

Owner's Manual

RECREATIONAL SERIES

DEPARTURE AND VOYAGE

One and Two Pump Systems with Constant Clean
240 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

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596 Hoffman Road
Independence, OR 97351
(503) 838-0888

6/96 U.S.A. / CANADA

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.

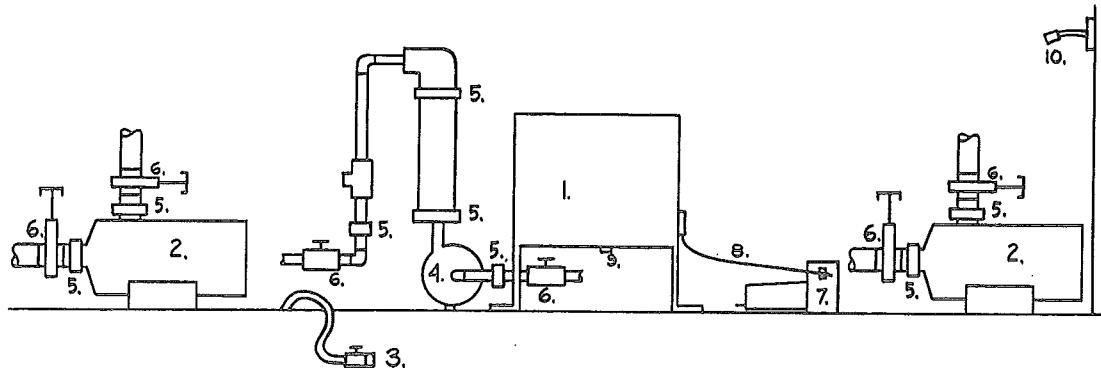
If you need an additional or a replacement sign please contact your spa retailer and ask for part number 71-0789.

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

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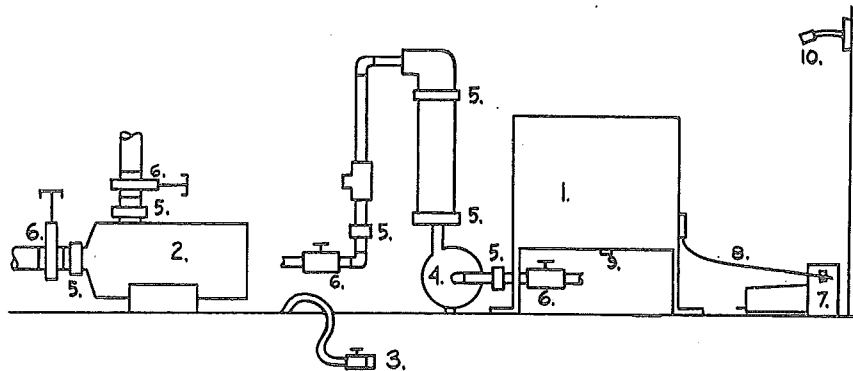
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TWO-PUMP EQUIPMENT SYSTEM



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

ONE-PUMP EQUIPMENT SYSTEM



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

SAVE THESE IMPORTANT SAFETY INSTRUCTIONS

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

READ AND FOLLOW ALL INSTRUCTIONS.

1. DANGER - RISK OF ELECTRIC SHOCK! Install at least 5 feet (1.52 M) from all metal surfaces.
2. 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.
3. DANGER - Risk of Electric Shock. Install at least 5 feet (1.52 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 #8 AWG (#6 AWG Canada) solid copper conductor to the wire connector on the control box that is 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.
AVERTISSEMENT: NE PAS LAISSER LES ENFANTS UTILISER UNE CUVE DE RELAXATION SANS SURVEILLANCE.
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.
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.
6. This spa is designed and intended for residential use only and should not be used in a commercial, public, or semi-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.
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.
- B. Pregnant women and people under medical care (for such problems 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, vasoconstrictor, vasodilator, stimulants, hypnotic, 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.
WARNING: PEOPLE USING MEDICATIONS AND/OR HAVING AN ADVERSE MEDICAL HISTORY SHOULD CONSULT A PHYSICIAN BEFORE USING A SPA OR HOT TUB.
AVERTISSEMENT: LES PERSONNES QUI PRENNENT DES MÉDICAMENTS OU ONT DES PROBLÈMES DE SANTÉ DEVRAIENT CONSULTER UN MÉDECIN AVANT D'UTILISER UNE CUVE DE RELAXATION.
- C. The water in a spa should never exceed 104 degrees F (40 degrees C). Water temperatures between 100 degrees F (38 degrees C) and 104 degrees 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 degree to 104 degree range. An accurate underwater thermometer is a "must". 100 degree water is generally safe and enjoyable for most adults. However, remaining in 100 degree 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 degrees. Never soak in water hotter than 104 degrees 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 degrees F (37 degrees 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 degrees F (3 degrees 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 degrees F to 99 degrees F - normal body temperature - for extended soaking.

