METROPOLITAN NY CHAPTER

Refrigeration Service Engineers Society

Continuing Education for the HVAC/R Industry

"Better Service Through Knowledge"

****

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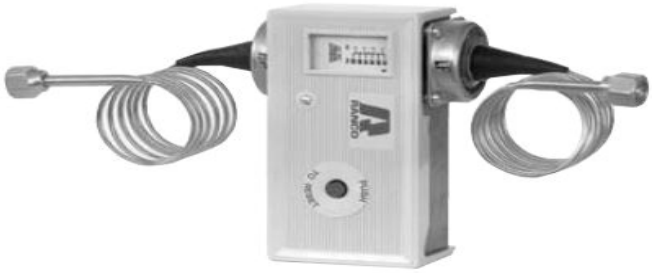
A Tripped Oil Pressure Control

Any time an oil pressure control shuts down a compressor, the cause of the shutdown ***must*** be identified. The tripped control is a warning of another existing problem. Simply resetting the control will not solve the problem. More than likely the oil pressure control will trip again. The true cause of the oil pressure trip needs to be identified. This will require inspecting the complete system and perhaps monitoring the system over a period of time to determine the true cause.



The first place to inspect is the oil level of the compressor's sight glass. If the oil is below the glass, did the oil leak out of the system or is it trapped out in the system? More than likely the oil is trapped out in the system and simply adding oil to the compressor will likely do more harm than good. It is possible for the oil loss to be the result of a major refrigerant leak, but if the system still has a proper refrigerant charge the oil must still be in the system.

A common location for the oil to be trapped is in either the suction line or in the evaporator. If oil has become trapped in the evaporator, warming of the evaporator may help to return the oil to the compressor. This can easily be done on low temperature systems with defrost controls. Initiate one or several defrost cycles to warm the evaporator to aid in returning the oil back to the compressor.

Poor piping practices can also lead to poor oil return. Suction lines should be sloped toward the compressor, normally using a pitch of 1/2" per 10 feet of run. Systems designed with the compressor located above the evaporator may require a trap or traps to be installed in the suction line to facilitate oil return. If traps are required, the normal recommendation is to install a trap at the base of a suction riser with additional traps every 20 feet of additional vertical lift.

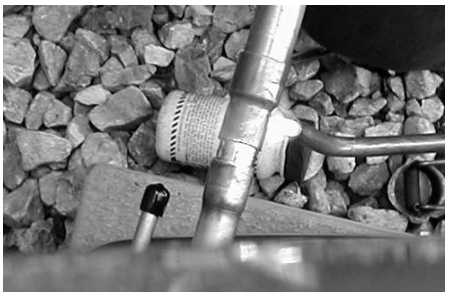
On reciprocating refrigerant cooled semi-hermetic compressors, if the oil level in the sight glass seems adequate, the issue may be worn cylinders caused by operating the compressor at excessive temperatures. The worn cylinders can cause refrigerant to blow by the pistons and pressurize the compressor's crankcase. The excessive pressure in the crankcase will prevent the oil from returning to the crankcase. This problem may be found by attaching a gauge manifold set to the crankcase and the suction service valve. With the compressor operating, start slowly front seating the suction service valve. The gauges should show both falling at an equal amount until the valve is fully front seated. The point at which the crankcase gauge stops falling is proof that the crankcase is being excessively pressurized by the worn pistons.

Remember, the next time an oil pressure control trips, do not simply reset the control and walk away. Inspect the entire system and look for the root cause of the problem. This will prevent repeat return visits to the job to eventually find the true cause of the oil pressure trip—and further damage to the compressor.

Brazed/Soldered Components

When replacing system components that are brazed or soldered in a system, it is normally safer to cut out the original component rather than unbraze or unsolder it from the system.

The reason for this recommendation is that oil may be present inside the joint of the component that is being removed. Heating the joint can cause the oil to ignite and/or burn, and potentially cause injury.



When cutting the component out of the system, do so at an easily accessible location. Once the component is removed from the system, transfer the remaining stubs from the old component to the new component and then braze or solder the complete assembly back into the system.

TEST YOUR KNOWLEDGE

Air Conditioning Preventive Maintenance

Answer the following questions as they relate to air conditioning preventive maintenance.

