

Alpine Spas
Bar Harbor, San Miguel & Miami

OWNER'S MANUAL
& LIMITED WARRANTY

INTERNATIONAL VERSION

Master Spas®

Welcome to the Ultimate in Relaxation!

Thank you for choosing your new spa built by Master Spas. For **support on** operating and maintaining your spa, please visit **www.alpinespas.co.nz/support.**

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.

REGISTER YOUR SPA

Please be sure to register your spa so we can efficiently assist with any questions you may have. Until your spa has been registered, Master Spas will not have record of your ownership. To register your spa, visit www.masterspas.com/resources and click on Spa Registration.

SERIAL NUMBER LOCATION

The serial number for your spa is located near the filter area, on the spa system pack, or on the listing plate on the spa frame behind the front skirt panel. It is a seven digit number on most models or an "R" followed by 6 digits. For example, 1912345 or R191234.

RECORD OF OWNERSHIP

Name_____

Address_____

City _____ State _____ Zip_____

Phone Number (_____) _____-_____ Date Purchased _____ /_____ /_____

Model _____ Serial #_____

Dealer Name _____

Service Tech Rep _____

WATCH HOW-TO VIDEOS:
masterspas.com/video-tutorials

RELAX. IT'S Master Spas®
6927 Lincoln Parkway
Fort Wayne, IN 46804
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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. 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 Master Spas family. We urge you to carefully read, understand, and follow all information in this user manual before installing and using the spa. These warnings, instructions, and safety guidelines address some common risks of water recreation, but they cannot cover all risks and dangers in all cases. Always use caution, common sense, and good judgment when enjoying any water activity. Retain this information for future use.

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 graphical symbol ISO 7010, M002 – Refer to instruction manual/booklet



IMPORTANT SAFETY INSTRUCTIONS

This spa is not intended for public/commercial use.

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

READ AND FOLLOW ALL INSTRUCTIONS

WARNING – To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.

A wire conductor is provided on this unit to connect a minimum 6 AWG (13.302mm^2) 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.

(For cord-connected/convertible units)

DANGER – Risk of injury.

a) Replace damaged cord immediately.
b) Do not bury cord.
c) Connect to a grounded, grounding type receptacle only.

(For units intended for indoor use only)

WARNING – For indoor use only. This unit is not intended for outdoor use.

(For units intended for outdoor use only)

WARNING – For outdoor use only. This unit is not intended for indoor use.

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



IMPORTANT SAFETY INSTRUCTIONS (CONT.)

DANGER – Risk of Accidental 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.

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.

DANGER – Risk of Electric Shock. Install at least 5 feet (1.5m) 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 8AWG (8.4mm^2) solid copper conductor to the wire connector on the terminal box that is provided for this purpose. Be sure to review and comply with any overruling local or national applicable regulations.

DANGER – Risk of Electric Shock. Do not permit any electric appliance, such as a light, telephone, radio, or television, within 5 feet (1.5 m) of a spa.

WARNING – To reduce the risk of injury:

a) The water in a 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 young children and when spa use exceeds 10 minutes. Persons with any medical condition should seek medical advice before using a spa.

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



IMPORTANT SAFETY INSTRUCTIONS (CONT.)

b) Since excessive water temperatures have a high potential for causing fetal damage during the early months of pregnancy, pregnant or possibly pregnant women should limit spa water temperatures to 100˚F (38˚C) and duration of use and should also seek medical advice.

c) Before entering a spa, the user should measure the water temperature with an accurate thermometer since the tolerance of water temperature-regulating devices varies.

d) The use of alcohol, drugs, or medication before or during spa use may lead to unconsciousness with the possibility of drowning.

e) Obese persons and persons with a history of heart disease, low or high blood pressure, circulatory system problems, or diabetes should consult a physician before using a spa.

f) 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.

SAVE THESE INSTRUCTIONS

HYPERTHERMIA

Hyperthermia occurs when the internal temperature of the body reaches a level several degrees above the normal body temperature of 98.6°F (37˚C). Prolonged immersion in hot water may induce hyperthermia.

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

WARNING – The use of alcohol, drugs, or medication can greatly increase the risk of hyperthermia.

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



IMPORTANT SAFETY INSTRUCTIONS (CONT.)

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.



EN 17125 – Do not put finger in massage jet

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 3 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.

WARNING – The spa should be covered with an approved locking cover when not in use, to prevent unauthorized entry and injuries.

WARNING – 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.

CAUTION – Safe temperatures for swimming or aquatic exercise is around 80˚F (26.7˚C).

CAUTION – Risk of Electrical Shock. Do not leave audio compartment open. Audio CD controls are not to be operated while inside the spa.

CAUTION – Replace components only with identical components.

WARNING – Risk of Electric Shock. 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 antenna.

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 cord(s) are damaged, water is entering the speaker, audio 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 qualified personnel.

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



IMPORTANT SAFETY INSTRUCTIONS (CONT.)

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

DANGER – Risk of Electric Shock. A green colored terminal or a terminal marked G, GR, Ground, Grounding or the symbol shown in Figure 14.1 of UL 1563 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.

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 8AWG.

All field installed metal components such as rails, ladders, drains, or other similar hardware within 10 feet (3m) of the spa shall be bonded to the equipment grounding bus with copper conductors not smaller than 8AWG.

SAVE THESE INSTRUCTIONS

SAFETY INSTRUCTIONS

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 PROBLÉMES 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.

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 THERMOMÉTRE PRÉCIS.

DO NOT DIVE.

SAFETY INSTRUCTIONS

WARNING: DO NOT USE A SPA OR HOT TUB IMMEDIATELY FOLLOWING STRENUOUS EXERCISE.
AVERTISSEMENT: NE PAS UTILISER UNE CUVE DE RELAXATION IMMÉDIATEMENT APRÉS 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 MATIÉRES 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 98.6˚F (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.
AVERTISSEMENT: LA CONSOMMATION D'ALCOOL OU DE DROGUE AUGMENTE CONSIDÉRABLEMENT LES RISQUES D'HYPERTHERMIE MORTELLE DANS UNE CUVE DE RELAXATION.

For spas relying on a specific means of egress, such means shall not be removed when the spa is in use.

DANGER – Risk of Accidental Drowning (especially children under 5 years). Caution shall be exercised to prevent unauthorized access to the spa by children. This can be reached by an adult supervisor securing the means of access or installing a safety protection device to the spa. To avoid accidents during spa use, ensure that children are kept under constant adult supervision).



Safety graphical symbol ISO 20712-1, WSM002 – Keep children under supervision in the aquatic environment

Avoid putting the head under water at all times.

Avoid swallowing spa water.

DANGER – No Diving.



Safety graphical symbol ISO 20712-1, WSP005 – No Diving

REGULATIONS

Below are important requirements that you should be aware of prior to using and operating your spa per European Standard EN 17125:2018.

MEANS OF ACCESS AND SPA ACCESSORIES

All accessories that are supplied shall be safe and compatible with the spa as required by section 4.3 of EN17125. The user can only use accessories exclusively provided by the spa manufacturer (i.e. Master Spas manufactured insulating cover) for safety reasons (section 6.1 d).

Means of access is not provided with the spa. Accessories necessary for means of access must meet European standard EN 17125. The type of means of access to the spa must be considered (ingress and/or egress where not obvious). Access means can be either secured or unsecured. See Accessory Manufacturer Specifications for the following:

- the commercial name or reference;
- an indication of the maximum allowable weight permitted on the means of access;
- illustrations repeating the overall dimensions of the product;
- stepping height and width of the wall, if appropriate for ingress and egress;
- if appropriate, any indication concerning the construction of onsite reinforcement works for installing the means of access;
- the warranty period(s) of the means of access;
- Proper care instructions for winterization.

NOTE: A handrail may be proposed with the means of access in case of use by people with mobility issues.

Consult manufacturer or contractor for proper care during winterization and to review maximum weight allowed. Means of access shall not be used for any purpose besides for spa entry. Stairs used for entry to the spa/swim spa must comply with section 4.6.4 of EN 17125.

A cover lifter, when applicable, should be designed to keep the cover off the ground when in use, to avoid dirt and debris getting on the cover.

ELECTRICAL REQUIREMENTS OF SPA ACCESSORIES

Electrically operated accessories shall comply with electrical safety standards and regulations (national and European). They must be assembled in accordance with the manufacturer's manual. The electrical installation of any material related to the spa and its surroundings shall comply with national requirements.

SAFETY DEVICES

- A safety cover or other safety protection device(s) shall be used, or all doors and windows (where applicable) shall be secured to prevent unauthorized access to the spa.
- Barriers, covers, alarms, or similar safety devices are helpful aids, but they are not substitutes for continuous and competent adult supervision.

SAFETY EQUIPMENT

- It is recommended to keep rescue equipment (e.g. a ring buoy) by the spa (if appropriate).
- Keep a working phone and a list of emergency phone numbers near the spa.

SAFE USE OF THE SPA

- Encourage all users especially children to learn how to swim.
- Learn Basic Life Support (Cardiopulmonary Resuscitation - CPR) and refresh this knowledge regularly. This can make a life-saving difference in the event of an emergency.
- Instruct all spa users, including children, what to do in case of an emergency.
- Never dive into any shallow body of water. This can lead to serious injury or death.
- Do not use the spa when using alcohol or medication that may impair the bather's ability to safely use the spa.
- When covers are used, remove them completely from the water surface before entering the spa.
- Protect spa occupants from water related illnesses by advising them to keep the water treated and to practice good hygiene. Consult the water treatment guidelines in the user's manual.
- Store chemicals out of the reach of children.
- Use the signage provided on the spa or within 2 000 mm (78.74 in) of the spa in a prominent visible position.
- Removable ladders, when removed, shall be stored safely where children cannot climb on them.

NON SWIMMERS SAFETY

- Continuous, active, and vigilant supervision of weak swimmers and non-swimmers especially in exercise spas, by a competent adult is required at all times (remembering that children under five years of age are at the highest risk of drowning).
- Designate a competent adult to supervise the spa each time it is being used.
- Weak swimmers or non-swimmers should wear personal protection equipment, especially when using the exercise spa.
- When the spa is not in use, or unsupervised, remove all toys from the spa and its surrounding area to avoid attracting children to the spa.