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 MORTELLE DANS UNE CUVE DE RELAXATION.

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.

- 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.

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

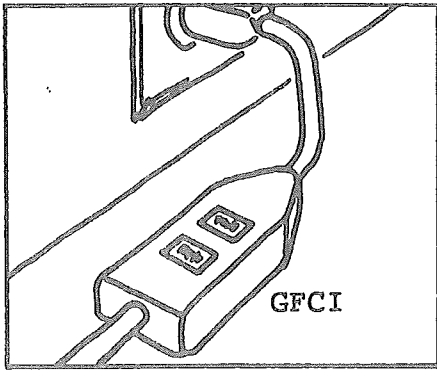
- E. It is recommended that people shower before and after using the spa. Showering before removes deodorants, lotions, perspiration, and oils which may clog the filter. Showering after soaking will help remove any non-disinfected bacteria that may have been in the spa.
- F. Soaking in hot water will 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 degrees F (38 degrees C). Soaking for extended periods in water 102 degrees or higher may affect body temperatures to the point that it could affect the fetus. This is especially important during the first 90 days of pregnancy. Spa use at 100 degrees 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. AVERTISSEMENT: LES FEMMES ENCEINTES, QUE LEUR GROSSESSE SOIT CONFIRMÉE OU NON, DEVRAIENT CONSULTER UN MÉDECIN AVANT D'UTILISER UNE CUVE DE RELAXATION.
- 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. AVERTISSEMENT: POUR ÉVITER DES BLESSURES, USER DE PRUDENCE EN ENTRANT DANS UNE CUVE DE RELAXATION ET E SORTANT.
- 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 his/her approval.
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.

- 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 spa water.

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

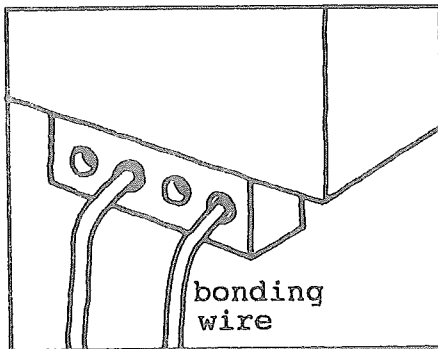
- 10. Connect 120V equipment system only to a properly grounded grounding type receptacle. DO NOT BURY THE POWER CORD.
WARNING: If electrical cord is damaged, contact your spa retailer.



11. 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 a 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, Grounding, or the  symbol is located inside the supply terminal 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.

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. CAUTION: MAINTAIN WATER CHEMISTRY IN ACCORDANCE WITH MANUFACTURE'S INSTRUCTIONS.
ATTENTION: LA TENTEUR DE L'EAU EN MATIÈRES DISSOUTES DOIT ÊTRE CONFORME AUX DIRECTIVES DU FABRICANT.
21. **SAVE THESE INSTRUCTIONS**

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 and locks, and visibility of the spa installation from the home, street, and neighbors.

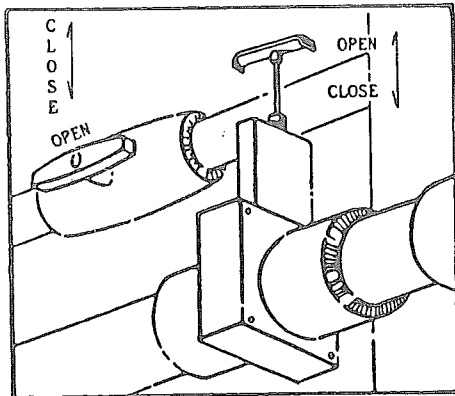
You must allow for sufficient water drainage around the spa to help preserve the wood skirt and support structure and to provide adequate drainage of the equipment bay.

