

METROPOLITAN NY CHAPTER Refrigeration Service Engineers Society

Continuing Education for the HVAC/R Industry

“Better Service Through Knowledge”

April 2015

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Tricks of the Trade

While repairing refrigeration equipment, sometimes technicians come up with unique methods of solving problems. Many of these are used again and again and become known as “tricks of the trade”. When a bunch of technicians get together they sometimes enjoy sharing new tricks they learned or developed recently. It’s like a badge of honor.

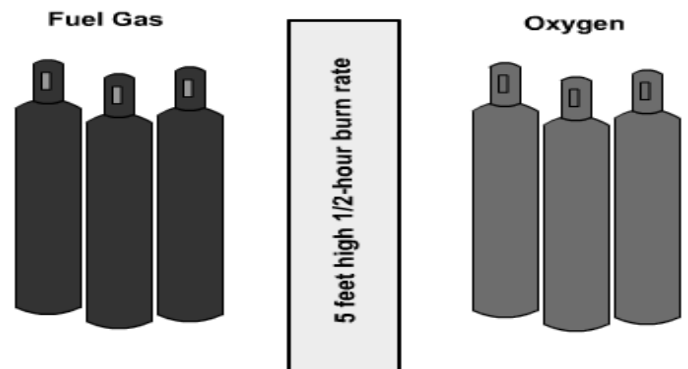
Below are some of the tricks that have been shared over the years:

- While working with potential relays, an easy way to remember its wiring is “5-2-1, Can-She-Run.” Terminal 5 of the potential relay is connected to the compressor’s common terminal (C). Terminal 2 is connected to the compressor’s start terminal (S). Terminal 1 is connected to the compressor’s run terminal (R) - in series with a start capacitor, if used.
- On many single-phase hermetic compressors, the terminals can be identified by remembering the acronym “C-S-R.” While looking at the terminals and reading from left to right and top to bottom, the compressor terminals will typically be in that order: Common – Start – Run. Always test your findings with an ohmmeter to verify the terminals have been correctly identified. This normally works for single-phase hermetic compressors manufactured by U.S. companies
- A temporary fix to damaged electrical insulation is to use heat shrink tubing. On electrical insulation which is cracked or worn, slip on a section of heat shrink tubing, heat the tubing to shrink onto the insulation. This is only intended as a temporary fix as the wiring needs to be replaced as soon as possible
- A possible temporary fix to a lost refrigerant charge in a removable power assembly of a TXV is to remove the power assembly and place a disk (about the size of a dime) between the diaphragm of the power assembly and the push rod of the TXV. When reassembling the disk will push down on the push rods and open the valve. Be careful using this trick. The superheat will no longer be properly adjusted—it may be too high or too low, depending on the thickness of the disk vs the actual bulb charge loss, but at least the valve will be open and some refrigerant will flow, and can probably be readjusted.
- To determine if the coil of a solenoid valve is energized, take the opened jaws of a clamp-on ammeter and place the open end next to the coil. If a current is measured the coil is energized. Remember the jaws of the ammeter need to be open for this trick to work. The end of a pocket screwdriver (metallic) can also be used to feel the attraction at the top of the metal shaft coming through the coil.
- On a reciprocating compressor with a stuck rotor a technician can attempt to free the rotor by reversing its rotation. On a three-phase compressor switch any two of its electrical leads. This will cause the rotor to turn in the opposite direction which may free it. On a single-phase compressor, temporarily reverse the run and start leads and energize the compressor for 1-2 seconds. Do not leave the circuit energized for any longer as it may cause damage to the start winding. Then return the wiring to its normal connection and test the compressor. Sometime this frees up the rotor.

So the next time you are around a group of technicians share some tricks of the trade with each other. It is a great learning experience and will make each of you better technicians.

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