PERMISSIBLE OPENINGS

Requirements on the size of the accessible openings shall be as follows.

OPENINGS PRESENTING A RISK OF ENTRAPMENT OF FINGERS, TOES, HANDS, FEET:

- If the lowest point of the opening is located up to and including the first 500 mm of the designed water surface, no requirements will apply;
- If the lowest point of the opening is located more than 500 mm below the designed water surface, the requirements of EN 16582-1 (domestic pools) will apply with the following exception: Hydro-massage jets with opening diameters > 8 mm or < 25 mm are also allowed below 500 mm of the designed water depth, when they are installed in designated seating/ lounging areas including foot massage jets and provided with the warning sign with icon below about the risk of finger entrapment.



EN 17125 – Do not put finger in massage jet

- If the depth of penetration is less than 10 mm, no requirements apply.

OPENINGS PRESENTING A RISK OF ENTRAPMENT OF HEAD OR NECK:

If the opening is fully located under the water surface, permissible opening requirements of EN 16582-1 (domestic pools) will apply.

In compliance with EN 17125

REGULATIONS

USE OF NON-WATER TREATMENT CHEMICALS

For chemicals unrelated to water maintenance/treatment (i.e. cleaning products and aromatherapy), only use appropriate chemicals approved by the applicable regulations and the chemicals referenced in this manual.

SPA SURROUNDINGS

Barefoot areas and relaxing areas shall be considered in the cleaning process as well. No cleaning water may flow into the spa or spa water cycle. The dirt and cleaning agents shall be rinsed carefully to drain to surrounding areas away from the spa.

OPERATIONAL ADVICE

- To allow good circulation when the spa purges and filters so that chemically treated water flushes through all plumbing; all jets should be left in their open position, air controls/aeration valves closed and water diverters adjusted to half way (diverting water to all jets).
- Whenever the spa is emptied, the filter(s) should be cleaned (and drained/dried, where applicable).
- In the absence of automated and/or continuous water treatment (measurement and chemical dosage) any manual dosing of chemicals shall not be performed while bathers are present in the spa.
- Where an automatic system is installed, periodic checks are still required as per Water Maintenance instructions in this manual.
- Master Spas recommends fast dissolving chlorine granules (sodium dichlor). It is not recommended that chlorine tablets and a floater be used.

ENERGY EFFICIENCY ADVICE

In order to minimize energy consumption in everyday use of the spa, always use an insulating cover to minimize calorific losses at the water surface (due to evaporation, convection and conduction) when the spa is not in use.

NOTE: The recommended minimum thermal specifications of an insulating cover is 5"-3" thickness taper with 1.25 lb density foam.

COMPLIANCE

Relax and rest assured that your Master Spas manufactured spa has been built with safety in mind. We manufacture our self-contained spas to meet a stringent list of industry standards.

Our spas comply with the following industry standards:

- UL 1563 Standard for Electric Spas, Equipment Assemblies and Associated Equipment
- ICC ISPSC International Swimming Pool & Spa Code
- European Standard EN 17125 for Domestic Spas/Whirlpool Spas/Hot Tubs – Safety Requirements and Test Methods
- VGB Virginia Graeme Baker Pool and Spa Safety Act (Certified by UL to UL 1563)
- ANSI/APSP-6 Standard for Portable Spas
- ANSI/APSP/ICC-14 Standard for Portable Spa Energy Efficiency
- CEC Title 20 Appliance Efficiency Regulation
- CSA C22.2 No. 218.1 Spas, Hot Tubs and Associated Equipment
- CE - EN 60335-2-60 Household and Similar Electrical Appliances – Safety: Particular Requirements for Whirlpool Baths and Whirlpool Spas
- CE - EN 60335-1 Household and Similar Electrical Appliances – Safety: General Requirements
- 206/95/EC EC Low Voltage Directive
- 204/108/EMC Directive
- 93/68/EEC CE Marking Directive

VGB 2008:

WARNING

Read and follow all instructions in this manual and on the suction fitting. Failure to follow instructions can cause severe injury and/or death.

Failure to remove pressure test plugs and/or plugs used in winterization of the spa/swim spa from the suction outlets can result in an increased potential for suction entrapment.

Suction outlet components have a finite life. The cover/grate should be inspected frequently and replaced at least every seven years, or if found to be damaged, broken, cracked, missing, or not securely attached.

If the fitting is missing or broken, replace with a fitting of equivalent rating or higher. Use of a lower rated suction fitting could result in entrapment of the body which could result in serious injury including drowning.

Do not use or operate spa/swim spa if this suction fitting is missing, broken or not secured per instructions. The suction fitting is intended to prevent entrapment of the body. Use of the spa/swim spa with a missing, broken or improperly secured suction grate may result in serious personal injury including drowning.

When the spa/swim spa is in operation, suction is created at this fitting. Users of the spa/swim spa must be instructed not to come in contact with this fitting in such a way as to block its orifice. If a user of the spa/swim spa blocks this fitting with his/her body, serious personal injury or drowning may occur.

IMPORTANT SAFETY INSTRUCTIONS



WARNING - SUCTION ENTRAPMENT HAZARD

Suction in suction outlets and/or suction outlet covers which are damaged, broken, cracked, missing, or unsecured can cause severe injury and/or death due to the following entrapment hazards:

Hair Entrapment: Hair can become entangled in suction outlet cover.

Limb Entrapment: A limb inserted into an opening of a suction outlet sump/fitting or suction outlet cover that is damaged, broken, cracked, missing, or not securely attached can result in a mechanical bind or swelling of the limb.

Body Suction Entrapment: A negative pressure applied to a large portion of the body or limbs can result in an entrapment.

Evisceration/Disembowelment Entrapment: A negative pressure applied directly to the intestines through an unprotected suction outlet sump or suction outlet cover which is damaged, broken, cracked, missing, or unsecured can result in evisceration/disembowelment entrapment.

Mechanical Entrapment: There is potential for jewelry, swimsuit, hair decorations, finger, toe, or knuckle to be caught in an opening of a suction outlet cover resulting in mechanical entrapment.

VGB SUCTION SAFETY & MAINTENANCE INSTRUCTIONS

TO REDUCE THE RISK OF ENTRAPMENT HAZARDS:

- Never use a spa/swim spa if any suction outlet component is damaged, broken, cracked, missing, or not securely attached.
- Replace damaged, broken, cracked, missing, or not securely attached suction outlet components immediately.
- It is recommended that suction components be inspected at least monthly.
- Replace the suction within 7 years from the installation date. Contact your dealer or local service center for quoting and scheduling this required maintenance. This is a mandated regulation and is not part of nor covered by the spa/swim spa warranty.

NOTE: Always review entire safety and maintenance information before beginning maintenance. Contact Master Spas for Suction Installation information for complete suction assembly replacement.

GLOSSARY OF SPA TERMINOLOGY

Your new spa features a variety of jets. All jets, regardless of style, return the water to the spa. Air is mixed with the water by using the air controls (if equipped) creating a vigorous massage. Water flow is adjusted by simply turning the outer face of most jets. Your spa may have a combination of pulsating, rotating, dual pulsating and directional adjustable jets. Here are some terms and definitions to help get you acquainted with your spa.

1. THERAPY JETS

Located throughout the seats of the spa to offer a variety of therapy combinations.

2. NECK JETS (if equipped)

Located above the normal water level to provide massaging action to the back of the neck.

3. SHOULDER JETS (if equipped)

Located above the normal water level to provide massaging action to the shoulders.

4. MASTER BLASTER® FOOT THERAPY JET (if equipped)

Large jet with several fixed nozzles located in the bottom of the spa near the floor to provide excellent massage to the feet.

5. JET DIVERTER VALVE (if equipped)

Located on the top flange of the spa, this large valve physically diverts the flow of water from one group of jets to another. 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.

6. WATER FEATURE VALVE (if equipped)

Located on the top flange of the spa, this smaller valve adjusts water flow to the waterfalls and/or water features in your spa.

NOTE: When the spa is not in use, this valve should be turned mostly shut (not completely shut) to prevent the water features from allowing water to hit the cover while it is closed. If left mostly open, water may hit the cover and possibly run out of the spa causing water loss.



7. 3-WAY DIVERTER JET (if equipped, Getaway Hot Tubs)

This large jet can be turned 180˚ to 3 different points and diverts the flow of water from one group of jets to another. With the pump turned off, twist the face of this jet 1/4 turn at a time clockwise or counterclockwise to adjust.

8. AIR CONTROL VALVE

These smaller valves are located around the top of your spa. You may increase or decrease the force of your jets by opening or closing the air control valves. Each air control valve will typically function 1 to 2 groups or seats of jets in the spa. When not in use the air controls should be kept in the closed position as the air being introduced into the water can tend to cool the water and increase the dissipation rate of sanitizer levels.

9. TOPSIDE CONTROL PANEL

You may safely control spa functions from inside or outside your spa using the Topside Control Panel. This panel is used to control the water temperature, pumps, the spa light, automatic filtration cycles and other advanced functions. The digital display will give you a constant temperature readout and will notify you in case of certain malfunctions. Several user programmable functions are also available.

10. PERSONAL REMOTE CONTROL (if equipped)

Select spa models may have an additional remote which allows the user to control the jet therapy while remaining in the seat (if applicable). By pressing the control one time, you will activate the pump. Press again for high speed and again to turn it off.

11. EQUIPMENT ACCESS PANEL

This is the skirt panel located below the Topside Control Panel. This area houses the majority of components responsible for the spas operation. These components include the pumps, heater, spa control system, ozonator (if equipped), and LED light system (if equipped). Pump and equipment placement may vary by model.

12. ACCESS PANELS

These are the skirt panels located around all four sides of the spa. All of the skirt panels are removable should service be required. Master Spas recommends at least 3 feet of access be provided around the spa.

13. FILTER LID

This lid fits over the filter area and weir gate to cover the filters. Remove filter lid to access filters for maintenance. For models equipped with a telescoping filter housing, simply lift up to remove this floating assembly to access the filter. At low speed water flow or when the filtering/heating pump is off, the telescoping part of the filter assembly will float at or near the waterline. At high speed water flow, it will be drawn downward. See Accessing Filters in the Regular Maintenance Procedures section for detailed instructions on filter assemblies.

