

EPA Deadline Approaching R-410A Means Change

To help maintenance technicians plan for the HVAC industry's transition from R-22 to R-410A as of Jan. 1, 2010, HD Supply asked the manufacturers to answer some frequently asked questions. Following are those applicable to regulations, repair and operations, installation, tools and equipment.

EPA Regulations

Q: Why the change to R-410A?

A: The EPA declared R-22 an ozone-depleting substance. R-410A is currently the best alternative.

Q: When do I have to make a change to R-410A?

A: Manufacturers will no longer be permitted to produce or import equipment using virgin or non-recycled R-22 after December 2009. Beyond that date, only equipment using R-410A (or an alternative) will be manufactured.

Q: How long will R-22 be available?

A: R-22 will be manufactured and imported until 2020. After that, only recycled or reclaimed R-22 will be available.

Q: Does R-410A require the same EPA certification as R-22?

A: No. As a hydrofluorocarbon (HFC), R-410A does not currently require EPA certification to purchase or use. However, the EPA prohibits venting R-410A since it is a Global Warming Agent.

Repair

Q: Do I need to replace all the R-22 equipment on my property in 2010?

A: No. All R-22 equipment previously installed on a property does not need to be replaced in 2010, and may be used for as long as the equipment lasts.

Q: How long will parts be available to keep my existing R-22 equipment operating?

A: We are unaware of any plans by manufacturers to stop producing R-22 repair parts. Availability of these parts will be determined by normal market conditions.

Q: Can I leave the metering device (TXV or piston) and filter driers installed when flushing the system?

A: Metering devices and filter driers should be removed prior to flushing a system. This is particularly true when flushing R-22 and mineral oil from a system.

Operations

Q: Will R-410A operate in my existing R-22 system?

A: R-410A will only operate in a system designed specifically for the higher pressures and unique characteristics of R-410A.

Q: When replacing my R-22 condenser for an R-410A condenser, will my indoor air handler or coil still work?

A: Not likely. According to all equipment manufacturers, R-410A systems (indoor and outdoor units) need to be matched. They are built to different specifications. For example, the R-22 and R-410A metering devices (TXV) are not interchangeable. More than likely,

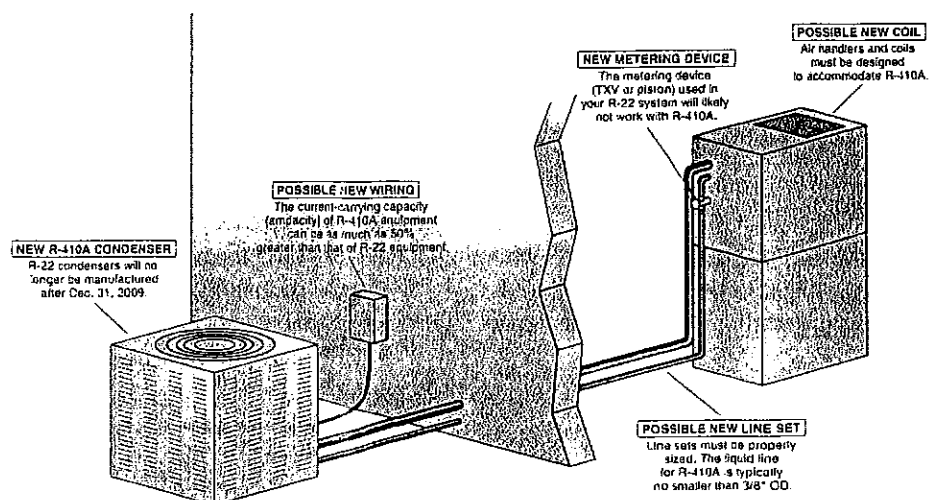
replacing the condenser will require changing the entire sealed system.

Q: Will the piston or fixed-orifice metering device on my R-22 indoor coil work properly with an R-410A condenser?

A: Not likely. Piston or fixed-orifice metering devices on R-22 indoor coils will likely not work properly with an R-410A system. If converting a system from R-22 to R-410A by replacing only the condensing unit, you'll likely need to install a different metering device. TXVs must be changed as they are manufactured for use with specific refrigerants.

Q: What is the main difference between the mineral oil used in R-22 equipment and the polyolester (POE) oil used in R-410A systems?

