



Yachtub Owners Manual Marine Version 5.4

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Introduction

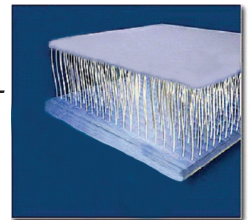
This manual is intended to provide operating instructions for the setup and safe use of your Yachtub. Read instructions, warnings, cautions and notes before deploying or using your Yachtub. If you have any concerns or questions please contact Yacht Products International, Inc or your authorized Yachtub Dealer for more information.

Product Overview

Yachtub is an inflatable hot tub that floats beside your boat or just behind the swim step. Easy to deploy and Inflate, Yachtub comes with solid state electronic controls that make it easy to fill and heat to that perfect temperature

Integration into an existing heating system or installation of a dedicated heating system is easy but does require some basic knowledge of plumbing, wiring and the existing systems on your boat. Many people will be comfortable installing the Yachtub themselves. Others will prefer a professional heating technician complete the installation.

The Yachtub has 3 separately inflatable sections. An upper tube provides comfort and stability in the water. This upper tube is connected to a circular wall and floor made of 3-inch PVC 'drop stitch fabric' that provides additional flotation and excellent insulation.



Marine Hot Tub Specifications

2-3 Person Inflatable Tub Unit

Capacity

People: 2-3

Water: 150 gallons

Weight

Empty: < 50lbs.

Filled: Approx. 1300lbs.

Size

Deflated: 24"X22"X10"

Inflated: See drawings right

Inflated Units

3 separate chambers

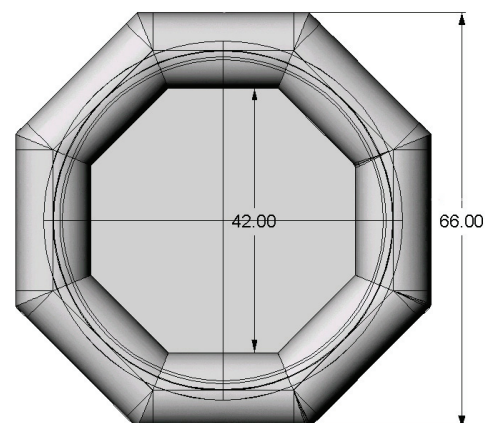
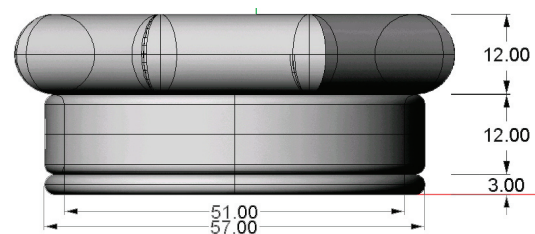
Base Thread: Polyester

Coating Material: PVC, UV Treated

Thickness: 75mm "Drop Stitch"

Weight: 2.2 Kg/m²

Max Inflation: 10.16 psi



Marine Hot Tub Specifications

4-6 Person Inflatable Tub Unit

Capacity

People: 4-6

Water: 150 gallons

Weight

Empty: < 55lbs.

Filled: Approx. 1700lbs.

Size

Deflated: 26"X24"X12"

Inflated: See drawings right

Inflated Units

3 separate chambers

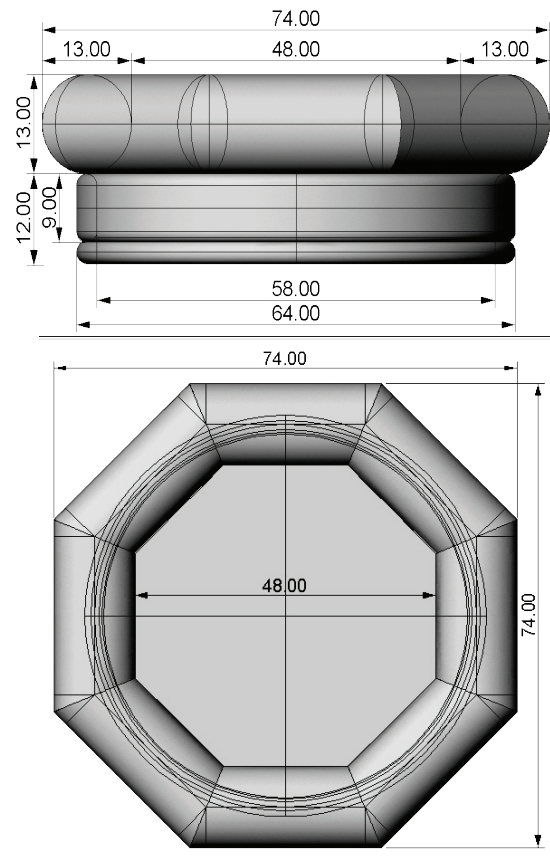
Base Thread: Polyester

Coating Material: PVC, UV Treated

Thickness: 75mm "Drop Stitch"

Weight: 2.2 Kg/m²

Max Inflation: 10.16 psi



Micro-Controller, Pump box and Wireless Remote Control Units



Modes:

Pump On/Off

Fill On/Off

Heat On/Off

Jets On/Off *

Temp Up/Down

Temperature

Sensors: 2 Solid state Temp Sensors

1 High Temp Shut Down

Range: 75f to 104f

Power Requirements

12 volt DC - 10amp

24 volt DC - 5 amp

120/240 volt AC - call for info

Wireless

2 - 916mhz transceiver

Bidirectional updating between Controller and Remote

* Jets are optional

* Remote Control is optional

Special Notes & Warnings

Be careful, soaking for too long in elevated water temperatures can raise body heat to hazardous levels. The National Spa and Pool Institute considers 104° F to be the maximum safe water temperature for adults. A safe soaking time should not exceed 15 minutes. Some medical authorities have recommended a lower maximum temperature of 100° to 102° F. They advise that since children are more sensitive to heat, they should be exposed to water of not more than 99° F, for no more than 10 minutes. Consult with your family doctor

Getting in and out of a wet, slippery hot tub can pose a hazard. Your Yachtub rocks gently in the waves as you bask in its warm water. However, care should be exercised when getting in or out of the tub. An unexpected wake from a passing boat could cause you to lose your balance. Be careful! Watch children and anyone who appears unsteady carefully.

Speaking of children; they will love the warm water and pool like feel of your Yachtub but they should be introduced slowly to give them time to adjust to the change in temperature. NEVER, UNDER ANY CIRCUMSTANCES leave children unattended. In any marine environment it is recommended children under 12 wear life preservers at all times.

Remember, NEVER handle a corded phone, radio, TV, hair dryer or any other electrical device while you are in contact with water, when hands or feet are wet, or when barefoot. Locate your Yachtub a safe distance away from all electrical outlets. Keep electrical devices away from the water, and never place them on the edge of your Yachtub. If an electrical appliance should fall into the water, or be touched by a bather, electrocution could result.

Alcohol and drugs are unsafe when using a hot tub or spa. Hot water amplifies the effect of these substances, and the result can be dangerous. Consult your doctor regarding the use of prescription drugs and possible adverse effects of becoming overheated.

Persons with heart disease, diabetes, high or low blood pressure, or any other serious illness should not enter a spa or hot tub without first consulting with, and obtaining the advice of a physician.

Pregnant women should not enter a hot tub or spa without first consulting with their physician and following the doctor's advice.

Note: The optional floating cover will help your Yachtub heat faster and stay hot longer. However please remember it will help keep heat in but it won't keep heavy objects, including people, out. Be safe, do not leave your Yachtub unattended where uninvited guests can 'drop' in.

Warranty

Unless otherwise specified by YPI, Products developed by YPI are delivered with a limited (2) two year warranty. Products supplied by third parties are subject to the applicable warranties provided by such third parties, and YPI makes no additional warranties with respect to such Products.

Installation Instructions

General Information
Example Locations
Plumbing the System
Wiring the System

General Information

The installation process will vary depending on what heating option you have chosen for your Yachtub, the layout of your Boat and it's systems as well as the various options available (filters, jets etc). You may also choose to configure your installation to make it more or less integrated into the boat itself. Read this entire manual then decide what configuration is right for you. Choose the locations for the Yachtub components and determine the hose and wiring materials necessary for the connections required.

Filling

To automate the filling process you can link to any pressurized water source. This can be an existing wash down pump, a simple garden hose connection or a dedicated pump to pull from the water source of your choice.

We recommend using a 40 mesh strainer when filling the tub and integrating a standard 5 Micron filter into the hose system between the Pump Unit and the Tub. Adding this filter will help clear the water but will not substitute for recommended chemicals if the tub is in use for long periods of time or by many people over short periods of time.

Circulating

The Pump Box circulates water from the tub, through the heater, if required, through the inline filter and back to the tub. Hoses linking the Pump Unit to the heater and hoses linking the Pump Unit to a bulkhead or directly to the tub are required. See the detail installation drawings and instructions that follow.

Heating

Heating options include integrating with an existing hydronic heater, adding an electric heater powered by an 7kw or larger generator or using the self contained portable diesel unit released January 2005 (see portable system manual for more information).

Control

Filling, Circulating and Heating options are set using the Master Control Box or an optional wireless remote. The Master Control Box is connected to the Heat Management/Pump Unit via the Master control cable. The Pump Unit is connected to a 12 or 24 volt power source, the heat source thermostat, an optional fill pump and an optional jets/bubbles pump. See the detail installation drawings and instructions that follow.

How It All Works

The circulation pump draws water from the tub into the pump Unit through the Tub Water Return Hose

If the optional fill pump has been installed , incoming water will feed into the Tub Water Return Hose.