14. WEIR GATE

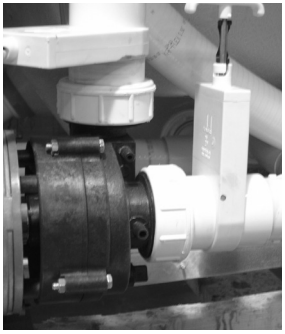
The weir gate is the horizontal door located in front of the filters that helps keep debris trapped in the filter area.

15. SPA CONTROL SYSTEM

This houses the wiring and electrical components necessary to operate the spa.

16. SPA HEATER

This is an electric heater housed in a stainless steel tube. It is thermostatically controlled and equipped with high-limit temperature safety shut-off sensors.



Slice Valve and Pump Union

17. SLICE VALVES

These valves are used by service personnel to shut off water to the heating system (heater and pump plumbed to the heater) so that the spa water does not need to be drained if the spa requires service to the heating system (varies by model).

NOTE: Slice valves must be completely open during normal operations.

18. MAIN THERAPY PUMP

This produces water flow through the main jets in the spa. The first pump may be operated on two speeds (varies by model). Low speed (if applicable) will produce efficient water circulation during filtration, heating of the spa water, and gentle jet action. High speed provides maximum jet action. The main pump is controlled by the "Jets" or "Jets I" button on the Topside Control Panel.

19. PUMP UNION

This connects the plumping and pump together. These are used to help relieve possible pump air locks or for service personnel to easily service the pumps.

20. HEATER UNION

These are used by service personnel to easily service the heater.

THE ADVANTAGES OF ECOPUR® CHARGE

ECOPUR®
CHARGE
MASTER CORE TECHNOLOGY

The EcoPur® Charge* is made from Master Spa's patented filtration fabric. This fabric is wound tightly into a nautilus master core, creating a catalytic cell. The nautilus fabric cell is encased by a unique "spring core" that allows for maximum flow and water "charging". As water comes in contact with the EcoPur® Charge Master Core, a chemical reaction causes zinc and copper hydroxides to form in controlled amounts. Like Mother Nature, when controlled releases of copper and zinc oxides are carried into the filtered water, they kill bacteria and provide hostile conditions for algae and fungal growth. Using EcoPur® Charge helps reduce the amount of chemicals needed, therefore safeguarding the hot tub's plumbing and equipment because pipes are protected against the corrosive effects of chlorine. EcoPur® Charge Master Core Technology is another exclusive design by Master Spas.

FEATURES

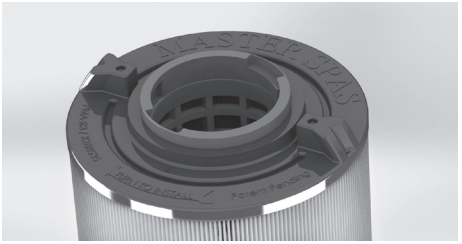
- Releases Sanitizing Copper & Zinc Oxides
- Reduces Water Soluble Heavy Metals
- Controls Scale, Bacteria and Algae
- Safeguards the Spa's Plumbing
- Reduces Use of Chemicals
- Helps Prevent Damage to Swimwear

MADE IN THE USA

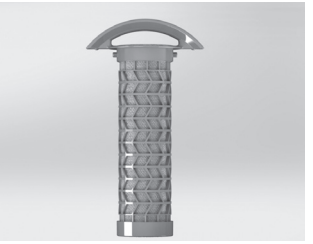
*PATENTS PENDING

THE ADVANTAGES OF ECOPUR® CHARGE

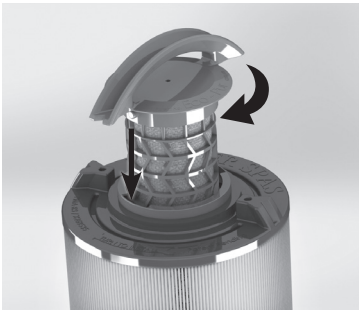
ECOPUR® CHARGE INSTALLATION



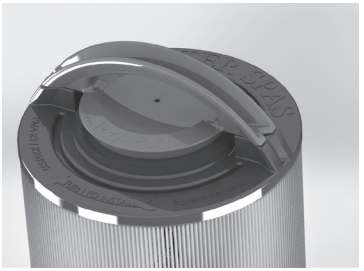
*Master Spas Outer Filter**



*EcoPur® Charge**



Turn Clockwise to Lock



STEPS FOR INSTALLATION

1. Insert EcoPur® Charge into outer filter.

2. Twist EcoPur® Charge clockwise to lock in place while holding on to outer filter. When snapped in to locked position, EcoPur® Charge handle aligns with molded points on outer filter.

NOTE: EcoPur® Charge should be replaced every 6 months. Initial snap in fit of inner EcoPur® Charge to outer filter may be tight, especially if both are new.

MADE IN THE USA

*PATENTS PENDING

WATER CHEMISTRY TERMS YOU SHOULD KNOW

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

1. **PARTS PER MILLION (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. **TOTAL ALKALINITY:** Measures substances in your water such as hydroxides, carbonates and bicarbonates. When at the proper levels, these elements keep your water from clouding and growing bacteria, as well as prevent the inner workings of your hot tub from deteriorating or forming scale. TA also helps to stabilize pH. The higher the TA level (as long as it is within the recommended range), the less likely the pH is to change. With low alkalinity, the pH will fluctuate and be harder to control. With high alkalinity, it becomes extremely difficult to change the pH.

3. **PH OR POTENTIAL HYDROGEN:** This indicates the acidity or basicity of the water. The goal is to have a neutral, stable pH to prevent spa damage and unhealthy conditions. Low pH levels can corrode metals, etch or stain fiberglass or acrylic, cause unsanitary conditions that irritate the eyes or skin and destruct the total alkalinity of the water. High pH can cause cloudy water, eye or skin irritation, scale formation and poor chlorine or bromine efficiency. Note that the chemicals you are using to sanitize and clean your hot tub can also lower or raise the pH level in the water. Unfortunately, there are lots of variables to preventing high pH in your hot tub.

4. **SHOCKING:** By shocking the water in your hot tub, you remove organic compounds from the water, kill bacteria, remove bromamines or chloramines and reactivate the bromides in the spa for cleaner water. You should shock your water once a week, after heavy bather use or any time free chlorine levels test lower than total chlorine levels. To do this, either add oxidizer/non-chlorine shock to burn off the chloramines or add extra chlorine to raise the chlorine level. Oxidizer/non-chlorine shock acts by releasing oxygen in the water, which serves a similar function as chlorine. An advantage to using this type of shock is that the water is safe to enter after 15 minutes of the application and excessive sanitizer (chlorine) levels do not occur. However, an oxidizer/non-chlorine shock doesn't disinfect the water for bacteria. If you use chlorine to shock, you must wait until the total chlorine reading is at a level safe to reenter the water.

5. **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). If the minerals and metals in water are not sequestered, they can cause a reaction, turning the water brown, red, orange or green depending on the minerals and metals present in your water. It is important to add a sequestering agent when adding water to your spa and even on a regular basis (if bottle instructions recommend doing so). Common names for sequestering chemicals are: minquest, stain and scale control, metal-x, spa defender, spa metal gone, etc.

6. **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 water capacity, pump and filter size and, of course, bather load. Spare filter cartridges 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. See Cleaning Your Filter Elements in the Regular Maintenance section.

7. **SANITIZERS:** Germs and bacteria enter the water from the environment and the human body; a sanitizer keeps the water balanced and safe to use. Either chlorine or bromine can be used as a sanitizer to create a healthy water environment.

   A. Chlorine:
      1. Only one type is approved for spa use. Sodium dichlor which is granular, fast dissolving and pH neutral chlorine.
      2. Chlorine is an immediate sanitizer and will be added as needed to maintain free chlorine levels.

   B. Bromine (Note: Bromine use is not recommended with EcoPur® filters.)
      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.

8. **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.

9. **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.

10. **DEFOAMER:** A chemical used to temporarily reduce foaming. Causes of foaming include body oils, cosmetics, lotions, surface cleaners, high pH or algae, as well as other organic materials. Low levels of calcium or sanitizer can also cause increased foaming. Note that you may need to physically remove the foam and/or drain all or part your water to remove or dilute the causes of the foam.

11. **CALCIUM HARDNESS:** This measurement tells you how much magnesium and calcium are in your water. However, calcium hardness can react with all of the chemicals, bacteria, dirt and other substances that your water dissolves and get thrown out of balance. Just like the other elements, calcium levels must remain balanced and need to be monitored or you run the risk of metal deterioration, water foaming or clouding and scale formation at the surface of your water.

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

12. **BIOFILM:** This is any group of microorganisms in which cells stick to each other and often these cells adhere to a surface (ie. spa plumbing and shell). Biofilm can occur over time during the use of your spa.

WHY ARE CHEMICALS IMPORTANT IN A SPA

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 much quicker evaporation and also will cause minerals and metals to precipitate out of solution.

3. AIR:

Dust and other airborne contaminants are introduced into the spa.

4. ENVIRONMENT:

The environment surrounding the spa can also impact the water quality. Items such as pollen, grass, sand, dirt, lawn fertilizer, airborne dust, insects, leaves, and pets can all affect the water quality of the spa.

5. BATHERS:

As the spa is used, bathers introduce contaminants to the water. Increased bather load, length of use and frequency will increase the amounts of contaminants added in to the water.

WATER MAINTENANCE – RECOMMENDED RANGES



Please refer to the Spa Supplies Water Care Handbook provided with your startup kit!

Water Maintenance Manual Supplied with Startup Kit. Find Literage for Model on Page 40 of this manual, then refer to applicable water care columns within the Spa Supplies guide.

