



Owner's Manual

**THIS MANUAL IS SUITABLE FOR
Patioworld Endless 5860 swim spa**



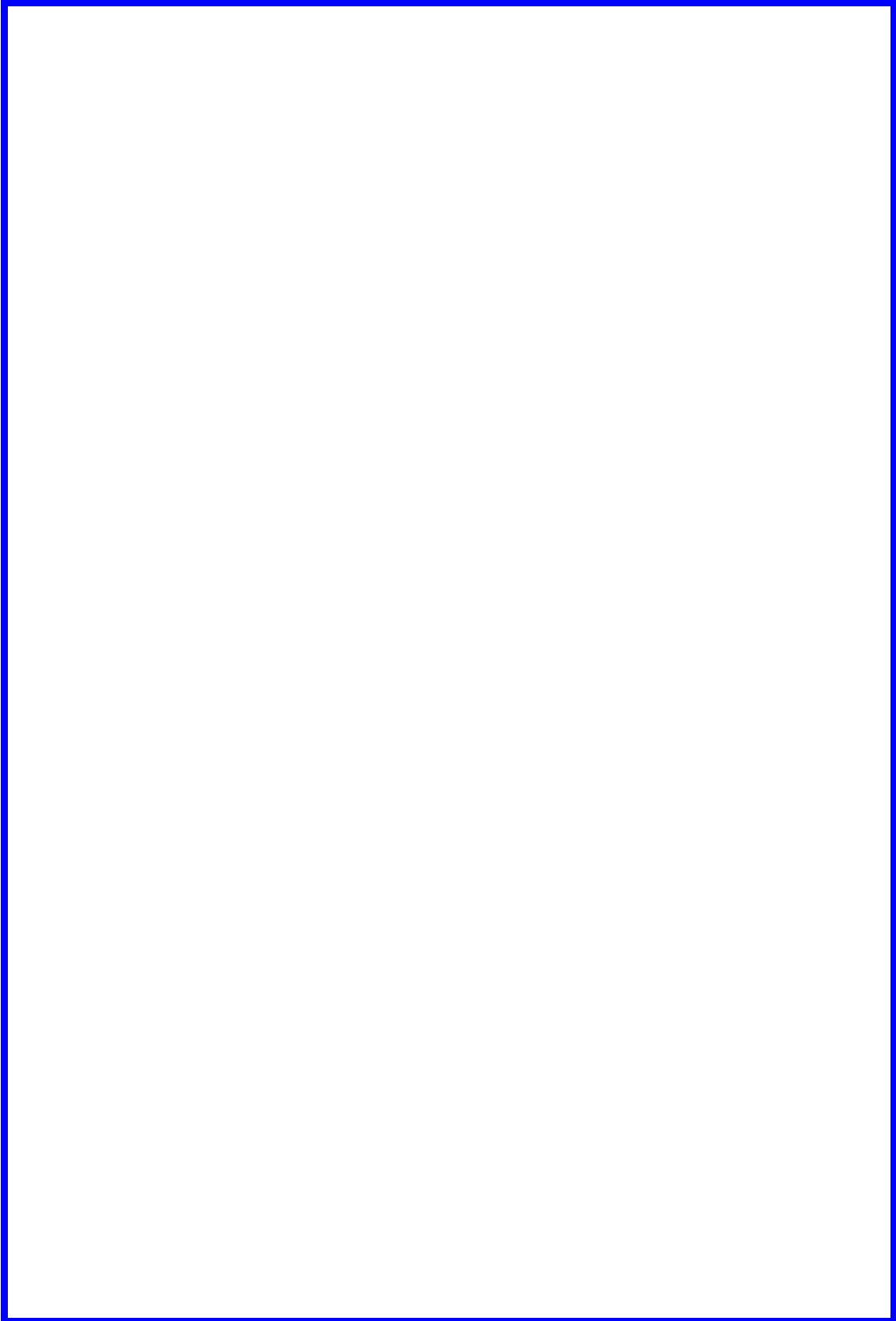




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Letter of introduction .

On behalf of everyone at the company, we thank you for your decision to purchase swim series hot tub by Patioworld.

Recognized for quality worldwide, we are confident that your new hot tub will provide you, your family, and friends, with years of enjoyment and fulfill all your hydrotherapy needs. Patioworld hot tubs are not only healthful and relaxing, they can even add value to your home.

Please take the time to carefully read and understand all the safety, installation and operating instructions in this manual before adding water or electrically connecting your hot tub.

