



OWNERS MANUAL

2000

IMPORTANT SAFETY INSTRUCTIONS

When installing and using this electrical equipment, basic safety precautions should always be followed, including the following:

1. READ AND FOLLOW ALL INSTRUCTIONS.

2. WARNING-To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.
3. A wire connector is provided on this unit to connect a minimum No. 8 AWG (8.4mm²) 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.
4. (For cord-connected/convertible units)
DANGER-Risk of injury.
 - a) Replace damaged cord immediately.
 - b) Do not bury cord.
 - c) Connect to a grounded, grounding type receptacle only.
5. WARNING-If this product is provided with a ground-fault circuit-interrupter on the end of the power cord. The GFCI must be tested before each use. With the product operating, open the service door. If the product stops operating, this merely indicates that the door is equipped with an electrical interlock. Next, push the test button on the GFCI and close the service door. The product should not operate. Now open the service door, push the reset button on the GFCI and close the service door. The product should now operate normally. If the product fails to operate in this manner, there is a ground current flowing indicating the possibility of an electric shock. Disconnect the power until the fault has been identified and corrected.
6. 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.
7. 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 fitting.
8. 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.
9. 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.
10. WARNING-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 are considered safe for a healthy adult. Lower water temperatures are recommended for young children and when spa use exceeds 10 minutes.
 - b) 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 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 varies.
 - d) The use of alcohol, drugs, or medication before or during spa use may lead to unconsciousness with the possibility of drowning.
 - e) Obese persons and persons with a history of heart disease, low or high blood pressure, circulatory system problems, or diabetes should consult a physician before using a spa.
 - f) 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.

11. SAVE THESE INSTRUCTIONS.

LOCATION & INSTALLATION

Your Great Lakes Spa® has been conveniently designed to be used in either an indoor or outdoor setting. While your Great Lakes Spa® was built to be used either indoors or outdoors, there are important things to remember in selecting your location. The following are some things to be considered when locating your spa:

Indoor Use Only

- Humidity will not likely be a problem. However, just like in your bathroom, an exhaust fan would be a good idea.
- No matter how careful you are, you will splash water, especially when exiting the spa. We suggest a tile or vinyl floor.
- A self-draining floor is a great way to ease any worries about spilled water.
- Remember that you'll need extra space to store the cover when it is removed. When using our handy cover-lift device, you should allow for an extra 16" of clearance behind the spa.
- The spa must be placed on a flat and level surface which does not move or shake.
- You should consult with a builder or engineer to determine if your floor weight will support the spa. Remember, you must allow for the spa, water and people in your total weight calculations.
- Be sure your spa is secure from access to young children. Great Lakes Spas® offers a locking spa cover, but we also suggest keeping the spa room locked and off limits to children.

Outdoor Use Only

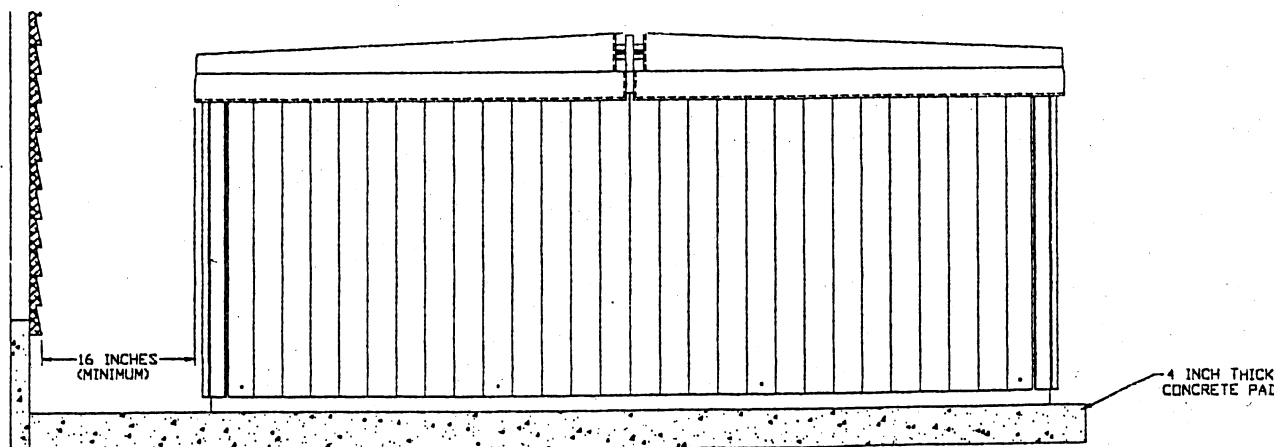
- Place your spa on a solid, flat surface. We recommend a 4" thick reinforced concrete pad as the *best* surface.
- Keep in mind natural elements such as wind, view, falling leaves, etc.
- We recommend that you locate your spa in a locked fenced-in area to prevent access to the spa by children.
- It is a good idea to have a contractor review your proposed site to see that there are no support problems.

