



T W I L I G H T

*Series*

BY MASTER SPAS

**OWNER'S MANUAL**

## MASTER SPAS TWILIGHT OWNER'S MANUAL

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### Welcome To Ultimate Relaxation!

Thank you for choosing your new spa built by Master Spas. Please read the entire Owner's Manual before installing and using your spa. The goal of this manual is to provide you with safety and operational information plus some tips that will help you enjoy your spa to its fullest.

At the time of print, this manual is accurate in its information. Master Spas reserves the right to change or improve its product without prior notice.

To check on updates or for other information, please visit [www.masterspas.com](http://www.masterspas.com) and follow the links to the customer service section.

### RECORD OF OWNERSHIP

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Date Purchased \_\_\_\_ / \_\_\_\_ / \_\_\_\_

Model \_\_\_\_\_ Serial # \_\_\_\_\_

Dealer Name \_\_\_\_\_

Phone # (\_\_\_\_) \_\_\_\_\_ - \_\_\_\_\_

Service Tech Rep \_\_\_\_\_

### \*SERIAL NUMBER LOCATION

The serial number for your spa is located in the filter area, on the spa system pack, or on the listing plate on the skirting. It will start with "M" followed by a 6-digit number. *Ex. M904590*



MASTER SPAS®

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## SAFETY INSTRUCTIONS

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### SAVE THESE INSTRUCTIONS

Included with your new spa is a safety sign. The sign is for you and your guest's protection and is suitable for outdoor use in wet locations. The sign should be placed in a location visible to all users of the spa.

Please take time to point out the physical location of the safety sign and the importance of the safety precautions displayed on the safety sign to all of your guests. Remember, your safety and the safety of anyone who enjoys the use of your spa is our utmost concern.

The sign should be mounted with screws or another type of permanent fastener. Additional or replacement signs can be obtained from your dealer or direct from the factory.

### INTRODUCTION

It's time to relax! You now have your very own portable spa by Master Spas, Inc. By fully understanding the operation of each of the features of your new Master Spa, you will be assured of many years of hassle-free, hot water therapy and fun.

Your safety is of paramount importance to the MasterSpas family. We urge you to read and become thoroughly familiar with all safety aspects addressed in this manual.

Through reading and totally understanding the important information in your owner's manual, you will realize that you now own **THE ULTIMATE RELAXATION MACHINE!**

## SAFETY INSTRUCTIONS

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# NO DIVING

**DANGER: DIVING MAY  
RESULT IN SERIOUS  
INJURY OR DEATH.**



## IMPORTANT SAFETY INSTRUCTIONS

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

## READ AND FOLLOW ALL INSTRUCTIONS

- 1. WARNING** - To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.
- 2. DANGER - RISK OF CHILD DROWNING.** Extreme caution must be exercised to prevent unauthorized access by children. To avoid accidents, ensure that children cannot use this spa unless they are supervised at all times.

**\*NOTE:** A wire connector is provided on this unit to connect of a minimum No. 6 AWG solid copper conductor between this unit and any metal equipment, metal enclosures of electrical equipment, metal water pipe, or conduit within 5 feet (1.5m) of the unit.

- 3. DANGER - RISK OF ELECTRIC SHOCK.** Install spa at least five (5) feet (1.5M) from all metal surfaces. A spa may be installed within five (5) feet (1.5M) of metal surfaces if, in accordance with the National Electrical Code, each metal surface is permanently connected by a minimum No. 6 AWG (8.4mm) solid copper conductor attached to the wire connector on the terminal box. A grounding lug is provided for this purpose.
- 4. 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.

**\*NOTE:** Never operate the spa if the suction fittings are broken or missing. Never replace a suction fitting with one rated less than the flow rate marked on the original suction fitting.

- 5. DANGER** - To reduce the risk of injury to persons, do not remove the suction grate. Suction through drains and skimmers is powerful when the jets in the spa are in use. Damaged covers can be hazardous to small children and adults with long hair. Should any part of the body be drawn into these fittings, turn off the spa immediately. As a precaution, long hair should not be allowed to float in the spa.

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**SAFETY INSTRUCTIONS**

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**NO DIVING** **DANGER: DIVING MAY  
RESULT IN SERIOUS  
INJURY OR DEATH.****IMPORTANT SAFETY  
INSTRUCTIONS (CONT.)**

- 6. WARNING.** Install the spa so that water can be easily drained out of the compartment containing electrical components so as not to damage equipment. When installing the spa make sure to allow for an adequate drainage system to deal with any overflow water. Please allow for at least 2 feet of clearance around the perimeter of the spa to provide enough room to access for servicing. Contact your local dealer for their specific requirements.
- 7. WARNING - TO REDUCE THE RISK OF INJURY:**
- (A) Reminder - Never allow anyone to dive into a spa. Always enter feet first.
  - (B) Always enter and exit a spa slowly.
  - (C) Do not use the spa alone.
  - (D) Before entering the spa, always measure the water temperature with an accurate thermometer. Tolerance of water temperature regulating devices can vary as much as plus/minus 5° F (3° C).
  - (E) Persons suffering from obesity or with a medical history of heart disease, diabetes, high or low blood pressure or circulatory system problems should consult a physician before using the spa.
  - (F) Since excessive water temperatures have a high potential for causing fetal damage during early months of pregnancy, pregnant or possibly pregnant women should limit spa water temperatures to 100° F (38° C).
  - (G) Excessive water temperature can be dangerous. The water in the spa should never exceed 104° F (40° C). Water temperatures between 100°F (38°C) and 104°F (40°C) are considered safe for a healthy adult. Lower water temperatures are recommended for extended use (exceeding 10 minutes) and for young children. Long exposures at higher temperatures can result in hyperthermia.
  - (H) The use of alcohol, drugs, or medication before or during spa use may lead to unconsciousness with the possibility of drowning.
  - (I) Persons using medication should consult a physician before using a spa since some medication may induce drowsiness while other medication may affect heart rate, blood pressure and circulation.
  - (J) The spa should be covered with an approved locking cover when not in use, to prevent unauthorized entry injuries.

## SAFETY INSTRUCTIONS

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# NO DIVING

**DANGER: DIVING MAY  
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## IMPORTANT SAFETY INSTRUCTIONS (CONT.)

### HYPERTHERMIA

Hyperthermia occurs when the internal temperature of the body reaches a level several degrees above the normal body temperature of 98.6° F.

#### THE SYMPTOMS OF HYPERTHERMIA INCLUDE:

Dizziness • Fainting • Drowsiness • Lethargy • Increase in Internal Body Temperature

#### THE EFFECTS OF HYPERTHERMIA INCLUDE:

Unawareness of Impending Hazard • Failure to Perceive Heat • Failure to Recognize the Need to Exit Spa • Physical Inability to Exit Spa • Fetal Damage in Pregnant Women • Unconsciousness Resulting in a Danger of Drowning

(I) Children's body temperature can increase more rapidly than adults in the same water with elevated temperatures (above 99° F). Children should spend less time in water above body temperature than adults.

- 8. WARNING** - The use of alcohol, drugs, or medication can greatly increase the risk of hyperthermia.
- (J) The use of alcohol, drugs, or medication before or during spa use may lead to unconsciousness with the possibility of drowning.
- (K) Persons using medication should consult a physician before using a spa since some medication may induce drowsiness while other medication may affect heart rate, blood pressure, and circulation.
9. Reminder: A safe temperature for swimming or aquatic exercise is around 80° F.
10. People with infections, sores or the like should not use the spa. Warm and hot water temperatures may allow the growth of infectious bacteria if not properly disinfected.

## SAFETY INSTRUCTIONS

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**NO DIVING** **DANGER: DIVING MAY RESULT IN SERIOUS INJURY OR DEATH.**



## IMPORTANT SAFETY INSTRUCTIONS (CONT.)

**11. DANGER - RISK OF ELECTRIC SHOCK.** Do not permit any electric appliance, such as a light, telephone, radio or television, within five (5) feet of the spa. Never operate any electrical appliances from inside the spa or while wet.

**12. WARNING - RISK OF SUFFOCATION.** If this spa is equipped with a gas heater, it is intended for outdoor use only, unless proper ventilation can be provided for an indoor installation.

**13. CAUTION - RISK OF ELECTRIC SHOCK.**  
Do not leave the CD compartment open.

**CAUTION - RISK OF ELECTRIC SHOCK.**  
Replace components only with identical components.

The CD player controls are not to be operated while inside the spa.

