

# **GREAT LAKES SPAS®**

by GPM Industries, Inc.

## **INSTALLATION & OPERATION MANUAL**

### **ELITE & ELITE PLUS Models**

May, 1993





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# IMPORTANT SAFETY INSTRUCTIONS

1. **READ AND FOLLOW ALL INSTRUCTIONS.**
2. **DANGER** - To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.
3. Connect only to a grounded grounding type receptacle.
4. Do not bury cord.
5. **WARNING** - To reduce risk of electric shock, fire, and injury, install with non-metallic pipe and connections to tub and at least five (5) feet (1.52m) from metal enclosure of assembly to inside wall of spa.
6. **DANGER** - To reduce a risk of injury to persons, do not remove suction grate or cover.
7. A pressure wire connector is provided in the control box inside the unit to permit connection of a minimum No. 8 AWG (8.4 mm<sup>2</sup>) solid copper bonding conductor between this point and any metal equipment, metal enclosures of electrical equipment, metal water pipe, or conduit within 5 feet (1.5m) of the unit as needed to comply with local requirements.
8. Install to provide drainage of compartment for electrical components.
9. Install with nonmetallic pipe connections to tub and at least 5 feet from metal enclosure of assembly to inside wall of tub.
10. **DANGER - RISK OF ELECTRICAL SHOCK.** Install at least 5 feet from all metal surfaces.
11. **DANGER - RISK OF ELECTRICAL SHOCK.** Do not permit any electric appliance, such as a light, telephone, radio or television, within 5 feet (1.52 m) of a spa or hot tub.
12. Those who have heart disease, high blood pressure, diabetes, or other physical conditions should consult their doctor before using the spa.
13. Pregnancy is a condition which should be taken into consideration before using the spa. The approval of a physician is recommended.
14. Those who are under the influence of alcohol, drugs, tranquilizers, etc., should not be allowed to use the spa.
15. The maximum recommended water temperature is **104 degrees**. Excessive Temperatures Can Be Dangerous! Use your spa for brief periods only. A periodic break to cool off is recommended if the spa is to be used for extended periods of time. Prolonged immersion in hot water may cause hyperthermia. Hyperthermia occurs when the internal temperature of the body reaches a level several degrees above the normal body temperature of 98.6 degrees F. The symptoms include drowsiness, lethargy, and an increase in the internal temperature of the body. The effects of hyperthermia include (1) unawareness of impending hazard, (2) failure to perceive heat, (3) failure to recognize the need to exit the spa, (4) fetal damage in pregnant women, and (5) unconsciousness and danger of drowning. WARNING - The use of alcohol or drugs can greatly increase the risk of fatal hyperthermia in hot tubs and spas.

16. Small children should be supervised, and preferably some sort of fence around the spa or a locked spa area is recommended for their safety.
17. Never Use the Spa Alone!
18. Never dive or jump into a spa. A spa is intended for sitting and relaxing only. Enter and exit slowly, since the surface of the spa is slippery.
19. It is recommended that you keep important phone numbers nearby in the event of an emergency.
20. Electrical plugs and switches should not be accessible from inside the spa. Always have a licensed electrician make the necessary electrical connections.
21. **WARNING---RISK OF CHILD DROWNING. Extreme Caution Must Be Exercised To Prevent Unauthorized Access By Children. To Avoid Accidents, Ensure That Children Cannot Use A Spa Unless They Are Supervised At All Times.**
22. **To Reduce The Risk Of Injury:**
  - A. The Water In A Spa Should Never Exceed 40°C (104°F). Water Temperatures Between 38°C (100°F) And 40°C (104°F) Are Considered Safe For A Healthy Adult. Lower Water Temperatures Are Recommended For Extended Use (Exceeding 10--15 Minutes) And For Young Children.
  - B. Since Excessive Water Temperature Has A High Potential For Causing Fetal Damage During The Early Months Of Pregnancy, Pregnant Or Possibly Pregnant Women Should Limit Spa Water Temperatures To 38° C (100°F).
  - C. Before Entering A 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 3°C (5°F).
  - D. The Use Of Alcohol, Drugs, Or Medication Before Or During Spa Or Hot Tub Use May Lead To Unconsciousness With The Possibility Of Drowning.
  - E. 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 Or Hot Tub.
  - F. Persons Using Medication Should Consult A Physician Before Using A Spa Or Hot Tub Since Some Medication May Induce Drowsiness While Other Medication May Affect Heart Rate, Blood Pressure, And Circulation.
  - G. 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 Electric Code ANSI/NFPA 70-1987. The Disconnecting Means Must Be Readily Accessible To The Tub Occupant But Installed At Least 5 Ft From Tub Water.
23. **SAVE THESE INSTRUCTIONS.**

