OWNERS MANUAL

Thank you for purchasing a Aahs Spas Spa! We sincerely hope you enjoy your spa experience, and we welcome any comments that you may have. We have done our best to make this manual clear and concise, but if you need further help, please do not hesitate to contact your spa dealer and ask for their assistance. Most of the questions that arise with spa ownership are addressed in this manual, so please take the time to look through it and become more familiar with your new spa!

Again, thank you for your purchase, and we welcome you to the Aahs Spas family!!

Starting Your Spa

Getting Started

Okay, so you want to jump right into your new spa and relax with the total hydrotherapy a spa gives you. But there are some small steps to undertake FIRST, before you can enjoy your spa. Please follow these guidelines to ensure a happy spa experience:

1. Carefully remove all packing material from the spa. Besides this manual, you should have also received a warranty registration card, and an extra Micron “sock” spa filter.
2. Clean the interior of the spa of any debris. Usually, this can be done by simply wiping the interior of the spa with a damp cloth. DO NOT use household cleaners, as this will adversely affect the water.
3. Be sure that you are familiar with the equipment identification and descriptions section of this manual.
4 DO NOT turn on the service at breaker panel or sub-panel/disconnect at this point.
5. Visually check to make sure all water shut-off valves (or gate valves) are open.
6. Make sure the hose bib (or drain hose) is closed.
7. Using a standard garden hose, fill the spa with fresh tap water to 2 inches above the filter opening. You can fill the spa by putting the hose directly in the filter opening, and make sure to remove the filter prior to filling. By doing this, you will make air locks less likely (**DO NOT** fill with softened water if you have a water softener system on your home. If you do, call your dealer PRIOR to filling your spa.).
8. Inspect all plumbing connections and lines for any sign of water leakage. If necessary, tighten the unions by hand. Your spa was water tested prior to shipping, but sometimes in transit, the unions can come loose - simply tighten them to avoid any water leakage in spa operation. (Also, in cold weather, we intentionally leave the unions loose so that water does not collect in the union area and freeze, which would crack the line. Please inspect and tighten the unions prior to turning on the spa.)
9. Turn on the spa at the breaker panel or sub-panel/disconnect. (**NOTE**: The spa, when you turn it on, will automatically start - it’s computer controlled, so it will turn the primary pump on ‘low’ to start the heating process.) Immediately, when you hear the primary pump come on, depress the “Jet 1” button to turn the primary pump on ‘high’ on the topside control panel. Allow the primary pump to run until all the air is purged from the system and the jets are flowing smoothly. If water does not start to circulate from the jets on this primary pump, then the air is locked. Turn the primary pump off by depressing the “Jet 1” button again and wait for 30 seconds. Then, depress the button twice to go immediately to the “high” setting. If the water does not start to circulate from the jets this time, the air lock will need to be addressed in a different manner. Contact your spa dealer for suggestions. (**NOTE:** Allowing the primary pump to run in this ‘air locked’ condition can cause damage to the pump and equipment. This also applies to the secondary pump, if a second pump is present.) If everything is okay with the water circulation, depress the “Jet 1” button to allow the pump to run on the low speed setting until the spa reaches its pre-programmed temperature.

10. Turn on the lights on your spa to make sure that they are operational. Also, check the individual jets to make sure they are operating and flowing water. Remember that most of the jets have an outer ring, commonly called an “escutcheon”. Turn this ring to turn the jet ‘on’ or ‘off. And remember that most of our spas have one (or more) air valve knobs located on the top of the spa. Check their operation, as well. If you see the water stream from the jets get larger when you turn the air valve knobs on, then the air valves are working properly.
11. Place the Spa Cover on the spa and allow enough time for the spa to heat up before using it. Also, check the spa cover locks and make sure they are secure on the skirt/siding of the spa. These locks will help your spa cover stay on should there be excessive wind in your area.
12. **ALWAYS** check the water temperature of the spa prior to entering your spa - the digital top-side control will clearly read the spa’s temperature at all times. To change the temperature, depress the right button to go higher, the press again to go lower.
13. **ENJOY YOUR NEW SPA!!**

Maintaining and Caring for Your Spa

You already know that you have purchased one of the finest spas available on the market today. We have continually tested and improved our spa products, and the spa you purchased is the best that there is to offer. The following section, then, is intended to offer you tips on keeping your spa looking and functioning like new.

Water Quality and Maintenance

There are few experiences that can be as relaxing and enjoyable as a leisurely soak in your spa. One of the key factors to enjoying your spa is having clean, comfortable and safe water. Not only will you appreciate your spa more, but your guests will, too!

At 104F, the average person perspires at a rate of approximately 2 pints per hour. The sebaceous glands of the skin are stimulated and secrete an oily substance known as 'sebum'. Soap films, deodorants, perfumes - all the things we use on our skin - are also released into the spa water when we soak.

However, when these substances are present in normal spa water, they can contribute to poor water clarity and can also create a perfect environment for the growth of bacteria and algae, if left uncontrolled.

We HIGHLY encourage you to clean your filters at least every week, and follow the manufacturers recommendations on how to clean the filters. Remember that if your filter is dirty, then all water passing through the filter will also be dirty. By cleaning the filters more often, you will keep your spa operating as good as new!