### **WARNING - PREVENT ELECTROCUTION.**

Do not connect any auxiliary components (for example, additional speakers, headphones, additional audio/video components etc.) to the system. These units are not provided with an outdoor antennae.

Do not service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

If the power supply/supply cord(s) are damaged, water is entering the speaker, CD compartment, or any other component in the electrical equipment compartment area, the protective shield is showing signs of deterioration, or there are signs of other potentially hazardous damage to the unit, turn off the circuit breaker from the wall and refer servicing to a qualified service personnel.

The unit should be subjected to periodic routine maintenance once every quarter to make sure that the unit is operating properly.

**14. DANGER - RISK OF ELECTRIC SHOCK.** Do not permit any electric appliance, such as light, telephone, radio, or television, within 5 feet (1.5m) of a spa.

## SAFETY INSTRUCTIONS

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**NO DIVING** DANGER: DIVING MAY  
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INJURY OR DEATH.



## IMPORTANT SAFETY INSTRUCTIONS (CONT.)

15. A green coloured terminal or a terminal marked G, GR, Ground, Grounding or the symbol shown in Figure 14.1 of UL1563 is located inside the supply terminal box or compartment. To reduce the risk of electric shock, this terminal must be connected to the grounding means provided in the electric supply service panel with a continuous copper wire equivalent in size to the circuit conductors supplying this equipment.
16. At least two lugs marked "Bonding Lugs" are provided on the external surface or on the inside of the supply terminal box or compartment. To reduce the risk of electric shock, connect the local common bonding grid in the area of the spa to these terminals with an insulated or bare copper conductor not smaller than No. 6 AWG.
17. All field-installed metal components such as rails, ladders, drains, or other similar hardware within 3m of the spa shall be bonded to the equipment grounding bus with copper conductors not smaller than No. 6 AWG.

## SAVE THESE INSTRUCTIONS.

## SAFETY INSTRUCTIONS

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# NO DIVING

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RESULT IN SERIOUS  
INJURY OR DEATH.**



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

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

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

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

**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

**WARNING:** PEOPLE WITH INFECTIOUS DISEASES SHOULD NOT USE A SPA OR HOT TUB

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

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

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

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

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

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

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

**WARNING:** 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 A PLUS DE 38°C

## SAFETY INSTRUCTIONS

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<h1 style="margin: 0;">NO DIVING</h1>	<p><b>DANGER: DIVING MAY RESULT IN SERIOUS INJURY OR DEATH.</b></p>	
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**WARNING:** BEFORE ENTERING THE SPA OR HOT TUB MEASURE THE WATER TEMPERATURE WITH AN ACCURATE THERMOMETER

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

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

**AVERTISSEMENT:** NE PAS UTILISER UNE CUVE DE RELAXATION IMMÉDIATEMENT APRÈS UN EXERCISE FATIGANT

**WARNING:** PROLONGED IMMERSION IN A SPA OR HOT TUB MAY BE INJUROUS TO YOUR HEALTH

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

**WARNING:** DO NOT PERMIT ELECTRIC APPLIANCES (SUCH AS LIGHT, TELEPHONE, RADIO, OR TELEVISION) WITHIN 1.5 M OF THIS SPA OR HOT TUB

**AVERTISSEMENT:** NE PAS PLACER D'APPAREIL ÉLECTRIQUE (LUMINAIRE, TÉLÉPHONE, RADIO, TÉLÉVISEUR, ETC) À MOINS DE 1.5 M DE CETTE CUVE DE RELAXATION

**CAUTION:** MAINTAIN WATER CHEMISTRY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTION

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

Hyperthermia occurs when the internal temperature of the body reaches a level several degrees above the normal body temperature of 37°C. The symptoms of hyperthermia include drowsiness, lethargy, and an increase in the internal temperature of the body. The effects of hyperthermia include

- (a) unawareness of impending hazard;
- (b) failure to perceive heat;
- (c) failure to recognize the need to exit spa;
- (d) physical inability to exit spa;
- (e) fetal damage in pregnant women; and
- (f) unconsciousness and danger of drowning.

**WARNING:** THE USE OF ALCOHOL OR DRUGS CAN GREATLY INCREASE THE RISK OF FATAL HYPERTHERMIA IN HOT TUBS AND SPAS

LA CONSOMMATION D'ALCOOL OU DE DROGUE AUGMENTE CONSIDÉRABLEMENT LES RISQUES D'HYPERTHERMIE MORTELLE DANS UNE CUVE DE RELAXATION.

## GLOSSARY OF SPA TERMINOLOGY

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1. **DRAINING YOUR SPA.** The drain is located behind the front panel on the far right side. You can access the drain by unscrewing the corner screws and removing the corner panel. Grasp the drain cap, and pull the assembly out all the way. Unscrew the cap, and push the assembly back in half way to start the flow of water. Attach a garden hose, if desired. Draining times may vary by model using the external hose bib. A sump pump may also be used to drain the spa quickly. **NOTE:** When pushing or pulling the assembly in or out, water will drip from the drain during the transition. This is normal.

2. **JETS 1 PUMP.** This pump produces water flow through the main jets in the spa. This pump may be operated on two speeds. The low speed will produce efficient water circulation and gentle jet action. High speed should be used for maximum jet action. In spas not equipped with a 24 hour circulation pump, this pump also moves water for the heat and filtration cycles.
3. **JETS 2 PUMP.** (If so equipped) This produces water flow through the designated jets and has only one speed.
4. **JETS 3 PUMP.** (If so equipped) This produces water flow though the designated jets and has one speed.
5. **CIRCULATION PUMP.** (If so equipped) This pump runs 24 hours a day and moves water for heating and filtration. Spas equipped with this pump do not have filtration cycles as they are not necessary in this configuration.
6. **JET DIVERTER VALVE.** Located on the topside of the spa, this valve physically diverts the flow of water from one jet zone of the spa to another jet zone. Be sure that no sand or particles are brought into the spa as they will cause the diverter to seize up. It is best to turn the diverter valve only when the pump is turned off.
7. **PUMP UNION.** These are used by service personnel to easily service the jet pump(s).
8. **HEATER UNION.** These are used by service personnel to easily service the spa heater assembly.



*Ozonator (optional)*

9. **OZONATOR.** Your ozone generator will operate in conjunction with your filtration system. It will deactivate when any other control function is manually activated and will reactivate after one hour.

## ELECTRICAL INSTALLATION REQUIREMENTS

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### **HAVE YOUR ELECTRICIAN READ THE FOLLOWING INFORMATION BEFORE INSTALLATION BEGINS**

Electrical connections made improperly, or the use of wire gauge sizes for incurring power which are too small, may continually blow fuses in the electrical equipment box, may damage the internal electrical controls and components, may be unsafe and in any case will void your warranty.

**It is the responsibility of the spa owner to ensure that electrical connections are made by a qualified electrician in accordance with the National Electrical Code and any local and state electrical codes in force at the time of installation.**

These connections must be made in accordance with the wiring diagrams found inside the control box. This equipment has been designed to operate on 60Hz. alternating current only, 240 volts are required. Make sure that power is not applied while performing any electrical installation. A copper bonding lug has been provided on the electrical equipment pack to allow connection to local ground points. The ground wire must be at least 6 AWG copper wire (unless local or state codes require a heavier gauge wire) and must be connected securely to a grounded metal structure such as a cold water pipe. All Master Spas equipment packs are wired for 240 VAC only. The only electrical supply for your spa must include a 50 AMP switch or circuit breaker to open all non-grounded supply conductors to comply with section 422-20 of the National Electrical Code. The disconnect must be readily accessible to the spa occupants, but installed at least five feet from the spa. A Ground-Fault Circuit Interrupter (GFCI) must be used to comply with section 680-42 of the National Electrical Code. A ground fault is a current leak from any one of the supply conductors to ground. A GFCI is designed to automatically shut off power to a piece of equipment when a current fault is detected.

**Power hook-up to the spa must be 240 volt 3 wire plus ground (6 AWG copper).**

Route the cable into the equipment area for final hook-up to terminals inside the control panel. The spa must be hooked up to a "dedicated" 240 volt, 50 amp breaker and GFCI. The term "dedicated" means the electrical circuit for the spa is not being used for any other electrical items (patio lights, appliances, garage circuits, etc.). If the spa is connected to a non-dedicated circuit, overloading will result in "nuisance tripping" which requires resetting of the breaker switch at the house electrical panel.

