



33 WADE ROAD  
LATHAM, NY 12110  
(518) 786-1111

Adirondack/Geyser/Select  
60HZ English



Domestic 60Hz Guide

**MODEL:** \_\_\_\_\_

**SERIAL NUMBER:** \_\_\_\_\_

**DATE INSTALLED:** \_\_\_\_\_

**DEALER:** \_\_\_\_\_

**ADDRESS:** \_\_\_\_\_

**TELEPHONE:** \_\_\_\_\_

**NOTE: THE SERIAL NUMBER/IDENTIFICATION LABEL IS LOCATED WITHIN THE EQUIPMENT COMPARTMENT & SKIMMER AREA.**

Model	Average Fill Gallons	Weight Filled lbs.	Weight Empty lbs.
<b>Adirondack Series</b>			
Georgian	450	4397	725
Saranac	350	3336	480
Champlain	240	2358	400
Placid	150	1609	385
<b>Geyser Series</b>			
Paradise	255	2430	350
Island	240	2268	310
<b>Select Series</b>			
Ballston	150	1609	385
Arlington	240	2358	475
Hamilton	340	3250	475
Lexington	350	3336	480

This owners manual has been designed to acquaint you with your Saratoga Select, Adirondack or Geyser Spa’s operation and general maintenance.

Keep this manual available for future reference.

If you have any questions regarding your spa, contact your local dealer.

Saratoga Select, Adirondack and Geyser Series spas are products of the Saratoga Spa & Bath Co., Inc.

Thank you.

## CONTENTS

- 1. Safety Instructions ..... p. 4-5
- 2. Installation Instructions ..... p. 6
- 3. Electrical Requirements
  - 3A. 120 V Electrical Requirements (Champlain, Placid, Island) ..... p. 6
  - 3B. 240 V Electrical Requirements ..... p. 7
- 4. Start-Up
  - 4A. Procedures ..... p. 7
  - 4B. Initial Start-Up ..... p. 8
- 5. Digital Top Side Features
  - TSC-18 ..... p. 8
- 6. Spa Operation & Temperature Setting ..... p. 9
- 7. Hydrotherapy Jet System ..... p. 10
- 8. Spa Filter Cartridge Installation ..... p. 10
- 9. Spa Care and Maintenance ..... p. 10-11
- 10. Water Quality Maintenance ..... p. 12-13
- 11. Diverter Valve Maintenance ..... p. 14
- 12. Trouble Shooting ..... p. 14
- 13. Wiring Diagram ..... p. 15

Spa must always be covered when not in use in both indoor and outdoor installations. (Read Below)

**IMPORTANT:** Whenever the spa is not in use it is essential that the thermal cover be kept in place. When filled this insures effective temperature maintenance and economical operation as well as preventing the spa from pumping out water during power filtration cycle. When empty, this prevents potential damage to the spas surface finish which can result from excessive heat by the sun. These types of damage are specifically excluded from warranty protection . It is also recommended that the thermal cover tie-downs always be used to discourage access to the spa by unsupervised children and minimize heat loss.



### Safety Alert Symbol

This is a safety alert symbol. It is used in this manual and on the safety signs and labels to alert you to potential hazards. When you see this symbol, read and obey the message that follows it. Failure to obey safety messages could result in serious personal injury or death.

# 1. IMPORTANT - SAFETY INSTRUCTIONS:

**WHEN INSTALLING AND USING THIS ELECTRICAL EQUIPMENT, BASIC SAFETY PRECAUTIONS SHOULD ALWAYS BE FOLLOWED, INCLUDING THE FOLLOWING:**

## READ AND FOLLOW ALL INSTRUCTIONS.

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

A wire connector is provided on this unit to connect a minimum No. 8 AWG (8.4 mm2) solid copper conductor between this unit and any metal equipment, metal enclosures of electrical equipment, metal water pipe, or conduit within 5 feet (1.5 m) of the unit.

**DANGER** - Risk of Accidental Drowning. Extreme caution must be exercised to prevent unauthorized access by children. To avoid accidents, ensure that children cannot use this spa unless they are supervised at all times.

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

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

**DANGER** - Risk of Electric Shock. Install at least 5 feet (1.5 m) 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 by a minimum No. 8 AWG (8.4 mm2) solid copper conductor to the wire connector on the terminal box that is provided for this purpose.

**DANGER** - Risk of Electric Shock. Do not permit any electric appliance, such as a light, telephone, radio, or television, within 5 feet (1.5 m) of a spa. These units do not have an integral ground fault circuit interrupter. The installation of a ground fault circuit interrupter **MUST** be done by a qualified Electrician and must meet all local and national codes.

The electrical supply for this product must include a suitable rated switch or circuit breaker to open all ungrounded supply conductors to comply with section 422-20 of the National Electrical Code ANSI/NEPA 70-1987. The disconnecting means must be readily accessible to the tub occupant but installed at least 5 feet (1.5m) from tub water.

**WARNING** - To reduce the risk of injury:

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

Since excessive water temperatures have a high potential for causing fetal damage during the early months of pregnancy, pregnant or possibly pregnant women should limit spa water temperatures to 100°F.

Before entering a spa, the user should measure the water temperature with an accurate thermometer since the tolerance of water temperature-regulating devices varies.