And don't forget to replace the filters every 4 to 5 months (or sooner if ripped or soiled badly).

Good water quality not only contributes to your enjoyment of your spa, but is also essential to the longevity of the equipment that makes your spa function. Good water quality is **NOT** hard to achieve once you have learned the basics to spa water maintenance. A total water quality maintenance program will include a combination of filtration and some very basic water chemistry knowledge. We suggest you ask your spa dealer for a quick explanation of some basic chemicals, and a better idea is to buy a Starter Chemical Kit and use this kit prior to buying additional chemicals.

(Due to the individual water differences across the country, please check with your spa dealer for the chemical program that will work best in your area. And remember that not one spa maintenance program works for everybody - people secrete oils at a different rate - so you will eventually learn what chemicals work for your type of spa experience.)

Chemical Safety and Storage

WHEN USING CHEMICALS, READ THE LABELS CAREFULLY AND FOLLOW THE DIRECTIONS!! The chemicals for your spa water protect you and your spa when used correctly. However, in
concentrated form, they may become hazardous. Here are a few tips when handling spa chemicals:

1. **NEVER** combine chemicals together with each other. Some chemicals require that you wait 24 hours prior to adding a different type of chemical to the same water. Read and follow the manufacturers directions on the chemical labels.

2. **ALWAYS** use the exact measurements or quantities specified on the label **- NEVER MORE!** Do not 'overdose' on spa chemicals.
3. Handle all chemical containers with care and close them when they are not being used. Use the right caps for the right containers.
4. Store your chemicals in a dry, cool, and well-ventilated area out of the reach of children. **NEVER STORE CHEMICALS UNDER THE CABINET OF THE SPA.** Chemical fumes can cause severe damage to your equipment.
5. Allow only responsible adults to handle and administer chemicals. Keep them away from children, and do not allow your children to administer the chemicals to the spa.
6. Do not inhale fumes or allow chemicals to come into contact with your eyes, nose or mouth. Wash your hands thoroughly after handling any chemical products.
7. If you should accidentally swallow or get the chemicals into your eyes, follow the emergency directions on the products' label. Call your doctor or local Poison Control Center immediately! If you need emergency medical attention, take the chemical container with you to the treatment facility so that the substance can be properly identified.
8. Avoid getting chemicals on the surrounding areas of your spa or landscaping.
9. Do not use a vacuum cleaner for chemical spills.
10. Do not smoke or use an open flame around chemicals - they MAY BE FLAMMABLE!
11. Avoid splashing or spilling liquid chemicals on the wood portion of your spa, if any.

Draining Your Spa

About every 6 to 12 months, or as often as is necessary, your spa should be drained, cleaned and refilled. (For spas equipped with an optional Ozone Generator, this timeframe may be longer.) Use the following procedure for the best results:

1. Turn the heater down.
2. Turn the spa off at the break.er or sub-panel/disconnect. (**NOTE**: If you have pneumatic controls, turn the thermostat down completely first.)
3. Open the equipment access door and locate the drain hose bib -it will be near your spa motor and equipment. Attach your garden hose to the hose bib. Open the hose bib -this will allow the spa to drain by simple gravity.(**NOTE**: Do not drain the spa water onto surrounding plants and shrubbery if there are excessively high levels of bromine or chlorine in your spa water.) This method will leave 6" to 8" of water in the footwell, which will need to be removed prior to filling your spa with new water. A simple cup or small bucket does a good job at removing the remaining water from your spa. **NEVER USE A GLASS CUP FOR THIS PROCEDURE!!**
4. After you have drained your spa, wipe it down with a dry towel. Remove the filter and clean the walls of the filter compartment. Replace the filter, but only if clean.
5. Refill your spa in accordance with the chapter, Starting Your Spa.

Cold Weather Care

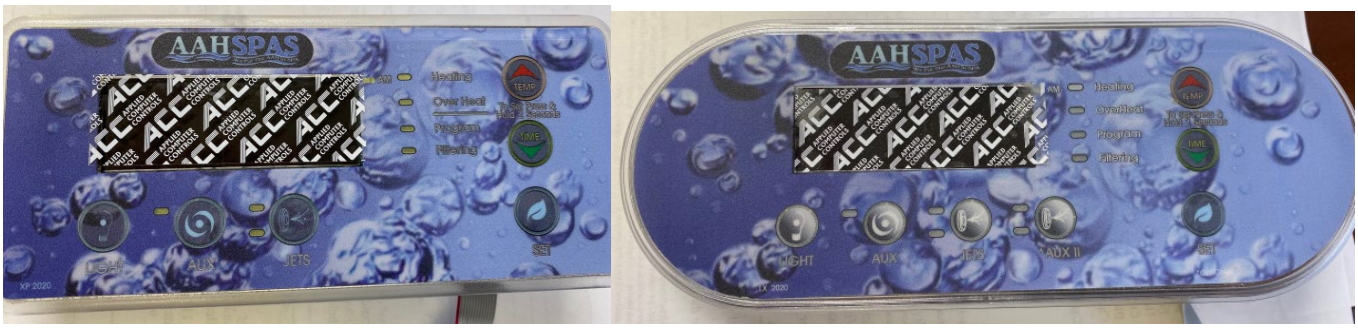
If you live in an area that is subject to freezing weather, it is usually best to leave your spa in operation during these conditions. When a spa is drained, it may retain some water in the plumbing lines, pump and filter. This retained water MAY FREEZE, CAUSING PLUMBING LINES AND/OR MECHANICAL PARTS TO EXPAND AND BREAK.

