

Owner's Manual

SPIRIT

One Pump System With Constant Clean
120 Volt

THIS IS AN IMPORTANT SAFETY DOCUMENT

- Please take a few minutes to read this manual. A thorough knowledge of the basic safety precautions and proper maintenance procedures will provide years of safe enjoyment of your spa.
 - Pass it on to any new owner.
- If lost, contact your local Marquis Spa retailer, or write to Marquis Corp. and a new copy will be sent at no charge.



MARQUIS SPAS

©MARQUIS CORP.
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Independence, OR 97351
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SPA SAFETY SIGN
(FOR USA USE ONLY)

We have provided this safety sign to help protect you and your guests. As with all appliances, certain safety precautions should always be followed. All appliances can be hazardous if misused or abused.

Using nails, screws, or wire, install this sign near the spa in such a way that it is visible from within the spa. All spa users should be made aware of these safety precautions.

If you need an additional or a replacement sign, please contact your spa retailer and ask for part number 71-0789.

Please enjoy your spa...but think "Safety First".

Notice about this owners manual: Every effort has been made to ensure the accuracy of this manual. However, Marquis reserves the right to improve its product without notice. This could create a minor variation between this manual and the actual product you receive. We apologize for any inconvenience.

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IMPORTANT SAFETY INSTRUCTIONS

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

1. READ AND FOLLOW ALL INSTRUCTIONS

2. DANGER - Risk of electric shock. Do not permit electric appliances such as a light, telephone, radio, or television within 5 ft. (1.52 M) of this spa.
3. DANGER - Risk of Electric Shock. Install at least 5 feet (3m in Canada) from all metal surfaces. As an alternative, a spa may be installed within 5 feet (3m Canada) of metal surfaces if each metal surface is permanently connected by a minimum #8 AWG (#6 AWG Canada) solid copper conductor to the grounding bus connector on the control box provided for this purpose.
4. WARNING - To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times. DANGER-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.
5. DANGER - To reduce the risk of injury, do not remove suction grates or suction covers. 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 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.
6. This spa is designed and intended for residential use only and should not be used in a commercial or public installation.
7. WARNING - TO REDUCE THE RISK OF INJURY: The following spa use rules are most important. Using your spa properly and safely will give you countless hours of enjoyment. But, just as with many products, misuse can be extremely harmful. Protect yourself, your family, and your guests by following the safety rules listed here:
 - A. The use of alcohol, drugs, or medication before or during spa use may lead to unconsciousness with the possibility of drowning. Do not drink alcoholic beverages before or during spa use. One of the effects of alcohol is slowed reflexes and it can make people drowsy. Hot water also helps induce muscle relaxation. The two together could induce sleep and this, in turn, could possibly lead to drowning. Because of these facts, it is vitally

important that you do NOT allow mixing of alcoholic beverages with spa usage.

- B. Pregnant women and people with problems such as heart disease, diabetes, blood pressure, circulatory problems, or obesity must consult their physicians prior to using the spa. Some medications can induce drowsiness. Never use the spa when taking anticoagulants, antihistamines, vasoconstrictors, vasodilators, stimulants, hypnotics, narcotics, or tranquilizers. In all cases, if you are not thoroughly familiar with the medication you are taking, check with your doctor prior to using the spa.
- C. The water in a spa should never exceed 104°F (40°C). Water temperatures between 100°F (38°C) 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. Spa water temperatures should be maintained in the 98° to 104° range. An accurate underwater thermometer is a "must". Measure the water temperature before entering the spa. 100° water is generally safe and enjoyable for most adults. However, remaining in 100° water for an extended period will raise your body temperature to this level and you may experience some discomfort. As a general rule, when you raise the temperature of the spa water, you should reduce the amount of time you soak.

Twenty minutes is about the limit for 102°. Never soak in water hotter than 104° because temperatures above this level may raise your body temperature to a level that could cause drowsiness, fainting, heat stroke, or 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 (37°C). 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. 6. Unconsciousness resulting in the danger of drowning. 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 +/-5°F (3°C). It is always important to check your in-spa thermometer before using your spa and to limit your time in the spa as suggested above. Use 98°F to 99°F - normal body temperature for extended soaking.

- D. People with infections, skin sores, or open wounds should not use the spa. Warm or hot water may serve as an incubator for some types of bacteria. It is vitally important to keep your spa properly disinfected with chlorine or other equally effective disinfectants.
- E. It is recommended that people shower before and after using the spa. Showering before removes deodorants, lotions, perspiration, and oils which may clog the filter. Showering after soaking will help remove any non-disinfected bacteria that may have been in the spa.
- F. Soaking in hot water will increase the body's temperature. In small children, the body temperature can increase more quickly than that of a full grown adult. Thus, children must not be allowed to absorb the same amount of heat as an adult. Children's time in the spa should be less than an adult's and children using a spa must be constantly supervised. Children should never be allowed to swim underwater in the spa.
- G. 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 (38°C). Soaking for extended periods in water 102° or higher may effect body temperatures to the point that it could effect the fetus. This is especially important during the first 90 days of pregnancy. Spa use at 100° should be limited to no more than 5 minutes. It is strongly suggested that women who are pregnant (or those considering pregnancy in the near future) check with their doctors for recommendations in safe spa use.
- H. Adults should not use the spa without someone nearby who can be called should anything unexpected occur. As an added precaution, you should post emergency numbers near your phone so they are handy should a need arise.
- I. Use only unbreakable containers around the spa.
- J. Always use caution when entering and exiting the spa. Wet surfaces can be slippery. Hand rails and non-skid surfaces are recommended.
- K. Suction through drains and skimmers can be powerful. Any drain or skimmer with a damaged cover can be dangerous, especially to small children or adults with long hair. Should any part of the body become drawn to a drain or skimmer, turn the spa off immediately! Long hair should be restrained in a bathing cap, never allow it to float in the spa. Immediately replace any broken drain cover.