Latest copy of water maintenance guide available at: http://alpinespas.co.nz/support/



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WATCH HOW-TO VIDEOS:
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WATER MAINTENANCE – SCHEDULE

WATCH HOW-TO VIDEOS: masterspas.com/video-tutorials



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WATER MAINTENANCE – TROUBLE-SHOOTING GUIDE

▶ **WATCH HOW-TO VIDEOS:** masterspas.com/video-tutorials

PROBLEM	POSSIBLE CAUSES	HOW TO FIX IT
CHLORINE ODOR	Excessive chlorine	Shock water with oxidizer/non-chlorine shock treatment
	Low pH	Adjust pH if necessary
WATER ODOR	Low levels of sanitizer	Adjust sanitizer level with chlorinating granules
	pH out of range	Adjust pH if necessary
	Bacteria or algae growth	If sanitizer has already been adjusted, it may be necessary to perform a system flush
CLOUDY WATER	Dirty filters or inadequate filtration	Clean filters with filter cleaner and adjust filtration
	Unbalanced water chemistry	Test and adjust chemistry levels
	Old water	Drain, clean inner shell and refill with filtered water
CLOUDY AND GREEN WATER	Total alkalinity levels are low	Use a pH increaser
	Sanitizer levels are low	Apply oxidizer/non-chlorine shock treatment and adjust sanitizer
CLEAR GREEN WATER	High iron or copper content	Use a sequestering agent
	Sanitizer levels are low	Apply oxidizer/non-chlorine shock treatment
BROWN WATER	High iron or manganese level	Use a sequestering agent
FOAMING	High levels of body oils, lotions, soap, etc.	Add small amount of defoamer, an enzyme product and check water chemistry
	Low calcium hardness	Use a calcium hardness increaser
	Unbalanced water chemistry	Test and adjust chemistry levels
EYE OR SKIN IRRITATION	Unsanitary water	Adjust water chemistry according to testing results
	Total chlorine level above 5 ppm	Apply oxidizer/non-chlorine shock treatment
	Poor sanitizer/pH levels	Adjust pH level as necessary
SCUM DEPOSITS AT WATERLINE	Body oils and dirt	Use multi-purpose cleaner to clean spa surface and add enzyme product to spa water
CHALKY, WHITE SCALE DEPOSITS	Minerals present in the water and lack of sequestering agent use	When tub is drained, use a multi-purpose cleaner or white vinegar and scrub with a soft cloth
PITTING OF METAL FIXTURES	Low pH or total alkalinity	Check water chemistry and adjust

NOTE: Please refer to the Water Maintenance - Recommended Ranges section to review recommended chemical levels.

REGULAR MAINTENANCE PROCEDURES

▶ **WATCH HOW-TO VIDEOS:** masterspas.com/video-tutorials

NOTE: These maintenance procedures are the responsibility of the spa owner to perform. These procedures are not covered by the spa warranty.

DRAINING YOUR SPA

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 or as necessary. Heavy bather load will require draining and cleaning it more often. Draining times will vary by model when using the equipped internal drain assembly. A sump pump may also be used to expedite the draining of the spa.

STEPS FOR USING THE EQUIPPED INTERNAL DRAIN

The spas are equipped with a drain assembly which can be located on the front side of the spa behind the skirt (same side as the topside control panel or where most of the spa equipment is located). The drain will be located in the equipment area behind the front skirt panel (Figure 1).

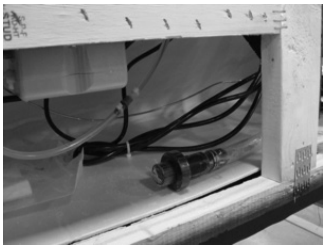


Figure 1



Figure 1.1

1. Remove the front skirt panel by removing its panel screws. The drain will be located inside the equipment bay (see Figure 1 & Figure 1.1).

2. To start the flow of water with this drain assembly; remove the cap, twist the face counterclockwise and pull out slightly on the face. A garden hose can be attached to the end of the drain assembly, if so desired.

NOTE: With the cap removed from the drain; water may drip or weep from the drain. This is normal. Be sure that the steps are followed in reverse order when draining is finished. Make sure that the drain cap is reattached and the valve is put back to the fully closed position so that there is no water leaking from the drain assembly.

STEPS FOR USING A SUMP PUMP*

1. Carefully lower submersible pump with hose connected into the bottom of spa, taking care not scratch or gouge your spa shell.

2. Run the discharge end of the hose from your submersible pump to a desired location several feet away from your spa, where the water will drain away from foundation that the spa is resting on.

3. Plug in/turn on your submersible pump.

4. Turn off/disconnect your submersible pump once it is no longer able to suck up any further water (indicated by a suctioning sound and water no longer coming out of the drainage hose). If you plan to fully wipe down and clean your entire spa shell, a shop vac can be used to remove the remaining small pockets of water in the spa.

*Sump Pump is not provided with spa.

REGULAR MAINTENANCE PROCEDURES

▶ **WATCH HOW-TO VIDEOS:** masterspas.com/video-tutorials

NOTE: These maintenance procedures are the responsibility of the spa owner to perform. These procedures are not covered by the spa warranty.

SPA SURFACE CARE

- During use, always remove debris and pollutants that have settled in the water or built up on the spa surfaces as it occurs. These pollutants can cause growth of bacteria, algae, fungus or biofilm if left on the spa surface and potentially cause stains.
- Clean the spa shell, jets and other controls with a soft cloth and spa shell cleaner to help remove residue and buildup on the shell surface. For any remaining buildup, white vinegar or mild scale remover product may be necessary to use with a soft cloth for removal. Consult with your local Master Spas dealer for proper spa cleaning products.
- Rinse the cleaned surfaces with fresh water from your garden hose and wipe with a soft cloth as doing so will help to remove residual cleaning agents (as some may cause foaming to occur in the water once spa is refilled).
- Always use an approved insulating spa cover by Master Spas to cover your spa when not in use, especially in outdoor installations where the spa is exposed to weather conditions and sun. Constant, prolonged exposure and use of unapproved or non-insulating spa cover can result in damage to spa surface which would not be warranted.

CARE OF YOUR SPA PILLOWS

- Your spa pillows should be rinsed periodically to remove chemical residue. This helps improve pillow lifespan and slows down deterioration of the pillows (i.e. discoloring, becoming stiff and flaking of the material).
- If the spa will not be used for a period of time, the pillows could be removed and rinsed to prolong their life.

NOTE: Do not cover the spa for 15 minutes after adding chemicals as the off gas can cause damage.

CARE OF YOUR SPA CABINET

The spa cabinet is made from a UV resistant material. The cabinet requires only periodic cleaning with a stream of water from a garden hose. If necessary, use mild soap and water with soft cloth to wipe down cabinet surface. Rinse thoroughly.

ACCESSING FILTERS

Telescoping Filter Housing



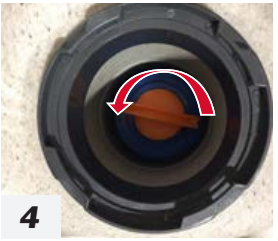
Grab the top lid with two hands, apply light downwards pressure and twist anti-clockwise to detach (can be quite stiff).



Lift off the lid to reveal the basket grill underneath.



Lift out the basket grill and place aside.



Turn filters anti-clockwise to remove

REGULAR MAINTENANCE PROCEDURES

▶ **WATCH HOW-TO VIDEOS:** masterspas.com/video-tutorials

NOTE: These maintenance procedures are the responsibility of the spa owner to perform. These procedures are not covered by the spa warranty.

CLEANING YOUR FILTER ELEMENTS

The filter elements are one of the most important components of your spa. Not only are they essential for clean water; they also extend the life of the spa equipment and help avoid unnecessary water changes and re-heating. Your filter elements should be cleaned on a regular basis, at least once a month on average with normal usage. With heavy use, poor water quality and/or high dissolved solid content in water; the filters may need to be cleaned more often. It recommended to allow filter elements to fully dry after cleaning. For this reason, it is ideal to have a spare set of filters on hand for filter cleaning intervals.

1. Turn off the spa before servicing filters. Never leave to the spa running when removing the filters. Debris can be pulled into the plumbing system and cause unwarranted damage.
2. Remove filter element(s).
3. With a garden hose, spray each element under pressure. Monthly, the standard filter elements should be soaked in a filter cleaner. Do not soak EcoPur® element in a filter cleaner. The EcoPur® element should only be rinsed with fresh, clean water if necessary. Check with your Master Spas dealer for details on cleaning and/or filter replacement recommendations.
4. The EcoPur® element should be replaced every 6 months. The standard filter should be cleaned regularly and will typically last approximately 1 year. Bather load, usage and water quality will effect the longevity of the filters and require more frequent cleaning or replacement.

REGULAR MAINTENANCE PROCEDURES

NOTE: These maintenance procedures are the responsibility of the spa owner to perform. These procedures are not covered by the spa warranty.

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.

The jets in your spa can be removed for cleaning by turning them counter-clockwise until they release and then pulling out the jet.

TO CLEAN JETS: Place the jet(s) in a container, fully immerse in white vinegar. Let the jet(s) soak overnight and then rinse with water. Reinstall the jet(s). It may be necessary to clean grit and deposits from the white jet body (mounted in the spa shell) by using a small bristled brush.

CARE OF LAMINAR FLOW JETS:

In order to keep your Laminar Flow Jets operating properly, follow these steps:

1. Turn off Laminar Flow Jets.

2. Remove outer ring by turning face counter-clockwise.

3. Remove internal Jet insert with a pair of needle nose pliers.

4. Clean plastic filter at the back of the Jet insert so all holes are free of debris.

5. Reinstall Jet insert and outer ring.









NOTE: To prevent premature failure of your spa cover and the possibility of water running out of the spa off the bottom of the cover, always turn Laminar Flow Jets down so that they do not hit the cover when the cover is closed. You do not want to completely turn jets off. Doing so may cause a build up of stagnant water in the water line if not used often.



EN 17125, Do not put finger in massage jet

REGULAR MAINTENANCE PROCEDURES

NOTE: These maintenance procedures are the responsibility of the spa owner to perform. These procedures are not covered by the spa warranty.

CLEANING DIVERTER VALVES

Mineral deposits, grit and sand may get into the internal parts of the diverter valves over time. The diverter valves may become difficult to turn or not turn at all.

CAUTION – TURN OFF SPA BEFORE PROCEEDING WITH THIS MAINTENANCE.





