

METROPOLITAN NY CHAPTER Refrigeration Service Engineers Society

Continued Education for the HVAC/R Industry
"Better Service Through Knowledge"

March 2012

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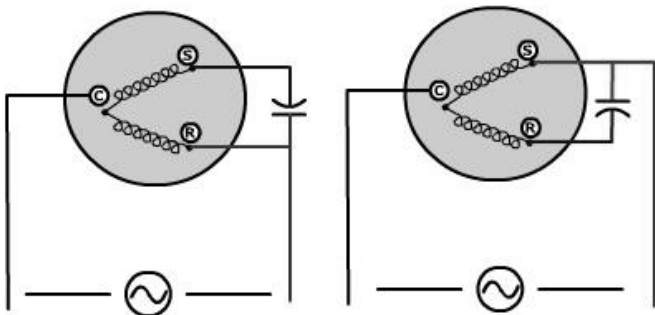
Starting a Stuck Reciprocating Compressor

When troubleshooting a reciprocating compressor that does not start, a technician can divide the process into two areas: either there is an external cause, such as a defective contactor/relay, or the problem is internal to the compressor. The first step is check all of the possible external causes. If no apparent external cause is identified, then a technician needs to look at the compressor as having an internal defect.

If the windings of the compressor motor are electrically okay, the problem can be mechanical such as a locked rotor. On a single-phase reciprocating compressor a technician can attempt to free the rotor by reversing the start and run leads of the compressor and momentarily energizing the compressor. This may help to free the rotor.

Only energize the compressor in this fashion for a few seconds and then switch it back to see if the compressor starts normally. Applying continuous voltage to a compressor in this fashion will damage it.

This process can also be used on a reciprocating three-phase compressor. Switching any two leads may help to free up the compressor's rotor. On a three-phase compressor you do not need to switch the leads back. They can be left reversed.



If this solves the problem, it may be only a temporary fix as more than likely the defect within the compressor will cause it to once again lock up.

Note: Do not use this technique on scroll compressors as they are not designed to operate in this fashion.

Identifying Compressor Terminals

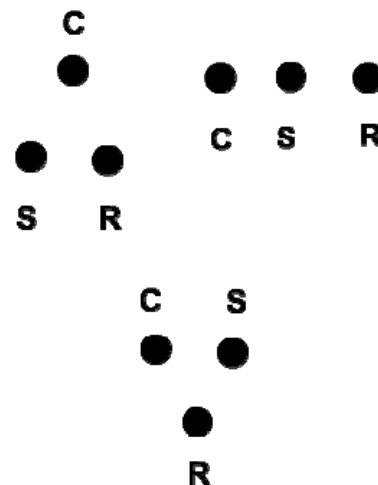
While servicing and repairing single-phase hermetic compressors, many times a technician will need to identify the electrical terminals on a compressor. Normally this is done by measuring the resistance across each terminal. The highest resistance measured will be across the run (R) and start (S) terminals, the next highest resistance will be across the common (C) and start (S) terminals, and the lowest resistance measured will be across the common (C) and run (R) terminals.

To make identifying the electrical terminals a little easier, many U.S. compressor manufacturers, follow a standard terminal configuration. The standard terminal configuration of C-S-R is read from top to bottom and left to right.



Below are some examples of this standard terminal configuration. Even though this configuration is widely accepted, it may **not** apply to all single-phase compressors, it is always best to confirm the electrical terminals by measuring the resistances across each terminal.

Standard Electrical Terminal Configuration



Safety Note: Be sure to verify all electrical energy has been removed from a compressor before removing any wiring and taking any resistance readings



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The topics covered are too numerous to list here. We will cover every aspect and component used in the REFRIGERATION SYSTEM. Those experienced technicians will gain a better understanding of these components, along with a better understanding of how they relate to each other, both functionally and installed locations.

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The cost for full program, including morning & afternoon refreshment breaks and full service, hot sit-down lunch is:
\$105 for RSES members, \$130 for non-members.

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**REFRIGERATION SERVICE ENGINEERS SOCIETY
METROPOLITAN NY CHAPTER**

For Further Information Call: Stan Hollander @ 718 232-6679

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Refrigeration for the HVAC Technician 4/14/12

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April 14th, 2012
8:30am – 5:00pm

FULL DAY
SESSION
with 2 Breaks &
Hot Lunch served

Location:

Riccardo's Catering
21-01 24th Avenue
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For Information Call: Stan Hollander, CMS (718) 232-6679

This presentation will touch on new innovative products and applications. New products from Arzel Zoning, Fieldpiece and AC Leak Freeze will be presented and how these products can save contractors time and money. RSES members will learn how to install zoning without having to re-do ANY duct work, see wireless meters and discover a new product that creates an affordable solution as R22 costs skyrocket.

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IN BOX ABOVE***

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