

# Owner's Manual

## MTS II

**Maximum Therapy Series: Two Pump System  
Deluxe 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 dealer or write to Marquis Corp. and a new copy will be sent at no charge.



## MARQUIS SPAS

© MARQUIS CORP.  
P.O. Box 549  
York, PA 17405  
(717) 764-8581

## SPA SAFETY SIGN

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".

## TABLE OF CONTENTS

### IMPORTANT SAFETY INSTRUCTIONS

### PAGE NUMBER

|                          |   |
|--------------------------|---|
| ELECTRIC SHOCK RISK..... | 1 |
| HYPERTHERMIA.....        | 2 |
| WIRING AND BONDING.....  | 4 |
| CHEMICAL SAFETY.....     | 5 |

### INSTALLATION AND USE

|                                 |    |
|---------------------------------|----|
| LOCATION.....                   | 6  |
| SHUT-OFF VALVES.....            | 7  |
| SPA SIDE CONTROLS: MTS II.....  | 7  |
| FREEZE PROTECTION.....          | 10 |
| INTERCHANGEABLE JETS.....       | 10 |
| WHIRLPOOL JETS.....             | 10 |
| GEYSER.....                     | 10 |
| PERSONAL THERAPY JETS.....      | 11 |
| SUCTION FITTINGS.....           | 11 |
| FILTER CARTRIDGE.....           | 11 |
| WATER CHEMISTRY GUIDELINES..... | 11 |
| CHEMICAL LEVELS.....            | 12 |
| CHEMICAL SAFETY.....            | 12 |
| ELECTRICAL REQUIREMENTS.....    | 14 |
| 240 VOLT INSTALLATION.....      | 15 |
| STARTING YOUR SPA.....          | 15 |
| OPERATING YOUR SPA.....         | 15 |
| ENERGY COVER.....               | 16 |

### REGULAR MAINTENANCE

|                             |    |
|-----------------------------|----|
| WOOD CABINET.....           | 16 |
| DRAINING THE SPA.....       | 16 |
| CLEANING.....               | 16 |
| REMOVING THE FILTER.....    | 17 |
| REFILLING.....              | 17 |
| LIGHT BULB REPLACEMENT..... | 17 |
| WINTERIZING.....            | 18 |

|                           |    |
|---------------------------|----|
| MAINTENANCE SCHEDULE..... | 18 |
|---------------------------|----|

|                      |    |
|----------------------|----|
| TROUBLESHOOTING..... | 19 |
|----------------------|----|

|                             |    |
|-----------------------------|----|
| SUPPORT SYSTEM DIAGRAM..... | 21 |
|-----------------------------|----|

# SAVE THESE 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!** Install at least 5 feet (1.25 M) from all metal surfaces.

3. **DANGER - Risk of electric shock.** Do not permit any electrical appliance, such as a light, telephone, radio, or T.V. within 5 feet (1.52 M) of the spa.

**DANGER - Risk of Electric Shock.** Install at least 5 feet (1.5 M) from all metal surfaces. As an alternative, a spa may be installed within 5 feet of metal surfaces if each metal surface is permanently connected by a minimum #8 AWG (8.4 mm<sup>2</sup>) 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.

5. **DANGER - To reduce the risk of injury, do not remove suction grates or suction covers.**

**DANGER - Risk of Injury.** The suction fittings in this spa are sized to match the specific water flow created by the pump. Should the need arise to replace the suction fittings or the pump, be sure that the flow rates are compatible. Never operate 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, 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.
- 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.
- 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. 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.

Warning: The use of alcohol, drugs, or medication can greatly increase the risk of fatal hyperthermia. 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 periods of soaking.

#### A WORD ABOUT CHILDREN

As previously explained, soaking in hot water will affect 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.

