METROPOLITAN NY CHAPTER

Refrigeration Service Engineers Society

Continued Education for the HVAC/R Industry

"Better Service Through Knowledge"

****

May 2014

WWW.METRONYRSES.ORG

RSES® The HVACR Training Authority Metropolitan New York Chapter

EMPIRE KEYSTONE ASSOCIATION BETTER SERVICE THROUGH KNOWLEDGE

Cleaning After a Compressor Motor Burn

When the motor of a hermetic compressor burns out, depending of the severity of the motor burn, it is possible for contaminants to form in the compressor and then enter the system. If this occurs these contaminants must be removed from the system, otherwise they will surely cause the new compressor to fail. A common clean-up procedure used on a severely contaminated system is the repetitive filter change-out method.

When a technician encounters a compressor with a burnt motor winding, the first step in the repair process is to determine the degree of the burn. Is it mild or severe? This can be done by taking an oil sample from the compressor or a refrigerant sample from the system and testing its acidity level. If the test show no signs of acids in the system then it can be adequately cleaned up by simply installing an oversized liquid line filter/drier. However if either test sample shows acids in the system, then the system should be considered severely contaminated and the repetitive filter change-out method should be used.

To use this method first recover the refrigerant from the system. It may be possible to re-use the refrigerant from the system if it can be cleaned up adequately, however this may be not be possible or may be very difficult to do in the field. Normally is it best to properly dispose of the refrigerant and use new refrigerant.

Next, the old compressor needs to be removed from the system and any re□useable components, such as its crankcase heater, unloaders or pressure controls, transferred to the new compressor and the new compressor installed into the system.

Once the new compressor has been installed, the technician needs to examine the severity of the contamination of the other system components and determine whether they need to be cleaned or replaced. This includes examining the metering device, any liquid line solenoids, or any other flow control device used on the system.

The next step is to install a suction line filter/drier and an oversized liquid line/drier into the system. Use filter/driers that are recommended for cleaning up a system after a severe motor burn. Also, the suction line filter/drier should have access ports at the inlet and outlet of the filter/drier so that the pressure drop across the drier can be measured later in the process.

After all of the components have been examined and either replaced or cleaned as needed and the filter/driers installed, the system should be properly evacuated using a quality vacuum pump and vacuum gauge. Triple evacuating the system is preferable at this time.

Next, recharge and start up the system according to the manufacturer's recommendations. Let it run for one to two hours while observing the pressure drop across the suction line filter/drier. If the pressure drop across the suction line filter/drier becomes excessive, then replace both the liquid line and suction line filter/driers. Also take an oil sample and test its acidity level. If the test shows signs of contamination, the oil charge should also be replaced.

Start up the system again and let it run for another one to two hours and observe the pressure drop across the suction line filter/drier. If the pressure drop again becomes excessive, repeat the process of changing the filter/drier and checking the oil.

Repeat this process until the pressure drop across the suction line filter/drier stays below the recommended value. Once this occurs, let the system run for 24 hours and then check the pressure drop across the suction line filter/drier and take another oil sample. If the pressure drop across the suction line filter is good and the oil sample shows no sign of contamination, then the system is considered clean. It is best then to remove the suction line filter/drier from the system and then re-check the oil in two weeks to be assured the system remains clear of any contaminants.

RSES Vision Statement

To be the definitive industry leader in all segments of the HVAC/R industry by providing superior educational training.

RSES Mission Statement

To provide opportunities for enhanced technical competence by offering comprehensive, cutting-edge education and certification to our members and the HVAC/R industry.

To advance the professionalism and proficiency of our industry through alliances with other HVAC/R associations.

TEST YOUR KNOWLEDGE

Gas and Oil-Fired Furnaces

Answer the following questions as they relate to gas and oil-fired furnace preventive maintenance.

1. *True or False.* Gas furnaces are rated in terms of SEER.
2. *True or False.* The three types of gas-fired furnaces are natural draft, induced draft, and condensing.
3. *True or False.* Condensing furnaces use 90% of outdoor air for combustion.
4. *True or False.* Most natural gas furnace manufacturers will state on their equipment the value to which the gas valve should be adjusted. This value will normally be between 3.2 and 3.8 in. w.c.
5. *True or False.* It is extremely important that a furnace be well grounded to achieve the proper operation of a flame rectification circuit.
6. *True or False.* When cleaning burners, it is important to be careful not to enlarge or otherwise damage the burner flame ports.
7. *True or False.* It is okay to operate a furnace with a cracked heat exchanger.
8. *True or False.* If the flames flicker or are distorted when the blower comes on, it is an indication of a cracked vent pipe.
9. *True or False.* When checking the temperature rise of a furnace, it is important to make sure the temperature probe is in the line of sight of the heat exchanger.
10. *True or False.* The high temperature limit switch can be checked by restricting the airflow to the furnace.
11. *True or False.* On furnaces with standing pilots and a combination gas valve, a technician should verify that the gas flow to the pilot shuts down when the pilot flame is extinguished.
12. *True or False.* All furnaces should have a temperature rise of 75° F to 100° F.

1) False; 2) True; 3) False; 4) True; 5) True; 6) True; 7) False; 8) False; 9) False; 10: True; 11) True; 12) False.

HCFC Phase-Out

Since it has been discovered that chlorine based refrigerants contribute to the depletion of the earth's stratospheric ozone, the United States as well other developed nations have enacted regulations to phase-out these refrigerants. The process for phasing-out CFC refrigerants is well behind our industry and now the next group of chlorine based refrigerants, HCFC are scheduled to be phased-out.

Below is a chart of the current phase-out schedule for HCFC refrigerants in the United States:

HCFC Refrigerant Phase-out for the United States	
Year	**Implementation of HCFC Phase-out through Clean Air Act Regulations**
2003	No production and no importing of HCFC-141b
2010	No production and no importing of HCFC-142b and HCFC-22, expect for use in equipment manufactured before 1/1/2010. This means no **NEW** production or importing of equipment using HCFC-142b or HCFC-22
2015	No production and no importing of any HCFC refrigerant, expect for use in equipment manufactured before 1/1/2010
2020	No production and no importing of HCFC-142b and HFCF-22
2030	No production and no importing of any HCFC refrigerant

For technician using HCFC-22 the two important dates are 2010, no new equipment will be manufactured using HCFC-22 and 2020 when there will be **no** production and importing of any HCFC-22. <<

COMING TOPICS

Low Temp Radiant Heat

Ice Machine Servicing and Troubleshooting

Identifying and Sizing Fans & Blowers

If you have any suggestions or requests for Future programs, please let us know!

THIS SPACE AVAILABLE

METROPOLITAN NEW YORK CHAPTER, RSES
For Information Call: Stan Hollander, CMS (718) 232-6679

The Metro NY RSES Chapter Officers and Board members wish you all a successful and safe summer season.

We look forward to seeing you in September
SAFE & HEALTHY
for another informative series of Educational Programs.

Wednesday May 14th, 2014 at 7:30pm

at
RICCARDO'S
21-01 24th Avenue, Astoria NY 11102

Low Temperature Radiant Heat: Problems, Drawbacks and Solutions

By
Rathe Associates

PLACE LABEL HERE

EDUCATIONAL PROGRAM
Wednesday May 14th, 2014
at 7:30pm
SEE DETAILS – THIS PAGE

The HVACR Training Authority
Metropolitan New York Chapter
Refrigeration Service Engineers Society
241 Halsey Street
Brooklyn, NY 11216