If you need to drain your spa in the winter months, it is best to have it done professionally. If that is not possible, begin by following the Draining Your Spa procedure. Then proceed as follows:

1. Bail or vacuum all water from the spa.
2. Open all unions in the equipment area and ‘shop vac’ all the water from the equipment and plumbing lines that you can reach.
3. Remove the filter, clean it and store it dry
4. Remove all the water from the filter area.
5. Cover the spa with the hard cover and lock it down for child safety.

****(Parts containing live (moving) parts, except parts supplied with safety extra-low voltage not exceeding 12V, must be inaccessible to a person in the spa. Also, earthed appliances must be permanently connected to fixed wiring. Do not attempt to handle any electrical devices or parts while in - or around - the spa, especially when wet.)****

Equipment Identification and Description



Top-Side Control

Your spa topside control (or sometimes known as the 'digital control pad') enables you to completely program your spa. Please refer to the ACC topside control panel operations guide (separate manual) for more detailed instructions. In addition, this is the way you turn on and off the lights, pumps, and (if included) the blower. To reset the spa (and restore the factory programming of the spa), simply turn off your spa at the breaker or sub-panel/disconnect, wait two minutes, then turn it back on again. When you turn it back on, the spa will stay the same temperature. (NOTE: Do not randomly press the buttons on the digital topside control, as you may inadvertently re-program your spa.)

Filtration System

Your spa comes with an automatic filtration system, which is operated by a dedicated circulation pump. Filtration is achieved by mechanically pumping water through the tiny pores in the filter. As the water passes through the filter, particles suspended in the water are trapped in the fiber of the filter. Because Aahs Spas is on the cutting edge of technology, all of our spas are computer controlled and come with a preprogrammed factory default setting of running on extremely low power continuously.

The new 'sock' filters are the best in the business, and trap more dirt and oil than any leading competitor. Because of the effectiveness of these new sock filters, it is imperative that you keep them clean in order for them to be effective and keep your water sanitary and healthy.

As with any filtration system, the filter will eventually fill up and become pluggedup with particle:, from the spa water. The filter will then need to be taken out and cleaned periodically. How often you need to clean the filter will depend largely on the water chemistry of your area and how often you are using your spa. You should clean the filter weekly, and more often if the water becomes cloudy or dirty.

To clean the filter, remove it from the filter housing by turning the filter retaining piece so that the filter can be removed through the top. Proceed to flip the sock filter inside out and remove any big debris (hair, leaves, bugs, etc.).

Your filter can then be put in your washing machine. We recommend washing it with your towels. DO NOT put the filter in the dryer. Drip dry only, or the filter may also be placed in the spa when wet. A filter that has been accidentally dried by any other means than drip dry will need to be replaced.

If you do not want to wash your filter in the washing machine, you may instead soak the filter in a good filter cleaning agent. After soaking in a cleaning agent, make sure to completely and thoroughly rinse the filter with clear water PRIOR to putting it back into your spa.

Suction Fittings

These fittings are located in the foot well area of your spa and function as part of the water circulation system. UNDER NO CIRCUMSTANCE should you remove the suction fitting covers.

Hydrotherapy Jets

Your spa is equipped with numerous hydrotherapy jets. You may have one or more types of jets on your particular model of spa. Your spa dealer can help you become familiar with the configuration on your spa model.

Ventures

These are knobs or dials located around the top lip of your spa that allow you to introduce air to the hydrotherapy jets, thus increasing the jet action and ultimately, your relaxation.

Diverter Valve

This is a valve located on the top lip of your spa. It allows you to divert water flow from one group of jets to another. The valves operation varies depending on your particular model of spa.

Hose Bib The hose bib is used to drain your spa water. It is located in the equipment area, underneath/below your topside controls. You can attach your hose to this device and drain your water away from the spa location.

Gate Valve and Unions

These assemblies join the plumbing lines to various components of your spa's circulating system. They are located on the intake and discharge portions of the pumps, as well as the intake and discharge sides of the heater assembly. These unions are threaded and must be checked for tightness before starting your spa. (**NOTE:** The gate valves **MUST** be open (up position) prior to the operation of your spa. **Refer to Starting Your Spa.**

Pump(s)

The water pump(s) on your spa has 2-speed operation. The circulation pump is automatically controlled by the control pack for heating and filtration. Pressing the "JET" button (Either Jet 1 or Jet 2) will put your pumps in low or high speed, or off. Spas that have 3 pumps will only have high on the Jet 3 (unless the tub is upgraded to the BP2000 third pump in which it will be the same as Jet 1 and Jet 2).

Control Pack

This is the control center, or 'brains', of the spa. It is located directly below the spa topside control panel. This is where the power is wired to power your spa, and the computer resides in this pack to operate your spa. However, for ease of operation, all the functions you need to access are on the spa topside control, so you will rarely (if ever) need to access the Control Box. The heater assembly is also part of this pack, and the stainless steel manifold housing the electric heating element is located directly under the Control Pack.

