



Tech Tip # 103

Installation and Servicing of Desert Aire Dehumidifier Refrigeration System

Keywords: Service, Refrigeration System

Refrigerant based cooling systems are sometimes referred to as “sealed systems”. This is in reference to the refrigeration system being hermetically sealed, no refrigerant can leave the system and no contaminants are allowed inside. Factory equipment and procedures ensure a clean and tight refrigeration system where only the specified refrigerant and oil are in the system. This is a critical component to the longevity of the system.

Some Desert Aire systems are shipped in sections to allow for installation of some of the sections in a location much different than another. An example is a unit with a remote condenser ready circuit. The dehumidifier may be installed indoors near the conditioned space while the remote condenser used to reject waste heat is located outdoors. The piping of the condenser is completed in the field before the unit is commissioned. The design and processing of the field piping is just as important as the factory piping in ensuring the longevity of the system.

Selection of quality components, quality procedures, and full testing help to ensure that sealed system failures are minimized wherever possible. Nonetheless, the mechanical nature of many components creates some unforeseen wear and failure in certain instances. Some units may need service at a point in the life of the product that requires opening of the hermetic refrigeration system. Special care must be taken to ensure that the system is returned to service without contamination.

Whenever servicing Desert Aire equipment, observe the following:

- Use only equipment rated for the pressures of the refrigerant being serviced.
- Use only equipment dedicated to service of the refrigerant in the system. Do not use equipment to service multiple refrigerant types.
- Purge all hoses and equipment of non-condensable gasses before connecting to the sealed system.
- Use only original equipment parts or factory approved equivalent for servicing.
- Refer to unit Installation and Operation manual for required refrigeration system oil.
- Minimize the time the system is open to atmosphere while servicing. Cap all connections when there is no active service work on the system. This is

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particularly important with units that contain POE oils as moisture will be absorbed quickly and cannot be removed with a vacuum.

- Never open the system while under a vacuum. Should system require opening to repair a leak or other service when in vacuum, fill with dry nitrogen to atmospheric pressure before opening.
- Have a Schrader core replacement tool available when servicing the refrigeration system. Although rare, defective or damaged Schrader valve cores can contribute to refrigerant loss.
- Charge systems only by weight after servicing. Review the rating plate and any field charge labels.
- When servicing, additional liquid line filter dryers and suction filters may be required. This does not apply to installation of remote condensers.
- Charge refrigerant blends, including R-410A and R-407C, with liquid only. Charging should be done into the high side of the system wherever possible. Refer to Tech Note 105, 106, or Installation and Operations Manual for additional procedures related to charging.
- Refer to additional Tech note documents for specific procedures related to the type of work being undertaken:

Function	Tech Note
Remote Condenser Field Piping	104
Procedures for Refrigeration System Component Replacement or Leak Repair	105
Special Procedures Related to Compressor Replacement	106