If the water flowing through the Tub Return Hose is below the target temperature set on the Control Box, a request for heat is transmitted to the Heater and the heater pump begins circulating water through the heat exchanger.

The heated water will be mixed with water flowing into the Tub.

When the set temperature has been reached the Heater pump stops circulating water through the heat exchanger. The circulation pump keeps water circulating through the Tub

Heating Options

Hydronic

A hydronic heating system has a furnace that heats hot water which is circulated through the areas needing heat. When integrating into an existing hydronic system you simply add a heat exchanger into the water circulation system, run hoses from the heat exchanger to the Pump Unit and a wire from the Pump Unit to the thermostat diode block of your Hydronic Control Unit which makes the YACHTUB look like another room or zone of the boat. When heat is required the Yachtub control unit turns on your hydronic furnace.

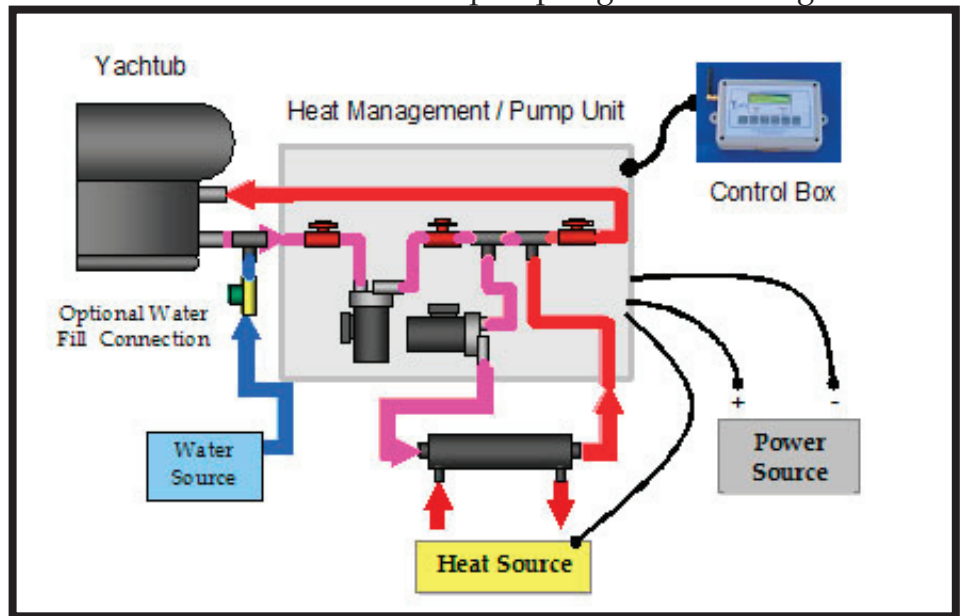
Electric

An electric heater powered by your on board generator or shore power will heat your tub but depending on the size could require significantly more time to heat based on the power available. The minimum size generator recommended for cold (45-60) water heating is 7- 8 kw.

WARNING: An appropriate Ground Fault Circuit Interrupt (GFCI) must be installed per The American Boat and Yacht Council (ABYC) standards for ALL Electric Heater Options.

Portable Self Contained Diesel

The self contained portable diesel heating system includes a Heat Control/Pump Unit with Diesel Heater, an option 2 gallon Diesel Fuel Tank and an optional Battery box. See portable heating system manual for complete specifications.



Materials

Yachtub Kit

Tub (2 or 4 Person) (Marine or RV)
Heat Control/Pump Unit
Master Control Box with 6'-10' control box cable
Two 10' bulkhead to tub circulation hoses
Four(4) - 1/2" mpt to 5/8" hose barb adapters
Two bulkhead fittings
40 mesh raw water strainer
Circulation Water Filter case & cartridge

optional jets package
optional wireless remote



Hydronic Heater integration kit

Heat Exchanger with mounting bracket
Two 1/2" mpt to 1/2" hose barb street ells
Two 1/2" mpt to 1/2" hose barb adapters
Two 5' x 1/2" heater hoses
4 stainless hose clamps

Example Heat Exchanger



Electric Heater & integration kit

Electric Heater with mounting bracket/stand
One 1/2 mpt flow restrictor
Two 1/2" mpt to 1/2" hose barb street ells
Two 1/2" mpt to 1/2" hose barb adapters
Two 5' x 1/2" heater hose
4 stainless hose clamps
240 volt solid state relay

Example Electric Heaters
(must be mounted vertically)



Items Not supplied

Ground Fault Circuit Interrupt (GFCI) for Electric Heat installation
(WARNING: An appropriate GFCI must be installed per ABYC for ALL Electric Heater Options)

Hose required to connect Pump Unit to Tub Circulation Hoses – length will vary
Pump Unit hose to Tub Hose Bulkhead Connectors
Wire for connections to Power Source and Heater Control Block (length will vary)
Wire for connection to optional Fill Pump solenoid (length will vary)

Installation Locations

Yachtub

The Marine Hot tub is designed to be used in the water beside the boat or dock, or off the swim step . However, it is also free standing and can be placed on land, on a dock,, in the cockpit, on the flybridge or on the front deck but only IF THE STRUCTURE IS CERTIFIED TO SUPPORT 1600-1800 POUNDS.

NOTE: There will always be some water drips or splashes from any free standing tub. Do not place where water could damage any surface or nearby objects. Be sure to plan how to drain your tub.

WARNING: Carbon Monoxide Poisoning can occur outdoors! You should not locate the tub where the fumes from any (engine, generator or heater) exhaust are funneled into the area where bathers could inhale this noxious gas.

Pump Unit

The Pump Unit may be located in the engine room, lazarett or in a protected cabinet in the cockpit. You must be able connect hoses and wiring to the heating system as well as run circulation hoses to the tub.

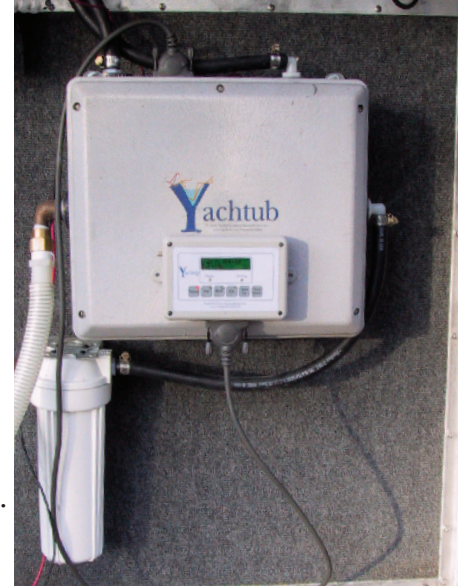
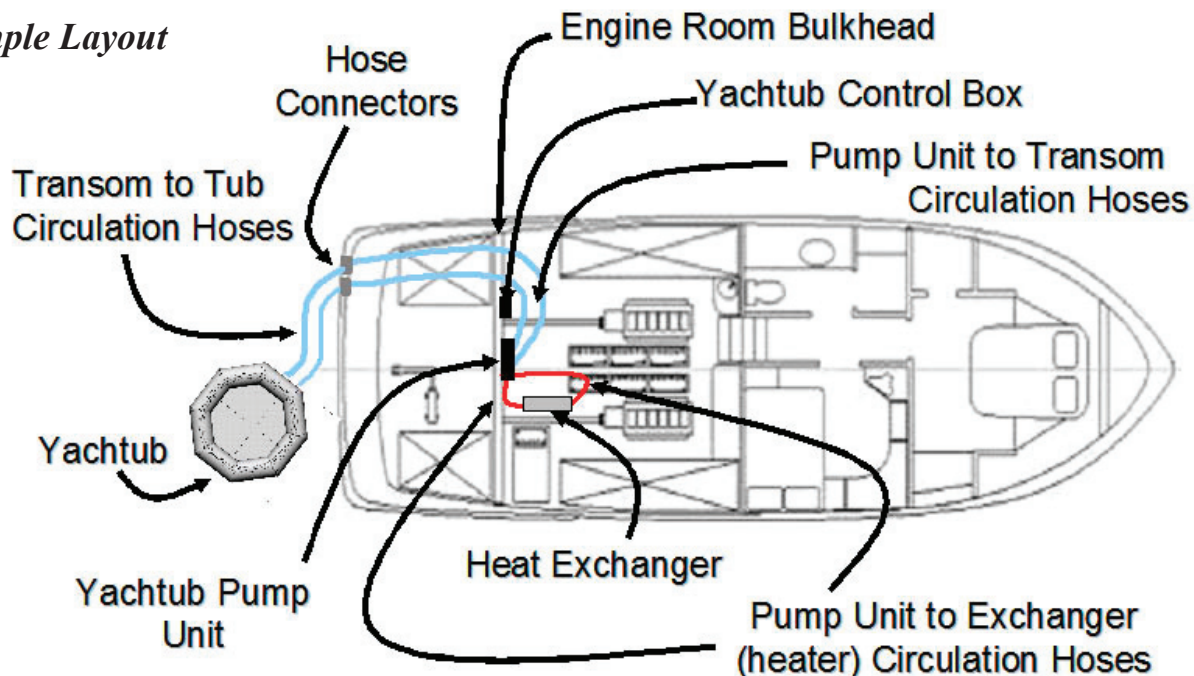
Filter

The in line filter should be integrated into the hose system going to the tub from the pump unit. It may be conveniently mounted in an area accessible for easy filter changes.

Master Control Box

The control box can also be located in the engine room or lazarett, or it can be mounted in a protected cabinet in the cockpit or even the main cabin. It must be within 25' of the Pump Unit and, while splash resistant, it should be protected from exposure to dripping or soaking water.