Indoors or Outdoor Use

- Install the spa to provide for adequate drainage to prevent water from entering the equipment module area.
- Install the spa to enable access to the equipment module compartment which is located behind the door opening.
- Never locate light switches or other electrical components within reach from inside your spa.
- The equipment module must remain protected by the skirting of the spa.

Wherever you locate your spa, you will need to have access to water in order to fill it. Any water spigot or faucet will work. Also, you will need to be able to drain your spa periodically. Since your spa water will likely have chemicals in it, you won't want to drain your spa on the lawn or into a garden. Be sure you can reach a garden hose from the spa to where you plan to drain the water. Never let water get on the equipment module which is located in the door opening of your spa.

Finally, we suggest that you consult an electrician prior to installation to be sure of power availability and cost.



Recommended Support

SPA SETUP

Unpacking

1. Completely unwrap your spa and dispose of the packaging materials.
2. Remove any tape which holds down various components within the spa.
3. Clean any dirt or dust from the interior of your spa with a damp cloth. Remove any stubborn stains with paint thinner or isopropyl alcohol. Never use an abrasive cleaner or scraper to clean the surface of your spa.
4. Position the cover on the spa and install the locking tabs to the spa cabinet (instructions included with cover).
5. Remove the spa cabinet panel that is furnished with ventilation slots to access the spa pump and control box. This panel is held in place with 4-8 square drive screws. A square drive screwdriver bit has been furnished in this packet for your convenience.

Electrical

Be sure your electrician reads this section and any others relating to the electrical hookup of your spa.

A multi-terminal bonding connector, located on the side of the Equipment Module, is provided to permit connection of a bonding wire between this point and any accessible metal surface within 5 feet of the spa, as may be needed to comply with local requirements. The bonding wire connecting this bonding connector to the accessible metal surfaces must be a solid, No. 8 AWG copper conductor. This bonding connector may also be used to bond any field wired components.

All electrical connections to the Equipment Module must be accomplished by a qualified electrician in accordance with the National Electrical Code and in accordance with any local electrical codes in effect at the time of installation. All electrical connections must be made in accordance with the wiring information contained in this manual, or on the back of the field wiring access panel of the Equipment Module. National Electrical Code requires a Ground Fault Circuit Interrupter (GFCI) at the power source. An in-line GFCI has been included on those 115 volt models equipped with a factory installed power cord. All 230 volt single pump models require an over-current protection device, GFCI, and minimum supply conductors rated at 50 amperes. Dual pump systems require a 60 ampere rating. Use copper conductors only. **WARNING:** Improper electrical connections or conductor sizing may cause the Equipment Module to operate improperly, create the potential for an electrical hazard, and may void the warranty. **CAUTION:** Use only approved pressure-type wire splicing lugs or connectors suitable for the size and type of wiring used.

WARNING: Do not turn ON the power to the spa unless it is filled with water and all valves are open. Be sure water level is at the recommended point. If the power is ON, the system may start even though the controls were not activated. If the equipment module is started without sufficient water in the spa, the system could be permanently damaged. Also, operating spa without sufficient water could cause a fire.

Note: Great Lakes Spas sells GFCI's through your local dealer. You can contact your dealer for availability and pricing.

