OWNER'S MANUAL

INTERNATIONAL MODELS

WATER TO THE EXTREME™

Welcome To Ultimate Relaxation!

Thank you for choosing your new swim spa built by Master Spas. Please read the entire Owner's Manual before installing and using your swim spa. The goal of this manual is to provide you with safety and operational information plus some tips that will help you enjoy your swim 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. Please visit www.masterspas.com to check for product information updates and click the Resources link on the page to review support information.

Record Of Ownership

Name_____

Address_____

City _____ State _____ Zip _____

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

Model _____ Serial #_____

Dealer Name _____

Service Tech Rep _____

Serial Number Location

The serial number for your swim spa is located near the filter area, on the swim spa system pack, or on the listing plate on the skirting. It will start with "H" followed by a 6 digit number. Ex. H181234

Register Your Swim Spa

Please be sure to register your swim spa so we can efficiently assist with any questions you may have. Until your swim spa has been registered, Master Spas will not have record of your ownership.

To register your swim spa, visit www.MasterSpas.com and click the Resources link on the page. This area will offer Swim Spa Registration capability along with other support information.

Master Spas®

6927 Lincoln Parkway
Fort Wayne, Indiana 46804
www.masterspas.com

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SAVE THESE INSTRUCTIONS

Included with your new swim 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 swim 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 swim 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 swim spa by Master Spas, Inc. By fully understanding the operation of each of the features of your new Master Spa, you will be assured of many years of hassle-free, hot water therapy and fun.

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

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

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

IMPORTANT SAFETY INSTRUCTIONS

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

READ AND FOLLOW ALL INSTRUCTIONS

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.)

(For units with GFCI)

WARNING – This product is provided with a ground-fault circuit interrupter located on the front panel of selected swim spas and on the power cord of 120 volt convertible spas. The GFCI must be tested before each use. With the product operating, open the service door. When the product stops operating, this merely indicates that the door is equipped with an electrical interlock. Next, push the test button on the GFCI and close the service door. The product should not operate. Now open the service door, push the reset button on the GFCI and close the service door. The product should now operate normally. When the product fails to operate in this manner, there is a ground current flowing indicating the possibility of an electric shock. Disconnect the power until the fault has been identified and corrected.

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 swim spa unless they are supervised at all times.

DANGER – Risk of Injury. The suction fittings in this swim 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 swim 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 swim 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.

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 swim spa.

WARNING – To reduce the risk of injury:

a) The water in a swim spa should never exceed 40˚C (104˚F). Water temperatures between 38˚C (100˚F) and 40˚C (104˚F) are considered safe for a healthy adult. Lower water temperatures are recommended for young children and when swim spa use exceeds 10 minutes.

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 water temperatures to 38˚C (100˚F).

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

d) The use of alcohol, drugs, or medication before or during swim 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 swim spa.

f) Persons using medication should consult a physician before using a swim spa since some medication may induce drowsiness while other medication may affect heart rate, blood pressure, and circulation.

(For swim spas with a gas heater)

WARNING – Risk of Suffocation. This swim spa is equipped with a gas heater and is intended for outdoor use only unless proper ventilation can be provided for an indoor installation.

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).

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 Swim Spa • Physical Inability to Exit Swim Spa • Fetal Damage in Pregnant Women • Unconsciousness Resulting in a Danger of Drowning

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 swim 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 swim spa immediately. As a precaution, long hair should not be allowed to float in the swim spa.

WARNING – Install the swim spa so that water can be easily drained out of the compartment containing electrical components so as not to damage equipment. When installing the swim 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 swim spa to provide enough room to access for servicing. Contact your local dealer for their specific requirements.

WARNING – The swim 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 swim 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 swim 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 swim 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 3m of the swim 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 SWIM SPAS OR HOT TUBS WITHOUT ADULT SUPERVISION
AVERTISSEMENT: NE PAS LAISSER LES ENFANTS UTILISER UNE CUVE DE RELAXATION SANS SURVEILLANCE

WARNING: DO NOT USE SWIM 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 SWIM 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 SWIM 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 SWIM 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 SWIM 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 SWIM 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 SWIM 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

WARNING: DO NOT USE A SWIM 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 SWIM 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 SWIM 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 37˚C (98.6˚F). 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 swim spa;
(d) physical inability to exit swim 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 SWIM SPAS

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

COMPLIANCE

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

Our jetted swim 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
- 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
- IAPMO/ANSI Z124.7 Prefabricated Plastic Spa Shells
- 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

Our propulsion swim 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
- VGB Virginia Graeme Baker Pool and Spa Safety Act (Certified by UL to UL 1563)
- ANSI/APSP-7 (Propulsion system only Certified by NSF) Standard for Suction Entrapment Avoidance in Swimming Pools, Wading Pools, Spas, Hot Tubs and Catch Basins
- 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
- IAPMO/ANSI Z124.7 Prefabricated Plastic Spa Shells
- 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 SUCTION SAFETY & MAINTENANCE INSTRUCTIONS

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 SWIM SPA TERMINOLOGY

Your new Master Spas swim spa features a variety of jets. All jets, regardless of style return the water to the swim 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 Master Spas swim spa may have a combination of pulsating, rotating, dual pulsating and directional adjustable jets.

1. THERAPY JETS

Located throughout the seats of the swim 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 swim spa near the floor to provide excellent massage to the feet.

5. JET DIVERTER VALVE (if equipped)

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

NOTE: When the swim 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 swim spa causing water loss.

7. AIR CONTROL VALVE

These smaller valves are located around the top of your swim 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 swim 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.

8. TOPSIDE CONTROL PANEL

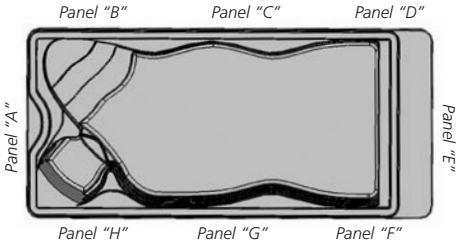
You may safely control swim spa functions from inside or outside your swim spa using the Topside Control Panel. This Panel is used to control the water temperature, pumps, the swim spa light, automatic filtration cycles and other advanced functions. The digital display will give you a constant temperature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

9. PERSONAL REMOTE CONTROL (if equipped)

Select swim 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.

10. ACCESS PANELS

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



11. EQUIPMENT ACCESS PANEL

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

12. FILTER LID

This lid fits over the filter area and weir gate to cover the filters. Remove filter lid to access filters for maintenance.

13. WEIR GATE

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

14. SWIM SPA CONTROL SYSTEM

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

15. SWIM 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.

16. 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 swim spa water does not need to be drained if the swim spa requires service to the heating system (varies by model).

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

Slice Valve and Pump Union

17. MAIN THERAPY PUMP

This produces water flow through the main jets in the swim 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 swim 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.

18. SECONDARY THERAPY PUMP (if equipped)

This produces water flow through 1 to 2 groups or seats of jets in the swim spa. The second pump operates similar to the main pump and is controlled by the "Jets II" or "Aux" button on the Topside Control Panel.

19. THIRD THERAPY PUMP (if equipped)

This produces water flow through 1 to 2 groups or seats of jets in the swim spa. This is controlled by the Jets III button on the Topside Control Panel.

20. CIRCULATION PUMP (if equipped)

This produces water flow through the heater in the swim spa and provides the water flow necessary to actuate the ozone injector. This energy efficient pump runs 24 hours for efficient filtration and heating.

21. 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.

22. HEATER UNION

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

23. SWIM SPA LIGHT

The on/off control for the lighting in your swim spa is located on the topside control panel near the therapy seats.

24. EXERCISE/SWIM JETS (H2X Swim Spas)

These large jets are grouped at the end of your swim spa to offer water flow for exercising against. A jet diverter valve may control the flow for these jets.

25. SWIM SPA JUNCTION BOX (MP Swim Spa Only)

The internal junction box for connecting your electrical service(s) to the swim spa is located behind and accessible by removing access panels "B" and "A".

26. PROPULSION SYSTEM ACCESS (MP Swim Spa Only)

The propulsion control system of the MP Swim Spas is located behind the skirt panel designated as "E" in the access panels drawing. The propulsion motor, propulsion control pack, and pulleys for the system are located in this area.

27. PROPULSION SYSTEM CONTROL PANEL (MP Swim Spa Only)

You may safely control the speed of the propulsion system from the inside of your swim spa by using the buttons on the control panel mounted in the swim area. This control panel is used to turn the propulsion system on and off and to adjust the intensity of the water flow. Your swim spa may have one of three propulsion systems depending on the equipment option: Wave, Wave XP, or Wave XP Pro. All three systems operate in the same manner using the control panel mounted on the swim end of your swim spa. This control panel may be safely used from inside or outside of the swim spa to operate the propulsion system.

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.

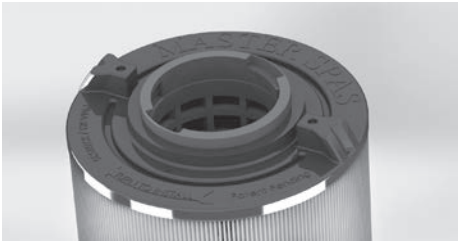
FEATURES

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

MADE IN THE USA

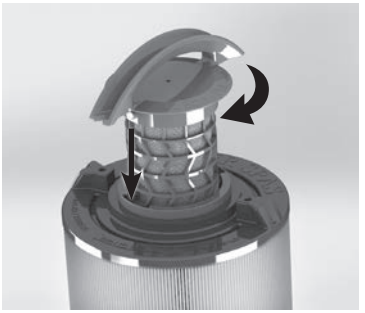
PATENTS PENDING

ECOPUR® CHARGE INSTALLATION



Master Spas Outer Filter

EcoPur® Charge

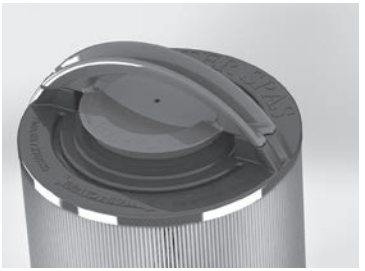


Turn Clockwise to Lock

Step 1: Insert EcoPur® Charge in to outer filter.

Step 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, or ppm:** This is a form of measurement used in most pool or swim 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.

3. **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 swim spa 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. You are looking for a range between 80 - 120 ppm. With low alkalinity, the pH will fluctuate and be harder to control. With high alkalinity, it becomes extremely difficult to change the pH.

4. **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. You want this range to fall between 7.2 - 7.6 on the scale. Unfortunately, there are lots of variables to preventing high pH in your swim spa. You can use the chart to the right to help you balance it.

5. **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 above 8 ppm. 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 below 5 ppm.

6. **Sequestering:** This can be defined as the ability to form a chemical complex which remains in solution, despite the presence of a precipitating agent (i.e. calcium and metals). 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 hot tub 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.).

7. **Filtration:** Filters are necessary to remove particles of dust, dirt, algae, etc. that are continuously entering the water. If the swim 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 "Filter Cleaning" in the Regular Maintenance section.

8. **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 swim 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 between 2.0 to 4.0 ppm.

   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. Bromine levels should be maintained between 2.0 to 4.0 ppm.

9. **Total dissolved solids (TDS):** Materials that have been dissolved by the water. i.e. Like what happens when you put sugar in coffee or tea.

10. **Useful life of water (in days):** Water should be drained at least once every 180 days. Useful life may vary by usage and bather load.

11. **Defoamer:** 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.

12. **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. The calcium hardness of your water should fall between 150 - 250 ppm.

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

WHY ARE CHEMICALS IMPORTANT IN A SWIM 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 swim 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 swim spa.

4. Environment:

The environment surrounding the swim 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 swim spa.

5. Bathers:

As the swim 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.

Remember:

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

WATER MAINTENANCE – START-UP

Step 1: Your swim spa should be filled using a Pre-filter, which can be obtained from your local dealer. This Pre-filter will help remove many of the minerals existing in the water, which will make adjusting the water balance easier after a new fill. Never use more then 50% softened water when filling the swim spa.

Step 2: During the initial filling of the swim spa, add a sequestering agent to combat suspended minerals in the water. The agents are sold under many different names such as Mineral Clear or Metal Protect. Allow water to circulate and filter for at least 30 minutes (or per bottle recommendations) before adding any other chemicals.

Step 3: Test water for pH, total Alkalinity, and Calcium hardness. The pH should be 7.4 - 7.6 and the total Alkalinity 100 - 120 ppm. Calcium hardness levels should be maintained between 150 and 250 ppm (part per million).

Step 4: Adjust pH and total Alkalinity (TA) utilizing the directions on the chemical bottles. Wait 15 minutes, test and adjust if necessary.

Step 5: It may be necessary to retest and add additional chemicals to get to the proper levels in Step 3.

Step 6: Add concentrated chlorinating granules***** (sodium Dichlor-s-triazinetreone) to reach a Free Chlorine level of 5 to 8 ppm on initial start up to begin sanitizing the swim spa water. Bathers should not enter the swim spa until the chlorine levels drop below 5.0 ppm. Always refer to the chemical manufacturers dosage recommendations listed on the container. It is important not to add the chlorinating granules until the pH, alkalinity and calcium hardness have been adjusted to their proper levels.

*SPECIAL NOTE:

We recommend a minimum level of 2.0 ppm residual free chlorine be maintained in swim spa water. Always refer to the chemical manufacturer's dosage recommendations listed on the container.

When adding chlorine or non-chlorine shock/oxidizer always spread it across the water while the pumps are running.

The quantities of sanitizer and oxidizer shown in this manual are for 500 gallons and may have to be adjusted depending on the actual amount of water that your swim spa holds. See the specifications section of this manual for the correct gallons of your swim spa.

The concentration of active ingredients in swim spa chemicals varies by manufacturer. The amounts of sanitizer suggested in this manual are based on swim spa chemicals that have the active ingredient percentages listed below:

Chlorine	
Active ingredient:	
Sodium dichlor	99%
Other ingredients	1%
Total	100%

Non-Chlorine Shock/ Oxidizer	
Active ingredient:	
Potassium peroxymonosulfate	42.8%
Inert ingredients	57.2%
Total	100%

WATER MAINTENANCE – SCHEDULE

BEFORE EACH USE

Check swim spa water with a test strip for proper sanitation levels and adjust accordingly to the proper levels. Free chlorine level should be 2.0 - 4.0 ppm. Appropriate levels should be present before use of the swim spa. Bathers should not enter the swim spa if total chlorine levels are above 5.0 ppm or if free chlorine levels are below 2.0 ppm.

ONCE A WEEK

Add non-chlorine shock/oxidizer***** or chlorine***** to swim spa to help maintain the water quality.

3 TIMES A WEEK

Test water using chemical test strips. Adjust sanitizer, pH and Alkalinity accordingly. The total alkalinity should be between 100 - 120 ppm and the PH should be between 7.4 - 7.6. If free chlorine level measures less than total chlorine level, additional non-chlorine shock/oxidizer***** treatment is necessary.

ONCE A MONTH

Soak your regular filter elements overnight in a container with swim spa Filter Cleaner and then rinse with clean water. For best results, allow the filter to dry before re-inserting. (The EcoPur® mineral element should never be cleaned in a filter cleaner. Just rinse with water.) When cleaning filters, be sure to never have the pumps (including the circulation pump) running without the filters in place. Failure to do so may result in debris being drawn into the pumps causing unwarranted damage. See the "clean your filter elements" in the maintenance section of this manual for more information.

EVERY 180 DAYS

Drain and refill your swim spa with fresh water, install a new EcoPur® filter element, clean the regular filter, and repeat start up procedure. The regular filter should be replaced at least once every year.

AFTER EACH USE

Add non-chlorine shock/oxidizer***** or chlorine***** to the swim spa water.

*SPECIAL NOTE:

We recommend a minimum level of 2.0 ppm residual free chlorine be maintained in swim spa water. Always refer to the chemical manufacturer's dosage recommendations listed on the container.

When adding chlorine or non-chlorine shock/oxidizer always spread it across the water while the pumps are running.

The quantities of sanitizer and non-chlorine oxidizer shown in this manual are for 500 gallons and may have to be adjusted depending on the actual amount of water that your swim spa holds. See the specifications section of this manual for the correct gallons of your swim spa.

The concentration of active ingredients in swim spa chemicals varies by manufacturer. The amounts of sanitizer suggested in this manual are based on swim spa chemicals that have the active ingredient percentages listed below:

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Other ingredients	1%
Total	100%

Non-Chlorine Shock/ Oxidizer	
Active ingredient:	
Potassium peroxymonosulfate	42.8%
Inert ingredients	57.2%
Total	100%

AS NEEDED

If water looks hazy, check PH and Total Alkilinity, and treat with chlorine*****. Always refer to the chemical manufactures dosage recommendations listed on the container. Free chlorine levels should be maintained between 2.0 - 4.0 ppm.

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

A defoamer may be used when excessive foaming occurs. Over use of a defoamer will result in cloudy, milky water.

USE ONLY SWIM SPA CHEMICALS

Do not use chemicals designed for use in swimming pools. Swim spa chemicals are the same as spa chemicals.