*Rev. 11/07*

Permanently Connected Equipment Assembly with Pump(s), Heaters, Luminaine, Ozone, Spa Side Control(s), Pump shut off device, and Audio/Video Components.

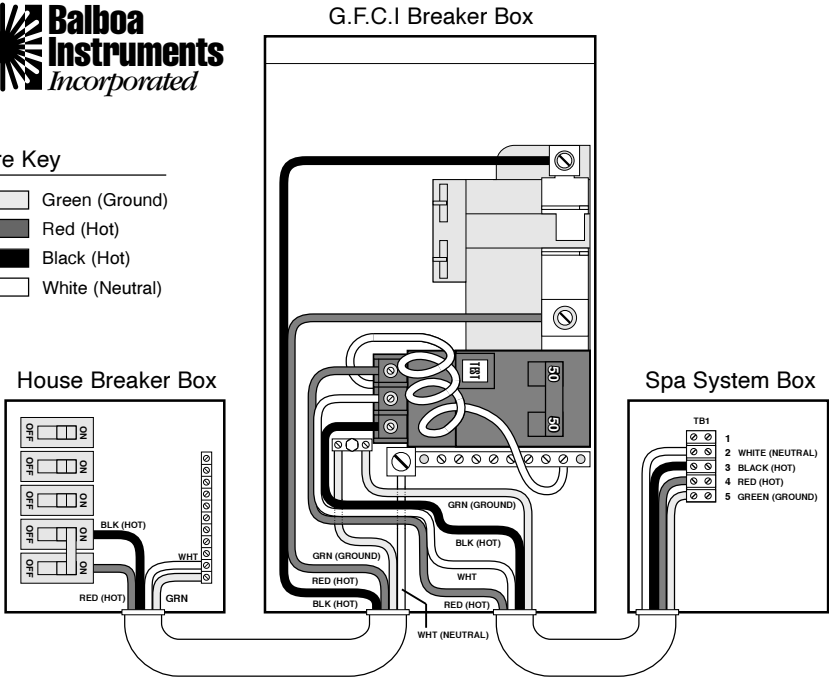
***NOTE: Some of the above components may be optional or not available with every spa model.***

# WIRING SCHEMATIC - 240 VOLT SPA HOOK-UP



### Wire Key

- Green (Ground)
- Red (Hot)
- Black (Hot)
- White (Neutral)



IDF00007.mac 6/17/97

*\* Actual wiring of GFCI will vary by manufacturer of GFCI. The GFCI shown is a Square D. Improper wiring of GFCI may result in permanent damage to spa system box. Repair / replacement of spa system box is not covered under warranty when damage results from improper wiring.*

## SITE PREPARATION / GENERAL GUIDELINES

Portable spa installation is simple when properly planned. To that end, it is important that you read the following information carefully and consult with your Master Spas dealer.

- 1) **Access** - The actual dimensions of your new spa will determine the amount of space that is needed in moving the spa from curbside to its final installation area. Be sure to measure side yard dimensions, gates or doors and vertical obstructions such as roof overhangs and overhead cables. Any other space limiting obstacles such as trees or shrubs must be evaluated.
- 2) **If the spa is being installed indoors**, dimension limitations such as stairs, ceilings and walls must be taken into consideration. Please have your Master Spas dealer or delivery service review site or installation plans prior to delivery.
- 3) **Surface/Pad Requirements** - When your new spa is filled with water and bathers, it may weigh as much as several tons. It is imperative that the base beneath the spa can support the actual weight. The spa must be on a uniformly firm, continuous, and level surface. The recommended foundation is a concrete pad with a minimum thickness of four (4) inches with steel reinforcement bars crossed throughout the pad.

### **IMPORTANT**

When installing your spa indoors, on a wood deck, or balcony, the same load requirements must be met. Total load may be as much as 90 pounds per square foot. You should speak with a qualified contractor or your local building department to confirm that your surface is adequate for supporting a spa. Be sure to locate your spa so that equipment remains above grade and is not subject to flooding.

The equipment side(s) of the spa must be accessible in the event that future service is needed. Periodical maintenance checks require entry into the equipment bay. When possible, it is wise planning for the future to leave access to all sides of the spa in the event your spas plumbing requires maintenance. Your spa warranty does not cover the cost of providing access for service.

## SITE PREPARATION / GENERAL GUIDELINES

### **GENERAL CONSIDERATIONS FOR OUTDOOR INSTALLATION**

Again, proper planning will increase your total enjoyment factor with your new spa. Listed below are some additional items to consider when planning your installation.

- How spa will complement landscaping and vice versa
- View from inside spa and view of spa from inside of home
- Exposure to sunlight and shading from trees
- Privacy
- Getting to spa from house and return
- Proximity to dressing rooms and bathrooms
- Storage for spa chemicals
- Local building codes (if applicable)
- Power cable

### **GENERAL CONSIDERATIONS FOR INDOOR INSTALLATION**

Installing your spa indoors creates an entirely different set of considerations. Here again, with proper planning, no matter what room your spa goes in, it will be your favorite room.

- Work with your Master Spas dealer and contractor to insure all local building, electrical and plumbing codes are met
- Plan for a floor drain to drain off excess water or for draining and cleaning your spa
- A ventilation fan may be necessary due to high humidity created by your spa
- Finished material in your spa room should also be capable of withstanding increased humidity

## INSTALLATION INSTRUCTIONS

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- 1.) Put spa in final position that allows for access to equipment and spa components.



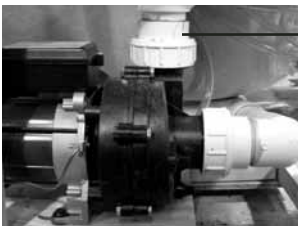
- 2.) Remove front side panel (this is the side where the main topside control panel is located) so the electrical service can be hooked up to the spa system pack. The panels can be taken off by first removing the three black thumb screws located on each corner. On the center panel there are four #2 Phillips screws that are covered with a colored snap cap. Remove the caps to access the screws for removal.

- 3.) Fill spa at least 1" above the filters. We recommend filling the spa through the filter area.
- 4.) Turn the power on to the spa. Spa will go through its priming mode. This lasts approximately 5 minutes.
- 5.) It may be necessary to bleed air from the motor(s) on your spa if, after start up, your spa pumps do not operate.

Due to the nature of water flow and hydro-therapy pumps, please be advised that air locking of pumps may occur. Master Spas has taken measures to reduce the possibility of this, but it still may occur, especially after refilling a spa. This is not a service covered under warranty.

To relieve an airlock situation, loosen the union (see picture) on the discharge of the pump (the end of the pump that water is being pushed through).

Water should leak out. Tighten the union and test the pump for proper jet flow. If needed repeat process.



Pump Union

Airlock

- 6.) Adjust water chemistry according to the instructions provided in the "Spa Water Maintenance Section" (page 20).
- 7.) Your spa water will heat approximately 4° - 7° per hour, for all 240V spas. This varies depending on the size of the spa. Step into the soothing waters of your new Master Spa!

**RELAX AND ENJOY.**

## WATER CHEMISTRY TERMS YOU SHOULD KNOW

Before jumping into the Spa Water Maintenance, here are some terms to help you.

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- 1. Parts per million, or ppm:** This is a form of measurement used in most pool or spa chemical readings. Best described as any one million like items of equal size and make up, next to one unlike item, but of equal size. This would be one part per million.
- 2. Average size spa:** What is it? The national spa and pool institute (NSPI) states; 350 to 400 U.S. gallons is average. As a general rule, chemical dosages are the same for any spa between 100 and 500 U.S. gallons. Spas over 500 U.S. gallons the dosage would be double. Under 100 U.S. gallons would be on a case by case basis.
- 3. Total Alkalinity:** This is a measurement of the ability of the water to resist changes in pH. Put another way, it is the water's ability to maintain proper pH. Total alkalinity is measured in parts per million from 0 to 400 plus, with 80 to 150 ppm being the best range for spas. With low alkalinity, the pH will flip, or change back and forth, and be hard to control. With high alkalinity it becomes extremely difficult to change the pH.
- 4. pH or potential hydrogen:** This is a measurement of the active acidity in the water, or it is the measurement of the concentration of active hydrogen ions in the water. The greater the concentration of active hydrogen ions, the lower the pH. pH is not measured in parts per million, but on a scale from 0 to 14, with 7 being the neutral. In spas when ever possible, a measurement between 7.2 and 7.8 is best. Whenever possible, it should be between 7.4 and 7.6. With low pH, the results can be corroded metals, etched and stained plaster, stained fiberglass or acrylic, eye / skin irritation, rapid chlorine or bromine loss, and total alkalinity destruction. With high pH, the results can be cloudy water, eye / skin irritation, scale formation and poor chlorine or bromine efficiency.
- 5. Shocking:** This is when you add either extra chlorine (superchlorinate) by raising the chlorine level above 8 ppm, or add a non-chlorine shock (potassium monoperoxysulfate or potassium monopersulfate) to burn off the chloramines or bromamines. A non-chlorine shock acts by releasing oxygen in the water, which serves the same function as chlorine. The advantage to using non-chlorine shock, is you can enter the water within 15 minutes after shocking. Using chlorine, you must wait until the total chlorine reading is below 5 ppm. One thing to remember, a non-chlorine shock will not kill bacteria or disinfect.
- 6. Sequestering:** This can be defined as the ability to form a chemical complex which remains in solution, despite the presence of a precipitating agent (i.e. calcium and metals). Common names for sequestering chemicals are; minquest, stain and scale control, metal-x, spa defender, spa metal gone, (etc.).