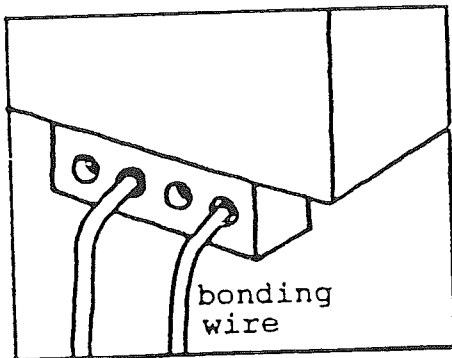
- L. Keep electrical appliances, including telephones, away from the spa to avoid a possible shock hazard. Do not try to adjust or touch the spa equipment, such as a pump or the control box, or any other electrical appliance while you are in the spa.
 - M. Never walk, climb, play or jump on the Energy Cover of your spa. Never swim or play under this cover when it is installed on the spa. Also, do NOT rely on your Energy Cover as a safety cover for children. It is a precautionary measure only and children must be supervised when they are around the spa.
 - N. A fence around your spa with a self-closing and self-latching gate can be the best protection against unauthorized entry and use. If your spa is indoors, lock the door to the room to keep out unauthorized users.
 - O. Do not use a spa in conjunction with strenuous exercise without consulting your physician and obtaining approval.
- 8. Turn off all electric power at the power cord, main circuit breaker, or disconnect panel prior to performing any service to the spa equipment.
 - 9. It is the responsibility of the spa owner to ensure that all electrical connections are made in accordance with any electrical codes in effect at the time of installation. For all permanently connected units in the USA, 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 and 680-42 of the National Electrical Code, ANSI/NFPA 70-1987. The means of disconnection must be readily accessible and installed at least 5' (1.52 M) from the spa water.

NOTE: Items #10, #11 and #12 apply to USA 120V spas:

- 10. DANGER - Risk of injury. Connect 120V equipment system only to a properly grounded grounding type receptacle. DO NOT BURY THE POWER CORD.
WARNING: If electrical cord is damaged replace immediately. Contact your spa retailer.
- 11. WARNING: On 120V spas a power cord is provided with a Ground Fault Circuit Interrupter (GFCI). The GFCI is a safety device which protects users from exposure to electric shock hazard. The GFCI must be tested before each use of your spa as follows: A. With the spa equipment system running, push the TEST button. The RESET button will pop-out and the equipment

will stop operating. B. Push the RESET button. The RESET button should return to its original position and the equipment will begin operating. CAUTION: If the GFCI fails to operate in this manner, disconnect the power cord from the receptacle. Failure to operate in this manner means a ground current is flowing, indicating the possibility of electric shock. DO NOT reconnect the power until the source of the ground current has been identified and corrected by qualified service technician. Contact your spa retailer.

12. Do not use an extension cord. The spa must be placed near enough to the power source to prevent the need for an extension cord.



13. For USA use, a bonding wire connection is provided on the exterior surface of the control box inside the spa equipment area to permit connection of a bonding wire between this point and any metal equipment, metal water pipe and metal conduit within 5 feet of the spa as needed to comply with article 680-22 of the National

Electric Code and local requirements. The bonding wire must be at least #8 AWG (#6 AWG Canada) solid copper wire. This is to reduce risk of electric shock.

For Canadian use, a green colored terminal or a terminal marked G, GR, Ground, or the international ground symbol is located inside the supply terminal box or compartment. To reduce the risk of electric shock, this terminal must be connected to the grounding means provided in the electric supply service panel with a continuous copper wire equivalent in size to the circuit conductors supplying this equipment. And at least two bonding lugs are provided on the external surface or the inside of the supply terminal box or compartment. To reduce the risk of electric shock, connect the local common bonding grid in the area of the spa to these terminals with an insulated or bare copper conductor not smaller than No. 6 AGW.

14. Connections should be made with copper conductors only. All conductors, circuit breakers and/or fuses, must be sized in accordance with the Total Amperage Load as specified on the electrical control box data label.
15. All 240V support systems require a three wire plus ground electrical service (line 1, line 2, neutral ground). All 240V connections can be made by removing the access panel on the front of the electrical control box.

16. The spa must be installed to provide proper drainage and to keep water out of the electrical components.
17. The spa must be installed in such a manner as to provide access for the servicing of all electrical and plumbing components from above or below any decks or floors.
18. NEVER operate the spa support system when the spa is empty. This could result in severe damage to the heater, pump and spa support components and is a potential fire risk.
19. Add only one chemical at a time to the spa water. Never mix chemicals or chemical solutions together. Always follow the manufacturer's instructions on dilution and handling precautions. When diluting, add chemical to water - not water to chemical. Avoid skin contact when working with chemicals. ALWAYS STORE CHEMICALS OUT OF THE REACH OF CHILDREN.

20. SAVE THESE INSTRUCTIONS

The following information is included for French speaking spa owners.

WARNING: DO NOT PERMIT ELECTRIC APPLIANCES (SUCH AS A LIGHT, TELEPHONE, RADIO, OR TELEVISION) WITHIN 1.52 M OF THIS SPA.

AVERTISSEMENT: NE PAS PLACER D'APPAREIL ÉLECTRIQUE (LUMINAIRE, TÉLÉPHONE, RADIO, TÉLÉVISEUR, ETC.) À MOINS DE 1.52 M DE CETTE CUVE DE RELAXATION.