## INSTALLATION

### Location

Your Great Lakes Spa® was designed to be used in either indoor or outdoor environments. If you intend on using your spa indoors, remember that water may be splashed out of the spa, particularly as people exit the spa, so you will want to design your room accordingly. Humidity will not be a problem if the spa is used for shorter periods of time and if the cover is kept on the spa when not in use. However, if you plan on using your spa for extended periods of time, some means of venting the steam, such as an exhaust fan, is advisable.

For outdoor placement of your spa, be sure to keep in mind natural elements such as wind, view, falling leaves, etc. You will want to locate your spa in such a way as to provide maximum enjoyment. In either case it is recommended that you locate your spa in either a locked room or fenced area to prevent access to the spa by children.

### Site Preparation

For all applications, be sure that the equipment compartment area is easily accessible and that the spa is located far enough from walls to allow the compartment door to swing fully open.

Your portable Great Lakes Spa® must be placed on a flat surface that supports the entire spa. Most sites such as patios, decks, rooms, etc. are structurally sound and will support a spa since the weight is distributed over a wide area. However, it is always a good idea to have your dealer or a contractor review your proposed site to assure that there are no support problems. Also, do not place your spa on grass or dirt since the moisture will seep into the cabinet over time and cause staining. Place the spa on either a concrete base or on patio stones when locating the spa on the ground.

If your spa does not have a cabinet and is intended for flush-mount in a deck or other surface, be sure the perimeter coping of the spa is supported as well as the foot-well and seat areas. Again, it is important that the equipment is accessible and this must be a consideration when planning your installation.

### Electrical Hookup

All electrical hookups and preparations for the spa must be done by a qualified electrician and in accordance with the National Electrical Code. The Series 300 is a 220V system, and detailed instructions on wiring the spa are located in the equipment manual provided with each spa.

Local electrical codes vary as to what is required in terms of electrical hookup. In some cases you may be required to have a G.F.C.I. (Ground Fault Circuit Interrupter) at the power source.