FOR THESE STYLES OF HANDLES, FOLLOW THE STEPS BELOW:

1. Remove the handle from the top of diverter valve by grasping the handle and pulling up with a rocking motion.

2. Turn the cap piece counter-clockwise. It may be necessary to put a clean towel over the cap and turn it with a wrench.

3. Once loose, the cap, internal rotor assembly and handle can be pulled up out of the white plumbing fitting.

4. Wipe down the internal rotor assembly that attaches to the cap and handle.

5. Soak the internal rotor assembly in white vinegar.

6. The inner wall of the white plumbing fitting should also be wiped down. If the surface of the white plumbing has become too abrasive, you can take wet, fine sandpaper and smooth it out.

7. Rinse the diverter internals. Inspect O-rings for cracking or swelling and apply silicone lubricant to them. Then reassemble.

REGULAR MAINTENANCE PROCEDURES

▶ **WATCH HOW-TO VIDEOS:** masterspas.com/video-tutorials

NOTE: These maintenance procedures are the responsibility of the spa owner to perform. These procedures are not covered by the spa warranty.

CARE OF YOUR SPA COVER

Always cover your spa when not in use with an approved insulating spa cover by Master Spas. Keep the spa cover on to minimize heat loss during heating of the spa between uses (but not while it is being used). This will greatly reduce energy consumption and will cause spa water to heat more rapidly. Water loss and chemical usage will also be reduced.

- Ensure the cover is fitted tightly, as per manufacturer's instructions to maximize insulation.
- Be sure to lock down all straps on the cover after each use.
- Do not allow spa to sit uncovered in direct sunlight. The heat and UV from direct sun exposure can cause damage to exposed shell surfaces of the spa as well as damage or discoloration of the spa controls and fittings.
- See cover manual instructions for detailed instructions on proper cover care. Clean the cover at least once a month using mild soap and water. Rinse thoroughly with fresh water to remove pollutants and soap residue. If mold/mildew staining has occurred (particularly on bottom of the cover), a mixture of bleach and water used with a soft cloth may be necessary. Thoroughly rinse with fresh water after cleaning.
- Keep cover open for 15 minutes after adding chemicals to prevent excessive off gas buildup and damage.
- When the spa is being used, the cover should be placed in a clean, dry area, otherwise it can pick up dirt and bacteria. Covers should not be put on wooden tables or wooden decking because of the risk of bleaching the wood.
- The use of a cover lift accessory or other device ensures the cover will not come into contact with the ground and retains its cleanliness (particularly the surface in close proximity to the spa water surface). The cover should be stored in an appropriate location, where it cannot be damaged, or cause damage.

NOTE: If your spa is going to be left empty for prolonged periods, do not place cover directly on the spa's surface (closed and sealed). Instead, place a 1" block of high density foam between the cover and the spa. This allows for ventilation to help reduce mold and mildew from occurring while the spa is empty.

NOTE: The cover warranty is not part of the limited warranty provided with the spa. It is provided through the cover manufacturer and may not be through Master Spas. Check the tags and labeling on your cover to verify manufacturer and refer to the manufacturer's care, maintenance and warranty information. Your dealer can help provide you with these details.

NOTE: Always use the water feature controls to turn down the water flow so that the water features do not hit the cover when the cover is closed. Do not turn them all the way off.

CARE OF YOUR OZONE SYSTEM

The ozone hose and check valve connecting between the ozone generator and ozone injector should be inspected and/or replaced, if necessary, every 12 months. Depending on conditions of the air which is being brought in to the ozone generator, the ozone hose and check valve can wear more rapidly. This regular maintenance is not covered under the spa warranty. We recommend that your Master Spas Dealer or service organization be contacted to perform this type of maintenance.

REGULAR MAINTENANCE PROCEDURES

▶ **WATCH HOW-TO VIDEOS:** masterspas.com/video-tutorials

NOTE: These maintenance procedures are the responsibility of the spa owner to perform. These procedures are not covered by the spa warranty.

CARE OF STAINLESS STEEL

Master Spas uses stainless steel in a number of our spas. Its lasting beauty and resistance to corrosion make it an excellent material for handrails and jets faces. With the proper care it will keep its luster for many years. All stainless steel can corrode given the right circumstances so we have provided a guide to help you keep the stainless components in your spa looking nice. Stainless steel derives its ability to resist corrosion by forming a very thin transparent coating on the surface when exposed to oxygen. This coating can be damaged by abrasive materials such as steel wool, sand paper, and other cleaning materials that are abrasive. Chlorine salts, sulfides, or other rusting metals can also erode this thin coating exposing the metal to corrosion. The best defense to combat corrosion on stainless steel components in your spa is make sure that it is kept clean and free of any chemical build up.

Always:

- Clean frequently with fresh, clean water.
- Remove any rust spots as soon as they appear with vinegar or a brass, silver, or chrome cleaner.
- Use a good car cleaning wax for extra protection.
- Leave cover removed for at least 15 minutes after adding chemicals to the spa water.

Never:

- Clean with mineral acids or bleaches, steel wool or any other abrasive materials.
- Leave in contact with iron, steel any other metals.
- Close the cover immediately after adding chemicals to the water.

NOTE: Failure to take proper care of the stainless steel could result with them rusting. Rusting is not covered by the warranty.

NOTE: Do not cover the spa for 15 minutes after adding chemicals as the off gas can cause unwarranted damage. Larger dosages can require longer lengths of time to off gas. It is recommended to check spa water more frequently to allow small dosages be added as necessary versus large dosages being added less often.

SPA TROUBLE SHOOTING GUIDE

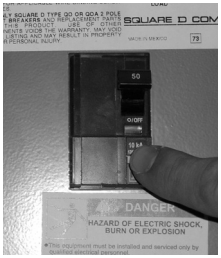
NOTE: For wiring outside of U.S. and Canada, GFCI may be referred to as a RCD (residual current device). Be sure all local electrical codes are followed.

GFCI IS TRIPPING

A ground fault circuit interrupter (GFCI) is required by the National Electrical Code for your protection. The tripping of the GFCI may be caused by a component on the spa or by an electrical problem. Electrical problems include but are not limited to, a faulty GFCI breaker, spa component, power fluctuations, and/or improper wiring. If this is a new electrical service and GFCI installation, an instantly tripping GFCI may likely be caused by improper wiring of the load neutral from the GFCI to the spa. It may be necessary to contact an electrician if your Master Spas dealer recommends doing so.

NOTHING ON THE SPA OPERATES

1. Check the control panel display for any messages. If there is a message, refer to the diagnostic section on that spa model. There you will find the meaning of the message and what action is to be taken.
2. If there is no message on the control panel and the control panel is completely dark (off), try to reset the GFCI 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, or the GFCI breaker continues to trip, contact your Master Spas dealer or service organization.

SPA TROUBLE SHOOTING GUIDE

NOTE: For wiring outside of U.S. and Canada, GFCI may be referred to as a RCD (residual current device). Be sure all local electrical codes are followed.

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 set water temperature at control panel to make sure it is set to desired temperature, above the current water temperature.
2. Check the "Heat Mode" that the spa is set in. The spa should be set in the Standard Mode or Ready Mode depending on the model.
3. Check the control panel for heat indicator. If heat indication is on, wait a reasonable amount of time (at least 1 hour) to see if the water temperature is rising.
4. If heat indicator does not remain on, the system should be displaying a message indicating why it can't heat. Check the control panel for diagnostic messages. Refer to Spa Control Section titled System Related Messages. Follow steps to alleviate the message.
5. Check the control panel for light indicator. Wait a reasonable amount of time (at least 1 hour) to see if the water temperature is rising.
6. Reset power to the spa at GFCI breaker.
7. If spa is still not heating, contact your Master Spas dealer or service organization.

PUMP(S) DO NOT OPERATE

1. Press the "Jets" button on your control panel.

   If you hear the pumps trying to operate:
   A. Check that all the slice valves are open.
   B. Pump may need to be primed.
   C. Check that the air controls are open.

   Refer to Installation Instructions section. If you do not hear anything from the pump, contact your Master Spas dealer or service organization.

POOR JET PERFORMANCE

1. Make sure pump is operating.
2. Check that the water level is adequate (up to minimum safe water level on sticker located near filter).
3. Make sure the jets are open and the air controls are open.

   Refer to Glossary of Spa Technology section.

WINTERIZING & STORING YOUR SPA

WINTERIZING YOUR SPA

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.*

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.*

1. Drain your spa completely using the drain valve (if so equipped) or use an inexpensive submersible pump that you can buy from 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 face of the pump(s) where applicable.
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. A non-toxic, RV water line type antifreeze can be used and added to jets in each seat around your spa to help prevent freeze damage from occurring. Be sure to thoroughly flush the system before startup.
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 the spa to prevent water from entering it and check the spa periodically to be sure no water is entering and accumulating. Spa covers are a great insulator but will allow some precipitation to enter the spa. For this reason, it is highly advised to also cover the spa with a water tight tarp while winterized. It is beneficial to keep the spa cover slightly gapped off the acrylic shell while winterized to allow air flow in to the shell area to reduce mildew/mold buildup caused by trapped moisture.

* If you decide to winterize your spa, we recommend that you periodically check the spa throughout the winter to assure water is not entering the spa through or around the spa cover.

STORING YOUR SPA

The spa shell should never be left unprotected and uninsulated while being stored. Clear plastic wrap or similar material should never be used to cover/protect the spa.

Prolonged, direct sun heat can damage the surfaces of the spa along with any components on the spa's surface. Always keep the spa covered and protected with an insulating spa cover. Resulting damage such as cracking in the shell surface, warping or discolored components on the spa would not be warranted.

An empty spa should never be exposed to temperatures below 0°F (-18°C) after delivery as extreme cold can cause shell damage. This includes storage and draining (winterizing). If your spa will be exposed to these temperatures, keep the unit filled and running. If you do not plan to use your spa, you can set the spa to the lowest temperature setting allowed by the control system while in Standard/Ready Mode.

Failure to adhere to these guidelines may result in unwarranted damage caused to the spa.