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

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

The causes, symptoms, and effects of hyperthermia may be described as follows: Hyperthermia occurs when the internal temperature of the body reaches a level several degrees above the normal body temperature of 98.6°F. The symptoms of Hyperthermia include an increase in the internal temperature of the body, dizziness, lethargy, drowsiness, and fainting. The effects of hyperthermia include:

1. Failure to perceive heat.
2. Failure to recognize the need to exit the spa or hot tub.
3. Unawareness of impending hazard.
4. Fetal damage in pregnant women.
5. Physical inability to exit the spa or hot tub.
6. Unconsciousness resulting in drowning.

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

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.

**SAVE THESE INSTRUCTIONS.**



At least two additional lugs marked "BONDING LUGS" are provided on the external surface of one of the bonded component's metal enclosure. To reduce the risk of electric shock, connect the local common bonding grid in the area of the hot tub 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 rail, ladders, drains, or other similar hardware within 3 m of the spa or hot tub shall be bonded to the equipment grounding bus with copper conductors not smaller than No. 6 AWG.

- WARNING:** Do not use drugs or alcohol before or during the use of a spa or hot tub, to avoid unconsciousness and possible drowning.
- WARNING:** Pregnant or possibly pregnant women should consult a physician before using a spa or hot tub.
- WARNING:** Water temperature in excess of 38°C may be injurious to your health.
- WARNING:** Before entering the spa or hot tub, measure the water temperature with an accurate thermometer.
- WARNING:** Do not use a spa or hot tub immediately following strenuous exercise.
- WARNING:** Prolonged immersion in a spa or hot tub may be injurious to your health.
- WARNING:** Do not permit electric appliances (such as a light, telephone, radio, or television) within 1.5 m of this spa or hot tub.
- WARNING:** Maintain water chemistry in accordance with manufacturer's instruction.
- WARNING:** Children should not use spas or hot tubs without adult supervision.
- WARNING:** Do not use spas or hot tubs unless all suction guards are installed to prevent body and hair entrapment.
- WARNING:** People using medications and/or having an adverse medical history, should consult a physician before using a spa or hot tub.
- WARNING:** People with infectious diseases should not use a spa or hot tub.
- WARNING:** To avoid injury, exercise care when entering or exiting the spa or hot tub.

## 2. INSTALLATION INSTRUCTIONS:

Your Spa is totally self-contained and portable. You can locate it just about anywhere you wish. Preferable places are a patio, deck, or indoors. Regardless of your choice, the spa should always be placed on a structurally strong level surface.

When selecting a site for your spa, be sure to allow for drainage away from the electrical compartment of your spa. Also, allow for access to the equipment compartment.

Do not block air vents to your spa. The air vents allow for circulation of air throughout the equipment compartments. These vents are found on the face of the equipment compartment panel, the floor of the equipment compartment, and under the corners of the spa at the equipment compartment end.

This Spa is manufactured to be a portable unit. Any permanent installation of this product is done at the risk of the owner. Permanent installation of this unit violates warranty coverage and all costs associated with the removal.

### 3A. 120 VOLT ELECTRICAL REQUIREMENTS:

Saratoga Spa products must be wired in accordance with all applicable local electrical codes.

All electrical work should be done by an experienced, licensed electrician familiar with spa installations.

NOTE: As of January 1, 1996, The National Electrical Code (NEC) requires a GFCI (Ground Fault Circuit Interrupter) on all spa installations.

The Models with the SSPA Control System - Placid Island and Champlain models are manufactured with convertible heating units. They are factory wired for 240 volt operation with a 4.0 KW heater and with 50 AMP service, but can also be cord connected for 120 volt operation with a 1.0 KW heater. Note: See reverse side of Control System Box cover for specific instruction.

#### 120 VOLT SYSTEMS

•The 120 Volt model may be optionally equipped with approximately 13 feet of GFCI power cord. •With the spa set in place, route the power cord through the vent hole in the base of the equipment compartment and out from under the corner of the spa. •The Ground Fault Circuit Interrupter (GFCI) is located on the 13 foot power cord.

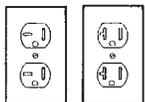
#### 120 VOLT MODELS

These spas must be connected to a "Dedicated" 120 Volt 20 AMP grounded circuit. The term "dedicated" means the electrical circuit is not being used for any other electrical items (lights, appliances, etc.) If the spa is connected to a non-dedicated circuit, overloading will occur and nuisance tripping of the GFCI breaker switch at the house breaker panel will occur. **NEVER CONNECT THE SPA TO AN EXTENSION CORD.**

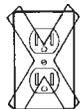
A ground lug connector is provided on the exterior surface of the control box inside the equipment compartment. This is to permit the connection of a bonding wire between this point and any metal equipment, enclosures, pipe or conduit within five feet of the spa. This bonding wire must be at least #8 AWG solid copper wire.

Equipment Modules provided with a factory installed power cord are to be plugged into a grounding type, 120 volt, 20 Amp receptacle, shown below. No other electrical appliance or fixture should be used on this circuit.

**WARNING:** The use of any other receptacle, or the connection of the plug to a 240 volt service may cause the Equipment Module to operate improperly, create the potential for an electrical hazard, and may void the warranty.



120 VOLT 20 AMPERE



120 VOLT 15 AMPERE

**NOTE:** Under NO circumstances should an extension cord be used. Use of an extension cord will seriously degrade the performance of the Equipment Module and can create an electrical hazard.