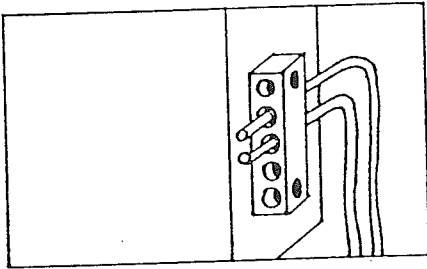
#### A WORD ABOUT PREGNANT WOMEN

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 who are considering becoming pregnant in the near future) check with their doctors for recommendations in safe spa use.

- 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. NEVER allow children to use the spa without adult supervision.
- G. 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 that they are handy should a need arise.
- H. Never use glass containers around the spa - all containers should be unbreakable.
- I. Always use caution when entering and exiting the spa. Wet surfaces can be slippery. Hand rails and non-skid surfaces are recommended.
- J. 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 or suction cover.
- K. 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.
- L. 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.
- M. 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.
- N. Do not use a spa in conjunction with strenuous exercise without consulting your physician and obtaining his/her approval.
- 8. Turn Off all electric power at the 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 the

National Electric Code and any state and local electrical codes in effect at the time of installation. For all permanently connected units 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.



10. A bonding wire connection is provided on the right surface of the control box inside the spa equipment bay to permit connection of a bonding wire between this point and any metal equipment, metal water pipe, and metal conduit within 5 feet of

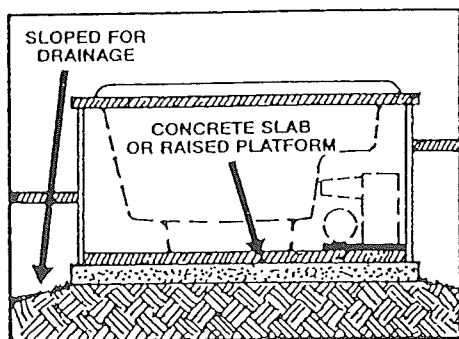
the spa as needed to comply with article 680-22 and local requirements. The bonding wire must be at least #8 AWG (8.4 mm<sup>2</sup>) solid copper wire. This is to reduce the risk of electric shock.

11. 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.
12. 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 small access panel on the front of the electrical control box.
13. The spa must be installed to provide proper drainage and to keep water out of the electrical components.
14. 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.
15. 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.
16. 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.

17. **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, accessibility, and serviceability of equipment and components; 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.

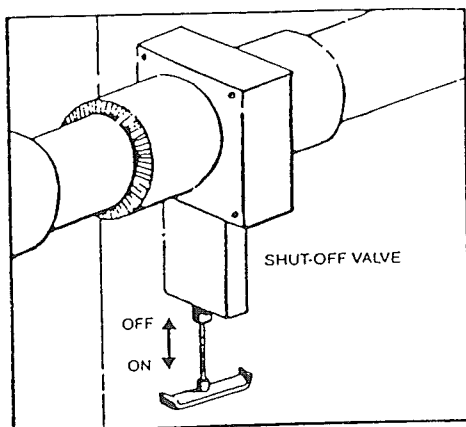
You must allow for sufficient water drainage around the spa to help preserve the wood skirt and support structure and to provide adequate drainage of the equipment bay.

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 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.



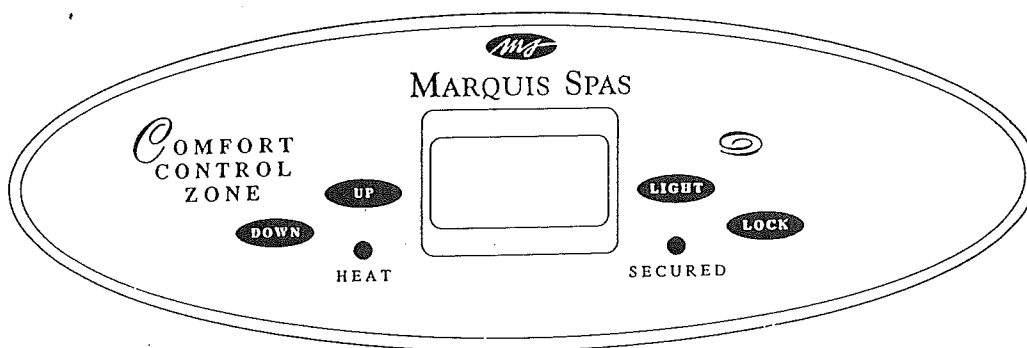
## SHUT-OFF VALVES

Your spa is equipped with four shut-off valves (see equipment diagram at the end of this manual) that completely 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: MTS II

