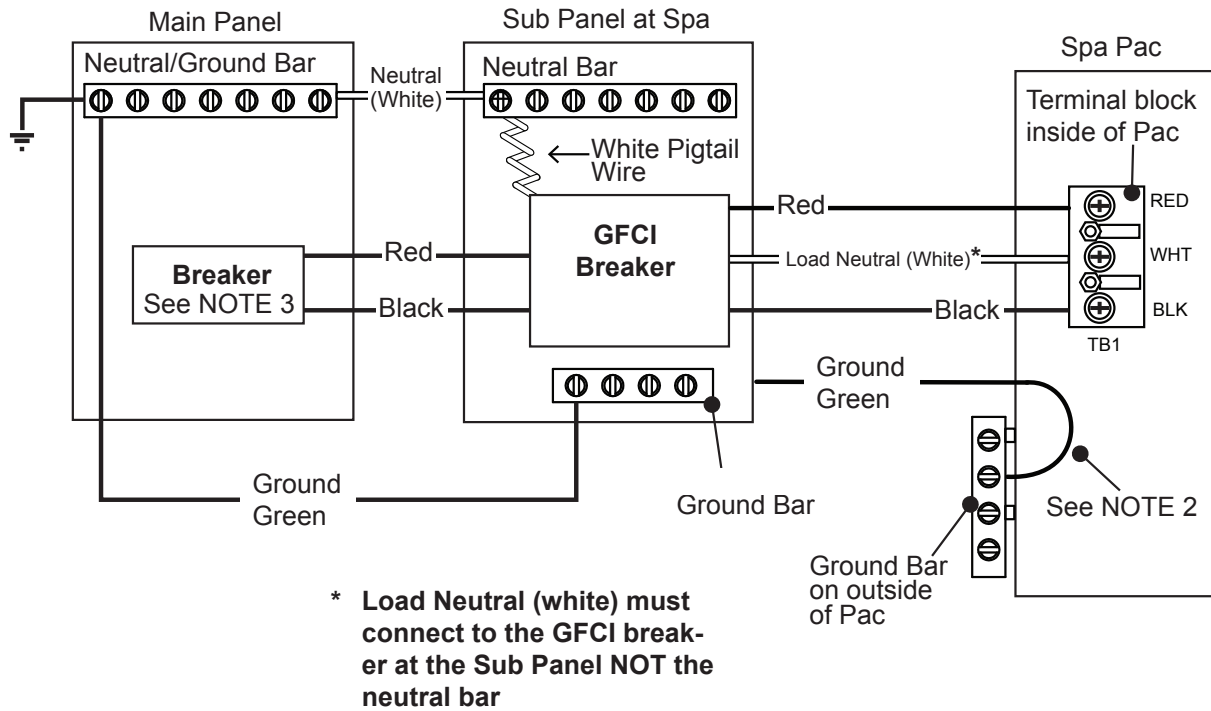
1. NEUTRAL AND GROUND MUST BE ISOLATED AT THE SUB PANEL.
2. On Balboa TS Series Packs, ground wire must enter the pack through strain relief and attach to ground bar on outside of pack.
3. Positions of electrical connections may vary by breaker manufacturer.
4. For specific breaker and wire size refer to page 59.

### 240V Spa Pack Connections



## Gold and Silver Trim Level Models

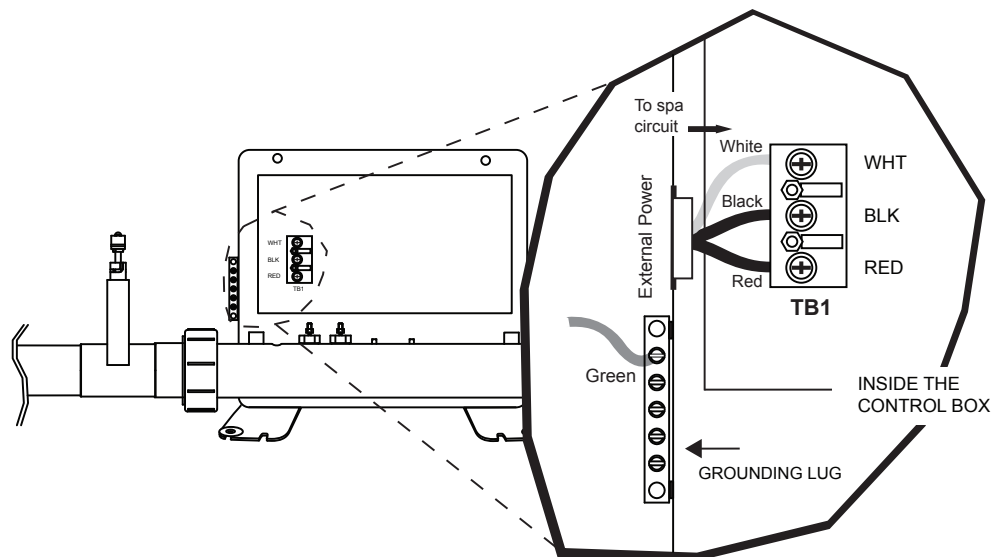
### 240V Ground Fault Circuit Interrupt (GFCI) Wiring Diagram



#### NOTES:

1. NEUTRAL AND GROUND MUST BE ISOLATED AT THE SUB PANEL.
2. On Balboa TS Series Packs, ground wire must enter the pack through strain relief and attach to ground bar on outside of pack.
3. Positions of electrical connections may vary by breaker manufacturer.
4. For specific breaker and wire size refer to page 59.

### Spa Pack Connections



## 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.

Total start-up process time will vary from 3-24 hours based on the following variables:

1. Incoming water temp & 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 44.

**Step 5:** Make sure all water pump and heater unions are tight, page 44.

**Step 6:** Make sure the drain valve is closed, page 44.

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



Atlantis & Chesapeake

**Step 9:** Ensure your water source is safe for spa use. Water may contain minerals that may cause stains or deposits. Water with a high mineral count, such as iron or copper, may discolor the water once a sanitizer is added. If you have any doubt, visit <http://online.ThermoSpas.com> or call our Customer Care department during our normal business hours.

**Note:** 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 10:** 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:** Insert the hose into the filter well to help reduce pump airlock.

**Step 11:** Begin filling your spa. 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 in our factory during final inspection, some connections may loosen during transport from the factory to your home.

### Initial Preparation

**Step 1:** Starting the spa with insufficient water can damage the pump and heater. Once your spa is sufficiently filled (half way up the filter), turn the circuit breaker on.

**Step 2:** After turning on the circuit breaker, your spa will cycle through a series of self-diagnostic codes as indicated on the topside control panel.

**Step 3:** Wait 5 minutes so the spa can complete self-priming and diagnostic self-checks.

**Step 4:** If your topside control panel display shows the temperature, the temperature flashing or “--”; this is normal. If any other codes are shown, refer to troubleshooting guide located in the appendix or visit <http://online.ThermoSpas.com> and click on Customer Center for more information.

**Step 5:** Activate the pumps to make sure they work and there are no leaks. Carefully inspect the spa for any leaks by checking the hoses and plumbing connections. Check the unions on the pumps and heater. If a leak is detected, stop the filling process and contact ThermoSpas Service Department. If everything checks out proceed to step 6.

**Note:** The spa should be inspected periodically for leaks.

**Step 6:** Reinstall the panels.

## Heat Water

**Step 1:** Set desired temperature by pressing the Warm/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.

## 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.



### **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.**

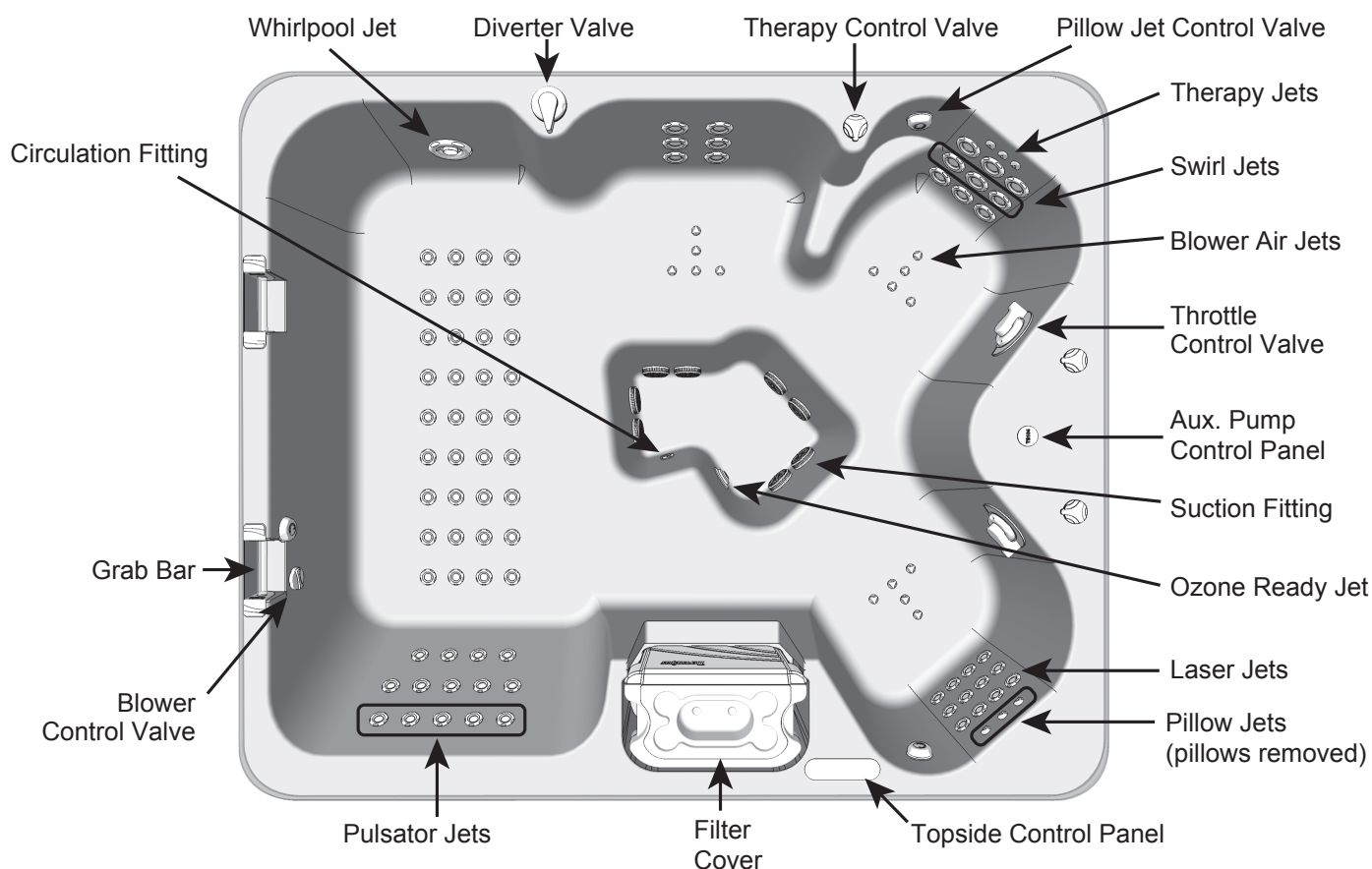
To decrease the risk of injury, drowning or entrapment, never leave your hot tub unattended for any reason while the cover is open and accessible, especially to small children and animals!