## WATER CHEMISTRY TERMS YOU SHOULD KNOW

Before jumping into the Spa Water Maintenance, here are some terms to help you.

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7. **Filtration:** Filters are necessary to remove particles of dust, dirt, algae, etc. that are continuously entering the water. If the spa is not operated long enough each day for the filter to do a proper job, this puts a burden on the chemicals, causing extra expense. Filtration time will depend on the spa size, pump and filter size, and of course, bather load. A spare cartridge should be kept on hand to make it easy to frequently clean the cartridge without the need for a long shut down. This will also allow the cartridge to dry out between usages, which will increase the cartridge life span as much as twice. Replace the cartridge when the pleats begin to deteriorate. Cartridge cleaning should be done a minimum of once a month. More often with a heavy bather load.
8. **Sanitizers:** This is what kills the germs and bacteria that enter the water from the environment and the human body.
  - A. Chlorine
    1. Only one type is good for spa use
      - a. Sodium dichlor which is a granule, fast dissolving, and pH neutral
    2. Chlorine is an immediate sanitizer.
  - B. Bromine
    1. Two types of tablets.
      - a. Hydrotech
      - b. Lonza
    2. Bromine is a slow dissolve chemical and may take a few days to develop a reserve or reading in the water.
9. **Total dissolved solids (TDS):** Materials that have been dissolved by the water. i.e. Like what happens when you put sugar in coffee or tea.
10. **Useful life of water (in days):** Water should be drained at least once every 180 days. Useful life may vary by usage and bather load.
11. **Defoamer:** Foaming may be caused by body oils, cosmetics, lotions, surface cleaners, high pH or algeacides as well as other organic materials. Low levels of calcium or sanitizer can also cause foaming. Also, double rinse your bathing suits as they will hold residual soap after being washed.
12. **Calcium hardness:** Water that is too hard (over 250 ppm) can promote scale formation in components and on spa surface. Water that is too low (below 180 ppm) may also shorten the life of metal components on the spa.

***NOTE: Always leave the spa cover open for 15 min. after adding chemicals to prevent off gas from damaging your spa cover, spa pillows, and other critical parts.***

## WATER QUALITY MAINTENANCE SCHEDULE

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- BEFORE EACH USE** - Check spa water with a test strip for proper sanitation levels and adjust accordingly to the proper levels.
- ONCE A WEEK** - Add 3 Tablespoons of a non-chlorine shock or 1 teaspoon of Dichlor to spa per 250 gallons.
- 3 TIMES A WEEK** - Test water using chemical test strips. Adjust sanitizer, pH and Alkalinity accordingly.
- ONCE A MONTH\*** - Soak your filter element overnight in a bucket with spa Filter Cleaner and then rinse with clean water before re-inserting.
- EVERY 180 DAYS** - Drain and refill your spa. Repeat start up procedure.
- AFTER EACH USE** - Add 1 tablespoon of non-chlorine shock or 1/3 teaspoon of Dichlor to spa per 250 gallons.
- AS NEEDED** - If water looks hazy, shock treat with 1 teaspoon of Dichlor per 500 gallons.

\* These are general recommendations for water quality maintenance that may vary by usage and or bather load. Depending on bather load and frequency of use, drain and refill times may vary as well as the frequency of cleaning your filters.

\* Foam Gone may be used when excessive foaming occurs. Be sure to use only a drop or two at a time. Over use of Foam Gone will result in cloudy, milky water.

### NOTE:

As an alternative to non chlorine shock, Dichlor may be substituted.

1 tsp. Dichlor = 3 tablespoons of non chlorine shock

### USE ONLY SPA CHEMICALS

(some pool chemicals are not suitable for spa use).

\* when cleaning filters, be sure to never have the pump(s) running without the filter in place. Failure to do so may result in debris in the pumps causing unwarranted damage.

## SPA WATER MAINTENANCE - START-UP

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1. Read the spa owners manual first.
2. Clean the surface with a spa general purpose cleaner or wipe down with a clean wet towel.
3. Begin filling the spa with fresh water. If possible, do not use softened water.
4. When the spa has 2 to 4 inches of water on the bottom, add the recommended amount of a sequestering chemical for that size spa. See the chemical bottle for correct amounts.
5. When the spa is full, run the pump on high speed for 30 minutes without air controls open. This will give the sequestering chemical time to mix well with the water. Allow sequestering chemical 12-24 hours to properly filter in the water before proceeding with any further steps.
6. Using test strips or a test kit, test for total alkalinity, and adjust if necessary to between 80 to 150 ppm using the pH / alkalinity increaser or decreaser 1oz. at a time. Wait 15 minutes, retest, and adjust if necessary. The pump should be running on high speed during this time.
7. Using test strips or a test kit, test for pH, and adjust if necessary to within the 7.2 and 7.8 range using the pH / alkalinity increaser or decreaser 1/2oz. at a time. Wait 15 minutes, retest, and adjust if necessary. The pump should be running on high speed during this time, without air controls open.
8. Add the sanitizer of choice, following label directions. If chlorine is used, broadcast the recommended amount across the surface of the water, with the pump running on high speed. Wait 15 minutes, retest, and adjust if necessary to a total chlorine reading of 1 to 3 ppm. If bromine is used, add bromine tablets to the bromine feeder following label directions. With the pump running on high speed, add 2oz. of sodium bromide, and shock the spa with 2oz. of non chlorine shock. It may take several days adjusting the bromine feeder to obtain a total bromine reading of 3 to 5 ppm. A bromine reading may not be obtained on the first day.
9. If any foam develops, add a defoamer at the base of the problem area. Use only enough defoamer to get rid of the foam. This is usually one or two drops. Do not pour large amounts of defoamer into water.
10. Wait two days, and begin a three day a week maintenance program.

## SPA WATER MAINTENANCE - START-UP

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### DAY ONE

1. Test and adjust total alkalinity if necessary to between 80 to 150 ppm using the pH / alkalinity increaser or decreaser 1oz. at a time. Wait 15 minutes, retest and adjust if necessary. The pump should be running on high speed during this time with the air controls closed.
2. Test and adjust pH, if necessary, to within the range of 7.2 to 7.8 using the pH / alkalinity increaser or decreaser, 1/2oz. at a time. Wait 15 minutes, retest and adjust if necessary. The pump should be running on high speed during this time with the air controls closed.
3. Test and adjust sanitizer level. Add chlorine following label directions to maintain a free chlorine level of 1 to 3 ppm. If using bromine, adjust feeder to maintain a total bromine level of 3 to 5 ppm. Add bromine tablets to the dispenser if necessary, following label directions.
4. Add a water clarifier following label directions. If the spa is equipped with an ozone unit, we recommend adding an enzyme product in place of the clarifier, following the label directions.
5. Use a small amount of defoamer only if necessary.

### DAY TWO SKIP

### DAY THREE

1. Test and adjust total alkalinity, if necessary, to between 80 and 150 ppm using the pH / alkalinity increaser or decreaser, 1oz at a time. Wait 15 minutes, retest and adjust if necessary. The pump should be running on high speed during this time with the air controls closed.
2. Test and adjust the pH, if necessary, to within the range of 7.2 to 7.8 using the pH / alkalinity increaser or decreaser, 1/2oz at a time. Wait 15 minutes, retest and adjust if necessary. The pump should be running on high speed during this time with the air controls closed.
3. Test and adjust sanitizer level. Add chlorine following label directions to maintain a free chlorine level of 1 to 3 ppm. If using bromine, adjust feeder to maintain a total bromine level of 3 to 5 ppm. Add bromine tablets to the dispenser if necessary, following label directions.
4. Add sequestering chemical, following label directions for maintenance.
5. If necessary, clean water line with a spa general purpose cleaner or enzyme product.
6. Use a defoamer only if necessary.

