

Owner's Manual

MTS Series

**Maximum Therapy System: Two Pump; 240 Volt
With Constant Clean**

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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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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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.

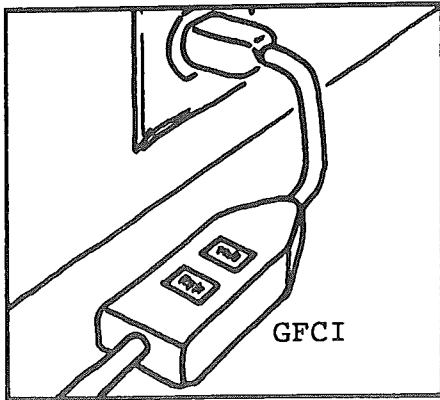
AVERTISSEMENT: LES PERSONNES ATTEINTES DE MALADIES INFECTIEUSES NE DEVRAIENT PAS UTILISER UNE CUVE DE RELAXATION.

- 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.

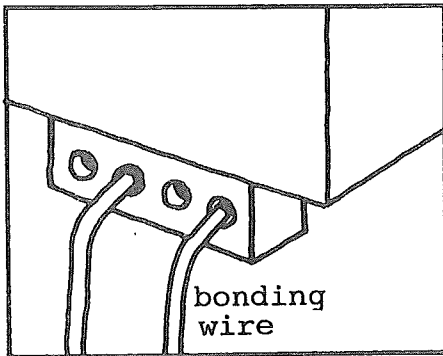


11. On 120V spas a power cord is provided with a Ground Fault Circuit Interrupter (GFCI). The GFCI is a safety device which protects users from exposure to electric shock hazard. The GFCI must be tested before each use of your spa as follows:

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 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 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 supplying circuit conductors.

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.

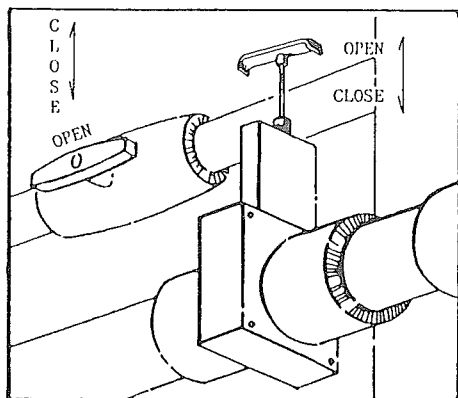
You must allow for sufficient water drainage around the spa to help preserve the wood skirt and support structure and to provide adequate drainage of the equipment bay.

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.



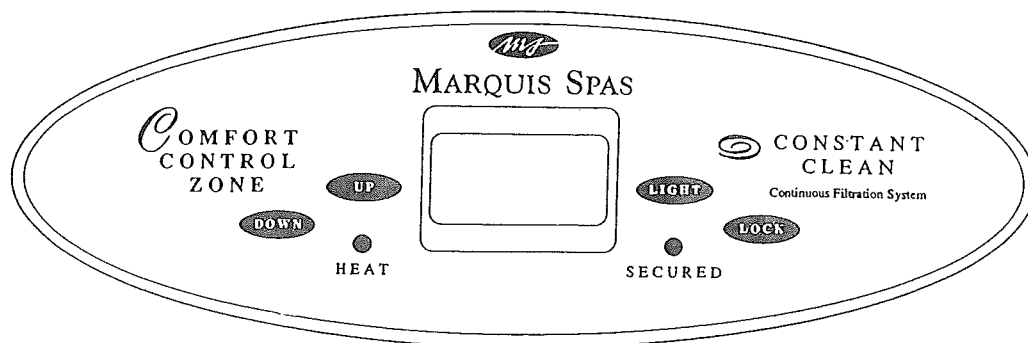
SHUT-OFF VALVES

Your spa is equipped with shut-off valves (see equipment diagram at the 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

For your convenience there are three control panels on this spa: The operator's panel (facing toward the outside of the spa), the bather's panel (the oval panel facing into the spa) and the auxiliary panel (on the back side of the spa).