Warranty Service Information

Your new spa protects you against certain defects in materials and workmanship for specific periods, depending on the items covered. Please check with your spa dealer for this information, or look through your warranty information that came with your spa.

However, there are some items that are not covered, and here is a partial list:

1. Service trips to your home to teach you how to use the product. The best way to learn is to visit your spa dealer and have them go over the spas operation with you on a demonstration spa. This way, you'll not only learn how to use your spa better, but you can ask questions from your spa dealer or sales consultant.

2. Improper installation. If you have an installation problem, contact your spa dealer immediately for their assistance. You, of course, are responsible for providing an adequate installation site and electrical connecting service for your new spa, unless your spa dealer has taken care of this for you in your spa contract.
3. Replacing fuses or resetting of circuit breakers.
4. Failure of the product or damage to any of its components caused by improper water chemistry. Please ask your spa dealer about chemical usage if you have any questions. It will ultimately help you enjoy your spa better!
5. Failure of the product if it's used for other than its intended purpose, or when used commercially.
6. Damage to the product caused by accident, fire, flooding, land movement, or acts of God.
7. Damage to the product as a result of negligence or improper maintenance.
8. LED Lights.
9. Service by unauthorized personnel or un-licensed spa technicians. Call us if you are in doubt and we can call and make sure they are familiar with our products.

TECH TALK.....TROUBLESHOOTING GUIDE

For SmarTouch Digital

ERROR CODES

COLD Water temperature below 40 F.
SESH Temperature sensor shorted.
HLer Overheat condition or overheat sensor disconnected
PSOH Pressure-switch open with high speed jets ON
OH Water temperature above 108 F.
SEOP Temperature sensor open or disconnected
PSOL Pressure-switch open with low speed jets ON.
PSOC Pressure-switch open with circulating pump ON

Error code PSOL? PSOH? PSOC?

EXPLANATION:
No water pressure. Pressure Switch Open.
-Check if circulation /filtration pump is running.
-Check for the following symptoms:

PUMP running but no water flow
-Check for possible airlock. Pump is not primed. Check for a closed gate valve.

PUMP does not run.
-Is primary pump connected.

Only a trained or qualified technician can perform the following procedure

-Measure, using a voltmeter, INCOMING POWER.
-240 VOLTS. Across L1 & L2 at Terminal Block (240V installations only)
-Check pump power rating.
Measured voltage at pump connector MUST match power rating at pump motor label.
-Measure 240 or 120 Volts @ primary pump connector (pump 1) across WHITE and RED for low speed (PSOL) and WHITE & BLACK for high speed jets.(PSOH)

NO POWER READING AT PUMP CONNECTOR:
Replace PCBoard. Possible burnt fuse or pump relay circuit defective, provided incoming power is verified at main Terminal Block.

POWER O.K.: Replace pump.

PUMP runs and there is flow:
- Heater manifold must be plumbed to pump discharge or output side to activate pressure switch.
-Check Pressure Switch connections at Pressure Switch.
-Jumper across pressure switch terminals. If error code goes away check Pressure Switch calibration or P/S is defective.

Spa will not heat.

Check for error codes 'OH' or "HLEr". If YES then check for the following:
-Good water flow.
-Possible air pocket inside Heater Manifold or an Air Lock

1- Is Heater indicator light ON at spaside control panel?
Yes Go to next step.

2- Is Red indicator light located at equipment enclosure "ON"?
YES -Burnt element. Replace heater element.

NO Check for the following:

1- Voltage at the Heater Contactor Coil Relay. Across the White and Yellow wires. 120V or 240V depending on power rating on contactor relay.
   If power is present and contactor does not engage, replace contactor.
   If there is no power replace PCBoard
2- Check power at load / output (right) side of contactor . If there is power go to next step. If not go back to step one.
3- Check power at Heater ELEMENT. If no power then High Limit relay on PCBoard is NOT -- closing. Remove plastic dust cover off and inspect relay contacts. Replace PCBoard.

OVERHEAT ERROR CODES (OH or HLEr) but spa water temperature is not.

Allow enough time for the sensors to cool down. Then clear the error code by pressing the SET button.

1-Turn temperature down to lowest setting & press the SET key

2- Press SET a second time and allow the low speed Jets to run for 2-3 minutes

3-Is temperature reading dropping? Does it match the thermometer reading in the spa ?
4-If YES . there is flow restriction. Clean / inspect or remove filter cartridge. Or secondary bypass intake to the pump is blocked or not installed.

5-Raise the temperature setting to 4 degrees above water temperature. Average heat gain is about 30 minutes. If there is rapid heat gain go back to step #4.

QRC- 215A

SAVE THIS MANUAL

Make it available for other spa users.

You should also have a spa user's manual which explains how to care for your spa. Please read and follow all instructions in your spa user's manual. Maintaining the proper levels of pH and the sanitizer will extend the life of your spa equipment. Improper chemical levels in the spa are sure to cause premature heater failure as well as failure of other components in the system. Failures caused by chemical imbalance are not covered by warranty.