#### 120 OR 240 VOLT INSTALLATION (PERMANENTLY CONNECTED UNITS)

The following instructions are for the conversion of the Equipment Module from a 120 volt cord-and-plug connected unit to a 120 volt, or 240 volt, permanently connected unit.

**CAUTION:** Use only approved pressure-type wire splicing lugs or connectors suitable for the size and type of wiring used!

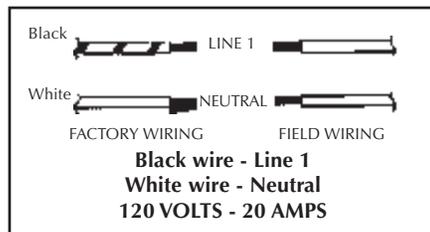
#### 120 VOLT WIRING INSTRUCTIONS:

**Disconnect all power to spa before servicing.**

1. Open the Equipment Module's wiring access panel to allow access to the input power wiring.
2. Disconnect the conductors of the power supply cord from the input power wiring, then completely remove the power supply cord from the Equipment Module and discard.
3. Connect the input power wiring as shown at right. **120 volt installations require a 60HZ, single phase, two wire electrical service, plus ground (Line 1, Neutral, and Ground),** and must be connected using a minimum supply conductor ampacity of 20 AMPS and a minimum GFCI circuit breaker size of 20 AMPS. **240 Volt installations require a 60HZ, single phase, three wire electrical service, plus ground (Line 1, Line 2, Neutral, and Ground),** and must be connected using a minimum supply conductor ampacity of 50 AMPS and a minimum circuit GFCI breaker size of 50 AMPS.

NOTE: Use copper wire only.

NOTE: Improper wiring invalidates warranty.



Note: See reverse side of Control System Box cover for specific instruction.

## 3B. 240 VOLT ELECTRICAL REQUIREMENTS:

Saratoga Spas must be wired in accordance with all applicable local electrical codes.

All electrical work should be done by an experienced, licensed electrician familiar with spa installations.

NOTE: As of January 1, 1996, The National Electrical Code (NEC) requires a GFCI (Ground Fault Circuit Interrupter) on all spa installations.



All Select, Geysler and Adirondack Series models are available in a 240 Volt - 4KW heater with 50 AMP service only.

#### 240 VOLT MODELS

All Select, Geysler and Adirondack Series spas must be connected to a "Dedicated" 240 Volt 50 AMP grounded circuit. The term "dedicated" means the electrical circuit is not being used for any other electrical items (lights, appliances, etc.) If the spa is connected to a non-dedicated circuit, overloading will occur and nuisance tripping of the GFCI breaker switch at the house breaker panel will occur.

A ground lug connector is provided on the exterior surface of the control box inside the equipment compartment. This is to permit the connection of a bonding wire between this point and any metal equipment, enclosures, pipe or conduit within five feet of the spa. This bonding wire must be at least #8 AWG solid copper wire.

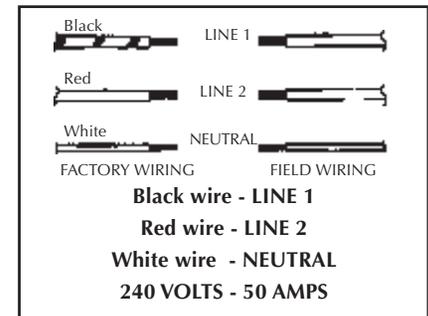
**CAUTION:** Use only approved pressure-type wire splicing lugs or connectors suitable for the size and type of wiring used!

#### 240 VOLT WIRING INSTRUCTIONS:

1. Open the Equipment Module's wiring access panel to allow access to the input power wiring.
2. Connect the input power wiring as shown below. 240 Volt installations require a 60HZ, single phase, three wire electrical service, plus ground (Line 1, Line 2, Neutral, and Ground), and must be connected using a minimum supply conductor ampacity of 50 AMPS and a minimum circuit breaker size of 50 AMPS.

Note: Use copper wire only.

Optional Ozone Generators MUST be wired 110V only.

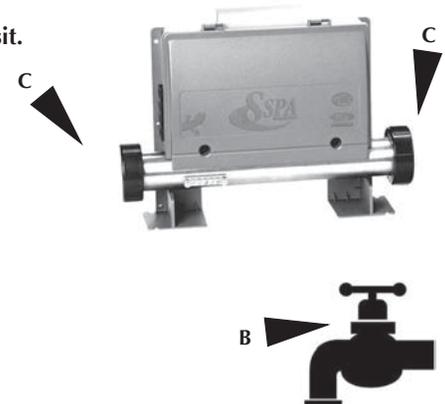
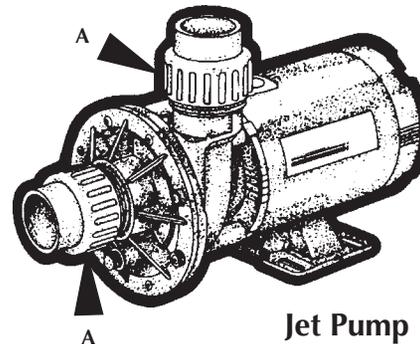


## 4A. START-UP PROCEDURES:

**IMPORTANT: BEFORE FILLING WITH WATER, DO THE FOLLOWING:**

- A. HAND TIGHTEN UNIONS
- B. TIGHTEN DRAIN VALVE
- C. TIGHTEN HEATER UNIONS

NOTE: Above items may become loose in transit.