A: POE oil absorbs moisture much faster than mineral oil. If POE oil is exposed to outside air, it quickly saturates with contaminating moisture and becomes harmful to the system.



Q: Are the operating pressures of R-410A dangerous?

A: No. Discharge pressures of R-410A systems are 50 percent to 70 percent higher than R-22 (roughly 400 pounds per square inch). In comparison, compressed oxygen or nitrogen used to install this equipment is often pressurized at more than 2,000 pounds per square inch.

Installation

Q: Will the existing R-22 line set need to be replaced when converting to R-410A?

A: Maybe. Check the manufacturer's specifications, but liquid lines less than three-eighths of an inch are problematic for R-410A equipment. If existing lines are used, they must be cleaned and purged thoroughly. We recommend Pro Flush.

Q: Are there any electrical concerns involved in an R-410A conversion?

A: Perhaps. Many R-410A systems operate with compressors drawing a heavier amp load than comparable R-22 compressors. If your existing system is operating at the upper end of your wiring capacity, you might need to pull heavier gauge wire and install a larger disconnect and whip to accommodate the heavier load.

Q: Will the temperature of the liquid and suction lines allow me to gauge the charge by touch when installing or servicing an R-410A system?

A: No. Charging an R-410A system requires much more accuracy. It is strongly recommended that maintenance technicians measure and adjust superheat to the manufacturer's specifications for equipment with a fixed orifice metering device, or subcooling for equipment with a thermal expansion valve (TXV).

Q: Can my existing technicians install R-410A equipment or will I need to hire a certified contractor?

A: Technicians installing R-22 systems today should be technically capable of learning to install R-410A equipment as well.

Q: Should R-410A be charged as a liquid or a gas?

A: When charging, a system R-410A should leave the container as a liquid and must be introduced to the low-pres-



When budgeting for maintenance expenses, keep in mind that R-410A condensers can be 20 percent more expensive than R-22 equipment.

sure side of the system in a vapor state. A throttle valve or charging adapter should be attached to the charging manifold to safely accomplish this.

Q: Any tips to ensure proper installation?

A: One of the simplest things to do to ensure a trouble free R-410A system is to trickle nitrogen at very low pressure into the line set being brazed. This prevents carbon buildup on the inside of the line. This buildup is particularly problematic in R-410A systems because the buildup flakes off and clogs filter driers, expansion valves and other internal components.

Q: Can I use the same TXV from my R-22 system when installing a R-410A condenser?

A: TXVs are unique to the refrigerant being used. Therefore, a TXV used on an R-22 system cannot be used for an R-410A system.

Tools

Q: Do I need different service tools to work on R-410A systems?

A: Yes. Servicing R-410A systems will likely require different tools and equipment. For example, the manifold, hoses, recovery machine and recovery tank must all be rated for the higher pressures of R-410A. R-22 and R-410A should never be mixed.

Q: Will tools rated for both R-22 and R-410A work?

A: Yes. You must be careful to purge any residual oil, but there are many

manifolds, recovery machines and other tools made to work with both refrigerants.

Q: Will my existing refrigerant leak detector work for R-410A?

A: Most leak detectors work by sensing the presence of halogen gas. Both R-22 and R-410A are considered halogen so existing detector will likely work. All HD Supply detectors work with both R-22 and R-410A.

Q: Can I leak-test an R-410A system using compressed air?

A: Never. R-410A mixed with compressed air becomes combustible. Instead, nitrogen should always be used for leak testing.

Q: Are the king valves on my existing R-22 system the same size as my new R-410A system?

A: Both R-22 and R-410A use the standard one-quarter-inch service valves.

Equipment

Q: For budgeting purposes, what should I expect when purchasing R-410A equipment?

A: R-410A condensers are currently 10 percent to 20 percent more expensive than comparable R-22 equipment.

Q: Do R-410A systems have different components?

A: Yes. Most R-410A systems are designed to accommodate the higher pressures of this refrigerant with special compressors and thicker copper wall sizes. Expansion valves, reversing valves and filter driers must also be R-410A rated.

Q: Are R-410A condenser coil sizes smaller?

A: No. Preliminary designs show that most indoor and outdoor R-410A coils are roughly the same size as R-22 coils. Technology and engineering will likely reduce the size of R-410A coils soon. ■

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