WARNING: CHILDREN SHOULD NOT USE SPAS OR HOT TUBS WITHOUT ADULT SUPERVISION.

AVERTISSEMENT: NE PAS LAISSER LES ENFANTS UTILISER UNE CUVE DE RELAXATION SANS SURVEILLANCE.

WARNING: DO NOT USE SPAS OR HOT TUBS UNLESS ALL SUCTION GUARDS ARE INSTALLED TO PREVENT BODY AND HAIR ENTRAPMENT.

AVERTISSEMENT: POUR ÉVITER QUE LES CHEVEUX OU UNE PARTIE DU CORPS PUISSENT ÊTRE ASPIRÉS, NE PAS UTILISER UNE CUVE DE RELAXATION SI LES GRILLES DE PRISE D'ASPIRATION NE SONT PAS TOUTES EN PLACE.

WARNING: DO NOT USE DRUGS OR ALCOHOL BEFORE OR DURING THE USE OF A SPA OR HOT TUB TO AVOID UNCONSCIOUSNESS AND POSSIBLE DROWNING.

AVERTISSEMENT: POUR ÉVITER L'ÉVANOUISSEMENT ET LA NOYADE ÉVENTUELLE, NE PRENDRE NI DROGUE NI ALCOOL AVANT D'UTILISER UNE CUVE DE RELAXATION NI QUAND ON S'Y TROUVE

WARNING: PEOPLE USING MEDICATIONS AND/OR HAVING AN ADVERSE MEDICAL HISTORY SHOULD CONSULT A PHYSICIAN BEFORE USING A SPA.

AVERTISSEMENT: LES PERSONNES QUI PRENNENT DES MÉDICAMENTS OU ONT DES PROBLÈMES DE SANTÉ DEVRAIENT CONSULTER UN MÉDECIN AVANT D'UTILISER UNE CUVE DE RELAXATION.

WARNING: THE USE OF ALCOHOL, DRUGS, AND MEDICATION CAN GREATLY INCREASE THE RISK OF FATAL HYPERTHERMIA.

AVERTISSEMENT: LA CONSOMMATION D'ALCOOL OU DE DROGUE AUGMENTE

CONSIDÉRABLEMENT LES RISQUES D'HYPERTHERMIE MOTRELLE DANS UNE CUVE DE RELAXATION.

WARNING: BEFORE ENTERING THE SPA OR HOT TUB MEASURE THE WATER TEMPERATURE WITH AN ACCURATE THERMOMETER.

AVERTISSEMENT: AVANT D'UTILISER UNE CUVE DE RELAXATION MESURER LA TEMPÉRATURE DE L'EAU À L'AIDE D'UN THERMOMÈTRE PRÉCIS.

WARNING: WATER TEMPERATURE IN EXCESS OF 38°C MAY BE INJURIOUS TO YOUR HEALTH.

AVERTISSEMENT: IL PEUT ÊTRE DANGEREUX POUR LA SANTÉ DE SE PLONGER DANS DE L'EAU À PLUS DE 38°C.

WARNING: PROLONGED IMMERSION IN A SPA OR HOT TUB MAY BE INJURIOUS TO YOUR HEALTH.

AVERTISSEMENT: L'UTILISATION PROLONGÉE D'UNE CUVE DE RELAXATION PEUT ÊTRE DANGEREUSE POUR LA SANTÉ.

WARNING: PEOPLE WITH INFECTIOUS DISEASES SHOULD NOT USE A SPA.

AVERTISSEMENT: LES PERSONNES ATTEINTES DE MALADIES INFECTIEUSES NE DEVRAIENT PAS UTILISER UNE CUVE DE RELAXATION.

WARNING: PREGNANT OR POSSIBLY PREGNANT WOMEN SHOULD CONSULT A PHYSICIAN BEFORE USING A SPA OR HOT TUB.

AVERTISSEMENT: LES FEMMES ENCEINTES, QUE LEUR GROSSESSE SOIT CONFIRMÉE OU NON, DEVRAIENT CONSULTER UN MÉDECIN AVANT D'UTILISER UNE CUVE DE RELAXATION.

WARNING: TO AVOID INJURY EXERCISE CARE WHEN ENTERING AND EXITING THE SPA OR HOT TUB.

AVERTISSEMENT: POUR ÉVITER DES BLESSURES, USER DE PRUDENCE EN ENTRANT DANS UNE CUVE DE RELAXATION ET EN SORTANT.

WARNING: DO NOT USE A SPA OR HOT TUB IMMEDIATELY FOLLOWING STRENUOUS EXERCISE.

AVERTISSEMENT: NE PAS UTILISER UNE CUVE DE RELAXATION IMMÉDIATEMENT APRÈS UN EXERCICE FATIGANT.

CAUTION: MAINTAIN WATER CHEMISTRY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

ATTENTION: LA TENEUR DE L'EAU EN MATIÈRES DISSOUTES DOIT ÊTRE CONFORME AUX DIRECTIVES DU FABRICANT.

INSTALLATION AND USE

LOCATION

For your portable spa to function properly and safely, it must be located on a hard, flat, level surface. In-ground spas require special installation techniques and should be planned in conjunction with your spa dealer. Improper installation can result in structural damage to the spa and the voiding of your spa warranty. Items to discuss with your dealer include: local construction codes, electrical service requirements, serviceability of equipment, present underground obstructions such as gas, water and telephone lines, safety measures such as fences, locks and visibility of the spa installation from the home, street and neighbors.