Example Layout



Plumbing Overview

There are three basic water circulation systems: from the tub to the pumpbox and back to the tub, from the pump/heat control unit to the heat exchanger or electric heater and back to the pump box, and an optional hose from a water source connected to the line that runs from the pump/heat control unit (see optional fill instructions)

Heating: Pump Unit to Hydronic Heat Exchanger or Electric Heater

1. Connect ½" heater hose from the **"To Heat Exchanger"** connection on Pump Unit to the input connector on hydronic heat exchanger or Electric Heater (see diagram)
2. Connect hose from the output connector on Heat exchanger or Electric Heater (see diagram) to the **"From Heat Exchanger"** connection on Pump Unit (see note*)

*note: 1/2" pipe to hose flow restrictor must be installed for electric heater option. See detailed diagram in Electric Heating installation options. It is not required for hydronic installations.

Tub Circulation: Pump Unit to Tub

The pump/heat control box can be mounted in the engine room, lazaret, or a cabinet in the cockpit. You will need to purchase 5/8" (3/4" if tub will have Jets) and run two lines from the pump box to a convenient location where you will connect to the two 10' Tub circulation hoses are supplied with your Yachtub. The length of these hoses will depend on where you locate the pump/heat control unit and where you intend to use the tub.

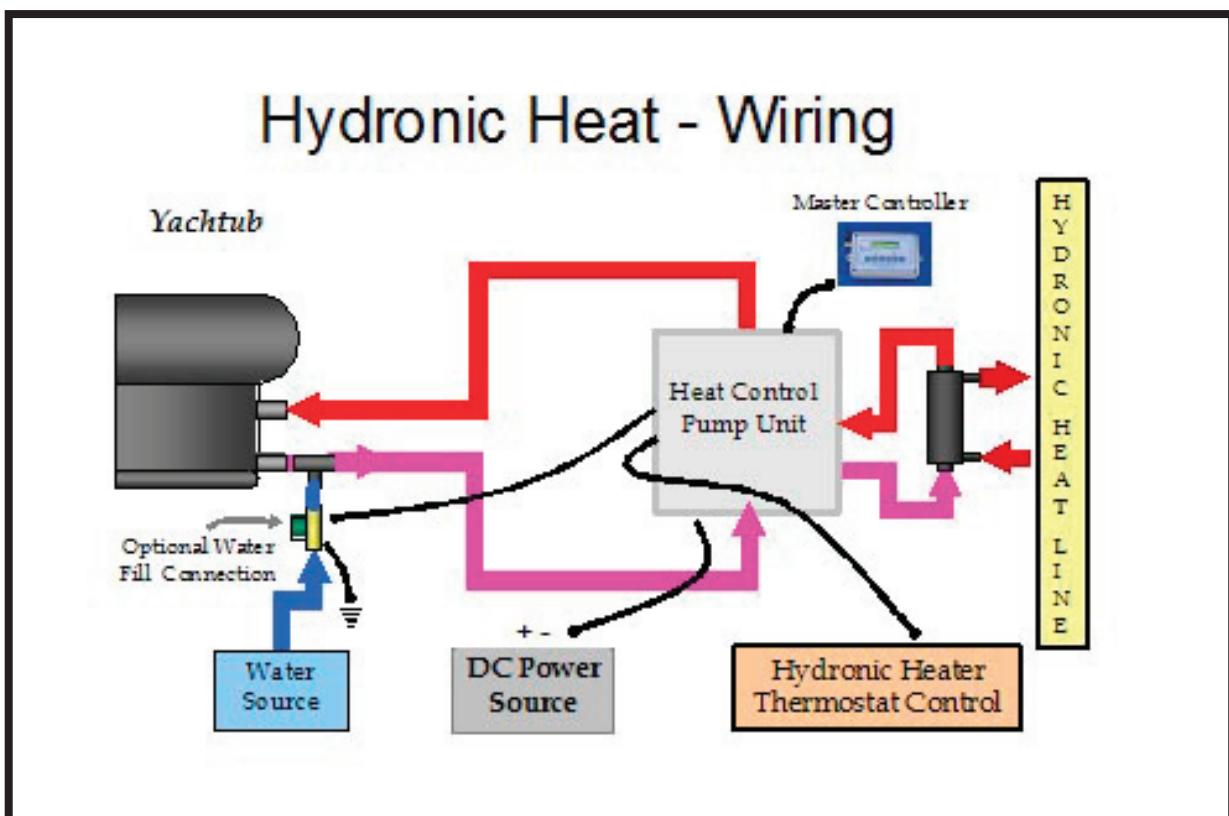
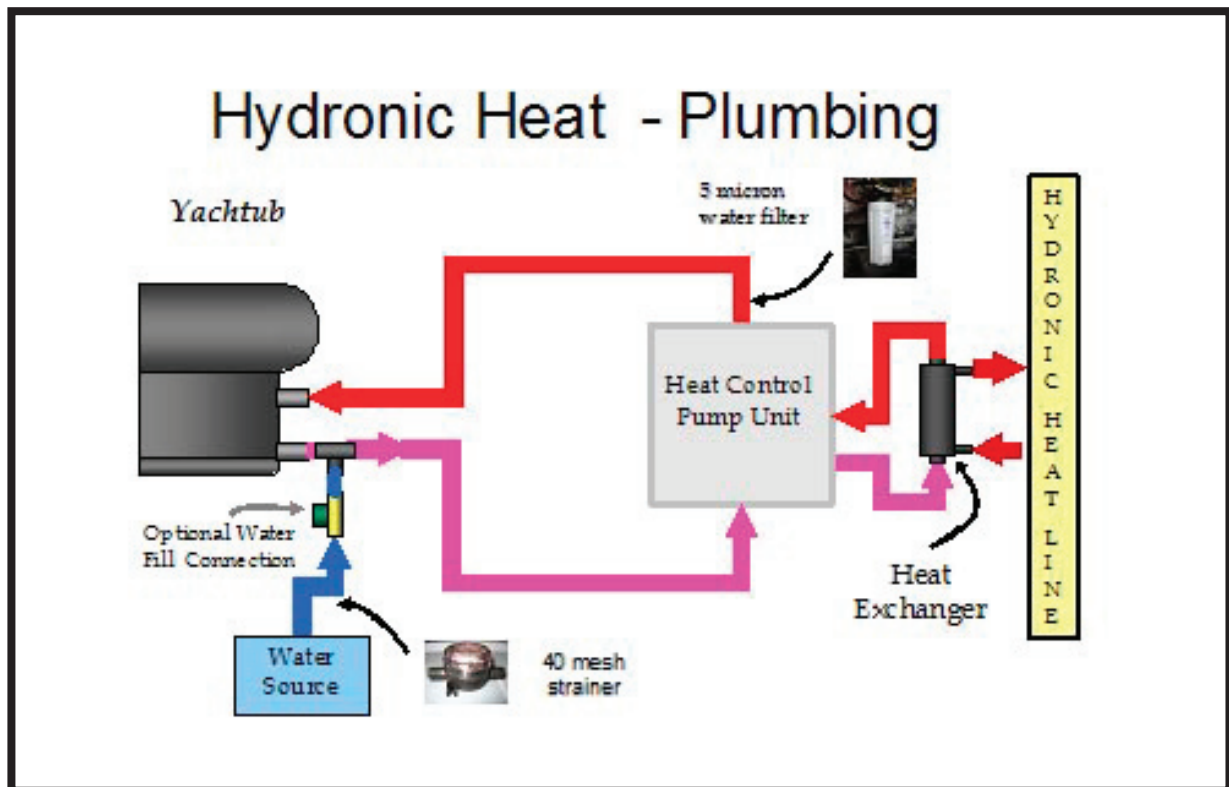
Two bulkhead fittings are included with your Yachtub. You may want to install these fittings on your transom for easy connect and disconnect of the tub circulation hoses to the pump/heat control unit hoses. or you can plan to run the pump unit hoses to a cabinet where they can be stored until you connect them directly to the circulation hoses when you deploy the tub.

1. Install bulkhead connectors or purchased hose to hose connectors
3. Connect min 5/8" (3/4" if tub will have Jets) hose from **"To Tub"** connector on Pump/Heat Control Unit to bulkhead connector.
4. Connect min 5/8" (3/4" if tub will have Jets) hose from **"From Tub"** connector on Pump/Heat Control Unit to bulkhead connector
5. Mount 5 micron Filter in the line from the Pump Box to the tub (before jet pumps if jets are installed).