Filling Your Spa

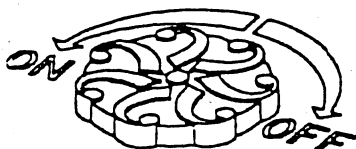
Once the electric has been hooked up, check the following while the power is OFF:

1. Be sure all fittings to the support system are tight. Hand tighten only!
2. Be sure drain faucet is closed tightly. Hand tighten only!
3. Your spa is equipped with 2 or 4 push/pull valves. There is one located before the suction side of the pump and one located after the discharge side of your pump. If you have a secondary pump, there will be two valves for this pump as well. Pull the push/pull valves OUT so they are open.
4. Using a garden hose, fill with water to 2-4" above the skim filter. Always fill your spa with hard (not softened) water. Do not overfill. After the spa is filled, remove the garden hose.
5. Check the equipment module area for water leaks. If there is water dripping, it is probably a loose connection at the equipment module. You should re-check the tightness of the fittings and placement of the "O"-rings. If you cannot locate the source of the water leak, contact your dealer.
6. Check that the filter is positioned in the skim/filter system. To remove, refer to the "Cleaning your filter" section.
7. Activate the power to your spa. Push the pump button on your controller until you hear the pump activate to HIGH speed. If you have a secondary pump, push the second pump button until you hear the second pump activate. It only has a single speed. Allow the pump(s) to run on HIGH speed for 2 minutes to purge the system of air. Then push the pump button(s) until you hear the pump(s) operating on the LOW speed.

OPERATION

Refer to the Control Manual operating instructions for the spa-side control unit. The operating functions of your spa controller will vary depending on the type of Great Lakes Spa® you have purchased.

Your Great Lakes Spa comes equipped with a variety of jets and water/air controls. Some of the jets allow you to control the amount of water flow by rotating the face of the jet. Turning the face clockwise will reduce the water flow from the jet and turning it counterclockwise will increase the water flow. In addition, some of the jets perform special tasks:



Air Control

Air Controls

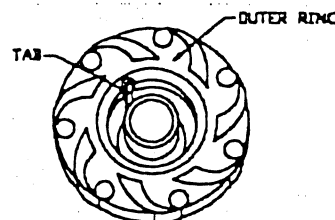
Your spa comes equipped with air controls which are located on the top of your spa. If you turn the air controls open (counterclockwise) when the pump is on high speed, air will be drawn through the jets. Each control regulates the air flow to a different jet or jets. Turn the air control counterclockwise while the pump is on high speed and you will see the jets produce added agitation. Turning the control clockwise will return the jets to water-only operation.

TurboWorks™ Air Injection System

If your spa is equipped with the TurboWorks Air Injection System, the air blower will provide a high volume of air to the jets connected to one or more of the air controls. This turbocharges the jets when the pump is in either low or high speed to give you the most invigorating massage therapy.

Power Boost Jets

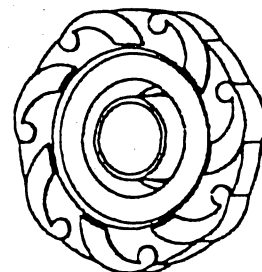
There are three types of Power Boost Jets, and all are interchangeable. Simply pull out on the tab located on the inside surface of the jet and while holding the tab out gently pull on the outside ring of the jet. The jet insert will pull away from the spa. Follow the same procedure with another jet. You can customize your massage by switching the jets in your spa. To reinstall, simply pull out the tab, push the jet insert back into the jet cavity until it stops, then release the tab. Turn the jet until the locking tab finds the slot and push the jet further in until it snaps into place. Water flow through these jets can be controlled by turning the outside face of the jet. Turning the trim ring clockwise will reduce the water flow from the jet and turning it counterclockwise will increase the waterflow.



Power Boost Jets

Power Surge Whirlpool Jet

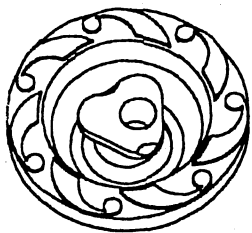
The Power Surge Whirlpool Jet serves two functions. First, when in the proper position it is a whirlpool jet which directs most of the water flow from the primary pump. A swirling effect will be created in the spa due to the substantial force created by this jet. While the pump is on LOW speed, turn the outside face of the jet. Depending on your spa model, there will be either 3 or 4 different positions. Each position will divert water to a different set of jets within your spa.



Power Surge Whirlpool Jet

Power Surge Variable Jet

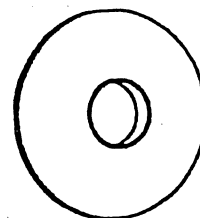
Your spa may be equipped with the Power Surge Variable Jet. This jet can be adjusted to create a large or small circular massage pattern. Simply pivot the nozzle of the jet to change the circular pattern. Water flow through these jets can be controlled by turning the outside face of the jet. Turning the trim ring clockwise will reduce the water flow from the jet and turning it counterclockwise will increase the waterflow.



