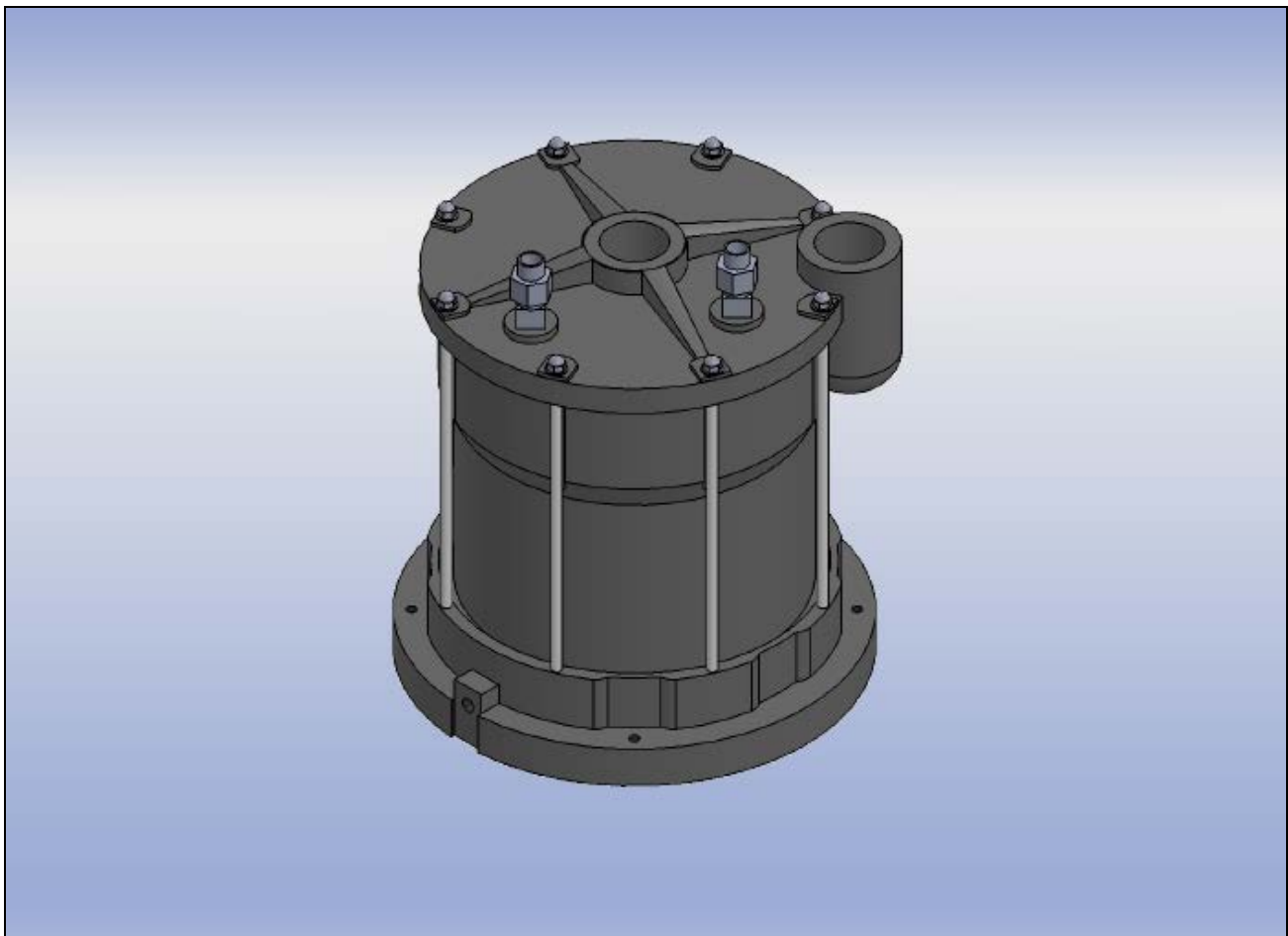




EARTH LINKED
TECHNOLOGIES

EarthLinked® Series PHXTI Pool Heat Exchangers *Installation Manual*

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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. This component must be installed and serviced only by a licensed HVAC equipment technician, and in accordance with the instructions set forth within 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.