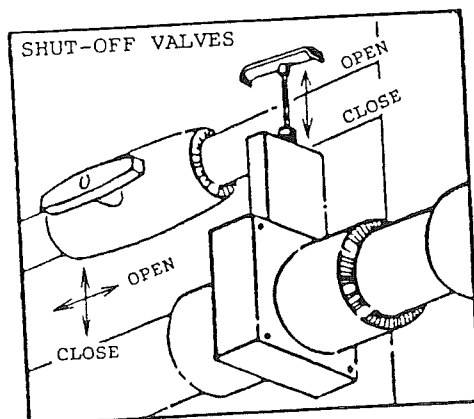
You must allow for sufficient water drainage around the spa to help preserve the equipment and support structure.

Your spa MUST be installed to permit access for servicing the equipment above and/or below any decks or floors. Access is essential and must allow adequate room for service personnel.

Be sure the spa is in the final position BEFORE filling with water. Check for power cords, tools and hoses which may be caught underneath the spa.

CAUTION: Never try to move a spa that has not been fully drained. To do so could result in damage to the spa and physical injury to the mover.

IMPORTANT: DO NOT LET AN EMPTY SPA BE EXPOSED TO DIRECT SUNLIGHT FOR MORE THAN A FEW MINUTES. Spa surface temperatures can reach in excess of 150°F (65°C) if left exposed to the sun. Significant damage can occur if this is allowed to happen, including warping and blistering of the surface. Damage which may occur as a result of this exposure is not covered under the warranty; all warranties have excluded this type of damage.



SHUT-OFF VALVES

Your spa is equipped with shut-off valves (see equipment diagram at the end of this manual) that shut off the water flow to the equipment system for dealer service. At times, a new spa or one that has recently been serviced, may have the shut-off valves partially closed which can restrict the water flow and hinder jet performance. Be sure the valves are fully open.

SPA SIDE CONTROLS



LOW/HIGH THERAPY

Pushing this pad turns the Jet-pump on to low-speed. Pushing the pad again turns the pump to high-speed. Pushing the pad again turns the pump off. After running on low-speed for fifteen minutes the pump will automatically turn off. After running on high-speed for ten minutes the pump will automatically switch to low-speed for five minutes and will then turn off.

LIGHT

Pushing the pad marked ON/OFF turns on the underwater spa light. Pushing the pad again turns the light off. After being on for one hour the light will automatically turn off.

HEATER THERMOSTAT

The LCD window displays the actual water temperature. Pushing the TEMP button will make the numbers flash, then pushing the button again (repeatedly) will increase the set temperature one degree at a time, up to 104°F. After a short pause, the actual water temperature will again be displayed. Repeating the above procedure will allow you to decrease the set temperature.

The length of time it takes the water to reach a desired temperature depends on several factors, including: Raw water temperature, ambient air temperature, spa size, relative humidity and the insulative qualities of the cover.

CAUTION: The spa should never be operated at temperatures above 104°F (40°C). An accurate underwater thermometer is vital in monitoring water temperatures. If the thermostat allows the heater to heat the spa to temperatures greater than 106°F, contact your spa retailer. Refer to IMPORTANT SAFETY INSTRUCTIONS in the front of this manual for further information about recommended water temperatures.

HEAT LIGHT

The HEAT light will illuminate when the heater is on.

LCD DISPLAY MESSAGES

The advanced technology built into the spa allows it to perform a number of self-diagnostic system checks. As the system performs these various checks, it can display a variety of messages on the LCD panel. Below are some of the messages you may see on the panel.

OH: Overheat protection; If a malfunction occurs and the spa water reaches 112°F (44°C), the system will completely shut down. In such a condition, DO NOT ENTER THE WATER. Turn off all power to the spa. Several conditions could lead to overheating, e.g., low water level, shut-off valves closed while heater is on, dirty filter, and

restriction in the plumbing lines. The spa will not restart itself until the water temperature within the spa drops to a lower, predetermined temperature. As a double safety feature a secondary high-limit sensor will shut the system off if the water temperature in the heater housing reaches 118° F. In this case the spa may be restarted by pushing any panel pad after the water has cooled to 110° F. If the switch trips repeatedly, do not use the spa, contact your retailer for service.

FL: Flashing: 1. The filter may be plugged. 2. The spa water level may be too low. 3. A shut-off valve may be closed. 4. A pressure switch may have malfunctioned, contact your serviceperson.

SN: If either the heater high-limit sensor or the water temperature sensor malfunctions, the spa will turn off. Contact your spa serviceman.

JET-PUMP CLEANUP CYCLE

The jet-pump will turn on to low-speed for fifteen minutes twice a day, at 12 hour intervals, to circulate the water in the plumbing lines. The first fifteen minute period begins ten minutes after the spa is energized.