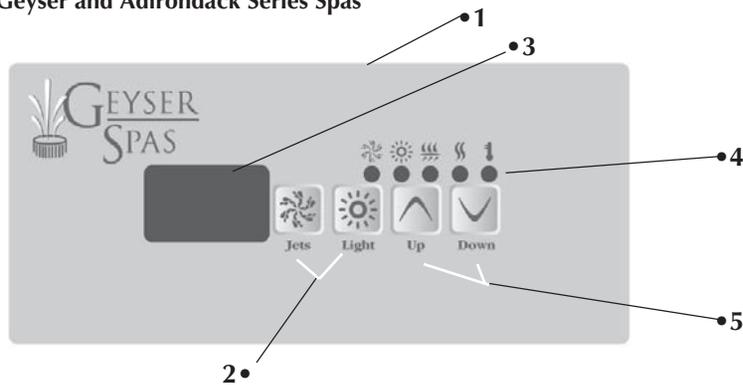


## 4B. INITIAL START-UP:

1. Open Air Relief Vent in skimmer box to remove trapped air. See Diagram on page 10 for location. Close vent when system is running. Fill the spa with water by removing the cartridge and placing a hose in the cartridge fitting. Run water until it reaches a level 2" above the top of the filter cartridges. Replace the cartridge after filling is complete.
2. Check all plumbing connections for leaks in motor box.
3. Bring power to spa control system. The control will begin heating the spa to the set temperature (Preset at the manufacturing facility for 95°F, 35°C.) The minimum temperature is 59°F, 15°C and the maximum temperature is 104°F, 40°C.  
**NOTE:** It may be necessary to press and release the ground fault circuit interrupter (GFCI) RESET button.  
**NOTE:** If power is interrupted, the filtration cycle will be reset and the temperature setting will return to the factory preset 95°F, 35°C.
4. Water must be balanced and shocked upon start up. See your dealer or pages 12 & 13 of this manual for details. This procedure must be repeated each time the spa is drained and refilled.

## 5A. DIGITAL TOP-SIDE FEATURES:

### DIGITAL SPA CONTROL FEATURES: All Select, Geyser and Adirondack Series Spas



- 1 **DISPLAY PANEL**  
The display will operate the light, jets and temperature control. It will also indicate heater operation, display water temperature and display topside diagnostics.
- 2 **LIGHT / JETS BUTTON**  
Activates the light and hydro jet pump using the corresponding key pad.
- 3 **DISPLAY SCREEN**  
Displays temperature of spa, set temperature of spa and diagnostic symbols.
- 4 **HEATER INDICATOR**  
Red light indicates that spa heater is activated.
- 5 **TEMP**  
Used to set desired water temperature up or down. Setting filtering times - (2) cycles. To program the

cycle times between 0-12 hours per cycle, press and hold the light key for five seconds until the display screen shows the 2-digit time.

Use the temperature buttons up or down to adjust the valve as desired.

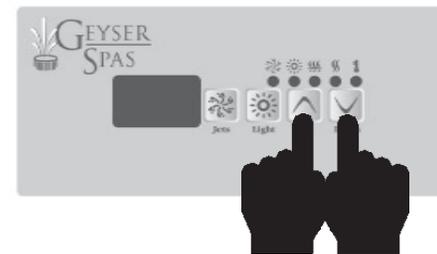
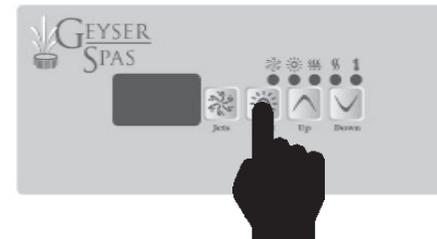
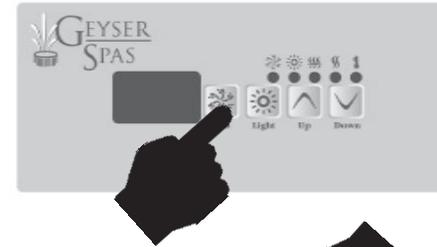
Press the light key again to confirm the setting and to commence 1st cycle.

Note: 0 = no filtering 12 = 24 hour a day filtration  
Factory default is at 6 hour cycle.

#### Self Diagnostics

The Saratoga Digital Spa Control features a series of self diagnostic symbols:  
FLASHING TEMPERATURE, FLASHING FILTERING ICON. For a complete description of these features see page 14 of this manual.

## 6. SPA OPERATION & TEMPERATURE SETTING:



### OPERATING THE HYDRO JETS, PUMP 1:

Press the Jets pad to activate and deactivate the hydro jet pump (touch once for low speed, a second time for high speed and a third to turn the pump off). The pump, when activated, will automatically turn off after 20 minutes of operation.

### OPERATING THE HYDRO JETS, PUMP 2:

Press the jets pad to activate and deactivate the hydro jet pump (touch once for low speed, a second time for high speed and a third time to turn off the pump). The pump, when activated, will automatically turn off after 20 minutes of operation.

### OPERATING THE AIR BLOWER:

Press the blower pad to turn the blower on and off. The blower will automatically turn off after 20 minutes of operation.