48/56 Frame Power Defender Executive, EX2, & Viper Pump Instructions

IMPORTANT SAFETY INSTRUCTIONS & WARNINGS • SAVE THESE INSTRUCTIONS • PLEASE READ AND FOLLOW ALL INSTRUCTIONS

ALL ELECTRICAL INSTALLATIONS SHOULD BE PERFORMED BY QUALIFIED ELECTRICIANS

- **2-SPEED MODELS: DO NOT wire both speeds to run simultaneously.** If supply cord is damaged, replace only with original replacement equipment available from authorized dealer.
- The pump is to be supplied through a residual current device (RCD) with a rated residual operating current not exceeding 30mA.
- Potential risk of fire, electrical shock, or injury to persons if misused.
- **DO NOT** install within an outer enclosure or beneath the skirt of the spa unless so marked.
- **WARNING**: To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.
- **CAUTION**: This pump is for use with permanently installed pools and may also be used with hot tubs and spas if so marked. **Do not use with storable pools.** A permanently installed pool is constructed in or on the ground or in a building such that it cannot be readily disassembled for storage. A storable pool is constructed so that it may be readily disassembled for storage and reassembled to its original integrity.

PUMP CONNECTIONS INSTALLATION INSTRUCTIONS

LOCATION: Place pump on level surface. Pump must be installed below water surface. Shut off valves should be installed on both the inlet and outlet of the pump for future maintenance. Installation area should be clear of any direct water and have adequate floor drainage. Pump should be protected from excessive moisture.

The inlet and outlet have Waterway male union threads. Use Waterway tailpiece assemblies for best connection. These unions allow the pump to be removed for service without disturbing the plumbing. **HAND TIGHTEN UNIONS ONLY!**

DO NOT use pipe dope. Use only Teflon tape or other sealing compounds approved for use with plastic. Some pipe dopes not approved for use with plastic will cause stress cracking of plastic parts. New installations often require a plumbing inspection. This inspection is usually conducted using city water pressure. A pressure regulator should be used when preforming this test and should not exceed 40 PSI during the pressure test. The filter and pump are under pressure. Insure that all air is removed during the pressure test. **FAILURE TO FOLLOW THESE INSTRUCTIONS EXPLICITLY CAN RESULT IN PERSONAL INJURY.**

MOTOR WIRING

1. Before working on any electrical connections be sure that the power is turned off.
2. All wiring must conform to local, state and/or national codes.
3. All wiring must conform to wiring diagram on the motor nameplate or on the back of the terminal cover.
4. Applied voltage must correspond to the rated voltage as indicated on the marking plate.
5. **FOR SAFETY CLASS 1 EQUIPMENT**: It is mandatory to connect the pump to the protective conductor (grounding connector) of the earth-grounded main power supply.
   FOR EQUIPOTENTIAL BONDING: It is also possible in addition to use the external terminal on the body to realize an equipotential bonding with other earthed metallic parts.
6. **DO NOT ground to a gas supply line.**
7. Ground motor prior to connecting electrical power.
8. For disconnection from the supply, a circuit breaker having a contact separation of at least 3mm in all poles must be incorporated in the fixed wiring according to the wiring rules. Cord and plug provided with pump is intended to be used with mating spa pack connector.
9. Improper grounding can cause serious injury and damage to the motor, voiding the warranty.
10. If the supply cord is damaged, it must be replaced by a special cord or assembly available from the manufacturer or its service agent.

For Wiring Instructions
Refer to Wiring Diagram on Motor.

Ensure wiring circuit agrees with diagram and leads are securely tight.

WARRANTY

For product registration visit: www.waterwayplastics.com.
For Warranty questions or claims please contact point of purchase.

Designed, Engineered & Manufactured in the USA.

waterway™

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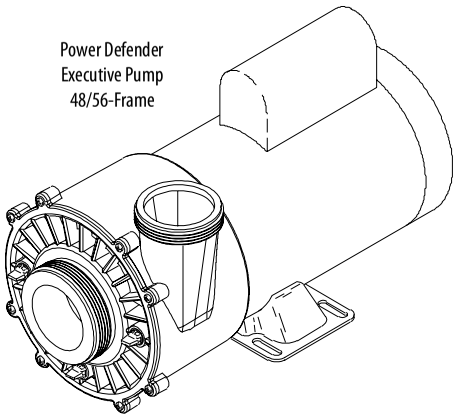
www.waterwayplastics.com • waterway@waterwayplastics.com

