

# METROPOLITAN NY CHAPTER Refrigeration Service Engineers Society

*Continued Education for the HVAC/R Industry*

**“Better Service Through Knowledge”**

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**January 2009**

**[WWW.METRONYRSES.ORG](http://WWW.METRONYRSES.ORG)**



## SERVICING CRANKCASE PRESSURE REGULATORS

Crankcase pressure regulators (CPR) are a common accessory added to many low temperature refrigeration applications, such as walk-in and reach-in freezers. They are designed to prevent the compressor's motor from overloading when its crankcase pressure rises above its design working pressure.

The control setpoint of a CPR will need to be adjusted on the start up of a new system or any time the valve is replaced. Always refer to the instructions provided by the manufacturer when adjusting these valves. If the manufacturer's instructions are not available, the following guidelines can be helpful:

- ♦ Allow the system to be off long enough to allow the pressures to stabilize and the evaporator pressure to reach a high level—one that would simulate the pressure during or after a defrost period, or the initial start up of the case.
- ♦ Turn the adjustment screw on the valve all the way out (normally this is done by turning the screw *counter clockwise*) so that the valve is set to an initial low setting.
- ♦ Start the system and observe both the crankcase and the amperage draw of the compressor. Slowly turn the adjustment screw in (normally this is done by turning the screw *clockwise*) until the amperage draw reaches the maximum allowed by the compressor manufacturer.

This should allow a technician to achieve an acceptable set point for the valve.

Some systems may have two CPRs which are piped in parallel. When adjusting these valves, both valves will need to be adjusted at the same time and at the same rate. This will ensure that the load is divided equally across both valves.

Troubleshooting CPR valves is rather simple—either the valve will regulate or fail to regulate the proper outlet pressure. If a valve fails to regulate the proper outlet pressure, it is usually best to just replace it. There are very few field repairs that can be made on these valves. Many times the problem is the result of foreign material (such as solder/brazing material or dirt) that is lodged within the valve. On occasion it may be possible to dislodge the foreign material by turning the adjustment all the way in with the system running. This will open the valve all the way and may dislodge the foreign material. If this fails to resolve the problem, then replace the valve. <<

## COMPRESSOR SERVICE VALVES

Many refrigeration and air conditioning compressors incorporate both suction and discharge service valves. These valves are used to allow refrigeration gauges to be attached to the system and, if needed, are used to isolate the compressor from the rest of system.

Working with these valves is not difficult, but there are some finer points to remember. Always look to see if the service valve has a packing gland nut. If it does, it is used to help ensure a leak-free seal. It is typically made of brass and is found at the base of the valve stem. It should be loosened by a quarter turn to a full turn before opening the valve stem. Not loosening the gland packing prior to turning the valve stem may cause the valve to leak. Be sure to tighten the nut when you are finished manipulating the valve stem.

When opening and closing these valves make sure to use the right tools, such as an appropriately-sized service wrench. Do not attempt to open a service valve with an adjustable wrench. You can easily round the valve stem edges and cause it to be useless. If the valve stem is difficult to open and appears to be stuck, lightly tap the end of the valve stem with a hammer. This should help open it. Remember to loosen the packing gland nut before attempting to open the valve stem.

Remember to always replace the service port cap and the valve stem cap after closing the valve port and removing your refrigeration gauges. These caps serve two purposes: 1) they help prevent a refrigerant leak, and 2) they prevent the threads on the service valve from being rusted over or otherwise damaged.

When brazing either a suction or discharge service valve, make sure the valve is mid-seated before brazing. If left in either the front-seated or back-seated position, the heat from brazing can cause the inside plunger to "weld" to the seating area on the inside of the valve body. When brazing it is best to wrap the service valve in a wet rag to prevent it from being overheated and damaged. But do not allow any water to enter the system.

Working with these valves is very simple. Just remember these basic rules for trouble-free operation. <<

Have you visited our chapter's website??

**[www.metronyrses.org](http://www.metronyrses.org)**

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**Wednesday January 14th, 2009 at 7:30pm**  
at  
**RICCARDO'S**  
21-01 24th Avenue, Astoria NY 11102

**Direct Exchange Geothermal Technology  
for Heating & Cooling**

By  
**Larry Forneris - Advanced Geothermal Technology**

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# Metro NY Chapter RSES HVAC Training Course

The Metropolitan New York Chapter RSES will offer the RSES Technical Institute Course – I on Tuesday & Thursday evenings, starting January 27th in Long Island City, New York



**Dates:** For 9 weeks on Tuesdays & Thursdays

1/27 & 1/29	2/3 & 2/5	2/10 & 2/12
2/17 & 2/19	2/24 & 2/26	3/3 & 3/5
3/10 & 3/12	3/17 & 3/19	3/24 & 3/26

**Time:** 6:00 PM – 10:00 PM

**Location:** Long Island City High School  
14-30 Broadway  
Long Island City, NY 11106

**Instructor:** Nick Nuziale

**Cost:** \$899.00 for RSES members  
\$999.00 non RSES members  
(includes 1 year membership)

**Includes:** Technical Institute I course manual, course tuition, certificate of completion after passing final exam, 72 hours toward NATE Recertification, for those eligible.