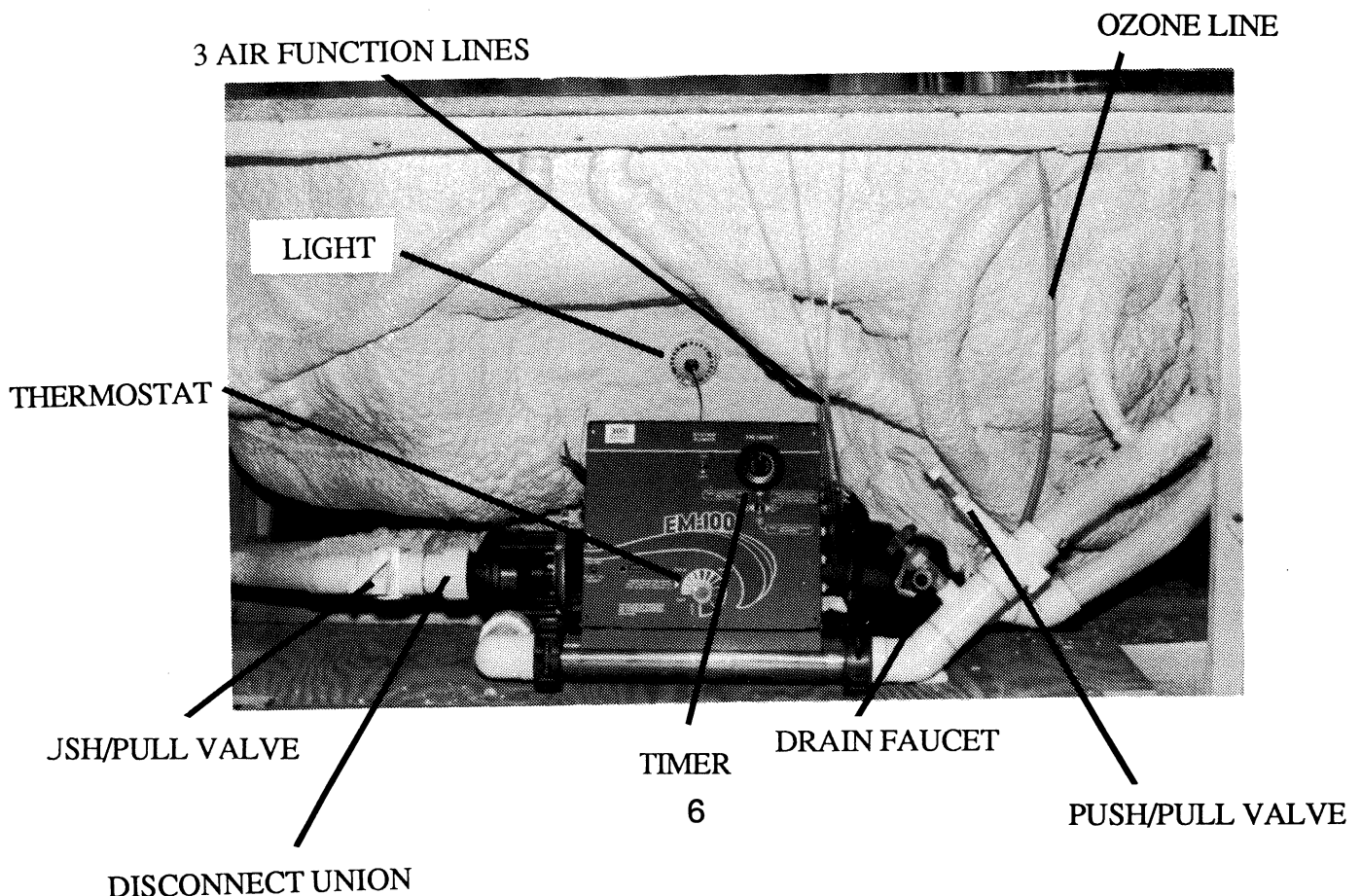
### Spa Setup

The spa can be moved by either pushing it across the floor on its base, or by placing the spa on its side on a cart. When placing the spa on its side, be sure the equipment doors are either to the side or in the up position. Never transport the spa on its side resting on the equipment doors.

Place the spa in the desired location and arrange for a qualified electrician to make the required electrical hookups in accordance with the National Electric Code. NOTE: *be sure the on/off switch located on the equipment system is "off".* Once the electric is hooked up, be sure that all fittings to the support system are tight including the drain faucet (fittings may loosen during shipping). Remember, when tightening fittings, **HAND TIGHTEN ONLY!**

Prior to filling the spa with water, be sure that the push/pull valves to the support system are pulled out in the open position (see figure 1). You can now fill your spa with a garden hose and fill spa to within 6-8 inches of the top of the spa. Always fill your spa with hard (not softened) water. NOTE: *Do not overflow your spa as damage will occur to the air blower unit.* After the spa is filled, remove the garden hose and check the equipment module area for water leaks. If there is water dripping, it is probably a loose connection and you should re-check the tightness of the fittings and placement of the rubber "O"-rings. If there are no drips, you should now test the water chemistry according to the instructions provided by your dealer and add the necessary chemicals once the spa is operating. Your spa is now ready to operate.

