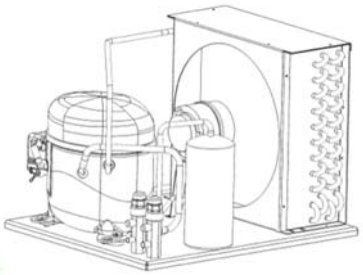

Condensing Units – Installation Procedure

Important Safety Notices and Procedures:

- Installation and maintenance/servicing are to be performed only by trained and qualified personnel familiar with commercial refrigeration systems.
- Ensure that all field wiring conforms to the equipment requirements and all applicable local and national codes.
- Disconnect all power sources before servicing the refrigeration equipment.
- Sheet metal and coil surfaces have sharp edges. Use appropriate protective gloves to prevent injury.
- Use appropriate eye protection during installation and servicing.
- Do not braze or cut refrigerant lines until all refrigerant in the system has been recovered.

READ THIS MANUAL before installing your Condensing Unit. Keep this manual and refer to it before doing any service. Failure to do so could result in personal injury or equipment damage.

PRE-INSTALLATION INSTRUCTIONS:

Delivery Inspection -

You are responsible for filing all freight claims with the delivering truck line. Inspect all cartons and crates for damage as soon as they arrive. If damage is noted to shipping crates, cartons or if a shortage is found; note this on the bill of lading (all copies) prior to signing.

If damage is discovered when the cabinet is uncrated, immediately call the delivering truck line

and follow up the call with a written report indicating concealed damage to your shipment. Ask for an immediate inspection of your concealed damage item. Crating material MUST be retained to show the inspector from the truck line.

INSTALLATION INSTRUCTIONS:

Handling and Placement of Condensing Unit -

To minimize damage to the unit, it is recommended that the packaging not be removed until the unit is moved to its final location.

The following should be considered when placing the unit:

- The condenser coil (air inlet) should not be located so as to restrict airflow into the coil. A minimum of 12" is required (18" is preferred) between the face of the coil and a wall or other vertical obstruction. Do not position multiple units so that the air discharge of one is into the condenser air intake of another.

Cleanliness:

- Condensing units are cleaned and dehydrated at the factory. The condensing unit must remain closed and pressurized until the piping is complete and final connections are ready to be made. Leaving the system open for more than 15 minutes can result in premature failure due to excess moisture in the system!
- Ensure that all refrigeration tubing is clean and dry prior to installation. Use only tubing cutters when trimming tubing to the proper length. The use of saws to cut tubing can contaminate the system with copper chips causing premature system failure.
- Dry inert gas, typically nitrogen, should be passed through the lines, at a low pressure, while brazing joints. This will prevent scaling and oxidation which can clog refrigeration components resulting in system failure.
- Use only silver solder brazing alloys. Minimize the amount of flux to prevent internal contamination. Flux only the male portion of the joint. Thoroughly clean fluxed joints after brazing.

Leak Testing:

After all connections are complete the refrigeration system must be tested for leaks. Failure to perform a leak test can result in unsatisfactory system performance, additional servicing and service costs, and possible system failure. Testing should be performed using an electronic leak detector. All joints and components, both factory and field installed, should be thoroughly inspected for leaks. The system installation must be leak free!

- Open both the liquid and suction service valves.
- Ensure any solenoid valves are energized and open.
- Add 50 psi refrigerant, then pressurize with dry nitrogen to the low side test pressure identified on the unit rating label.
- Allow thirty minutes for refrigerant to reach all parts of the system.
- Check all joints and components with an electronic leak detector.

If a braze joint is detected leaking, dry inert gas must be passed through the system while repairing the joint to prevent scaling and oxidation. Scaling and oxides can clog refrigeration components resulting in system failure.

System Evacuation:

Evacuation of the refrigeration system is necessary to remove all air and moisture. A reliable rotary vacuum pump with an accurate deep vacuum gauge is recommended. Do not use the system compressor as a vacuum pump and do not operate the compressor while the system is under vacuum.

- Open both the liquid and suction service valves.
- Ensure any solenoid valves are energized and open.
- Connect vacuum pump to the liquid and suction service valves.
- Evacuate the system to 250 microns and maintain for a minimum of 4 hours.
- Perform a vacuum decay test for a minimum of ten minutes to ensure the system is leak free and dry.

Refrigerant Charging:

The refrigerant charge should be added to the system through the liquid line service valve. Do not charge liquid refrigerant into the suction service valve! Add specified amount of refrigerant.

Pre-Start Checks:

- Verify that all service valves are fully open.
- Ensure that all refrigerant and electrical connections are tight.
- Verify that the wiring and piping is properly routed and secured.
- All fan motors and mounting brackets are tight.
- The condensing unit base and evaporator coil are properly secured.

Operational Start-Up:

The first 2 – 4 hours of operation after initial start-up is a critical time. Do not just start the system and leave. Pressure values, compressor and evaporator superheat, and inspecting for excessive vibrations and loose connections are some of the checks that should be performed prior to leaving the system.

Compressor Superheat:

Compressor superheat is a critical value that must be checked. Failure to check and properly adjust compressor superheat can result in premature system failure.

Check the compressor superheat as follows:

A. Determine the suction pressure at the suction service valve of the compressor
B. Determine the saturation temperature at the observed suction pressure using refrigeration pressure temperature tables
C. Measure the suction line temperature 6-10 inches away from the compressor
D. Subtract the saturation temperature from the measured temperature. The difference is the superheat of suction gas.

A low suction superheat can cause liquid to return to the compressor. This will cause dilution of the oil and eventual failure of the bearings, rings and valves. A high suction superheat will cause excessive discharge temperatures, which cause a breakdown of the oil. This causes piston ring wear, and piston and cylinder wall damage. System capacity decreases as the suction superheat increases. For maximum system capacity and optimum compressor life, the suction superheat should be in the 25°F to 40°F range. Adjust the expansion valve at the evaporator when adjustments to the suction superheat are necessary.

Final Checks:

If additional system checks are required, please refer to your specific evaporator system owners' manual.