OPERATOR'S PANEL



HEATER THERMOSTAT

The LCD window displays the actual water temperature. Pushing the buttons marked UP and DOWN will raise and lower the temperature. Pushing these buttons will temporarily change the LCD read-out to show the temperature you are programming the spa to maintain. The HEAT light will illuminate only when the heater is on.

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.

UNDERWATER LIGHT

The button marked LIGHT controls the three-way spa light. Pushing the button once = bright, twice = medium, three times = dim, and four times turns the light off. After being on for one hour the light will automatically turn off.

LOCK/SECURED

For security reasons it is possible to deactivate the panel functions. Pushing the LOCK button and the "SWIRL" symbol consecutively (within two seconds of each other) will secure the panel and the SECURED light will illuminate. Repeating this sequence will reactivate the panel.

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.

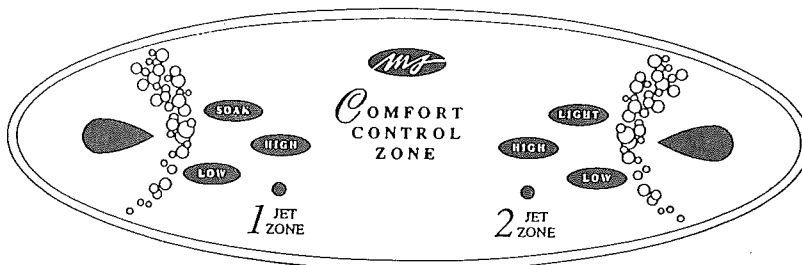
OH: Overheat protection; If a malfunction occurs and the spa water reaches 112 degrees F (44 degree C), the system will completely shut down. In such a condition, DO NOT ENTER THE WATER. Turn off all power to the spa and contact your dealer or service organization.

FLO: Constantly displayed; A flow switch has malfunctioned. Contact your spa retailer.
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 flow switch may have malfunctioned, contact your spa retailer.

ICE: Freeze protection; A freeze condition is detected. This is also a normal spa function, no corrective action is necessary.

BATHER'S PANEL

The spa jetting system is divided into two zones, 1 and 2. The bather's panel controls these zones individually.



AIR CONTROLS

The two air control knobs, located at each end of the panel, allow you to regulate the amount of air drawn into the jets. The left air control regulates the jets toward the left side of the spa and the right air control regulates the jets toward the right side. Turning the knobs up increases the air flow, turning the knobs down decreases the air flow.

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

UNDERWATER LIGHT

The button marked LIGHT controls the three-way spa light. Pushing the button once = bright, twice = medium, three times = dim, and four times turns the light off. After being on for one hour the light will automatically turn off.

SOAK

Pushing the SOAK button will turn off operating jet-pumps and the light for thirty minutes. The pumps and light may be restarted at any time by pressing their respective buttons.

JETS; LOW

Pushing the button marked LOW turns the jet-pump on to low-speed. Pushing the button again turns the pump off. After running on low-speed for 15 minutes the pump will automatically turn off.

JETS; HIGH

Pushing the button marked HIGH turns the jet-pump on to high-speed. Pushing the button again turns the pump off. After running on high-speed for 10 minutes the pump will automatically switch to low-speed for 5 minutes and will then turn off.

JET-PUMP CIRCULATION

Both jet-pumps will turn on to low-speed for 15 minutes two times a day (at 12 hour intervals) to circulate the water in the plumbing lines. The first 15 minute period will begin ten minutes after the spa is energized, the second 15 minute period will begin 12 hours after the first.

AUXILIARY PANEL

The small panel at the back of the spa enables convenient control of the two jet pumps. Pushing the buttons turns the pumps on to high-speed, low-speed, and off.

FREEZE PROTECTION

When a freeze condition is detected both jet-pumps are 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 follow the installation instructions supplied with the Marquis Spa Ozone Generator, available at your Marquis Spa retailer, part #35-0957. This is the only ozonator U.L. approved for your spa.