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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.

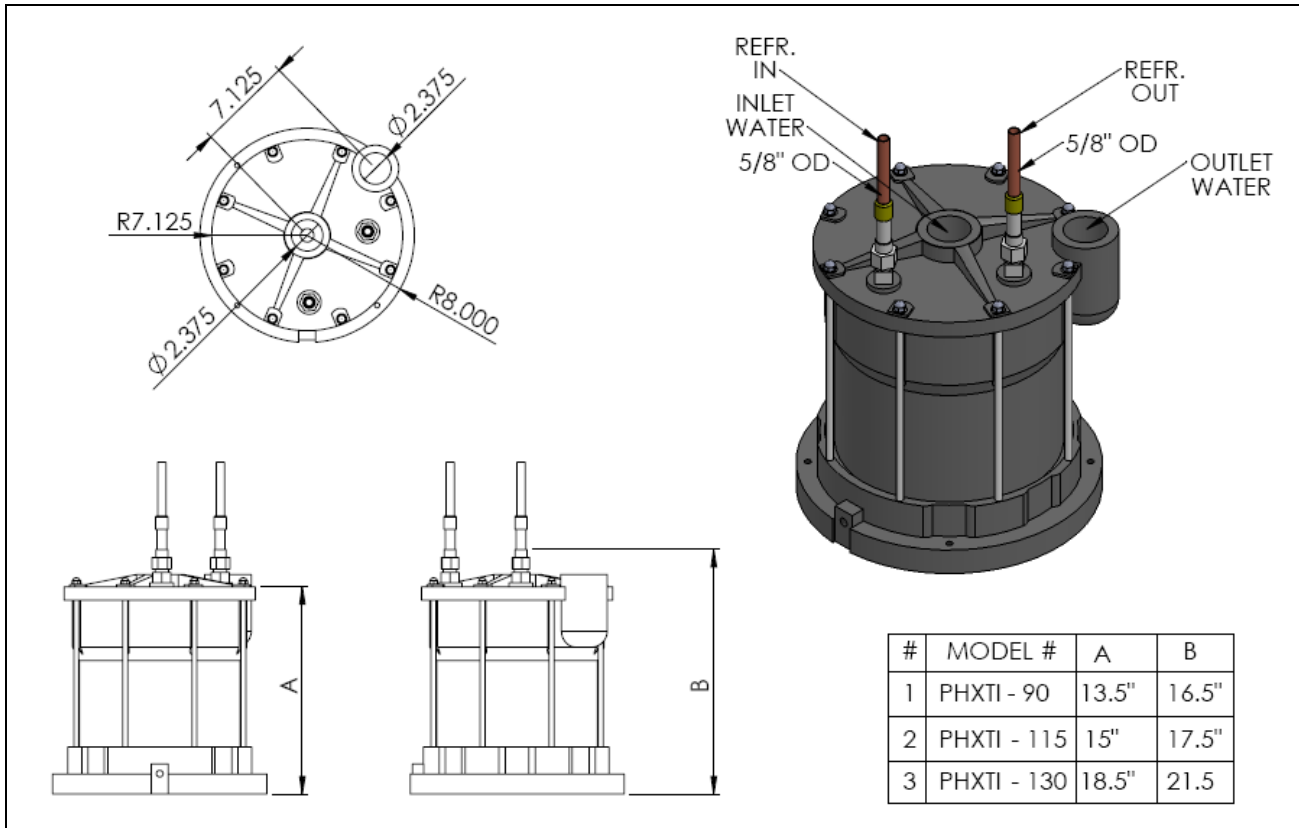


Figure 1. Heat Exchanger Dimensions

A. Water Connections



IMPORTANT

The heat exchanger is designed to operate from 20 to 70 GPM and water pressures up to 30 psig.