**FIGURE 1**

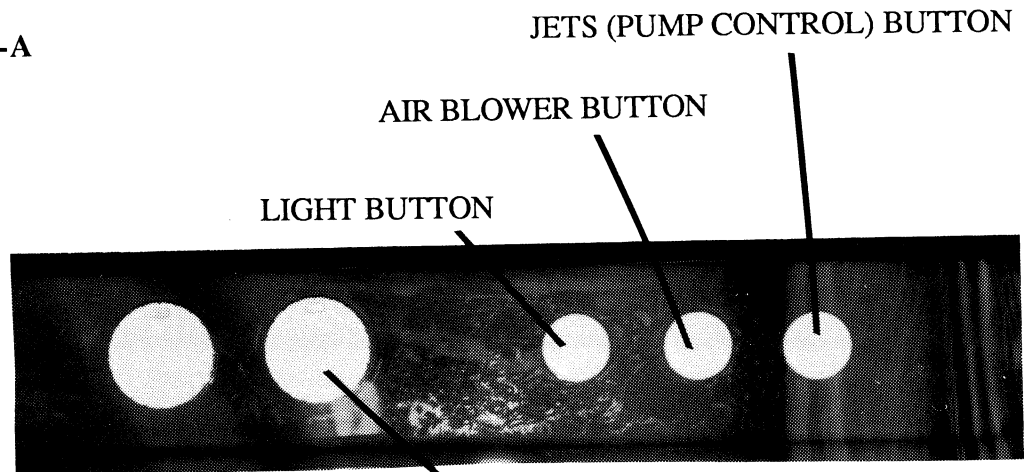


## OPERATION

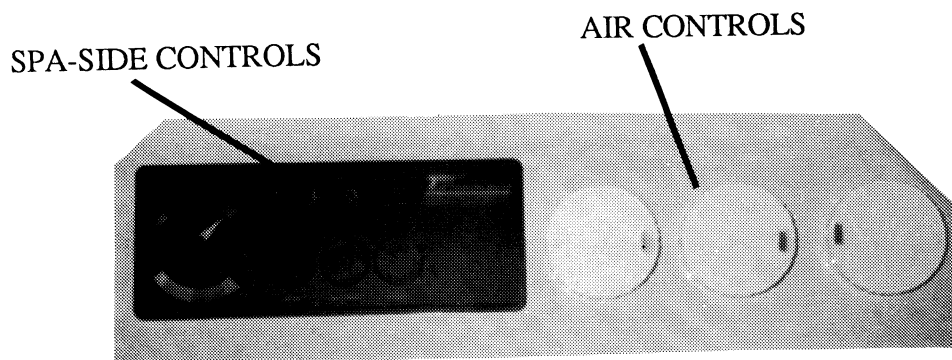
### Equipment Startup

If you have an Elite spa, it is equipped with three air-pressure function buttons which are located on the top of the spa above the equipment system area (see figure 2-A). When looking at the buttons from the outside of the tub, the button on the left is for jets, the center button for the air blower and the button on the right for the light (see labeling on figure 2-A). If you have an Elite Plus spa, you also have a spa-side temperature control as well as pump, blower and light controls (see figure 2-B).

**FIGURE 2-A**



**FIGURE 2-B**



Turn the on/off switch on the equipment module to "on" and you will hear the motor start. You should see water coming out of the jets within a few seconds. If water does not come out of the jets after 15 seconds, turn the equipment module "off" and refer to the Troubleshooting section. Once the water is flowing through the jets and with the motor running, you can now push the "pump" function button to change the speeds of the pump. Pushing the button once brings the pump to high speed. Pushing it again brings the pump back to low speed. You cannot turn the motor off by way of the function switch, and if you desire the motor to be "off", you need to do so with the on/off switch located on the equipment or by way of the timer (discussed in the equipment module manual).



The air blower is controlled by the middle button. Pushing the button once will turn on the air blower, and pushing it again will shut off the air blower. After the air blower is turned on, it will take 20-30 seconds for all of the "T"-Bar air injectors to operate. The light will operate in the same manner as the air blower. Push the light button once and the light will turn on, push it again and the light will turn off. Detailed operation instructions of the equipment system itself are covered in Equipment Module Owners Manual provided with your spa.