*(cont. next page)*

## SPA WATER MAINTENANCE - START-UP

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### DAY FOUR SKIP

### DAY FIVE

1. Test and adjust total alkalinity, if necessary, to between 80 and 150 ppm using the pH / alkalinity increaser or decreaser, 1oz. at a time. Wait 15 minutes, retest and adjust if necessary. The pump should be running on high speed during this time with the air controls closed.
2. Test and adjust the pH, if necessary, to within the range of 7.2 to 7.8 using the pH / alkalinity increaser or decreaser, 1/2oz. at a time. Wait 15 minutes, retest and adjust if necessary. The pump should be running on high speed during this time with the air controls closed.
3. Test and adjust sanitizer level. Add chlorine following label directions to maintain a free chlorine level of 1 to 3 ppm. If using bromine, adjust feeder to maintain a total bromine level of 3 to 5 ppm. Add bromine tablets to the dispenser if necessary, following label directions.
4. Shock with 2oz. of non chlorine shock, or superchlorinate following label directions. A spa should be shocked at least once a week even if it is not used. If using chlorine as the sanitizer, the spa should be shocked whenever a free chlorine reading of 1 to 3 ppm cannot be obtained without raising the total chlorine level above 5 ppm. Always shock a spa after any heavy bather load.
5. Check filter cartridge and clean if necessary. Clean with cartridge filter cleaner, following label directions. It is best to have a spare cartridge on hand, to prevent long spa down times while the cartridge is being cleaned. Never operate your spa without the filters in place.
6. Use a defoamer only if necessary.

### DAY SIX AND SEVEN SKIP

With a spa, you are working with a small volume of hot water, which causes chemicals to have a shorter life span, and bacteria, along with other things, to grow faster. A spa is less forgiving than a pool, and requires that whatever is put into it have a pH as close to neutral as possible. That is why only chemicals made for spas should be used.

## SPA WATER MAINTENANCE

### TROUBLE-SHOOTING GUIDE

<b>PROBLEM</b>	<b>POSSIBLE CAUSES</b>	<b>HOW TO FIX IT</b>
Chlorine / Bromine Odor	<ul style="list-style-type: none"> <li>• Excessive Chlorine or bromine levels</li> <li>• Low pH</li> </ul>	<ul style="list-style-type: none"> <li>• Shock water with non-chlorine shock treatment</li> <li>• Adjust pH if necessary</li> </ul>
Water Odor	<ul style="list-style-type: none"> <li>• Low levels of sanitizer</li> <li>• pH out of range</li> <li>• Bacteria or algae growth</li> </ul>	<ul style="list-style-type: none"> <li>• Shock water with non-chlorine shock treatment or adjust sanitizer levels</li> <li>• Adjust pH level if necessary</li> <li>• Adjust sanitizer if necessary</li> </ul>
Cloudy Water	<ul style="list-style-type: none"> <li>• Dirty filters or inadequate filtration</li> <li>• Water chemistry not balanced</li> <li>• Suspended particles or organic materials</li> <li>• Old water</li> </ul>	<ul style="list-style-type: none"> <li>• Clean filters and adjust filtration times</li> <li>• Adjust chemistry levels</li> <li>• Add spa clarifier (see dealer)</li> <li>• Change spa water</li> </ul>
Scum Ring Around Spa	<ul style="list-style-type: none"> <li>• Build up of oils, dirt and organic elements</li> </ul>	<ul style="list-style-type: none"> <li>• Wipe off with a clean towel</li> </ul>
Eye / Skin Irritation	<ul style="list-style-type: none"> <li>• Unsanitary water</li> <li>• Free chlorine level above 5 ppm</li> <li>• Poor sanitizer / pH levels</li> </ul>	<ul style="list-style-type: none"> <li>• Shock spa with non-chlorine shock</li> <li>• Allow level to drop below 5 ppm</li> <li>• Adjust according to spa test strip results</li> </ul>
Foaming	<ul style="list-style-type: none"> <li>• High levels of body oils, lotions, soap, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Add small amount of defoamer</li> </ul>

### RECOMMENDED LEVELS OF CHEMICAL

Chlorine 1.0 - 3.0 ppm

pH 7.2 - 7.8

Total Alkalinity 80 - 150 ppm

Calcium Hardness 180 - 250 ppm

## WHY CHEMICALS ARE IMPORTANT IN A SPA

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1. **Evaporation:** As water evaporates, only pure water evaporates, leaving the salts, minerals, metals, and any unused chemicals behind. Adding water adds more salts, minerals, and metals. In time, the water can become saturated with these dissolved solids and can cause stains or scale to form on the walls of the spa or a scale build up inside the equipment. Colored or cloudy water, and possible corrosion of plumbing and fittings may also occur.
2. **Heat:** Heat causes evaporation to happen faster. Heat also causes certain minerals and metals to precipitate out of solution.
3. **Air:** Dust and airborne dirt particles are introduced into the spa.
4. **Environment:** The environment surrounding the spa is also a consideration. Watch for pollen, grass, sand, dirt, lawn fertilizer, dust storms, insects, dogs, cats, etc.
5. **Consider the human next:** In a heated spa, the average adult sweats 3 pints per hour. This person also brings in the spa surface dirt, soap, body oils, deodorant, hair spray, hand and body lotion, perfume and cologne, make up, lipstick, and suntan lotion. To this you can add spit, urine, bacteria and virus germs from open sores or certain body parts. To this let's add spilled drinks, cigarette ash, and various play things. Now multiply this times 4 or 6 people in an average 375 gallon spa and then try to use the water for a few months!

### REMEMBER:

The maintenance routines set forth in this manual may need to be adjusted depending on how much the spa is being used.

## MAINTENANCE RECOMMENDATIONS

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Your spa requires periodic draining and cleaning to ensure a safe, healthy environment. It is recommended that you clean your spa at least every 180 days. Heavy bather load will require cleaning it more often.

### TO DRAIN YOUR SPA

- See page 11.

### TO CLEAN YOUR SPA SURFACE

- With a soft cloth, wipe down the spa surface with a non-abrasive spa surface cleaner that may be purchased through your local spa dealer. Do not use paper towels. Be sure to rinse residue from spa surface.
- If your spa has developed an oily or chalky residue at the waterline it may require special treatment. Consult your dealer.

### TO REFILL YOUR SPA

- Be sure to close the drain valve.
- Fill the spa with water. Be sure water level is above skimmer opening to the minimum safe water level label.
- Refer to your spas corresponding start-up section with any questions.

### TO CLEAN YOUR FILTER ELEMENT (also reference page 36)

The filter in your spa is one of the most important components of your spa. It not only is essential for clean water, but also for extending the life of the spa equipment. Your filter element must be cleaned regularly (once a month on average) with normal spa use. With heavy use, they will need to be cleaned more often.

- Turn spa off. Never have the spa running when removing your filter as debris can be pulled through into the equipment causing unwarranted damage.
- Remove filter element.
- With a garden hose, spray the element under pressure. Periodically, the element needs to be soaked in a filter cleaner compound. Check with your dealer for details on cleaning and/or filter replacement recommendations.
- Replace filter element.
- Be sure water level is adequate.
- Turn spa on.

### CARE OF YOUR SPA PILLOWS

- Your spa pillows need to be rinsed periodically to remove any chemical residue. This should help to eliminate pillows becoming stiff and discolored.
- If spa is not to be used for a period of time, pillows should be removed. Pillow life will be extended.

## WINTERIZING YOUR SPA

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Many people find they enjoy using their spa more in the winter than any other time. Your spa is designed to be used year round in any type of climate.

\*However, if you decide you don't want to use your spa in the winter, you must drain it and follow the winterizing steps listed below:

- 1.) Drain your spa completely using the drain valve (see "To Drain Your Spa") or use an inexpensive submersible pump that you can buy from your dealer or your local hardware store.
- 2.) Use a shop vac to get all standing water out of your unit.
- 3.) Remove access panels from equipment area.
- 4.) Loosen all pump unions
- 5.) Remove winterizing plug from the face of the pump(s).
- 6.) Using your shop vac in a blowing mode, insert the hose into the nozzle of each jet and blow the trapped water from the lines into the interior of the spa.
- 7.) After this is completed, use the shop vac to remove any standing water in the spa and in the equipment area.
- 8.) Clean the spa with a soft cloth and a non-abrasive spa surface cleaner.
- 9.) Replace access panels.
- 10.) Cover spa to prevent water from entering the spa.