810-0061.0618

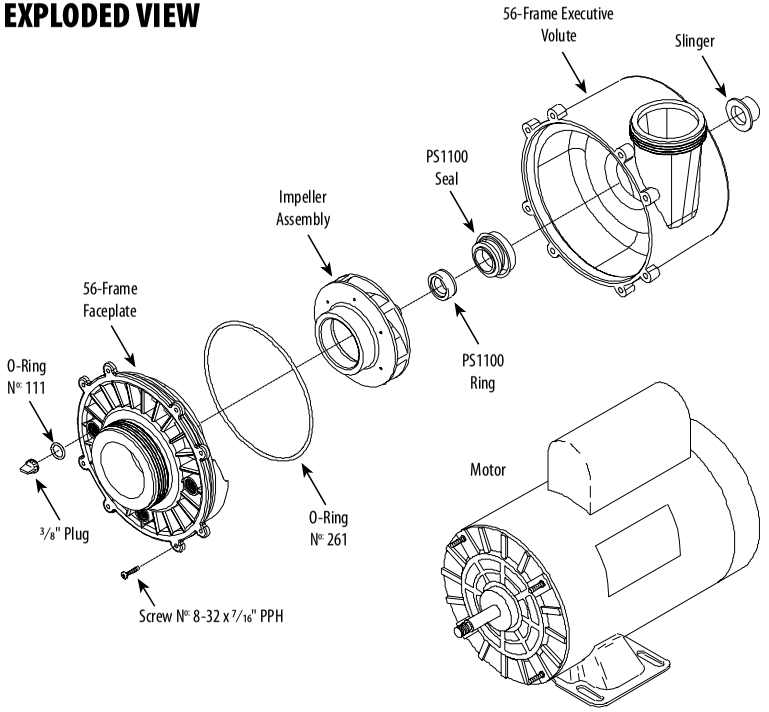
TROUBLESHOOTING

MOTOR WON'T START:	CHECK VOLTAGE AT TERMINALS WITH VOLTMETER.		
	IF Ø VOLTS:	FUSE/ BREAKER	REPLACE FUSE/ RESET BREAKER.
		TRIPPED GFI	RESET GFI.
		DEFECTIVE EXTERNAL SWITCH	CHECK SWITCH SETTINGS AND CONNECTIONS.
	IF LOW VOLTS:		CALL ELECTRICIAN
	IF PROPER VOLTAGE:		
		INCORRECT OR LOOSE CONNECTIONS	INSURE WIRING CIRCUIT AGREES WITH DIAGRAM AND LEADS ARE TIGHT.
		THERMAL PROTECTOR TRIPPED	ALLOW MOTOR TO COOL AND RESTART.
		WINDING SWITCH OR CAPACITOR FAILURE	SEE AN AUTHORIZED MOTOR SERVICE CENTER.
MOTOR HUMS WON'T START:	CHECK VOLTAGE AT TERMINAL WITH VOLTMETER. IF PROPER VOLTAGE:		
		TIGHT PUMP	TAKE APART PUMP, LOOK FOR SIGNS OF RUBBING.
		SEIZED OR TIGHT MOTOR	TAKE APART PUMP, TURN MOTOR BY HAND. SEE AN AUTHORIZED MOTOR SERVICE CENTER.
		WINDING SWITCH OR CAPACITOR FAILURE	SEE AN AUTHORIZED MOTOR SERVICE CENTER.
	IF VOLTAGE IS NOT WITHIN 10% OF NAMEPLATE, CALL ELECTRICIAN.		
MOTOR IS NOISY:	CHECK TO SEE THAT MOUNTING IS SECURE:	LOOSE MOUNTING	TIGHTEN MOUNTING.
	BENT SHAFT:		SEE AN AUTHORIZED MOTOR SERVICE CENTER.
	DISASSEMBLE PUMP AND RUN MOTOR SEPARATE TO DETERMINE WHETHER MOTOR NOISE IS ACCEPTABLE:	BEARING NOISE OR ROTOR RUB	SEE AN AUTHORIZED MOTOR SERVICE CENTER.
MOTOR RUNS, THEN STOPS:	CHECK FOR MOTOR OVERLOAD BY CHECKING AMP DRAW AT MOTOR TERMINAL WITH AMMETER, AMP DRAW SHOULD BE WITHIN 10% OF NAMEPLATE.		
	IF MOTOR IS NOT OVERLOADED:	TRIPPED BREAKER	RESET BREAKER.
		INADEQUATE VENTILATION	INCREASE VENTILATION.
		INCORRECT LINE VOLTAGE	CHECK VOLTAGE, IF INCORRECT CALL AN ELECTRICIAN.
		INCORRECT WIRING	INSURE THAT WIRING CIRCUIT AND WIRING DIAGRAM ARE THE SAME.
	IF MOTOR IS OVERLOADED:	INCORRECT VOLTAGE	CHECK VOLTAGE, IF INCORRECT, CALL AN ELECTRICIAN.
		INCORRECT WIRING	INSURE THAT WIRING CIRCUIT AND WIRING DIAGRAM ARE THE SAME.
		PUMP BINDING	TAKE APART PUMP, LOOK FOR SIGNS OF RUBBING.
		MOTOR BINDING	IF MOTOR WILL NOT TURN BY ITSELF SEE AN AUTHORIZED MOTOR SERVICE CENTER.
PUMP RUNS, NO FLOW:	CHECK SHUT OFF VALVES:	VALVES CLOSED	OPEN VALVES.
	CHECK TO SEE THAT PUMP IS BELOW WATER LEVEL:	PUMP ABOVE WATER LEVEL	REPLUMB PUMP BELOW WATER LEVEL.
	CHECK SHUT OFF VALVES:	AIR LOCK	REMOVE DRAIN PLUG UNTIL WATER FLOWS FROM PUMP. REPLACE DRAIN PLUG AND START PUMP.
PUMP RUNS, NOT ENOUGH FLOW:	VISIBLE AIR BUBBLES IN RETURN LINE:	LEAK IN SUCTION PLUMBING	REPLUMB PUMP BELOW WATER LEVEL.
	CHECK TO SEE THAT VALVES ARE COMPLETELY OPEN:	PARTIALLY CLOSED VALVES	OPEN VALVES.
	CHECK FILTER PRESSURE GAUGE:	DIRTY IMPELLER OR FILTER	CLEAN FILTER OR IMPELLER.