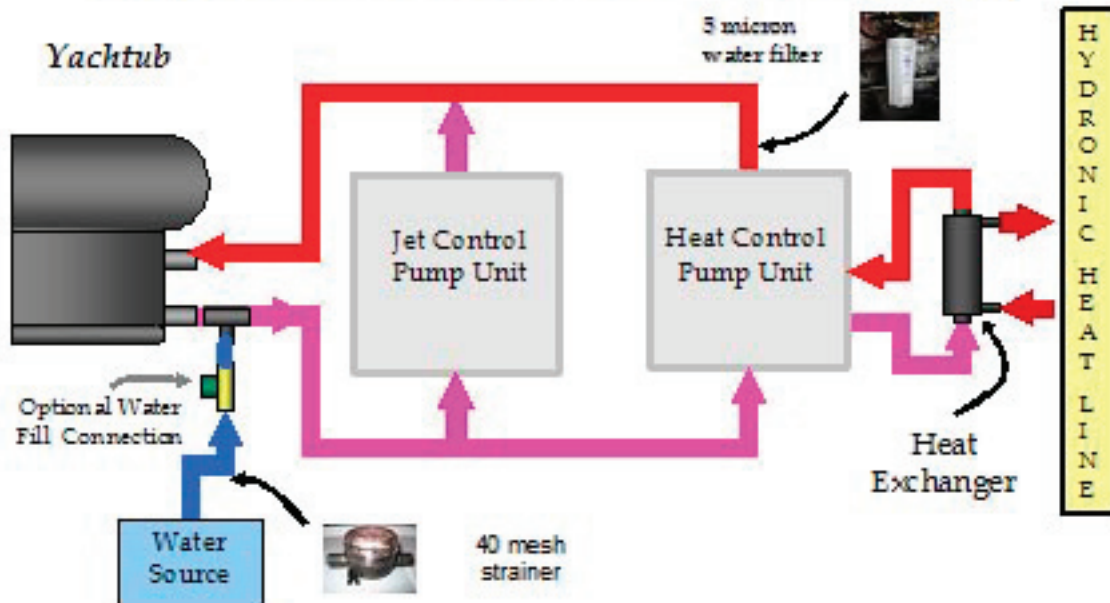
Optional Jets

Depending on the number of jets 1-2 extra pumps will be required. You may request the pumps and relay pre-mounted on an easy to install board or you can install the pump(s) and relay individually if space restrictions exist. The jet pumps connect to the from tub and to tub hoses coming from the pump/heat control unit. see diagrams in the Hydronic Heating or Electric Heating Installation sections latter in this publication.

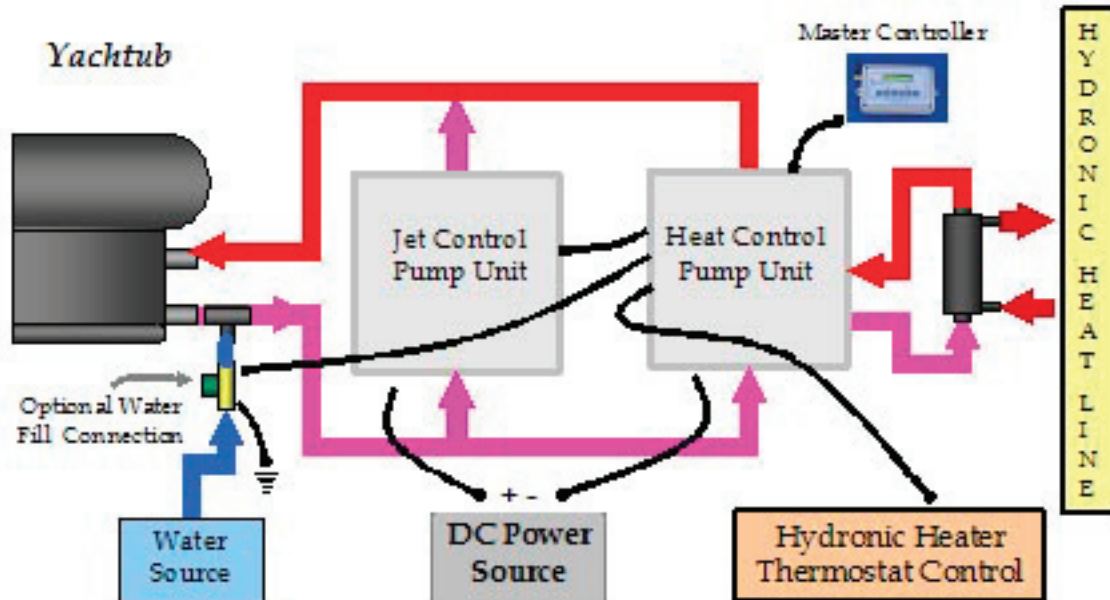
Hydronic Heating Installation

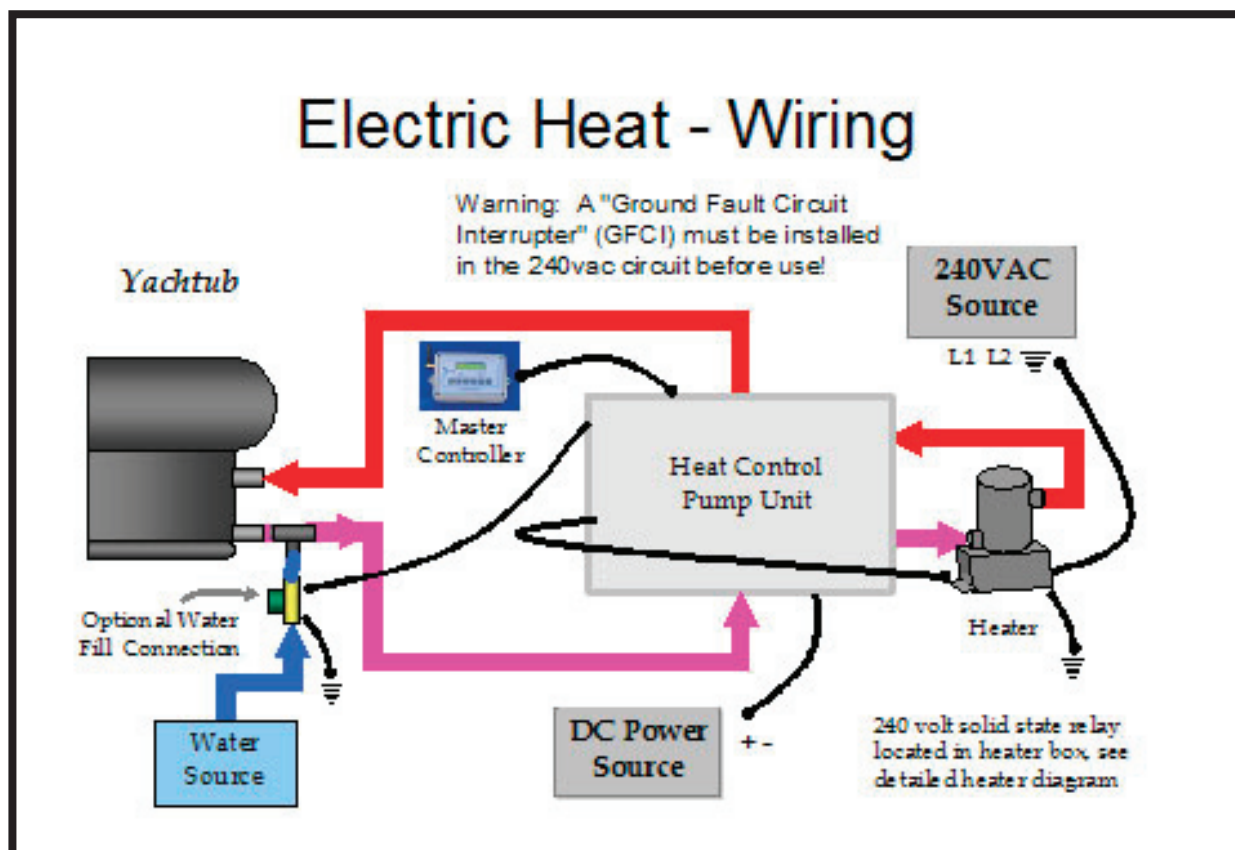
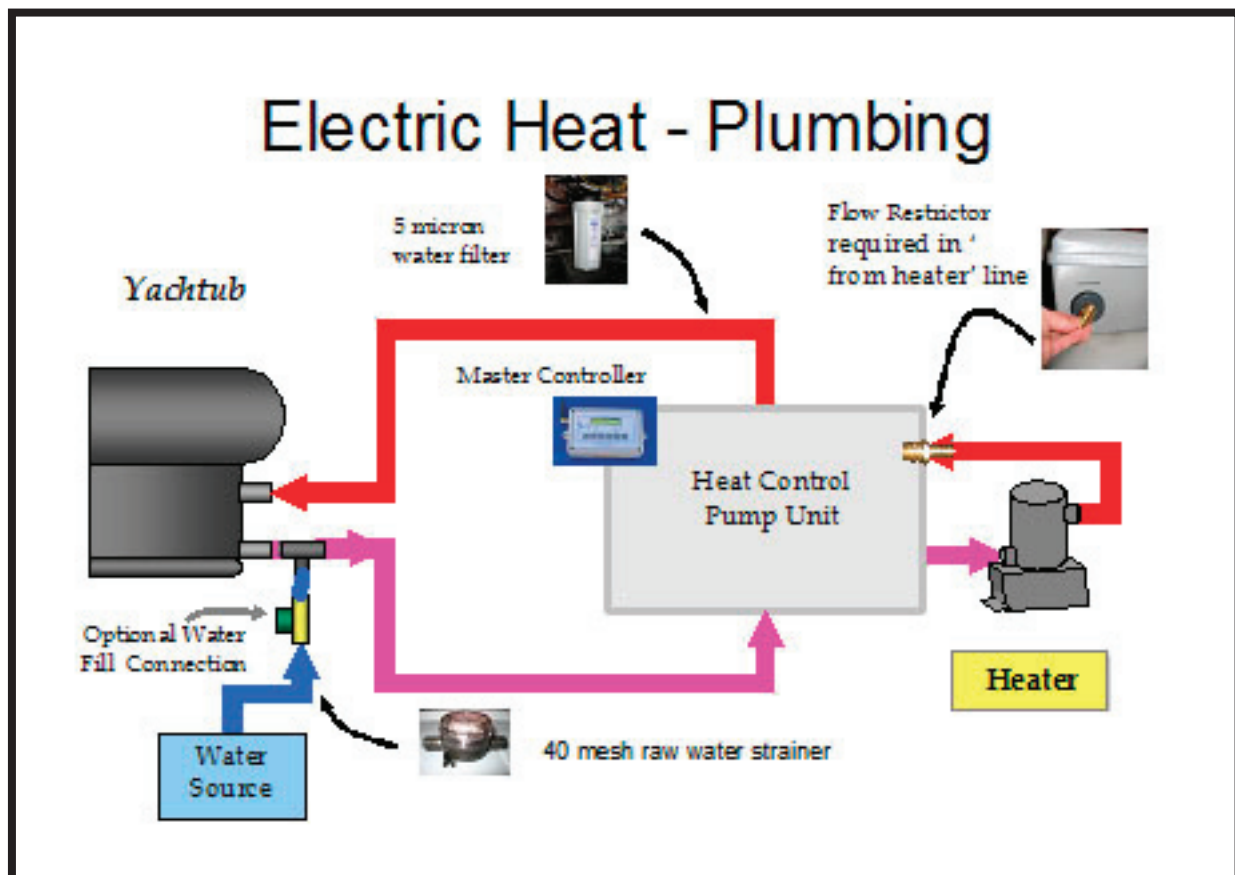