## TRAINING COURSE OVERVIEW

This course begins with a comprehensive introduction to refrigeration and air conditioning. Topics covered include basic physics, major system components including hermetic, semi-hermetic and open compressors, condensers, evaporators and refrigerant metering devices. It also covers fundamental concepts of electricity and magnetism as they pertain to resistors, resistance, conductors, power supplies, circuit protection devices and transformers. A summary list of lessons is below and detailed lessons can be found at [www.MetroNYRSES.org](http://www.MetroNYRSES.org)

Lesson 1: Intro to Refrigeration & A/C  
Lesson 2: Basic Physics  
Lesson 3: Major Component Functions  
Lesson 4 - 5: Gas Laws (Part 1-2)  
Lesson 6 - 7: Pressure/Temperature Relationship (Part 1-2)  
Lesson 8 - 10: Compression Refrigeration Cycle (Part 1-3)  
Lesson 11: Refrigerant Tables  
Lesson 12: Refrigerant Properties and Characteristics  
Lesson 13: Refrigerant Designations  
Lesson 14: Safe Practices and Public Relations  
Lesson 15: Compressors  
Lesson 16: Open-Type Compressors  
Lesson 17: Hermetic and Semi-Hermetic Compressors  
Lesson 18: Air-Cooled Condensers  
Lesson 19: Water-Cooled Condensers  
Lesson 20: Refrigeration Evaporators  
Lesson 21: Capillary Tubes  
Lesson 22 - 23: Thermostatic Exp. Valves (Part 1-2)  
Lesson 24: Oil in Refrigeration Systems  
Lesson 25: Recover, Recycle, Reclaim  
Lesson 26: Safe Handling of Refrigerants and Cylinders  
Lesson 27: Fundamental Concepts of Electricity  
Lesson 28: Fundamental Concepts of Magnetism  
Lesson 29: Voltage = EMF = Potential Difference  
Lesson 30: Resistors and Resistance  
Lesson 31: Conductors  
Lesson 32: Power Supplies  
Lesson 33: Circuit Protection Devices  
Lesson 34 - 36: Electricity for Service Techs (Part 1-3)

Register by January 20<sup>th</sup> online  
or by using the form below

FOR REGISTRATION AND/OR INFORMATION VISIT:

<http://www.metronyrses.org/id1.html>

email: [info@metronyrses.org](mailto:info@metronyrses.org)

PHONE: 516-309-3415 • FAX: 866-892-5374

MAIL: Metro NY Chapter RSES

c/o BP Consulting - 141 Oak St. Ballston Spa, NY 12020

--checks and charges welcome --

Please make checks payable to "Metro NY RSES"



----- RETURN THIS SECTION WITH PAYMENT - IF BY MAIL, BE SURE TO KEEP COPY OF FORM FOR YOUR OWN INFORMATION -----

REGISTER ONLINE TODAY AT <http://www.metronyrses.org/id1.html> or use the form below.

Name: \_\_\_\_\_ Company: \_\_\_\_\_  
Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
Email: \_\_\_\_\_ Phone: \_\_\_\_\_  
Check / Credit -- Card Number: \_\_\_\_\_ Exp: \_\_\_\_\_  
Name on Credit Card: \_\_\_\_\_  
Are you an RSES Member: If Yes, RSES Membership Number: \_\_\_\_\_

Please register by January 20<sup>th</sup>, space is limited.

To register via phone or for questions about the course call 516-309-3415. To fax send this form to 866-892-5374

To email send this form to [registration@metronyrses.org](mailto:registration@metronyrses.org)

Register online at <http://www.metronyrses.org/id1.html>

Check or Credit Card Accepted for Payment

Make checks payable to Metro NY RSES and mail registrations to:

Metro NY RSES c/o BP Consulting, 141 Oak St. Ballston Spa, NY 12020

**METROPOLITAN NEW YORK CHAPTER, RSES**

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

**\*\*\*WE NOW HAVE OUR OWN WEBSITE: *WWW.METRONYRSES.ORG* CHECK IT OUT\*\*\***

EKA & Delaware Valley Chapter will be hosting a “Steam Fundamentals & Hydronics / Boilers Seminar on February 6th & 7th, 2009 in Bensalem, PA. It is only 1-1/2 hours from NYC and a worthwhile trip for this 2 day educational program.

On April 18th they will be hosting an “Industrial Process Cooling” Seminar (same place), with Garth Dennison, CMS, internationally renowned speaker.

For further details on these programs, go to:  
<http://metronyrses.org/extras/bensalem.pdf>

Please note: This pdf is 3 pages, so don’t forget to scroll down.

**COMING EVENTS**

- Geothermal Heating & Cooling
- “RSES eLearning” On-Line Classes Primer
- Pricing Guidelines
- Scroll Compressors
- Back to the Basics
- Defrost Controls

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