1. *True or False.* Always make sure the gauge manifold set and service hoses you intend to use are rated to handle the pressures involved for the type of refrigerant used.
2. *True or False.* Do not over-tighten the valves on the gauge manifold set when closing (front-seating) the valves.
3. *True or False.* When cleaning a condenser coil, it is recommended to use very high-pressure water to rinse the coil.
4. *True or False.* When the outdoor temperature falls below 65°F it is not recommended to perform a maintenance inspection on a residential split-system air conditioning system.
5. *True or False.* The best method to test the refrigerant charge of a system using non-TXV as its metering device is the subcooling method.
6. *True or False.* The best method to test the refrigerant charge of a system using TXV as its metering device is the subcooling method.
7. *True or False.* For proper operation of a cooling system, the indoor blower should be moving from 800 to 850 CFM of air across the evaporator for each ton of cooling capacity.
8. *True or False.* Checking the voltage drop across a compressor contactor could indicate if it needs to be replaced.
9. *True or False.* When checking the refrigerant charge on an air conditioning system, a technician must measure both the indoor wet-bulb temperature and the dry-bulb outdoor temperature.
10. *True or False.* The bearings of a condensing fan motor cannot be easily checked on an outdoor condensing unit.
11. *True or False.* On a fixed-orifice system, you determined that the superheat value of an air conditioning system should be 10°F, but measured an actual superheat value of 20°F. Should you then add refrigerant to correct the problem?
12. *True or False.* You are checking a residential air conditioning system and you record a 60 psig suction pressure, a suction line temperature of 49°F, an indoor wet-bulb temperature of 67°F entering the evaporator, and an outdoor dry-bulb temperature of 90°F. With this information you determine the refrigerant charge is okay.
13. *True or False.* You are checking a residential air conditioning system and you record a 69 psig suction pressure, a suction line temperature of 60°F, an indoor wet-bulb temperature of 63°F entering the evaporator, and an outdoor dry-bulb temperature of 80°F. With this information you determine the refrigerant charge is okay.

Keeping Service Logs

Maintaining a service log on equipment can be of great benefit to technicians and their customers. The benefit of having these logs far outweighs the additional work needed to start and maintain them. Here are some of the benefits:

- Allows a technician to troubleshoot systems more timely and efficiently
- Aids a technician in keeping track of ongoing system problems
- Enables technicians to communicate with one another on follow-up servicing
- Have a recorded history of maintenance performed on a system
- Have a record of refrigerant used
- Enhances the professional image of your company

By keeping a service log, a technician will know what prior service was done to a system. If the service log includes the system's last recorded running pressures and its applied voltage and current draw, the technician would be able to troubleshoot the system faster and more accurately. Service logs will allow a technician to see if there are any patterns to prior service calls. If, for example, many of the prior service calls were to repair refrigerant leaks, the cause of these repetitive leaks should be determined and repaired in order to prevent future similar problems. If the underlying problem can be diagnosed it will prevent repeat service calls, thus saving time and money for both the customer and the service company.

(*continued on page 4)*

COMING TOPICS

Solid State System & Safety Controls

Eliminate Connecting Manifolds and Hoses Forever

New Compressor Technology

Green Cooling

Low Temperature Radiant Heating

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

METROPOLITAN NEW YORK CHAPTER, RSES

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

Keeping Service Logs—continued from Page 2

Many times different technicians are called upon to service the same piece of equipment. Having a service log on hand allows technicians to communicate with each other easily. The technician currently on the job can readily see what was done on prior visits and avoid repeating the same steps unnecessarily.

A service log does not need to be in any specific or formal format. It can simply be an index card, paper tag or spiral notebook. Logs should be neatly kept in an accessible area where they will not become damaged from any oil, refrigerant, or other system debris.

The benefits of keeping and maintaining a service log with the equipment you service cannot be overstated. It will improve your performance on the job, make your work time more efficient, and enhance the professional image you want for yourself and your company. <<

ANSWERS for Page 2:

1) True; 2) True; 3) False; 4) False; 5) False; 6) True; 7) False; 8) True; 9) True; 10) False; 11) True; 12) True; 13) False.

Wednesday November 11th, 2015 at 7:30pm

at

RICCARDO'S

21-01 24th Avenue, Astoria NY 11102

Eliminate Connecting Manifolds and Hoses Forever

By

Steve Mironenko—Appion

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EDUCATIONAL PROGRAM
Wednesday November 11th, 2015
at 7:30
SEE DETAILS—THIS PAGE

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