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 can 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 degrees F (65 degrees 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.



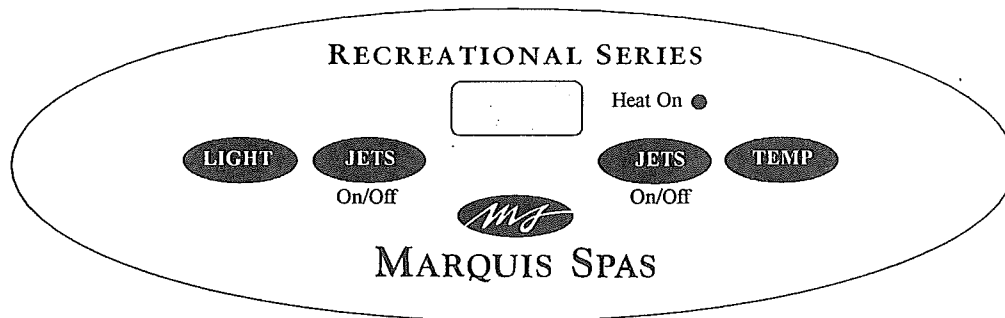
SHUT-OFF VALVES

Your spa is equipped with shut-off valves (see equipment diagram at the beginning 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; One-pump System



SPA SIDE CONTROLS; Two-Pump System



JETS; ON/OFF (One pad for each jet-pump)

Pushing this pad turns the pump on. Pushing the pad again turns the pump off. After running for fifteen minutes the pump will automatically turn off.

UNDERWATER LIGHT

Touch this pad to turn the light on and off. After being on for one hour the light will automatically turn off.

JET-PUMP CIRCULATION

The jet-pump will turn on for fifteen minutes two times a day (at 12 hour intervals) to circulate the water in the plumbing lines. The first fifteen minute period will begin ten minutes after the spa is energized.

HEATER THERMOSTAT

The LCD window displays the actual water temperature. Pushing the TEMP pad will make the numbers flash, then pushing the pad again (repeatedly) will increase the set temperature one degree at a time, up to 104 degrees 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 conditions: Raw water temperature, ambient air temperature, spa size, relative humidity, and the insulative qualities of the cover are all factors.

CAUTION: The spa should never be operated at temperatures above 104 degrees F (40 degree 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 104 degrees 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 LCD panel.

OH: Overheat protection; If a malfunction occurs and the spa water reaches 112 degrees F (44 degree 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, eg., low water level, shut-off valves closed while heater is on, dirty filter, and restricted plumbing lines. The spa cannot be restarted until the water temperature within the heater assembly drops to a lower, preset temperature. To restart the spa push any panel pad. If the switch trips repeatedly do not use the spa, contact your spa retailer for repair service.

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

FL: If the flow switch malfunctions the heater will not operate. Contact your spa serviceman.

AIR CONTROLS

The round, gray air control knob(s), allows you to regulate the amount of air drawn into the jets. To which jets the control(s) applies varies according to spa model. To operate, simply turn the control knob until the appropriate MIN or MAX appears in the window.

Note: Because heat loss occurs when air is injected into the water, close the air control(s) when the spa is not in use.

FREEZE PROTECTION

When a freeze condition is detected the jet-pump is automatically activated.

CIRCULATION-PUMP

The small circulation-pump in your spa is designed to run twenty-four 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 filter and returns the water to the spa through two personal therapy jets. Care should be taken to never block either of 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.

OZONATOR INSTALLATION

If your spa was not originally equipped with an ozone generator and you would like to install one please 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 ozonator receptacle on the spa control box.
4. Cut a 5" piece of the supplied 1/4" tubing and, using a silicone sealant, push one end onto 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 spa equipment.
11. Turn on the power to the spa. After a few seconds you will see the ozonator's blue On light and bubbles coming out of the single ozone jet in the spa.
12. Close the equipment door.

MAXIMUM THERAPY JETS

Your spa is equipped with multifunction jets. These allow you to adjust between an orbital water flow pattern and a straight flow. This is done by gently pushing the nozzle opening to one side. You may also have non-spinning directional jets. These offer a more constant therapy which you can aim to suit your needs.