If your spa is an Elite model, after running through the function button operation, set the pump speed back to low speed. Set the timer according to the instructions provided in the Equipment Module Owners Manual. Turn the thermostat on the equipment module to HOT and place the thermal cover over the spa.

If your spa is an Elite Plus model, turn thermostat no Support System to "OFF", and turn thermostat on spas's top-side to "HOT".

The spa will take between 8-12 hours to heat, and adjustments to temperature can be made by turning the thermostat up or down. Once the spa is HOT, BE SURE TO CHECK THE TEMPERATURE OF THE WATER BEFORE GETTING INTO THE SPA. **CAUTION:** **SPA TEMPERATURE SHOULD NOT EXCEED 104°.** **SEE SAFETY INSTRUCTIONS FOR MORE INFORMATION.** For complete operation instructions for the equipment module, please refer to the Equipment Module Owners Manual.

### Controls/Fittings

**AIR CONTROLS:** If you have an Elite model, there are two air controls included with your spa which regulate air flow through the jets. These air controls allow air to flow through the jets when the pump is on high speed, and each control regulates the air flow through three jets.

If you have an Elite Plus model, there is a third air control which controls air flow through the whirlpool jet. Simply turn the air control to the "on" position while the pump is on high speed and you will see the jets produce added agitation. Turning the control to "off" will return the jets to water-only operation. If the controls are "on" while the spa is on low speed, you may see a small amount of air coming from the jets. While this does not hurt the operation of the spa, it will have a tendency to cool the water and is therefore undesirable.

**JET OPTIONS:** Your spa comes with "spinner" jets which are special rotary nozzles which are inserted in place of the conventional jet nozzle. You can interchange regular and spinner nozzles among the jets as you desire, and additional spinner jet nozzles can be purchased from your Great Lakes Spa® dealer.

To replace the regular nozzle with a rotary one, turn the stainless steel jet faceplate counterclockwise. This will remove the faceplate (which is attached to a white plate) and the nozzle. Now replace these components with the new spinner jet which can be obtained from your dealer. Simply insert the spinner jet assembly (it includes a new faceplate) into the jet opening and tighten clockwise until firmly in place. The jet will now operate as a spinner jet.

If you have an Elite Plus model, it is equipped with a whirlpool jet which also acts as a diverter. Turning the outside of the ring of the whirlpool jet clockwise activates the whirlpool jet. Turning it counter-clockwise activates the other jets. Turning the whirlpool jet halfway will activate both jets and the whirlpool jet, but force through each will be reduced.

**OZONE JET:** In the footwell of your spa there is a small fitting which allows ozone to be drawn into your spa when your spa is equipped with a GPM Ozone Unit. There will be a steady stream of small air bubbles coming from the ozone jet when the spa is in operation. However, when the ozone unit is operating these bubbles become "ozone" bubbles and are sanitizing the water in your spa. See the Ozone section for proper operation of your ozone unit.

Your spa is manufactured "ozone-ready", which means that you can easily hook up an ozone unit to your spa. There is a special ozonator receptacle in the Support Module to receive the ozonator's power plug. Installation and hookup instructions are included with your GPM Ozone Unit.

## SPA CARE & MAINTENANCE

### Draining Your Spa

Every 3-4 months you should change the water in your spa. This is made easy by way of the drain faucet which is included in your Great Lakes Spa®. The drain faucet is located in the equipment module area (see figure 1). Simply attach a garden hose to the faucet and run the hose to where you want to drain the water. Once the hose is positioned, turn the pump on LOW speed and be sure the thermostat is "OFF". Turn the faucet open to begin pumping the water out of the spa. After the water is pumping through the hose, PARTIALLY close the push/pull valve on the discharge side of the equipment module (see figure 1). Close the valve no more than half-way, as too much pressure can build in the lines if the valve is closed all the way. When the water reaches the suction drains in the bottom of the spa, turn the pump off by way of the on/off switch on the equipment module and close the drain faucet. The remaining water in the spa can be scooped out or removed with a sponge, and you are now ready to clean the acrylic surface. You should now open the push/pull valve completely.