Model Number	Listing Number	Spa Dimensions (cm)	Electrical Requirements[1]	Seating Capacity[2]	Water Capacity (litres)	Dry Weight (kilos)[4]	Full Weight (kilos)[3,4]	Therapy Pumps	Control System
SAN MIGUEL	1730	176 x 201 x 82	*240V, 15A	3	680	204	884	1	MS501ZE
BAR HARBOR	1740	221 x 221 x 87	*240V, 15A	6	1476	272	1748	1	MS501ZE
MIAMI	1750	199 x 199 x 87	*240V, 15A	3	757	297	1054	1	MS501ZE

[1]See Electrical Requirements section for further details.

[2]Total bather capacity in spa. The number of bathers in spa should never exceed indicated seating capacity. Depending on spa size, water level and bather displacement; full seating capacity may not be achievable. Do not allow additional bathers to enter if bather displacement results in water levels overflowing or reaching the spa controls (air controls, diverters, spa topside control and etc.) as this will result in water leaking out of the spa shell and potentially in to the equipment area.

[3]Full weight based on dry weight of spa, max seating capacity of spa, assumed average weight per person of 185 pounds and estimated water weight of 8.34 pounds per gallon. Rounded up in increments of 5.

[4]Manufacturing tolerances along with other factors can result in variance in actual spa weight. If weight is a critical figure necessary for delivery, or final installation, we suggest a minimum of 15% be added to the listed weight when planning delivery or installation.

*Default Minimum Electrical Requirement as Configured from Manufacturing. See Electrical Requirements Section for Electrical Hook-Up by Control System.

See the Alpine Spas Pre-Delivery Guide

A copy of our relavant pre-delivery guide will be emailed to you upon order confirmation. Can also be downloaded from:

http://alpinespas.co.nz/support

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ELECTRICAL REQUIREMENTS

ALL MODELS

NOTE: Electrical requirements by model is shown in Model Specifications. Only electrical configurations pertaining to the models referenced in this manual are shown.

ELECTRICAL REQUIREMENTS

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 codes regulated by the authority having jurisdiction at the time of installation.

These connections must be made in accordance with the wiring diagrams found inside the control box and in this manual. This equipment has been designed to operate on and requires 230V, 50Hz service. Make sure that power is not applied while performing any electrical installation. A bonding lug for bonding copper wire has been provided on the electrical equipment pack to allow connection to local ground points. The ground wire must be at least 8 AWG (8.36mm^2 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. The supply wiring to the spa must utilize a symmetrically grounded system. The spa must not be wired to electrical systems utilizing no ground (IT) or TN-C grounding. Be sure to have a licensed electrician examine and ensure proper grounding is provided. See chart on next page for wire size conversion. All Master Spas equipment packs are wired for 230 VAC only. The only electrical supply for your spa must include a switch or circuit breaker to open all non-grounded supply conductors to comply with BS7671 (or other local jurisdiction code or law). The disconnect must be readily accessible to the spa occupants, but installed at least five feet from the spa. Residual Current Device (RCD) must be used to comply with this manual, BS 7671, or any local electrical code or law requirements. A residual current is a current leak from any one of the supply conductors to ground. An RCD is designed to automatically shut off power to a piece of equipment when a ground fault is detected.

Route the cable into the equipment area for final hook-up to terminals inside the control pack or junction box. The spa must be hooked up to a "dedicated" breaker(s) and RCD. 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.

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ELECTRICAL REQUIREMENTS

230 VOLT 50 HZ – RESIDUAL CURRENT DEVICES (RCDS)

A residual current device (RCD) is the generic term for a device that monitors the current in the line conductor and the neutral conductor in an earthed system.

In a circuit that's operating properly, the vector sum of the live and neutral current values added together will be zero. Current flowing to earth, due to a line earth fault, will return via the earth conductor, and regardless of load conditions, will be registered as a fault. This current flow will give rise to a residual current that will be detected by the device. If the residual current exceeds the rated sensitivity of the RCD, it will automatically activate a tripping of the faulty circuit.



Two Pole RCD



Four Pole RCD

Typical specifications are as follows:

Residual Current Devices (RCDs) range

Sensitivity – from 10 to 500mA

Voltage – 2 poles: 230V; 3/4 poles: 230/400V

Connection capacity
- 25A: 6/10 mm^2 (flexible/rigid cable)
- 40,60A: 16/25 mm^2
- 80,100A: 35/50 mm^2

Total Ampere Rating of Power System	Minimum Wire Size Use Copper ONLY with 90˚C Insulation	Ampere Rating of RCD Circuit-Breaker
0 A to 16 A	#12 AWG / 3.31 mm^2	20
16 A to 20 A	#10 AWG / 5.26 mm^2	25
20 A to 24 A	#10 AWG / 5.26 mm^2	30
24 A to 28 A	#8 AWG / 8.36 mm^2	35
28 A to 32 A	#8 AWG / 8.36 mm^2	40

CAUTION – Actual wiring of RCD will vary by manufacturer of RCD. Improper wiring of RCD may result in permanent damage to spa control pack. Repair/replacement of spa system box is not covered under warranty when damage results from improper wiring. Actual wire attachment points on the Spa Control Pack may vary. Always refer to the wiring diagram inside the Spa Control Pack for proper power connection.

ELECTRICAL REQUIREMENTS

MS501ZE HOOK-UP

AS MANUFACTURED – SINGLE SERVICE (Figure 1)
Single Service, TN and TT Electrical Systems (1x1**5** Amp or 1x32 Amp)* 3 Wires (1 Line + 1 Neutral + 1 Protective Earth). Protective Earth wire (Green/Yellow) must be connected to system ground terminal as marked. All equipment (pumps, heater, etc.) runs on service line L1.

NOTE: This option is configured and shipped as the default.

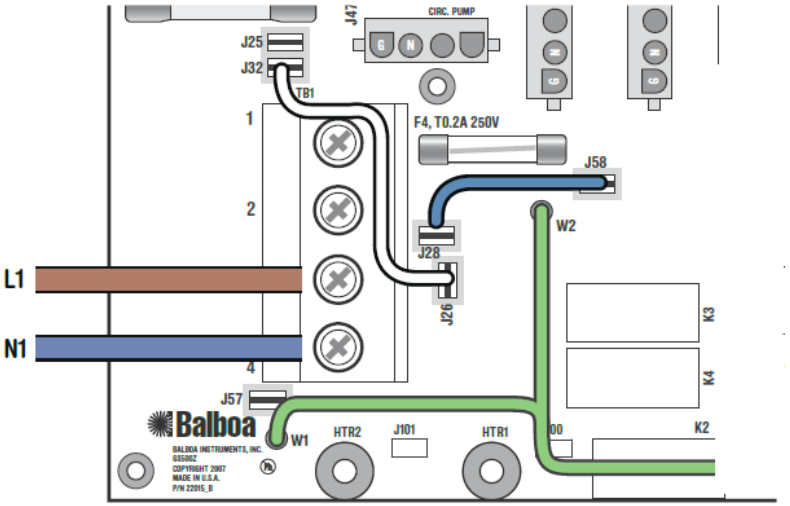
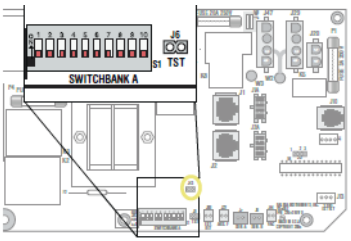
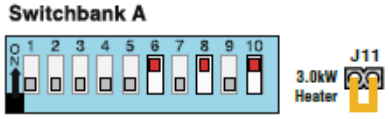


Figure 1

Dipswitches should be set exactly as follows for 15A





A1, Test Mode OFF
A2, Mode changes allowed
A3, Duplex Panel
A4, Aux Freeze
A5, 2-speed P1
A6, 50 Hz
A7, J17/26, P1, TE, LT
A8, Degrees C
A9, Non-Circ Mode
A10, Low Amp mode

INITIAL SPA SETUP

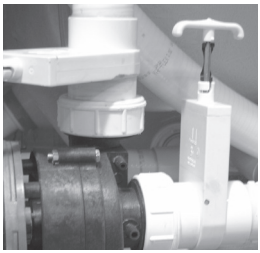
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SETUP STEPS

1. Put spa in final position that allows for access to equipment and spa components. Master Spas recommends that at least 3 feet of space be provided around all sides of the spa for access. This provides adequate space for regular maintenance and service.

2. Remove front skirt panel (this is the side where the topside control panel is located) so electrical can be hooked up to the spa control system. This panel is removed by unscrewing the screws securing the skirt corners and the front skirt panel.

3. With the front skirt panels removed allowing access to the equipment, be sure all pump and heater unions are secure. Each pump has 2 unions and the heater has 2 unions. A newly delivered spa may have loose unions caused in transporting the spa. Check that all slice valves are open, in the up position. The slice valves may become closed during transportation of the spa.



Slice Valve and Pump Union

4. Fill spa to the minimum water level label indication located on the spa shell near the filter area or at least 1" above the filters or filter housing opening. We recommend filling the spa through the filter area to help reduce air locks from occurring in the filter and heating pump. Maximum water level should always be maintained below any spa controls (i.e. air controls, diverters, topside control panel) to prevent water overflowing and leaking into the equipment area.

NOTE: In below freezing temperatures, caution should be taken when planning to install a spa and fill it with water. As it takes time for the water to fill the spa and reach the proper minimum water level, the water entering the various plumbing lines and equipment may begin to freeze up when done in winter weather conditions. This could result in pumps being seized until thawed or other potentially worse freeze damage occurring to the equipment and plumbing lines.

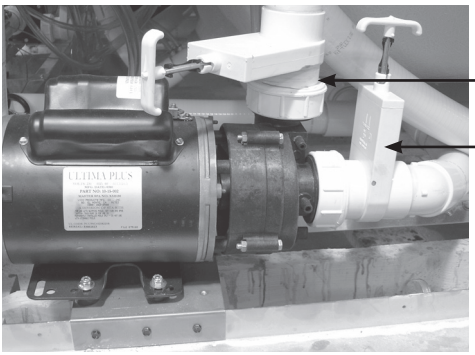
5. Turn the power on to the spa. Spa will initially display Priming Mode or "Pr". This lasts approximately 5-6 minutes. This time is provided to allow each of the pumps to be activated and checked to ensure they are not air locked from the spa being filled.