With a swim spa you are working with a small volume of hot water compared to a large volume of relatively cool water in a swimming pool. Because of this, chemicals will have a shorted life span and bacteria can grow more quickly than in a swimming pool. A swim spa is less forgiving then a pool and requires that whatever is put into it have a pH as close to neutral as possible. That is why only chemicals made for swim spas should be used. Always refer to the chemical manufactures dosage recommendations listed on the container.

*SPECIAL NOTE:

We recommend a minimum level of 2.0 ppm residual free chlorine be maintained in swim spa water. Always refer to the chemical manufacturer's dosage recommendations listed on the container.

When adding chlorine or non-chlorine shock/oxidizer always spread it across the water while the pumps are running.

The quantities of sanitizer and oxidizer shown in this manual are for 500 gallons and may have to be adjusted depending on the actual amount of water that your swim spa holds. See the specifications section of this manual for the correct gallons of your swim spa.

The concentration of active ingredients in swim spa chemicals varies by manufacturer. The amounts of sanitizer suggested in this manual are based on swim spa chemicals that have the active ingredient percentages listed below:

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Non-Chlorine Shock/ Oxidizer	
Active ingredient:	
Potassium peroxymonosulfate	42.8%
Inert ingredients	57.2%
Total	100%

WATER MAINTENANCE – TROUBLE-SHOOTING GUIDE

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 swim spa surface and add enzyme product to swim 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

RECOMMENDED RANGES FOR BALANCED WATER

This table shows the ideal balanced measurements that you are looking for in your testing results. Parts per million (ppm), is a form of measurement used in most pool and swim spa chemical readings. This is equivalent to one milligram of concentration per liter of water.

Total Alkalinity	80 - 150 ppm
pH	7.2 - 7.6
Chlorine	2 - 4 ppm
Bromine	3 - 5 ppm
Calcium Hardness	180 - 250 ppm

*Recommended levels stated in this manual are based on industry standards for permanently installed and portable residential swim spas.

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

CLEANING JETS

The majority of jets in your swim 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 swim spa can be removed for cleaning by unscrewing them (counter clockwise) 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. It may be necessary to clean grit and deposits from the white jet body (mounted in the swim spa shell) by using a small bristled brush.

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.

Remove the handle from the top of diverter valve by gently prying up on both sides of the handle assembly at the same time.

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

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

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

Soak the internal rotor assembly in white vinegar.

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.

Rinse the diverter internals and reassemble.

In the future, it is helpful to turn the diverter valve only when the pump is not on. Cleaning your diverter valve should occur every time you drain your swim spa. Refer to Draining Your Swim Spa in the Regular Maintenance Procedures section.

REGULAR MAINTENANCE PROCEDURES

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

CARE OF LAMINAR FLOW JETS:

In order to keep your Laminar Flow Jets operating properly, follow these instructions in sequence:

- Turn off Laminar Flow Jets
- Remove outer ring by turning face counter clockwise
- Remove internal Jet insert with a pair of needle nose pliers
- Clean plastic filter at the back of the Jet insert so all holes are free of debris
- Reinstall Jet insert and outer ring




NOTE: To prevent premature failure of your swim spa cover and the possibility of water running out of the swim 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.

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 swim spa warranty. We recommend that your Master Spas Dealer or Service Center be contacted to perform this type of maintenance.

REGULAR MAINTENANCE PROCEDURES

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

CARE OF YOUR FILTER ELEMENTS

- The filter elements are one of the most important components of your swim spa. Not only are they essential for clean water, but they also extend the life of the swim spa equipment. 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.
- Remember to turn off the swim spa before servicing filters. Never leave to the swim spa running when removing the filters. Debris can be pulled into the plumbing system and cause unwarranted damage.
- Periodically in between monthly cleaning, spray each standard or outer filter element with a garden hose to help remove buildup from filter media surface. Monthly, the standard or outer filter elements should be soaked in a filter cleaner. Check with your local Master Spas dealer for details on cleaning and/or filter replacement recommendations. Do not soak the EcoPur filter cartridge in any cleaners.

FILTER CLEANING

NOTE: Never operate the swim spa without the filters installed. Damage to the pumps and other components could result from operation without filters installed.

NOTE: Do not soak the EcoPur filter in a filter cartridge cleaner. Rinse off only.

1. Turn power off to the swim spa.
2. Remove any large or floating debris from the filter area. Slide filter face plate up and out slowly. For the H2X Therapool models, remove filter lid located on top of filter weir to access filters and skip to step 6. All other models move to step 3.
3. Allow the weir door to fall back towards the filters in order to remove the filter housing.
4. Lift up on the plastic housing and the entire housing will pop out.

NOTE: When lifting the housing, be careful not to lift too far, as you could break the floating weir door. Damage to weir door is not warranted.

5. Pull the plastic skimmer plate out from the filter housing in order to gain access to the filters.
6. Unscrew the filter cartridges and remove for cleaning.
7. The filters should be rinsed off and the non-EcoPur filter(s) (outer if two piece EcoPour combination) should be soaked in a cartridge cleaner. Follow applicable cartridge cleaner instructions.
8. Re-install filters and replace weir housing or filter lid, letting flap of housing fall back prior to sliding housing back down.




NOTE: Eco-Pur filters should be replaced every 6 months. Non Eco-Pur filters should be replaced every 12 months or as necessary depending on water quality, filter maintenance and bather load.

REGULAR MAINTENANCE PROCEDURES

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

CARE OF YOUR SWIM SPA PILLOWS

- Your swim 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 swim 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 swim spa for 15 minutes after adding chemicals as the off gas can cause damage.

CARE OF YOUR SWIM SPA COVER

Always cover your swim spa when not in use with an approved insulating swim spa cover by Master Spas. This will greatly reduce energy consumption and will cause swim spa water to heat more rapidly. Water loss and chemical usage will also be reduced.

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

NOTE: If your swim spa is going to be left empty for prolonged periods, do not replace cover directly on surface of swim spa. Place 2"-3" blocks between cover and swim spa. This allows for adequate ventilation of cover and swim spa.

NOTE: The cover warranty is not part of the limited warranty provided with the swim 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 turn water feature valve down so that the water features do not hit the cover when the cover is closed.

CARE OF YOUR SWIM SPA CABINET

The swim spa cabinet is made from a UV resistant material. The cabinet requires only periodic cleaning with a stream of water from a garden hose.

CARE OF OPTIONAL EXERCISE EQUIPMENT

The optional exercise equipment package makes it easy to exercise in your own backyard. There are shell mounted clips that are used to fasten the rowing equipment to the swim spa. These clips are located along the sides of your swim spa next to the grab rails that are placed around the perimeter of the swim area. Also available are ankle fins and exercise bells that will allow you to do resistance training. See your Master Spas dealer for details.

CAUTION: Do not leave exercise equipment inside the swim spa when not in use. Do not leave exercise equipment outside exposed to ultra violet rays. Failure to follow the above guidelines could result in injury.

CAUTION: Inspect exercise equipment before each use for deterioration and unsafe conditions. Do not use if significant deterioration and unsafe conditions exist (i.e. cracking and break down in bungee strap material caused by use, water conditions and care). Replacement exercise kits can be purchased through your Master Spas dealer. Failure to follow the above guidelines could result in injury.

REGULAR MAINTENANCE PROCEDURES

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

STAINLESS STEEL

Master Spas uses stainless steel in a number of our swim 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 swim 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 swim 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 swim spa water.

Never:

- Clean with mineral acids or bleaches.
- Clean with steel wool or any other abrasive material.
- 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 components could result with them rusting. Rusting is not covered by the warranty.

NOTE: Do not cover the swim 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 swim spa water more frequently to allow small dosages be added as necessary versus large dosages being added less often.

REGULAR MAINTENANCE PROCEDURES

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

DRAINING YOUR SWIM SPA

Due to the physical size of the swim spa, we recommend draining your swim spa with a submersible sump pump. Draining your swim spa with a conventional spa drain is not a reasonable option. When draining the Momentum 80 swim spa always drain the water from the spa side before draining the swim side. Your swim spa requires periodic draining and cleaning to ensure a safe, healthy environment. It is recommended that you clean your swim spa at least every 180 days. Heavy bather load will require cleaning it more often.

- Turn off power to your swim spa at the GFCI breaker.
- Carefully lower a submersible pump in to the spa to sit at the lowest point (for Momentum model with the clear divider between the spa end and swim end, always pump out the spa side first and then the swim side).
- Run the hose of your submersible pump to a desired discharge point.
- Plug in or turn on your submersible pump and run it until it has removed all the water that it can.

CARE & CLEANING OF SWIM SPA SURFACE

- 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 mineral based 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 swim spa cleaning products.
- Rinse the cleaned surfaces with fresh water from your garden hose and wipe with soft cloth as doing so to help remove residual cleaning agents as some may cause foaming to occur in the water once refilled.
- Always use an approved insulating swim spa cover by Master Spas to cover your swim spa when not in use, especially in outdoor installations where the swim spa is exposed to weather conditions and sun. Constant, prolonged exposure and use of unapproved or non-insulating swim spa cover can result in damage to swim spa surface which would not be warranted.

CLEANING THE CLEAR ACRYLIC DIVIDER (Momentum)

- The surface should be first flushed with clean water to remove loose abrasive particles. The clear acrylic sheet should then be gently sponged with a mild soap/water solution and finally rinsed with clean water. Care must be taken not to leave any of the soap residue in the swim spa as it could cause the swim spa water to foam during operation.
- Drying can be done with a clean soft cotton towel. Avoid hard rough cloths or paper towels since they can put fine scratches on the acrylic surface.
- Do not use any aggressive solvents (lacquer thinner, gasoline, acetone and etc.) on the clear acrylic sheet. These products can cause damage to the sheet that may not be visible until days or weeks later.
- Window glass cleaning compounds are not recommended. Cleaning products that contain any type of abrasive material should not be used.

REFILL YOUR SWIM SPA

- When filling the Momentum swim spa always fill the swim side of the unit before filling the spa side.
- Refer to the Water Maintenance Start-Up section for specific instructions.

SWIM 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.

NOTHING ON THE SWIM SPA OPERATES

1. Check the control panel display for any messages. If there is a message, refer to the diagnostic section on that model swim spa. 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 swim spa GFCI breaker or disconnect should be located in a weather proof box close to the swim spa.

Note: If your swim spa requires 2 independent electrical services (shown in the Model Specifications and appropriate Electrical Requirements Configuration), be sure to check all breakers for your swim spa.

If the swim spa does not respond, or the GFCI breaker continues to trip, contact your local Master Spas dealer or service company.

PUMP(S) DO NOT OPERATE -

1. Press the "Jets" button on your control panel.
If you hear the pumps trying to operate:
A. 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 local service company.

POOR JET PERFORMANCE

1. Make sure pump is operating.

2. Check that the water level is adequate (up to minimum safe water level on sticker located near filter.)

3. Make sure the jets are open and the air controls are open. *Refer to Glossary of Swim Spa Technology section.*

SWIM 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.

SWIM SPA NOT HEATING

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

1. Check water set 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 swim spa is set in. The swim 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 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 swim spa at GFCI breaker.

7. If swim spa is still not heating, contact your local Master Spas dealer for service.

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 swim spa or by an electrical problem. Electrical problems include but are not limited to, a faulty GFCI breaker, swim 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 swim spa. It may be necessary to contact an electrician if your Master Spas dealer recommends doing so.

WINTERIZING & STORING YOUR SWIM SPA

WINTERIZING YOUR SWIM SPA

Your swim spa is designed to be used year round in any type of climate.

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

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

1. Due to the physical size of the swim spa, we recommend draining your swim spa with a submersible sump pump. Draining your swim spa with a conventional swim spa drain is not a reasonable option.
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 swim spa. A non-toxic, RV water line type antifreeze can be used and added to jets in each seat around your swim 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 swim spa and in the equipment area.
8. Clean the swim spa with a soft cloth and a non-abrasive swim spa surface cleaner.
9. Replace access panels.
10. Cover the swim spa to prevent water from entering it and check the swim spa periodically to be sure no water is entering and accumulating. Swim spa covers are great insulator but will allow some precipitation to enter the swim spa. For this reason, it is highly advised to also cover the swim spa with a water tight tarp while winterized. It is beneficial to keep the swim 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 swim spa, we recommend that you periodically check the swim spa throughout the winter to assure water is not entering the swim spa through or around the swim spa cover.

STORING YOUR SWIM SPA

The swim 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 swim spa.

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

An empty swim 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 swim spa will be exposed to these temperatures, keep the unit filled and running. If you do not plan to use your swim spa, you can set the swim spa to the lowest temperature setting allowed by the control system.

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

Model	Listing Number	Swim Spa Dimensions (in./cm)	Electrical Requirements[1]	Seating Capacity[2]	Water Capacity[3] (gallons/m)	Dry Weight[4] (lbs./kilos)	Full Weight[3,4] (lbs./kilos)	Therapy Pumps	Control System	Swim Spa Control
INT H2X THERAPOOL SE	1470	132"x 94"x 51" 336 x 239 x 130"	*240V, 32A	6	925 / 3.50	1410 / 640	10235 / 4643	2	MS6013XE	MP30
INT H2X THERAPOOL	7600	132"x 94"x 60" 336 x 239 x 153	*240V, 32A	6	1060 / 4.01	1720 / 780	11670 / 5293	2	MS6013XE	MP30
INT H2X TRAINER 12	8300	144"x 94"x 51" 366 x 239 x 130	*240V, 32A	4	1245 / 4.71	1915 / 869	13040 / 5915	2	MS6013XE	MP30
INT H2X TRAINER 15	1430	180"x 94"x 51" 458 x 239 x 130	*240V, 32A	4	1620 / 6.13	2310 / 1048	16565 / 7514	2	MS6013XE	Icon Spa Touch
INT H2X TRAINER 15D	1440	180"x 94"x 60" 458 x 239 x 153	*240V, 32A	4	1895 / 7.17	2575 / 1168	19120 / 8673	2	MS6013XE	Icon Spa Touch
INT H2X TRAINER 18	1130	215"x 94"x 60" 547 x 239 x 153	*240V, 32A	4	2235 / 8.46	2710 / 1229	22090 / 10020	2	MS6013XE	Icon Spa Touch
INT H2X TRAINER 19	9600A - SPA 9600B - SWIM	231"x 94"x 51 587 x 239 x 130	*240V, 32A - Spa *240V, 32A - Swim	6 4 - Spa 2 - Swim	2015 / 7.63 1745 / 6.61 - Swim 270 / 1.02 - Spa	2950 / 1338	20865 / 9464	4	MS6013XE	Icon Spa Touch
INT H2X TRAINER 19D	1270A - SPA 1270B - SWIM	231"x 94"x 60" 587 x 239 x 153	*240V, 32A - Spa *240V, 32A - Swim	6 4 - Spa 2 - Swim	2285 / 8.65 2010 / 7.61 - Swim 275 / 1.04 - Spa	3215 / 1458	23385 / 10607	4	MS6013XE	Icon Spa Touch

[1]See Electrical Requirements section for further details.

[2]Total bather capacity in swim spa. The number of bathers in spa should never exceed indicated seating capacity. Depending on swim 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 swim spa controls (air controls, diverters, swim spa topside control and etc.) as this will result in water leaking out of the swim spa shell and potentially into the equipment area.

[3]Full weight based on dry weight of swim spa, max seating capacity of swim 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 swim 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.

SITE PREPARATION / GENERAL GUIDELINES

Swim spa installation is simple when properly planned. It is important that you read the following information carefully and consult with your Master Spas dealer.

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

IMPORTANT

When installing your swim spa indoors, on a wood deck, roof or balcony; load requirements need to be evaluated before installation. You should speak with a qualified contractor or your local building department to confirm that your surface is adequate for supporting a swim spa.

All sides of the swim spa must be accessible for regular maintenance or in the event that service is needed. Periodical maintenance checks require entry into the equipment bay. When possible, it is wise planning for the future to leave 3 feet of access on all sides of the swim spa in the event that your swim spa requires maintenance to allow ample room for service. Your swim spa warranty does not cover costs associated with improper access or gaining access to the spa.

