

METROPOLITAN NY CHAPTER Refrigeration Service Engineers Society

Continuing Education for the HVAC/R Industry

“Better Service Through Knowledge”

September 2015

WWW.METRONYRSES.ORG



Determining a System's Oil Charge

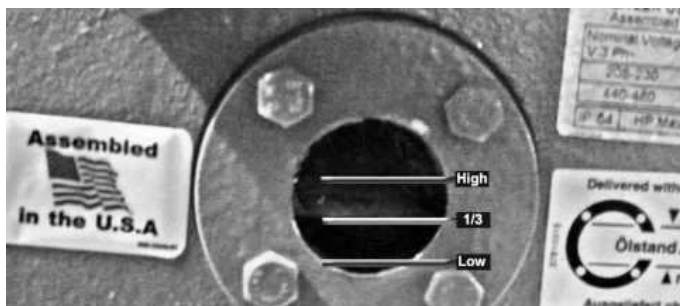
As refrigerant is discharged from a compressor, so is a small amount of refrigerant oil. If the refrigerant piping is properly sized and configured, this oil will eventually return to the compressor. However, there will always be some oil in circulation with the refrigerant. On a new system start-up it **may** be necessary to add refrigerant oil to a compressor to compensate for the amount of oil in circulation.

The required oil charge for a system is basically a factor of the amount of refrigerant in the system and the compressor's oil pumping rate. The most common method of determining if oil needs to be added to a compressor is to observe the compressor's oil sight glass.

During a new start-up a technician can observe the oil level within the sight glass and determine if oil needs to be added to the compressor. Generally an oil level that covers about half of the sight glass is deemed acceptable. If the oil level falls below the sight glass and stays below, oil should be added to the compressor. However, as with any component in our industry, always follow the manufacturer's recommendations, as they may differ from generally accepted practices.

But what if the compressor does not have an oil sight glass? *Not every compressor does.* For example, many hermetic compressors will not have one. So how do you know if oil needs to be added to these compressors?

A technician can approximate if oil needs to be added to these compressors by multiplying the amount of refrigerant in the system by 2.2% and then multiplying this number by 16 (fl. oz./lb). Then subtract from this value 10% of the oil charge stated on the compressor nameplate.



For example, suppose a system hold 60 pounds of refrigerant and the compressor's nameplate shows an oil charge of

118 fl. oz. You would multiply 60 pounds x 0.022 x 16 , which equals 21.12 fl. oz. Then you multiply the oil charge of the compressor—in this example 118 fl. oz.— x 0.10, which equals 11.8 fl. oz. The difference is 9.32 fl. oz. (21.12 fl. oz. - 11.8 fl. oz. = 9.32 fl. oz.), the amount that should be ***IN*** the compressor to compensate for the amount of oil in circulation.- **(And you thought this was an easy business!)**

This is not normally an issue for refrigeration technicians working on systems using hermetic compressors. For the most part, hermetic compressors without an oil sight glass are used on smaller refrigeration systems whose refrigerant charge does not exceed the amount that would require adding oil to the compressor. However this may not always be the case and technicians must be able to determine when oil needs to be added to these compressors.

When adding oil to a compressor always following the compressor manufacturer's guidelines for the type and grade of oil to use. There are several different types and grades of oil used on different types of refrigeration systems and their compressors. Adding the wrong oil to a compressor can be detrimental to the operation of the compressor, and cause it to fail prematurely.

REMEMBER—SAFETY FIRST — *ALWAYS*

Hydrofluoric Acid

When a compressor fails due to a severe motor burn, it is possible for the hydrofluoric acid which may have developed to remain within the compressor.

When removing the defective compressor from the system, care must be taken to prevent hydrofluoric acid from spilling from the compressor.

If a technician believes hydrofluoric acid may be contained within the defective compressor, they should properly seal any open compressor ports. This will prevent any acid from spilling from the compressor.