6. Be sure the adjustable jets in your spa are open by turning the face of the jet. Most of the jets in your spa are adjustable and removable by turning the face of the jet.

7. It may be necessary to bleed air from the pump(s) in your spa if, after start up, your spa pumps are turning on and off but you do not have water flow from the jets in your spa.

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 and service charges may apply.

To relieve an airlock situation, loosen the pump union on the discharge of the pump. This pump union is indicated by an arrow in the picture below. Water should leak out of the union once the air has been removed. Tighten the union and test the pump for proper operation. Repeat this process if needed.



Airlock

8. Adjust water chemistry according to the instructions provided in the Water Maintenance section.

9. Your spa water will heat approximately 3 to 4 degrees Fahrenheit per hour (1 to 2 degrees Celsius) with the cover placed on the spa. This varies depending on the size of the spa and ambient temperatures.

10. Step into the soothing waters of your Master Spa!

Relax and enjoy.

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SPA CONTROLS - VL400 PANEL





INITIAL START-UP

When your spa is first turned on, it will go into Priming mode, indicated by "Pr". During Priming Mode, press **Jets** button(s) repeatedly and be sure all pumps are free of air. Priming Mode lasts less than 5 minutes. Press **Temp** to exit. After Priming Mode, the spa will run in Standard Mode (see Mode section).

The pump responsible for heating and filtration (Pump 1 low-speed on non-circulation system, or the circulation pump on circulation systems) will be referred to simply as the pump. In multi-button sequences, if the buttons are pressed too quickly in sequence, they may not register.

TEMP CONTROL (80°F - 104°F / 26°C - 40°C)

The last measured water temperature is constantly displayed when in standard mode. The water temperature displayed is current only when the pump has been running for at least 2 minutes.

On panels with a single **Temp** or **Set** button, to display the set temperature, press the button once. To change the set temperature, press the button a second time or repeatedly to get to the desired setting before the display stops flashing. Each press of the button will continue to either raise or lower the set temperature. If the opposite direction is desired, allow the display to revert to the current water temperature. Press the button to display the set temperature, and again to make the temperature change in the desired direction.

After three seconds, the display will stop flashing and begin to display the current spa temperature. Consider that the comfortable temperature range during use may be lower than the maximum safe temperature. Check the set water temperature and consider lowering it for the times when the spa will typically not be in use.

JETS / PUMP 1

Press **Jets 1** to turn Pump 1 on or off, and to shift between low and high speeds (if equipped). High-speed will turn off after 15 minutes. Low-speed may run automatically at times for temperature polling, heating and filtering (during which it cannot be turned off using the control panel) but high-speed may be operated during this time.

AUX / PUMP 2 (NOT EQUIPPED)

Button is redundant as their is no aux/pump 2 for this model.

LIGHT

Press the **Light** button to turn the light on and off. If left on, the light automatically turns off after 4 hours.

LED LIGHT (IF EQUIPPED)

Press the **Light** button to turn the LED lighting on and off. Most LED lighting will offer multiple color modes. If you wish to change the color mode of the LED lighting, turn the lights on and off repeatedly within a couple of seconds to rotate through available color schemes.

MODE

Mode is changed by pressing **Temp**, then **Light** (repeat this button sequence to continue rotating through the modes).

Standard Mode is programmed to continuously 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 1-2 minutes. "St" 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 when water temp is not current, and will alternate with water temp when the pump is running. Using Economy Mode is not recommended in below freezing temperatures.

Sleep Mode If the spa is not going to be used for prolonged period of time, consider using this mode, which heats the spa to within 20°F/10°C of the set temperature only during filter cycles. "SL" will display when water temp is not current and will alternate with water temp when the pump is running. Using Sleep Mode is not recommended in below freezing temperatures.

PRESET FILTER CYCLES

The first preset filter cycle begins 6 minutes after the spa is energized. The second preset filter cycle begins 12 hours later. Filter duration is programmable for 2, 4, 6, or 8 hours or for continuous filtration (indicated by "FC"). The default filter time is 2 hours for non-circulation systems and 4 hours for circulation systems.

To program, press **Temp**, then **Jets**. Press **Temp** to adjust. Press **Jets** to exit programming.

SPA BEHAVIOR

For non-circulation systems, low-speed Pump 1 and the ozone generator (if installed) will run during filtration.

For 24 hour circulation systems, the circulation pump and the ozone generator (if installed) runs 24 hours with the exception of turning off for 30 minutes at a time when the water temperature reaches 3°F (1.5°C) above the set temperature (most likely to happen in warm climates or if set temperature is lowered/set below the current water temperature).

Purge Cycles In order to maintain sanitary conditions, as well as protect against freezing, all pumps will purge water from their respective plumbing by running briefly at the beginning of each filter cycle. It is best that all jets be left in their open position and water diverters in their centered positions when done using the spa so all jets get water flow during purge cycles.

Automatic Polling (in Standard Mode only)
The pump will activate for 1 to 2 minutes to check the temperature every 30 minutes, whenever any other pump is turned on, and whenever the set temperature is raised.

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. During freeze protection the heater may not be activated.

SPA CONTROLS - VL400 PANEL

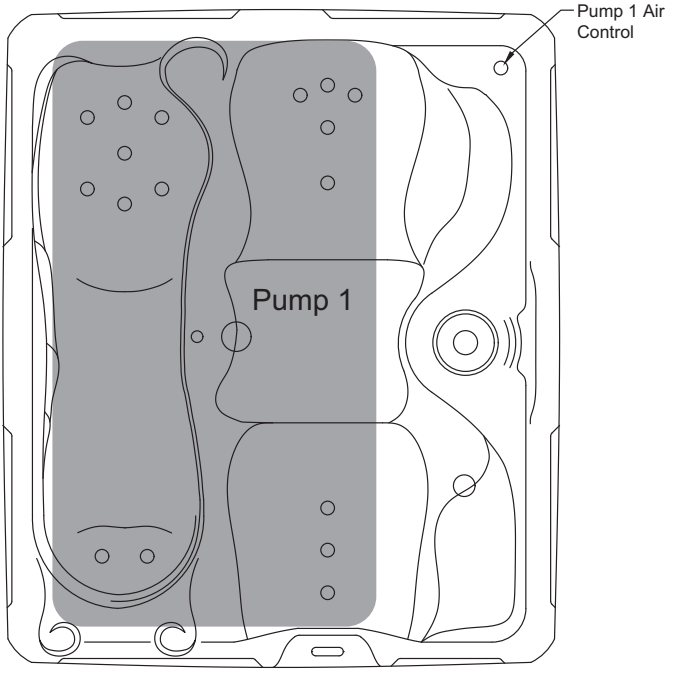
SPA DIAGNOSTIC MESSAGES

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 current water temperature will be displayed.
HH	"Overheat" - The spa has shut down.* One of the sensors has detected 118°F/47.8°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/43.5°C.	DO NOT ENTER THE WATER. Remove the spa cover and allow water to cool. At 107°F/41.7°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.
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 condition.)
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 condition.)
Sn	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.
HL	A significant difference between temperature sensors has been detected. This could indicate a flow problem.	If the water level is normal, make sure all pumps have been primed. If problem persists, contact your dealer or service organization.
LF	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.
dr	Possible inadequate water, poor flow, or air bubbles in detected in the heater. Spa is shut down for 15 minutes.	If water level is normal, make sure all pumps have been primed. Press any button to reset. This message will reset within 15 minutes. If problem persists, contact your dealer or service organization.
dY	Inadequate water detected in heater. (Displays on third occurrence of "dr" message.) Spa is shut down.*	Follow action required for "dr" message above. Spa will not automatically reset. Press any button to reset manually.
IC	"Ice" - Potential freeze condition detected.	No action required. All equipment will automatically activate regardless of spa status. The equipment stays on 4 minutes after the sensors detect that the spa temperature has risen to 45°F/7.2°C or higher.

*Even when spa is shut down, some equipment will turn on if freeze protection is needed.