GENERAL CONSIDERATIONS FOR OUTDOOR INSTALLATION

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

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

GENERAL CONSIDERATIONS FOR INDOOR INSTALLATION

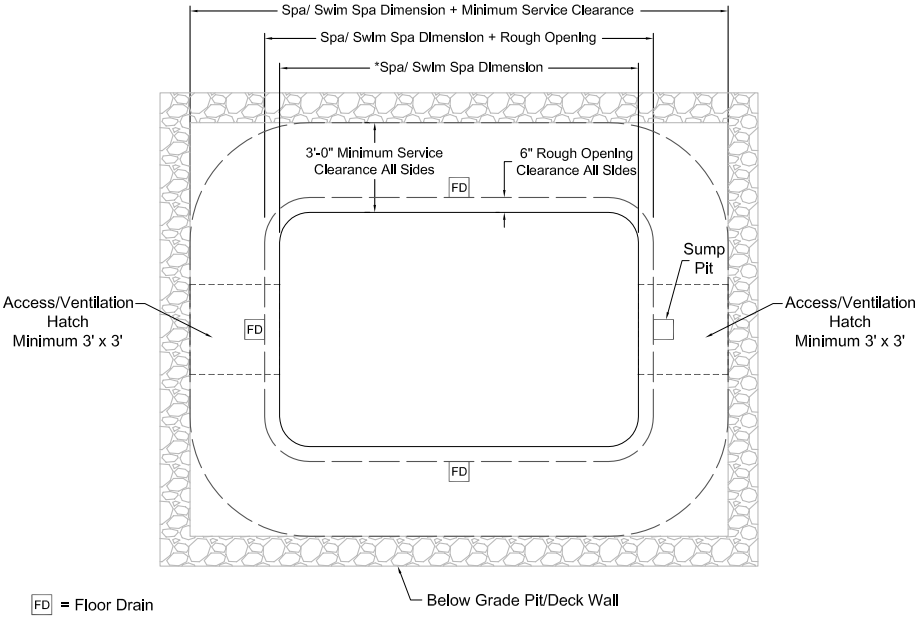
Installing your swim spa indoors creates an entirely different set of considerations.

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

GUIDELINES FOR PARTIALLY OR FULLY RECESSED INSTALLATION

Swim Spas manufactured by Master Spas are designed to be installed in a variety of settings. One of which is installing below grade. Should a swim spa be installed below the level of the site drainage system (below grade), a system for preventing water collecting and pooling must be designed based on the requirements of the local authority having jurisdiction. The drainage system must be designed based on things such as rainfall, water runoff, splashing, draining the swim spa, etc. that could potentially feed the below grade area with water. When located in designated floodways, additional attention to maximum water load entering the area below grade must be addressed to prevent water from accumulating below grade at all times. It is generally recommended that the swim spa be installed above grade because the swim spa is not designed to be submerged in water. When a proper drainage system is designed and proper ventilation is planned based on the characteristics of the site, installing the swim spa below grade is an accepted method of installation.

- The unit is self-supporting when placed on a surface designed to support the full load of the swim spa (see Surface/Pad Requirements). Do not backfill with sand, gravel, or earth. Doing so will void the warranty.
- Plan for complete drainage so that water accumulation drains away from the swim spa perimeter and standing water never reaches the electrical equipment.
- Plan for appropriate ventilation to remove moisture accumulation and prevent equipment overheat.
- Provide a minimum of 3 feet service area around the perimeter of the unit. Site access issues are not covered by the product warranty.
- The unit is not designed to be submerged in water. Water entering the equipment area creates many hazards and resulting damage will not be covered by the product warranty.
- Make sure that the surroundings do not create any additional hazards.
- Surfaces placed around the unit should also be evaluated for walking/slipping hazards from standing water. Proper drainage is vital to the installation of a below grade installation.
- Check all building, electrical, and plumbing codes with the authority having jurisdiction to ensure that your installation is in compliance with all local codes.
- Additional consideration needs to be made when installing unit in designed floodways.
- Verify that site specific drainage systems such as down spouts are not going to feed the area below grade.
- Below grade drainage system needs to be evaluated based on area specific rainfall. One size does not fit all so an analysis by a qualified, local engineer to ensure proper drainage of all sources of water is a must when installing below grade.



FD = Floor Drain

= Access/ Ventilation Hatch (Min. 3' x 3')

* = See "Model Specification" section of Owner's Manual for applicable Spa/ Swim Spa dimensions.

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 swim 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 (8.36mm2 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 swim 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 swim spa occupants, but installed at least five feet from the swim 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 swim spa must be hooked up to a “dedicated” breaker(s) and RCD. The term “dedicated” means the electrical circuit for the swim spa is not being used for any other electrical items (patio lights, appliances, garage circuits, etc.). If the swim 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, or R.C.D. henceforth) 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

ELECTRICAL REQUIREMENTS

MS40E/MS81SPAE HOOK-UP

As Manufactured: Single Service, TN and TT Electrical Systems (1x16 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.

Heat Disable dip switches must be evaluated to prevent the swim spa maximum ampacity from exceeding the service maximum ampacity. Dip switch settings should not be changed from factory settings in this configuration.

This option is configured and shipped as the default.

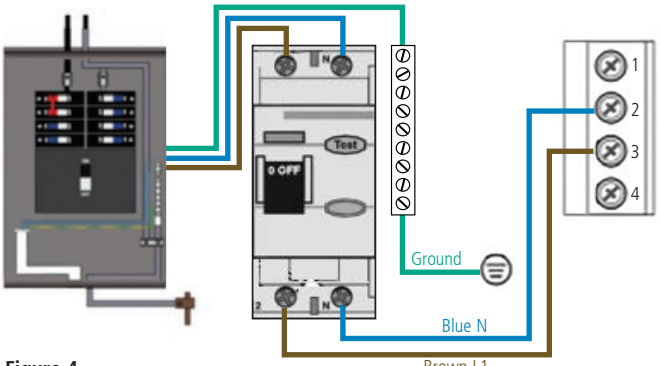


Figure 4

230V 2 phase / 2x16A:

Optional 1: 3-Phase Service, TN and TT Electrical Systems 5 Wires (3 Lines + 1 Neutral + 1 Protective Earth)*. Protective Earth wire (Green/Yellow) must be connected to system ground terminal as marked.

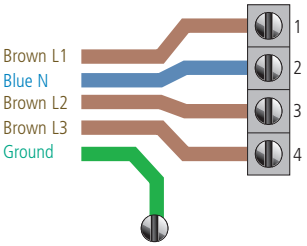
IMPORTANT: Each service MUST include a neutral wire, with a line to neutral voltage of 230VAC.

The heater runs on service line L1. All main-board equipment runs on service line L3. Additional equipment, such as expansion boards, run on service line L2.

Completely remove the wire that goes from J52 to J62. Completely remove the wire that goes from J51 to J88. Move the wire that goes to J12 to J79. Move the wire that goes to J36 to J45. If an expansion board is installed, black wire must connect to J53 (Line L3) only, and white wire must connect to J4 (Neutral). Heat Disable dip switches must be evaluated to prevent the swim spa maximum ampacity from exceeding the service maximum ampacity (L1, L2, L3).

ELECTRICAL REQUIREMENTS

MS40E/MS81SPAE HOOK-UP



** Must be sized to swim spa specification. Swim spa rated maximum ampacity cannot exceed the service maximum ampacity. This does not represent an option to the Installer.*

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

ELECTRICAL REQUIREMENTS

MS50E HOOK-UP

As Manufactured: Single Service, TN and TT Electrical Systems (1x16 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.

Heat Disable dip switches must be evaluated to prevent the swim spa maximum ampacity from exceeding the service maximum ampacity. Dip switch settings should not be changed from factory settings in this configuration.

This option is configured and shipped as the default.

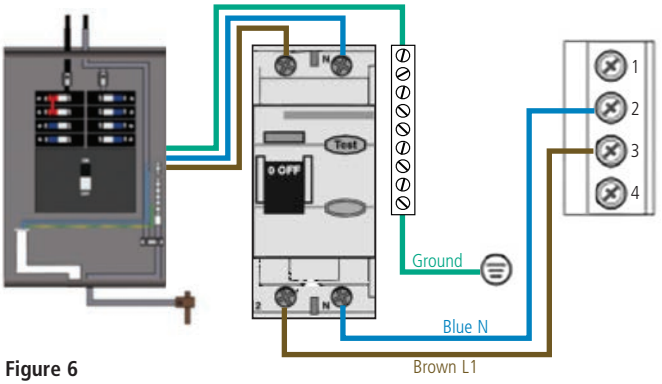


Figure 6

230V 2 phase / 2x16A:

230V 3 phase / 3x16A:

** Must be sized to swim spa specification. Swim spa rated maximum ampacity cannot exceed the service maximum ampacity. This does not represent an option to the Installer.*

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

ELECTRICAL REQUIREMENTS

MS6013XE HOOK-UP

As Manufactured: Single Service, TN and TT Electrical Systems (1x16 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.

Heat Disable dip switches must be evaluated to prevent the swim spa maximum ampacity from exceeding the service maximum ampacity. Dip switch settings should not be changed from factory settings in this configuration.

This option is configured and shipped as the default.

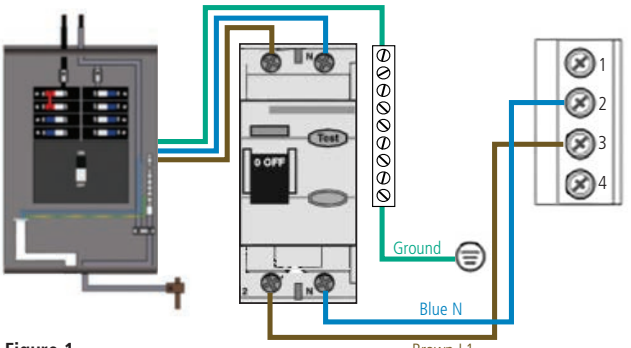


Figure 1

Optional 1: Dual Service, TN and TT Electrical Systems (2x16 Amp). 5 Wires (2 Lines + 2 Neutrals + 1 Protective Earth)*. Protective Earth wire (Green/Yellow) must be connected to system ground terminal as marked. The heater runs on service line L1. All equipment (pumps, etc.) runs on service line L2.

IMPORTANT: Each service MUST include a neutral wire, with a line to neutral voltage of 230VAC.

From the original factory configuration, remove the black wires from Section 1, J51 & J52 to Section 3, J88 & J62. Move the white wires in Section 2, at J72, J47, & J61 and reconnect them in Section 4, at J75, J77, & J54. Heat Disable dip switches must be evaluated to prevent the swim spa maximum ampacity from exceeding the service maximum ampacity (L1, L2).

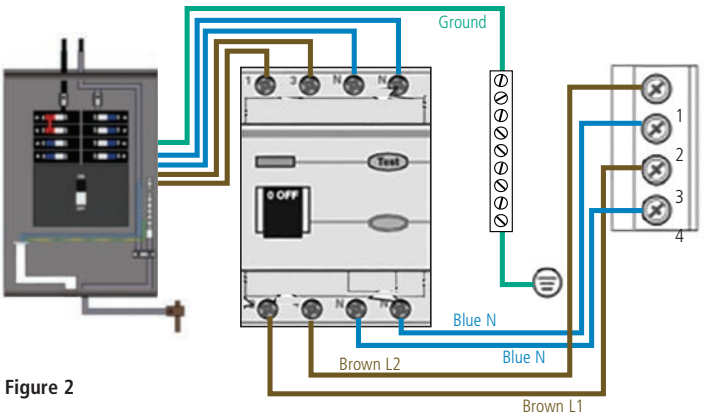


Figure 2

ELECTRICAL REQUIREMENTS

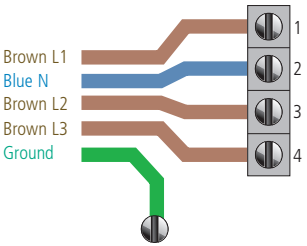
MS6013XE HOOK-UP

Optional 2: 3-Phase Service, TN and TT Electrical Systems 5 Wires (3 Lines + 1 Neutral + 1 Protective Earth)*. Protective Earth wire (Green/Yellow) must be connected to system ground terminal as marked.

IMPORTANT: Each service MUST include a neutral wire, with a line to neutral voltage of 230VAC.

The heater runs on service line L1. All main-board equipment runs on service line L3. Additional equipment, such as expansion boards, run on service line L2.

Completely remove the black wires from Section 1, J51 & J52 to Section 3, J88 & J62. If an expansion board is installed, black wire must connect J53 and white to J1. Move black wires from section 3 at J12 & J36 to section 4 at J45 & J79. Heat Disable dip switches must be evaluated to prevent the spa maximum ampacity from exceeding the service maximum ampacity (L1, L2, L3).



** Must be sized to swim spa specification. Swim spa rated maximum ampacity cannot exceed the service maximum ampacity. This does not represent an option to the Installer.*

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

INITIAL SWIM SPA SETUP

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

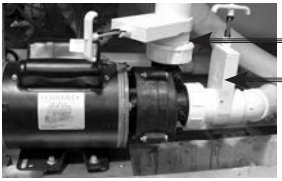
2. Remove skirt panels "A" and "B" to access the electrical connections inside the swim spa. The junction box (MP Swim Spas Only), swim spa control system(s) and majority of the equipment in your swim spa can be accessed by removing access panels "A" and "B".

3. Be sure all pump and heater unions are secure. Each pump has 2 unions and the heater has 2 unions. A newly delivered swim spa may have loose unions caused in transporting the swim spa. Check that all slice valves are open, in the up position. The slice valves may become closed during transportation of the swim spa.

Slice Valve and Pump Union

4. Fill the swim spa to the "minimum safe water level" sticker. This sticker is typically located on the shell of the swim spa near the filter area. On the Momentum swim spa model with a clear acrylic divider, it is recommended that the swim side be filled first and then the spa side. When draining the swim spa always drain the spa side before draining the swim side.

5.



Turn on power to the swim spa. If your swim spa is equipped with two electrical supplies, make sure that they are both turned on. The swim spa will go through its priming mode. This lasts approximately 5 minutes. The purpose of the priming mode is to help insure that the jet pumps have been primed with water and are ready to operate. It may be necessary in some instances to bleed air from the jet pumps in your swim spa. If after the priming mode the swim spa pumps run but do not move water, the pump may have an air lock.

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 filling the swim spa. This is not a service covered by the 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 above. 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.

NOTE: Upon power up, the propulsion system may mix water with air for up to several minutes until all of the air is pulled from the propulsion chamber. The propulsion system may be noisy during this time. This is normal.

6. Be sure the jets in your swim spa are open.

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

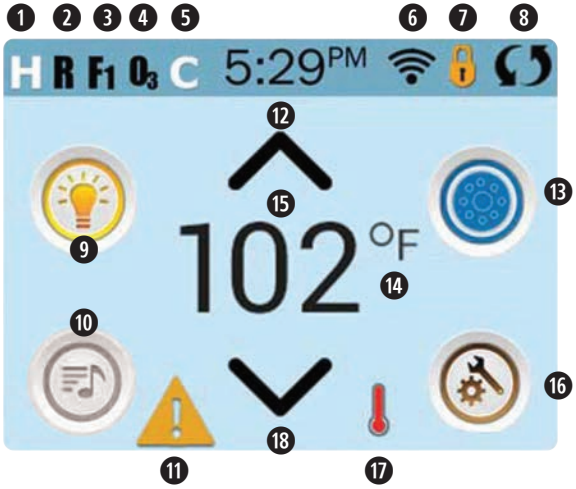
8. Your swim spa water will heat approximately 1°F (0.5°C) per hour, on average, with the cover closed on the swim spa. Times may vary.

SWIM SPA CONTROLS - ICON SPA TOUCH

THE MAIN SCREEN

SWIM SPA CONTROLS

THE MAIN SCREEN



SWIM SPA STATUS

Important information about swim spa operation can be seen on the Main Screen. Most features, including Set Temperature adjustment, can be accessed from this screen. The actual water temperature can be seen, and the Set Temperature can be adjusted. Time-of-Day, Ozone and Filter status is available, along with other messages and alerts. The selected Temperature Range is indicated in the upper left corner. The Swim Spa Equipment Control Icon in the center will spin if any pump is running. A Lock icon is visible if the panel or settings are locked.

ICON SPECIFICATIONS

❶ H = High Temperature Range

❷ R = Ready Mode

❸ F1 = Filter Cycle 1 Running

❹ O3 = Ozone Running

❺ C = Cleanup Cycle

❻ Wi-Fi Signal Indicator

❼ Lock Indicator Icon

❽ Invert Screen

❾ Light Icon = Turns On/Off

❿ Music Icon = Press To Enter Music Screen*

⓫ Message Waiting Indicator

⓬ Set Temperature Up

⓭ Swim Spa Equipment Control Icon

⓮ Temperature Scale (F/C)

⓯ Current Water Temperature

⓰ Settings Icon

⓱ Heat Indicator

⓲ Set Temperature Down

**Only if Fusion Touch Sound is equipped. Options vary by model.*

Note: After 30 minutes the display will automatically go into sleep mode, which turns the display off. This is normal operation. Touch anywhere on the screen to wake the panel up.

SWIM SPA CONTROLS

THE MAIN SCREEN

ICON SPECIFICATIONS

1. **= High Temperature Range** **= Low Temperature Range**
2. **= Ready Mode** **= Ready And Rest Mode** **= Rest Mode**
3. **= Filter1 Mode** **= Filter2 Mode** **= Filter1 and 2 Mode**
4. **= Ozone is Running.** If you don't see the icon that means the Ozone is OFF.
5. **= Cleanup Cycle is Running.** If you don't see the icon that means the Cleanup Cycle is OFF.
6. **= Wi-Fi icon** just indicates that the Wi-Fi link is connected. It does not indicate signal strength.
7. **Lock Icon:** When displayed, indicates the panel is in a locked mode. To unlock or lock a setting or panel lock, you press and hold the corresponding icon for 5+ seconds until the text and icon change to the opposite state.

