

METROPOLITAN NY CHAPTER Refrigeration Service Engineers Society

Continued Education for the HVAC/R Industry

“Better Service Through Knowledge”

September 2014

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High Pressure Switches

High pressure switches are used on many refrigeration systems. They are designed to shut down a compressor if the system's high pressure rises above an unsafe level and not allow the compressor to restart until the pressure returns to a safe level.

High pressure switches are available with either an automatic or manual reset. An automatic reset will automatically restart the compressor when the pressure falls to a safe value. A manual reset high pressure switch needs to have an operator manually press a reset button in order to restart the compressor. They are also available with either an adjustable cut-out setting that could be adjusted by a technician or fixed settings which cannot be adjusted by a technician.



When making field adjustments to the adjustable high pressure switch it is always best to follow the directions or requirements of the system manufacturer. When the manufacturer's guidelines are not available, the cut-out setting can be set at a saturation pressure equivalent to a 155°F condensing temperature, or 60°F above the normal maximum ambi-

ent.

When troubleshooting it is important to not allow a system to run with its high pressure switch electrically bypassed as it could potentially lead to a very dangerous operating condition. I can personally attest to this potential safety hazard.

Below is a true story why it is important not to bypass a high pressure switch. A mechanic was called out to repair a 10 ton package air conditioning one day. When he arrived on the job he noticed the system had tripped on its high pressure switch. The technician attached his gauges and then reset the high pressure switch. Sure enough as the system started to run, the high side pressure steadily increased to the trip point of the high pressure switch and shut down the system again. Not knowing the true cause of the problem, he decided to electrically bypass the high pressure switch (not a very smart decision—as you will see shortly). He then restarted the system and the high side

pressure again started to rise. He watched as it continued to rise well beyond the trip point of the pressure switch and decided to shut down the system. Being an inexperienced technician, he decided to start the system up again. Not sure why he needed to see the pressure rise again, but he did. Just as he restarted the system for a second time, his pager went off (this was back in the day before all technicians carried cellphones). So he made mistake number two and left the system running while he went to find a phone to call the office. A few minutes into his conversation on the phone he heard a loud explosion and he, along with everyone in the area, immediately ran out.

Needless to say, the “explosion” was actually an 8 inch section of the discharge line (from the unit he was servicing) blowing out of the system. Apparently the system pressure had built up so severely that this section of discharge line broke free and was jettisoned across the room. It actually took down several lights and got wedged into a wall close by. If he had been there, or another person was walking close by, they could have been severely injured.

Lucky for him, his company and their customer, no one was injured but it was definitely a lesson well learned.

Compressor Terminals

Care should be taken when examining the terminals of a compressor. It is possible for a weakened terminal to blow out and cause injury to a service technician. If the terminals are weakened due to some system problem, the refrigerant pressure within the compressor can cause one or more of the terminals to blowout.



Most manufacturers recommend that the refrigerant charge be removed from a compressor before the terminal cover is removed for inspection of the compressor terminals.

If this is not done, as is recommended, the technician should stand off to the side while removing the terminal cover and while inspecting the terminals, then immediately reinstall the terminal cover when done with the inspection.



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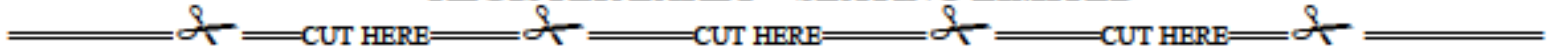
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For Further Information Call:
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We are fortunate to have Joe Marchese, CMS present the all-day Seminar on Computer-Room Air Conditioning shown on page 3. Joe was the Trainer for Stulz Air Technology Systems, Inc., a major manufacturer of highly regarded and widely used computer room air conditioning systems—Yes, Joe is eminently qualified to speak on this subject. He is a friend of our Chapter and has graciously offered to present this program for the Metropolitan New York Chapter, RSES.

Joe has many years' experience in the training arena, and is a sought after speaker and writer of columns and articles in the HVACR trade organizations and publications. He was also our Regional Director at RSES, and is currently the International President of RSES.

**Wednesday September 10th, 2014
at 7:30pm**

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