### OPERATING THE MOOD LIGHT:

Press the mood light pad to activate light. The mood light will automatically turn off after 2 hours of operation.

### SETTING THE TEMPERATURE:

Temperature adjustment is controlled by pushing the up and down set pad(s). The display shows the actual water temperature unless the pad is pressed. When the up and down set pad is pressed, the display will show the set temperature for 5 seconds. Pressing the up and down set pad a second time will cause the set temperature to increase or decrease depending on what direction. Each successive press will change the set temperature in the same direction. Press the pad to display the set temperature, and press again to make the temperature change in the desired direction. The panel is preset at 95°F, 35°C.

**NOTE:** Freeze protection is a standard feature designed into the spa control system. (Smart Winter Mode) This system prevents the water from freezing in the pump plumbing. An onboard sensor continuously checks the ambient air temperature in the control box system. If at any time the temperature goes below 55°F, the system activates the Winter Mode for the next 24 hours. In this mode, if one of the pumps has not been turned on during the last 2 hours, the system will start it for 1 minute to circulate warmer water in the plumbing. When the pump is running because of this protective feature, the filter arrow on the display will blink. No corrective action is necessary.

**NOTICE:** This unit is not designed to cool water. If the set or desired temperature is below that of the ambient air temperature, the unit will not be able to achieve this demand. Depending on the desired temperature, it may be necessary to add cool water to the unit to lower your spa's water temperature.

## 7. HYDROTHERAPY JET SYSTEM:

**Note: Jets vary depending on spa model and series.**

### STANDARD VERSA-FLO™ JET

Two styles (Directional and Spinner), provide a mix of water and air that are volume adjustable by turning the scalloped outer ring. Directional - To change from a straight stream to directional, with finger, move inner nozzle to position desired. Spinner - To change from small whirly pattern to a larger pattern, with finger, flick inner nozzle to either side. Note: Both styles are interchangeable. To accomplish, simply pull outer ring out and unscrew counter-clockwise. Make sure hydro pumps are off.

### MINI VERSA-FLO™ JET

Two styles (Directional and Spinner), provide a mix of water and air that are volume adjustable by turning the

scalloped outer ring. Directional - To change from a straight stream to directional, with finger, move inner nozzle to position desired. Spinner - Spins continuously, no pattern adjustment available. Note: Both styles are interchangeable. To accomplish, simply pull outer ring straight out. Make sure hydro pumps are off.

### CLUSTER JETS

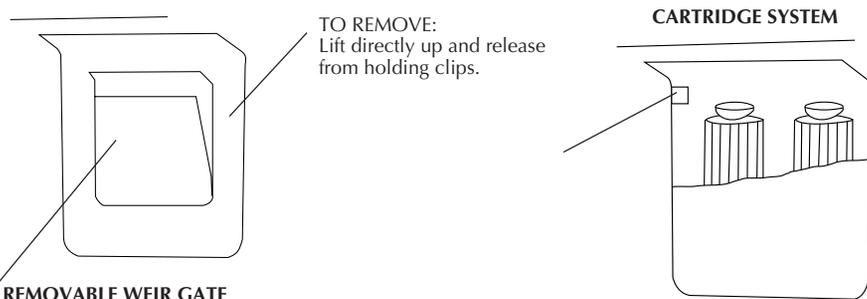
Cluster Jets provide a stream of water and air with pinpoint accuracy.

### GEYSER HYDRO JET

This jet is a valve and a whirlpool all in one. Found only in the Geyser Series, the jet capitalizes on the spa's round design to create a soothing massage with the swirling water.

## 8. SPA FILTER CARTRIDGE INSTALLATION:

**WARNING: USE ONLY AUTHORIZED SARATOGA SPA CARTRIDGES. (The use of other spa manufacturers cartridges will void your warranty.)**



## 9. SPA CARE AND MAINTENANCE:

Your Spa is manufactured from the highest quality, most durable materials available today. We recommend that a spa maintenance program be followed. The care you take will ultimately determine how long your spa or its individual components will last. This section will help you maintain your investment.

### FILTER MAINTENANCE

As with any water filtering system, the filter cartridges may become clogged with particles, body oils or calcification, that will result in poor water quality. It is important to maintain a clean unobstructed filtering system.

### FILTER CARTRIDGE REMOVAL AND INSTALLATION

1. Remove and carefully set the skimmer cover off to the side.

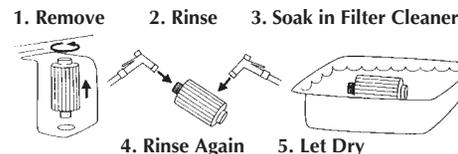
2. Remove any floating items from within the filter compartment.
3. Grasp the top of the filter cartridge and turn clockwise until it is free from the base retainer.
4. To reinstall the filter cartridge, reverse the order in which it was removed. **DO NOT OVER TIGHTEN!!**

**NOTE: Do Not use spa without Saratoga Spa Filter Cartridges In Place.**

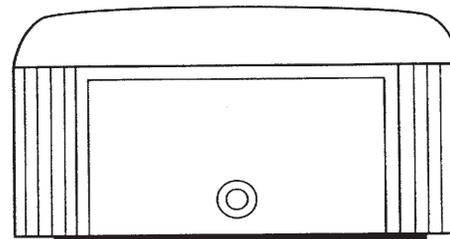
**NOTE: Spa cartridges are a disposable item and are not covered under warranty.**

### FILTER CARTRIDGE CLEANING

1. Place the cartridge on a clean surface, spray with a garden hose. It will be necessary to rotate the cartridges to insure all filter pleats have been cleaned.
2. Complete cleaning by spraying down throughout the center of the cartridge (inside out).
3. Allow cartridge to dry. Reinspect and reinstall.
4. A complete and more thorough cleaning can be achieved by soaking cartridges in filter cleaner. Follow directions on the label.