   There are 2 lock icons that can be shown on the title bar of most screens. A tall skinny one representing a settings lock is applied. It is shown on screens that are affected by the settings lock. And the standard lock icon which represents the Panel being locked. If both settings and panel are locked, only the panel lock will show since the settings lock doesn't do much in that situation. When the panel is locked, the Settings Menu Screen will only show items not affected by that lock (System Info and Lock Screens).
8. **= Invert (or flip) Screen**
9. **= Lights is turned ON** **= Light is Inactive** **= Light is Disabled**
10. **= Music is Active*** **= Music is Inactive** **= Music is Disabled**

    **Only if Fusion Touch Sound is equipped. Options vary by model.*
11. **Message Waiting Indicator:** The Message Waiting Indicator will show one of the following icons:

    = Fatal error (Swim spa can't function until it's fixed)

    = Normal Error or Warning

    = Reminder Message

    = Information Message

    Touch the Indicator to go to a Message Screen which shows the message.

    Some messages will include the "Call for Service" text as it requires a service technician to fix the problem. If the panel is locked and a message alert appears, you will be taken to the UNLOCK screen before you can clear the message.

    Touching the Error/Warning/Reminder/Info Icon on the Message Screen will take you to the System Information Screen to allow for troubleshooting over the phone or for a field service tech to better understand what is going on. Exiting the System information Screen will take you back to the Message Screen in that situation.
12. **Set Temperature Up:** Adjust set temperature higher.
13. **= Swim Spa Equipment Control Icon.** Brings up a screen where the therapy jets, blower or other equipment can be controlled. While on the Swim Spa Equipment Screen, you can press Jets button once for low speed, and if configured press it again for high speed. **= Jet is Inactive.** Indicates if a pump is running or not.

SWIM SPA CONTROLS

THE MAIN SCREEN

ICON SPECIFICATIONS

14. **Temperature Scale:** Indicates if the temperature is in °F **= Fahrenheit or** °C **= Celsius.**
15. **Current water temperature:** Displays current water temperature.
16. **Setting Icon:** **= Settings is Active** **= Settings is Inactive**
    Takes you to Settings Menu Screen

    Where the available specific features that can be adjusted for the control can be adjusted. The same goes for the Utilities Menu Screen and the Test Menu (used by Swim Spa Technicians).
17. **Heat Indicator:** Indicates when the swim spa heater is on.
18. **Set Temperature Down:** Adjust set temperature lower.

NAVIGATION

Navigating the entire menu structure is done by touching the screen.

The three screen selections indicated below can be selected. Touch one of these to enter a different screen with additional controls.

Most menu screens time out and revert to the main screen after 30 seconds of no activity.

**Only if Fusion Touch Sound is equipped. Options vary by model.*

THE MAIN SCREEN

MESSAGES

At the bottom of the screen, at certain times an indicator may appear showing that a message is waiting. Touch this indicator to go to the Message Display Screen. On that Screen some of the messages can be dismissed.

THE SET TEMPERATURE

SET TEMPERATURE

Press Up or Down once to display the Set Temperature (indicated by a flashing °F or °C). Press Up or Down again to modify the Set Temperature. The Set Temperature changes immediately.

If you need to switch between High Temperature Range and Low Temperature Range you need to go to the Settings Screen.

PRESS-AND-HOLD

If Up or Down is pressed and held, the temperature will continue to change until you stop pressing, or until the Temperature Range limits are reached.

SWIM SPA CONTROLS

THE SPA SCREEN

ALL EQUIPMENT ACCESS

The Spa Screen shows all available equipment* to control. The display shows icons that are related to the equipment installed on a particular swim spa model, so this screen may change depending on the installation.

The icon buttons are used to select and control individual devices.

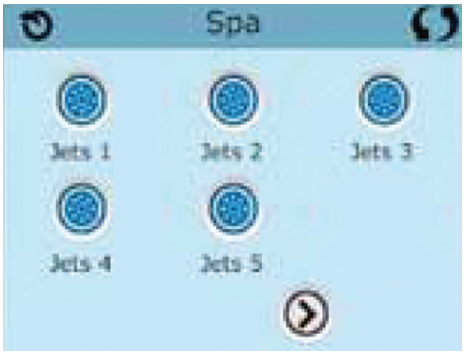
Some devices, like pumps, may have more than one ON state, so the icon will change to reflect the state of the equipment. Below are some examples of 2-speed Pump indicators.

Jets Off

Jets Low

Jets High

If the Swim Spa has a Circulation Pump, a Circulation Pump Icon will appear to indicate its activity, but outside of Priming Mode, the Circulation Pump cannot be controlled directly.



**One exception: The Main Spa Light is not shown on the Spa Screen; it is only shown (and controlled) on the Main Screen.*

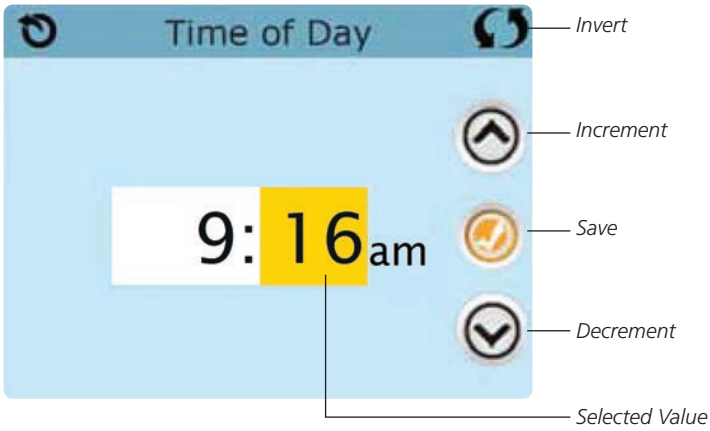
COMMON BUTTONS

VALUES INCREMENT/DECREMENT

If an Up or Down button is shown and pressed when on an editing page, and a value has been selected (highlighted), the value can be incremented by pressing the up arrow or decremented by pressing the down arrow.

INVERT

Will appear on upper right on all screens.



EXITING SCREENS

The Back button is on every screen except the Main Screen, the Priming Mode Screen are a Message Display Screen.

When you see only this button, or this button plus an Inactive Save Button, it means Back or Exit. It appears on editing screens before you have changed any value, as well as on all other screens.

When you see both the Back button and an Active Save button, the Save button will Save, while the Back button will Cancel. If the screen times out due to no activity it will act like Cancel.

COMMON BUTTONS

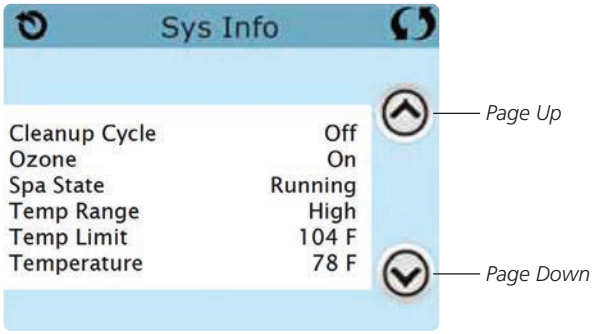
PAGE RIGHT/LEFT

If there is a right arrow at the bottom of the screen, it takes you to the next page.

If there is a left arrow at the bottom of the screen, it takes you to the previous page.

PAGE UP/DOWN

If an Up or Down button is shown and pressed when on a page with a text list, the list can be scrolled a page at a time.

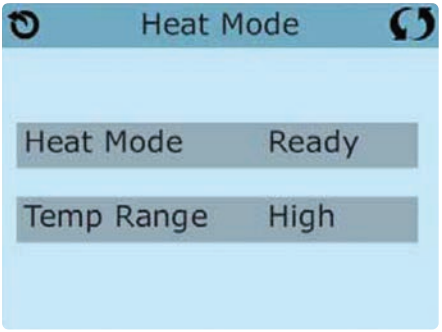


PROGRAMMING, ETC.

The Settings Screen is where all programming and other swim spa behaviors are controlled.

Each icon on the Settings screen takes you to a different screen, where one or more setting may be viewed and/or edited.

The Heat Icon takes you to a screen where you control the Heat Mode and the Temperature Range.



DUAL TEMPERATURE RANGES (HIGH VS. LOW)

This system incorporates two temperature range settings with independent set temperatures. The specific range can be selected on the Settings screen and is visible on the Main Screen in the upper left corner of the display.

These ranges can be used for various reasons, with a common use being a "ready to use" setting vs. a "vacation" setting. Each range maintains its own set temperature as programmed by the user. This way, when a range is chosen, the swim spa will heat to the set temperature associated with that range.

High Range can be set between 80˚F (27˚C) and 104˚F (40˚C).

Low Range can be set between 50˚F (10˚C) and 99˚F (37˚C).

Freeze Protection is active in either range.

HEAT MODE – READY VS. REST

In order for the swim spa to heat, a pump needs to circulate water through the heater. The pump that performs this function is known as the "heater pump."

The heater pump can be either a 2-speed pump (Pump 1) or a circulation pump.

If the heater pump is a 2-Speed Pump 1, Ready Mode will circulate water every 1/2 hour, using Pump 1 Low, in order to maintain a constant water temperature, heat as needed, and refresh the temperature display. This is known as "polling".

Rest Mode will only allow heating during programmed filter cycles. Since polling does not occur, the temperature display may not show a current temperature until the heater pump has been running for a minute or two.

When the heater pump has come on automatically (for example for heating) you can switch between low speed and high speed but you cannot turn the heater pump off.

Circulation Mode (See information within "Pumps" in the Swim Spa Controls - Swim Spa Behavior section, for further information on circulation modes)

If the swim spa is configured for 24hr circulation, the heater pump generally runs continuously. Since the heater pump is always running, the swim spa will maintain set temperature and heat as needed in **Ready Mode**, without polling.

In **Rest Mode**, the swim spa will only heat to set temperature during programmed filter times, even though the water is being filtered constantly when in 24hr circulation mode.

READY-IN-REST MODE

Ready in Rest Mode appears in the display if the swim spa is in Rest Mode and the Jets 1 Button is pressed. When the heater pump has come on automatically (for example for heating) you can switch between low speed and high speed but you cannot turn the heater pump off. After 1 hour, the System will revert to Rest Mode. This mode can also be reset by selecting the Heat Mode.

PREPARATION AND FILLING

Fill the swim spa to its correct operating level. Be sure to open all valves and jets in the plumbing system before filling to allow as much air as possible to escape from the plumbing and the control system during the filling process. After turning the power on at the main power panel, the top-side panel will display a splash screen or startup screen.

PRIMING MODE – M019*

After the initial start-up sequence, the control will enter Priming Mode and display a Priming Mode screen. Only pump icons appear on the priming mode screen. During the priming mode, the heater is disabled to allow the priming process to be completed without the possibility of energizing the heater under low-flow or no-flow conditions. Nothing comes on automatically, but the pump(s) can be energized by selecting the "Jet" buttons. If the swim spa has a Circulation Pump, it can be turned on and off by pressing the "Circ" button during Priming Mode.

PRIMING THE PUMPS

As soon as the Priming Mode screen appears on the panel, select the "Jets 1" button once to start Pump 1 in low-speed and then again to switch to high-speed. Also, select the other pumps, to turn them on. The pumps should be running in high-speed to facilitate priming. If the pumps have not primed after 2 minutes, and water is not flowing from the jets in the swim spa, do not allow the pumps to continue to run. Turn off the pumps and repeat the process. Note: Turning the power off and back on again will initiate a new pump priming session. Sometimes momentarily turning the pump off and on will help it to prime. Do not do this more than 5 times. If the pump(s) will not prime, shut off the power to the swim spa and call for service.

Important: A pump should not be allowed to run without priming for more than 2 minutes. Under NO circumstances should a pump be allowed to run without priming beyond the end of the 4-5 minute priming mode. Doing so may cause damage to the pump and cause the system to energize the heater and go into an overheat condition.

EXITING PRIMING MODE

The system will automatically enter the normal heating and filtering at the end of the priming mode, which lasts 4-5 minutes. You can manually exit Priming Mode by pressing the "Back" button on the Priming Mode Screen. Note that if you do not manually exit the priming mode as described above, the priming mode will be automatically terminated after 4-5 minutes. Be sure that the pump(s) have been primed by this time. Once the system has exited Priming Mode, the top-side panel will display the Main Screen, but the display will not show the water temperature yet, as shown below. This is because the system requires approximately 1 minute of water flowing through the heater to determine the water temperature and display it.

– – – –°F – – – –°C

**M0XX is a Message Code. See Fault Log in the Utilities section.*

PUMPS

On the Spa Screen, select a "Jets" button once to turn the pump on or off, and to shift between low- and high-speeds if equipped. If left running, the pump will turn off after a time-out period.

Non-Circulation Systems
The low-speed of pump 1 runs when the blower or any other pump is on. If the swim spa is in Ready Mode, Pump 1 low may also activate for at least 1 minute every 30 minutes to detect the swim spa temperature (polling) and then to heat to the set temperature if needed. When the low-speed turns on automatically, it cannot be deactivated from the panel, however the high speed may be started.

Circulation Pump Modes
If the system is equipped with a circulation pump, it will be configured to work in one of two different ways depending on the control system software. The circulation pump mode cannot be changed.

1. The circulation pump operates continuously (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). This is the typical mode for most swim spas with a dedicated circulation pump.
2. A programmable circulation pump will come on when the system is checking temperature (polling), during filter cycles, during freeze conditions, or when another pump is on.

FILTRATION AND OZONE

On non-circulation systems, Pump 1 low and the ozone generator will run during filtration. On circulation systems, the ozone will generally run with the circulation pump.

The system is factory-programmed with one filter cycle that will run in the evening (assuming the time-of-day is properly set) when energy rates are often lower. The filter time and duration are programmable. A second filter cycle can be enabled as needed.

At the start of each filter cycle, the pumps will run briefly to purge the plumbing to maintain good water quality.

SWIM SPA BEHAVIOR

FREEZE PROTECTION

If the temperature sensors within the heater detect a low enough temperature, then the water devices automatically activate to provide freeze protection. The water devices will run either continuously or periodically depending on conditions.

CLEAN-UP CYCLE (OPTIONAL)

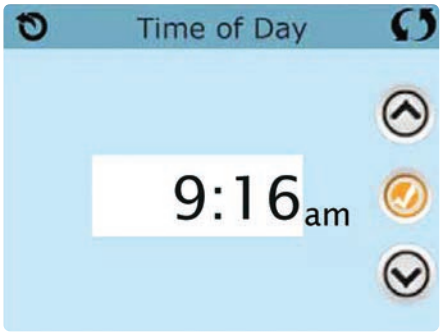
When a pump is turned on by a button press, a clean-up cycle begins 30 minutes after the pump is turned off or times out. The heat/filter pump and the ozone generator will run for 30 minutes or more, depending on the system. If the swim spa has a 24hr circulation pump which performs as the heat and filter pump, the cleanup cycle will not apply as the 24hr circulation pump provides constant filtration. On some systems, you can change this setting. See the Cleanup Cycle section in Additional Settings.

SWIM SPA CONTROLS

TIME-OF-DAY

BE SURE TO SET THE TIME-OF-DAY

Setting the time-of-day is important for determining filtration times and other background features. The Heat Icon on the Settings Screen takes you to a screen where you control the Time-of-Day. On the Time-of-Day screen, simply select the Hours and Minutes. Use the Up and Down Buttons to make changes, then Save.



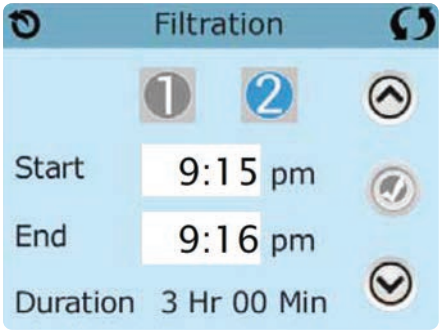
If no time-of-day is set in the memory an Information Screen will appear. If you exit it and Information Icon will appear at the bottom of the Main Screen, until the time-of-day has been set.

ADJUSTING FILTRATION

MAIN FILTRATION

Using the same adjustment as Setting the Time, Filter Cycles are set using a start time and a duration. Each setting can be adjusted in 15-minute increments. The panel calculates the end time and displays it automatically.

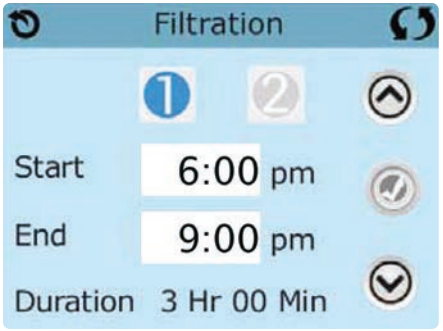
The Filter Icon on the Settings Screen takes you to a screen where you control the Filter Cycles.