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.

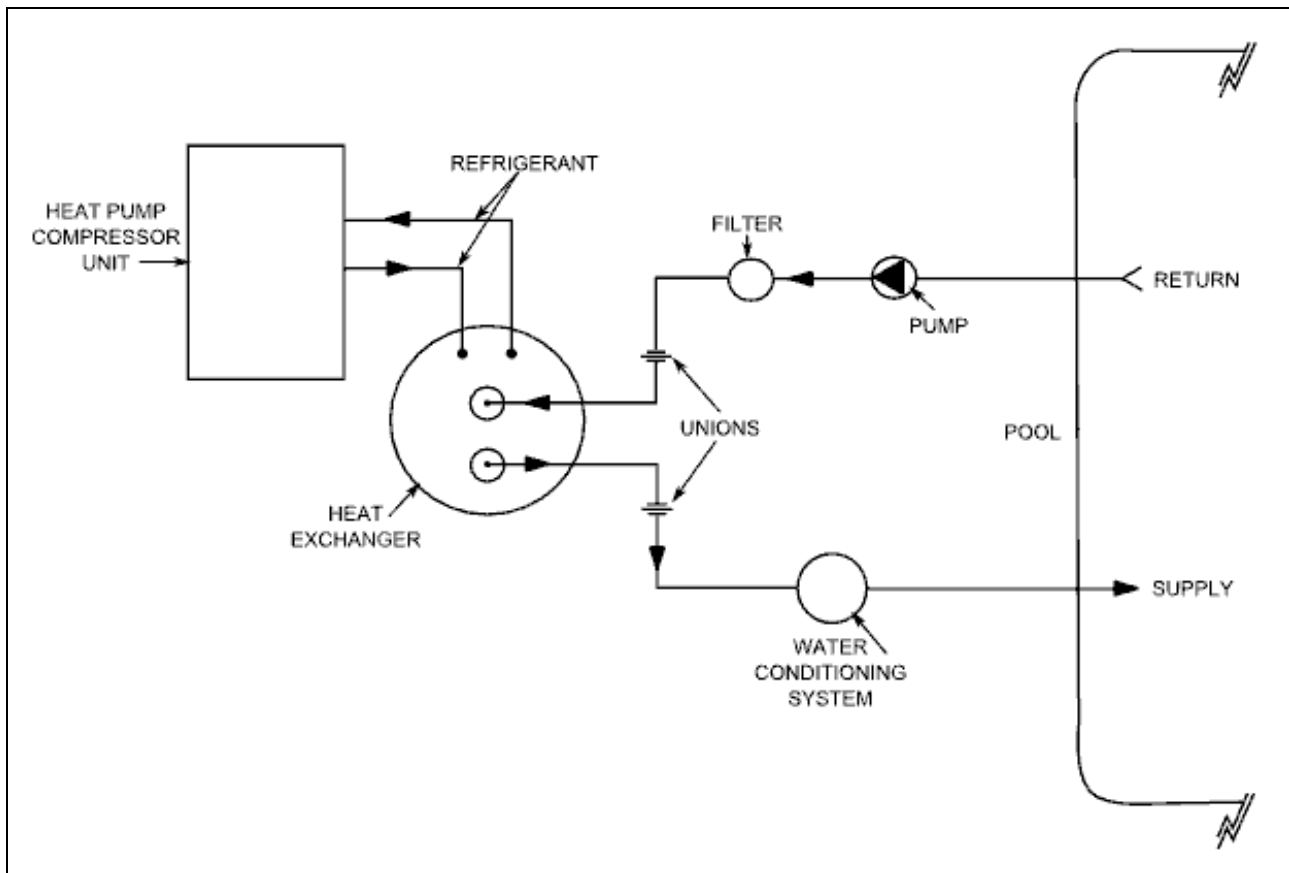


Figure 2. Typical Pool Installation Piping

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.