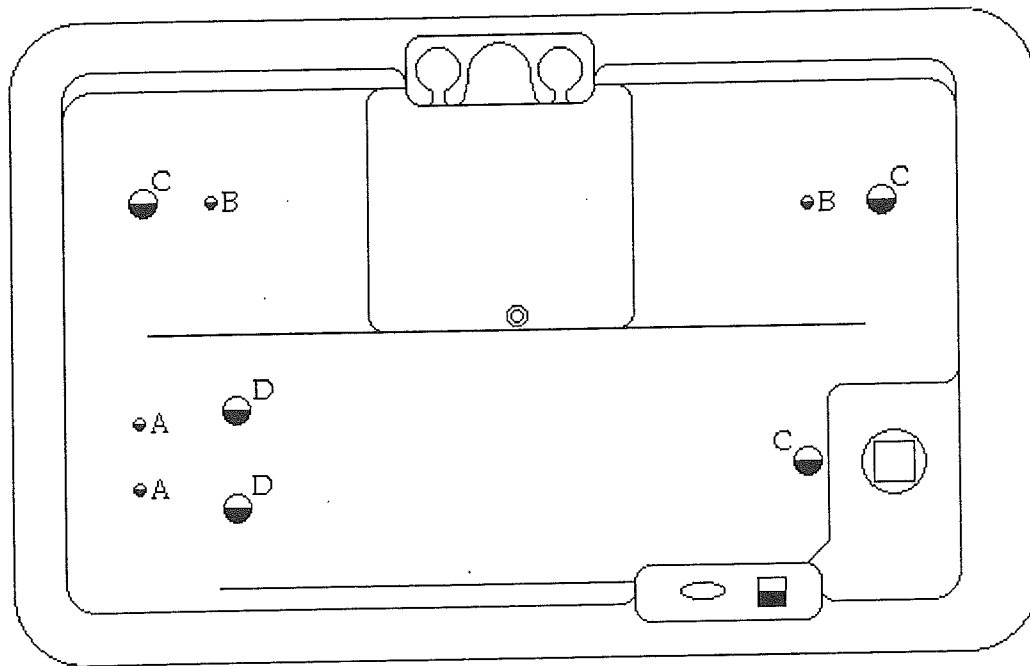
CIRCULATION-PUMP

The small circulation-pump in your spa is designed to run 24 hours a day to circulate, filter, and heat the water. The water heater, attached to the circulation-pump, will cycle on and off according to the temperature called for by the control panel thermostat. The circulation pump draws its water through the Vortex filter and returns the water to the spa through small return jets. Care should be taken to never block these water-return openings, as this will cause water to remain in the heater and cause the high-limit sensor to turn the spa off.

AIR CONTROL

The small, gray, tear-drop Air Control knob allows you to regulate the amount of air drawn into the jet-stream. To operate simply turn the pointer left for maximum air and right for no air. Note: Because heat loss occurs when air is injected into the water, close the air controls when the spa is not in use.

This diagram shows the spa's jetting configuration.



Vortex Filter.....	
Operator Panel.....	
Jet Zone.....	
Air Control.....	
Ozone Jet.....	
Micro Boost Jet.....	A
Micro Swirl Jet	B
Power Boost Jet.....	C
Power Swirl Jet.....	D

FREEZE PROTECTION

When a freeze condition is detected (which occurs when the temperature in the heater housing drops to 40° F) the jet-pumps are automatically activated.

In some climates, the weather conditions can occasionally become so severe that your spa may need special attention. In the case of extended hot weather, the spa water temperature may reach and maintain 104°F to 106°F. This is due to the ambient temperature and the full insulation in the spa cabinet. The simplest solution to this heat build-up is, lifting the spa cover a few inches for several hours to allow the heat to escape.

In areas with extreme cold winter conditions, your spa should be fine as long as it is left running at normal operating temperatures. If you plan to turn the spa off, you must follow the instruction in this manual for winterizing your spa.

MICRO BOOST JETS

Small directional jets are strategically located to compliment the larger jets. Simply moving the nozzle redirects the water for ideal massage.

MICRO SWIRL JETS

Small rotating jets give a gentle massage in a medium size area.

POWER BOOST JETS

The direction of water flow can be changed by simply repositioning the central nozzle. The water flow can be turned off by turning the jet face clockwise.

POWER SWIRL JETS

This jet's rotating nozzle creates a large area of massage. The water flow can be turned off by turning the jet face clockwise.

SUCTION FITTINGS

There are suction fittings in the footwell of your spa. These are openings through which the jet-pumps draw water. They have been equipped with safety covers. Suction through the fittings can be strong. The safety covers must remain in place and undamaged. A fitting with a damaged cover can be dangerous, especially to small children or people with long hair. Should any part of the body become drawn to a fitting,

turn the jet-pump off immediately. Long hair should be restrained in a bathing cap, never allow it to float freely in the spa. Replace any missing or damaged suction covering.

FILTER CARTRIDGE

Your portable spa is equipped with the Marquis spa filtration system. The Vortex Filter includes a Vortex skimmer, debris catch basket, filament filter cartridge, narrow plastic prefilter, and a black lateral basket. Do not operate your spa without your filtration system properly in place.

OZONATOR INSTALLATION

If your spa was not originally equipped with an ozone generator and you would like to install one, refer to the following instructions and those supplied with the ozonator. NOTE: The only ozonator U.L. listed for your spa is the Marquis Spa Ozone Generator, available at your Marquis retailer, part #35-0957.

1. Turn off the power to the spa.
2. Open the equipment area door.
3. Plug the ozonator into the ozone receptacle on the spa control box.
4. Cut a 5" piece of the supplied 1/4" tubing and using silicone sealant, push one end into the ozonator.
5. Into the other end of this tube, insert the supplied checkvalve, being sure the direction of flow is away from the ozonator, not toward it.
6. Cut a long piece of tubing and push it onto the exposed end of the checkvalve.
7. Remove the black plastic plug from the small white tubing suspended above the equipment (some water may drip from this fitting, have a towel handy). Replace this plug with the supplied 1/4" barbed fitting, using Teflon tape on the threads to make the proper seal.
8. Place the exposed tubing end on the 1/4" barb.
9. Properly ground the ozonator.
10. Depending on the particular spa model, the ozonator will fit either to the right or to the left of the equipment. There is a labeled mounting block attached to the spa for this purpose.
11. Turn on the power to the spa. After 10 minutes, you will see the ozonator's blue light turn on and bubbles coming out of the single ozone jet in the spa.
12. Close the equipment door.