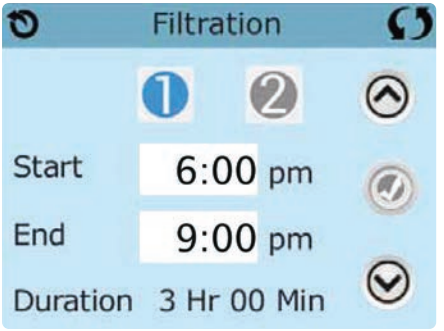
FILTER CYCLE 2 - OPTIONAL FILTRATION

Filter Cycle 2 is OFF by default on most systems.

Viewing Filter 1 while Filter 2 is OFF:



Viewing Filter 1 while Filter 2 is ON:



Press "1" to view Filter 1. Press "2" once to view Filter 2. Press "2" again to turn Filter 2 ON or OFF.

When Filter Cycle 2 is ON, it can be adjusted in the same manner as Filter Cycle 1.

It is possible to overlap Filter Cycle 1 and Filter Cycle 2, which will shorten overall filtration by the overlap amount.

ADJUSTING FILTRATION

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.

If the Filter Cycle 1 duration is set for 24 hours, enabling Filter Cycle 2 will initiate a purge when Filter Cycle 2 is programmed to begin.

THE MEANING OF FILTER CYCLES

1. The heating pump always runs during the filter cycle*
2. In Rest Mode, heating only occurs during the filter cycle
3. Purges happen at the start of each filter cycle

*For example, if your swim spa is set up for 24/hour circulation except for shutting off when the water temperature is 3˚F/1.3˚C above the set temperature, that shutoff does not occur during filter cycles.

SWIM SPA CONTROLS

RESTRICTING OPERATION

The control can be restricted to prevent unwanted use or temperature adjustments.

Locking the Panel prevents the controller from being used, but all automatic functions are still active.

Locking the Settings allows Jets and other features to be used, but the Set Temperature and other programmed settings cannot be adjusted.

Settings Lock allows access to a reduced selection of menu items. These include Filter Cycles, Invert, Information and Fault Log. They can be seen, but not changed or edited.

Panel Locked and Settings Unlocked

LOCKING AND UNLOCKING

Press here for 5 seconds to lock or unlock.

The same steps are used to Lock and Unlock.

To lock either Settings or Panel first select Settings (if it says "Unlocked") or Panel (if it says "Unlocked"), then press the word "Lock" for at least 5 seconds.

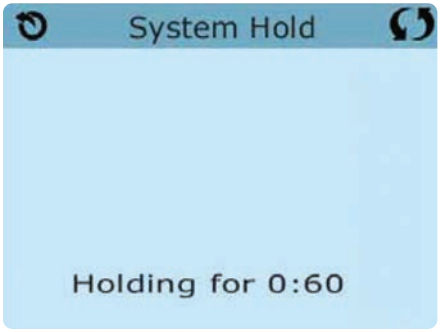
To unlock either Settings or Panel first select Settings (if it says "Locked") or Panel (if it says "Locked"), then press the word "Lock" for at least 5 seconds.

HOLD - M037*

Hold Mode is used to disable the pumps during service functions like cleaning or replacing the filter. Hold Mode will last for 1 hour unless the mode is exited manually. If swim spa service will require more than an hour, it may be best to simply shut down power to the swim spa.

The Hold Icon on the Settings Screen places the swim spa in Hold Mode and displays the System Hold screen.

Touch Back to exit Hold Mode.



**M0XX is a Message Code. Codes like this will be seen in the Fault Log*

THE UTILITIES SCREEN

UTILITIES

The Utilities Icon in the Settings Screen takes you to the Utilities Screen.

The Utilities Screen may contain the following:

FAULT LOG

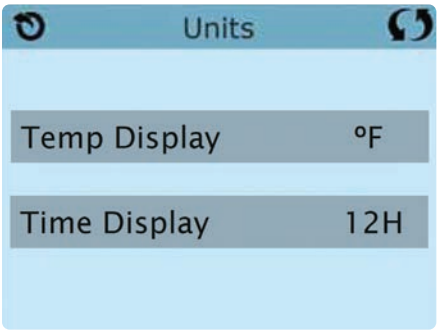
The Fault Log is a record of the last 24 faults that can be reviewed by a service tech. Use the Up and Down buttons to view each of the Faults. When Priming Mode shows in the Fault Log, it is not a fault. Rather, it is used to keep track of swim spa restarts.

GFCI TEST (FEATURE NOT AVAILABLE ON ALL SYSTEMS.)

GFCI Test will not appear on the screen if the feature is not available. This screen allows the GFCI to be tested manually from the swim spa control panel (See more in Utilities - GFCI Test Feature).

UNITS SCREEN

The Units Icon on the Settings Screen takes you to the Units Screen.

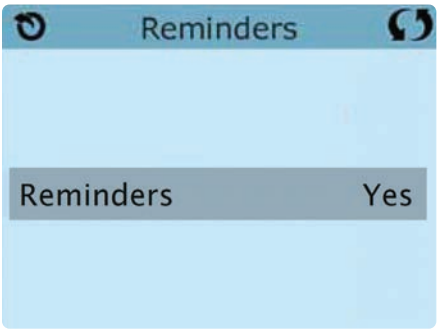


Press "Temp Display" to change the temperature between Fahrenheit and Celsius.

Press "Time Display" to change the clock between 12 hr and 24 hr display.

REMINDERS

The Reminder Icon on the Settings Screen takes you to the Reminders screen.



Press "Reminders" to turn the reminder messages (like "Clean Filter") ON (Yes) or OFF (No).

CLEANUP CYCLE

Cleanup Cycle Duration is not always enabled, so it may not appear. When it is available, set the length of time the heat/filter pump will run after each use. 0-4 hours are available. Setting to 0.0 Hr prevents the Cleanup Cycles from running.

The Cleanup Icon on the Settings Screen takes you to the Cleanup Cycle screen.

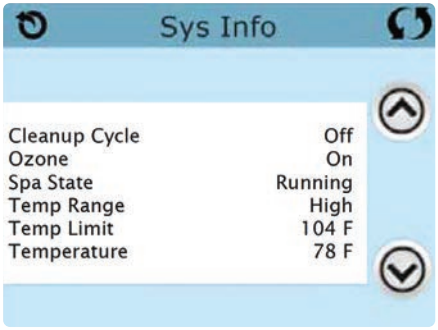
Note: Cleanup cycles do not apply to systems set for 24hr circulation pump mode as the circulation pump performs as the heat and filter pump to provide constant filtration.

LANGUAGE

The Language Icon on the Settings Screen takes you to the Language screen.

Change the language displayed on the panel.

INFORMATION



SYSTEM INFORMATION

The System Information Screen displays various settings and identification of the particular system.

System Model
Displays the Model Number of the System.

Panel Version
Displays a number of the software in the topside control panel.

Software ID (SSID)
Displays the software ID number for the System.

Configuration Signature
Displays the checksum for the system configuration file.

Current Setup
Displays the currently selected Configuration Setup Number.

Dip Switch Settings
Displays a number that represents the DIP switch positions of S1 on the main circuit board.

Heater Voltage (Feature not used on CE rated systems.)
Displays the operating voltage configured for the heater.

Heater Wattage as Configured in Software (CE Systems Only.)
Displays a heater kilowatt rating as programmed into the control system software (1-3 or 3-6).

Heater Type
Displays a heater type ID number.

UTILITIES – GFCI TEST FEATURE

The Ground Fault Circuit Interrupter (GFCI) or Residual Current Detector (RCD) is an important safety device and is required equipment on a hot tub installation.

Forcing the GFCI Trip Test (North America Only)
Touching the GFCI Test Icon on the Utilities Screen takes you to the GFCI Test screen. This feature is not available on all systems. The GFCI Test icon will only display if the system is capable of this feature.

The installer can use the GFCI Trip Test to confirm proper function of the GFCI.

The GFCI should trip within several seconds and the swim spa should shut down. If it does not, shut down the power and manually verify that a GFCI breaker is installed and that the circuit and swim spa are wired correctly. Verify the function of the GFCI with its own test button. Restore power to the swim spa and repeat the GFCI Trip Test.

Once the GFCI is tripped by the test (causing the swim spa to be shut off from power being removed), reset the GFCI breaker to turn swim spa back on. You can verify a successful test by navigating to the above screen. "Passed" should appear after the Reset line is selected on the GFCI screen.

CE Product:
CE registered systems do not have an RCD Test Feature due to the nature of the electrical service. Some UL registered systems do not have the GFCI Test Feature. The end-user must be trained how to properly test and reset the RCD.

GENERAL MESSAGES

Most messages and alerts will appear at the bottom of the normally used screens. Several alerts and messages may be displayed in a sequence.

_ _ _ _°F _ _ _ _°C

WATER TEMPERATURE IS UNKNOWN
After the pump has been running for 1 minute, the temperature will be displayed.

POSSIBLE FREEZING CONDITION
A potential freeze condition has been detected, or the Aux Freeze Switch has closed. All water devices are activated. In some cases, pumps may turn on and off and the heater may operate during Freeze Protection. This is an operational message, not an error indication.

THE WATER IS TOO HOT – M029*
The system has detected a swim spa water temp of 110°F (43.3°C) or more, and swim spa functions are disabled. System will auto reset when the swim spa water temp is below 108°F (42.2°C). Check for extended pump operation (i.e. filter cycle durations or extended swim spa pump use beyond the 15 timeouts) and warm ambient temperatures.

**M0XX is a Message Code. Codes like this will be seen in the Fault Log*

HEATER-RELATED MESSAGES

THE WATER FLOW IS LOW – M016**
There may not be enough water flow through the heater to carry the heat away from the heating element. Heater start up will begin again after about 1 min. See "Flow Related Checks" below.

THE WATER FLOW HAS FAILED* – M017**
There is not enough water flow through the heater to carry the heat away from the heating element and the heater has been disabled. See "Flow Related Checks" below. After the problem has been resolved, reset the message*.

THE HEATER MAY BE DRY* – M028**
Possible dry heater, or not enough water in the heater to start it. The swim spa is shut down for 15 min. Reset this message* to reset the heater start-up. See "Flow Related Checks" below.

THE HEATER IS DRY* – M027**
There is not enough water in the heater to start it. The swim spa is shut down. After the problem has been resolved, you must reset the message* to restart heater start up. See "Flow Related Checks" below.

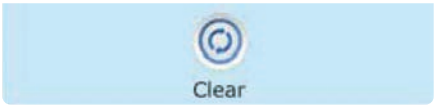
THE HEATER IS TOO HOT* – M030**
One of the water temp sensors has detected 118°F (47.8°C) in the heater and the swim spa is shut down. You must reset the message* when water is below 108°F (42.2°C). See "Flow Related Checks" below.

FLOW-RELATED CHECKS
Check filters for possible blockage. Try cleaning or replacing filters (especially if swim spa is equipped with 24 hour circulation pump).

Check for low water level, suction flow restrictions (i.e. any leaves or debris pulled against suction fittings in bottom of swim spa shell), closed valves, too many closed jets and pump prime/air locked pump (see initial swim spa setup for instruction on relieving pump air lock).

On some systems, even when swim spa is shut down by an error condition, some equipment may occasionally turn on to continue monitoring the temperature or if freeze protection is needed.

* Some messages can be reset from the panel. Messages that can be reset will appear with a Clear Icon at the bottom of the Message Screen. Press the Clear Icon text to reset the message.



***M0XX is a Message Code. Codes like this will be seen in the Fault Log*

SWIM SPA CONTROLS

SENSOR-RELATED MESSAGES

SENSORS ARE OUT OF SYNC – M015**
The temperature sensors MAY be out of sync by 3°F (1°C). Call for service if this message does not disappear within a few minutes.

SENSORS ARE OUT OF SYNC -- CALL FOR SERVICE* – M026**
The temperature sensors ARE out of sync. The fault above has been established for at least 1 hour. Call for service.

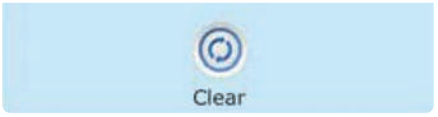
SENSOR A FAULT, SENOR B FAULT – SENSOR A: M031, SENSOR B: M032****
A temperature sensor or sensor circuit has failed. Call for service.

MISCELLANEOUS MESSAGES

COMMUNICATIONS ERROR
The control panel is not receiving communication from the System. Call for service.

TEST SOFTWARE INSTALLED
The Control System is operating with test software. Call for service.

* Some messages can be reset from the panel. Messages that can be reset will appear with a Clear Icon at the bottom of the Message Screen. Press the Clear Icon text to reset the message.



***M0XX is a Message Code. Codes like this will be seen in the Fault Log*

SYSTEM-RELATED MESSAGES

PROGRAM MEMORY FAILURE* – M022**
At Power-Up, the system has failed the Program Checksum Test. This indicates a problem with the firmware (operation program) and requires a service call.

THE SETTINGS HAVE BEEN RESET (PERSISTENT MEMORY ERROR)* – M021**
Contact your Master Spas dealer or service organization if this message appears on more than one power-up.

THE CLOCK HAS FAILED* – M020**
Contact your Master Spas dealer or service organization.

CONFIGURATION ERROR (SWIM SPA WILL NOT START UP)
Contact your Master Spas dealer or service organization.

THE GFCI TEST FAILED (SYSTEM COULD NOT TEST THE GFCI) – M036**
(North America Only) May indicate an unsafe installation. Contact your Master Spas dealer or service organization.

A PUMP MAY BE STUCK ON – M034**
Water may be overheated. POWER DOWN THE SWIM SPA. DO NOT ENTER THE WATER. Contact your Master Spas dealer or service organization.

HOT FAULT – M035**
A Pump Appears to have been Stuck ON when swim spa was last powered POWER DOWN THE SWIM SPA. DO NOT ENTER THE WATER. Contact your Master Spas dealer or service organization.

* Some messages can be reset from the panel. Messages that can be reset will appear with a Clear Icon at the bottom of the Message Screen. Press the Clear Icon text to reset the message.

***M0XX is a Message Code. Codes like this will be seen in the Fault Log*

SWIM SPA CONTROLS

REMINDER MESSAGES

GENERAL MAINTENANCE HELPS
Reminder Messages can be suppressed by using the Reminders Screen.

Reminder Messages and frequency may vary. These are general messages to remind users about normal swim spa maintenance. Some messages may not apply depending on the actual equipment in the swim spa.

CHECK THE PH
May appear on a regular schedule, i.e. every 7 days. Check pH with a test kit and adjust pH with the appropriate chemicals.

CHECK THE SANITIZER
May appear on a regular schedule, i.e. every 7 days. Check sanitizer level and other water chemistry with a test kit and adjust with the appropriate chemicals.

CLEAN THE FILTER
May appear on a regular schedule, i.e. every 30 days.

TEST THE GFCI (OR RCD)
May appear on a regular schedule, i.e. every 30 days.

The GFCI or RCD is an important safety device and must be tested on a regular basis to verify its reliability.

Every user should be trained to safely test and reset the GFCI or RCD associated with the hot tub installation.

A GFCI or RCD will have a TEST button on it that allows a user to verify proper function.

CHANGE THE WATER
May appear on a regular schedule, i.e. every 180 days. Change the water in the swim spa on regular basis to maintain proper chemical balance and sanitary conditions.

Additional messages may appear on specific systems.

* Reminder messages can be reset from the panel. Messages that can be reset will appear with a Clear Icon at the bottom of the Message Screen. Press the Clear Icon text to reset the message.

***M0XX is a Message Code. Codes like this will be seen in the Fault Log*

REMINDER MESSAGES

CLEAN THE COVER
May appear on a regular schedule, i.e. every 30 days. Vinyl covers should be cleaned and conditioned for maximum life.

TREAT THE WOOD
May appear on a regular schedule, i.e. every 180 days. Wood skirting and furniture should be cleaned and conditioned per the manufacturers instructions for maximum life.

CHANGE THE FILTER
May appear on a regular schedule, i.e. every 365 days. Filters should be replaced occasionally to maintain proper swim spa function and sanitary conditions. Eco Pur mineral filters should be replaced every 180 days.

CHANGE THE UV
May appear on a regular schedule, i.e. every 18 months. Change the UV as instructed in the Mast3rPur section. This is a general message and may not apply if swim spa is not equipped with UV.

CHECK OZONE
May appear on a regular schedule, i.e. every 365 days. Check the ozone system as instructed in the Regular Maintenance Procedures.

Additional messages may appear on specific systems.

* Reminder messages can be reset from the panel. Messages that can be reset will appear with a Clear Icon at the bottom of the Message Screen. Press the Clear Icon text to reset the message.

***M0XX is a Message Code. Codes like this will be seen in the Fault Log*

NAVIGATION

Navigating the entire menu structure is done with 2 or 3 buttons on the control panel.

Some panels have separate **WARM** (Up) and **COOL** (Down) buttons, while others have a single **TEMPERATURE** button. In the navigation diagrams Temperature buttons are indicated by a single button icon.

The **LIGHT** Button is also used to choose the various menus and navigate each section.

Typical use of the Temperature button(s) allows changing the Set Temperature while the numbers are flashing in the LCD. Pressing the **LIGHT** button while the numbers are flashing will enter the menus.