The following pages contain valuable information and pointers that will save you both time and money, as well as help you to simplify upkeep and maintenance.

Since we manufactured our first hot tub in 1993, the Patioworld team has been dedicated to producing a quality product catering to maximum hydrotherapy, comfort, energy efficiency, and ease of operation.

We are confident that as you become more familiar with the various safety and maintenance features of your new hot tub you will be satisfied that you made the right decision in purchasing a AMC series hot tub.

Team Patioworld





IMPORTANT USER SAFETY INSTRUCTIONS

Your physiological response to hot water is very subjective and depends on your age, health, and medical history. If you don't know your tolerance to hot water, or if you get a headache, or become dizzy or nauseous when using your hot tub, get out and cool off immediately.

WARNINGS

- 1 Children should NOT use a hot tub without alert adult supervision.
- 2 Do not allow children to submerge their head under water.
- 3 Do not use a hot tub unless all suction guards are installed to prevent body and hair entrapment. Do not sit in front of, or on top of the suction fittings or skimmer, as this will obstruct proper circulation and may result in personal injury.
- 4 Never operate the hot tub pump at high speed without having all suction and return lines open.
- 5 Always keep the hardcover installed and locked when the hot tub is not in use.
- 6 People using medications and/or having any adverse medical history should consult a physician before using a hot tub.
- 7 People with infectious diseases should not use a hot tub.
- 8 Exercise caution when entering or exiting a hot tub. Where practical, install a safety grab bar or handrail. Turn off the jets before entering the hot tub to improve visibility of the steps or flat entry area.
- 9 To avoid unconsciousness and possible drowning, do not use drugs or alcohol before or during the use of a hot tub.
- 10 Pregnant woman should consult a physician before using a hot tub.
- 11 As prolonged immersion in water temperatures in excess of 38°C (100°F) may be injurious to your health, we recommend measuring the water temperature with an accurate thermometer before entering the tub. We also recommend establishing lower temperatures and shorter use periods for young children and/ or those users potentially affected by hot temperatures.
- 12 Do not use a hot tub immediately following strenuous exercise.
- 13 Do not permit or use electric appliances (such as light, telephone, radio or television) within 1.5





m (5 ft) of this hot tub, unless such appliances are rated at 12VDC or less.

14 Test the GFCI (Ground Fault Circuit Interrupter) monthly.

15 Post emergency phone numbers for Police, Fire Dept., and Ambulance at the nearest phone.

HYPERTHERMIA

Since your hot tub can be set to reach temperatures of 40°C (104°F), users should be aware that extended submersion in water that exceeds normal body temperature can lead to hyperthermia.

The causes, symptoms and effects of hyperthermia may be described as follows:

Hyperthermia occurs when the internal temperature of the body reaches 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:

- Unawareness of impending hazard
- Failure to perceive heat
- Failure to recognize the need to exit the hot tub
- Physical inability to exit the hot tub
- Fetal damage in pregnant woman
- Unconsciousness resulting in the danger of drowning

If you sense any of the symptoms of hyperthermia, safely exit the hot tub immediately.

WARNING

THE USE OF ALCOHOL, DRUGS OR MEDICATION CAN SIGNIFICANTLY INCREASE THE RISK OF FATAL HYPERTHERMIA.

OUTDOOR LOCATIONS

For a variety of reasons, outdoor locations are a far more popular choice.

Some of the reasons include:

- Limited indoor space
- Delivery complications due to door openings, stairwells, etc.
- Limited budget (indoor installations usually also involve interior home renovations)
- Desire for an outdoor entertainment center
- Hot tub is being installed adjacent to an existing or planned swimming pool
- Concerns over splashing water inside the home

For those who choose an outdoor location, hot tub operating temperatures can be adjusted to match the season. In colder months, many owners will operate their hot tub in the range of 38-40°C





(101 -104°F). During warmer months, an operating temperature of 36-37°C (97-99°F) will provide a refreshing retreat. If you should choose an outdoor location, you will find further information as outlined in the section “SPECIAL CONSIDERATIONS FOR OUTDOOR INSTALLATIONS”

CHOOSING THE RIGHT LOCATION

In this part, we describe AMC series hot tub installed outdoors,. The following information will assist you in choosing the right location for your individual needs. When making your decision, always remember that hot tubs can be enjoyed year-round, indoors or out, regardless of the climate. Many AMC owners report that their favourite time to use a hot tub is in the cooler fall and winter months, while others praise the enjoyment of using their hot tub in the warmer spring and summer months.