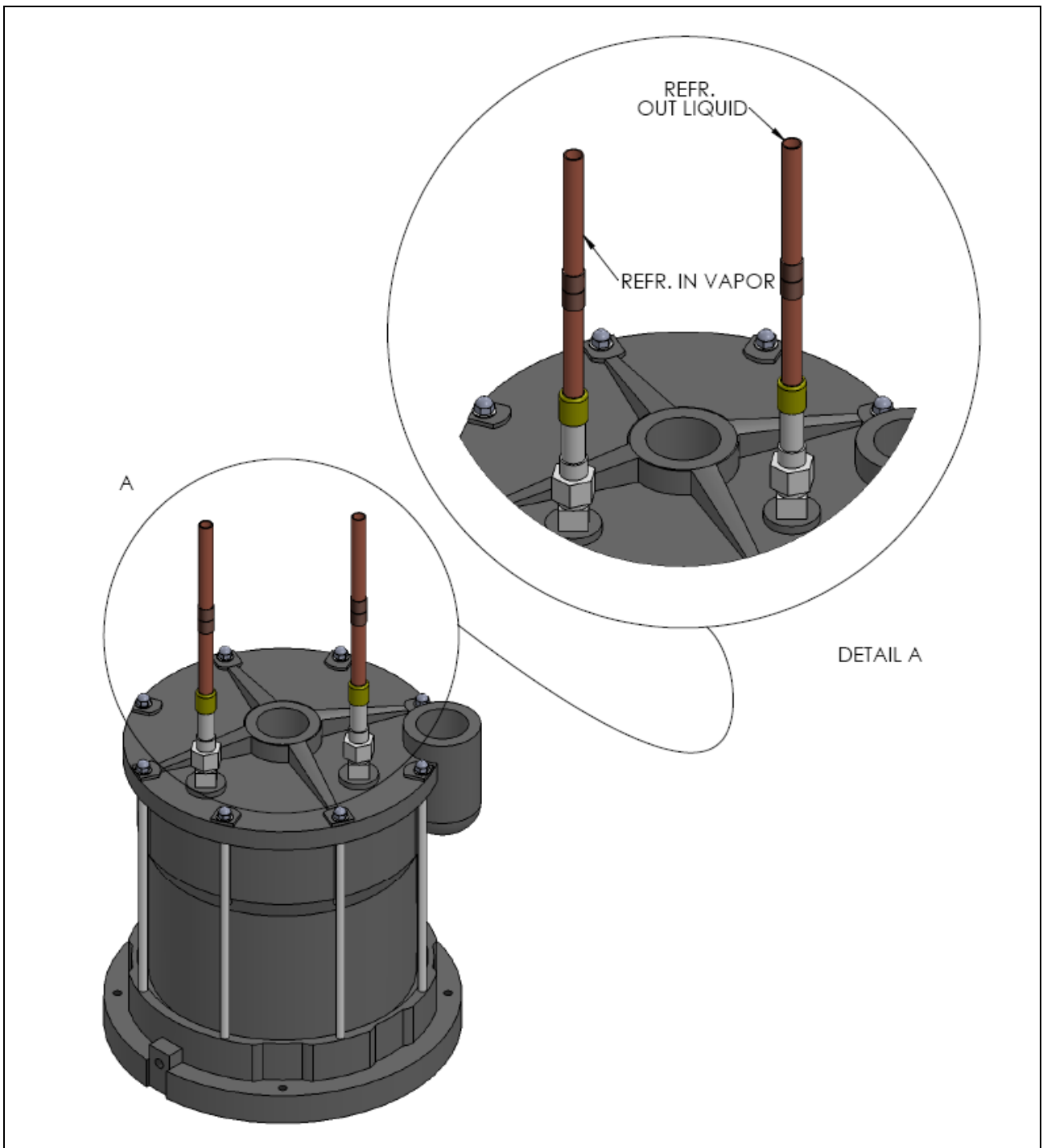


Figure 3. Heat Exchanger Refrigerant Connections

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.