INTERCHANGEABLE JETS

Your spa is equipped with interchangeable jets. This allows you to interchange the orbital jets with the standard jets. This is done by turning the jet face counter clockwise and removing the jet eyeball assembly. Simply insert either assembly back into the open socket, and turn the jet face clockwise to secure.

GEYSER JETS

Your spa is equipped with two geyser jets. The control for these jets is the teardrop shaped gray knob on the spa lip. By turning the knob in one direction you can concentrate the flow of water from the pump-two therapy jets to the geyser jets. To return the flow of water to the therapy jets, turn the knob in the opposite direction.

PERSONAL THERAPY JETS

Your spa is equipped with many small personal therapy jets. These jets are strategically located in the spa seating areas and operate in conjunction with the standard and orbital jets.

SUCTION FITTINGS

There are suction fittings (drains) in the footwell of your spa. These are the openings through which the jet-pumps draw 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-pumps 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 spa filtration systems. These systems include; a floating weir, a Vortex skimmer, two debris catch baskets, two top-loading filter cartridges, and a plastic prefilter. Do not operate your spa without your filtration 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 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 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 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 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 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

Prior to start-up or performing any service to the spa equipment, turn off all electric power at the main circuit breaker or disconnect panel.

It is the responsibility of the spa owner to ensure that all electrical connections are made by a qualified electrician in accordance with any electric codes in effect at the time of 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: 50 Amp based on 60 degree C ambient
- * Fuse or Circuit Breaker Size: 50 Amp

This equipment is designed to operate on 60Hz Alternating Current only at a voltage of 240.

A pressure wire connector is located on the exterior of the control box. If the installation includes a common bonding grid (reinforced concrete slab, ground plate beneath the spa, or any metal water pipe connection), then this pressure wire connector should be bonded with at least #8 AWG (#6 in Canada) copper wire to any metal ladder, water pipe, or other metal within 5 feet of the spa.

240 VOLT INSTALLATION

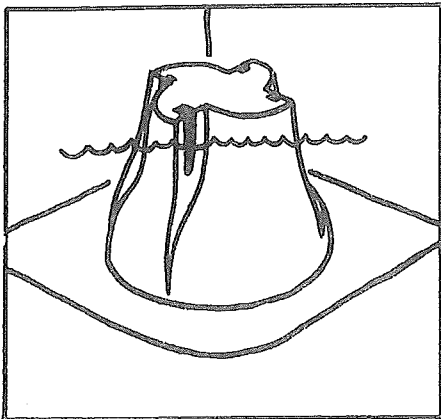
Units to be operated at 240V must have all connections made by a qualified electrician in accordance with the National Electric Code and any state and local electric codes in effect at the time of installation. All 240V units require a three wire plus ground (line 1, line 2, neutral, ground). Refer to label below the terminal block.

STARTING YOUR SPA

Make sure power supply is off. The circuit breaker in the residence electrical panel must be off.

Tighten all disconnects, close the hose bib, open all shut-off valves, and clean all debris from the spa.

Make sure the suction fitting covers are in place in the footwell of your spa. This unit is not to be installed without approved suction fitting covers which prevent the entrapment of hair and other body parts. Approved fittings are supplied by the factory with your spa.



Fill the spa to the middle of the Vortex skimmer openings. Shock sanitize the water before using the spa (follow the instructions in your spa chemical kit). It is essential that this shock treatment be done after each refill. Turn on electrical power to the spa, flip on the circuit breaker in the residence electrical panel. Wait five seconds for the spa to program itself.

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 systems are 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

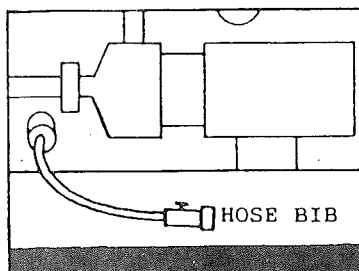
WOOD CABINET

Your spa cabinet has been treated with a sealant at the factory. It is suggested that the cabinet 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 main circuit breaker or disconnect panel.