The menus can be exited with certain button presses. Or, simply waiting for several seconds will return the panel operation to normal.

Power-up Screens
Each time the System powers up, a series of numbers is displayed.
After the startup sequence of numbers, the system will enter Priming Mode

Key

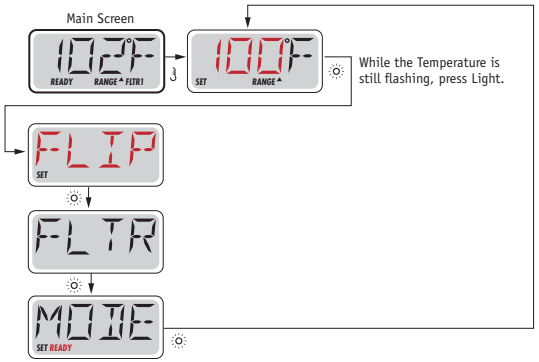
Indicates Flashing or Changing Segment

Indicates Alternating or Progressive Message - every 1/2 second

A temperature button, used for "Action"

Waiting time that keeps the last change to a menu item.

* * * * * Waiting time (depends on menu item) that reverts to original setting and ignores any change to that menu item.



Waiting Several Seconds in the Main Menu will allow the display to revert to the Main Screen. Most changes are not saved unless Light ☼ is pressed. Refer to Key above.

SWIM SPA CONTROLS

INITIAL START-UP

PREPARATION AND FILLING

Fill the swim spa to its correct operating level. Be sure to open all valves and jets in the plumbing system before filling to allow as much air as possible to escape from the plumbing and the control system during the filling process. It is always best practice to fill the swim spa at the filter area.

After turning the power on at the main power panel, the top-side control panel display will go through specific sequences. These sequences are normal and display a variety of information regarding the configuration of the hot tub control.

PRIMING MODE

This mode will last for 4-5 minutes or you can manually exit the priming mode after the pump(s) have primed, by pressing a **WARM** or **COOL** button (or **TEMP**).

Regardless of whether the priming mode ends automatically or you manually exit the priming mode, the system will automatically return to normal heating and filtering at the end of the priming mode. During the priming mode, the normal system's programming and heating is disabled to allow the priming process to be completed by the user without the possibility of turning on the heater under low-flow or no-flow conditions. Nothing comes on automatically, but the pump(s) can be energized by pushing the **JETS** button. If the swim spa has a 24 hour Circulation Pump, it can be activated by pressing the **LIGHT** button during Priming Mode.

PRIMING THE PUMPS

As soon as the above display appears on the panel, push the **JETS** button once to start Pump 1 in low-speed and then again to switch to high-speed. Also, push the Pump 2 or **AUX** button, if you have a 2nd pump, to turn it on. The pumps will now be running in high-speed to facilitate priming. If the pumps have not primed after 2 minutes, and water is not flowing from the jets in the swim spa, do not allow the pumps to continue to run. Turn off the pumps and repeat the process. **NOTE:** Turning the power off and back on again will initiate a new pump priming session. Sometimes momentarily turning the pump off and on will help it to prime. Do not do this more than 5 times. If the pump(s) will not prime, shut off the power to the swim spa and follow the instructions shown for removing air locks in the installation instructions section of this manual.

IMPORTANT: A pump should not be allowed to run without priming for more than 2 minutes. Under NO circumstances should a pump be allowed to run without priming beyond the end of the 4-5 minute priming mode. Doing so may cause damage to the pump and heater due to lack of water flow necessary for proper heating and to push out excessive air within the system after filling.

EXITING PRIMING MODE

You can manually exit Priming Mode by pressing a Temperature button, **WARM** (Up) or **COOL** (Down). Note that if you do not manually exit the priming mode as described above, the priming mode will be automatically terminated after 4-5 minutes. Be sure that the pump(s) have been primed by this time.

Once the system has exited Priming Mode, the top-side control panel will momentarily display the set temperature but the display will not show the temperature yet, as shown below. This is because the system requires approximately 1 minute of water flowing through the heater to determine the water temperature and display it.

PUMPS

Press **JETS** or **AUX** button once to turn the pump on or off, and to shift between low and high speeds if equipped. If left running, the pump will turn off after a time-out period.

If the swim spa is in Ready Mode, Pump 1 low may also activate for at least 1 minute every 30 minutes to detect the swim spa temperature (polling) and then to heat to the set temperature if needed. When the low-speed turns on automatically, it cannot be deactivated from the panel, however the high speed may be started.

Circulation Pump

The 24 hour circulation pump operates continuously 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).

FILTRATION AND OZONE

On non-circulation systems, Pump 1 low and the ozone generator will run during filtration. On 24 hour circulation systems, the ozone will run with the 24 hour circulation pump.

The system is factory-programmed with two filter cycles that will run 10 minutes after power-up. The filter duration is programmable.

At the start of each filter cycle, Pump 2 (if there is one) will run briefly to purge its plumbing to maintain good water quality.

FREEZE PROTECTION

If the temperature sensors within the heater detect a low enough temperature, then the pump(s) automatically activate to provide freeze protection. The pump(s) will run either continuously or periodically depending on conditions. 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 swim spa temperature has risen to 45°F (7.2°C) or higher. During freeze protection the heater will not be activated.

ADJUSTING THE SET TEMPERATURE

When using a panel with Up and Down buttons (Temperature buttons), pressing **UP** or **DOWN** will cause the temperature to flash. Pressing a temperature button again will adjust the set temperature in the direction indicated on the button. When the LCD stops flashing, the swim spa will heat to the new set temperature when required.

If the panel has a single **TEMP** button, pressing the button will cause the temperature to flash. Pressing the button again will cause the temperature to change in one direction (e.g. UP). After allowing the display to stop flashing, pressing the **TEMP** button will cause the temperature to flash and then the next press will change the temperature in the opposite direction (e.g. DOWN).

The temperature can be set between 80°F (26°C) and 104°F (40°C).

PRESS-AND-HOLD

If a temperature button is pressed, **WARM** (Up), **COOL** (Down) or single **TEMP**; and held when the temperature is flashing, the temperature will continue to change until the button is released. On one Temperature button swim spa models, if the limit of the Temperature Range is reached when the button is being held, the progression will reverse direction.

In order for the swim spa to heat, a pump needs to circulate water through the heater. The pump that performs this function is known as the "heater pump."

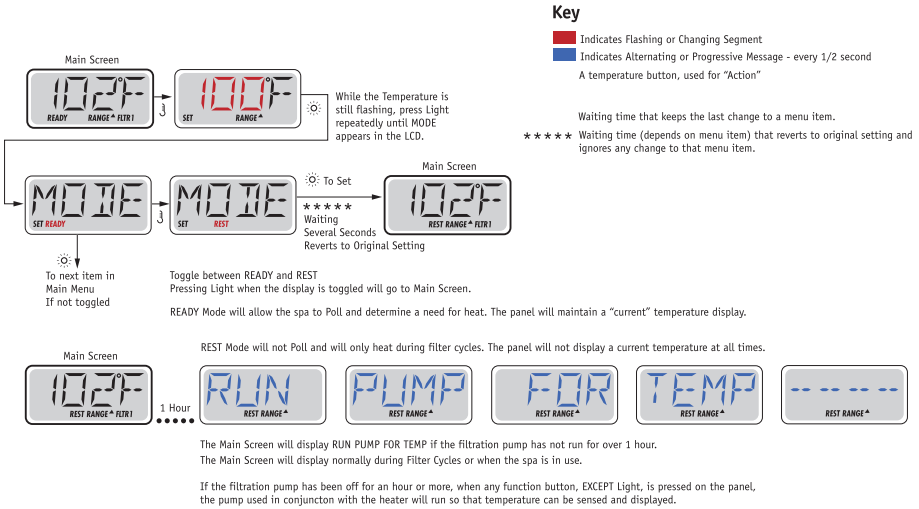
The heater pump can be either a 2-Speed Pump 1 or a 24 hour circulation pump.

If the heater pump is a 2-Speed Pump 1, **Ready Mode** will circulate water every 1/2 hour, using Pump 1 Low, in order to maintain a constant water temperature, heat as needed, and refresh the temperature display. This is known as "polling."

Rest Mode will only allow heating during programmed filter cycles. Since polling does not occur, the temperature display may not show a current temperature until the heater pump has been running for a minute or two.

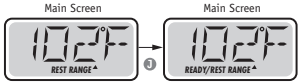
24 Hour Circulation Mode The 24 hour circulation pump operates continuously with the exception of turning off for 30 minutes at a time when the water temperature reaches 3°F (1.5°C) above the set temperature (most likely to happen in warm climates or if the set temperature is decreased below the current water temp to meet this condition). If the swim spa is configured for 24 hour circulation, the heater pump runs continuously. Since the heater pump is always running, the swim spa will maintain set temperature and heat as needed in Ready Mode, without polling.

In Rest Mode, the swim spa will only heat to set temperature during programmed filter times, even though the water is being filtered constantly when in Circulation Mode.

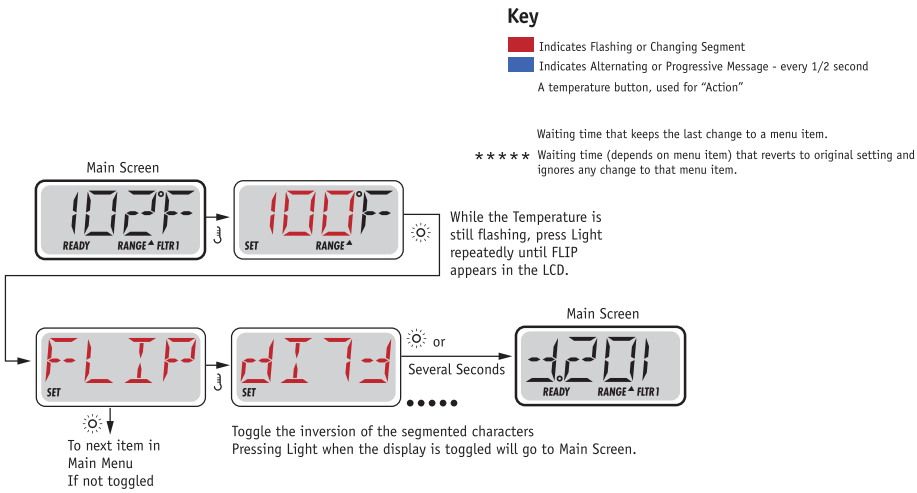


READY-IN-REST MODE

READY/REST appears on the display if the swim spa is in Rest Mode and Jet 1 or Aux pump (if equipped) is pressed. Upon user activation of the pumps, the system assumes that the swim spa is being used and will heat to set temperature. While Pump 1 High can be turned on and off, Pump 1 Low will run until set temperature is reached, or 1 hour has passed. After 1 hour, the System will revert to Rest Mode. This mode can also be reset by entering the Mode Menu and changing the Mode.



FLIP (INVERT DISPLAY)

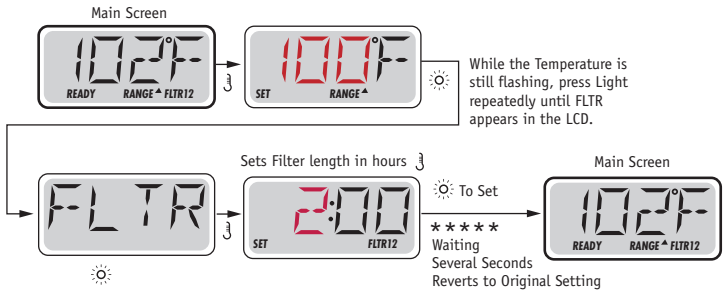


NOTE:
Some panels may have a dedicated **FLIP** button, which allows the user to flip the display with a single button-press.

ADJUSTING FILTRATION

MAIN FILTRATION

Filter cycles are set using a duration. Each setting can be adjusted in 1 hour increments. Filter Cycle 1 and Filter Cycle 2 (if enabled) are set to the same duration.



If Filter Cycle 2 is enabled, Filter 12 will appear in the LCD. If Filter is disabled, Filter 1 will appear.

PURGE CYCLES

In order to maintain sanitary conditions, secondary pumps will purge water from their respective plumbing by running briefly at the beginning of each filter cycle.

PRIMING MODE

Each time the swim spa is powered up, it will enter Priming Mode. The purpose of Priming Mode is to allow the user to run each pump and manually verify that the pumps are primed (air is purged) and water is flowing. This typically requires observing the output of each pump separately and is generally not possible in normal operation. The Priming Mode lasts 4 minutes, but you can exit it earlier by pressing any Temp button. The heater is not allowed to run during Priming Mode.

NOTE: If your swim spa has a 24 hour Circulation Pump, it will turn on with Jets 1 in Priming Mode.
The 24 hour Circulation Pump will run by itself when Priming Mode is exited.

WATER TEMPERATURE IS UNKNOWN

After the pump has been running for 1 minute, the temperature will be displayed.

TOO COLD - FREEZE PROTECTION

A potential freeze condition has been detected, and all pumps are activated. All pumps are on for at least 4 minutes after the potential freeze condition has ended.

In some cases, pumps may turn on and off and the heater may operate during Freeze Protection.

This is an operational message, not an error indication.

WATER IS TOO HOT

One of the water temp sensors has detected swim spa water temp 110°F (43.3°C) and swim spa functions are disabled. System will auto reset when the swim spa water temp is below 108°F (42.2°C). Check for extended pump operation or high ambient temp.

SWIM SPA CONTROLS

HEATER RELATED MESSAGES

HEATER FLOW IS REDUCED

There may not be enough water flow through the heater to carry the heat away from the heating element. Heater start up will begin again after about 1 min. See "Flow Related Checks" below.

HEATER FLOW IS REDUCED*

There is not enough water flow through the heater to carry the heat away from the heating element and the heater has been disabled. See "Flow Related Checks" below. After the problem has been resolved, you must press any button to reset and begin heater start up.

HEATER MAY BE DRY*

Possible dry heater, or not enough water in the heater to start it. The swim spa is shut down for 15 min. Press any button to reset the heater start-up. See "Flow Related Checks" below.

HEATER IS DRY*

There is not enough water in the heater to start it. The swim spa is shut down. After the problem has been resolved, you must press any button to reset and restart heater. See "Flow Related Checks" below.

HEATER IS TOO HOT*

One of the water temp sensors has detected 118°F (47.8°C) in the heater and the swim spa is shut down. You must press any button to reset when water is below 108°F (42.2°C). See "Flow Related Checks" below.

A RESET MESSAGE MAY APPEAR WITH OTHER MESSAGES

Some errors may require power to be removed and restored.

FLOW-RELATED CHECKS

Check filters for possible blockage. Try cleaning or replacing filters (especially if the swim spa is equipped with 24 hour circulation pump). Check for low water level, suction flow restrictions (i.e. any leaves or debris pulled against suction fittings in bottom of swim spa shell), closed valves, too many closed jets and pump prime/air locked pump (see initial swim spa setup for instruction on relieving pump air lock). On some systems, even when the swim spa is shut down by an error condition, some equipment may occasionally turn on to continue monitoring the temperature or if freeze protection is needed.

* This message can be reset from the topside panel with any button press.

SWIM SPA CONTROLS

SENSOR RELATED MESSAGES

SENSOR BALANCE IS POOR
The temperature sensors MAY be out of sync by 2°F or 3°F. Call for service.

SENSOR BALANCE IS POOR*
The temperature sensors failed to balance and have remained out of sync for more than 1 hour. Call for service.

SENSOR FAILURE – SENSOR A, SENSOR B
A temperature sensor or sensor circuit has failed. Call for service.

MISCELLANEOUS MESSAGES

NO COMMUNICATIONS
The control panel is not receiving communication from the System. Call for service.

°F OR °C IS REPLACED BY °T
The Control System is in Test Mode. Call for service.

* This message can be reset from the topside panel with any button press.

SYSTEM RELATED MESSAGES

MEMORY FAILURE - CHECKSUM ERROR*

At power up, the system has failed the Program Checksum Test. This indicates a problem with the firmware (operation program) and requires a service call.

MEMORY WARNING - PERSISTENT MEMORY RESET*

Appears after any system setup change. Contact your dealer or service organization if this message appears on more than one power up, or if it appears after the system has been running normally for a period of time.

MEMORY FAILURE - CLOCK ERROR*

Contact your dealer or service organization.

CONFIGURATION ERROR – SWIM SPA WILL NOT START UP

Contact your dealer or service organization.

A PUMP APPEARS TO BE STUCK ON

Water may be overheated. POWER DOWN THE SWIM SPA. DO NOT ENTER THE WATER. Contact your dealer or service organization.

