R-410A FAQ

What Contractors Need to Know About R-410A

Beginning in 2010, no residential air conditioning systems will be built with R-22. The leading replacement is R-410A.

R-410A operates at pressures 50% greater than R-22, affecting product design and field installation practices. Welds on old refrigerant lines may not hold up to the increased pressures.

R-22 uses mineral oil as a lubricant. R-410A uses a synthetic lubricant. These oils cannot mix. You cannot use R-22 components with R-410A components. In some cases it may be possible to clean the old refrigerant lines, though good (and safe) practice dictates replacing them.

The lubricants in R-410A absorb moisture at a faster and greater rate than mineral oil, making installation more difficult and maintenance more critical.

The lubricants in R-410A carry copper oxides and other contaminants through the system that mineral oil left in place. These have the potential to clog thermostatic expansion valves, furthering the need for annual maintenance.

How Efficient are the New R-410A Units

R-410A units represent the latest technology, meeting increased efficiency standards that are significantly higher than the previous generation of units that use R-22. Since R-410A can absorb and release heat more efficiently than R-22, compressors with R-410A run cooler than R-22 systems, reducing the risk of burnout due to overheating.

The Qs & As

Q: What is R-410A?

A: R-410A is a new, chlorine-free refrigerant that meets the EPA's most stringent environmental guidelines. Since it lacks chlorine in its chemical composition, it does not pose a threat to the ozone as does the R-22 refrigerants.

Q: I have worked with R-22 systems for years. Will I need to be retrained to work around R-410A refrigerants and equipment?

A: Yes. R-410A systems are different from R-22 units. The oils used are different and require special handling. The system charging and pressure are different and need to be handled differently.

Q: Do I need to be certified by the EPA in order to work with R-410A refrigerants and is it required by Federal Law?

A: No. The EPA has not yet amended to the rules in section 608 which would require maintenance professional be recertified. However, the EPA does make changes to the regulation often and expects all technicians to stay current with the changes.

Q: Can R-410A condensers be installed with current R-22 Evaporators?

A: No. The Equipment for the R-410A systems are designed specifically for 40% -70% higher operating pressures than any of the current R-22 systems. Any attempt to mix these two systems will be hazardous and violate many of the regulations and laws.

Q: Are the R-410A refrigerant oils more expensive and do they require more than the R-22 systems?

A: Yes. The oils used in the R-410A systems are Polyol Esters oils, which cost around $75 per gallon compared to the $16 per gallon for the R-22 Mineral oil.