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SPECIAL CONSIDERATIONS FOR...

OUTDOOR INSTALLATIONS

- Contact your local building department to determine if a building permit is necessary and for information on applicable bylaws (distance from property lines, buildings, fencing requirements, etc.)
- If you are doing any excavating, contact your local gas, hydro, and cable-company to ensure that there are no underground lines
- Locate the hot tub, where practical, within close distance of a door to the house, to maximize potential winter use.
- Ensure that your pump(s), controls, drain-valve and thermal probe are easily accessible and protected
- If possible, locate the hot tub where you will enjoy some privacy, out of the site of neighbours. If this is not possible, a partial privacy or wind partition, or proper placement of the optional Patioworld cover lifter should provide adequate privacy Hot tub equipment is generally designed for indoor (out of the direct elements) use. When your AMC hot tub is equipped with a factory-installed cabinet, and installed as per the guidelines of this manual, the equipment is adequately protected. If the hot tub is shipped without a cabinet, your custom cabinet or other structure must be designed to supply protection for the hot tub support equipment from rain, snow, splash water, etc., but still designed in a manner to ensure adequate ventilation.

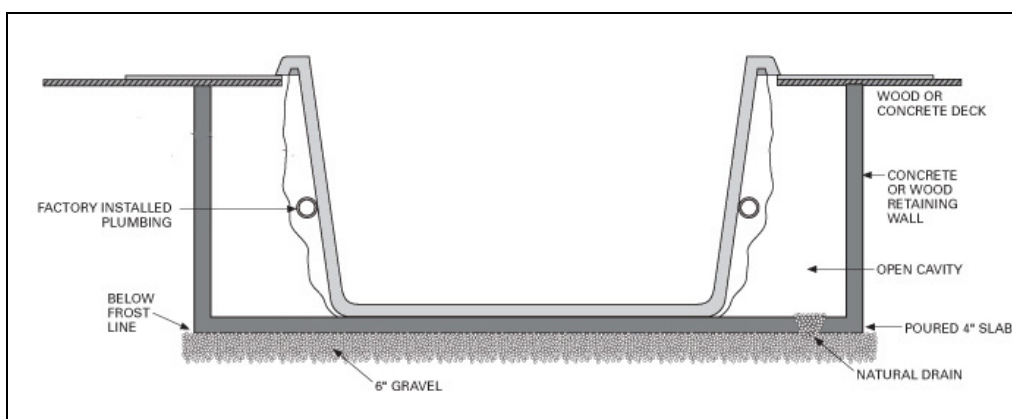


SITE PREPARATION FOR...

ABOVE-GROUND INSTALLATIONS

Where the hot tub is a “stand-a-lone” above-ground installation to be installed in regions where freeze/thaw occurs, a patio stone or pre-formed paver type pad may be sufficient if there is no abutting deck(s) to be damaged during potential seasonal movement of the ground. The drawback to this type of base is that splash water could eventually de-stabilize the ground under the pad, with the resulting support base shift causing damage to the structure. For best results, we suggest the installation of a level concrete pad:

- Dig out and level the ground 20-30 cm (8-12 in.) below your desired base level
- Install 10-15 cm (4-6 in.) of crushed stone
- Next, install 10-15 cm (4-6 in.) of poured concrete
- Level the concrete and apply a broom-type finish
- We recommend that the pad be made 15 cm (6 in.) larger than the hot tub on three sides, and 1 m (3 ft.) larger on the side where the access steps and/or planters will be installed. In regions where freeze/thaw occurs, or where there will be custom decking abutting the hot tub we recommend the installation of sono-tubes beneath the pad to prevent future shifting.





SITE PREPARATION FOR...

FULL OR PARTIAL IN-GROUND INSTALLATIONS

For units being installed fully or partially in the ground, the type of support will again vary based on whether or not the tub is being installed in an area with freeze/thaw conditions.