**\* Disclaimer: Master Spas does not recommend winterizing your spa. If you choose to do so, any damage that may result is not covered under the spa warranty.**

## TWILIGHT SPA - SPECIFICATIONS

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	Spa Dimensions (in.)	Electrical Requirements	Water Capacity (gallons)	Weight Dry/Full (lbs.)	Therapy Pumps	Jet Count
<b>TS 6.1</b>	78 x 78 x 34	240V, 50 Amp	320	580 / 3,245	1	21
<b>TS 6.2</b>	78 x 78 x 34	240V, 50 Amp	320	630 / 3,295	2	30
<b>TS 7.1</b>	84 x 84 x 38	240V, 50 Amp	420	705 / 3,995	1	28
<b>TS 7.2</b>	84 x 84 x 38	240V, 50 Amp	420	755 / 4,045	2	36
<b>TS 8.1</b>	94 x 94 x 38	240V, 50 Amp	485	750 / 4,630	1	29
<b>TS 8.2</b>	94 x 94 x 38	240V, 50 Amp	485	755 / 4,680	2	44
<b>TS 8.3</b>	94 x 94 x 38	240V, 50 Amp	485	805 / 4,730	3	50

Note: For spas equipped with an optional 24 hr circulation pump add 1 additional pump to the count.

## TWILIGHT SPA – CONTROLS

TS 6.1 • TS 7.1 • TS 8.1

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### INITIAL START-UP

When your spa is first actuated, it will go into Priming mode, indicated by "P\_r". The Priming mode will last for less than 5 minutes (press "Temp" to skip Priming Mode) and then the spa will begin to heat the spa and maintain the water temperature in the Standard mode.



### Temperature (80°F - 104°F / 26°C - 40°C)

The start-up temperature is set at 100°F/37°C. The last measured temperature is constantly displayed on the LCD.

Note that the last measured spa temperature displayed is current only when the low speed of pump 1 has been running for at least 2 minutes (temperature is always current on spas equipped with 24 hour circulation pump). To display the set temperature, press the "Temp" pad once. To change the set temperature, press the pad a second time before the LCD stops flashing. Each press of the "Temp" pad will continue to either raise or lower the set temperature. If the opposite direction is desired, release the pad and let the display revert to the current water temperature. Press the pad to display the set temperature, and again to make the temperature change in the desired direction. After three seconds, the LCD will stop flashing and display the current spa temperature.

### Jets 1

Touch the "Jets" button once to turn pump 1 on or off, and to shift between low and high speeds. If left running, the low speed of the pump will automatically turn off after 4 hours, and the high speed will automatically turn off after 15 minutes.

## TWILIGHT SPA – CONTROLS

TS 6.1 • TS 7.1 • TS 8.1

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### L.E.D. Lights

Press the "Light" button to turn the light on and off. If you wish to change the "function" of the lights, turn the lights off, then on within 5 seconds. If you wish to leave the lights in the same "function" setting for the next use, turn the lights off and do not turn back on for at least 5 seconds.

### Mode

Mode is changed by pressing the "Temp" button, then pressing the "Light" button. Each time "Temp" then "Light" is pressed the mode will be changed.

**Standard Mode** is programmed to maintain the desired temperature. Note that the last measured spa temperature displayed is current only when the low speed of pump 1 has been running for at least 2 minutes (temperature is always current on spas equipped with 24 hour circulation pump). "5L" will be displayed momentarily when you switch into Standard Mode.

**Economy Mode** heats the spa to the set temperature only during filter cycles. "E" will display solid when temperature is not current, and will alternate with temperature when temperature is current.

**Sleep Mode** heats the spa to within 20°F/10°C of the set temperature only during filter cycles. "SL" will display solid when temperature is not current, and will alternate with temperature when temperature is current.

### Preset Filter Cycles

The first filter cycle begins 6 minutes after the spa is energized. The second filter cycle begins 12 hours later. Filter duration is programmable for 2, 4, 6, 8 hours or for continuous filtration (indicated by "FL"). The default filter time is 2 hours. To program, press "Temp" then "Jets." Press "Temp" to adjust. Press "Jets" to exit programming. At the beginning of each filter cycle the pump(s) purge for 30 seconds; the pump purges for 5 minutes. The only effect filter duration has is: 1) During the filter cycle, the low-speed of pump 1 never turns off, and 2) In Economy and Sleep Modes, heating only occurs during the filter cycle. On spas equipped with 24 hour circulation pumps the filter cycle is not needed and does not operate.

### Freeze Protection

If the temperature sensors detect a drop to below 44°F/6.7°C within the heater, the pump will automatically activate to provide freeze protection. The equipment stays on until 4 minutes after the sensors detect that the spa temperature has risen to 45°F/7.2°C or higher.

## TWILIGHT SPA – DIAGNOSTIC MESSAGES

TS 6.1 • TS 7.1 • TS 8.1

MESSAGE	MEANING	ACTION REQUIRED
	No message on display. Power has been cut off to the spa.	The control panel will be disabled until power returns. Spa settings will be preserved until next power up.
--	Temperature unknown.	After the pump has been running for 2 minutes, the temperature will be displayed.
HH	"Overheat" - The spa has shut down. One of the sensors has detected 118°F/48°C at the heater.	DO NOT ENTER THE WATER. Remove the spa cover and allow water to cool. Once the heater has cooled, reset by pushing any button. If spa does not reset, shut off the power to the spa and call your dealer or service organization.
OH	"Overheat" - The spa has shut down. One of the sensors has detected that the spa water is 110°F/43°C.	DO NOT ENTER THE WATER. Remove the spa cover and allow water to cool. At 107°F/42°C, the spa should automatically reset. If spa does not reset, shut off the power to the spa and call your dealer or service organization.
IC	"Ice" - Potential freeze condition detected.	No action required. The pump(s) will automatically activate regardless of spa status.
SA	Spa is shut down. The sensor that is plugged into the Sensor "A" jack is not working.	If the problem persists, contact your dealer or service organization. (May appear temporarily in an overheat situation and disappear when the heater cools.)
Sb	Spa is shut down. The sensor that is plugged into the Sensor "B" jack is not working.	If the problem persists, contact your dealer or service organization. (May appear temporarily in an overheat situation and disappear when the heater cools.)

## TWILIGHT SPA – DIAGNOSTIC MESSAGES

TS 6.1 • TS 7.1 • TS 8.1

MESSAGE	MEANING	ACTION REQUIRED
<i>Sn</i>	Sensors are out of balance. If alternating with spa temperature, it may just be a temporary condition. If flashing by itself, spa is shut down.	If the problem persists, contact your dealer or service organization.
<i>HL</i>	A significant difference between temperature sensors has been detected. This could indicate a flow problem.	Check water level in spa. Refill if necessary. If the water level is okay, make sure the pumps have been primed. If problem persists, contact your dealer or service organization.
<i>LF</i>	Persistent low flow problems. (Displays on the fifth occurrence of "HL" message within 24 hours.) Heater is shut down, but other spa functions continue to run normally.	Follow action required for "HL" message. Heating capability of the spa will not reset automatically; you may press any button to reset. Check filters for possible blockage.
<i>dr</i>	Possible inadequate water, poor flow, or air bubbles in detected in the heater. Spa is shut down for 15 minutes.	Check water level in spa. Refill if necessary. If water level is okay, make sure the pump(s) have been primed. Press any button to reset, or this message will automatically reset within 15 minutes. If problem persists, contact your dealer or service organization.
<i>dy</i>	Inadequate water detected in heater. (Displays on third occurrence of "dr" message.) Spa is shut down.	Follow action required for "dr" message. Spa will not automatically reset. Press any button to reset.

**Warning! Shock Hazard! No User Serviceable Parts.** Do not attempt service of this control system. Contact your dealer or service organization for assistance. Follow all owner's manual power connection instructions. Installation must be performed by a licensed electrician and all grounding connections must be properly installed.