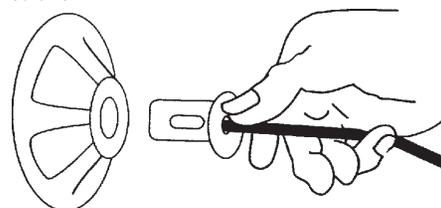


### REPLACING LIGHT BULB

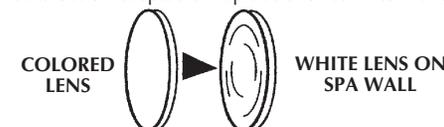


**Replacement Bulb: GE 912 bulb.**

Locate the light lens inside your spa. Remove the corresponding wood panel by unscrewing the six screws.



Grasp the bulb holder on the back of the light niche. Twist counter clockwise to release it from niche. Pull bulb out of receptacle. Replace and return to niche.



Colored lenses for your underwater mood light come equipped with your spa. If desired, simply snap them over the light lens on the inside of your spa.

### CARE OF THE EXTERIOR SURFACE (ACRYLIC SPA SHELL)

Your spa is manufactured with an impact resistant surface. Some staining or water marking may occur at or above the water surface.

Removal of these surface conditions can usually be accomplished with a soft cloth by merely wiping them away. Stubborn stains can be removed first by draining the spa and then using a nonabrasive product.

### WOOD SPA SKIRT

The wooden skirt around your spa is manufactured with the finest quality wood available. A good quality wood sealer or natural color wood oil should be applied twice a year to keep your spa skirt looking good as new.

**NOTE:** If equipped, ozone generator will run whenever low speed pump is on.

**NOTE: DISCOLORATION OF THE SPA SKIRT IS CONSIDERED NATURAL AND IS NOT COVERED BY THE SPA SURFACE WARRANTY.**

Your Saratoga Spa dealer may stock original factory finish or recommend another sealer that is available in your area.

### CARE OF THE THERMAL COVER

Your vinyl thermal spa cover has been designed for your particular spa. Monthly cleaning and conditioning is recommended to maintain its beauty.

To clean and condition the vinyl cover:

1. Remove the cover from the spa and lean it against a wall or fence.
2. With a garden hose spray away all loose dirt and debris.
3. Using a large sponge and a solution of two gallons of water to one teaspoon of dishwashing liquid, scrub the vinyl in a circular motion. Make sure to rinse all soap off the cover before it dries.
4. Be sure to rinse the inside of the cover without soap. Towel dry.
5. To condition the vinyl after cleaning, apply a thin film of saddle soap. (Follow directions on the container.)

**Note:** A complete line of cover care products are available. Contact your spa dealer for details.

### IMPORTANT REMINDERS:

- **DO NOT WALK, SIT, OR STAND ON THE FOAM INSULATED COVER.**
- **DO NOT DRAG OR LIFT THE SPA COVER USING THE FLAPS OR COVER TIE-DOWNS.**
- **Always REMOVE ANY SNOW BUILT UP TO AVOID BREAKAGE OF THE FOAM CORE.**
- **Always LOCK COVER STRAPS TO SECURE COVER TO THE SPA WHEN NOT IN USE.**

**IMPORTANT: Whenever the spa is not in use it is essential that the thermal cover be kept in place. When filled this insures effective temperature maintenance and economical operation. When empty this prevents potential damage to the spas surface finish which can result from excessive heat caused by the sun. This type of damage is specifically excluded from warranty protection. It is recommended that the thermal cover tie-downs always be used to discourage access to the spa by unsupervised children and minimize heat loss.**

#### DRAINING THE WATER

##### TO DRAIN SPA:

1. Disconnect the spa from the power supply by tripping the GFCI breaker located in the house breaker panel.
2. Take off equipment access panel and locate hose bib shut off. Attach garden hose and route hose to an appropriate draining area.
3. Open the valve on the hose bib. The spa will drain by gravitational flow.
4. Spa will drain to the lower suction fittings in the footwell of the spa. It will be necessary to vacuum or sponge up the remaining water in the spa.

## 10. WATER QUALITY MAINTENANCE:

#### GENERAL INFORMATION

As the owner of a spa, endless hours of entertainment, recreation, and relaxation await you. Caring for your spa will become a routine and pleasant part of your daily activities. You will be able to maintain your spa water and keep your spa equipment in excellent condition. To do so you first must balance your spa's water.