HVAC/R
Parts
Supplies
Equipment

27-01 BROOKLYN QUEENS
EXPRESSWAY WEST
WOODSIDE, NY 11377

FAX (718) 274-4972

Large
Local
Stock
Free Catalogue

718-545-4896

WHOLESALE ONLY

Supco

**SEALED UNIT
PARTS CO., INC.**

P.O. BOX 21
2230 LANDMARK PLACE
ALLENWOOD, NJ 08720 USA
(732) 223-6644
FAX: (732) 223-1617

H&L
HEATING SUPPLY, Inc.
COMMERCIAL / INDUSTRIAL /
RESIDENTIAL

AUTHORIZED DEALER OF
• HONEYWELL • McDONNELL MILLER •
• FIREYE • HEAT TIMER •
• FUEL WATCHMAN •
• BELL AND GOSSETT • ASCO •
• POWERFLAME BURNERS •
• T.A.C. BUILDING AUTOMATION •
• ECLIPSE GAS BOOSTER •
• SIEMENS GAS TRAINS •
• GRUNDFOS •

BRIAN T. O'NEILL
BRIAN@HLHEATINGSUPPLY.COM

1077 CONEY ISLAND AVENUE
BROOKLYN, NY, 11230
(718) 859-2424
FAX (718) 859-5727



**UNITED
REFRIGERATION INC.**
Refrigeration, Air
Conditioning, Heating,
Supplies, Equipment & Parts

Jim Herlinger
Branch Manager
51-05 59th Place
Woodside, NY 11377-7408

Tel: 718 476-2600
Fax: 718 476-2648
Branchv2@uri.com

HALSEY SUPPLY
CO. INC.

FOR ALL YOUR
•
AIR CONDITIONING
REFRIGERATION

•
EQUIPMENT
PARTS SUPPLIES

•
EPA-CERTIFICATION TESTING

241 HALSEY STREET
BROOKLYN, NY 11216

(718) 574-4774

FAX (718) 574-4778



RATHE

ASSOCIATES

EXPECT MORE
& GET IT.

REPRESENTING THE
INDUSTRY'S FINEST
MANUFACTURERS

CERTIFIED FACTORY
TRAINING BY
INDUSTRY EXPERTS

LOOK TO US FOR ALL YOUR
PLUMBING, HEATING & HVAC NEEDS

NY 631.822.1200

NJ 908.753.4666 • fax 631.822.1400

ratheassoc.com

COMING TOPICS

*New Scotsman Ice Machines –
Technology, Servicing & Troubleshooting*

Solid State System & Safety Controls

*Unbelievable Customer Relation Stories and
other "Tales from the Trenches"—From a
Prior Owner who has Seen it All*

*Eliminate Connecting Manifolds and Hoses
Forever*

Low Temperature Radiant Heating

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

**T
H
I
S
S
P
A
C
E

A
V
A
I
L
A
B
L
E**

**SEE
US
1st**

Sid Harvey's

WHOLESALE DISTRIBUTORS
Refrigeration/AC/Heating

BROOKLYN (718) 257-3347
10720 Avenue D

JAMAICA (718) 526-0330
139-29 Queens Blvd.

MT. VERNON (914) 668-3631
551 S. Columbus Ave.



**Fire Ice
Mechanical Inc.**

HVAC/R Service Contractors

KURT J. EGGERT

Vogt Tube-Ice Authorized Dealer/
Sales & Factory Certified Technicians
Goldenrod Distributor;
The Newest in Water Treatment Technology
Air Conditioning & Refrigeration

Tel (718) 631-1503
Fax (718) 279-4686

ThermatiX Supply

Plumbing, Heating, and Air
Conditioning Supplies

"We keep you supplied
7 days a week!"