Power Surge Variable Jet

Ozone Jet

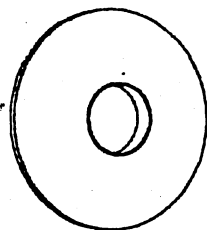
In the footwell of your spa there is a mini jet which allows ozone to be drawn into your spa when your spa is equipped with an ozone unit. With an ozonator installed, there will be a steady stream of small air bubbles coming from the ozone jet whenever the spa pump is in operation. Your spa is manufactured "ozone-ready", which means that you can easily hook up an ozone unit to your spa.



Ozone Jet

Direct Pressure Jet

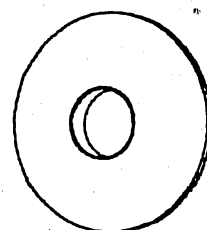
These look identical to the ozone jet, and your spa may be equipped with several of these jets. These jets have no turning control or directional features. A forceful, steady stream of water/air is delivered from these jets when the pump is on high speed.



Direct Pressure Jet

Air Bubbler Jets

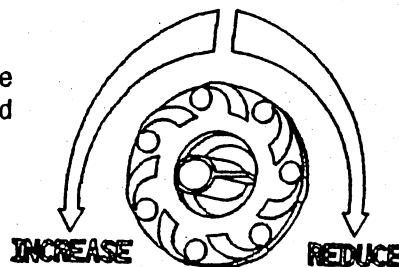
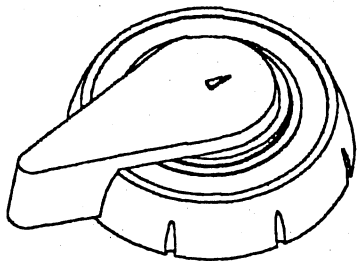
Some spa models are equipped with air bubbler jets located in the seats of the spa. These jets are identical in appearance to Direct Pressure jets and the ozone jet, but they deliver air instead of water when the spa air blower is turned on.



Air Bubbler Jet

Micro Jets

Water flow through these jets can be controlled by turning the outside face of the jet. Turning the trim ring clockwise will reduce the water flow from the jet and turning it counterclockwise will increase the waterflow.

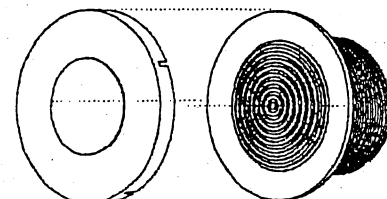


Top-Side Diverter

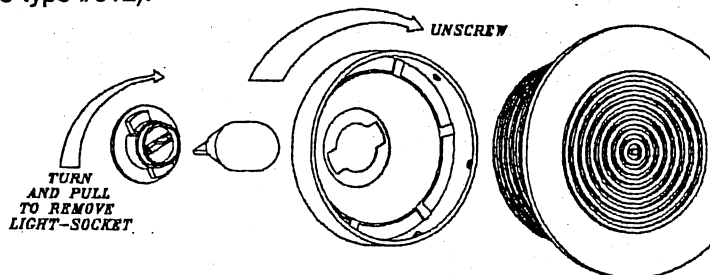
Certain spas are equipped with a top-side diverter lever. Turning this lever will divert water to one of two different zones within the spa. With the secondary pump on, turn the diverter lever and you will see to what area the water is diverted.

Spa Light

Red and blue colored light lenses are included with your spa. To install or remove lenses simply push them on or pull them off from the light on the inside of the spa. To replace the spa light bulb, turn off all power to the Equipment Module. Locate the rear of the spa light assembly and unscrew the lamp holder from the clear lens body. Pull the bulb from the socket and replace by reversing the above steps. CAUTION: The replacement bulb must be the same rating as the factory installed bulb (standard automotive type #912).