ASSEMBLY DRAWING



EXPLODED VIEW



IRON MIGHT PUMP INSTRUCTIONS

IMPORTANT SAFETY INSTRUCTIONS & WARNINGS • SAVE THESE INSTRUCTIONS • PLEASE READ AND FOLLOW ALL INSTRUCTIONS

ALL ELECTRICAL INSTALLATIONS SHOULD BE PERFORMED BY QUALIFIED ELECTRICIANS

- **WARNING**: Risk of electrical shock. Connect only to a Ground-Type Receptacle protected by a Ground-Fault Circuit Interrupter (GFCI). Potential risk of fire, electric shock or injury to person if misused. Do not install within an outer enclosure or beneath the skirt of the spa unless so marked.
- **WARNING**: To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.
- **CAUTION**: This pump is for use with permanently installed pools and may also be used with hot tubs and spas if so marked. **Do not use with storable pools.** A permanently installed pool is constructed in or on the ground or in a building such that it cannot be readily disassembled for storage. A storable pool is constructed so that it may be readily disassembled for storage and reassembled to its original integrity.

INSTALLATION INSTRUCTIONS

LOCATION: Place pump on level surface. Pump must be installed below water surface. Shut off valves should be installed on both the inlet and outlet of the pump for future maintenance. Installation area should be clear of any direct water and have adequate floor drainage. Pump should be protected from excessive moisture. Allow access area large enough to service both pump and plumbing.

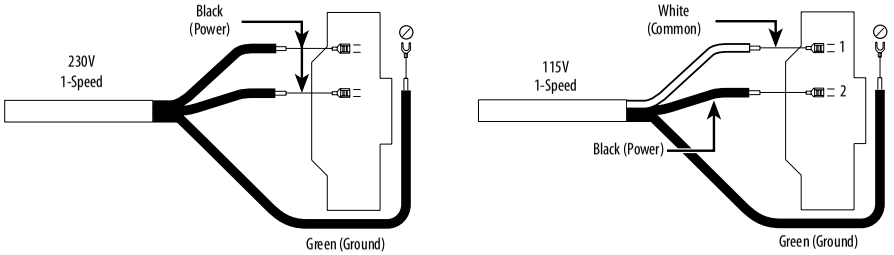
The inlet and outlet have Waterway male union threads. Use Waterway tailpiece assemblies for best connection. These unions allow the pump to be removed for service without disturbing the plumbing.

HAND TIGHTEN UNIONS ONLY! DO NOT USE A WRENCH OR ANY ADHESIVES OR SOLVENTS!

DO NOT use pipe sealant. Use only Teflon tape or other sealing compounds approved for use with plastic. Some pipe sealants not approved for use with plastic will cause stress cracking of plastic parts. New installations often require plumbing inspections. This inspection is usually conducted using city water pressure. A pressure regulator should be used when preforming this test and should not exceed 40 PSI during the pressure test. When the filter and pump are under pressure, insure that all air is removed from the system. Extreme care must be taken during the pressure test. **FAILURE TO FOLLOW THESE INSTRUCTIONS EXPLICITLY CAN RESULT IN PERSONAL INJURY AND WARRANTIES WILL BE VOIDED.**

MOTOR WIRING

1. Before working on any electrical connections be sure that the power is turned off.
2. All wiring must conform to local, state and/or national codes.
3. All wiring must conform to wiring diagram on the motor nameplate or on the back of the terminal cover.
4. Incoming line voltage must be within 10% of the nameplate voltage.
5. A solid copper bonding conductor no smaller than No. 8 AWG should be connected from the wire connector on the motor to all metal parts of the spa or hot tub structure, and, to all electrical equipment, metal conduit, and metal piping within five feet of the inside walls of a swimming pool, spa or hot tub when the motor is installed within five feet of the inside walls of the spa or hot tub.
6. **DO NOT** ground to a gas supply line.
7. Ground motor prior to connecting to electrical power.
8. Improper grounding can cause serious injury and damage to the motor, voiding the warranty.



Ensure wiring circuit agrees with diagram and leads are securely tight.

WARRANTY

For product registration visit: www.waterwayplastics.com.
For Warranty questions or claims please contact point of purchase.

Designed, Engineered & Manufactured in the USA.

2200 East Sturgis Road, Oxnard CA 93030 • Phone 805.981.0262 • Fax 805.981.9403
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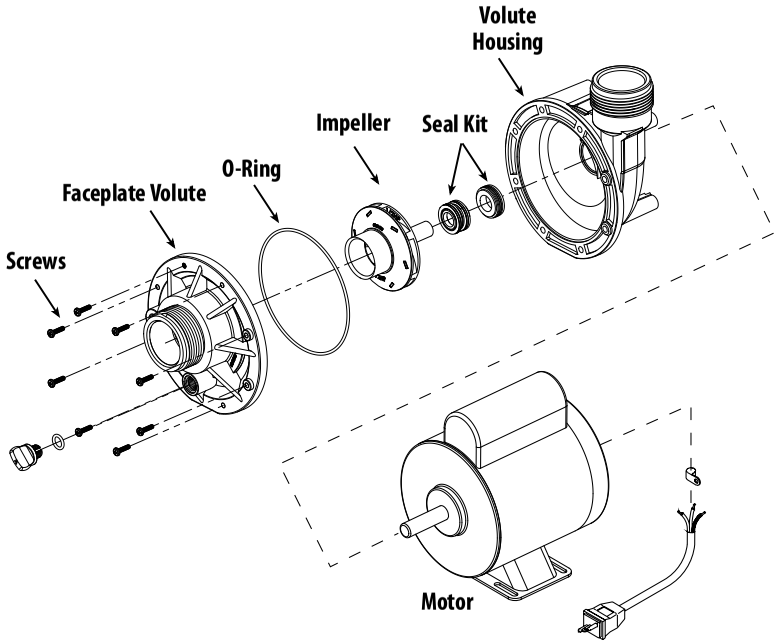
TROUBLESHOOTING