- Non-freezing climates – it is sufficient to ensure that the base of the hole or cavity created for the tub simply has a stable, compacted base. The side walls do not need to be supported, however where the climate permits, should you choose to backfill directly against the hot tub, a clear sand backfill is suggested

- Climates where freeze/thaw occurs – it is necessary that a proper poured concrete base, complete with sono-tubes, be installed as outlined in the section ABOVE-GROUND

INSTALLATIONS

- Areas with a high ground water table – the concrete base, as well as a concrete or wood retaining wall to hold back the earth, is suggested. This forms a box or ‘bunker’, in which the hot tub is placed

- ALWAYS ensure that there is good drainage, via a properly designed French (gravel) drain system and/or a sump pump, to prevent ground water flooding damage to the support equipment or structure

- Install protective waterproof pipe to house any light, sensor, or topside control cables that could be buried

- Access for future service must be considered at the time of design and installation. Difficult access can result in supplemental service labour charges. Consider easily removable deck materials

OVERALL SUPPORT

Your AMC hot tub is equipped with a factory installed mental stand, which helps distribute the weight of the water over the entire foot area of the hot tub. The cabinet, factory installed or customized on-site, should be decorative only, and not relied on for overall support. Never suspend a hot tub from a deck or floor as the acrylic lip will crack and possibly break off.

EQUIPMENT ACCESSIBILITY

The equipment must be located in an area where it will remain dry and will not be exposed to rain, snow or ground water. The standard AMC hot tub has the equipment installed inside the protective cedar cabinet.

- When your hot tub is to be installed above-ground, the cabinet is designed for both protection and accessibility

- When your hot tub is to be installed fully or partially in the ground, if you are relocating the equipment remotely from the hot tub, or if you have ordered a hot tub without a cabinet: it is necessary that the equipment is installed in an area that is dry, protected from the elements, has

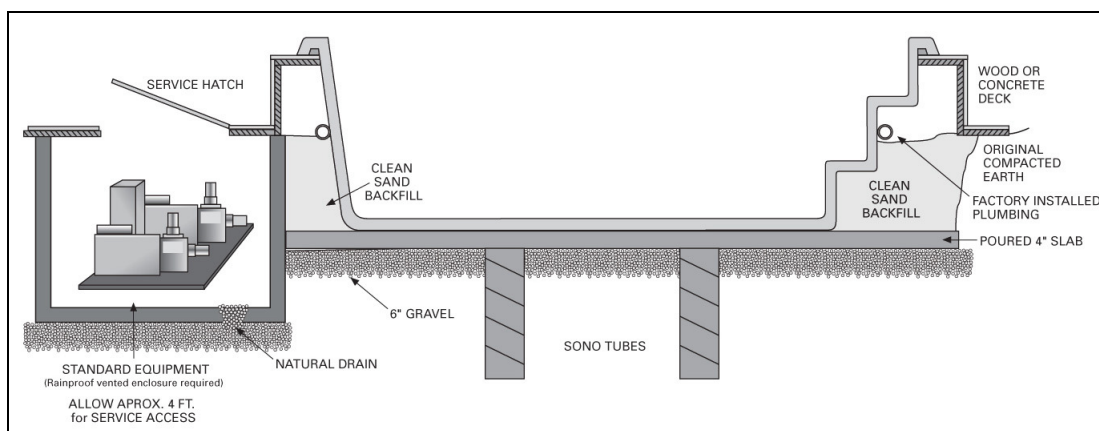


proper ventilation and is easily accessible for service

- Always ensure that the equipment is mounted on a raised base or platform to prevent water damage to the motor, equipment or controls
- Ensure that any opening to the equipment and the working area around the equipment is large enough to accommodate a service person. Whenever possible, install the pump below water level to ensure easy priming. Where above-grade equipment location is necessary, please ensure that your hot tub is equipped with the Remote Above-Grade Option Package. The equipment should be located as close to the hot tub as possible to maximize jet performance. Where you have ordered your hot tub with optional remote equipment, ensure that the equipment is not located more than 5 m. (15 ft.) from the hot tub. Use only suitable flex-pipe for the pipe runs from the equipment to the hot tub, with minimal use of elbows or other pipe restrictions. Install protective waterproof pipe to house any applicable cords or line extensions such as the sensor and top-side control cables, light wires or ozone tubing. In climates where freeze / thaw occurs we suggest that remote piping be buried below the frost line and that pipe insulation is applied over all pipes that run from the hot tub to the remote equipment to maintain energy efficiency.