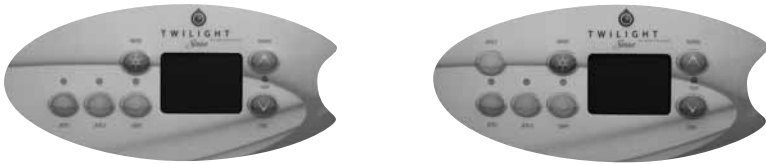
## TWILIGHT SPA – CONTROLS

TS 6.2 • TS 7.2 • TS 8.2 • TS 8.3

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### INITIAL START-UP

When your spa is first actuated, it will go into Priming mode, indicated by "P" Be sure the pumps and heating system are free of air by cycling the pumps on and off with the spa-side panel buttons. The spa will not heat during priming mode, allowing time to verify all air is purged from the heater. The Priming mode will last for less than 5 minutes (press "Warm" or "Cool" to skip Priming Mode) and then the spa will begin to heat and maintain the water temperature in the Standard mode.



### Warm/Cool (80°F - 104°F / 26°C - 40°C)

The start-up temperature is set at 100°F/37°C. The last measured temperature is constantly displayed on the LCD.

Note that the last measured spa temperature displayed is current only when the low speed of pump 1 has been running for at least 2 minutes (temperature is always current on spas equipped with 24 hour circulation pump). To display the set temperature, press the "Warm" or "Cool" pad once. To change the set temperature, press the pad a second time before the LCD stops flashing. Each press of the "Warm" or "Cool" pad will continue to either raise or lower the set temperature. After three seconds, the LCD will stop flashing and display the current spa temperature.

### Jets 1

Touch the "Jets" button once to turn pump 1 on or off, and to shift between low and high speeds. If left running, the low speed of the pump will automatically turn off after 4 hours, and the high speed will automatically turn off after 15 minutes.

### Jets 2

Touch the second "Jets" button once to turn pump 2 on or off. If left running, pump 2 will automatically turn off after 15 minutes. This pump has one speed.

### Jets 3 (If so equipped)

Touch the second "Jets" button once to turn pump 2 on or off. If left running, pump 3 will automatically turn off after 15 minutes. This pump has one speed.

## TWILIGHT SPA – CONTROLS

TS 6.2 • TS 7.2 • TS 8.2 • TS 8.3

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### L.E.D. Lights

Press the "Light" button to turn the light on and off. If you wish to change the "function" of the lights, turn the lights off, then on within 5 seconds. If you wish to leave the lights in the same "function" setting for the next use, turn the lights off and do not turn back on for at least 5 seconds.

### Mode

Mode is changed by pressing the "Warm" or "Cool" button, then pressing the "Mode" button.

**Standard Mode** is programmed to maintain the desired temperature. Note that the last measured spa temperature displayed is current only when the pump has been running for at least 2 minutes. "5L" will be displayed momentarily when you switch into Standard Mode.

**Economy Mode** heats the spa to the set temperature only during filter cycles. "Ec" will display solid when temperature is not current, and will alternate with temperature when temperature is current.

**Sleep Mode** heats the spa to within 20°F/10°C of the set temperature only during filter cycles. "SL" will display solid when temperature is not current, and will alternate with temperature when temperature is current.

### Preset Filter Cycles

The first filter cycle begins 6 minutes after the spa is energized. The second filter cycle begins 12 hours later. Filter duration is programmable for 2, 4, 6, 8 hours or for continuous filtration (indicated by "FL"). The default filter time is 2 hours. To program, press "Temp" then "Jets." Press "Temp" to adjust. Press "Jets" to exit programming. At the beginning of each filter cycle the pump(s) purge for 30 seconds; the pump purges for 5 minutes. The only effect filter duration has is: 1) During the filter cycle, the low-speed of pump 1 never turns off, and 2) In Economy and Sleep Modes, heating only occurs during the filter cycle. On spas equipped with 24 hour circulation pumps the filter cycle is not needed and does not operate.

### Freeze Protection

If the temperature sensors detect a drop to below 44°F/6.7°C within the heater, the pump will automatically activate to provide freeze protection. The equipment stays on until 4 minutes after the sensors detect that the spa temperature has risen to 45°F/7.2°C or higher.

## TWILIGHT SPA – DIAGNOSTIC MESSAGES

TS 6.2 • TS 7.2 • TS 8.2 • TS 8.3

MESSAGE	MEANING	ACTION REQUIRED
	No message on display. Power has been cut off to the spa.	The control panel will be disabled until power returns. Spa settings will be preserved until next power up.
--	Temperature unknown.	After the pump has been running for 2 minutes, the temperature will be displayed.
HH	"Overheat" - The spa has shut down. One of the sensors has detected 118°F/48°C at the heater.	DO NOT ENTER THE WATER. Remove the spa cover and allow water to cool. Once the heater has cooled, reset by pushing any button. If spa does not reset, shut off the power to the spa and call your dealer or service organization.
OH	"Overheat" - The spa has shut down. One of the sensors has detected that the spa water is 110°F/43°C.	DO NOT ENTER THE WATER. Remove the spa cover and allow water to cool. At 107°F/42°C, the spa should automatically reset. If spa does not reset, shut off the power to the spa and call your dealer or service organization.
IC	"Ice" - Potential freeze condition detected.	No action required. The pump(s) will automatically activate regardless of spa status.
SA	Spa is shut down. The sensor that is plugged into the Sensor "A" jack is not working.	If the problem persists, contact your dealer or service organization. (May appear temporarily in an overheat situation and disappear when the heater cools.)
Sb	Spa is shut down. The sensor that is plugged into the Sensor "B" jack is not working.	If the problem persists, contact your dealer or service organization. (May appear temporarily in an overheat situation and disappear when the heater cools.)

## TWILIGHT SPA – DIAGNOSTIC MESSAGES

TS 6.2 • TS 7.2 • TS 8.2 • TS 8.3

MESSAGE	MEANING	ACTION REQUIRED
<i>Sn</i>	Sensors are out of balance. If alternating with spa temperature, it may just be a temporary condition. If flashing by itself, spa is shut down.	If the problem persists, contact your dealer or service organization.
<i>HL</i>	A significant difference between temperature sensors has been detected. This could indicate a flow problem.	Check water level in spa. Refill if necessary. If the water level is okay, make sure the pumps have been primed. If problem persists, contact your dealer or service organization.
<i>LF</i>	Persistent low flow problems. (Displays on the fifth occurrence of "HL" message within 24 hours.) Heater is shut down, but other spa functions continue to run normally.	Follow action required for "HL" message. Heating capability of the spa will not reset automatically; you may press any button to reset. Check filters for possible blockage.
<i>dr</i>	Possible inadequate water, poor flow, or air bubbles in detected in the heater. Spa is shut down for 15 minutes.	Check water level in spa. Refill if necessary. If water level is okay, make sure the pump(s) have been primed. Press any button to reset, or this message will automatically reset within 15 minutes. If problem persists, contact your dealer or service organization.
<i>dy</i>	Inadequate water detected in heater. (Displays on third occurrence of "dr" message.) Spa is shut down.	Follow action required for "dr" message. Spa will not automatically reset. Press any button to reset.

**Warning! Shock Hazard! No User Serviceable Parts.** Do not attempt service of this control system. Contact your dealer or service organization for assistance. Follow all owner's manual power connection instructions. Installation must be performed by a licensed electrician and all grounding connections must be properly installed.

## TWILIGHT DOCKING STATION

**Warning:** Never remain in your spa longer than 15 minutes per session when the water temperature is above 98°F. If you wish to spend more time in your spa, whether enjoying music, or just lounging, be sure to keep the spa water at or below body temperature (98.6°F).

\*Please refer to your stereo Owner's Manual for specific operations.

### Optional Stereo Docking Station

Your spa is equipped with an iPod™ docking station that will allow you to listen to personal selections through the audio system of the spa. This audio system also has an FM only radio receiver that can be used to listen to local FM broadcasts. Due to varying signal conditions the FM radio reception may be limited.













The docking station is compatible with the following iPod™ products Nano™ 3G 4G 8G, iPod Touch™ 8G 16G, iPod Classic™ 80G 160G, and iPod™ 5G 30G 60G 80G. Master Spas, Inc. does not guarantee compatibility with all iPod™ products due to software changes and upgrades.

The wireless remote provided with the spa is water resistant, but should never be left in the spa when not in use.

### RF Remote Control Synchronizing

Each docking station comes with a matching wireless remote control. From time to time it may be necessary to synchronize the remote to the docking station.

- A. Press and hold the (play/pause) button on the remote control and then press the power button simultaneously for 2 seconds. The LCD will display "PAIR".
- B. Turn on the docking station by pressing the power button on the station within 10 seconds after the remote displays "PAIR". A red light will turn on under the power button to indicate the unit is turned on.
- C. Once the synchronizing is complete, the LCD will return to the original screen setting.