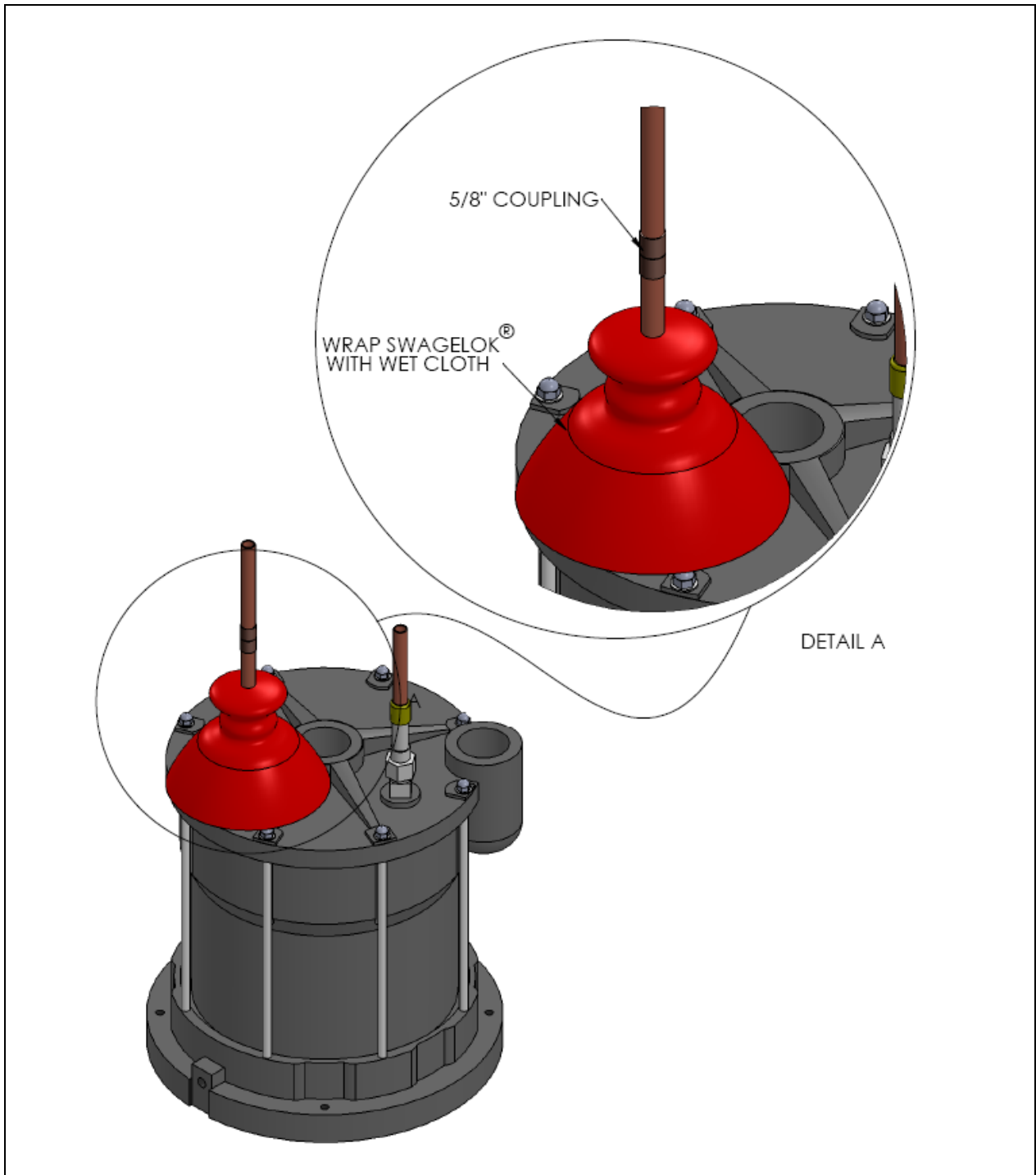


Figure 4. Wrap SWAGLOK[®] Joints