Hydronic with Jets - Plumbing

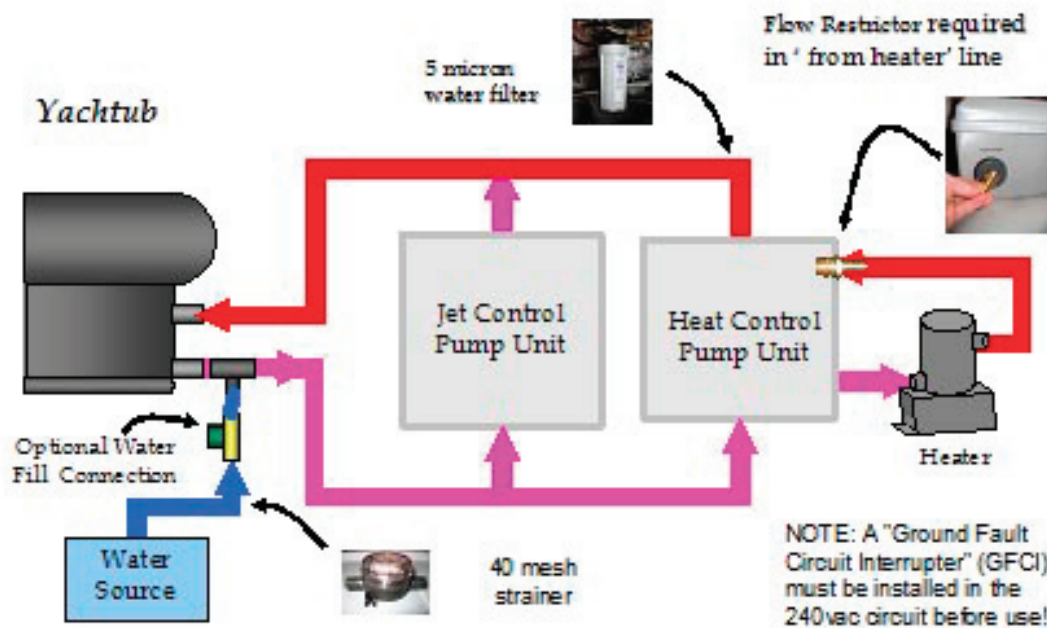


Hydronic Heat with Jets - Wiring

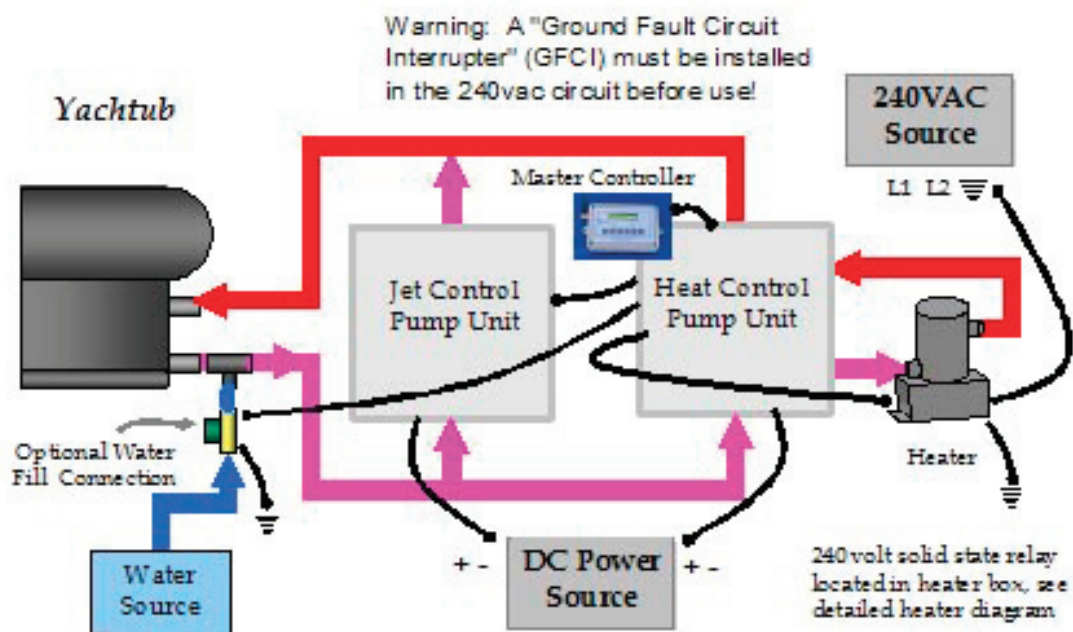




Electric Heat with Jets - Plumbing

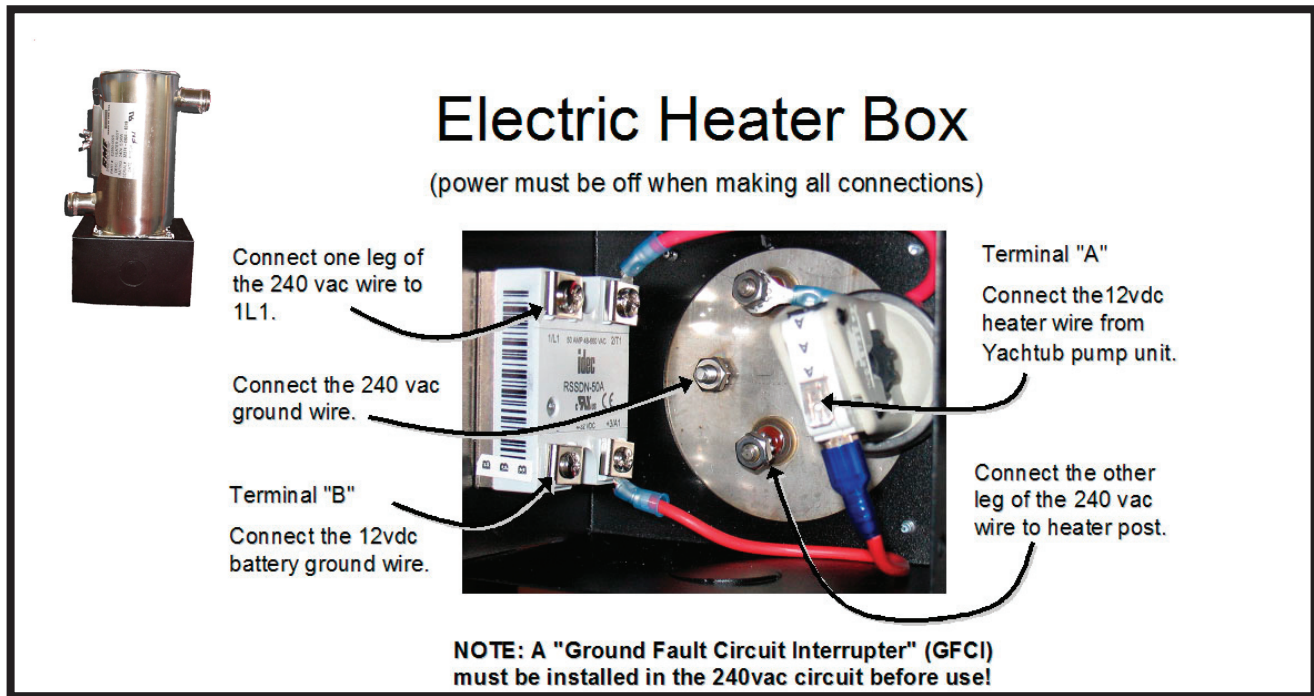


Electric Heat with Jets - Wiring



Electric Heater Details

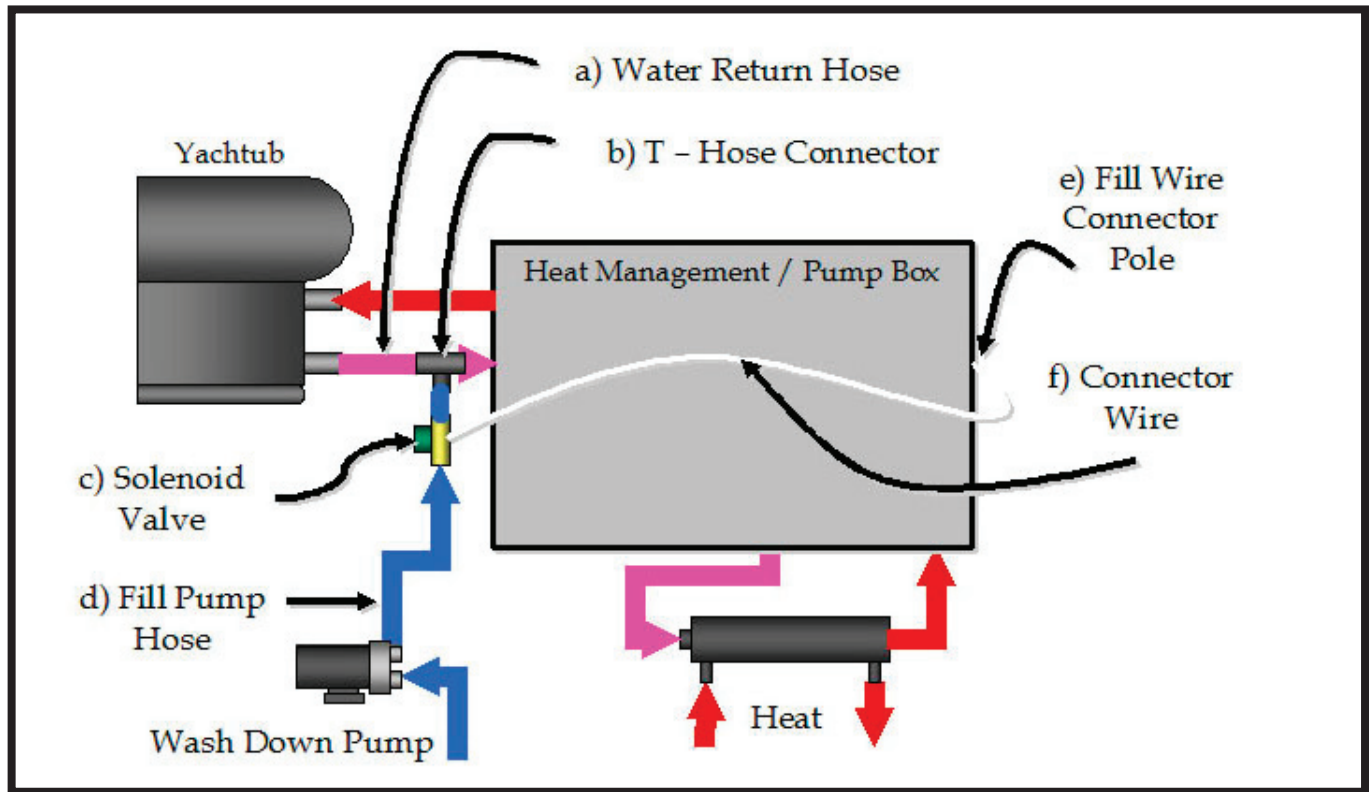
Type A Electric Heater



Heat Control/Pump Unit Connections



Optional Integrated Water Fill Installation



1. Install a Tee connector (b) in the Yachtub Water Return Hose (a).
2. Install a 12 volt DC electric Solenoid valve (c) to control the flow from the fill pump.
3. Run a section of 1/2" hose (d) from the fill pump system (another Tee connector may be required) to the Tee connector installed in step 1.
4. Connect the Solenoid valve to the Fill Wire Connector Pole (e) on the Pump Box using the ABYC recommended wire size for the length of wire required (f)

Filters

Mount a standard 5 Micron filter and integrate into the circulation system between the Pump Unit and the Tub.

Mount the 40 mesh strainer at the water source. This is especially important when filling with lake, stream or sea water. Even small plants or stray debris could clog pumps or hoses.

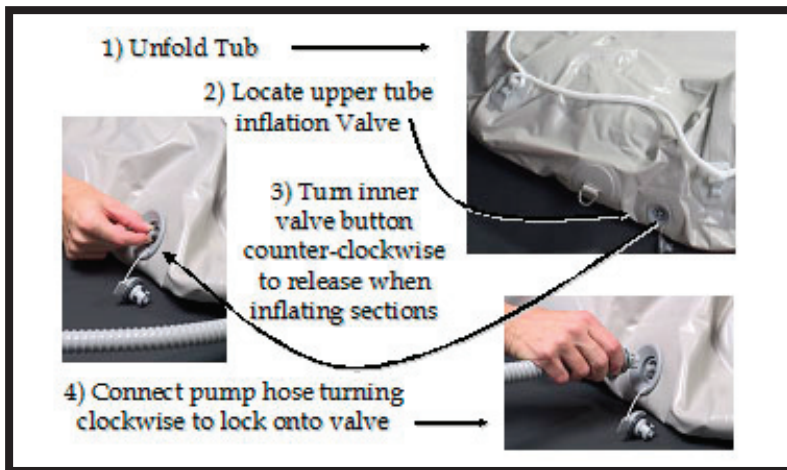
Operating Instructions

General Setup

Setup is easy, with a little planning and preparation in advance your Yachtub will quickly provide you with the luxury of a spa in your favorite anchorage or marina. Be sure to read your entire owners manual prior to using the Yachtub.

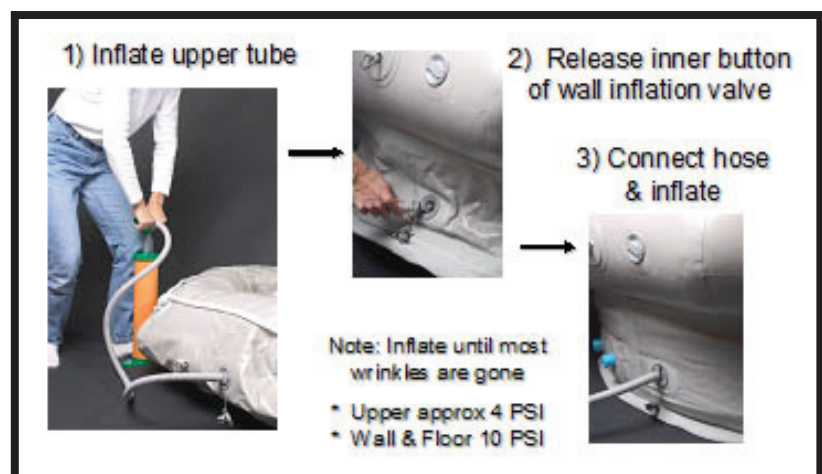
Inflating

- o Unpack your Yachtub in an area large enough for inflation
- o Be sure to allow room for moving the Yachtub into the water.
- o Remove the cover of the first inflation valve.
- o Twist the center button counter clockwise to release the deflation lock
- o Attach the pump inflation hose to the inflation valve twisting clockwise to hold it in place.