GEYSER JET

Your spa may be equipped with a geyser jet. The control for this jet is the gray tear-drop knob on the spa lip. By turning the knob you can redirect the flow of water from the therapy jets to the geyser jet.

PERSONAL THERAPY JETS

Your spa is also equipped with smaller spinning and directional personal therapy jets. These jets are strategically located in the seating areas and operate in conjunction with the other jets.

NECK JETS

Your spa may be equipped with a corner seat(s) featuring especially high neck jets. These jets are turned on and off using the round knob on the spa wall next to the seat.

SUCTION FITTINGS

There are suction fittings (drains) in the footwell of your spa. These are the openings through which the jet-pump draws water. These openings have been equipped with safety covers. Suction through the drains can be strong. All safety covers must remain in place and undamaged. A drain 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 drain, 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 two filtration systems. These include; two Vortex skimmers, debris catch baskets, and top-loading filter cartridges and one plastic prefilter. Do not operate the spa without these systems in place.

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. Directions should be 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 the raw water. This treatment must be repeated anytime 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 is it 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 levels 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 care.
- * 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 materials 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 often you should test.
- * 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 your skin.
- * Never reuse old containers unless specified by the manufacturer.
- * 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.

INSTALLATION

All connections must be made in accordance with the wiring diagram found on the inside of the control box cover. Connections should be made with copper conductors only. All conductors, circuit breakers, and/or fuses must be sized in accordance to the Total Amperage Load as specified below:

- * Permanently connected
- * Rated 240V, 60HZ, 40A, 3 wire plus ground
- * Minimum Supply Conductor Ampacity: 50A based on 60 degree C ambient
- * Fuse or Circuit Breaker Size: 50A

STARTING YOUR 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.
2. Make sure that the suction/drain 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 UPPER Vortex skimmer's openings (using hot water from a utility sink will reduce the heat-up time).
5. Set the water temperature to the desired level.

6. Test the spa side controls; push Jets button, turn air control(s). Verify water-flow from all jets.
7. SHOCK SANITIZE the water and test the water chemistry following the instructions in your chemical test kit.
8. Place the cover on the spa and wait 12 to 24 hours for the water to heat.
9. Test the water temperature and adjust the Thermostat if necessary. Normal use is between 98 and 102 degrees 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

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.

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. The filter cartridge can be removed by completing the following steps:

- A. Twist the Vortex skimmer and catch basket counter clockwise and lift out.
- B. Lift out the filter cartridge.
- C. You will notice a tall plastic "prefilter" screwed into the bottom of one of these canisters. Never remove this prefilter until after the spa has been completely drained and all debris has been cleaned out of the canister bottom. This is to prevent unfiltered water from reaching the circulation-pump. Unscrew and clean the prefilter every time you drain the spa.

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 outlined in STARTING YOUR SPA.

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 periods 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 jet and finishing with the lowest jet. 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 cartridge and prefilter.
- K. Reinstall the Energy Cover.

MAINTENANCE SCHEDULE

DAILY

Replenish the water level by filling up to the mid-point of the UPPER Vortex skimmer's openings.

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 completely, refill with water and replenish the chemicals.

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

TROUBLESHOOTING PLEASE NOTE: The following corrective actions may be performed by the spa owner. If the trouble cannot be corrected with the steps below, please consult 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 power to the spa.

Check the control panel LCD display code.

JET-PUMP DOES NOT WORK

Push the JETS button on the spa side controls.

Be sure the shut-off valves are completely open.

Check for obstructions or restrictions at the drains.

INADEQUATE JET ACTION

Be sure the shut-off valves are completely open.

Check that the air control(s) 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.

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: In the upper area of the equipment enclosure you will see a black plastic plug screwed into a fitting (attached to a thin white tube), by removing this plug the personal therapy jet dedicated to ozonation will be allowed to draw air into its water 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 cartridge.

SERIAL NUMBER LOCATION

On your 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 _____

Your Signature _____ Telephone _____

Spa Model / Color _____ Spa Serial # _____ Pack Serial # _____

Dealer's Name _____

Dealer's Address _____