WATER CHEMISTRY GUIDELINES

The proper chemical balance of the spa water is essential. There are several methods available to sanitize the water in your spa. We recommend using chlorine or bromine and ozone. No other oxidizing agents are suggested. Use of other oxidizing agents may damage equipment and void the warranty. Consult your spa dealer for the proper chemicals and their recommended usage. **NEGLECT IN MAINTAINING THE CORRECT WATER CHEMISTRY CAN VOID YOUR SPA WARRANTY.**

CAUTION: It is essential that you shock sanitize your spa after filling it with water **BEFORE** you begin to use it. Follow the directions on the shock concentrate container. This shock treatment will give an initial sterilization to your water, kill any algae spores that may be present and oxidize undesirable minerals and organic matter in raw water. This treatment must be repeated any time the spa is refilled or the water has lost its chemical control due to neglect.

It is recommended that sodium dichlorocyanurate (DyCloro) or lithium hypochlorite be used in spas. Calcium hypochlorite is the type of chlorine used in swimming pools and it is **NOT** recommended for spa usage. Tri-Cloro is also not recommended.

CHEMICAL LEVELS

The pH level should be kept between 7.2 and 7.6. Failure to maintain this level can result in irritation of the eyes, skin rashes and other discomforts as well as damage to the spa surfaces, plumbing and equipment.

Alkalinity should be maintained between 100-150 (ppm).

Chlorine level should not exceed 3 ppm except during periods of super chlorination. Super chlorination is used only to treat raw water after completely draining the spa and after periods of heavy use.

Since water chemistry and water hardness vary from region to region, you should consult your spa dealer about how to best treat your water. He has a complete line of chemicals to help you get optimum use and enjoyment from your spa.

CHEMICAL SAFETY

It is important that you read and follow the safety tips for chemical usage and storage listed here. This valuable information is contained on pages 11 and 12 of the "Sensible Way to Enjoy Your Spa or Hot Tub" issued by the National Spa and Pool Institute (NSPI) which has granted us permission to use this information here.

The chemicals needed for your spa help make it clean, disinfected and more attractive to use. But remember that these chemicals are potentially dangerous and may present some hazards if not used properly. Carefully follow the manufacturer's instructions for chemical use and storage. In general, here are some tips for chemical use and storage:

- * Before using chemicals, read the labels and directions carefully. Follow label instructions.
- * Keep all chemicals out of the reach of children.

STORAGE

- * Chemicals for test kits should be replaced each year.
- * Keep the original lids on all chemical containers and make sure the lids are closed tightly when not in use.
- * Do not stack different chemicals on top of one another.
- * Store your spa chemicals in a clean, cool, dry and well-ventilated area, preferably off the floor, to prevent contamination from other materials. Keep them away from chemicals and equipment used in garden and lawn maintenance.
- * Keep liquid chemicals away from dry chemicals. Keep separated those chemicals which are different forms of oxidizing compounds. Physically separate all different forms of chemicals.
- * Do not store your spa chemicals where flammable items may mix with them. The mixing of some chemicals and fertilizers can cause a fire explosion.

USAGE

- * Never mix two chemicals together. Use a clean scoop for each chemical and avoid combining material from "old" and "new" containers.
- * Test the water in your spa with a reliable test kit on a schedule recommended by your spa dealer. Add the necessary chemicals according to the test results and the manufacturer's instructions. The hot water environment of a spa allows disinfectants to rapidly break up and spread out. This requires more frequent water testing. Follow your manufacturer's instructions in this regard. The more people who use the spa, the more frequently you should test the water.

- * Do not inhale dust or fumes from any chemicals. If necessary, use proper devices for breathing, handling and eye protection. Promptly wash off any chemicals which get on the skin.
- * Never reuse old containers unless specified by the maker.
- * If you have any questions regarding safe handling, storage or use of spa chemicals, contact the manufacturer of the chemicals.
- * Always add the chemical directly to the spa by; using a suitable feeder, distributing it across the surface of the water, or diluting and pouring it into the water. Follow label use instructions.
- * When preparing water solutions for feeder application, pour the chemical slowly into the appropriate amount of water, stirring constantly to provide mixing and dilution.
- * Always add chemicals to water. Never add water to chemicals.
- * Never add chemicals to the spa water while people are using the spa.
- * Carefully clean up any spilled chemicals with large amounts of water, to dilute and wash away the chemicals. Disinfectants and pH adjustment chemicals can usually be sent to the sewer with large quantities of water, since they are intended for use at low levels.
- * Wash out empty disinfectant containers before disposing to eliminate danger of fire, explosion and poisoning.

ELECTRICAL REQUIREMENTS

It is the responsibility of the spa owner to ensure that all electrical connections are made in accordance with all electric codes in effect at the time of installation.

This cord connected 120V unit must only be connected to a properly grounded, grounding type 15 amp. receptacle. This equipment is designed to operate on 60Hz. alternating current only at a voltage of 120, 12.5 amp. max. load.

STARTING THE SPA

You will need a spa chemical test kit and an underwater thermometer. It is important to follow each of these steps when starting your spa.

1. Place spa on a hard, flat, level surface. Make sure the power supply is off.
2. Make sure that the suction fittings in the footwell are in place and undamaged.
3. Open the equipment door. Close the drain valve and screw the drain valve cap on tightly. Tighten all disconnects and open all shut-off valves.
4. Fill the spa with water to half-way-up the Vortex skimmer's openings.
5. Turn the power on...wait five seconds.
6. Set the water temperature to the desired level.
7. Test the spa side controls.
8. SHOCK SANITIZE the water and test the water chemistry following the instructions in your chemical test kit.
9. Place the cover on the spa and wait 12 to 24 hours for the water to heat.
10. Test the water temperature and adjust the thermostat if necessary. Normal use is between 98° and 102° F.