- o Inflate that section to the recommended pressure or just until the wrinkles are gone.
(< 10 .psi for the floor and walls and < 4 psi for the large upper tube)
- o Twisting counter clockwise detach the inflation hose and replace the inflation valve cover.
- o Repeat for each of the three sections.



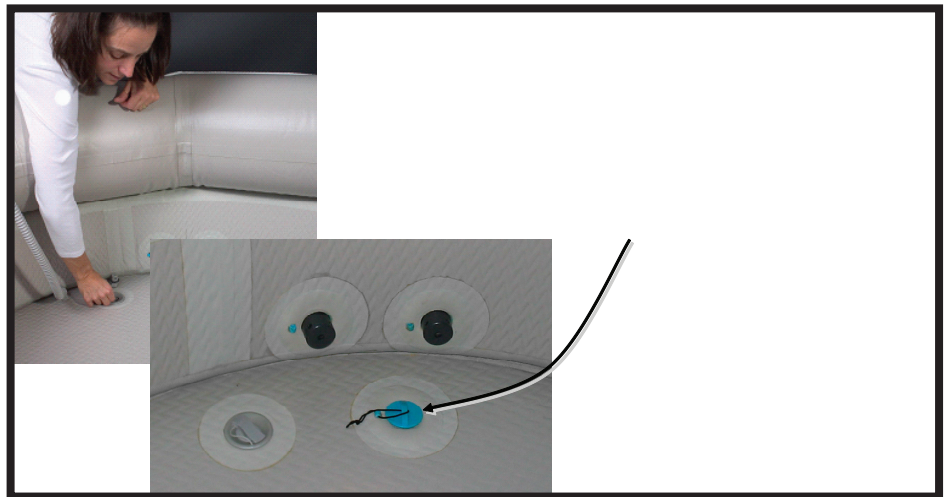
Connect Inflation Hose

Inflate Upper Tube & Wall



Inflate Floor

- 1) Inflate Floor section
- 2) Replace the floor inflation valve cover
- 3) Make sure the *Drain plug* is in place



***Attach line to 1 of 4 D rings
Secure Line to Boat***

Connect Circulation Hoses to tub

**Remove Caps & Connect
Tub Circulation Hoses**



**Water In
Water Out**



***Connect circulation hoses to the
hoses connectors leading to the
Pump Unit.***

Example: Connectors on hoses
leading to pump unit mounted
in a recessed transom box

Filling

Your Yachtub is designed to be filled with either saltwater or freshwater. Saltwater is exceptionally soothing. Many people add salts to freshwater for a luxurious soak. These salts can be purchased at your local bed & bath or spa center. We recommend you use a 40 mesh in line or hose filter when filling your tub.

1. Check to see that the drain cap is in place.
2. Be sure to secure your Yachtub to your boat with a strong line long enough to allow the Yachtub to submerge as it fills. Ridged stand-off brackets may be use to attach the boat to your swim step.
3. Place the Yachtub in the water next to your boat .
4. Using a hose or the fill option , fill your Yachtub with clean water to within 5-6 inches of the top of the main tube.

If you have plumbed your wash down pump to fill your tub (see optional fill installation instructions) and connected the solenoid valve to the Yachtub Control Box you may simply press the Fill button on the Control Box to begin the filling process.



5. As the Yachtub fills it will gradually submerge and stabilize as the large tube rests on the surface of the surrounding water.



Heating, Circulating & Temperature Control

6. Turn the Heat Control/Pump Unit Master Switch on. Red light is lit when switch is on. If red light does not light check fuses and battery connection.

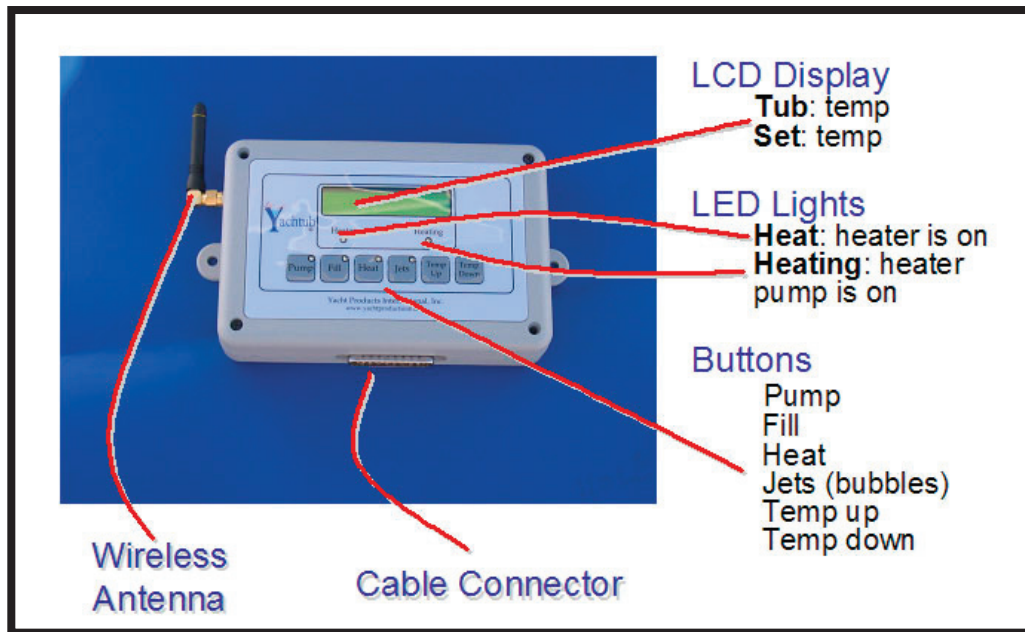
Your Yachtub may be heated using a heat exchanger integrated into your yacht's hydronic heating system, by using an electric heater powered by your generator or the YPI self contained portable diesel system.

Simply set the temperature and start the heating process using the Master Control as described below. Depending on the ambient temperature of the water, the size of the heater and the power available, your Yachtub will heat in 1-4 hours. (see the heating times chart in the reference section of this manual)

note: Tub may be heated while filling



Operating the Master Control Unit



Buttons and LEDs

Pump: If the LED light is on, the circulating Pump is on. Press button to turn on/off the Circulating Pump

Fill: If the fill option has been installed pressing the fill button opens the Solenoid Valve and allows water from a pressurized source (fill pump, wash down pump or hose) to flow into the Tub water return hose, through the circulating system and into the tub. If the Heating light is on, the water will be heated as it passes through the circulating system. The Fill LED light will be lit when the tub is filling.

Heat: If the LED is off, pressing the heat button will start the heating process. If the circulating pump is off it will automatically start. If the water temperature is below the Set temperature the heater will be turned on and the heater pump will begin circulating water through the heat exchanger.

Temp up: Pressing the Temp up button will increase the Set Temperature by 1° F. (max 104° F)

Temp down: Pressing Temp down will decrease the Set Temperature by 1° F. (min 75° F)

Display Screen & Lights

The LCD Display will display the current Tub temperature and the desired target or Set Temperature (target temperature) for the water in the Tub.

Heat: The LED Light labeled “Heat” will turn on when the Heater is on.

Heating: The LED light labeled “Heating” will turn on when the Heater pump starts circulating water through the heater. This light may flicker as the pump pulses to maintain the flow required to keep the heated water flowing into the tub within a safe range for bathers yet hot enough to heat the tub water to the desired temperature.

Optional Remote Control Unit

The RF 916 MHZ Bi-directional Remote is a convenient option that enables you to control the water level, heat and Jets from the comfort of your cabin or while soaking in the tub itself.

The Remote communicates with and controls all the functions found on the Master Control Unit (see Operating the Master Control Unit section of this manual)

It has a Range of up to 50', floats and is water resistant
Powered by Two AA batteries, the normal battery life is approximately 6 months.
(Note: remove batteries for long term storage)

As you look at the Remote the LCD Display is the small screen at the top.
The LCD Screen displays mode, (see below), status of each mode, and heat settings

Example Operation:

Hold Mode button down to turn remote on.
Display will show Temperature & mode status below

Tub: (current water temperature)
(note: the pump must be on to show current tub temperature)
Set: (target temperature in degrees Fahrenheit)
P F H J (P - Pump, F - Fill, H - Heat, J - Jets)

Press Mode again to Set target temperature
Press up arrow to increase set temperature 1 degree (max 104 F)
Press down arrow to decrease set temperature 1 degree (min 75 F)
Press Mode again to say OK

Press Mode Twice to view Pump Status
Press up arrow or down arrow to toggle on/off
Press Mode again to say OK

Press Mode Four times to View Fill Status (if installed)
Press up arrow or down arrow to toggle on/off
Press Mode again to say OK

Press Mode Four times to View Heat Status
Press up arrow or down arrow to toggle on/off
Press Mode again to say OK

Press Mode Five times to View Jets Status (if installed)
Press up arrow or down arrow to toggle on/off
Press Mode again to say OK

Error messages:

no comm: The remote cannot establish communication with the master control unit. The master control may be off, the batteries in the remote control weak, the remote is too far away from the master control or there is interference with the signal between the remote and master control. Fiberglass should not impact the signal but if there is metal sheeting between the units (some insulation or sound deadening systems use metal) a booster antenna may be required or the master control may need to be relocated.

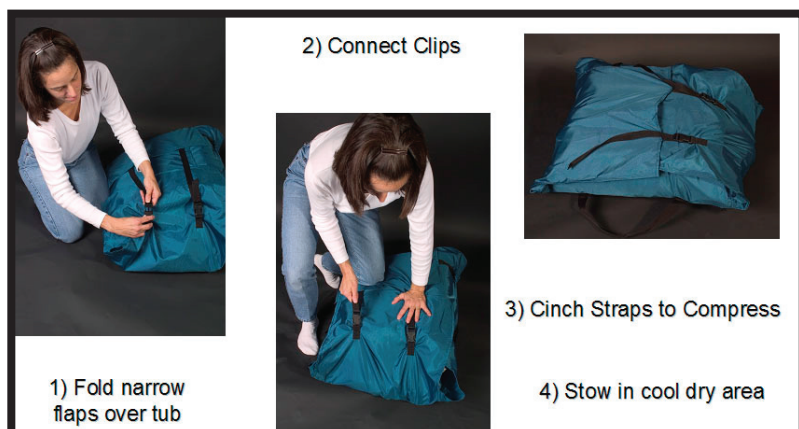
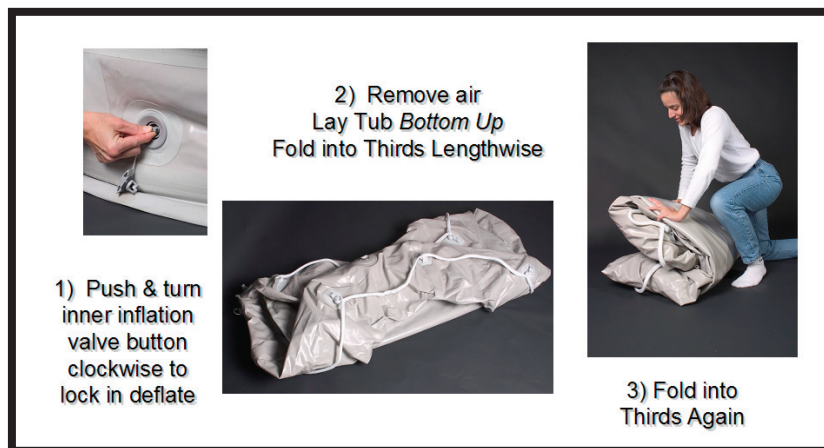
TUB E: A tub temperature of zero has been detected. This is usually due to a brief interruption in communication with the heat sensor. If it does not clear in 30-60 seconds, turn the system off & on to reset.



Note: When remote is on and in monitor mode, showing "TUB" and temperature, pressing the up and down buttons will increase or decrease contrast.

Draining, Deflating & Storage

- o Turn off the heating and circulation options.
- o Disconnect the circulation hoses from the tub
- o Remove the bottom drain plug cap; your Yachtub will automatically empty
- o If you have been using saltwater in your tub we recommend flushing the heating unit with fresh water to prevent any salt buildup in the exchanger or heater.
- o Clean your Yachtub with mild, non-foaming, non-abrasive cleaner.
- o Rinse thoroughly and dry
- o Deflate, and return to its storage bag as shown below.



Maintenance

Tub Unit

Be reasonably careful with your tub. Although the Marine quality PVC is tough and durable, sharp metal objects can puncture the fabric and continual chafing against a dock will take its toll. In addition, your Yachtub can be setup on almost any level surface certified to support 1400- 1600 pounds but you should not place the Tub where sharp rocks or barnacles are present. An optional pad or layer of fabric should be used to protect the bottom when placing the tub on any rough surface.

However careful, you may occasionally end up with a small puncture or tear. Your tub comes with a repair kit and additional supplies can be ordered or purchased at your favorite Marine store. Most leaks only take a few minutes to repair.