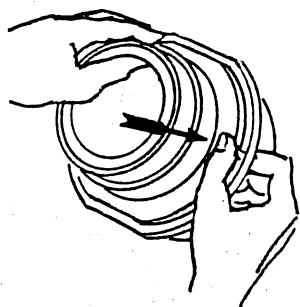
Light Lens Installation



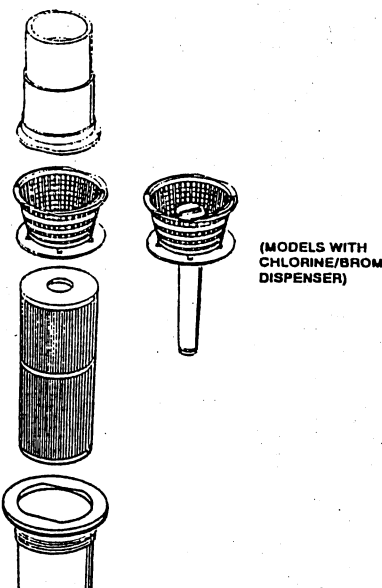
Light Bulb Change Procedure

Filter and Basket Change Procedure

1. Turn off pump.
2. Remove floating weir and attached basket by turning counter clockwise to align flats and lift out in one piece.
3. Lift the filter element straight out of the filter housing.
4. Clean filter (see instructions).
5. Separate basket from floating weir adapter by spreading the raised edge of the basket away from floating weir tab. (See illustration)
6. Clean the basket. Avoid hitting the basket against objects to knock debris loose as this will break the basket.
7. Re-attach basket to floating weir. Line up tabs from basket to indents in floating weir and gently snap into place.
8. Replace cleaned filter element by placing back in filter housing.
9. Replace floating weir and attached basket assembly by lining up flats and turning clockwise.



Filter Basket & Floating Weir Separation

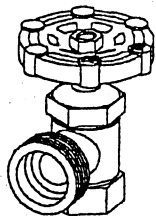


Complete Filter Assembly

SPA CARE & MAINTENANCE

Draining Your Spa

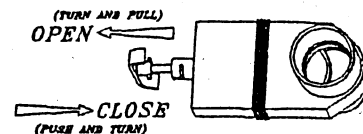
Under normal usage, you should change the water in your spa every 3-4 months. Your spa is equipped with one of the two following drains which makes this job easy. To drain spas equipped with the Quick Drain System, first turn off electrical power to your spa.



Drain Faucet

Unscrew the round access hatch cover on the exterior of the spa cabinet and attach the flexible drain hose that has been provided. Twist the valve handle a 1/4 turn counterclockwise to open it. A garden hose adapter has been furnished if you desire to route the drain water a further distance from your spa. For spas equipped with a drain faucet, simply attach a garden hose to it and route the hose to where you want to drain the water. With the pump running in low speed, turn the drain faucet open to begin the draining process.

When you see water draining from the end of the hose, close the push/pull valve next to the drain faucet (see diagram). When the water level reaches the bottom of the filter canister, shut off electrical power to the spa and close the drain faucet. The remaining water in the spa can be scooped or siphoned out and you are now ready to clean the acrylic surface. Note: It is recommended that you not drain water onto grass or vegetation since chemicals in the spa water may damage them.



Close Push/Pull Valve

Cleaning The Spa Surface

Your Great Lakes Spa® is manufactured with a premium grade acrylic which is reinforced with a substantial backing of fiberglass reinforced resin. The quality finish is durable and easy to clean and maintain. When the spa is empty, you can clean the surface by using a mild, nonabrasive liquid detergent, isopropyl alcohol or specially formulated spa cleaner. Thoroughly remove all residue from the cleaning agent prior to refilling the spa. Do not use an abrasive brush or cleaning agent as it will scratch the acrylic finish. If you have stubborn dirt or scum marks at the water line, use an acrylic spa cleaner which is available at your local spa dealership.

Acrylic Repairs

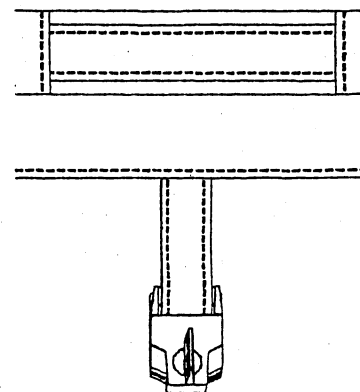
If your spa surface has minor scratches or scuffs which are not deep, they can be removed using 600 grit wet/dry sandpaper. You can restore the finish of the acrylic by using Meguiar's #10 Mirror Glaze or similar automotive paste wax.