Precautions should be taken to minimize your exposure to chemical vapors (that could cause lung, brain, or skin damage).



## Spa Diagram

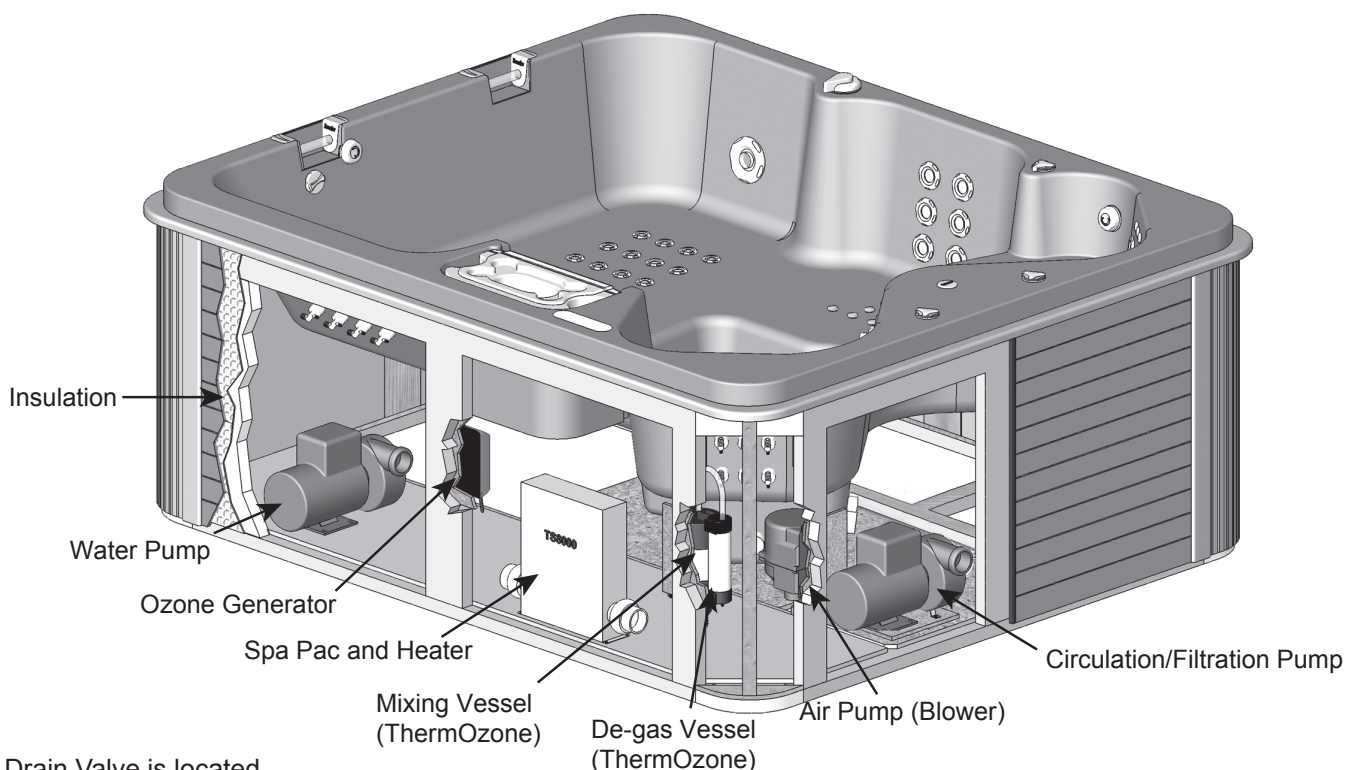
The illustration below shows a typical 5 person spa with multiple jet styles, a bubbling system, an ozone system upgrade and an independent circulation/filtration pump system. If your spa was not ordered with any of these features, the system components will not be found in your spa. These illustrations are designed to help you identify key components. Use the legend to locate a particular component's page number to see more details.



| Part                 | Page | Part                     | Page |
|----------------------|------|--------------------------|------|
| Auxiliary Button     | 21   | Pillow Jet Control Valve | 25   |
| Blower Air Jets      | 24   | Pulsator Jet             | 27   |
| Blower Control Valve | 25   | Swirl Jet                | 26   |
| Diverter Valve       | 25   | Therapy Jet              | 25   |
| Filter Cover         | 37   | Therapy Control Valve    | 25   |
| Grab Bar             | 45   | Throttle Control Valve   | 25   |
| Laser Jet            | 26   | Topside Control Panel    | 19   |
| Ozone Ready Jet      | N/A  | Whirlpool Jet            | 1    |

## 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.

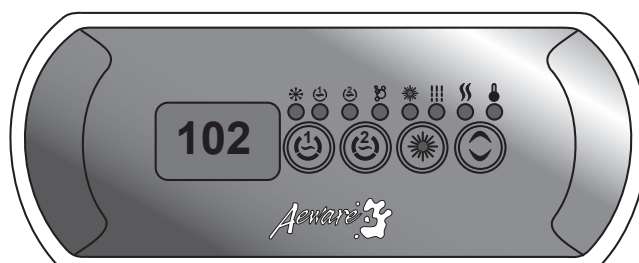


Drain Valve is located  
inside left side of cabinet

| Part                        | Page | Part               | Page |
|-----------------------------|------|--------------------|------|
| Air Pump (Blower)           | 24   | Ozone Generator    | 39   |
| Circulation/Filtration Pump | 44   | Spa Pac and Heater | 44   |
| De-gas Vessel (ThermOzone)  | 39   | Water Pump         | 44   |
| Mixing Vessel (ThermOzone)  | 39   |                    |      |

# Topside Control Panel (400 Trim Level)

## Main Control Panel



### Button Functions:



**Pump 1 Button:** Press once to turn Pump 1 on low speed; a second time for high speed; a third time to turn off.



**Pump 2 Button (if equipped):** Press once to turn Pump 2 on; press again to turn off.



**Light Button:** Turns light(s) on and off. By continually pressing the button on and off, you can cycle through the colors.



**Warm/Cool Button:** Press continuously to increase or decrease water temperature, one degree at a time. Functions as both a warmer or cooler button.

### Indicator Lights:



**Smart Winter Mode (SWM) Indicator:** When the feature is activated the indicator light is lit, page 33.



**Pump Indicator:** When a pump is activated the indicator light is lit, page 22.



**Light Indicator:** When the underwater light is turned on the indicator light is lit, page 22.



**Filter Indicator:** When a filter or purge cycle is running the Filter Indicator light is lit, page 28.



**Heater Indicator:** Whenever the spa is heating the Heater Indicator light is lit, page 22.

**Note:** Temperature range is from 59° to 104°F (15° to 40°C).



**Set Point Indicator:** Whenever the “set temperature” is displayed on the LCD display, the Set Point Indicator will be lit.



**Air Indicator:** This feature is not available.

## Topside Control Panel (Gold & Silver Trim Levels)

### Main Control Panel



### Button Functions:



**Time Button:** Use to set the time and when pressed the Liquid Crystal Display (LCD) screen will display the time.



**Mode/Prog Button:** Use to switch modes between Standard, Economy, Standard-in-Economy or Sleep mode.



**Warm Button:** Press continuously to increase water temperature, one degree at a time.



**Cool Button:** Press continuously to decrease water temperature, one degree at a time.



**Light Button:** Turns light(s) on and off. By continually pressing the button on and off, you can cycle through the various colors programmed into the LED controller (Blue/Green, Purple, Blue, Green/Red, Green, Red and other effects).



**Blower Button:** Turns the blower on or off. Feature is not available on the Silver Package.



**Pump 1 Button:** Press once to turn Pump 1 on low speed; a second time for high speed; a third time to turn off.



**Pump 2 Button:** Press once to turn Pump 2 on; press again to turn off.

### LCD Display Icons:



**Heat Icon:** When the bars alternate between the top and bottom bar, the spa is measuring the water temperature. When the bars progress from bottom to top, the spa water is being heated. When this feature is active, the heat icon will appear on the LCD display.

**Note:** Temperature range is from 80° to 104°F (26° to 40°C).



**Light Icon:** When the underwater light, pillows lights and grab bar light (if equipped) are turned on, the light icon will appear on the LCD display.