Do not pump your water directly onto lawn, flowers or shrubs, as the body oils and residual chemicals may do damage to the plants.

### Acrylic Shell Care

Your Great Lakes Spa® is manufactured with Dupont Lucite "XL" Acrylic, and the quality finish is very durable and easy to maintain. When the spa is empty, wipe the spa shell with warm water and a sponge. Do not use an abrasive brush or cleaning agent as it will scratch the acrylic finish. If you have a stubborn dirt or scum mark, use an acrylic spa cleaner which is available at your local spa dealership. Also, do not use detergent or soap to clean the spa as the residue will remain on the surface and appear in the water upon refilling and cause foaming.

### Refilling Your Spa

Once your spa has been cleaned, you can now refill with clean water. The same procedure is to be followed as when you first filled your spa. Be sure that all push/pull valves are open (handles pulled out), and the drain faucet closed. Fill the spa by way of a garden hose to within 6-8 inches of the top of the spa. Once the spa is filled, turn the spa equipment module to "on", turn up the thermostat and place the thermal cover on the spa. Allow the spa to heat for 8-12 hours. You should again test the water chemistry of the water according to instructions provided by your dealer.

### Thermal Spa Cover

It is important that you properly care for your spa cover. Do not sit or stand on the cover as it will break with weight of this type. Do not let snow build on your cover, but keep the snow brushed off your cover before it accumulates. Tie-down tabs are included with your cover, and if your spa is outdoors it is important that you use the tie down tabs to prevent the wind from lifting the cover off your spa. Periodically clean your cover as described in the maintenance and cleaning instructions provided with the cover. When handling your cover, take care not to drag it over rough surfaces which will scuff or tear the fabric. Never lift or carry the cover by the tie down tabs but always lift by the handles.

### Cabinet Care

Your portable Great Lake Spa® cabinet has been manufactured with either Western Red Cedar or Northern Michigan White Cedar. Your cabinet has been water-sealed at the factory and is able to withstand the elements in an outdoor setting. The cedar will naturally weather over time, especially when located outdoors, and this is the preferred look of many spa buyers.