SPA CONTROLS - PUMP CONTROL DIAGRAMS

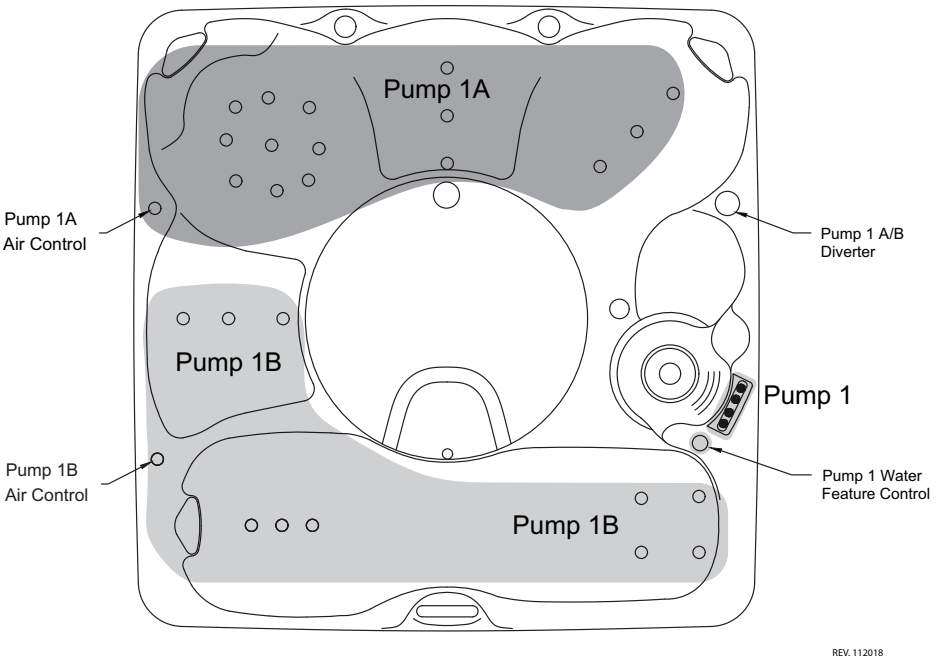
SAN MIGUEL



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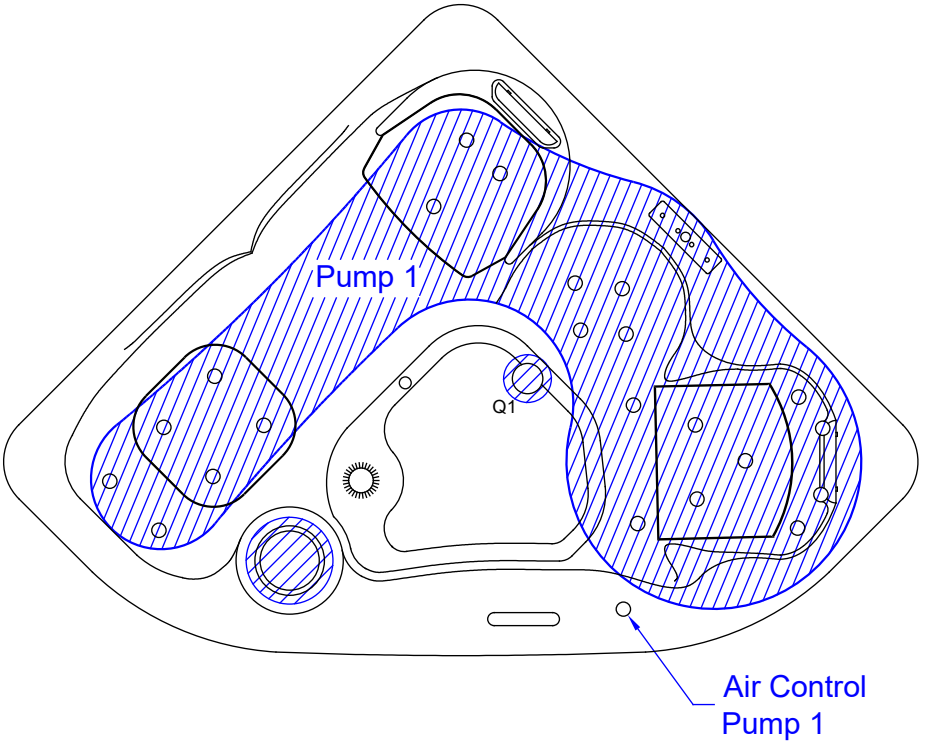
SPA CONTROLS - PUMP CONTROL DIAGRAMS

BAR HARBOR



SPA CONTROLS - PUMP CONTROL DIAGRAMS

MIAMI



SPA CARE AND MAINTENANCE RECORD

MAINTENANCE AVERAGE TIMETABLES

Below is a list of routine maintenance and the guidelines on how often they should be done. The frequency in which these actions should be performed may vary depending on bather load and how often you use your spa.

- Test GFCI - Before each use
- Clean Filter Cartridge - at least once a month
- Clean and Condition Spa Cover - twice a month
- Drain and Clean Spa - every 6 months

MAINTENANCE LOG

Use the following lines to document your spa care and maintenance.

MAINTENANCE PERFORMED	DATE	DATE	DATE

SPA CARE AND MAINTENANCE RECORD

MAINTENANCE PERFORMED	DATE	DATE	DATE

SPA CARE AND MAINTENANCE RECORD

MAINTENANCE PERFORMED	DATE	DATE	DATE

SPA CARE AND MAINTENANCE RECORD

MAINTENANCE PERFORMED	DATE	DATE	DATE

NOTE: This regular maintenance for the Mast3rPur™ system is not covered under the warranty of the spa. Your Master Spas dealer or service organization can be contacted to schedule this maintenance.

WARNING – BEFORE PERFORMING ANY MAINTENANCE ON THE MAST3RPUR™ SYSTEM, MAKE SURE THE SPA IS SHUT DOWN.

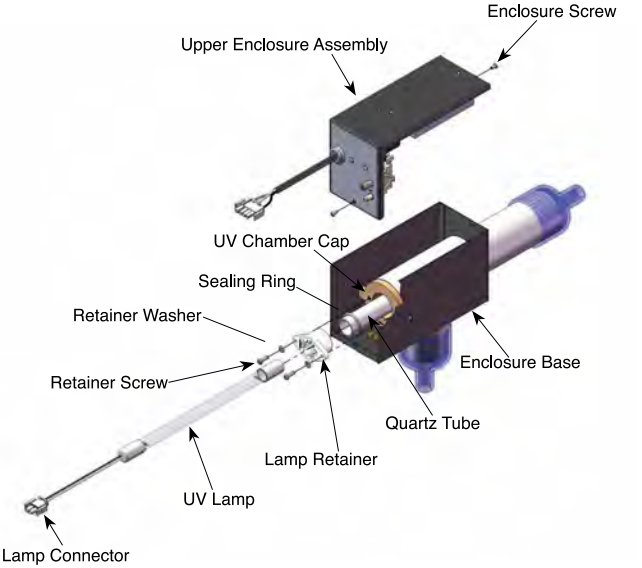


Figure 2: Spa Solar Eclipse Exploded View

UV LAMP REMOVAL

If the Green Power Indicator is on, but the Blue UV Lamp Indicator is off, the UV lamp needs to be replaced. For maximum UV sanitation effect, replace the UV Lamp every 18 months. Refer to Figure 2.

1. Make sure the unit is disconnected from power and the lamp has cooled before starting maintenance.
2. Open the Spa Solar Eclipse by removing the two Enclosure Screws on the Upper Enclosure Assembly and lifting it from the Enclosure Base.
3. Disconnect the Lamp Connector attached to the lamp wires and place the Upper Enclosure Assembly in a safe place.
4. Gently pull the Lamp Wires till the top of the UV Lamp is out of the Lamp Retainer. Grasp the white ceramic end of the UV Lamp and pull until it is fully removed. **IF YOU ARE NOT REPLACING THE LAMP, DO NOT TOUCH THE UV LAMP GLASS WITH YOUR BARE HANDS.** The oils on your hands can cause hot spots on the lamp and shorten its life. If oil from your fingers is left on the lamp glass, clean it off with a soft towel and rubbing alcohol. If you are removing an old lamp for replacement, handle the lamp carefully and dispose properly (see Environmental Notice).
5. Set the UV Lamp aside in a safe place.

INSTALLING THE UV LAMP

1. Make sure to handle the new lamp by the ceramic endcaps and clean the UV Lamp before installation if needed.
2. Slowly place the UV Lamp into the Lamp Retainer until the top of the UV Lamp is pushed past the tabs on the Lamp Retainer.
3. Connect the Lamp Connector to its corresponding part in the Ballast Assembly.

ENVIRONMENTAL NOTICE: UV Lamp CONTAINS MERCURY. Manage in accordance with disposal laws. See: www.lamprecycle.org

UV REACTOR SERVICE AND MAINTENANCE

The UV Lamp is housed in a Quartz Tube. If the Quartz Tube becomes dirty, its ability to transmit rays from the UV Lamp will be diminished and decrease system performance. The Quartz Tube should be removed from the UV Reactor at least once a year or during a routine spa water change for inspection and cleaning if necessary.

QUARTZ TUBE REMOVAL AND CLEANING

CAUTION – Wear proper eye and skin protection for servicing glass components.

1. Make sure the spa is shut down and the UV Lamp and Quartz Tube have cooled before performing maintenance on the Quartz Tube. If you have installed Isolation Valves, close them before servicing. If you do not have Isolation Valves, the spa must be drained below where the Spa Solar Eclipse is mounted.
2. Remove the Upper Enclosure Assembly and UV Lamp as described in "UV Lamp Removal" instructions and set aside in a safe place.
3. Remove the two Retainer Screws and Retainer Washer from the top of the Lamp Retainer and slowly pull the Lamp Retainer out of the UV Chamber Cap.

   CAUTION – If there is any water remaining in the plumbing, it will start to leak after the Lamp Retainer is removed.
4. Grasp the inside of the Quartz Tube and pull it out of the housing. Make sure the Sealing Ring does not get lost during Quartz Tube removal.
5. Inspect the Sealing Ring for nicks or hardness and replace if necessary.
6. Clean the Quartz Tube exterior with a mild solution of muriatic acid and water in a ratio of four parts water to one part acid (4:1). DO NOT USE ABRASIVE CLEANERS as they can scratch the high quality quartz glass.

   CAUTION – Follow the directions for safe use and handling of muriatic acid on the acid bottle label. Never add water to acid. Always add acid to water.
7. After cleaning the Quartz Tube, wash it off with water and wipe dry with a soft towel. Inspect the Quartz Tube for cracks and replace if cracks are found.
8. Make sure the inside of the Quartz Tube is dry before replacing the UV Lamp(s).

NOTE: Damage caused by broken quartz tubes is not covered under the Mast3rPur™ System Limited Warranty.

QUARTZ TUBE INSTALLATION

1. Place the Sealing Ring on the Quartz Tube 3/4 inch from the open end.

2. Insert the Quartz Tube partially into the UV Chamber Cap. Place the Lamp Retainer over the open end of the Quartz Tube and slowly push in until it is touching the UV Chamber Cap.

3. Place the Retainer Washers onto the Retainer Screws and screw the Lamp Retainer Screws until the Lamp Retainer is completely seated against the UV Chamber Cap.

4. After spa is refilled, turn the spa ON and check the seal around the Lamp Retainer for leaks.

5. Correct any leak found by carefully tightening the retainer screws making sure lamp retainer is snug. Be careful not to over-tighten and damage lamp retainer. If leaking continues, contact your Master Spas dealer for service.

6. SHUT DOWN the spa once you have confirmed that there are no leaks.

7. Install the UV Lamp as described in "Installing the UV Lamp" instructions.

8. Reinstall the Upper Enclosure Assembly to the Enclosure Base.

9. The unit is now ready for normal operation.

Contact your Master Spas dealer for replacement Mast3rPur™ parts and scheduling service for this regular maintenance.

NOTE: The ozone hose and check valve connecting between the ozone generator and ozone injector should be inspected and/or replaced, if necessary, every 12 months. Depending on conditions of the air which is being brought in to the ozone generator, the ozone hose and check valve can wear more rapidly. This regular maintenance is not covered under the spa warranty.



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