IN-GROUND INSTALLATIONS

- When submerging the hot tub all or part way below ground level, a concrete base along with a concrete or wood retaining wall to hold back the earth is suggested. This forms a box or 'bunker', in which the hot tub is placed
- Where the climate permits, should you choose to backfill directly against the hot tub, a clear sand backfill is suggested
- Install protective waterproof pipe to house any light, sensor, or topside control cables that could be buried
- ALWAYS ensure that there is adequate drainage via a properly designed gravel drain system and/or a sump pump to prevent ground water flooding damage to the support equipment
- Access for future service must be considered at the time of design and installation. Difficult access can result in supplemental service labour charges or damage to your decking



REMOTE EQUIPMENT PLACEMENT



Where the support equipment is being located in a remote location, the following should be considered:

- The distance from the hot tub should never exceed 5 m. (15 ft.) of pipe length
- Piping diameter must be 2 inches with minimal use of elbows
- All piping should be insulated to minimize heat loss, and reduce the risk of freezing
- Equipment should be installed at or below water level. If it is necessary to install the equipment above grade, the purchase of the optional Remote Above-Grade Option Package will be required
- All control cables should be run through a protective pipe to avoid problems associated with ground settling, frost, etc.
- All support equipment MUST be weather protected, yet still have adequate ventilation

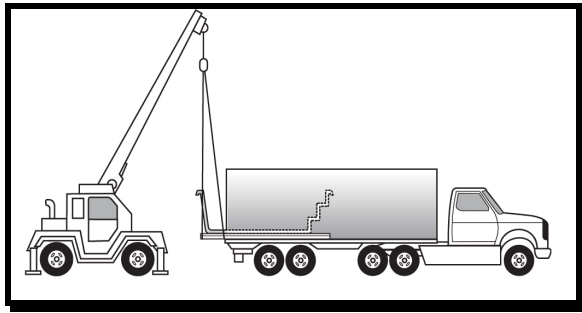
UNLOADING / HANDLING YOUR HOT TUB

All AMC series hot tubs are shipped with a protective combination layer of bubble wrap, cardboard and plastic film. Each hot tub is factory packed into a crate. If your hot tub is to be delivered by your local dealer, it will generally arrive on a flat bed truck or low profile trailer. Most dealers are equipped with the necessary equipment to maneuver the hot tub from the truck to the dolly or cart that will be used to move your hot tub to the installation location. Should your hot tub arrive on a common closed box trailer, it may be necessary to arrange with a local towing company for a tilt and load tow truck, with a pulley wrench system, to pull the skid from the larger trailer to the lower profile tow truck flat bed. The hot tub can be gently slid off the low profile trailer and positioned on its side on a cart or dolly. Most AMC models require a clearance width of at least 100 cm. (39 in.) to allow movement of the unit (on its side) through alley-ways, fence openings, etc. Where this is not possible, the use of a crane to lift the hot tub from the truck or trailer over the house to the patio or yard is often a simple and economical option.

CAUTIONS

- Never roll or flip the hot tub end over end as the cabinet could be damaged
- Never lift or handle the hot tub by the plumbing
- Make sure that there is sufficient assistance to gently slide the hot tub off the dolly or cart to the support base without any damage






Your AMC Hot tub is a self-contained pre-plumbed unit, so that no on-site plumbing connections to the residential water supply or drain are required. Simply place the hot tub in the desired location and install as outlined on the following pages.

IMPORTANT NOTES

- 1 Do not lift the hot tub by the plumbing, you may cause leaks
- 2 Your hot tub can be installed above grade, in the floor or ground, or half-and-half
- 3 Ensure that your AMC hot tub is properly supported by either a level concrete pad, or a properly constructed deck capable of supporting 1220 kg/m² (250 lbs./ft.²). If there is a possibility that the pad could shift by freezing/thawing ground movement (such as in clay regions, and/or areas with high water tables) sono-tubes extending below the frost line should be used
- 4 Decking should be chosen and constructed in a manner that minimizes the chance of slipping or falling
- 5 Level your hot tub using wood shims where necessary, ensuring that the tapered end extends at least 2 feet under the unit
- 6 If you do not have a factory installed foamed cabinet, it is assumed that you are building your own custom cabinet, tiling or decking. Please consider the following:
 - a Your AMC Hot tub is self-supporting on its base. The cabinet should be decorative only, not for support. Never suspend the hot tub from the deck or cabinet
 - b Where the hot tub is not equipped with a factory installed cabinet, it is the installing electrician's responsibility to ensure all electrical equipment is weather protected
 - c Always provide adequate access for servicing the support equipment
 - d Decking should be constructed to allow repair access around the entire hot tub
 - e In remote equipment or no-cabinet installations, you may add extra insulation, but the equipment area must have adequate cross-flow ventilation
- 7 Installation of a safety grab rail or reachable support for use when entering or exiting the hot tub is recommended
- 8 The hot tub equipment and all electrical plugs, outlets and lights within 1.5m (5ft) of the unit must be G.F.C.I protected. Consult your electrician or local electrical authority for further details
- 9 Access to the hot tub must always be secured: Outdoors - in accordance with local property by-laws and/or via an approved fence with a self-closing gate and a safety hardcover; Indoors - by a lockable door and a safety hardcover