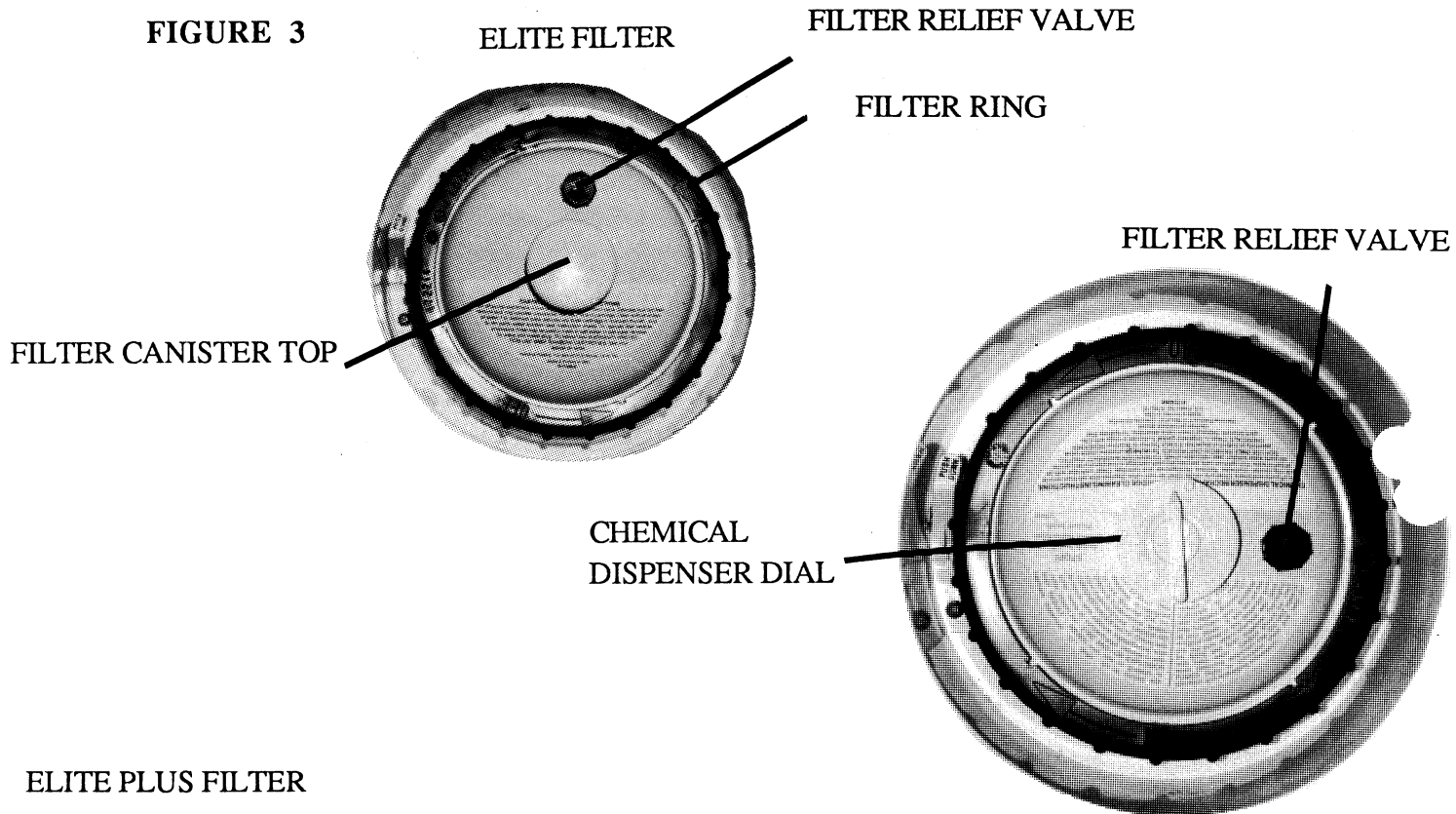
If you wish to minimize the weathering effect, you should treat your spa with an exterior penetrating oil-based stain. Remember that treating the wood with a varnish will give a much brighter look to the cabinet, so you may want to do some testing on the back side of the cabinet first. Many people choose to stain the cabinet to reflect their individual tastes, and your local paint supply store can assist you in various options you have in wood treatment.

### Filter Maintenance

Your Great Lakes Spa® has been equipped with a top-loading filter for ease of cleaning and maintenance. Every two weeks you should clean your filter which has picked up hair, body oils and other debris that may have come into the spa water. Also, while in the spa periodically run your hand over the suction fittings in the bottom of the spa and pick off any hair or lint that might be blocking the flow of water.

To clean your filter, first turn the on/off switch on the equipment module off. Remove the round white lid which is located over your filter on the spa top edge. Turn the black pressure relief valve (see figure 3) counter clockwise until you hear the pressure escaping from the filter housing. When all the pressure has been released, push down the lock tab and turn the black filter ring counterclockwise until it is completely loose. Remove the ring and pull the filter housing top up and off the filter housing, and remove the filter element.

**FIGURE 3**



**ELITE PLUS FILTER**

It is recommended that you have a second filter so that while one is being cleaned the other can be in the spa. If you have a clean second filter, place it back into the filter housing now. Put the filter lid back over the filter housing and tighten down with the black ring. Be sure the relief valve is tightly closed (hand tighten only!) and restart the spa by turning the on/off switch "on".

To clean the dirty filter you should first spray the filter with a hard water spray to remove any lint and hair. You should then soak it in a filter cleaning solution to remove all the oils, minerals, residues and debris. Detailed filter cleaning instructions as well as supplies can be obtained from your spa dealer.