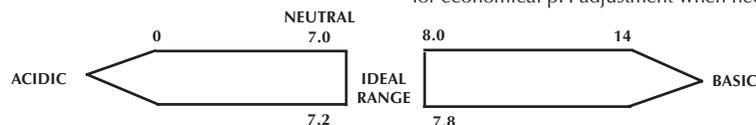
#### BALANCED WATER

Balanced water insures spa bathers' safety as well as protecting the spa heater and components from corrosion. Also, balanced water protects the spa surface from unsightly scale deposits which reduce the efficiency of the spa equipment. You can obtain balanced water by correctly adjusting a few chemical components in the water. Specifically, you will need to adjust the pH, total alkalinity and calcium hardness

#### pH

pH is measured on a scale that runs from 0-14. pH indicates whether water is neutral, acidic, or basic.

The drawing below shows a pH equal to 7.0 is neutral. A pH below this point is acidic and a pH above this point is basic.



**NOTE: Improper water chemistry can result in product failure and invalidate your warranty.**

5. When empty, inspect spa shell and clean as required.
6. Remove garden hose. Close valve - hand tighten.
7. Refill spa with tap water.
8. Reattach panel.
9. Restore power to spa.

#### WINTERIZING YOUR SPA

Follow directions 1 through 4 above (to drain spa).

5. Spa Interior:
  - A. Vacuum each jet, suction and filter outlets.
  - B. Remove valve covers, Shop Vacuum each valve.
  - C. Reverse Shop Vac and blow out each valve.
  - D. Vacuum up excess water.

#### Equipment Area:

6. Hydro-Pumps
  - A. Remove pump(s) from bracket(s) - Vacuum up water from Return and Suction sides of plumbing.
  - B. Reverse vacuum and blow out each line.
  - C. Remove drain plugs - Vacuum up water.
  - D. Put three cups Anti-Freeze in Wet end of pump(s).
  - E. Re-Install pump with unions loose - Drain plug out.
7. Re-Attach Access Panel.
8. Place Cover on Spa - Lock in place.

#### RECOMMENDED RANGE - 7.2 to 7.8

If the pH is too low it can

1. Corrode metal surfaces.
2. Use excess sanitizer.
3. Irritate bathers' skin and eyes.

If the pH is too high it can

1. Deposit scale on surfaces.
2. Contribute to cloudy water.
3. Cause eye irritation.
4. Reduce sanitizer efficiency.

#### TEST pH WEEKLY

#### ADJUSTING pH

To raise pH add pH Increaser at the rate suggested on the container. To lower pH add pH Decreaser at the rate suggested on the container. After initial application, allow water to circulate approximately two hours. Test pH and add second dose if required.

#### TOTAL ALKALINITY

There are minerals in your spa's water that act as buffering agents. Total alkalinity is the measurement of these alkaline materials that help prevent corrosion and staining. The correct amount of alkalinity in your spa's water will keep the water's pH consistent while allowing for economical pH adjustment when necessary.

Example: At low total alkalinity levels, the water's pH easily drifts, making frequent pH adjustments necessary and more chemical treatment expense.

On the other hand, a high total alkalinity level keeps the waters pH rigidly fixed. If pH adjustment is necessary, you will need unusually large amounts of treatment chemicals to change the water's pH.

#### RECOMMENDED RANGE - 80 to 120 PARTS PER MILLION (PPM)

#### POTENTIAL PROBLEMS:

1. pH difficult to maintain. If total alkalinity is too low, pH will drift.
2. Corrosive tendencies. If total alkalinity is too high:
  1. pH difficult to adjust (it remains fixed.)
  2. Cloudy water.
  3. Potential for scaling.
  4. High pH and low sanitizer efficiency.

#### TESTING: WEEKLY ADJUSTING TOTAL ALKALINITY

Total Alkalinity can be raised with Alkalinity Increaser at the manufacturer's recommendation for dosage.

#### CALCIUM HARDNESS

Calcium hardness is the amount of dissolved calcium in your spa's water. Too little calcium in the water will etch plaster surfaces, too much will leave deposits on surfaces and equipment.

RECOMMENDED RANGE: Above 200 ppm

#### POTENTIAL PROBLEMS

Calcium Hardness Too Low:

- Some surfaces may be etched.
- May lead to equipment corrosion.

Calcium Hardness Too High:

- May contribute to cloudy water.
- Scaling of surface, piping and equipment.

#### TESTING : WEEKLY ADJUSTING CALCIUM HARDNESS

Raise hardness by the addition of calcium chloride. Decrease calcium hardness by draining spa and replacing with water containing lower levels of calcium hardness.

#### DISINFECTANT

Brominating Tablets, Granular Chlorine and a Non-Chlorine type shock are popular disinfectants and are particularly well suited to compliment your ozone purification system spa. They are also very suitable products in water with elevated temperatures.

Brominating Tablets are effective as a spa water sanitizer and disinfectant. Follow manufacturer's directions for proper dosage. It is recommended to maintain an active bromine residual of 2.0 to 4.0 ppm.

Granular Chlorine (Dichlor Dihydrate, Lithium Hypochlorite), is designed to dissolve quickly and completely, provide a steady source of available chlorine to control the growth of algae, kill bacteria and destroy organic contaminants. It is recommended to maintain a chlorine residual of between 1.0 and 3.0 ppm.

Non-Chlorine type shock will oxidize or destroy most of the organic contaminants that result from bather load. This quick acting oxidizing shock treatment goes to work almost immediately improving water quality and eliminating irritating wastes and odor. This product is intended to be a shock treatment only.