For your convenience there are two control panels on this spa. The operator's panel faces toward the outside of the spa and the bather's panel faces into 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. 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 four hours 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, 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 pressure 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 pressure 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 four hours 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** (The following applies only when the pump is in a non-circulation cycle, see "NOTE" below.)

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 thirty minutes the pump will automatically turn off.

NOTE: JET-PUMP CIRCULATION; Both jet-pumps will turn on to low-speed ten minutes after the spa is energized. Pump 1 will turn off after ten hours. Pump 2 will turn off after five minutes. Both pumps will again turn on to low-speed twelve hours after their first start up and will continue to follow this same filter time sequence.

#### 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 fifteen minutes the pump will automatically turn off.

#### FREEZE PROTECTION

When the temperature in the equipment enclosure drops below 40 degrees F the jet-pumps will turn on to low-speed until the enclosure temperature raises to 60 degrees F. This will prevent the water in the plumbing lines from freezing.

#### 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.

#### WHIRLPOOL JETS

Your spa may be equipped with a whirlpool jet(s). The control knob for this jet is located at the jet face. By fully turning the face of this jet in one direction you can concentrate the flow of water from the therapy jets to the whirlpool jet. To return the flow of water to the therapy jets, turn the whirlpool jet face in the opposite direction. For ease of operation, turn the jet-pump off when adjusting the whirlpool jet. To regulate the flow of air through this jet use the large round air control mounted in the spa lip near the control panel. Simply turn the control in either direction until the appropriate ON or Off appears in the knob window.

#### GEYSER JETS

Your spa may be equipped with a geyser jet(s). The control for this jet is the round gray knob on the spa lip. By turning the knob in one direction you can concentrate the flow of water from the therapy jets to the geyser jet. To return the flow of water to the therapy jets, turn the knob in the opposite direction. To regulate the flow of air through this jet use the round air control mounted in the spa lip near the control

knob. Simply turn the air control in either direction until the appropriate ON or Off appears in the window.

#### 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 a spa filtration system. This system includes a floating weir, debris catch basket, and top-loading filter cartridge. Do not operate your spa without your filtration system 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 which is used in swimming pools and is it **NOT** recommended for spa usage.

## 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 clogged pipes, staining, and equipment damage.

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 the National Electric Code and any state and local 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 copper wire to any metal ladder, water pipe, or other metal within 5 feet of the spa.

## 240 VOLT INSTALLATION

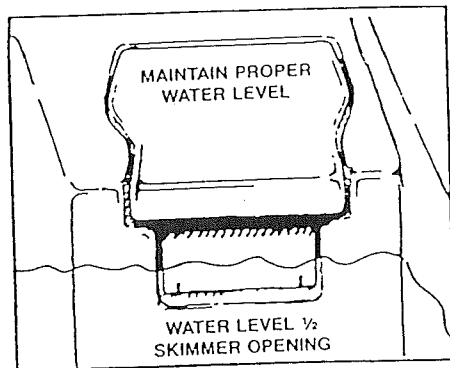
Units to be operated at 240V must have all connections made by a qualified electrician in accordance with the National Electric Code and any state and local electric codes in effect at the time of installation. All 240V units require a three wire plus ground (line 1, line 2, neutral, ground). Refer to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

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

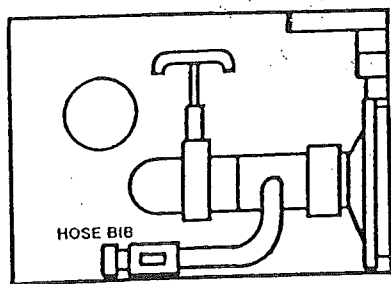
### WOOD CABINET

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. Turn the thermostat all the way down.
- B. Turn off the main circuit breaker or disconnect panel.