- C. Attach a garden hose to the hose bib in the equipment bay.
- 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 tile or 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 or tile.

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 FILTERS

Refer to the Spa Maintenance Schedule for cleaning frequency and instructions. The filter cartridges can be removed by completing the following steps:

JET PUMP FILTER

- A. Remove the skimmer lid.
- B. Twist the catch basket counter clockwise and lift out.
- C. Lift out the filter cartridge. Note the position of the filter. The end with the hole faces DOWN.

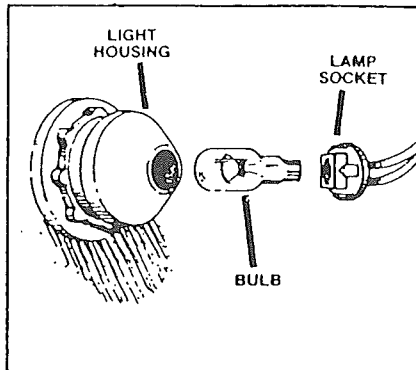
CIRCULATION-PUMP FILTER AND PREFILTER

- 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 the canister. 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.

LIGHT BULB REPLACEMENT



To replace a bulb, remove the equipment bay door to find the spa light access located at the rear of the equipment bay. 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 bulb from your spa retailer. Install the lamp socket back into the light assembly and replace the equipment bay 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 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 main circuit breaker or disconnect panel.
- 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 tile line.
- J. Clean the filter cartridges and prefilter.
- 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 baskets.

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 cartridges and rinse thoroughly with a hose and high pressure nozzle.

MONTHLY

Soak the filter cartridges 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 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 cabinet 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 circuit breaker on the main circuit panel.

JET-PUMPS DO NOT WORK

Push the HIGH/LOW buttons 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 valves are open.

NO HEAT

Notice if the thermostat is set to the desired position or if the controls are in Economy mode.

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.

UNDERWATER LIGHT DOES NOT WORK

Push the LIGHT button on the spa side controls.

Tighten the light bulb in the socket.

Replace the light bulb.

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 in the upper right-hand corner you will see a black plastic plug screwed into a fitting, by removing this plug the personal therapy jet in the footwell of 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 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
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Address

City	State	Zip
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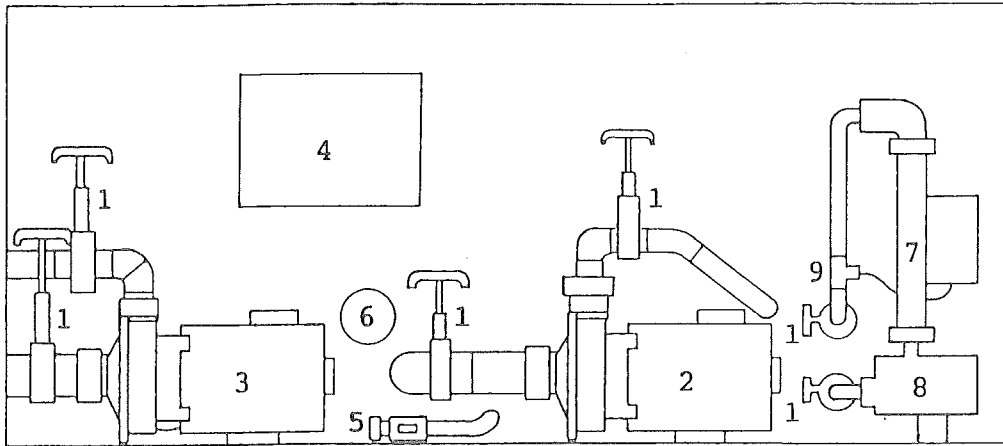
Your Signature	Telephone
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Spa Model / Color	Spa Serial #	Pack Serial #
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Dealer's Name

Dealer's Address

EQUIPMENT SYSTEM



- 1. shut-off valves
- 2. jet-pump 1
- 3. jet-pump 2
- 4. control box
- 5. drain valve
- 6. light
- 7. heater
- 8. circulation-pump
- 9. flow switch