10 A nearby garden hose connection is recommended for filling and “topping up” the hot tub

LEVELING YOUR HOT TUB

After the hot tub is properly positioned on the support base, the entire unit should be checked with a level and shimmed as necessary. Should you find that the support base is sloped or otherwise uneven, level your hot tub using


TAPERED wood shims where necessary, ensuring that the tapered end extends at least 2 feet under the unit. This will insure contact with the support substructure to appropriately distribute the weight of the unit. Do not just shim under the cabinet base outside edge, as this will cause structural stress on the unit, potentially causing damage to the hot tub structure and /or shell.

GENERAL INSTALLATION INSTRUCTIONS

Your Serenity Hot tub is a self-contained pre-plumbed unit, so that no on-site plumbing connections to the residential water supply or drain are required. Simply place the hot tub in the desired location and install as outlined on the following pages.

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-
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- 2 Your hot tub can be installed above grade, in the floor or ground, or half-and-half
 - 3 Ensure that your Serenity hot tub is properly supported by either a level concrete pad, or a properly constructed deck capable of supporting 1220 kg/m² (250 lbs./ft.²). If there is a possibility that the pad could shift by freezing/thawing ground movement (such as in clay regions, and/or areas with high water tables) sono-tubes extending below the frost line should be used
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 - 10 A nearby garden hose connection is recommended for filling and "topping up" the hot tub

IMPORTANT ELECTRICAL SAFETY INSTRUCTIONS

When using this electrical equipment, basic safety precautions should always be followed, including the following:

- 1 READ AND FOLLOW ALL INSTRUCTIONS





2 Connect only to a dedicated circuit protected by a class 'A' ground fault circuit interrupter (GFCI)
 3 The hot tub equipment and all electrical plugs, outlets and lights within 1.5m (5ft) of the unit must be G.F.C.I protected. Consult your electrician or local electrical authority for further details

4 A green colored terminal or a terminal marked "G", "GR", "Ground", "Grounding" 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 the equipment

5 At least two lugs marked "BONDING LUGS" are provided on the external surface or on the inside of the supply terminal box or compartment.

[GFCI APPLICATION GUIDELINE*](#)

220VAC ,1 phases (massage part setion) control panel: GS501Z


MODOL NO.	Device	Power	Rated Amp	Total Gfci Req'd
	Water pump 1	0.375kw	1.7A	26.65
	Water pump 2	1.5kw	6.81A	
	Air blower	0.9kw	4.09A	
	heater	3kw	13.6A	
	Other system	0.099W	0.45A	

Because the heater will be switch off automatically when the massage pump works
 In actual condition the total current will be 13.05A in the massage part setion

220VAC ,2 (swim part setion) control panel: GS510S

MODOL NO.	Device	Power	Rated Amp	Total Gfci Req'd
	Water pump 1	2.25kw	10.22A	46.41A
	Water pump 2	2.25kw	10.22A	
	Water pump 3	2.25kw	10.22A	
	Water pump 4	0.375Kw	1.7A	
	heater	3KW	13.6A	
	Other system	0.099W	0.45A	





Because the heater will be switch off automatically when the massage pump works
In actual condition the total current will be 32.81A in the swim section

* Important Notes:

- This guide is for standard installations where the wire run is 10 m or less. For longer wire runs, consult a qualified electrician
- This is the rated 'nameplate' amperage draw for certification purposes. Actual amperage draw will vary based on line voltage
- All systems require a two-pole, Class 'A' GFCI
- Any GFCI Req'd

WIRE SIZE

• The *minimum copper wire* size for systems that require different maximum ampere GFCI are as follows :

Different maximum ampere GFCI	<i>Minimum copper wire size</i>
15A	not less than 1.5 square mm
25A	not less than 2.5 square mm
32A	not less than 4 square mm
40A	not less than 6 square mm
50A	not less than 8 square mm
70A	not less than 10 square mm

Please consult a qualified electrician.