Power Boost Jets

The interchangeable Power Boost Jet inserts should be removed from time to time to clean off any accumulated hair, dirt deposits, etc. This will insure proper operation of the water flow control feature.

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. Do not let snow build up on your cover. Lock-down tabs are included with your cover and should be used to prevent access to the spa by children. If your spa is located 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. Always lift by the handles or use the cover lift device which is available from your Great Lakes Spa® dealer.



Cover With Locking Tabs

Cabinet Care

Wood Panels

Wooden Great Lakes Spa® cabinets are manufactured with Western Red Cedar. The cabinet will naturally weather over time. If you wish to minimize the weathering effect, you should treat your spa with an exterior penetrating oil-based stain. Your local paint supply store can assist you in various options you have in wood treatment.

Dur-all™ Panels

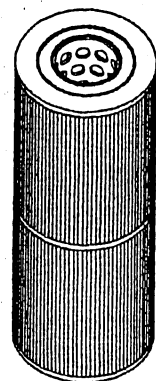
Molded Dur-all™ Panels are made of specially formulated plastics. They will never need to be painted, and are very resistant to scratching and denting. Should the panel become scratched, it will not be very noticeable since the color is consistent throughout the panel.

WATER CARE

Cleaning The Filter Cartridge

Your Great Lakes Spa® is equipped with what we believe is the finest filtering device available. We call it the Skim/Filter system, and it is one of the few skimmers available which actually skims the water surface. When your spa is operating, watch how the Skim/Filter bobs up and down with the water level. You'll notice a distinct whirlpool being drawn into the system, and floating debris of all sizes will literally "fall" into the unit and be trapped by the filter. It is important that you keep your filter clean, and it is suggested that you clean the filter at least once per month. To clean your filter:

1. Turn pump off.
2. Remove the filter according to the previous instructions.
3. With a garden hose and nozzle or other high pressure device, hose the cartridge clean with a jet stream of water. Work top to bottom on each pleat. To remove collected suntan lotions and body oils that hosing will not remove, soak the cartridge in a plastic container using a filter cleaning solution supplied by your dealer.
4. Reinstall cartridge and floating weir/basket assembly.
5. Turn pump on.



Filter Cartridge

Chemicals

Due to the warm temperatures in your spa, you should 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 little effort you can have clean water for your constant enjoyment. This is attained through the use of spa chemicals, a superb filter system and the optional ozonator. Consult your dealer to set up a proper water treatment program that will best work with the equipment in your spa.

Be aware that the mineral content of spa water increases from water evaporation and with the addition of algacidal and sanitizing chemicals. If the mineral concentration of the water becomes too high, the minerals will precipitate and deposit on the spa in the filter, and on the heater. The water must be changed when the amount of dissolved solids becomes excessive.

Algacidal and sanitizing chemicals are either alkaline or acidic. Sodium and calcium hypochlorite are alkaline. Chlorine gas and practically all other dry chlorine products are acidic. Whichever type of chlorine is used, it is very important that the pH level be checked frequently and maintained between 7.2 and 7.8.

CAUTION: Do NOT store spa or pool chemicals near the Equipment Module because their corrosive fumes may cause damage. Change the spa water frequently, typically every 3 to 4 months or when the water clarity and cleanliness can no longer be maintained by chemical treatment. It is recommended that the total alkalinity of the spa water be kept from 80 to 100 parts per million (ppm) when sodium or calcium hypochlorites are used, and 100 to 120 ppm when other dry chlorine products are used.

Ozone

The optional ozonator is a unit which contains an ultra-violet light. When the unit is activated, ozone is generated which is drawn into the spa via the ozone jet. 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 can occur with the use of chemicals. The ozone unit operates when installed according to the instructions provided with the ozone unit and when the equipment module is in the filtering mode.

Winterizing

If you live in an area where the danger of freezing exists, 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. 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. If your spa is equipped with a blower system, briefly (15 seconds) run the air blower to purge the lines 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 unions from the equipment module to allow the water in the spa lines and equipment module to drain.
6. If your spa is equipped with dual pumps, remove the pump-to-pump water circulation line connected to the front of both pump housings, and drain all water from the pump housings and the line, then reconnect the line.
7. If your spa is equipped with a single pump, remove the drain plug on the pump housing to allow water to drain out of the pump. Replace the drain plug.