**Blower Icon:** When the blower is on the icon will appear on the LCD screen.



**Pump Icon:** When a pump is activated the icon will appear on the LCD screen. For a 2-speed pump the icon will move slowly to indicate low speed and moves faster to indicate high speed.



**Ozone Icon:** When the ozone is on (if equipped), this icon will appear on the LCD display.

## Indicator Lights:

- F1** ● **F1 Indicator:** When the button next to “F1” is lit, it indicates that the first heating cycle is running, page 30.
- F2** ● **F2 Indicator:** When the button next to “F2” is lit, it indicates that the second heating cycle is running, page 30.
- PL** ● **PL Indicator:** When the button next to “PL” is lit, it indicates that the control panel is locked, page 31.
- TL** ● **TL Indicator:** When the button next to “TL” is lit, it indicates that the temperature set point is locked, page 32.

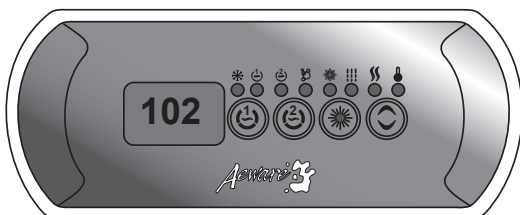
## Auxiliary Pump Control Panel

Models with three or more pumps will have an auxiliary control panel that will operate the pump. Press once to turn the pump on and press again to turn the pump off.



# Operating Instructions (400 Trim Level)

## Setting the Temperature



The LCD screen will constantly display the current water temperature, unless there is an error code or the spa needs attention. To set the desired water temperature:


1. Press the Warm/Cool (  ) button, Figure 1. The current set temperature.
2. Pressing the button a second time



Figure 1



Figure 2

and any successive time will cause the set temperature to increase or decrease depending on what direction was last chosen.

3. If the opposite direction is desired, release the button and let the display revert to the actual water temperature. Then continually press the button to adjust the set temperature.

Each time the panel reverts to the actual water temperature, the Warm/Cool button will toggle between increasing and decreasing the set temperature. Any time the spa is heating, the heater indicator will be lit, Figure 2.

**Note:** Minimum set temperature is 59°F. Maximum set temperature is 104°F.

## Jets Pump 1

Jets Pump 1 is a 2-speed pump. To operate Jets Pump 1:


1. Press Jets Pump 1 (  ) button once to activate low speed, Figure 3. The Jets Pump 1 indicator light will flash to indicate Jets Pump 1 low speed is active, Figure 4.




Figure 3




Figure 4

**Note:** Pump 1 will automatically turn off after 20 minutes. You can press the Jets Pump 1 button again to reactive the pump.

2. Press Jets Pump 1 (  ) button again to activate high speed. The Jets Pump 1 indicator light will be solid to indicate Jets Pump 1 high speed is active.

**Note:** Pump 1 will automatically turn off after 20 minutes. You can press the Jets Pump 1 button twice to reactive the pump in high speed.

3. Press Jets Pump 1 (  ) button a third time to turn the pump off. The Jets Pump 1 indicator light will turn off.
4. Refer to "Automatic Functions" (page 33), for automated pump functions.

## Jets Pump 2 (if equipped)

Jets pump 2 is a 1-speed pump. To operate Jets pump 2:


1. Press Jets Pump 2 (  ) button once to turn the pump on, Figure 5. The Jets Pump 2 indicator light will turn on to indicate jets pump 2 is active, Figure 6.



Figure 5

**Note:** Pump 2 will automatically turn off after 20 minutes. You can press the Jets Pump 2 button again to reactive the pump.



Figure 6


2. Press Jets Pump 2 (  ) button a second time to turn the pump off. The Jets Pump 2 indicator light will turn off.
3. Refer to "Automatic Functions" (page 33), for automated pump functions.



Figure 7



Figure 8

## Lights

The underwater light is turned on or off by pressing the light button, Figure 7. When turned on, the light indicator light is lit, Figure 8. By turning the LED lights on and off, you can cycle through the colors and effects.

**Note:** The lights will automatically turn off after 2 hours.



# Operating Instructions (Gold & Silver Trim Levels)





## Setting the Temperature



The LCD screen will constantly display the current water temperature, unless there is an error code or the spa needs attention. To set the desired water temperature:



Figure 1

1. Press the Warm (  ) or Cool (  ) button to display the current set temperature.
2. Press the Warm (  ) button to raise the temperature until the desired temperature is displayed on the LCD screen. Maximum set temperature is 104°F.
3. Press the Cool (  ) button to lower the temperature until the desired temperature is displayed on the LCD screen. Minimum set temperature is 80°F.
4. Do not press any buttons and after 3 seconds you will exit the feature.


Anytime the spa is heating, the heat icon will be displayed on the LCD screen. The temperature bars on the heat icon will progress from top to bottom, Figure 1.

## Circulation Pump (if equipped)


The Circulation Pump is pre-programmed to run 4-hours a day in two 2-hour cycles, you can modify these settings as desired using your keypad. Please refer to the Economy Mode Heating Cycles section. However, if the spa temperature exceeds the set-point by 3°F the circulation pump will automatically turn off. It will only turn back on during the preset filtration cycles or after the water temperature is within or below 3°F of the set-point.

## Jets Pump 1

Jets pump 1 is a 2-speed pump. To operate Jets pump 1:

1. Press Jets pump 1 (  ) button once to activate low speed. The pump icon will move slowly to indicate low speed, Figure 2.

**Note:** Pump 1 will automatically turn off after 15 minutes, when in low speed. You can press the Jets pump 1 button again to reactive the pump.

2. Press Jets pump 1 (  ) button again to activate high speed. The pump icon will move faster to indicate high speed, Figure 2.

**Note:** Pump 1 will automatically turn off after 15 minutes, when in high speed. You can press the Jets pump 1 button twice to reactive the pump in high speed.



3. Press Jets pump 1 (  ) button a third time to turn the pump off. The pump icon will disappear from the LCD screen.
4. Refer to "Automatic Functions" (page 34), for automated pump functions.



Figure 2

## Jets Pump 2

Jets pump 2 is a 1-speed pump. To operate Jets pump 2:

1. Press Jets pump 2 (  ) button once to turn the pump on. The pump icon will move faster to indicate high speed, Figure 3.

**Note:** Pump 2 will automatically turn off after 15 minutes. You can press the Jets pump 2 button again to reactive the pump.


2. Press Jets pump 2 (  ) button a second time to turn the pump off. The pump icon will disappear from the LCD screen.
3. Refer to "Automatic Functions" (page 34), for automated pump functions.




Figure 3



**Jets Pump 3 to 5 (If equipped)**

Models equipped with Jets pump 3, 4 or 5 use a 1-speed pump. Each of these pumps will have an auxiliary pump control panel, Figure 4. To operate:

1. Press Jets pump (  ) button once to turn the pump on. The pump icon will move faster to indicate high speed, Figure 5.

**Note:** Pumps time out and turn off after 15 minutes. You can press the Jets pump button again to reactive the pump.


2. Press Jets pump (  ) button a second time to turn the pump off.
3. Refer to “Automatic Functions” (page 34), for automated pump functions.



Figure 4



Figure 5




Figure 6




Figure 7

**Blower (Gold Models)**

The blower activates all blower air jets, Figure 6. The blower introduces air into the air jets for a bubbling affect.

1. Press Blower (  ) button once to turn on. The blower icon will display on the LCD screen, Figure 7.

**Note:** The Blower will automatically turn off after 15 minutes. You can press the blower button again to reactive the blower.

2. Press Blower (  ) button a second time to turn off. The blower icon will disappear from the LCD screen.
3. Refer to “Automatic Functions” (page 34), for automated blower functions.

**Lights**






The underwater light and grab bar lights (if installed on your spa) are turned on or off by pressing the light button. When turned on, the light icon is displayed on the LCD display. If equipped with LED lights, the pressing the light button on and off lets you cycle through the various colors programmed into the LED controller (Blue/Green, Purple, Blue, Green/Red, Green, Red, cycling through the colors, strobe effect).



## Control Valves

Note: Not all controls are used on all models

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

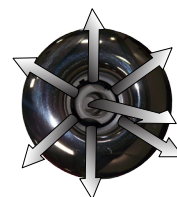
1. Blower Control Valve (Figure 8)  
Controls the intensity of the air blower on spas equipped with a bubbling system. Simply turn the valve to increase and decrease the amount of air introduced to the air jets.  Figure 8
2. Pillow Jet Control Valve (Figure 9)  
Controls the water intensity flow to the pillow jets. Turn the valve clockwise to decrease the intensity; counterclockwise to increase the intensity.  Figure 9
3. Therapy Control Valve (Figure 10)  
Controls the water to air ratio to vary the intensity of the jet.  Figure 10
4. Diverter Valve (Figure 11)  
Rotate valve to divert flow to specific sections of the spa.  Figure 11
5. Throttle Control Valve (Figure 12)  
The Throttle Control Valve controls the jet intensity of an entire seat without affecting others areas.  Figure 12

## Jets

Note: Not all jets are used on all models

### Therapy Jets

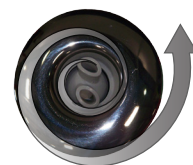
Popular spa jets with powerful directional streams. These are easily controllable to give you just the right amount of massage. Turn the outer ring to open or close the jet to control the power. The nozzle can be adjusted by simply touching it and pointing it to the desired location on your body.



Therapy Jet

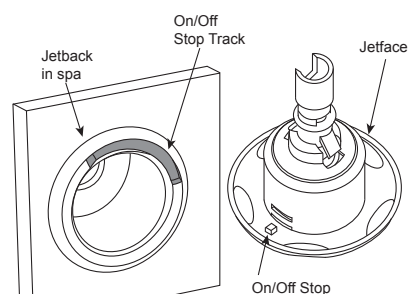
### Swirl Jets

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

**Snap-In Jets Note:** The Swirl Jet and Therapy 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 until you feel resistance. Continue turning counter-clockwise and pull until the Jet pops out. When inserting the Jet into the Jet Body, you must align the On/Off Stop with the middle of the On/Off Stop Track to insure proper seating of the Jet. Simply push the Jet into the Jet Body until you hear it snap into place.



Interchangeable Swirl and Therapy Jets

**Thread-In Jets Note:** The Therapy Jet and Swirl 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 jet-back. Thread in the new jet until you feel a resistance.

### Diverting Whirlpool Jets

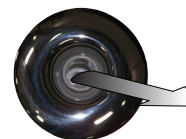
The same size and functionality as the standard whirlpool jet, but with the addition of a diverting mechanism that permits you to direct the water flow to other jets in the spa. The outer ring turns to open the jet all the way for maximum whirlpool flow, or turn it to additional settings to divert water to different sections of the spa.



Diverting Whirlpool Jet

### Laser Jets

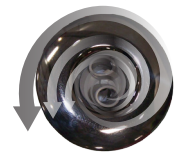
Pinpoint and soothe individual joints. These are smaller than the rest of the jets, but they are very powerful. When clustered together and positioned properly, you will get a one-of-a-kind massage.



Laser Jet

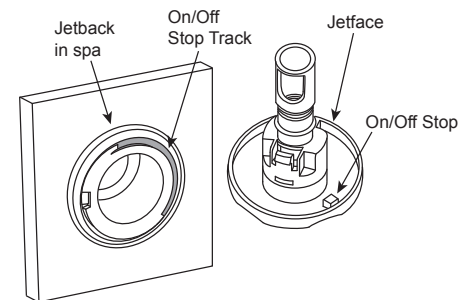
## Pulsator Jets

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

**Snap-In Jets 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 until you feel resistance. Continue turning counter-clockwise and pull until the Jet pops out. When inserting the Jet into a Jet Body, you must align the On/Off Stop with the middle of the On/Off Stop Track to insure proper seating of the Jet. Simply push the Jet into the Jet Body until you hear it snap into place.

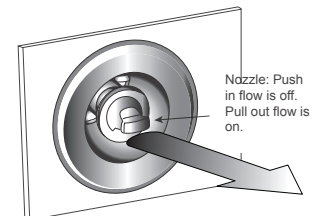


Interchangeable Pulsator and Laser Jets

**Thread-In Jets 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.

## Shoulder Jets

These unique jets are designed to be installed above the water line in the spa. The opening at the bottom of the jet is angled specifically to direct a powerful stream of water to your neck and shoulders. The smart design of this jet helps to reduce 'splash-out' by 75% over other directional shoulder jets. Apply massaging pressure in the direction you choose, or turn off the jet by pushing the center nozzle in to its closed position.



Shoulder Jet

## Patented Pillow Jets

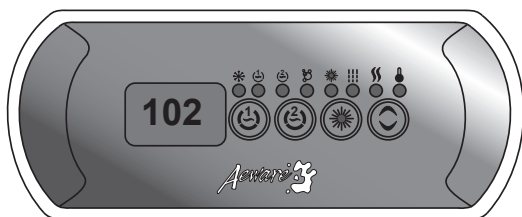
Give an unbeatable neck massage and include a control valve to adjust the intensity. This is a favorite feature among many ThermoSpas customers. Nothing compares to a nice neck massage, so the Pillow Jet was created to do just that. No need to put your head under water – just sit back in your therapy 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.



Pillow Jet

# Programming Instructions (400 Trim Level)

## Programming the Duration, Frequency and Temperature Setting



Filter Cycles set the amount of time Pump 1 automatically operates in low speed to filter the spa water. The user can customize the duration and frequency of the filter cycles. At the beginning of the filter cycles, all pumps will activate to high speed for 1 minute to purge the plumbing lines of water, thus improving the overall cleanliness of the spa water. During a filter

cycle, Jets Pump 1 can be set to low or high speed but cannot be turned off. If any other buttons, than the Jets Pump 1 button, are pressed during a filter cycle, the filter cycle will be suspended and will resume 40 minutes after the final button press.

### A. Programming the Filter Cycle(s) duration:

- The duration can be programmed from 0 to 24 hours.
  - It is not recommended to set the Filter Cycle Duration to "0" as no filtration will occur.
  - You can program up to 4 cycles per day, "F 1" to "F 4".
1. Press and hold the Light (☀) button for 5 seconds until the display shows "dxx" ("xx" stands for the duration in hours, default is 2 hours).
  2. Press and hold the Warm/Cool (🔄) button to adjust the duration of the cycle in one hour increments. If the duration time is going in the wrong direction, release the Warm/Cool button then press and hold to move in the opposite direction.
  3. Press the Light (☀) button again to enter the filtration cycle frequency program. The display will show "Fx" ("x" stands for the number of cycles per day, default is twice a day).
  4. Press and hold the Warm/Cool (🔄) button to adjust the cycle frequency. If the frequency is going in the wrong direction, release the Warm/Cool button then press and hold to move in the opposite direction.
  5. Press the Light (☀) button again to enter the temperature setting. The display will show "F" (default is Fahrenheit).
  6. Press and hold the Warm/Cool (🔄) button to adjust the cycle frequency. If the frequency is going in the wrong direction, release the Warm/Cool button then press and hold to move in the opposite direction.
  7. Press the Light (☀) button again to exit the programming and save your changes.

**Note:** You must press and hold the Warm/Cool button to make changes. Pressing the button once will only toggle the duration time between the current and the next setting.

Press and hold  
for 5 seconds  
(approx.)



LED screen  
displays

d 1

Press and hold  
to adjust hours  
from d0 to d24



Press light button  
to enter frequency  
programming



LED screen  
displays

F 1

Press and hold to  
adjust hours from  
F1 to F4



Press light button  
to enter tempera-  
ture setting



LED screen  
displays

F

Press to toggle  
between F or C



# Programming Instructions (Gold & Silver Trim Levels)

## Programming the Time



When power is first applied and the Priming Mode has finished, the control panel will display the time icon (**TIME**). You will need to program the time of day by following the steps below. If the time is not programmed the LCD screen will flash the “Time” icon until it is programmed.

1. Press the Time ( ) button.
2. Press the Mode/Prog ( ) button to enter the hour setup.
3. Press the Warm ( ) or Cool ( ) button to adjust the hour.
4. Press the Mode/Prog ( ) button to enter the minutes setup.
5. Press the Warm ( ) or Cool ( ) button to adjust the minutes.
6. Press the Time ( ) button to exit the menu.

### Note:

- To view the time press the Time button and the LCD screen will display the current time.
- Any time power is cut to the spa, the time will have to be reprogrammed (except for the Diamond models).

## Standard Mode

Standard Mode constantly **maintains** the set temperature, assuming too many pumps aren't running. Heating will occur until the water reaches the next highest degree about the temperature set-point. The Standard (**STANDARD**) icon will be displayed unless the mode is changed. When in standard mode the heater will turn on as needed. To program the spa to run in standard mode:

1. Press the Mode/Prog ( ) button to enter the mode programming.
2. Press the Cool ( ) button to scroll through the mode settings: STANDARD, ECONOMY and SLEEP.
3. The current mode will flash on the LCD screen until a selection is confirmed and programmed.
4. Once the Standard mode is displayed on the LCD screen, press the Mode/Prog ( ) button to confirm and exit the menu.
5. The “STANDARD” icon will be constantly displayed on the LCD screen as an indication of the mode the spa is currently set to.

**Note:** In regions where the climate is hot you need to consider heat transfer. As the pumps run they produce heat that can raise the water temperature. If you experience multiple overheating problems call the technical service department and lower the temperature to the lowest setting.

## Economy Mode

Allows the spa to heat only during the preset heating cycles, page 30. Heating will occur until the water reaches the next highest degree about the temperature set-point. The Economy (**ECONOMY**) icon will be displayed unless the mode is changed. When in economy mode the heater will turn on only when there is a heat call during a programmed heating cycle. To program the spa to run in economy mode:

1. Press the Mode/Prog ( ) button to enter the mode programming.
2. Press the Cool ( ) button to scroll through the mode settings: STANDARD, ECONOMY and SLEEP.
3. The current mode will flash on the LCD screen until a selection is confirmed and programmed.
4. Once the Economy mode is displayed on the LCD screen, press the Mode/Prog ( ) button to confirm and exit the menu.





button to confirm and exit the menu.

5. The "ECONOMY" icon will be constantly displayed on the LCD screen as an indication of the mode the spa is currently set to.




### Standard-In-Economy Mode

Allows you to temporarily change the mode to Standard while in Economy mode. This would allow the heater to run for one hour to heat the spa. Once the hour is up the spa will revert back to Economy mode and the spa will heat only during the preset filtration cycles. Heating will occur until the water reaches the next highest degree about the temperature set-point. Both the Standard (**STANDARD**) and Economy (**ECONOMY**) icon will be displayed. To activate this mode:

1. The spa must be in economy mode.
2. While in economy mode, press the Jets Pump 1 (  ) button.
3. For the next hour the spa will run in Standard-In-Economy mode allowing the heater to activate.
4. To exit this mode, during the hour, press the Mode/Prog (  ) button. If not, after the hour is up the spa will revert back to economy mode.



### Sleep Mode

Heats the spa to within 20° of the temperature set-point, but only during filtration cycles. The Sleep icon will be displayed unless the mode is changed. To activate this mode:

1. Press the Mode/Prog (  ) button to enter the mode programming.
2. Press the Cool (  ) button to scroll through the mode settings: STANDARD, ECONOMY and SLEEP.
3. The current mode will flash on the LCD screen until a selection is confirmed and programmed.
4. Once the Sleep mode is displayed on the LCD screen, press the Mode/Prog (  ) button to confirm and exit the menu.
5. The "SLEEP" icon will be constantly displayed on the LCD screen as an indication of the mode the spa is currently set to.





### Standby Mode

Use the Standby Mode to temporarily shut off all spa functions. This mode can be used to when replacing the filters or when the filters need to be cleaned. This mode last for 1 hour. To activate this mode:

1. Press the Cool (  ) button.
2. Press the Jets Pump 2 (  ) button.
3. The LCD screen will display "Sby" to indicate that the spa is in standby mode.
4. To resume normal operation, press any Control Panel button (except Jets pump 1) or for the hour to expire.















### Economy Mode Heating Cycles

Six minutes after power-up, the spa will begin its first heating cycle. The second cycle will occur 12 hours later. During each filter cycle, the circulation pump, heater and ozone will turn on. The plumbing lines will also be purged. Although the circulation pump is pre-programmed at the recommended settings, the filter cycles can still be programmed as desired. To program the heating cycles:

1. Press the Time (  ) button.
2. Press the Mode/Prog (  ) button three times. Must be done within three seconds of pressing the Time button. The LCD screen will display "Program," "Filter 1" and "Start Time," respectively.
3. Press the Warm (  ) or Cool (  ) button to adjust the hour start time in increments of



one hour.

4. Once the time you selected is displayed, press the Mode/Prog (  ) button to confirm your selection.
5. Press the Warm (  ) or Cool (  ) button to adjust the minutes in increments of five minutes then press the Mode/Prog (  ) button to confirm your selection.
6. Press the Mode/Prog (  ) button to confirm the program for first heating cycle. The LCD screen will display "Program," "Filter 1" and "End Time." To program the second heating cycle continue to step 7.
7. Press the Mode/Prog (  ) button. The LCD screen will display "Program," "Filter 2" and "Start Time."
8. Press the Warm (  ) or Cool (  ) button to adjust the hour start time in increments of one hour.
9. Once the time you selected is displayed, press the Mode/Prog (  ) button to confirm your selection.
10. Press the Warm (  ) or Cool (  ) button to adjust the minutes in increments of five minutes then press the Mode/Prog (  ) button to confirm your selection.
11. Press the Mode/Prog (  ) button to confirm the program for second heating cycle. The LCD screen will display "Program," "Filter 2" and "End Time."
12. Press the Mode/Prog (  ) button to confirm and save all program times. Then the LCD screen will display the current temperature.

**Note:** Pressing the Time button at any time during the cycle programming will exit the menu and save your changes up to that time. Make sure not to overlap start and end times.

### O3 Ozone

When the LCD screen displays "O3", the optional Ozonator (if equipped) is activated. The Ozone will run when the circulation pump is running. If any Control Panel button is pressed, the Ozone Icon will turn off and the Ozonator will deactivate for one hour. However, if the optional ThermOzone system is installed it is always functioning.



### Invert

To invert the LCD screen display, while in the spa:

1. Press the Warm (  ) or Cool (  ) button.
2. Press the Blower (  ) button.
3. Repeat the steps above to invert again.

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### Panel Lock/Unlock (PL)




To prevent unauthorized use of the spa, you can lock the control panel so that the buttons are deactivated. When this feature is active the "PL" indicator light will be lit.



To lock the panel (buttons must be pressed within three seconds of each other):

1. Press the Time (  ) button.
2. Press the Jets Pump 1 (  ) button.
3. Press the Warm (  ) button.






To unlock the panel (buttons must be pressed within three seconds of each other):

1. Press the Time (  ) button.
2. Press the Jets Pump 1 (  ) button.
3. Press the Cool (  ) button.




**Temperature Lock/Unlock (TL)****TL** ●

To prevent unauthorized use adjustment to the temperature of the spa, you can lock the temperature set point. The Warm and Cool buttons are deactivated. When this feature is active the “TL” indicator light will be lit.

To lock the panel (buttons must be pressed within three seconds of each other):













1. Press the Warm (  ) or Cool (  ) button.
2. Press the Time (  ) button.
3. Press the Jets Pump 1 (  ) button.
4. Press the Warm (  ) button.

To unlock the panel (buttons must be pressed within three seconds of each other):

1. Press the Time (  ) button.
2. Press the Jets Pump 1 (  ) button.
3. Press the Cool (  ) button.













**Programming Fahrenheit or Celsius**

You can program the temperature to display in either Fahrenheit (°F) or Celsius (°C). To access this feature:

1. Press the Warm (  ) button.
2. Press the Jets Pump 1 (  ) button.
3. Press the Light (  ) button.
4. Press the Warm (  ) or Cool (  ) button to scroll the menus until the LCD screen displays “USr.”
5. Press the Jets Pump 1 (  ) button to enter the user preference menu.
6. Press the Warm (  ) or Cool (  ) button to scroll the sub-menus until the LCD screen displays “tc.”
7. Press the Warm (  ) or Cool (  ) button to toggle between “Y” (for Celsius) and “n” (for Fahrenheit) to make a selection.
8. Press the Jets Pump 1 (  ) button to confirm and select your setting.
9. Press the Light (  ) button twice to exit to programming menus.

**Programming the Time in a 12-hour or 24-hour Format**

You can program the time to read in either a 12-hour or 24-hour configuration. To access this feature:

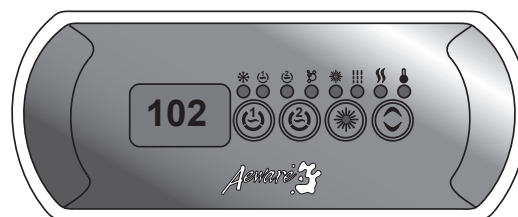
1. Press the Warm (  ) button.
2. Press the Jets Pump 1 (  ) button.
3. Press the Light (  ) button.
4. Press the Warm (  ) or Cool (  ) button to scroll the menus until the LCD screen displays “USr.”
5. Press the Jets Pump 1 (  ) button to enter the user preference menu.
6. Press the Warm (  ) or Cool (  ) button to scroll the sub-menus until the LCD screen displays “24.”
7. Press the Warm (  ) or Cool (  ) button to toggle between “Y” (for 24-hr format) and “n” (for 12-hr format) to make a selection.
8. Press the Jets Pump 1 (  ) button to confirm and select your setting.
9. Press the Light (  ) button twice to exit to programming menus.

## Automatic Functions (400 Trim Level)

### Over-Temperature Protection

To prevent runaway heating of the spa, if the water exceeds 104°F the Filtration Cycles will be shortened to prevent excess heating of the water by pump 1 (minimum total filtration time per day will be 2 hours to maintain water cleanliness) until the water temperature decreases to the temperature set point.

Note: That this spa does not incorporate a feature to actively cool the spa water.



### Power-Up Sequence

Upon system start-up (turning the power on), the control will flash a few diagnostic numbers then all pumps will turn on when it enters a filter cycle in which pump 1 will run continually in low speed. The spa will also begin to evaluate the temperature. If heat is required, the pump will run on low speed, the heater will be activated, and the heater indicator will be lit. Filter cycles will be based on the spa start-up time. If the filter cycles occur at an inconvenient time of day or night, turn off the power and start-up at the desired time.

### Smart Winter Mode

The Smart Winter Mode protects against freezing by turning on the pumps several times a day to prevent water from freezing in the plumbing and/or pumps. The Smart Winter Mode indicator will be lit when the Smart Winter Mode is on.



### Heating

The temperature can be set to a maximum of 104°F and measures water to within  $\pm 1^\circ\text{F}$ . Pump 1 will activate periodically to check the temperature and the spa will heat on demand (it can not actively cool the water) any time the actual temperature drops 1 degree below the set point. Pump 1 will automatically run in low speed and the heater will activate, as will the heater indicator (it will flash if the spa calls for heat but the heater has not yet activated).

**Note:** That pump 1 may activate on low speed for several minutes before the heater indicator is lit in order to determine system diagnostics and may run for several minutes after heating to ensure the heating coil is not damaged.

## Automatic Functions (Gold & Silver Trim Levels)

### Clean-up Cycle

The Clean-up Cycle is a feature that automatically turns on a pump (or the blower) 30 minutes after it was last turned off or timed out. The pump will run for approximately 30 seconds to move water through the system to help maintain clear water.



### Purge Cycle

The Purge Cycle is intended to keep the spa as clean as possible by flushing all jet lines every 12 hours. All pumps will turn on for 2-3 minutes. In Economy mode, the purge cycle occurs at the beginning of each heating cycle.

### Freeze Protection

Freeze Protection is activated if the temperature sensors in the heater detect a temperature drop to 44°F. All pumps (including the blower) activate automatically and remain on until 4 minutes after the sensors detect that the spa temperature has risen to 45°F or higher. During this time “ICE” will be displayed and no button presses will be recognized until the spa water has reached 45°F.

#### Note:

- It is imperative that the spa remain on. Do not drain the spa or cut the power. If the spa must be drained, we recommend that you winterize the spa, page 43. It must be allowed to heat.
- To assist with water circulation you can use a submersible pump. 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 a 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.

### Circulation Pump (if equipped)

The Circulation Pump is pre-programmed to run 4-hours a day in two 2-hour cycles, you can modify these settings as desired using your keypad. Please refer to the Economy Mode Heating Cycles section. However, if the spa temperature exceeds the set-point by 3°F the circulation pump will automatically turn off. It will only turn back on during the preset filtration cycles or after the water temperature is within or below 3°F of the set-point.

### Power-Up Sequence

When power is first applied to the spa an automatic Priming Mode will begin and the LCD screen will display “Pr.” This mode last up to 4 minutes and once complete the spa will begin to heat until the set temperature is reached.

**Note:** During the priming mode if either the Warm or Cool button is pressed the spa will exit the Priming Mode early.

## Basic Spa Maintenance

Keeping your ThermoSpas 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.

Cleaning and chemical products for your spa can be purchase at ThermoSpas' online store at <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.



*Atlantis & Chesapeake*

- 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 <http://online.ThermoSpas.com>.



## 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.

The skimmer/filter the Genesis Series can vary. To follow are the two distinct skimmer housing and the cleaning procedure for each.

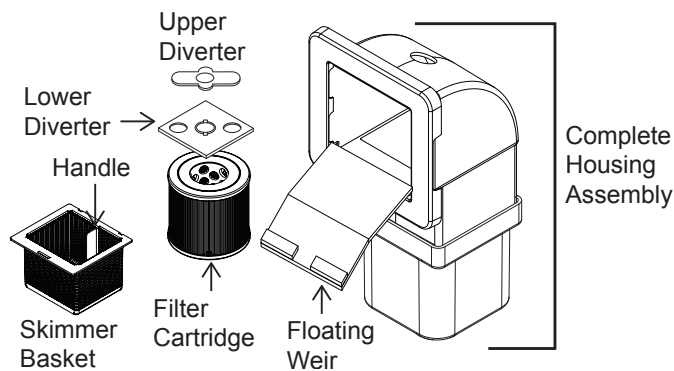
Cleaning products for your spa can be purchase at ThermoSpas' online store at <http://online.ThermoSpas.com>.

## A. Mini Front Access Filter Cleaning Procedure - Gemini Series

**(Do not use a pressure washer):**

1. **TURN POWER TO SPA OFF!**
2. Remove skimmer basket by grabbing the handle and pulling upwards toward the opening. Clean out and hose off debris.
3. Remove entire diverter plate\* and hose off.
4. Remove the filter cartridge by grabbing the top of filter and pulling up.
5. Clean filter cartridge by soaking it in a bucket with water and 8 oz. of Thermo Spas Filter Clean. Mix solution by moving filter cartridge up and down several times. For best results allow the filter to soak for 12-24 hours. After soaking, remove the filter and rinse out any remaining debris. After rinsing allow filters to air dry.
6. Allow the filter cartridge to dry completely before reinstalling. To install, hold down the floating weir, insert cartridge through the opening and drop it into the filter housing. Install the diverter plate by placing it over the filter and pressing down. Grab the skimmer basket by the handle and reinstall by inserting it through the floating weir.

**\*Note:** Diverter is installed as one piece. The diverter plate can be adjusted to increase or decrease skimming action. By rotating the lower diverter plate and increasing the hole size you will increase skimming action.



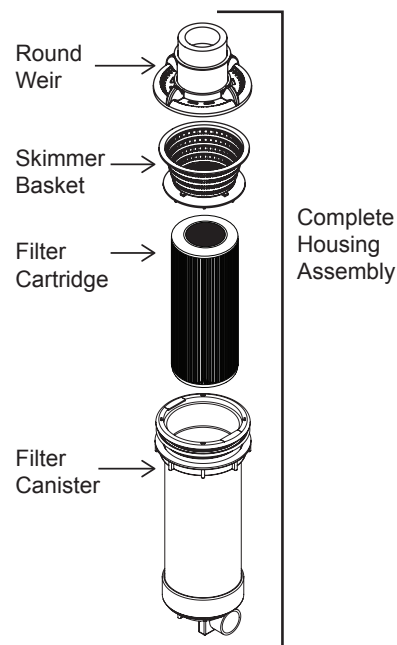
## B. Top Mount Filter Cleaning Procedure - Atlantis and Chesapeake Series

**(Do not use a pressure washer):**

1. **TURN POWER TO SPA OFF!**
2. Remove round weir by turning assembly and pulling it upward.
3. Once the round weir is removed, this will expose the skimmer basket that sits in the filter canister. Pull the basket up to remove.
4. Remove filter cartridge by grasping top of filter and pulling upward.
5. Clean filter cartridge by first filling a bucket with water, adding 8 oz. of ThermoSpas Filter Clean. Mix solution by moving filter cartridge up and down several times. For best results, allow filter to soak for 12 to 24 hours (never less than 3).
6. 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 filter 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.

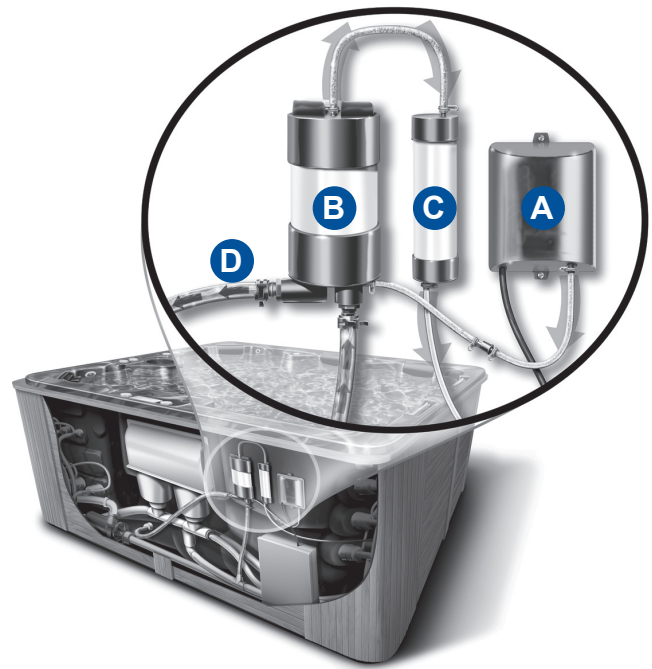
7. To install cartridge, make sure weir/basket assembly has been removed, then simply insert filter into cartridge housing. Finally, replace weir/basket assembly by loading it into the top of the cartridge housing, remembering to twist until the flat edges are locked together.



## Spas with ThermOzone

### 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. 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.



### 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 bi-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.

## 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.

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

1. **Turn the spa circuit breaker off.**
2. Remove the skirt panel(s) and screws. Normally the panel you need to remove is located below the topside control, Figure 1.
3. Locate the drain valve, Figure 2. 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.
4. Hold the drain hose above the water line, then unthread the drain cap from the hose, Figure 3. Place the drain valve and hose on the ground to direct the water away from the spa.
5. Turn the flow valve to the open position to allow the spa to start draining, Figure 3. 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.

6. Completely dry the shell surface with a soft, clean cloth.
7. Clean the shell surface of any debris or mildew using ThermoGloss and ThermoSpas' All Purpose Cleaner.
8. Once you have completed all tasks 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 skirt panel and screws.
9. You are now ready to refill the spa.
10. Periodic visual inspection must be made to detect any leaks within the cabinet.

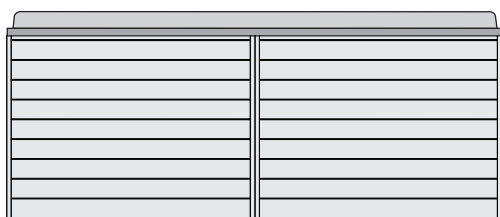


Figure 1: Front skirt panel directly below the topside control (location vary from model to model and one shown).

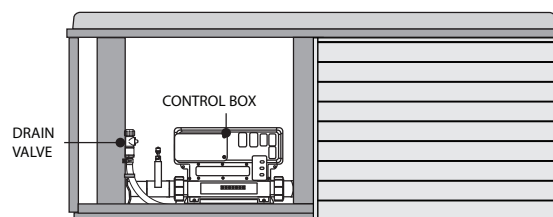


Figure 2: General equipment bay (location can vary from one shown).

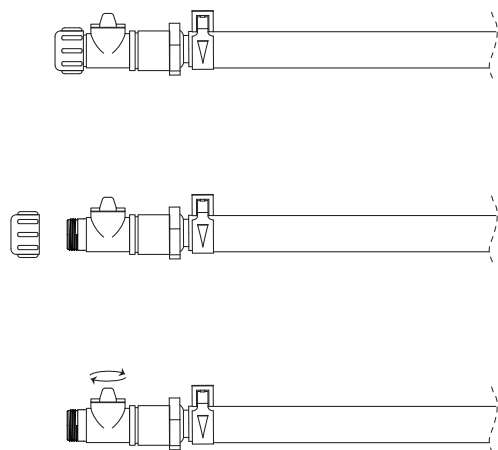


Figure 3

**Note:** If you do not wish to use the built-in Drain Valve, you can drain the spa using either a submersible pump or a siphon. While this may eliminate the requirement to remove the cabinet, **the power to the spa circuit breaker must still be turned off**, and the shell should still be dried and cleaned as described above.

## 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! **Note:** It is highly recommended that you DO NOT put the seam over the control panel. This will cause premature failure of the control system.

### 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 <http://online.ThermoSpas.com>.

## 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 40.

Cleaning products for your spa can be purchase at ThermoSpas' online store at <http://online.ThermoSpas.com>.



## 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 <http://online.ThermoSpas.com>.



## 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 jets, page 25.
3. Drain your spa, page 40. You can use a submersible pump.
4. Remove the cabinet panel 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 44.
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 44.
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. Use a wet vacuum at EACH fitting/jet/suctions to assist in removing any existing water in fittings, water lines and spa shell.
13. Sponge out remaining water from spa shell.
14. Clean the shell and remove any debris.
15. Clean the filter. Store the filter basket and filter(s) element indoors.
16. Install the insulated spa cover and check to ensure that rain water and/or snow is not entering the spa through the cover.

### 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 a 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 insure 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.

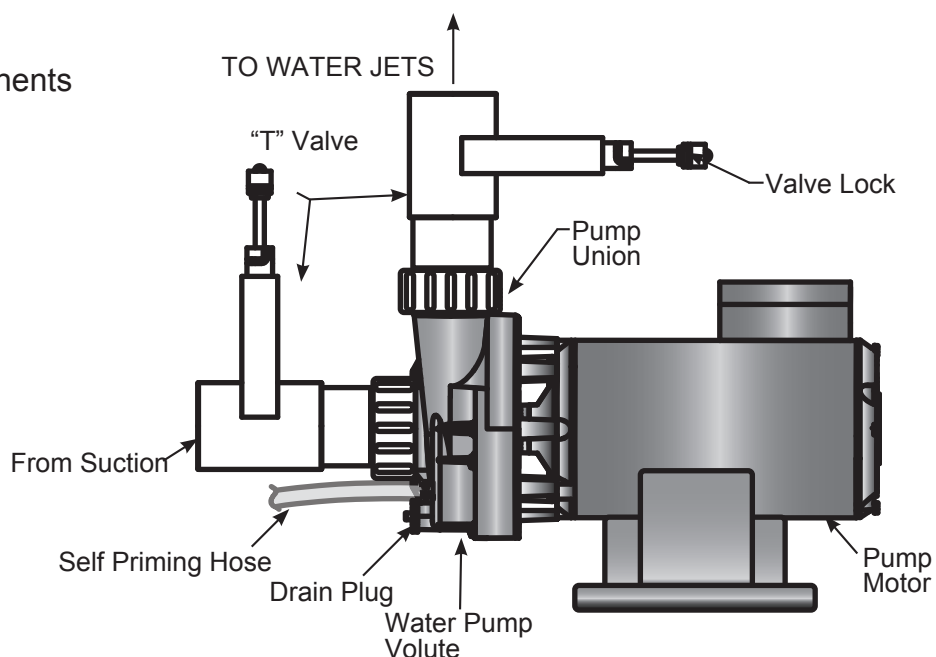
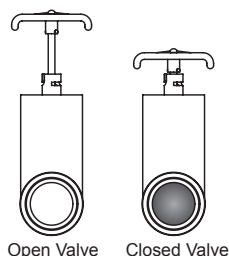
**Note:** Spa should be covered with a tarp after closing process. **Covering your spa with a tarp will protect and keep the spa from getting water into it as it sits dormant.**

## Components

Not all models have all components

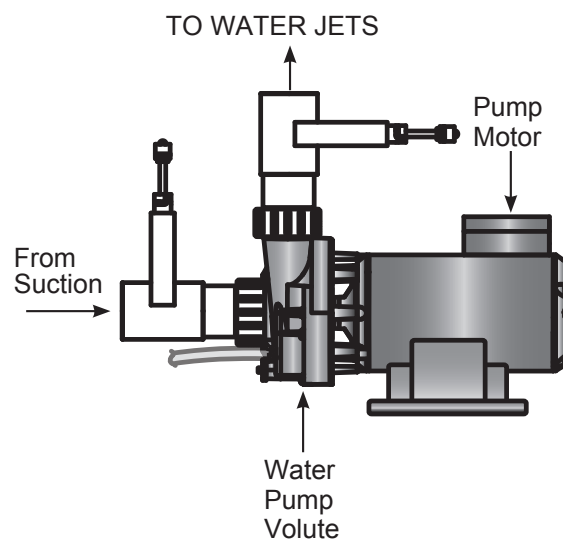
### Water Pump

**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.



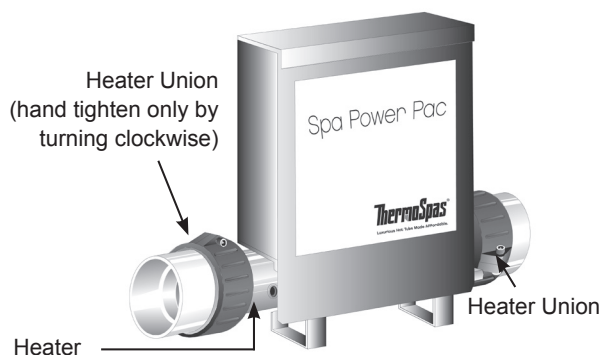
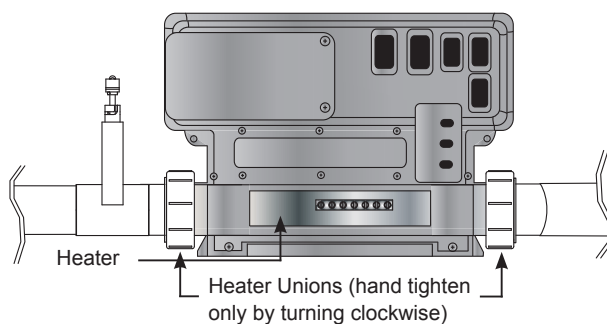
### Circulation/Filtration Pump

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



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

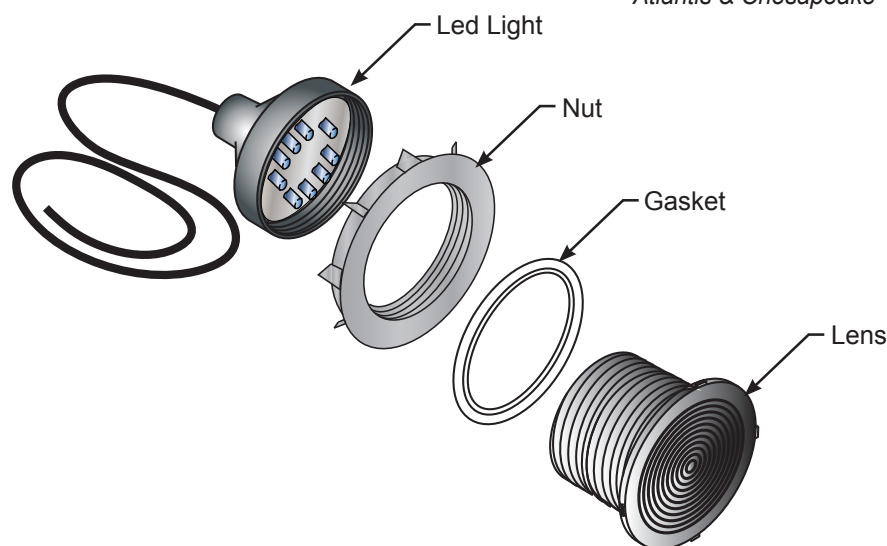
The Spa pack is normally behind the cabinet located underneath the topside control panel.



## Spa Light Assembly

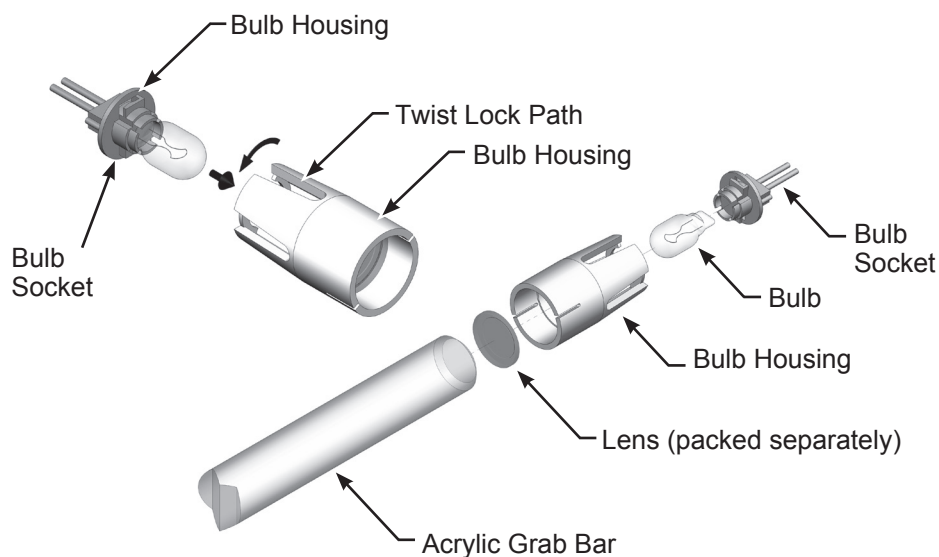
The LED light is attached to the light lens by screwing on to it. The light housing is accessible from underneath the skirt panel for ease of replacement.

**Note:** Light can vary from one shown.



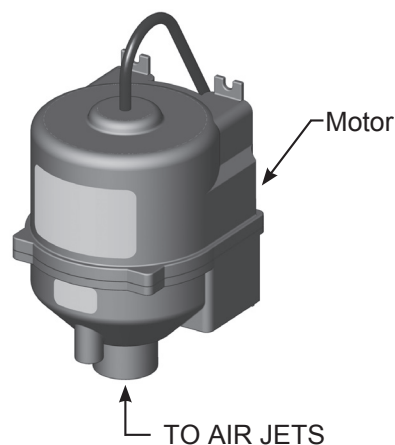
## Grab Bar Light Assembly (if equipped)

The Bulb Socket is attached to the Bulb housing by aligning the (2) Bulb Socket Twist Lock features with the (2) Twist Lock Paths on the Bulb Housing. Insert the Bulb Socket until it stops at the rear of the Bulb Housing, then turn until the Bulb Socket Twist Lock snaps into place. Reverse this procedure to remove the Bulb Socket.






## Air Pump (Blower)

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



## Common Diagnostic Messages (400 Trim Level)

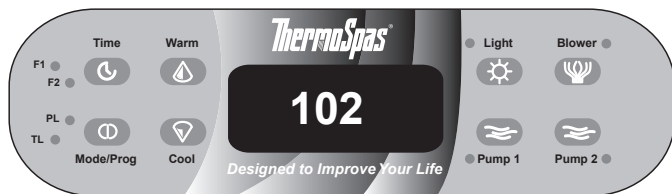




| Error Code | Meaning  | Action   |
|------------|--|--|
| Hr         |  <b><u>DO NOT ENTER THE WATER!</u></b><br>An internal hardware error has been detected. | Turn off power to the spa, wait 30 seconds and turn power back on. Start and stop all pumps. If spa does not reset or the error does not clear, turn off the power to the spa and contact ThermoSpas Service Department 800.876.0158.  |
| HL         |  <b><u>DO NOT ENTER THE WATER!</u></b><br>Water temperature has exceeded 119°F.         | Wait for the water to cool (you may add cold water) or turn off spa power, wait 30 seconds, then turn on spa power. If the error persists, measure spa water with a digital thermometer and compare to the display. If the problem persists, contact ThermoSpas Service Department 800.876.0158. |
| Prr        | An error exists with the water temperature probe.  | Change the temperature setpoint. If the problem persists, contact ThermoSpas Service Department 800.876.0158.  |
| Aoh        | The temperature inside the spa cabinetry is too high.  | Remove panels until spa cools and error clears.  |
| oh         |  <b><u>DO NOT ENTER THE WATER!</u></b><br>Water temperature has reached 108°F (42°C). | Remove the spa cover, add cool water and lower the filtration cycles. If the problem persists, contact ThermoSpas Service Department 800.876.0158.   |
| FLO        | The system did not detect water flowing with pump 1 on.  | Remove the filters, check water level, open all gate valves, ensure pump 1 is on and moving water. If the problem persists, contact ThermoSpas Service Department 800.876.0158.  |

### Ambient Over-Temperature

If the temperature internal to the Spa Pac exceeds 118°F, all outputs will be shut off – no pumps or lights will operate until the temperature inside the Spa Pac decreases to 104°F. This protection is intended to prevent damage to critical Spa and Control components.

## Common Diagnostic Messages (Gold & Silver Trim Levels)



| Error Code | Meaning   | Action   |
|------------|---|--|
| OHH        | Overheat - <u>The spa has shut down.</u> One of the sensors has detected a temperature of 118°F (approximately 47.8°C) at the heater.   |  <b>DO NOT ENTER THE WATER!</b> Remove the spa cover and allow water to cool. Once the heater has cooled or the temperature reaches 107°F (approximately 41.7°C) you can reset the spa by pressing any button. If spa does not reset, turn off the power to the spa and contact ThermoSpas Service Department 800.876.0158. |
| OHS        | Overheat - <u>The spa has shut down.</u> One of the sensors has detected a temperature of 110°F (approximately 43.3°C) at the heater.   |  <b>DO NOT ENTER THE WATER!</b> Remove the spa cover and allow water to cool. The spa will automatically reset once the temperature reaches 107°F (approximately 41.7°C). If the problem persists, contact ThermoSpas 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.  |
| SnA        | <u>Spa is shut down.</u> The sensor that is plugged into sensor "A" Jack is malfunctioning or not working.  | If the problem persists, contact ThermoSpas Service Department 800.876.0158. (This may appear temporarily in an overheat situation and disappear when the heater cools.)   |
| SnB        | <u>Spa is shut down.</u> The sensor that is plugged into sensor "B" Jack is malfunctioning or not working.  | If the problem persists, contact ThermoSpas Service Department 800.876.0158. (This may appear temporarily in an overheat situation and disappear when the heater cools.)   |
| SnS        | Sensors are out of balance. If this error code is alternating with the temperature, it could be a temporary condition. If the LED screen displays only this message (blinking) then the spa is shut down. | If the problem persists, contact ThermoSpas Service Department 800.876.0158.   |
| HFL        | The temperature sensors have detected a substantial difference between temperatures. This could be caused by a flow problem.  | Check the water level in the spa. Add water if necessary. Prime the pumps if the water level is okay. If the problem persists, contact ThermoSpas Service Department 800.876.0158.   |
| LF         | Low flow problem detected. (This error displays on the fifth occurrence of the "HFL" message within 24 hrs.) Heater is deactivated, but other spa functions continue to run normally.                     | Refer to actions required for "HFL" message. The heater will not automatically reset. To reset, once the flow error has been fixed, press any button on the control panel.   |

## Common Reminder Messages (Gold & Silver Trim Levels)

| Code | Occurrence     | Action  |
|------|----------------|---|
| rPH  | Every 7 days   | Test and adjust pH levels. Refer to the manufacturers instructions.             |
| rSA  | Every 7 days   | Test and adjust sanitizer levels. Refer to the manufacturers instructions.      |
| rCL  | Every 30 days  | Remove, clean and reinstall filter(s). Refer to the manufacturers instructions. |
| rtg  | Every 30 days  | Test and reset GFCI per manual instructions.                                    |
| rdr  | Every 90 days  | Test Total Dissolved Solids levels. Spa might need to be drained and refilled.  |
| rCO  | Every 180 days | Clean and condition cover. Refer to page 41 for instructions.                   |
| rtr  | Every 180 days | Clean and condition wood per manufacturers instructions.                        |
| rCH  | Every 365 days | Install new filter or filter(s).  |



## 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>   |

## 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. 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 pool or 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 use a substance, or mixture of substances to destroy or irreversibly inactivate bacteria, fungi and viruses, but not necessarily bacterial spores, in the inanimate environment. Chlorine and bromine are registered for this use.

**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/l). 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.

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

**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 remove oils and organic material (skin, hair etc.) left in the spa by bathers that cannot be removed by products 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. It has a clean, fresh scent noticed after a rainstorm. Despite the presence of ozone, 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** - To use a substance, or mixture of substances, that reduces the bacterial population in the inanimate environment by significant numbers, (e.g., 3 log<sub>10</sub> reduction or more), but does not destroy or eliminate all bacteria.

**Scale** - Forms on surfaces in contact with water when the calcium hardness, pH or total alkalinity levels are too high. Scale may appear as grey, 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. 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.

**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.

**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.



## 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 pumps to release off-gas.

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 used within 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 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 there are many contaminants (i.e. ammonia, nitrogen laden compounds, and bather wastes) that are not controlled by ozone. 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: I am going away on vacation, should I winterize?

A: Winterizing your spa while you are 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 customer's responsibility to keep the spa from freezing.

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, forth 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 whirlpool jet or 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 customers to make sure that this is done.

## 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  $\leq 10$ psf (standard for decking design)
- Moisture Load  $\leq 19.0\%$  (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<br>(inches) | Joint Spacing<br>(inches<br>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   |

## Electrical Requirements Chart

| Model             | Voltage | Breaker Size | No. of Wires | Wire Gauge |
|-------------------|---------|--------------|--------------|------------|
| Atlantis 400      | 240V    | 50A GFCI     | 4 Wire       | 6/4        |
| Atlantis Silver   | 240V    | 50A GFCI     | 4 Wire       | 6/4        |
| Atlantis Gold     | 240V    | 50A GFCI     | 4 Wire       | 6/4        |
| Chesapeake 400    | 240V    | 50A GFCI     | 4 Wire       | 6/4        |
| Chesapeake Silver | 240V    | 50A GFCI     | 4 Wire       | 6/4        |
| Chesapeake Gold   | 240V    | 50A GFCI     | 4 Wire       | 6/4        |

## 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     |
| Atlantis 400   | 76 in.<br>(193.0 cm)    | 76 in.<br>(193.0 cm)    | 35 in.<br>(88.9 cm)    | 1,868 lb.<br>(934 kg)   | 4 in.<br>(102 mm) |
| Atlantis Silver  | 79.25 in.<br>(201.3 cm) | 79.25 in.<br>(201.3 cm) | 35.25 in.<br>(89.5 cm) | 1868 lb.<br>(934 kg)    | 4 in.<br>(102 mm) |
| Atlantis Gold  | 79.25 in.<br>(201.3 cm) | 79.25 in.<br>(201.3 cm) | 35.25 in.<br>(89.5 cm) | 1868 lb.<br>(934 kg)    | 4 in.<br>(102 mm) |
| Chesapeake 400   | 81 in.<br>(205.7 cm)    | 69 in.<br>(175.3 cm)    | 31 in.<br>(78.7 cm)    | 2413 lb.<br>(1096.8 kg) | 4 in.<br>(102 mm) |
| Chesapeake Silver  | 79 in.<br>(200.7 cm)    | 87 in.<br>(221.0 cm)    | 38 in.<br>(88.9 cm)    | 3174 lb.<br>(1429.1 kg) | 4 in.<br>(102 mm) |
| Chesapeake Gold  | 79 in.<br>(200.7 cm)    | 87 in.<br>(221.0 cm)    | 38 in.<br>(88.9 cm)    | 3174 lb.<br>(1429.1 kg) | 4 in.<br>(102 mm) |

## Water Capacity Chart

Water Capacity Reference For Chemicals

**\* Use approximate average fill for chemical measurement**

| Model             | *Approximate Average Fill       |
|-------------------|---------------------------------|
| Atlantis 400      | 225 US gal.<br>(851.6 Liters)   |
| Atlantis Silver   | 225 US gal.<br>(851.6 Liters)   |
| Atlantis Gold     | 225 US gal.<br>(851.6 Liters)   |
| Chesapeake 400    | 280 US gal.<br>(1,059.8 Liters) |
| Chesapeake Silver | 280 US gal.<br>(1059.8 Liters)  |
| Chesapeake Gold   | 280 US gal.<br>(1059.8 Liters)  |





The logo features the word "ThermoSpas" in a stylized, italicized font. The "T" is large and bold, with a small registered trademark symbol (®) to its upper right. The "S" is also large and bold, with a small registered trademark symbol (®) to its upper right. The word "Thermo" is in a lighter weight than "Spas".

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14525 Monte Vista Ave.

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

**SAVE THESE INSTRUCTIONS**

6530-914K Rev A (4/2023)