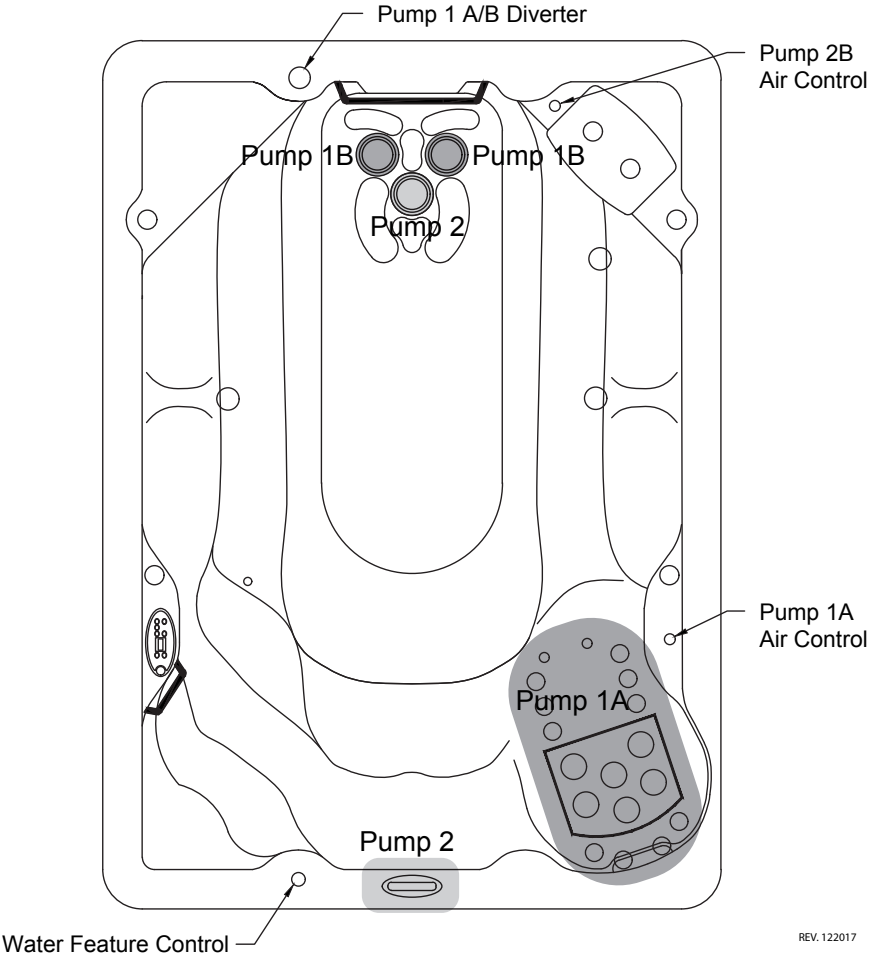
A PUMP APPEARS TO HAVE BEEN STUCK ON WHEN SWIM SPA WAS LAST POWERED

POWER DOWN THE SWIM SPA. DO NOT ENTER THE WATER. Contact your dealer or service organization.

* This message can be reset from the topside panel with any button press.

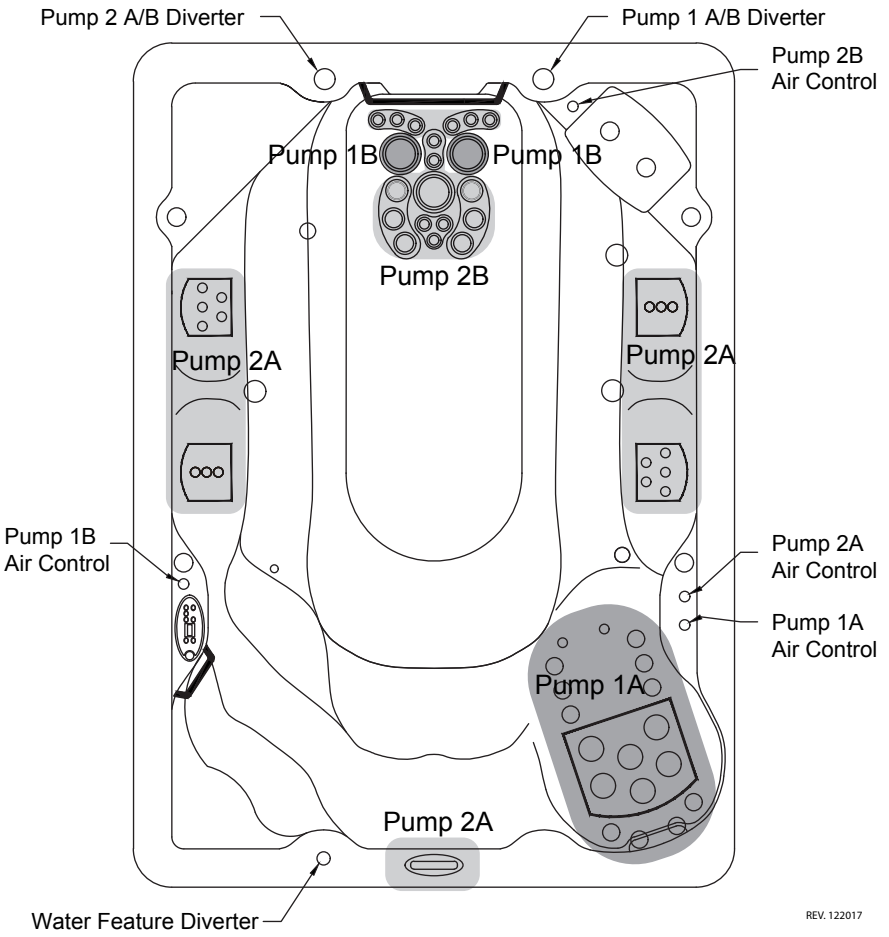
SWIM SPA CONTROLS - PUMP CONTROL DIAGRAM

INT THERAPOOL SE



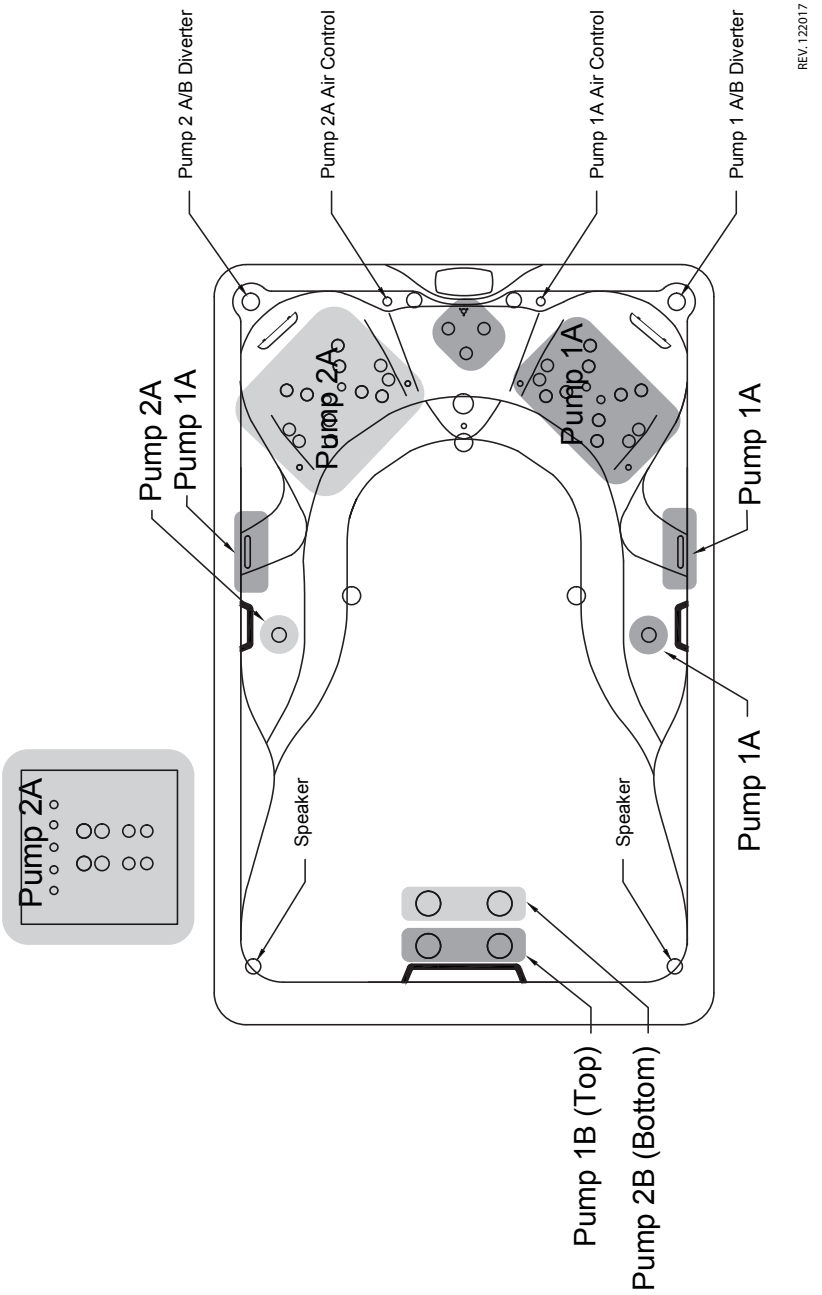
SWIM SPA CONTROLS - PUMP CONTROL DIAGRAM

INT THERAPOOL D



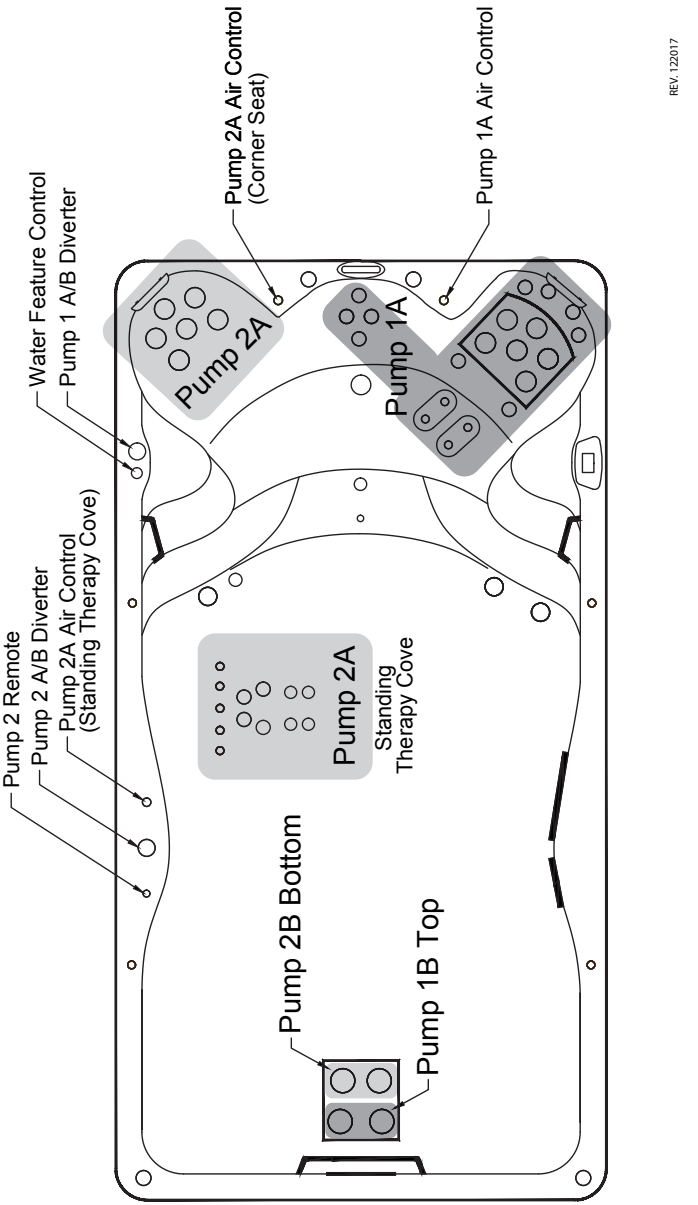
SWIM SPA CONTROLS - PUMP CONTROL DIAGRAM

INT TRAINER 12



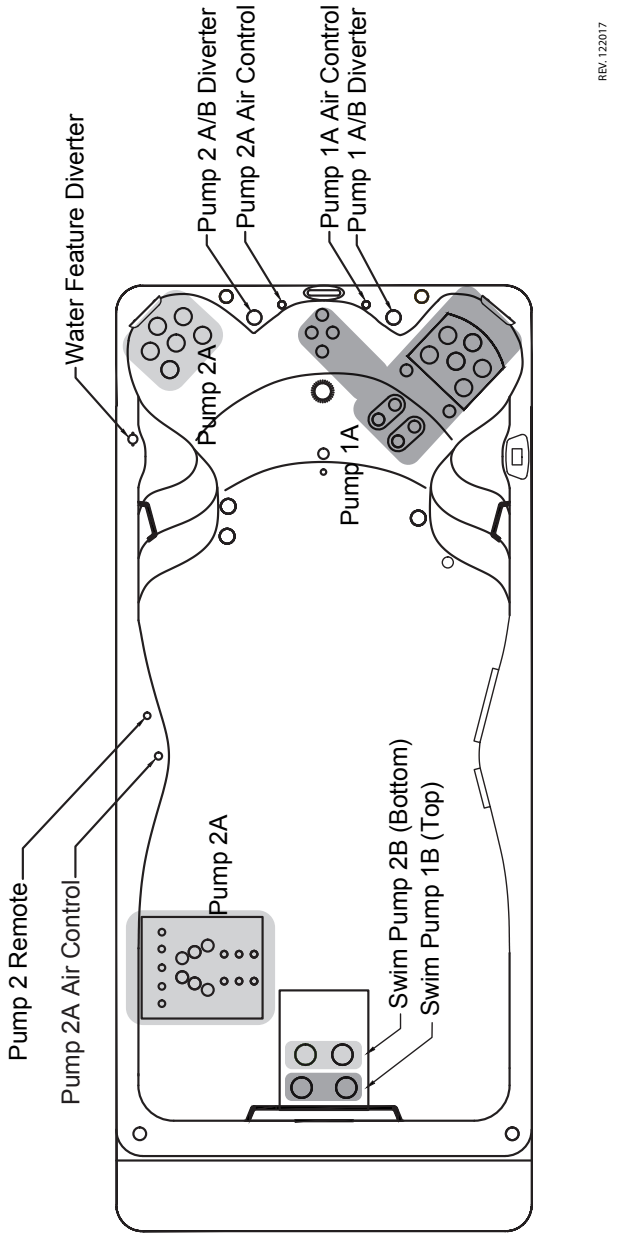
SWIM SPA CONTROLS - PUMP CONTROL DIAGRAM

INT TRAINER 15 & 15D



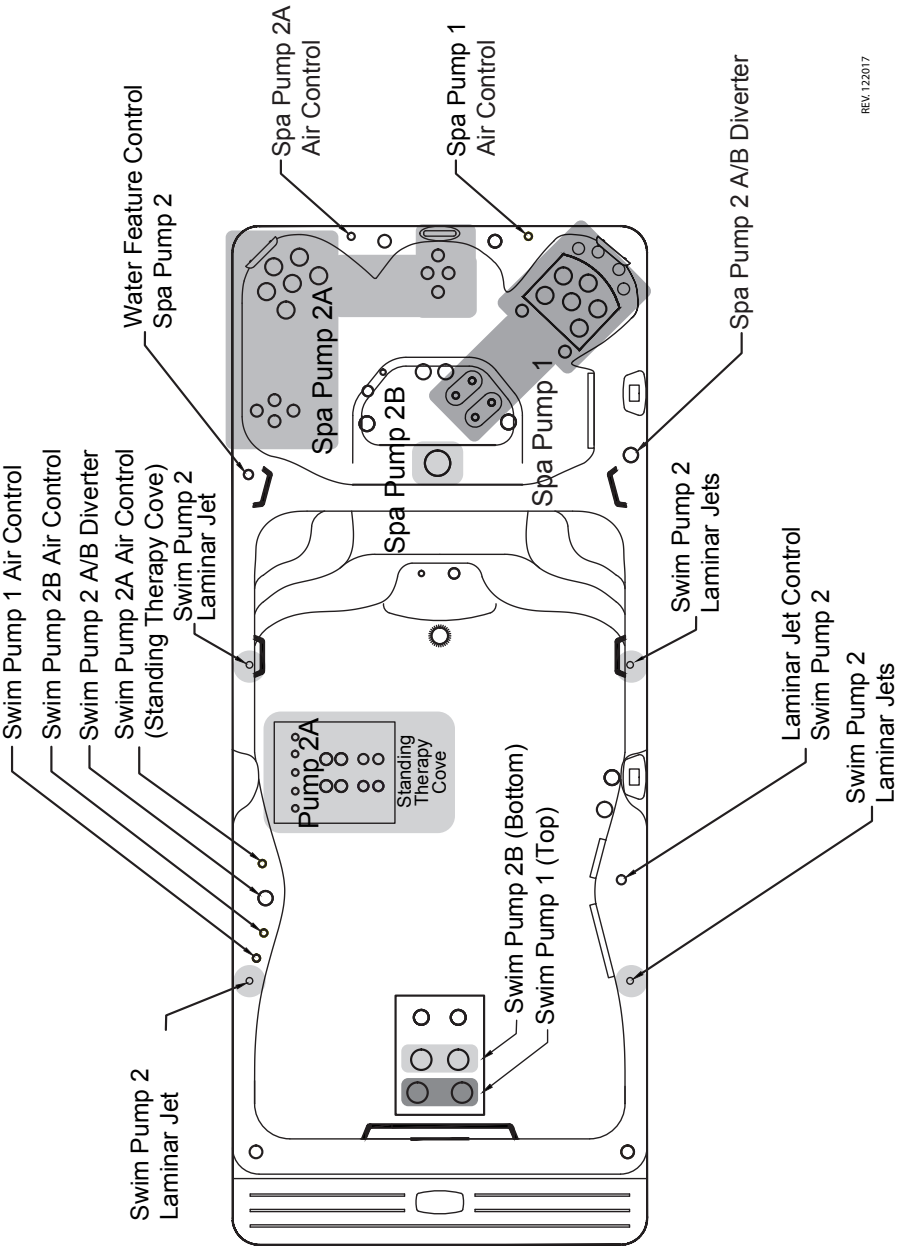
SWIM SPA CONTROLS - PUMP CONTROL DIAGRAM

INT TRAINER 18



SWIM SPA CONTROLS - PUMP CONTROL DIAGRAM

INT TRAINER 19 & 19D



FUSION AIR SOUND SYSTEM (IF EQUIPPED)

REMOTE CONTROL POWER & SYNCING

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

WARNING – Prevent Electrocution. Do not connect any auxiliary/external components to the system (i.e. cables, additional speakers, headphones, additional Audio/Video components, etc.).