MOTOR WON'T START:	CHECK VOLTAGE AT TERMINALS WITH VOLTMETER.		
	IF 0 VOLTS:	FUSE/BREAKER	REPLACE FUSE/ RESET BREAKER.
		TRIPPED GFI	RESET GFI.
		DEFECTIVE EXTERNAL SWITCH	CHECK SWITCH SETTINGS AND CONNECTIONS.
	IF LOW VOLTS:		CALL ELECTRICIAN
	IF PROPER VOLTAGE:	INCORRECT OR LOOSE CONNECTIONS	INSURE WIRING CIRCUIT AGREES WITH DIAGRAM AND LEADS ARE TIGHT.
		THERMAL PROTECTOR TRIPPED	ALLOW MOTOR TO COOL AND RESTART.
		WINDING SWITCH OR CAPACITOR FAILURE	SEE AN AUTHORIZED MOTOR SERVICE CENTER.
MOTOR HUMS WON'T START:	CHECK VOLTAGE AT TERMINAL WITH VOLTMETER. IF PROPER VOLTAGE:	TIGHT PUMP	TAKE APART PUMP, LOOK FOR SIGNS OF RUBBING.
		SEIZED OR TIGHT MOTOR	TAKE APART PUMP, TURN MOTOR BY HAND. SEE AN AUTHORIZED MOTOR SERVICE CENTER.
		WINDING SWITCH OR CAPACITOR FAILURE	SEE AN AUTHORIZED MOTOR SERVICE CENTER.
	IF VOLTAGE IS NOT WITHIN 10% OF NAMEPLATE, CALL ELECTRICIAN.		
MOTOR IS NOISY:	CHECK TO SEE THAT MOUNTING IS SECURE:	LOOSE MOUNTING	TIGHTEN MOUNTING.
	BENT SHAFT:		SEE AN AUTHORIZED MOTOR SERVICE CENTER.
	DISASSEMBLE PUMP AND RUN MOTOR SEPARATE TO DETERMINE WHETHER MOTOR NOISE IS ACCEPTABLE:	BEARING NOISE OR ROTOR RUB	SEE AN AUTHORIZED MOTOR SERVICE CENTER.
MOTOR RUNS, THEN STOPS:	CHECK FOR MOTOR OVERLOAD BY CHECKING AMP DRAW AT MOTOR TERMINAL WITH AMMETER, AMP DRAW SHOULD BE WITHIN 10% OF NAMEPLATE. IF MOTOR IS NOT OVERLOADED:	TRIPPED BREAKER	RESET BREAKER.
		INADEQUATE VENTILATION	INCREASE VENTILATION.
		INCORRECT LINE VOLTAGE	CHECK VOLTAGE, IF INCORRECT CALL AN ELECTRICIAN.
		INCORRECT WIRING	INSURE THAT WIRING CIRCUIT AND WIRING DIAGRAM ARE THE SAME.
	IF MOTOR IS OVERLOADED:	INCORRECT VOLTAGE	CHECK VOLTAGE, IF INCORRECT, CALL AN ELECTRICIAN.
		INCORRECT WIRING	INSURE THAT WIRING CIRCUIT AND WIRING DIAGRAM ARE THE SAME.
		PUMP BINDING	TAKE APART PUMP, LOOK FOR SIGNS OF RUBBING.
		MOTOR BINDING	IF MOTOR WILL NOT TURN BY ITSELF SEE AN AUTHORIZED MOTOR SERVICE CENTER.
PUMP RUNS, NO FLOW:	CHECK SHUT OFF VALVES:	VALVES CLOSED	OPEN VALVES.
	CHECK TO SEE THAT PUMP IS BELOW WATER LEVEL:	PUMP ABOVE WATER LEVEL	REPLUMB PUMP BELOW WATER LEVEL.
	CHECK SHUT OFF VALVES:	AIR LOCK	REMOVE DRAIN PLUG UNTIL WATER FLOWS FROM PUMP, REPLACE DRAIN PLUG AND START PUMP.
PUMP RUNS, NOT ENOUGH FLOW:	VISIBLE AIR BUBBLES IN RETURN LINE:	LEAK IN SUCTION PLUMBING	REPLUMB PUMP BELOW WATER LEVEL.
	CHECK TO SEE THAT VALVES ARE COMPLETELY OPEN:	PARTIALLY CLOSED VALVES	OPEN VALVES.
	CHECK FILTER PRESSURE GAUGE:	DIRTY IMPELLER OR FILTER	CLEAN FILTER OR IMPELLER.

IRON MIGHT WET END



6" TRAP ASSEMBLY