OPERATING THE SPA

Allow the spa to circulate on high-speed (see instructions for spa side controls) for 4-5 minutes to discharge air from the plumbing system. Do not expect hot water immediately from the jets; the heater will take several hours to heat the water.

NOTE: Your spa has been filled and test run at the factory. The first time your spa is filled with water, some discoloration from residual test water may appear. This will disappear when the spa is completely filled and the filtration system is functioning.

Test the water for the proper chemical balance and adjust as necessary. PROPER BALANCE IS IMPORTANT.

ENERGY COVER

When the spa is not in use, the energy cover should be kept on the spa to retain the water's heat and to keep out dirt, leaves, etc. Your heater thermostat will maintain a constant water temperature between spa uses.

REGULAR MAINTENANCE

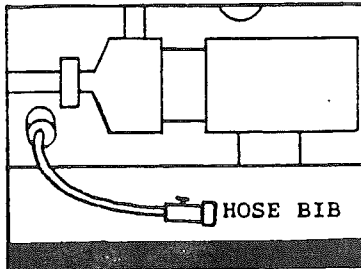
EXTERIOR

Your spa's wood exterior has been treated with a sealant at the factory. It is suggested that the exterior be treated twice a year with an additional coat of sealant for maximum weather protection. You should contact your spa retailer for advice on which sealants work best in your environment.

DRAINING THE SPA

It is recommended that you completely drain your spa at least four times a year. More frequent draining may be required depending on use. Unless this is done regularly, the water becomes chemically "saturated" and will no longer respond to regular chemical upkeep. The spa should also be drained before long periods of disuse or for major equipment repair. An empty spa should be covered, direct sunlight on the spa surface can cause severe damage or blemishing and can result in the voiding of any surface warranties. To drain the spa for cleaning or servicing, complete the following steps:

- A. Adjust the thermostat all the way down.
- B. Turn off the power to the spa.



- C. Attach a garden hose to the hose bib in the equipment area.
- D. Open the hose bib by turning the lever counter clockwise. Gravity will cause the water to drain out of the hose.

- E. When the spa is empty, close the hose bib and remove the hose.

CLEANING

Should the water line become soiled, it can be cleaned with a soft sponge or cloth. Do not use any abrasive cleaners as they can scratch or dull the spa surface.

Your Energy Cover can be cleaned with a non-abrasive household cleaner on both top and bottom sides. A good quality NON-SILICONE based vinyl restorer will help protect the surface from the sun's rays.

REMOVING THE FILTER

Refer to the Spa Maintenance Schedule for cleaning frequency and instructions. Follow these instructions whenever performing routine maintenance.

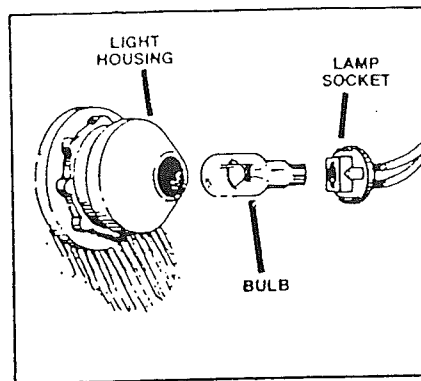
Vortex Filtration:

- A. Push down and twist the Vortex skimmer/catch basket counter clockwise and lift out.
- B. Lift out the filter cartridge. Note the position of the filter. The end with the hole faces DOWN.
- C. You will notice a tall plastic prefilter in the bottom of the canister. This prefilter is screwed into a black basket. By slowly pulling up on the lateral filter (and basket) you will trap and remove any floating debris. Lift the basket completely out of the spa, using the inside finger tabs if necessary near the top of the canister. This prefilter and basket are important in preventing unfiltered debris from accumulating in the small circulation pump. It is necessary to always have all of these parts properly installed in this Vortex filter location whenever the spa is operating.

REFILLING

Fill your spa with fresh water from a garden hose and add the necessary chemicals. Remember, it is essential to shock sanitize the water after each refill before using your spa. Be sure to follow the same procedures as outline in STARTING YOUR SPA.

LIGHT BULB REPLACEMENT



To replace a bulb, remove the equipment area door to find the spa light access located at the rear of the equipment area. Remove the lamp socket from the back of the light assembly by turning and pulling at the same time. Gently pull the bulb out of the lamp socket and replace it with a 6 watt bulb only from your spa retailer. Install the lamp socket back into the light assembly and replace door.

WINTERIZING

Your spa was designed for year around use and many people find the combination of hot water, therapy jets and cool winter temperatures to be especially soothing. However, if you decide to discontinue the use of your spa for the winter, or for any other extended period of time, we suggest you follow the steps below. (NOTE: During long period of inactivity, damage can occur to equipment from condensation within the equipment.)

- A. Adjust the thermostat all the way down.
- B. Turn off the power to the spa.
- C. Drain the spa.
- D. Remove all residual water from the seating and footwell. If necessary, use a bucket to bail out the remaining water then dry the spa with towels. A wet/dry vacuum may also be used.
- E. Close the air control valves.
- F. Using the wet/dry vacuum, place nozzle over each jet orifice to remove water from plumbing lines, starting with the highest jets and finishing with the lowest jets. Open the air control valves and repeat this step.
- G. Unscrew and disconnect plumbing lines at the heater and both the suctions and discharges of the pumps.
- H. Again, using the wet/dry vacuum, place nozzle over the pump parts to remove excess water. For maximum winterizing protection, the pumps should be removed from the spa and stored in a climate controlled room.
- I. Wipe down the water line.
- J. Clean the filter cartridges.
- K. Reinstall the Energy Cover.

