Contracting Business

A Penton Publication
February 1998 Issue

Special Report

UNDER PRESSURE

Today's high pressure systems require equipment designed specifically for this environment. Are you using the right tools?

by Mark B. Key

The current regulations and increased taxation of refrigerants has made the use of many older recovery practices illegal and unreasonably expensive. Very high pressure refrigerants, utilized primarily in low-temperature systems (i.e. cascade systems, environmental chambers, and other specialty systems), have saturated pressures ranging between 250 - 700 PSI at room temperature. The pressure characteristics, cost, and regulations require new procedures to facilitate safe recovery of these high pressure refrigerants.

Whether you're repairing an existing system or changing out the existing charge with the new and environmentally safer SUVA-95, the existing refrigerant will have to be properly recovered. A recovery system specifically designed to handle high pressure refrigerants is necessary to accomplish this, and there are certain characteristics to look for when choosing this system.

First and foremost, a very high pressure recovery unit must be Air-Conditioning & Refrigeration Institute (ARI) certified for use with very high pressure refrigerants, as required by the EPA. It's important to note that recovery systems are certified for the types of refrigerants they're meant to recover; thus, a unit certified for recovering R-12 or R134a is not suitable for recovering R-503, R-13, or SUVA-95. Using a recovery system that's not ARI-certified for the type of refrigerant being serviced is a violation of EPA regulations. Additionally, it's extremely dangerous to use a recovery unit not built to handle the pressures associated with high pressure refrigerants.

The previous technology of using dry ice, or ice baths, in the recovery of very high pressure refrigerants is obsolete, since the current technology in recovery units provides portable machines capable of pumping against the high pressures created by the refrigerant as it's collected in the recovery cylinder. This makes the recovery process an easy and convenient procedure. The lack of a dry ice bath also eliminates the potential of dry ice burns and other dangers associated with using dry ice in confined spaces. Also eliminated is the time needed to pre-cool the cylinder and the need to monitor and keep the cylinder at a constant temperature.

> *"It's extremely dangerous to use a recovery unit not built to handle the pressures associated with high pressure refrigerants."*

Since systems range in refrigerant charge capacity, it's important to note the size of the charge being recovered. System charge sizes range from a few ounces to many hundreds of pounds, an important factor to consider when choosing a recovery system.

Other important functions to look for are:

- Units must be capable of recovering to atmospheric pressure as required by the EPA (ARI certification implies this capability). A unit that can recover to 25-in. Hg minimizes the amount of residual refrigerant that can be left in the system being evacuated.
- The recovery unit should not be sensitive to ambient temperatures.
- The unit should be capable of recovering into standard DOT-3AA cylinders (designed for use with very high pressure refrigerants).
- The unit should be portable, compact, and fully automatic.
- The unit should operate on standard 120 VAC if it's intended for use in different areas and job sites.

Choosing a recovery unit that meets the specific requirements of the job can be an easy process if the criteria listed here are considered. With the right equipment, the recovery process can be easy, efficient, and safe. CB

Mark B. Key *is vice president of Sales & Marketing for Redi/Controls, Inc. For more information about recovery units designed for use with high-pressure refrigerants, contact him at 800/626-8640.*