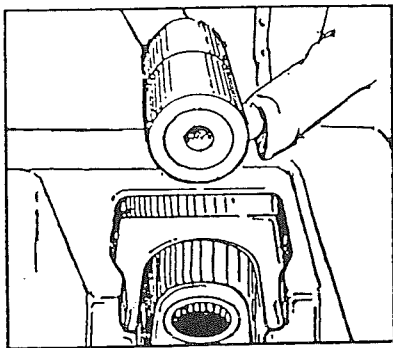
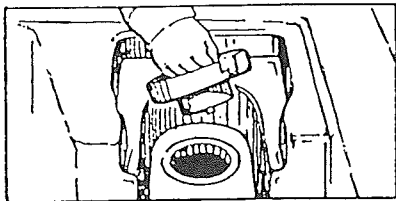
- C. Attach a garden hose to the hose bib in the equipment bay.
- D. Open the hose bib by turning the lever counter clockwise. Gravity will cause the water to drain out of the hose.

- 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.



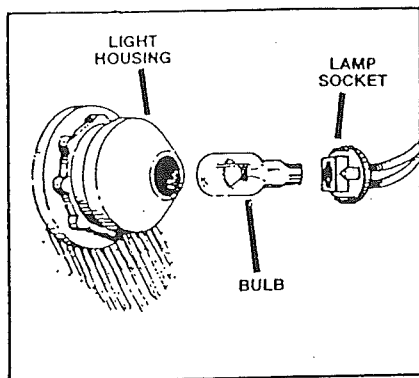
#### REMOVING THE FILTER

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

- 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.

#### 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 tunnel located at the rear of the equipment bay. The light housing is accessed by reaching through this tunnel. 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. Turn 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.
- 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 cartridge.
- K. Reinstall the Energy Cover.

## MAINTENANCE SCHEDULE

### DAILY

Replenish the water level by filling up to 1/2 the skimmer opening. Check and clean the catch basket.

Check the water pH balance. Adjust if needed.

Check chlorine 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. 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

The water level must be 1/2 the depth of the skimmer opening.

Be sure the shut-off valves are completely open.

Check that the air control valves are open.

#### NO HEAT

Check that 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.

#### 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.

#### WATER IS CLOUDY

Check the water chemistry and balance as needed.

Clean or replace the filter cartridge.

## SERIAL NUMBER LOCATION

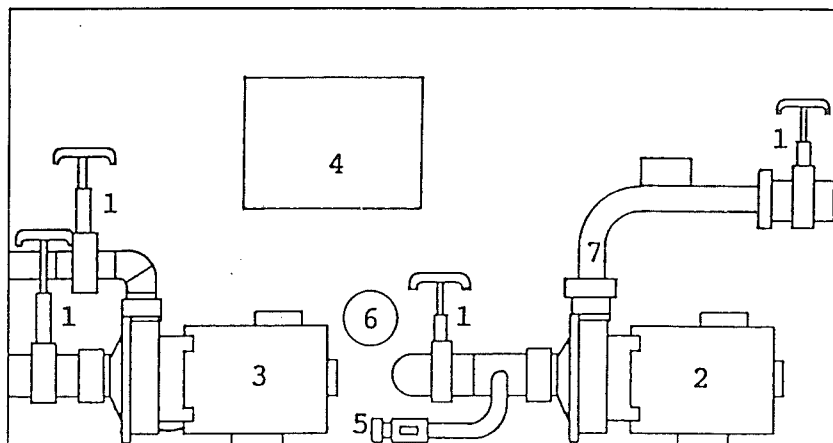
On your spa, the serial number is engraved directly above the filter canister area. On those models which are listed by Underwriters Laboratories (U.L.), you will also find the serial number engraved on the foil tag attached to the equipment bay.

Please fill out for future reference.

Spa Model \_\_\_\_\_

Serial Number \_\_\_\_\_

## EQUIPMENT SYSTEM



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