

METROPOLITAN NY CHAPTER Refrigeration Service Engineers Society

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

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Verify the Operation of Your Vacuum Pump & Micron Gauge

The complete evacuation of a refrigeration system is necessary any time the system is opened to the atmosphere. The water vapor, nitrogen and oxygen contained in the air must be removed from the system before refrigerant can be added. The air if left in the system will collect in the condenser, taking up space and cause the high side pressure to be higher than normal. The water vapor contained in the air may freeze and cause a restriction. This will normally occur at the outlet of the metering device. Also the water vapor and oxygen can mix and, if sufficiently heated, can create acids in the system.

To prevent this from occurring, it is a common practice to completely evacuate the system using a good quality vacuum pump, along with a micron gauge. Many refrigeration manufacturers recommend evacuating a system to a 500 micron level. This will normally ensure that the system is completely degassed and dehydrated.

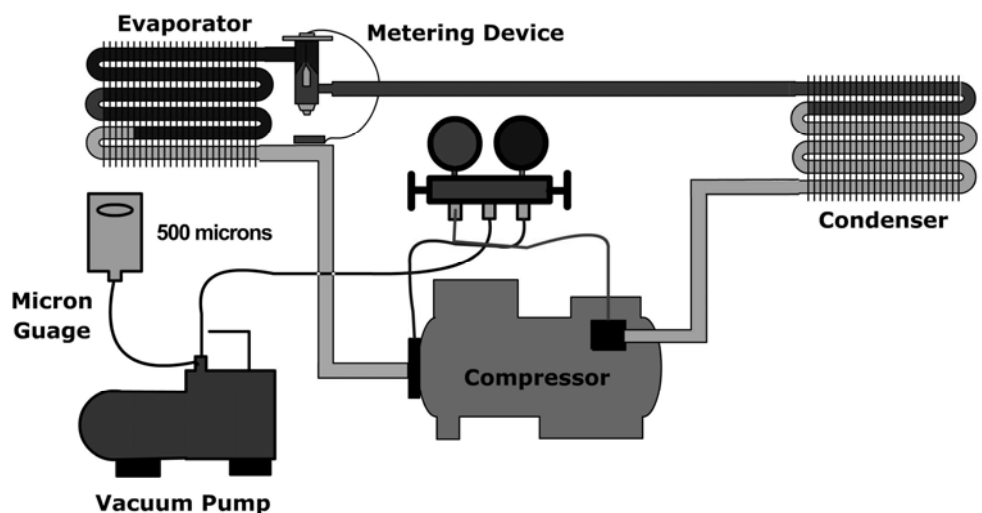
Like many service tools, vacuum pumps and micron gauges need to be maintained on a regular basis. Without regular maintenance these devices can fail—usually when needed most. Vacuum pumps should have their oil changed on a regular basis, per the manufacturer's recommendation. The sensors used in many micron gauges may need to be cleaned. Again, always follow the manufacturer's recommended procedures for cleaning these sensors. Many micron gauge manufacturers recommend cleaning the sensors with alcohol. This can be done by adding a few drops to the 1/4" flare connection, then slightly shaking the unit and then let it air dry.

Along with regular maintenance, a technician should always check the operation of both his vacuum pump and micron gauge before using them on a system. It is better to discover a problem with either of these devices before using them on a system and potentially wasting time on the job.

When setting up the vacuum pump and micron gauge, make sure there is a valve installed between the system and the vacuum pump/micron gauge set up (normally the refrigeration manifold gauges will serve as this valve). There should also be a valve between the micron gauge and the vacuum pump. This will allow a technician to perform a standing vacuum test on the system once a 500 micron level is achieved.

Before opening the vacuum pump and the micron gauge to the system, shut the valve between the system and the vacuum pump/micron gauge setup and run the vacuum pump. This will only pull a vacuum on the vacuum hose and micron gauge. The micron gauge should register a 500 micron level in a relatively short amount of time. If it does not, there is a problem with the micron gauge, vacuum pump or interconnecting hose. Whichever of these devices is causing the problem, it needs to be identified and resolved before opening the vacuum pump to the system.

Following this procedure can save time on the job. If there is a problem with the vacuum pump, a technician could be running a vacuum and not properly evacuating the system. If there is a problem with the micron gauge, a technician could be running the vacuum pump longer than may be necessary to achieve a properly evacuated system.



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COMING SOON

All Day Seminar

Understanding Basic Electronics

&

**Application of Electronics in our
HVACR Industry**

Details to be announced soon:

keep checking our Website—Details will be posted as soon as they are finalized,
and watch for announcement in mail.

What is Superheat ?

Superheat is the difference in temperature between a refrigerant's saturation temperature (the temperature at which a refrigerant changes states from a liquid to a vapor) and its actual measured temperature.

Superheat is usually measured or considered important at two locations in the refrigeration system: one location is the outlet of the evaporator and the other is at the inlet of the compressor.

Superheat is important for several reasons:

- At the outlet of the compressor it assures that the evaporator is operating at design capacity.
- At the inlet of the compressor it assures that no liquid refrigerant is returning to the compressor; and if the refrigerant is used to cool the compressor motor, that the temperature of the refrigerant returning is adequate to cool

METROPOLITAN NEW YORK CHAPTER, RSES

For Information Call: Stan Hollander, CMS (718) 232-6679

Things you didn't need to know . . .

- The word "lethologica" describes the state of not being able to remember the word you want.
- In Shakespeare's time, mattresses were secured on bed frames by ropes. When you pulled on the ropes the mattress tightened, making the bed firmer to sleep on. That's where the phrase, "good night, sleep tight" came from.

ON THE LIGHTER SIDE...

- Q - Why did the tiny ghost join the football squad?
A - He heard that they needed a little team spirit!
- Q - What is a ghost's favorite subject in high school?
A - Boo-ology of course!
- Q - How big was Dr. Frankenstein's castle?
A - Monster-ous!

Wednesday March 9th, 2011 at 7:30pm

at

RICCARDO'S

21-01 24th Avenue, Astoria NY 11102

Refrigeration Piping: Problems, Troubleshooting & Solutions

By

Steve Friedrich—York International

PLACE LABEL HERE

SEE DETAILS
at 7:30pm
Wednesday March 9th, 2011
EDUCATIONAL PROGRAM