Buttons		Music Mode	FM Radio Mode
Power		Press once: Change from Operation mode to Standby mode. Press and hold: Change from Standby mode to Operation mode.	
12V trigger		Press once: Toggle external power Press and hold: No change	Press once: Toggle external power Press and hold: No change
Volume up		Press once: Volume UP 3 decibels Press and hold: Fast volume up	Press once: Volume UP 3 decibels Press and hold: Fast volume up
Volume down		Press once: Volume DOWN 3 decibels Press and hold: Fast volume down	Press once: Volume DOWN 3 decibels Press and hold: Fast volume down
FM Radio		Press once: Change to FM Radio Mode Press and hold: No change	Press once: No change Press and hold: No change
Memory +		Press once: No change to memory Press and hold: No change to memory	Press once: Increase Memory Location Press and hold: No change
Memory		Press once: No change to memory Press and hold: No change to memory	Press once: Toggle to Memory Mode Press and hold: No change
Memory -		Press once: No change to memory Press and hold: No change to memory	Press once: Decrease Memory Location Press and hold: No change
Music		Press once: No change to Ipod/ MP3 Press and hold: No change to Ipod/ MP3	Press once: Toggle to ipod/ Music Mode Press and hold: No change
<b>i</b> Fast Rewind		Press once: Last track Press and hold: Fast Rewind	Press once: -50kHz Press and hold: Scan backward
Pause/ Play		Press once: Toggle Play/Pause Press and hold: Turn iPod™ OFF	Press once: Mute Press and hold: No change
<b>i</b> Fast Forward		Press once: Next track Press and hold: Fast Forward	Press once: +50kHz Press and hold: Scan forward

**i** If your music player is not an iPod,™, you will only be able to use the volume and power control on the remote control.

**i** In order to prolong remote battery life the LCD will shut off in 10 seconds if no other button is pressed. To turn remote back on press power once and then press the command desired.

## TWILIGHT DOCKING STATION

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**CAUTION** – Risk of Electric Shock. Do not leave compartment door open.

**CAUTION** – Risk of Electric Shock. Replace components only with identical components; and

Do not operate the Audio / Video controls while inside the spa.

**WARNING** – Prevent Electrocutation. Do not connect any auxiliary components (for example cable, additional speakers, headphones, additional Audio / Video components, etc.) to the system.

**NOTE:** These units are not provided with an outdoor antennae; when provided, it should be installed in accordance with article 810 of the National Electrical Code, ANSI / NFPA 70.

**NOTE:** Do not service this product yourself as opening or removing covers may expose you to dangerous voltage or other risk of injury. Refer all servicing to qualified service personnel.

**NOTE:** When the power supply connections or or power supply cord(s) are damaged; if water is entering the Audio / Video compartment or any electrical equipment area; if the protective shields or barriers are showing signs of deterioration; or if there are signs of other potential damage to the unit, turn off the unit and refer servicing to a qualified service personnel.

**NOTE:** This unit should be subjected to periodic routine maintenance (for example, once every 3 months) to make sure that the unit is operating correctly.

## SPA TROUBLE-SHOOTING GUIDE

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### **NOTHING ON THE SPA OPERATES-**

- 1.) Check the control panel display for any messages. If there is a message, refer to the diagnostic section. There you will find the meaning of the message and what action is to be taken.
- 2.) If there is no message on your control panel, check and reset the GFCI and house breaker.



*\*The GFCI should be located in a weather proof box close to the spa, but no closer than 5 ft.*

If the spa does not respond, contact your local service company.

### **PUMP(S) DO NOT OPERATE -**

- 1.) Press the "Jets" button on your control panel.  
If you hear the pumps trying to operate:
  - A. Pump may need to be primed. See page 16.If you do not hear anything from the pump, contact your local service company.

### **POOR JET PERFORMANCE**

- 1.) Make sure pump is operating
- 2.) Check that the water level is adequate (up to minimum safe water level side)
- 3.) Make sure the jets are open.
- 4.) Check for dirty filter. Clean if necessary.

## SPA TROUBLE-SHOOTING GUIDE

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### SPA NOT HEATING

\* If the spas heater has failed, the majority of the time it will trip the GFCI breaker. If the spa is not heating and has not tripped the breaker, please follow these steps:

- 1.) Check the control panel for diagnostic messages. Refer to spa diagnostic message area in previous sections.  
Follow steps to alleviate message.
- 2.) Check water set temperature at control panel.
- 3.) Check for dirty filter. Clean if necessary.
- 4.) Check "heat mode" the spa is set in. Spa should be in standard mode.
- 5.) Check the control panel for heater light indicator. If the light is on, the spa should be heating. Wait a reasonable amount of time (approximately 1 hour) to see if the water temperature is changing.
- 6.) Check to make sure that the pump is primed.
- 7.) Reset power to the spa at GFCI breaker.
- 8.) If spa is still not heating, contact your dealer for service.

### GFCI IS TRIPPING



The Ground Fault Circuit Interrupter (GFCI) is required, by NEC code (National Electrician Code), for your protection. The tripping of the GFCI may be caused by a component on the spa or by an electrical problem. Such electrical problems include, but are not limited to, a faulty GFCI breaker, power fluctuations, or a miswire. It may be necessary to contact an electrician if your local dealer recommends doing so.

## REGULAR MAINTENANCE PROCEDURES

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**Note:** These are areas that will require the spa owner to perform routine maintenance. These are not areas covered under the warranty of the spa.



### CLEANING JETS

The majority of jets in your spa can individually be turned on/off. If any of these jets become hard to turn, it will be necessary to remove the jet to clean it as grit/sand and mineral deposit may be present.

Jets are removed by turning the collar and then pulling out the jet. Some jets may not be removable depending on model.

### TO CLEAN JETS

Place the jet(s) in a bucket, fully immerse in white vinegar. Let the jet(s) soak overnight and then rinse with water. Reinstall the jet(s). It may also be necessary to clean the grit/deposit from the white jet body using an old toothbrush.



### DRAINING YOUR SPA

The drain is located behind the front panel on the far right side, grasp the hose bib cap and turn it counter clockwise. Attach a garden hose, if desired. Turn the black knob on the side of the valve a quarter turn. Draining times may vary by model using the external hose bib. A sump pump may also be used to drain the spa quickly.

## REGULAR MAINTENANCE PROCEDURES

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### CARE OF YOUR SPA COVER

Always cover your spa when not in use. This will greatly reduce energy consumption and will cause spa water to heat more rapidly. Water loss and chemical usage will also be reduced.

- Be sure to lock down all straps on cover after each use to prevent wind damage.
- Do not allow spa to sit uncovered in direct sunlight. This may cause damage to exposed surfaces of spa and possible discoloration of spa fittings.
- Periodically hose off both sides of spa cover for maximum life of cover. Once a month use a vinyl cleaner and conditioner on the vinyl portion of your cover. Rinse residue off.
- Keep cover open for 15 min. after adding chemicals to prevent off gas damage.

**NOTE: IF YOUR SPA IS GOING TO BE LEFT EMPTY FOR PROLONGED PERIODS, DO NOT REPLACE COVER DIRECTLY ON SURFACE OF SPA. PLACE 2"-3" BLOCKS BETWEEN COVER AND SPA. THIS ALLOWS FOR ADEQUATE VENTILATION OF COVER AND SPA.**

*NOTE: The cover warranty is provided through the cover manufacturer and not through Master Spas. You will need to mail the cover warranty back to the cover manufacturer.*

### CARE OF YOUR SPA CABINET

Your quality Polymer Skirt simply needs to be hosed off periodically. No other maintenance is required.



#### FILTER CLEANING

**NOTE:** Never operate the spa without filter in place. If done, damage will result to pumps and other components. We recommend having an extra filter to install when cleaning the filter.

- 1.) Turn power off to the spa.
- 2.) Remove any large or floating debris from the filter area.
- 3.) Remove the filter. Filter should be periodically rinsed and soaked in a cartridge cleaner. Follow cartridge cleaner instructions.

### SPA CARE AND MAINTENANCE RECORD

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DATE DATE DATE DATE DATE DATE DATE DATE

Drain & Clean Spa								
Clean Filter Cartridge								
Soak Filter Cartridge in Solution								
Test GFCI								
Clean and Condition Spa Cover								
Miscellaneous Service								
Miscellaneous Service								





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