HANDHELD REMOTE CONTROL CHARGING

The remote has a built-in Polymer Lithium rechargeable battery and comes with a charging cable. Connect one end of the charging cable to the charging connection on remote control and connect the USB end of the charging cable to any USB charger (5V DC) for charging. Be sure charging connection is dry or allowed to dry before connecting to charge.

Make sure the remote has been charged before used. Do not leave remote under spa cover when not in use. Always store remote in dry location when not it in use.

HANDHELD REMOTE CONTROL SYNCHRONIZING

The remote should already be paired from the factory, but if you need to synchronize the remote, follow the steps below:

1. Make sure BlueCube+ Media Player is powered ON (red LED).
2. Put the remote within 20 inches (0.5 meter) of the BlueCube+ Media Player.
3. Press and hold MODE PAIR MODE on remote control until the LCD shows "Pairing in Progress". Release the button.
4. Within 2 seconds, the LCD will show "Paired". If it fails to pair, the LCD will show "Retry again". If this happens, wait 5 seconds and repeat steps above.

For any additional remote controls, you will also need to synchronize those remote controls to the BlueCube+ Media Player.

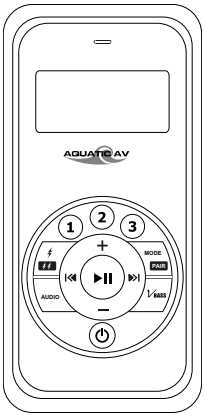
If the pairing process is not successful, try again to put your remote close to the remote receiver or charge the remote control if the battery is low.

Depending on the frequency of usage, the remote may drain its battery. Please charge the remote before use. If the LCD shows nothing, the battery has been drained and will need charging.

If you have lost or damaged your remote control and buy a new remote control, follow the above steps to pair the new remote control.

FUSION AIR SOUND SYSTEM (IF EQUIPPED)

EXPLANATION OF CONTROLS



STEREO OUTPUTS

Internal stereo module has capabilities for Bluetooth, FM Radio, AUX and USB. There is no external capabilities for AUX and USB. For this reason, these inputs will not be applicable when seen on remote. Simply use Mode to rotate back to either Bluetooth input or FM.

REMOTE CONTROL

Buttons		Bluetooth	FM Radio Mode
Power	⏻	Press once: Toggle from Operation mode to Standby mode or vice-versa. Press and hold: No function.	
Mode/Pair	MODE PAIR	Press once: Change mode. Press and hold: Synchronize remote control.	
Volume Up	+	Press once: Volume up Press and hold: Fast volume up	
Volume Down	—	Press once: Volume down Press and hold: Fast volume down	
Fast Forward	⏭	Press once: Next track Press and hold: Fast forward	Press once: +0.05kHz Press and hold: Scan up
Fast Rewind	⏮	Press once: Previous track Press and hold: Fast rewind	Press once: -0.05kHz Press and hold: Scan down
Play/Pause	⏯	Press once: Play/Pause Press and hold: No function	Press once: Toggle mute Press and hold: No function
1	①	Press once: No function Press and hold: No function	Press once: Listen to FM preset station 1 Press and hold: Set preset FM station 1
2	②	Press once: No function Press and hold: No function	Press once: Listen to FM preset station 2 Press and hold: Set preset FM station 2
3	③	Press once: No function Press and hold: No function	Press once: Listen to FM preset station 3 Press and hold: Set preset FM station 3
EXT Trigger	ϟ ϟϟ	Press once: No function Press and hold: No function	Press once: No function Press and hold: No function
Audio	AUDIO	Press once: Enter Audio Menu Press and hold: Save & Exit Audio Menu	
VBass	VBASS	Press once: Toggle VBass on/off Press and hold: No function	

PAIR WITH BLUETOOTH DEVICE

1. Switch on your Bluetooth device.
2. Select 'AQUATIC AV' from the list of available devices to pair (no password is needed).

LISTENING VIA BLUETOOTH DEVICE

1. Bluetooth mode will be activated once a Bluetooth device is paired in any mode. Use MODE PAIR (MODE) to change to the Bluetooth mode to listen to music.
2. Play the song from device and the sound will play through the BlueCube+ Media Player.
3. Press ▶II (PLAY/PAUSE) to play/pause the song.
4. Press I◀◀ / ▶▶I (FAST REWIND/FAST FORWARD) buttons to play previous/next song file.
5. Press and hold I◀◀ / ▶▶I (FAST REWIND/FAST FORWARD) buttons to fast forward / fast rewind the song file.
6. Previous/next track and volume up/down can be controlled directly from your Bluetooth device or directly from the BlueCube+ Media Player remote control.

BLUETOOTH MULTI-LINK

A second Bluetooth device can pair to the BlueCube+ Media Player even when it has been paired to another Bluetooth device. The second Bluetooth device will be able to play once the first device has stopped playing.

ADJUST VOLUME LEVEL

1. Press + (VOLUME UP) once to increase the volume.
2. Press — (VOLUME DOWN) once to reduce the volume.
3. Press and hold either + or — (VOLUME UP or VOLUME DOWN) to increase or decrease audio volume continuously.

ENTER FM RADIO MODE

1. Press MODE PAIR (MODE) on the remote control to switch to FM radio mode.
2. Press ▶II (PLAY/PAUSE) to mute or unmute the audio.

If this is the first time you listen to FM radio, the default frequency will be 87.5MHz, as shown on the remote LCD.

FM radio is only available when you are in FM Radio mode. Scan or seek FM radio Channels.

SCAN OR SEEK FM RADIO CHANNELS

1. Press ⏮ / ⏭ (FAST REWIND/FAST FORWARD) to seek another station.
2. Press once ⏮ / ⏭ (FAST REWIND/FAST FORWARD) to -0.05kHz or +0.05kHz to the frequency.

SAVING RADIO CHANNEL TO MEMORY

To save the current frequency to memory, press and hold the ①, ② or ③ for more than 2 seconds. The station will be stored into relevant button.

LISTENING TO SAVED RADIO MEMORY

Press the ①, ② or ③ preset button once to listen to the station stored in that button.

ADJUST VOLUME LEVEL

1. Press + (VOLUME UP) once to increase the volume.
2. Press — (VOLUME DOWN) once to reduce the volume.
3. Press and hold either + or — (VOLUME UP or VOLUME DOWN) to increase or decrease audio volume continuously.

AUDIO MENU

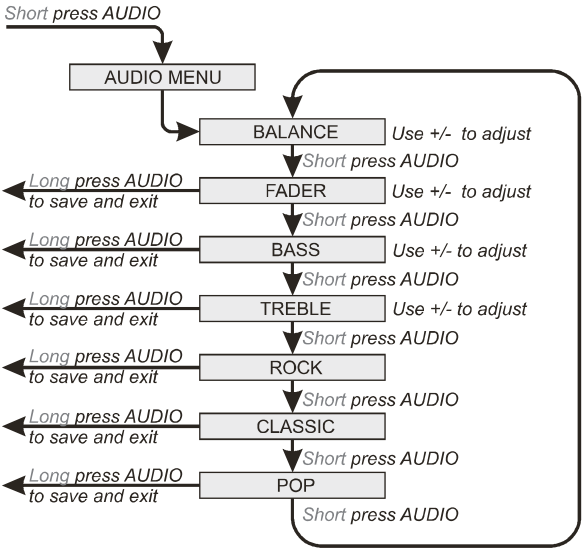
The BlueCube+ Media Player is equipped with an audio DSP (Digital Signal Processor) to provide preset listening experiences for different music types.

1. To enter audio menu, press AUDIO (AUDIO) button once on the remote control.

2. Each press of AUDIO (AUDIO) button will advance to the next audio setting as described on the right.

3. In the audio menu, press and hold AUDIO (AUDIO) to save and exit the audio menu back to the original mode.

If you have chosen preset equalizer (Rock, Classic, or Pop), the previous Bass & Treble settings will be overridden.



VIRTUAL BASS (VBASS)

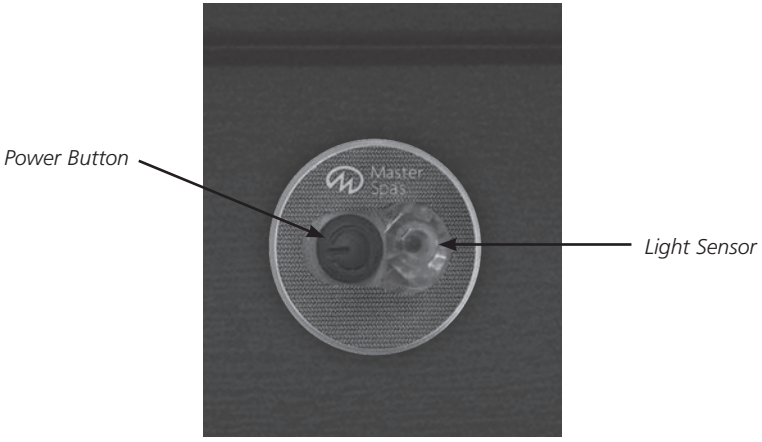
Virtual Bass (VBass) boosts the bass of the audio signal using the latest DSP technology and is particularly useful when used with very small speakers to create perceived bass frequencies of a much larger speaker.

Press VBASS (VBASS) once on the remote control to toggle it on or off.

WAVE LIGHTING (IF EQUIPPED)

Set into a decorative SoftTread™ insert, this laser LED light provides a warm and inviting glow to the exterior of your swim spa at night and looks great as part of your backyard design. The Wave Light Package is available for most deep swim spa models.

This feature utilizes a light sensor to turn on as daylight diminishes (dusk) and remains on through the night. You can manually shut off the lights by pressing the power button located on the light sensor, found on the short, seated end of your swim spa. The Wave Lighting feature is only activated by darkness. It will not turn on during daylight hours or in well lit areas.



WI-FI MODULE (IF EQUIPPED)

Remotely control the operations of your swim spa via an optional integrated Wi-Fi module that works with the Balboa Water Group Wi-Fi Spa Control App. This app is available for Apple® or Android® devices. Please refer to the Balboa Water Group website and mobile device app for operation information.

http://www.balboawater.com/bwa

Note: WiFi Module is not available for all swim spa models. If this options was not added from the factory, see your Master Spas dealer for further details and compatibility.

Note: This regular maintenance for the Mast3rPur system is not covered under the warranty of the swim spa. Your Master Spas Dealer or Service Center can be contacted to schedule this maintenance.

WARNING:

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

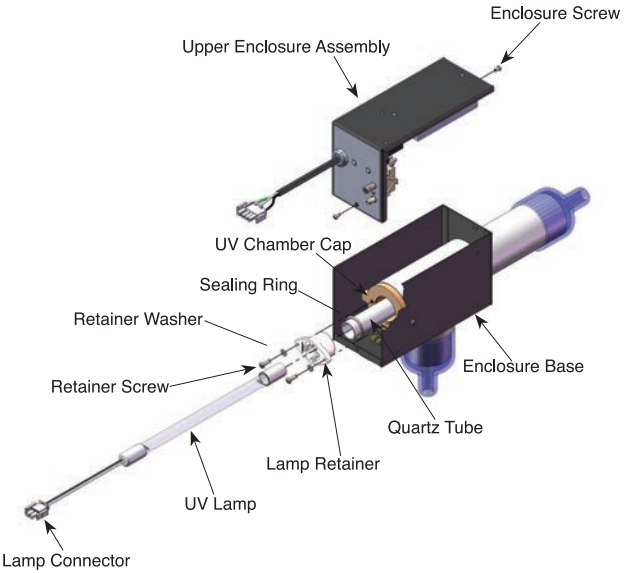


Figure 2: Spa Solar Eclipse Exploded View

a. UV Lamp Removal – See Figure 2.
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.

i. Make sure the unit is disconnected from power and the lamp has cooled before starting maintenance.

ii. Open the Spa Solar Eclipse by removing the two Enclosure Screws on the Upper Enclosure Assembly and lifting it from the Enclosure Base.

iii. Disconnect the Lamp Connector attached to the lamp wires and place the Upper Enclosure Assembly in a safe place.

iv. 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 below).

v. Set the UV Lamp aside in a safe place.

b. Installing the UV Lamp

i. Make sure to handle the new lamp by the ceramic endcaps and clean the UV Lamp before installation if needed.

ii. 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.

iii. 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

c. 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 swim spa water change for inspection and cleaning if necessary.

d. Quartz Tube Removal and Cleaning

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

i. Make sure the swim 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 swim spa must be drained below where the Spa Solar Eclipse is mounted.

ii. Remove the Upper Enclosure Assembly and UV Lamp as described in Section A and set aside in a safe place.

iii. 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.

iv. 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.

v. Inspect the Sealing Ring for nicks or hardness and replace if necessary.

vii. 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.

vii. 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.

viii. 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.

e. Quartz Tube Installation

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

ii. 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.

iii. 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.

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

v. 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.

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

vii. Install the UV Lamp as described in Section B.

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

ix. 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 swim spa warranty.

SOFTTREAD™ FLOOR SYSTEM BY SWIMDEK® (IF EQUIPPED)

The exclusive SoftTread Floor System by SwimDek is available as a premium option on swim spas manufactured by Master Spas to provide the ultimate in traction while using your new swim spa for any activity. Safety while using your swim spa is of the utmost importance to Master Spas and we've literally got you covered with the SoftTread Floor System by SwimDek.

Applied to each entry and exit step as well as the large floor area, safety and comfort are a given. The SoftTread Floor System by SwimDek grips each movement of your feet making exercises easier and more comfortable with the unique combination of traction and cushion. Experience the comfort and safety of this flooring only on swim spas manufactured by Master Spas.

Care & Maintenance Recommendations:

- SoftTread Floor System by SwimDek cleans easily with soap, hot water and a brush (soft to medium bristle stiffness). Chlorine/bleach and water mixture, isopropyl rubbing alcohol or other household cleaner such as SoftScrub, Simple Green and 409 can be used to clean the pads. Be sure any soap or cleaning product is thoroughly rinsed from the pads and swim spa shell and this residue is removed before re-filling swim spa to prevent foaming.
- Always promptly attend to and clean any noticeable stains.

Never:

- Allow stains to develop without promptly being attended to and cleaned.
- Clean with acid based cleaning products.
- Use acetone or mineral spirits on SoftTread Floor System by SwimDek or swim spa shell as damage caused to the swim spa shell from these chemicals would not be warranted.

SoftTread is a registered trademark of Hyperform, Inc, dba SwimDek.

SWIM 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 swim spa.

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

MAINTENANCE LOG

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

MAINTENANCE PERFORMED	DATE	DATE	DATE

SWIM SPA CARE AND MAINTENANCE RECORD

MAINTENANCE PERFORMED	DATE	DATE	DATE

SWIM SPA CARE AND MAINTENANCE RECORD

MAINTENANCE PERFORMED	DATE	DATE	DATE

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SWIM SPA CARE AND MAINTENANCE RECORD

MAINTENANCE PERFORMED	DATE	DATE	DATE

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Master Spas®

Customer Support: www.masterspas.com/resources

6927 Lincoln Parkway, Fort Wayne, IN 46804
800.860.7727 CustomerService@MasterSpas.com

INTERNATIONAL MODELS

The manufacturer reserves the right to change specifications or features without notice. As a manufacturer of swim spas and related products we stand behind every product we produce pursuant to those representations which are stated in our written limited warranty. Your dealer is an independent business person or company and not an employee or agent of Master Spas, LLC. We cannot and do not accept any responsibility or liability for any other representations, statements or contracts made by any dealer beyond the provisions of our written limited warranty.

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