## WATER CARE

### General

Due to the warm temperatures in your spa, it is important to properly test and maintain your spa water for health and appearance reasons. Chemical imbalance can cause skin irritations and dirty water is both unsightly and undesirable to soak in. With a minimum of effort you can have sparkling clean water for your constant enjoyment. This can be attained by the use of spa chemicals or by way of a spa ozonator. It is recommended that you consult your dealer as to the water treatment method that is best for you. A reminder: always use hard (not softened) water in your spa.

### Chemicals

If you choose to maintain your spa water by means of chemicals, there are basically three types of chemicals you will use: bromine, which sanitizes the water; PH controls, which maintain the PH level, and a water clarifier which keeps the water clear. Since there are many types of chemical water treatment programs available, you should consult your dealer on the details of the program he offers. If you choose to use bromine as a water sanitizer, you may be interested in an automatic chemical dispenser for your Great Lakes Spa®. This is available from your dealer who can answer any questions you may have.

### Ozone

Many spa owners now use spa ozonators which purify the water by means of ozone. The GPM ozonator is an aluminum unit which contains a special ultra-violet light. When the unit is activated, ozone is generated which is drawn into the spa via the ozone jet located in the footwell of your spa. The ozone gas appears as tiny bubbles which come from the ozone jet.

The ozone coming into your spa purifies the water without the skin irritation and chemical smell which often occur with the use of conventional chemicals. The ozone unit operates when installed according to the instructions provided with the ozone unit and when the equipment module is on.

For most effective ozone purification, the following chart gives suggested operating times:

<u>SPA SIZE</u>	<u>USAGE</u>	<u>RUNNING TIME PER 12 HOURS</u>
Up to 300 gal.	Low	2-1/2 Hours
Up to 300 gal.	High	3 Hours
300-500 gal.	Low	3 Hours
300-500 gal.	High	3-1/2 Hours
500-750 gal.	Low	3-1/2 Hours
500-750 gal.	High	4 Hours

Low usage is considered up to 4 times per week for 2-4 people. Actual running time should be adjusted to meet personal requirements.

If the spa is heavily used, you may find that the ozonator can't quite keep up with the purification needs. If the water develops discoloring or cloudiness when using the ozone system, you will want to "shock" the water by putting bromine in the water periodically. Ozone and bromine are an ideal combination in residential spas. Ozone does the primary sanitizing of the water, and bromine provides backup sanitizing support. Bromine is available in powder, sticks or floating dispenser form, and your dealer can advise you as to the best treatment program for your spa.

**NOTE:** You must monitor the PH level of your spa water no matter what sanitizer you use. Over a period of time, as minerals are filtered out of the water, the PH level can drop below 7, creating acidic water that can seriously damage the metal components of your spa such as the heater element and stainless steel fittings. Your dealer can instruct you as to the proper methods of testing and treating your spa water for PH level maintenance.

### WINTERIZING

Your Great Lakes Spa® is manufactured to operate in any outdoor environment. If you live in an area where the danger of freezing exists, however, you must take extra precautions to insure that your spa will operate properly. If you plan to operate your spa throughout the winter, be sure that the thermostat is set to keep the water warm. In addition, in freezing temperatures it is recommended that the timer not be used to shut the system off.

If you intend on closing down your spa for the winter, you should follow the winterizing procedures listed below:

1. Drain the spa as explained in the "Draining Your Spa" section.
2. Briefly (15 seconds) run the air blower to be sure the air blower lines are clear of water.
3. Be sure that all water is removed from the spa.
4. Shut off all electrical power at the breaker box.
5. Disconnect the equipment module from the spa and bring it to a warm area. You should have a qualified electrician disconnect electric. Removing the equipment module will also allow the water in the spa lines to drain .
6. Remove the filter element from the filter housing and see that the filter housing is dry. If there is water in the filter housing use a sponge to remove the water. If the water is left in the filter housing it will freeze and cause the housing to crack.
7. Cover your spa with a waterproof, water shedding cover. You can use your thermal cover over the spa, but be sure that it is securely fastened and will not accumulate snow.