#### SHOCK TREATMENT

Adding disinfectant to the water in amounts much larger than normal is called shocking the spa. An occasional shock treatment destroys algae, bacteria, and chloramines. After shocking your spa, do not allow bathers to enter the spa until disinfectant levels drop to normal.

#### WHAT CAUSES LOSS OF DISINFECTANT?

- ALGAE: The presence of algae will consume large amounts of disinfectant. If you have an algae problem, the use of an algacide in addition to disinfectant may be necessary.
- BATHER LOAD: The greater the number of people using your spa, the more disinfectant you will need to use.
- IMPROPER pH: A high pH above 7.8 substantially retards disinfecting. Keep the pH between 7.2 and 7.8.
- SUNLIGHT: The sun's Ultraviolet (UV) rays readily dissipate disinfectant levels.
- WATER TEMPERATURE: High water temperature accelerates the loss of disinfectant.
- WEATHER: Rain and wind can carry a significant amount of contaminants into your spa.

#### REMEMBER:

pH 7.2 to 7.8

**TOTAL ALKALINITY 80 TO 120 PPM  
BROMINATING TABLETS AND NON-  
CHLORINE SHOCK 2.0 TO 4.0 PPM,  
GRANULAR CHLORINE 1.0 TO 3.0 PPM  
CALCIUM HARDNESS ABOVE 200 PPM**

**TEST pH WEEKLY**

**TEST DISINFECTANT DAILY**

(Spa test kits are available through your Saratoga Spa Dealer.)

#### OZONE GENERATORS

Ozone Generators are an optional accessory available on this unit.

#### WHAT IS OZONE?

Ozone is nature's natural purifier. It is a chemical known as O<sub>3</sub> and is produced from simple oxygen molecules in our atmosphere. Ozone will remove oils, greases, suntan lotions, sweat, urea, etc. from spa water more effectively than any other oxidizer commercially available. Ozone also assists chlorine, or bromine, to destroy bacteria and viruses and will do so more effectively. Ozone only leaves simple oxygen in the water as a by-product.

#### HOW IS OZONE PRODUCED?

Ozone is produced in nature from lightning during electrical storms and is also produced from ultraviolet rays from the sun to form our protective ozone layer. Your ozone converter uses a special corona discharge which duplicates this natural sanitizer.

Note: Always follow instructions and dosages listed by chemical manufacturers. Use only spa chemicals in your spa. Do not mix chemicals or add chemicals during bather use.

## 11. DIVERTER VALVE MAINTENANCE

Routine maintenance is necessary for the diverter valve(s) located on the upper collar of your spa.

1. Remove valve cover by turning counter clockwise.
2. Lift straight up.
3. Clean debris from valve and valve opening.

4. Grease diverter if needed.
5. Put diverter back in the same direction as moved.
6. Tighten valve cover with clockwise turn.

**NOTE:** Pumps must be off while cleaning.

## 12. TROUBLE SHOOTING:

The following corrective actions can be undertaken by the spa owner. If the spa problem cannot be corrected after following these instructions, call your Saratoga Spa dealer for service.

### SPA DOES NOT OPERATE:

1. Check main power to spa.
2. For 120 Volt installations, make sure power cord is plugged into outlet.
3. Check GFCI.
4. Check water temperature. If temperature is above 112°F., unit will automatically trip the internal high heat safety limit switch. The display panel will flash the water temperature. In such a condition, turn off all power to the spa and contact your dealer or service center. **DO NOT ENTER THE WATER.**
5. If the display panel displays flashing “••••”, the flow switch has detected a problem with the flow of water. Increase the water level or clean the cartridges. If this display continues, there is a malfunction of the flow switch and you should contact your dealer or service center.

6. (Smart Winter Mode) This system prevents the water from freezing in the pump plumbing. An onboard sensor continuously checks the ambient air temperature in the control box system. If at any time the temperature goes below 55°F, the system activates the Winter Mode for the next 24 hours. In this mode, if one of the pumps has not been turned on during the last 2 hours, the system will start it for 1 minute to circulate warmer water in the plumbing. When the pump is running because of this protective feature, the filter arrow on the display will blink. No corrective action is necessary.

7. Spa is reading 0°C: The temperature can be displayed in Fahrenheit or Celsius. To toggle between these choices, simply press on Pump #1 key for a few seconds.  
Note: After power interruption the system will automatically revert back to Fahrenheit.

### SPA SHUTS DOWN DURING NORMAL OPERATIONS:

1. Check venting around equipment area.
2. Check house GFCI breaker.
3. Check for water in control area.

### PUMP DOES NOT WORK OR SURGES:

1. Check water level. Fill if necessary.
2. Check to see if filter cartridges are dirty. If so, then clean.

### WEAK WATER FLOW:

1. Check and clean filter cartridges.
2. Jet inserts are not completely in jet.

### WATER FLOW, BUT NO HEAT:

Remember, upon filling spa, do not expect instant hot water. It may take 12-24 hours to heat cool tap water to desired temperature depending on heater size.

1. Check cover on spa. Be sure it is in place.
2. Check water level. Fill if necessary.

### WATER DOES NOT CLEAR UP:

1. Check water chemistry. Balance water.
2. Clean filter cartridges.
3. Check bromine or chlorine level. Shock if necessary.
4. Check ozone converter for proper operation.

**NOTE:** Spa water may be chemically saturated. If so, remove existing water and refill with new water.

## 13. WIRING DIAGRAM:

