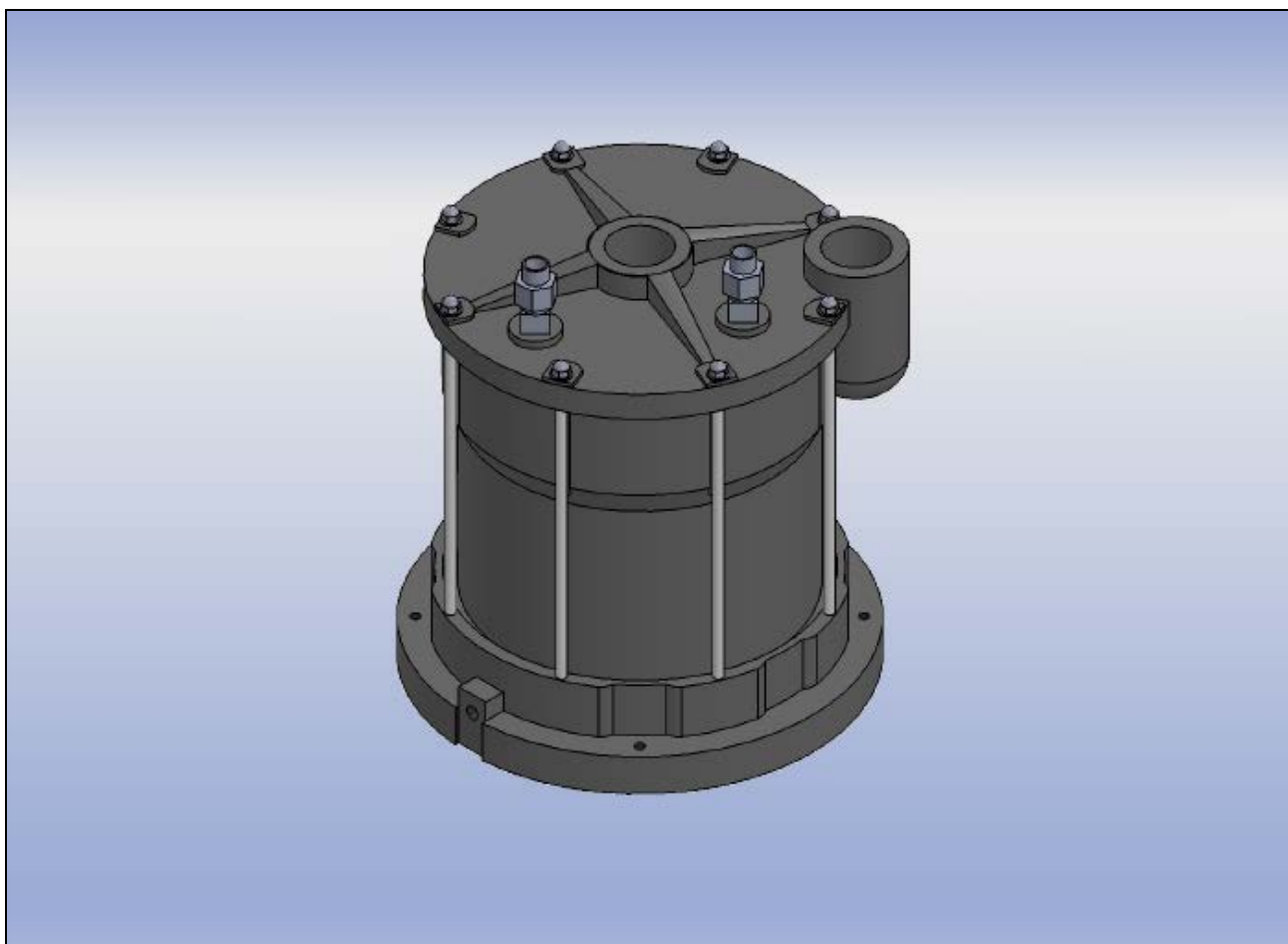




EARTHLINKED
TECHNOLOGIES

EarthLinked® Series PHXTI Pool Heat Exchangers *Installation Manual*

CONTENTS	PAGE
Pre-Installation	3
Installation	3
• Water Connections	4
• Refrigerant Connections	7
• Freeze Protection/Winterizing	11
• Warranty	12



Disclaimer

The EarthLinked® Pool Heat Exchanger is sold as a system component part and must be properly sized and matched to other system components to provide the intended performance and safe operation of the system. Installation and servicing of this heat exchanger must be done only by a servicing technician qualified in pool heating and HVACR equipment, and in accordance with instructions set forth in this manual.

Earthlinked Technologies shall not be liable for any defect, unsatisfactory performance, damage or loss, whether direct or consequential, relative to the design, manufacture, construction, application or installation of other components in the swimming pool system. All warranty claims shall be handled directly through Aqua-Cal Inc., St. Petersburg, FL.

Earthlinked Technologies, Inc.
4151 South Pipkin Road
Lakeland, Florida 33811
tel. 863-701-0096 • fax 863-701-7796
info@earthlinked.com • www.earthlinked.com

1. Pre-Installation

Upon receipt of the swimming pool heat exchanger, check the model number against the bill of lading.

The Earthlinked Technologies model numbers are as follows:

Model Number	Rating, BTU/HR
PHXTI-90	90,000
PHXTI-115	115,000
PHXTI-130	130,000

This heat exchanger is approved for use with swimming pool heat pump heating systems using R-410A, R-407C or R-22 refrigerants.

This swimming pool heat exchanger is sold as a system component, and must be sized and properly matched to other system components to provide the anticipated performance and safe operation of the system.



IMPORTANT

Before installing this heat exchanger, be sure that all electrical power to the swimming pool heat pump heating system is “OFF” and the refrigeration system and water circulating system have been depressurized or isolated from the immediate proximity to the heat exchanger connections.



WARNING

Wear adequate protective clothing and practice all applicable safety precautions while installing this equipment. Failure to do so may result in equipment and / or property damage, personal injury or death.



WARNING

Inhalation of high concentrations of refrigerant gas vapor is harmful and may cause heart irregularities, unconsciousness or death. Vapor reduces oxygen available for breathing and is heavier than air. Decomposition products are hazardous. Liquid contact can cause frostbite. Avoid contact of liquid with eyes and prolonged skin exposure. Liquid and gas are under pressure. Deliberate inhalation of refrigerant gas is extremely dangerous. Asphyxiation can occur without warning due to lack of oxygen. Before working with a refrigerant, read the Materials Safety Data Sheet for that specific refrigerant.

2. Installation

The heat exchanger is designed to be used as a replacement component in an existing swimming pool heat pump heating system, or as a component of a new swimming pool heat pump heating system.

The overall dimensions of the heat exchanger are illustrated in Figure1. The heat exchanger must be mounted on a level, hard surface and oriented in the direction shown in Figure 1 (vertically, with connections on the top) to perform properly.

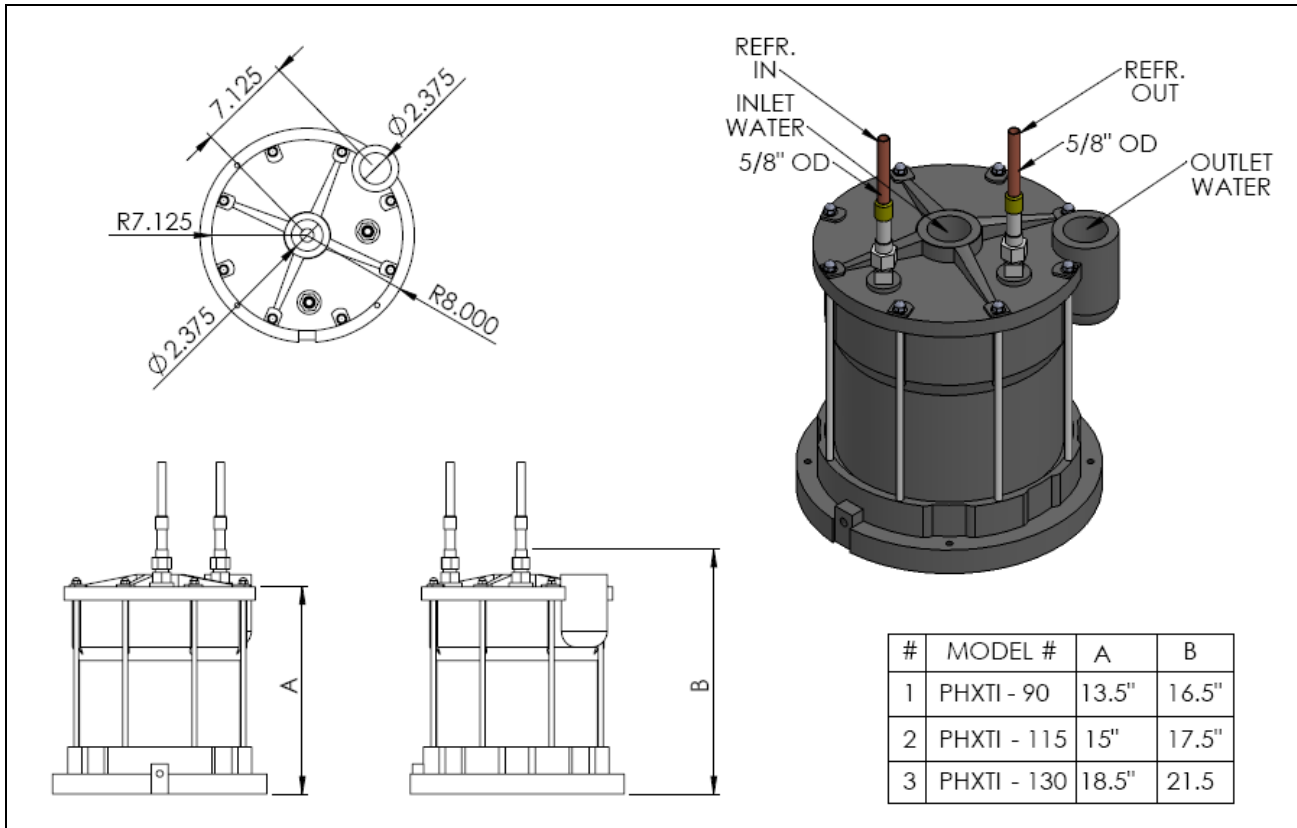


Figure 1. Heat Exchanger Dimensions

A. Water Connections



WARNING!

The system shall be operated such that the water pressure in the heat exchanger shall not exceed 50 psig. Higher pressure may cause water leakage from the heat exchanger and cause associated water damage. Water pressure above 50 psig voids the heat exchanger warranty.

A typical piping arrangement for the installed heat exchanger is shown in Figure 2.



WARNING

All water piping to and from the pool heat exchanger shall be supported and secured to avoid stress on the heat exchanger connections. Failure to do so may cause heat exchanger joint failure, pool heater system failure and associated water damage.

The heat exchanger is installed downstream of the filter and upstream of the water conditioning system. The heat exchanger shall be no more than 10 feet from the heat pump compressor unit. In addition, the heat exchanger water inlet and outlet connections shall have union connections to the water circuit.

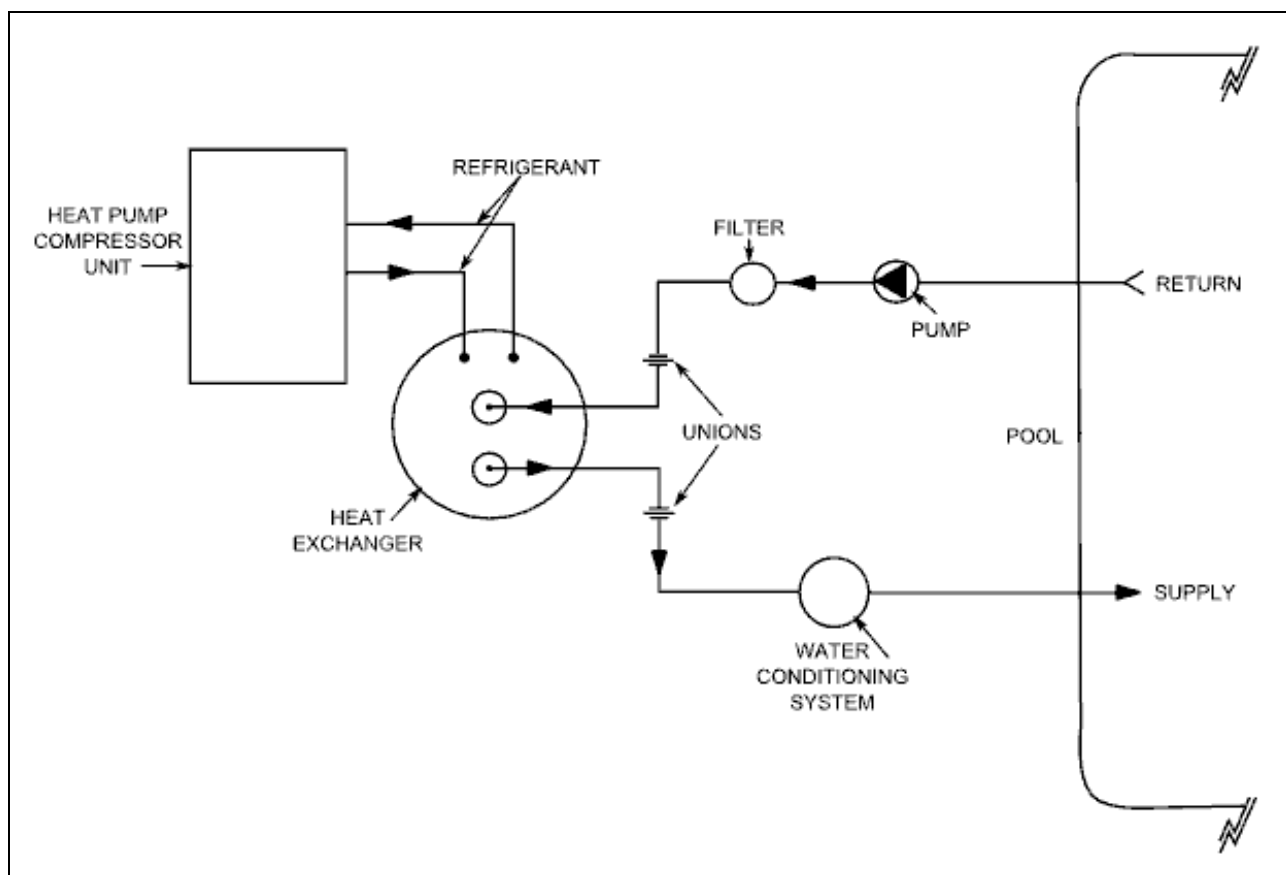


Figure 2. Typical Pool Installation Piping

The heat exchanger water connections are nominal 2 inch PVC. Plumb these connections first, as follows:



WARNING

Prior to cleaning and cementing the PVC joints, be sure that all sources of ignition are removed from the area and the area is well ventilated. Extremely flammable. Vapors may cause flash fires. May irritate eyes and skin. May irritate respiratory tract and cause central nervous system depression. Harmful or fatal if swallowed. If swallowed, DO NOT INDUCE VOMITTING. Drink water and call a doctor or poison control center.

1. With abrasive cloth (Oatey #31411 or equivalent), roughen the ID surfaces of the female connectors on the heat exchanger and the OD surfaces on the water supply and return PVC pipes.
2. Clean the same surfaces in item 1 with PVC Cleaner (Oatey #30782 or equivalent) and allow to dry.
3. Apply PVC Cement (Oatey #30863 or equivalent) to the cleaned areas in step 2.
4. Be sure the correct water pipe is aligned with the correct connection on the heat exchanger.
5. Press one pipe at a time into the appropriate water fitting on the heat exchanger and maintain push pressure for 30 seconds.

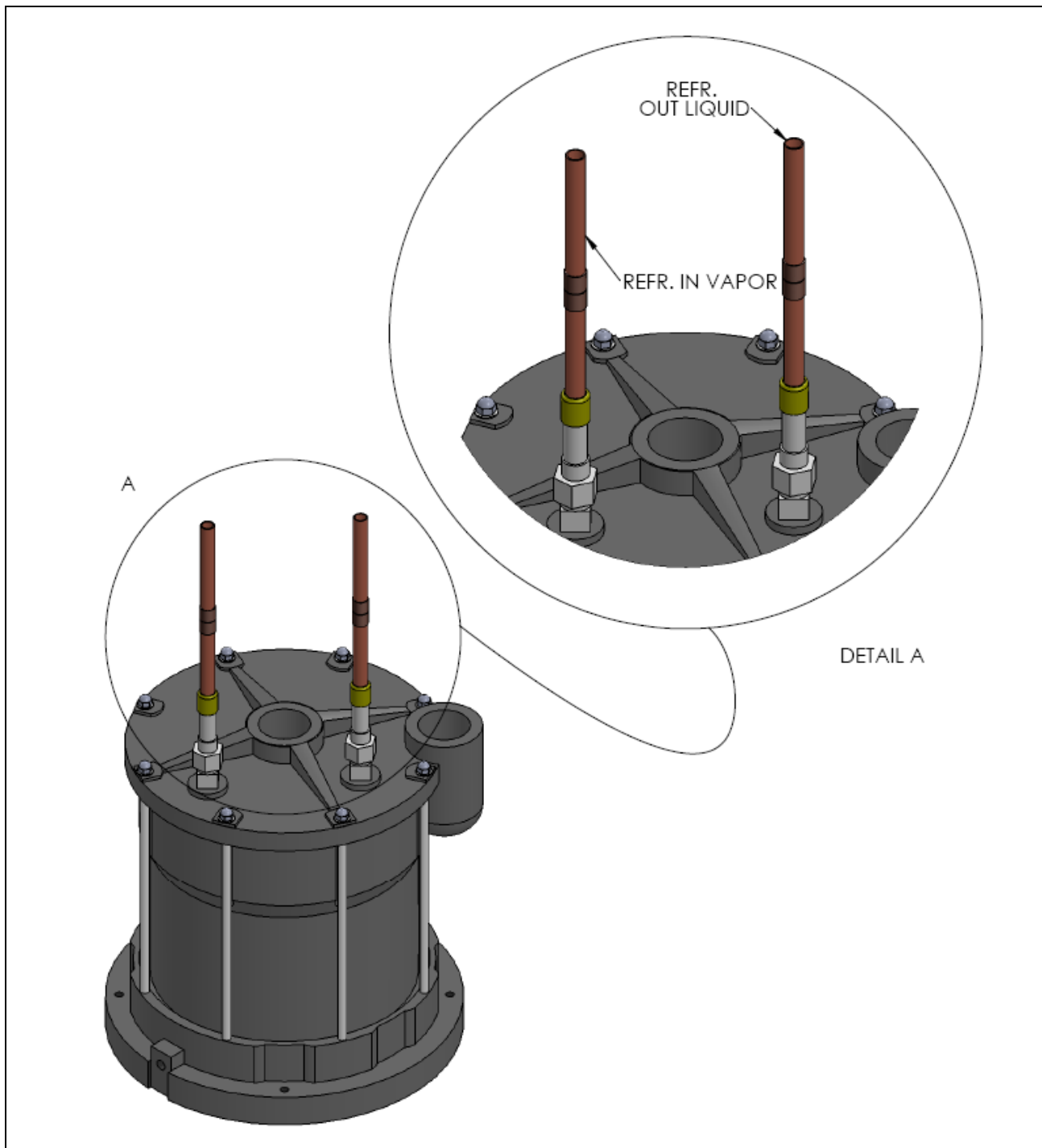


Figure 3. Heat Exchanger Refrigerant Connections

B. Refrigerant Connections



IMPORTANT

Do not exceed 300 psig refrigerant pressure!

The refrigerant connections are shown in Figure 3. Each connection is 5/8 inch OD copper tube. The refrigerant line connections are brazed as follows:

1. Clean and deburr the copper stub outs and the field supplied fittings that will make the connections from the refrigeration system.
2. Use 15% silver brazing alloy to seal the refrigeration connections.
3. Make provisions to use the nitrogen brazing technique as described below to braze the refrigerant joints.



CAUTION

PURPOSE:

Utilize the **NITROGEN BRAZING PROCESS** on all brazed refrigerant piping connections. This process eliminates oxidation products from inside joint surfaces.

TECHNIQUE:

“Trickle” nitrogen gas at 1-2 psi pressure through the joint area being brazed, to displace the oxygen. When oxygen has been displaced, turn off the nitrogen, and relieve the pressure at the joint to atmospheric prior to brazing.

CONSEQUENCES:

Failure to displace oxygen with nitrogen at the brazed joint will result in particulate matter being released into the system. The result is discoloration of refrigerant oil, contamination of the system and possible system failure.

4. Before brazing the refrigerant joints, protect the SWAGLOK[®] fittings illustrated in Figure 3 by wrapping each joint with a wet cloth, and further protect it from direct torch flame with an inflammable shield as shown in Figures 4, 5 and 6.

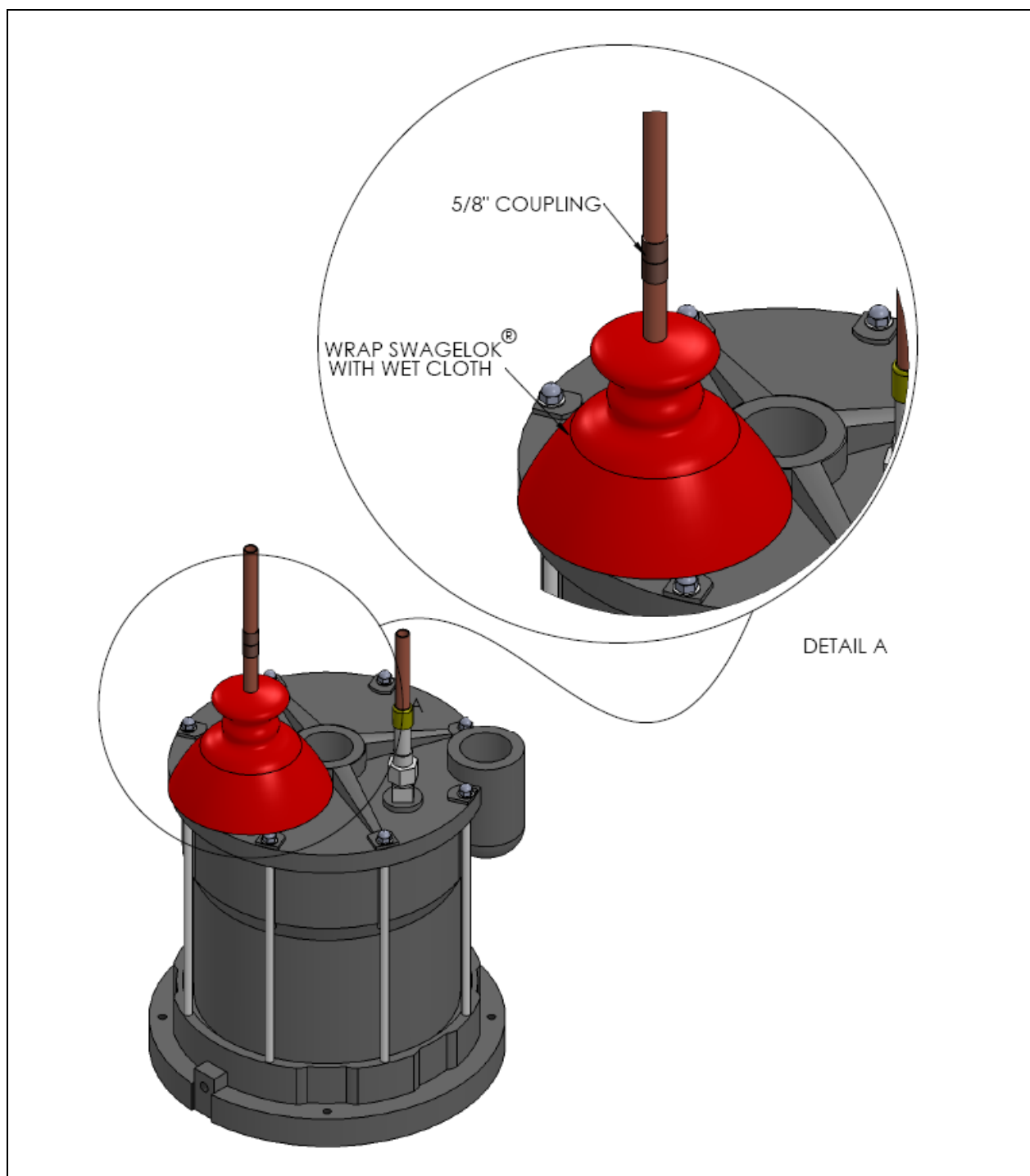


Figure 4. Wrap SWAGLOK® Joints

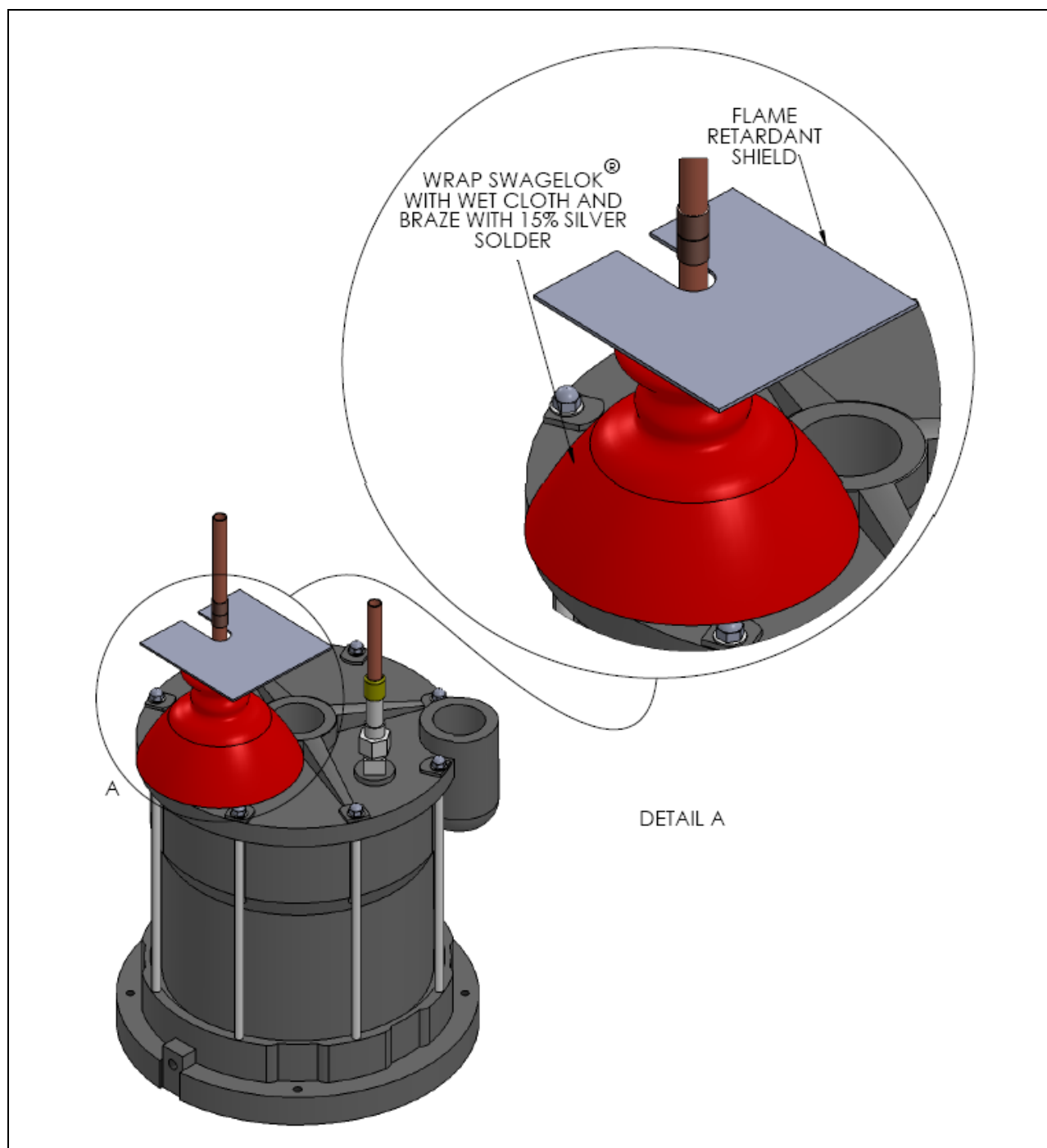


Figure 5. Apply Flame Retardant Shield

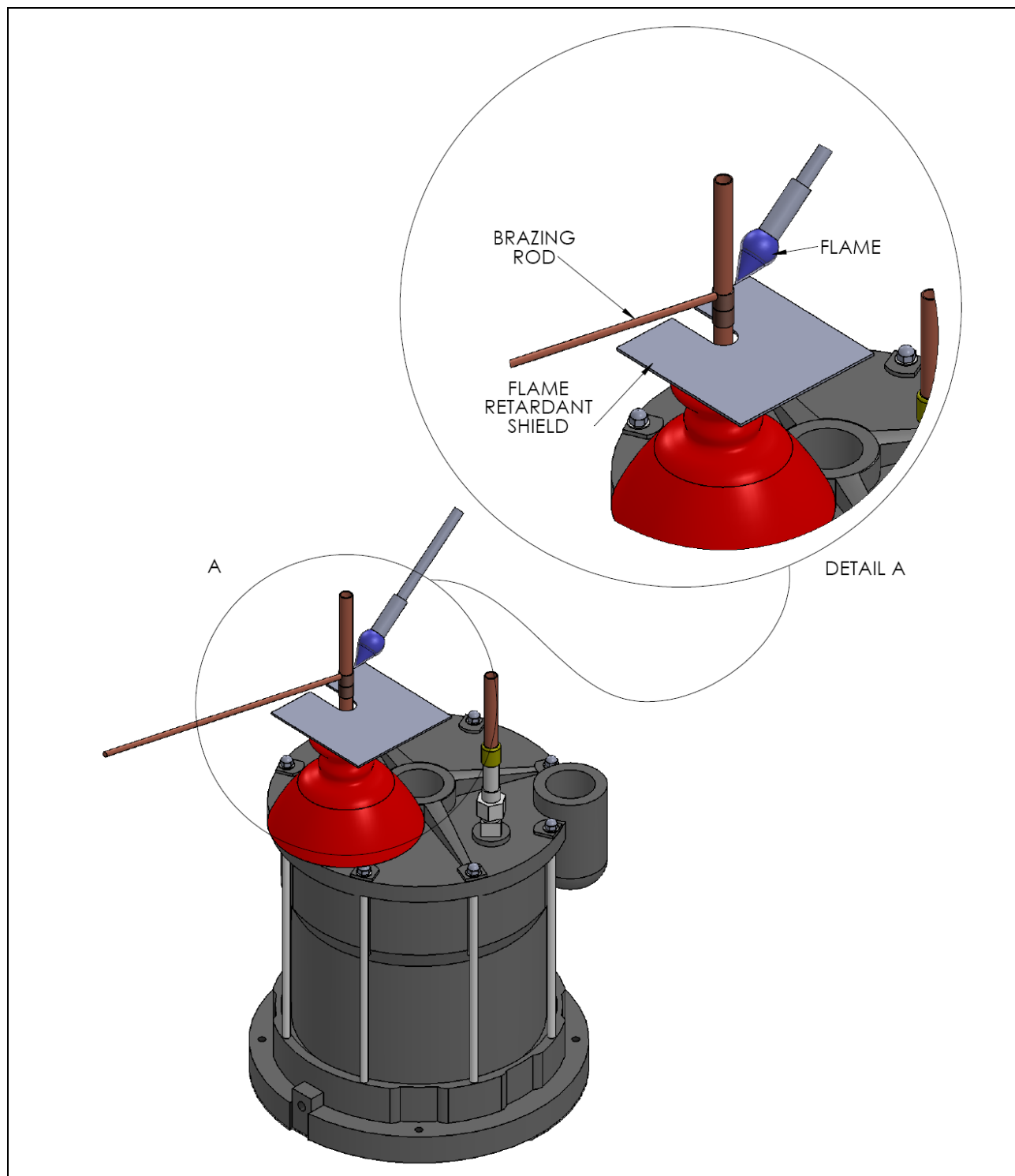


Figure 6. Braze Joints

5. After the refrigerant joints have been brazed, seal test the joints by pressurizing the refrigeration system to 150 psig dry nitrogen and check each joint with a quality leak detector.
6. Next, evacuate the refrigeration system in accordance with the pool heater system manufacturer's instructions, being sure to thoroughly remove all moisture from the system.
7. Charge the system in accordance with the pool heater manufacturer's instructions.

After purging the water system of air, re-applying electrical power, start the system in accordance with pool heater manufacturer's instructions, and monitor the operation of the system through at least two compressor start/stop cycles to ensure the system is performing properly.

C. Freeze Protection/Winterizing

In areas where freezing conditions are a rare occurrence, run the filtration system continuously through the freeze period. Generally, during a light freeze, circulating water will not freeze.

In areas where freezing conditions are prevalent and more severe, implement the following instructions to winterize the heat exchanger. Follow manufacturer's instructions to winterize other system components.

1. Disconnect all electrical power to the system, including the compressor unit and water circulating pump.
2. At the two water connections to the heat exchanger, loosen the union joints, but do not totally disconnect the unions.
3. Locate the drain plug at the bottom of the heat exchanger, remove it, and let all the water drain out of the heat exchanger.
4. After ALL water has been drained from the heat exchanger, replace and tighten the drain plug.
5. Allow the unions to remain loosely connected until the swimming pool is to be made operational again. Tighten unions at that time.
6. After the system has been made operational again, check the heat exchanger plug and the two (2) unions to ensure they do not leak.

D. Warranty

All warranty claims shall be handled directly through AquaCal AutoPilot, Inc.



HEAT PUMP PARTS WARRANTY

This Limited Warranty applies to parts purchased through an authorized dealer after January 01, 2013. AquaCal AutoPilot, Inc. (hereafter referred to as: "Manufacturer") warrants the following, to the original owner and installation site, to be free of material or workmanship defects for a limited term.

Parts	1 Year Parts Only
-------	-------------------

This warranty is for parts purchased and replaced after original equipment warranty has ended. The Manufacturer's patented ThermoLink® Titanium Heat Exchanger carries a lifetime warranty on the titanium tubing part only.

- 1) This warranty covers part failures due to workmanship.
- 2) This warranty cannot be combined with any other product warranties.
- 3) This warranty does not include transportation charges for component parts to or from the Manufacturer. The owner/operator shall be responsible for any travel charges imposed by the warranty center or servicing agent.
- 4) At its sole discretion, the Manufacturer reserves the right to replace defective parts with new or refurbished replacement parts.
- 5) At the option of the Manufacturer, the Owner may be required to return parts to the factory, freight prepaid, to provide warranty replacement. This may become necessary if the parts were installed in an area not supported by a Factory Authorized Service Center.
- 6) Purchasing original and / or replacement parts through an un-authorized dealer will void this limited warranty.
- 7) This warranty is applicable only if the part has been installed, operated, and maintained expressly and completely in accordance with the product's Owner/Installation manual. This document is available online at the Manufacturer's website indicated on the bottom of this document.
- 8) The liability of the Manufacturer shall not exceed the repair or replacement of defective parts under the referenced limited warranty term and shall not include applicable consumables.
- 9) This warranty does not include damage due to freezing conditions, negligence or abuse, installations in corrosive environments or atmospheres, nor acts of God.
- 10) There are no implied warranties of merchantability or fitness for a particular purpose that apply to this product. Under no circumstances shall the Manufacturer be liable for any loss, damage, or injury, whether direct, consequential or incidental, arising out of the use or inability to use this product.
- 11) In addition, each pool/spa has its own individual requirements. This limited warranty does not warrant that this product will supply 100% of those requirements. This includes heating requirements for heat pump products.
- 12) No dealer, distributor, or other similar person has any authority to make or extend any warranties or representations concerning Manufacturer's products beyond the express terms contained herein. Manufacturer assumes no responsibility for any warranties beyond the expressed terms contained in this limited warranty. Customer releases and holds Manufacturer harmless from any claims stemming from any unauthorized representations.
- 13) This limited warranty is for parts installed and used in swimming pools and spas only. Installation and use in any other application voids this warranty unless specifically authorized by the Manufacturer.
- 14) The foregoing limited warranty gives the Customer specific legal rights that may vary from state to state, and accordingly, some of the listed conditions and exclusions may not apply to Customers living in certain states. Any dispute between Customer and Manufacturer will be settled by binding arbitration, conducted in Pinellas County, Florida, under the rules of the American Arbitration Association, and an award of attorney's fees and costs will go to the prevailing party.

AquaCal AutoPilot, Inc.
• 2737 24th Street North, St. Petersburg, FL 33713, USA • Phone (+1) 727-823-5642 • Fax (+1) 727-821-7471 •

LTP0083 Rev 1