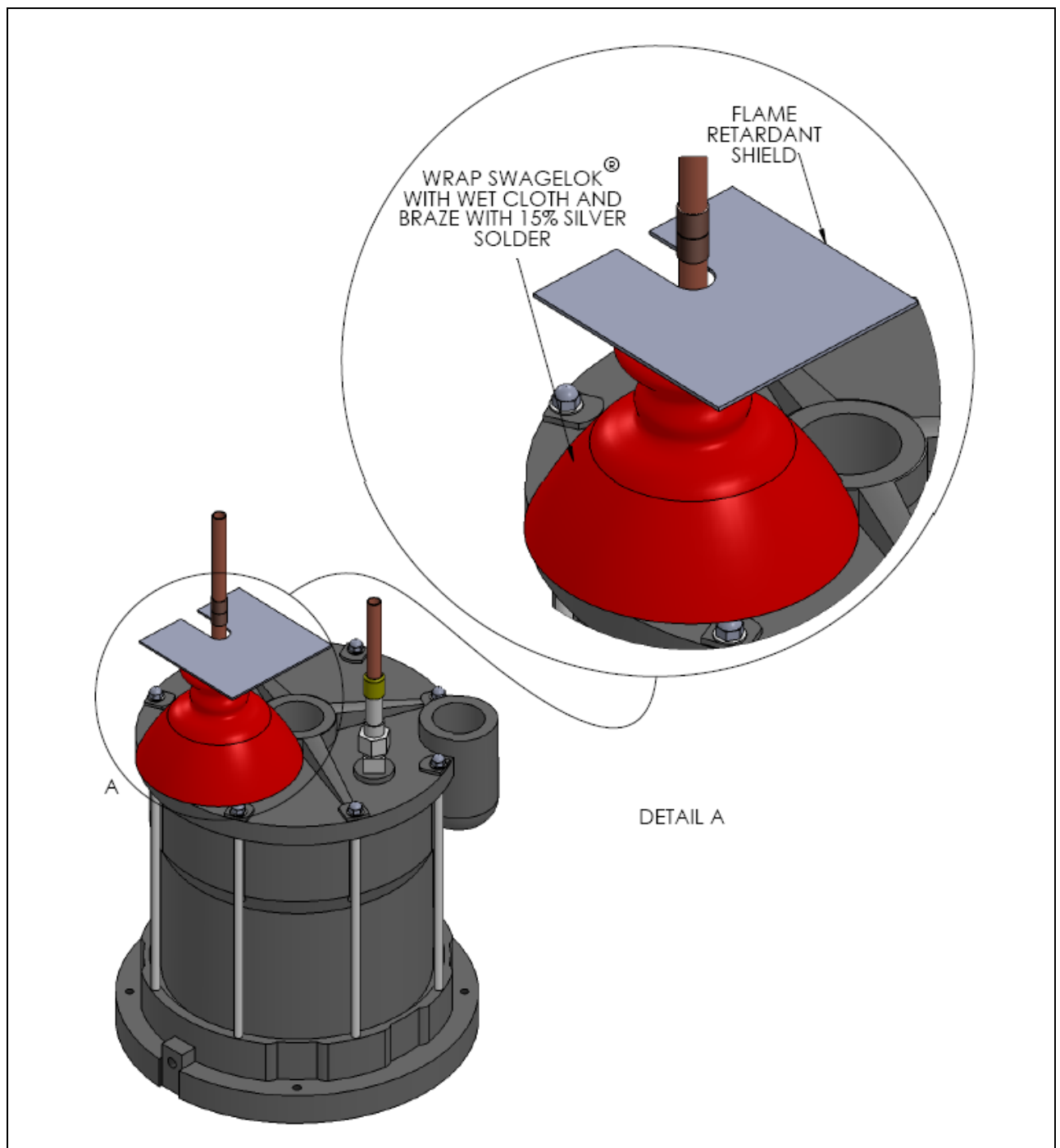


Figure 5. Apply Flame Retardant Shield

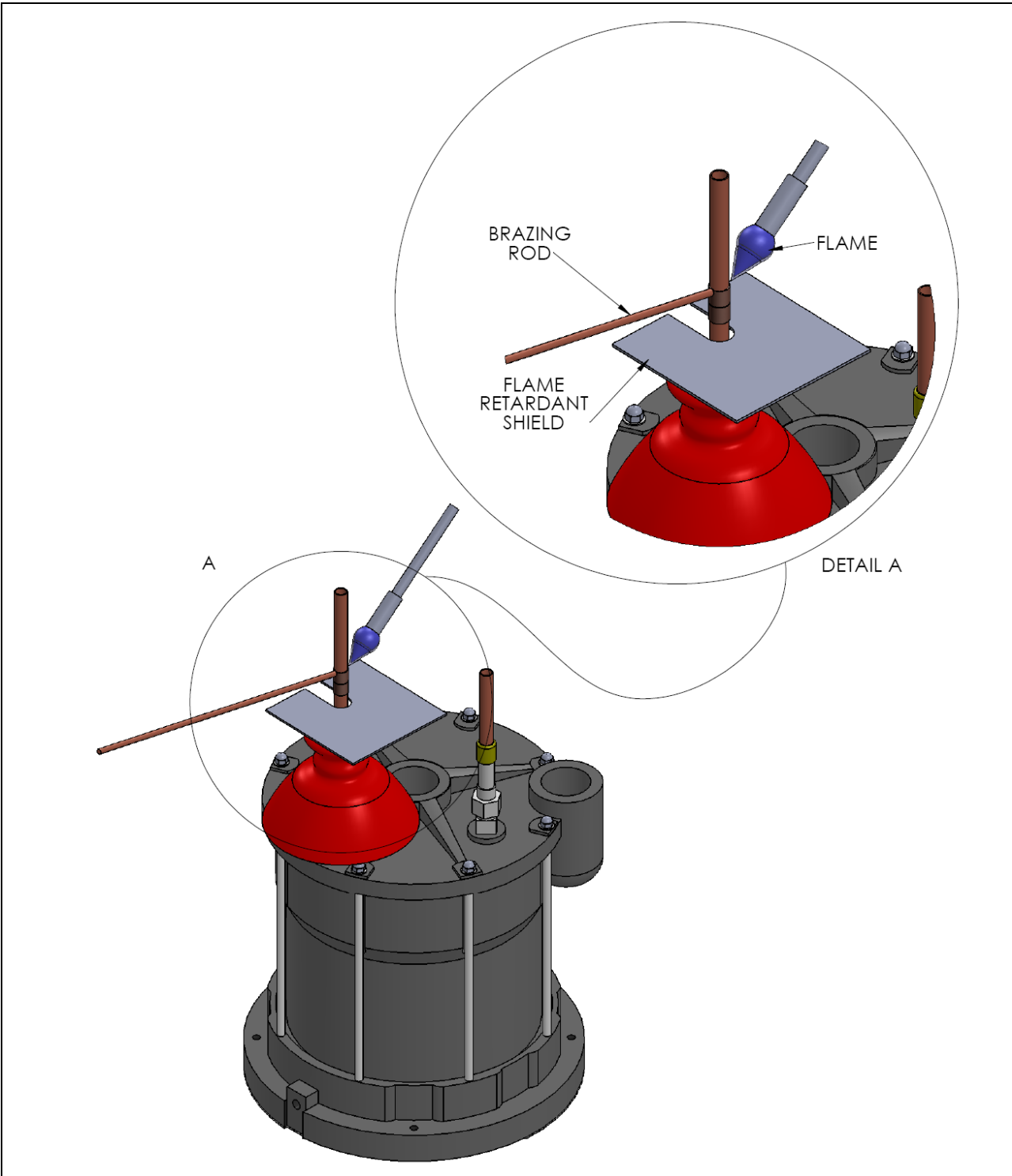


Figure 6. Braze Joints

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.