Small Repairs: Locate and mark the leak with a piece of tape so you can find it again. Drain and deflate the tub. Thoroughly clean and dry the area to be repaired. For a small hole (1/8th" or less) apply a small drop of glue. Let dry 12 hours before reinflating.

Medium Rips or Tears: Drain and Deflate the tub. Cut a piece of repair material large enough to overlap 1/2 ". Round the edges of the patch. Apply a layer of adhesive to the underside of the patch and around the area to be repaired. Careful, too much adhesive will ooze out the sides and require clean up. Wait 2-4 minutes, glue should be tacky. Place patch on the damaged area and press down firmly. Place a small weight to hold patch in place and allow to dry 12 hours before reinflating.

Large Repairs: Large repairs should be done professionally. Call us for a referral or ask your local inflatable dealer for a reference.

Balancing & Sanitizing

Although similar in many ways to hot tub spas, Your Yachtub is usually drained after each use. Adding a little Bromine during the initial fill will help prepare the water for initial use. Follow the instructions on the Bromine packet or container. **LIMIT THE USE OF CHLORINE IN YOUR Yachtub.** Chlorine is harsh on the tub as well as your skin.

If you intend to keep your Yachtub filled for days at a time you should take measures to ensure clean sparkling water. This means balancing the chemical properties of the water and sanitizing the system to keep the water free of harmful microorganisms. A quick visit to your local pool and spa supply store will provide you with the materials you need to keep your Yachtub clean and healthy.

Filters & Strainers

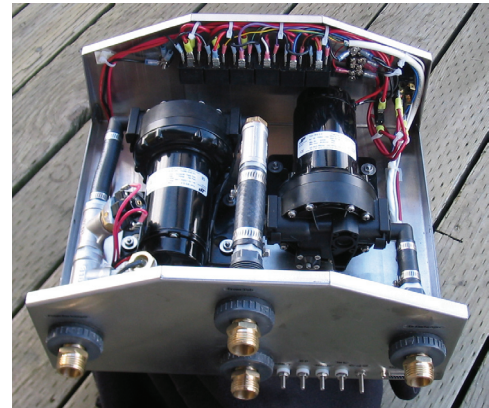
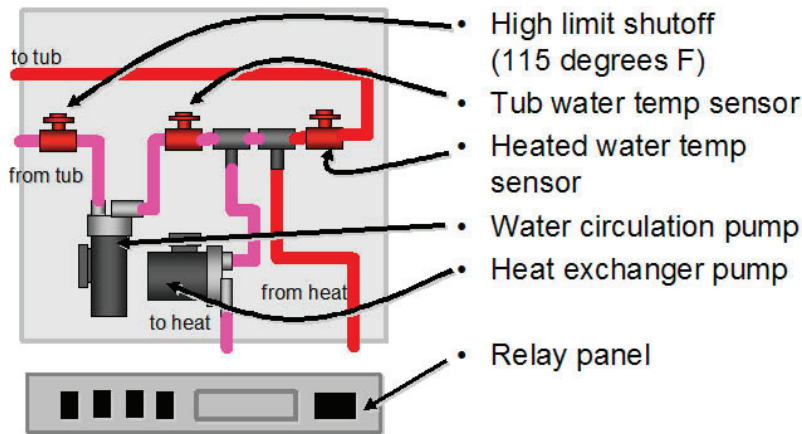
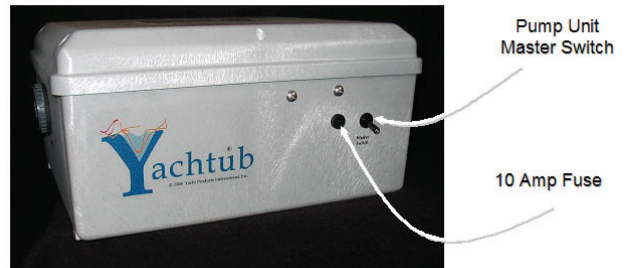
Suspected pump or heating problems are frequently just plugged filter problems. Filters and strainers should be cleaned on a regular basis. Remove debris and flush with freshwater. Replace filters frequently if using lake or seawater or using tub for extended periods of time.

Pump Unit

Note: To avoid damage to the electronics you must turn off the Pump Unit Master Switch before removing the cover.

When using saltwater, the pump unit should be flushed with freshwater. Simply place the "From Tub" circulation hose in a bucket of fresh water and turn on the heat. The water will circulate through the system flushing out the pumps and heater.

Most of the pump unit components are standard and can be serviced by your local marine service facility if required. Have them give us a call if they have any questions



Control Box

The control box is not designed to be serviced in the field. If after troubleshooting with the factory representative, problems with the control box are suspected an RMA will be issued, the unit returned to the manufacturer, repaired or replaced as required, and returned to the owner.

Heating & Insulation

The chart below provides the approximate heating time required to heat 150 gallons of water from the starting temperature listed in the first row to 100° F, given the BTUs listed in the first column.

Example: If the water in the tub is 50 F and your hydronic heater or electric heater can supply 40,000 BTUs the tub will heat to 100° in a little over 1 ½ hours.

Approximate Heating Times *time required to heat 150gal (small tub) H₂O to 100°F*

BTU * (heater capacity)	kw	50°F	60°F	70°F	80°F	90°F
		(starting temperature in degrees fahrenheit)				
40,000	12	1.7 hrs	1.3 hrs	1 hrs	40 min	20 min
30,000	9	2.5 hrs	2 hrs	1.5 hrs	1 hr	30 min
20,000	7	3.3 hrs	2.6 hrs	2 hrs	1.3 hrs	40 min
17,000	5	5 hrs	4 hrs	3 hrs	2 hrs	1 hr
10,000	4	6.5 hrs	5.3 hrs	4 hrs	2.6 hrs	1.3 hrs
4,500	1.3	13 hrs	11 hrs	8 hrs	5 hrs	2 hrs

*Note: for electrical Conversions 3413 BTU = 1 kw
heat requirements approx 8.3 BTU per gallon per hour

Insulating Drop Stitch /Air Floor & Wall Fabric



High-Pressure inflatable air fabric is made of two layers of fabric, connected by thousands of tiny “drop stitches”.

This floor can be inflated to a high pressure, creating a floor or wall with rigidity equal to sheet of plywood at a fraction of the weight.

The fabric provides excellent insulation and best of all, it can be completely deflated and stowed in only minutes.

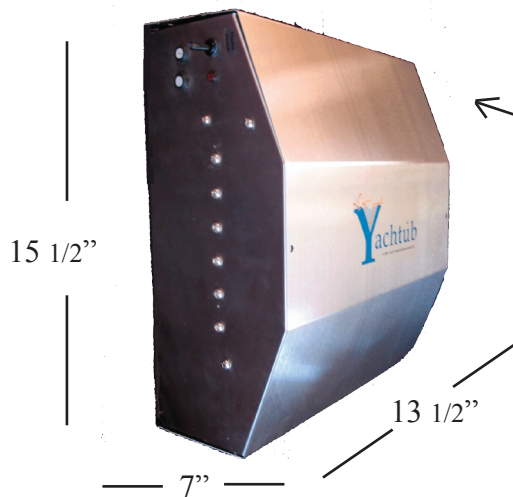


Primary Components - Electric

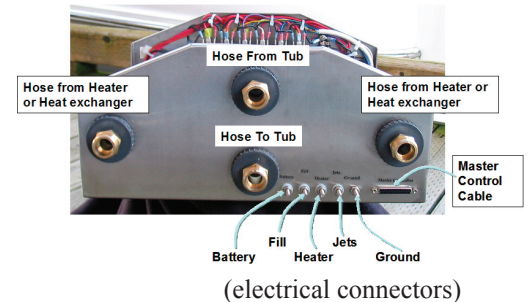
(Hoses are not shown as each installation will vary based on the layout of the boat and the options selected. See user manual for more information and details on installation options.)

Heat / Pump Unit

Weight 23lbs, Contains two circulation pumps, relay panel, thermostatic controls



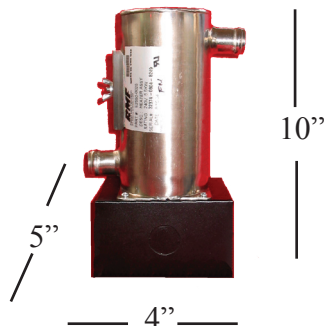
Circulation Hoses attach to far side of Heat/Pump Unit



Electric Heater

Mount Vertically

Connects 5' heater hoses to Pump Unit

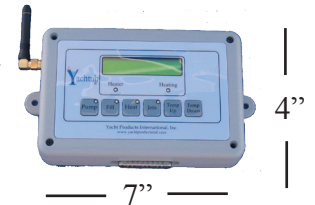


Master Controller

Allow 3" clearance on bottom to attach master control cable

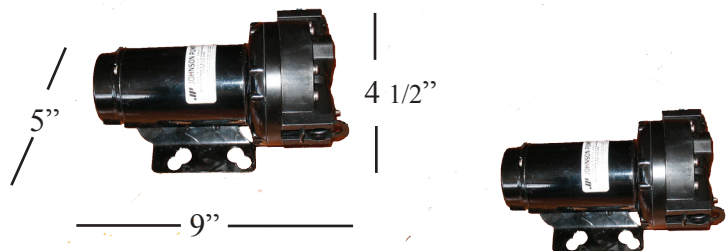
Protect from weather & water

25' cable connects controller to Heat Pump Unit



Pumps for Soft Jets Option

Location is flexible
see user manual



Jets require mounting two additional pumps between the Heat/Pump Box and the Tub hose connectors