MAINTENANCE SCHEDULE

DAILY

Replenish the water level by filling up to the middle of the Vortex skimmer openings. Check and clean the catch basket.

Check the water pH balance. Adjust if needed.

Check the sanitizer level and adjust if needed.

WEEKLY

Wipe down the water line.

Remove the filter cartridge and rinse thoroughly with a hose and high pressure nozzle.

MONTHLY

Soak the filter cartridge in a solution of TSP (tri-sodium phosphate). Rinse thoroughly in clean water.

Clean the spa Energy Cover.

EVERY THREE MONTHS

Drain the spa and completely refill with water and replenish the chemicals.

While you have the equipment door open, check for signs of water leakage around the pump. Pump seals can wear out over time, especially with improper water chemistry. Early detection of pump seal failure can significantly reduce repair costs.

While the spa is drained, the interior can be sponged with a spa cleaner and rinsed. NOTE: Do not wax the surface as the wax will dissolve into the water and clog the filter.

EVERY SIX MONTHS

Treat the wood exterior with protective sealant.

TROUBLESHOOTING - PLEASE NOTE: The following corrective actions may be performed by the spa owner. If the trouble cannot be corrected in the steps below, please refer to your spa retailer for service. (Improper servicing by an unauthorized serviceman or spa owner could result in damage that will not be covered by the warranty and could cause serious injury.)

EQUIPMENT WILL NOT OPERATE

Check the control panel LCD display code.

Check the condition of the power cord.

JET-PUMP DOES NOT WORK

Push the Low/High pads on the spa side controls.

Be sure the shut-off valves are completely open.

Check for obstructions or restrictions at the suctions.

INADEQUATE JET ACTION

Be sure the shut-off valves are completely open.

Check that the Air Control valve is open.

NO HEAT

Notice if the thermostat is set to the desired position.

NOTE: Do not expect instant hot water from the jets. It will take the heater several hours to heat the spa to the temperature you desire.

Inspect the filter cartridge for dirt and debris.

Prolonged use of the jets will have a significant cooling effect on the water. Turn off the jet action to allow the heater to raise the spa temperature.

LIGHT(S) DOES NOT WORK

Push the light button on the spa side controls.

Tighten the light bulb in the socket.

Replace the light bulb (6 watt only).

CIRCULATION-PUMP DOES NOT WORK

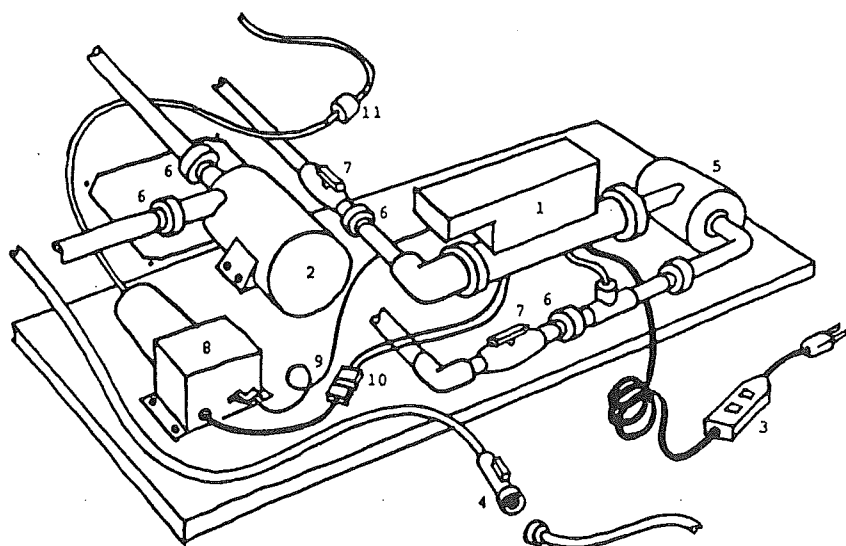
NOTE: It is difficult to tell if the circulation-pump is working by just looking at the spa water due to the normal low-flow of the pump. One helpful procedure is the following: Inside the equipment enclosure you will see a black plastic plug screwed into a fitting with very thin white tubing. By removing this plug, the ozone jet in the spa should be allowed to draw air into the jet stream. If you see that this jet is in fact working, this indicates that the circulation-pump is working. If you do not see this jet stream, replace the black plug, turn the power to the spa off and contact your spa retailer for servicing.

WATER IS CLOUDY

Check the water chemistry and balance as needed.

Clean or replace the filter cartridges.

EQUIPMENT DIAGRAM



- | | |
|-------------------------------|------------------------------|
| 1. CONTROL BOX | 7. WATER SHUT-OFF VALVES |
| 2. TWO-SPEED PUMP | 8. OZONATOR (if so equipped) |
| 3. POWER CORD WITH GFCI (USA) | 9. OZONATOR GROUND WIRE |
| 4. DRAIN VALVE | 10. OZONATOR POWER OUTLET |
| 5. CIRCULATION PUMP | 11. OZONE GAS HOOK-UP |
| 6. EQUIPMENT DISCONNECTS | |

SERIAL NUMBER LOCATION

On you spa, the serial number is engraved directly above the filter canister area. On those models which are listed by Underwriters Laboratories, you will also find the serial number on the tag in the equipment area.

PLEASE FILL OUT AND RETAIN FOR FUTURE REFERENCE

Name of Purchaser Date of Purchase

Address

City State Zip Code

Signature Telephone

Spa Model / Color Spa Serial # Pack Serial #

Retailer's Name

Retailer's Address