73 Broadway, Hicksville, NY 11801

toll free: (877) 390-9421

tel: (516) 513-0985 / 0986

fax: (516) 620-5942

email: sales@thermatixsupply.com



49-70 31st STREET
L.I.C., NY 11101
Phone: 718-937-9000
Fax: 718-392-1296
1-800-937-9000



**WEDDINGS
OUR SPECIALTY**

Special Attention Given To
Dinner Dances • Company Parties
Cocktail Parties • Business Meetings
Fund Raisers • Fashion Shows
Engagement Parties • Christenings
Special Discounts Given to Senior Citizens

*Riccardo's
by the bridge*

21-01 24th Avenue, Astoria, NY 11102
718 721-7777

ANTHONY M. CORBISIERO
RICHARD F. CORBISIERO

**HVACR
TECHNICAL
TRAINING**

Coming to the
Metro New
York area

Recommended for:

HVACR Service Techs
HVACR Electricians
HVACR Contractors
HVACR Students

**SATURDAY,
October 24th, 2015
8:30am – 5:00pm**

**FULL DAY
with Hot Lunch
served**

Location:

Riccardo's Catering
21-01 24th Avenue
Astoria, N.Y. 11102
(718) 721-7777

**AIR FLOW (Problems & Pitfalls)
& HYDRONIC HEATING
Training Seminar**

YOU WILL LEARN:

**ONE OF THE THINGS WE DO THE MOST IS MOVE AIR AND ONE OF THE THINGS MOST
TECHNICIANS KNOW THE LEAST ABOUT IS "MOVING AIR"**

- Air Flow is More Critical Today than Ever Before – *Find Out Why*
- Different Ways of Measuring Air Flow
- How to Correct and Compensate for Air Flow Problems & Inefficiencies

STEAM & HOT WATER TROUBLESHOOTING

- Steam Systems – Banging, Knocking, Flooding
 - Air Valves and Venting
- Hot Water Systems – Direct Return vs. Reverse Return
 - Getting the Air Out
 - Radiant Heating

This program utilizes lecture, field examples, computerized demonstrations, handout materials and encourages audience participation. A certificate of completion will be mailed to all participants.

**The cost for full program, including morning & afternoon refreshment
breaks and full service, hot sit-down lunch is:
\$130 - (\$105 for RSES members)**

Brought to you by:

R.S.E.S.

**REFRIGERATION SERVICE ENGINEERS SOCIETY
METROPOLITAN NY CHAPTER**

www.MetroNYRSES.org

For Further Information Call:

Stan Hollander @ 718 232-6679

REGISTER EARLY – SEATING LIMITED

----- ✂ -----CUT HERE----- ✂ -----CUT HERE----- ✂ -----CUT HERE----- ✂ -----

Air Flow & Hydronics SEMINAR 10/24/15

RSES Membership # (if applicable) _____
 NAME _____ COMPANY NAME _____
 ADDRESS _____ CITY _____ STATE _____ ZIP _____
 PHONE: DAY # _____ NIGHT # _____
 WANT TO USE CREDIT CARD? # _____ EXP. DATE _____

MAKE CHECKS PAYABLE TO: METRO NY RSES
MAIL CHECKS ALONG WITH THIS REGISTRATION FORM (DETACHED) TO:
STAN HOLLANDER; 1837 61st STREET, BROOKLYN, NY 11204

METROPOLITAN NEW YORK CHAPTER, RSES

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

Warming a Refrigerant Cylinder

As refrigerant vapor is removed from a cylinder while it is being added to a system, the remaining liquid in the cylinder will boil off to replace the removed refrigerant vapor. In the process, the refrigerant left in the cylinder becomes cooler, which reduces its vapor pressure. As the vapor pressure in the cylinder is reduced, its ability to transfer the refrigerant from the cylinder to the system is reduced. The refrigerant in the cylinder must be at a higher pressure in order for it to transfer from the cylinder to the system. The greater the pressure difference, the quicker the refrigerant will be transferred.

It is a common practice for a technician to warm a refrigerant cylinder while transferring refrigerant in order to keep the vapor within the cylinder high enough to allow the refrigerant to efficiently transfer from the cylinder to the system. The best practice to use to warm a refrigerant cylinder is to place it in a bucket of warm water. **Never, Never, Never** use a torch or an open flame to warm a refrigerant cylinder. A water temperature of approximately 90°F-100°F is ideal. Never use water at a temperature higher than 125°F, as it may over-pressurize the refrigerant cylinder.

Wednesday September 9th, 2015 at 7:30pm

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

New Scotsman Ice Machines – Technology, Servicing & Troubleshooting

By
Les Tatum—Scotsman Ice Systems

— PLACE LABEL HERE —

SEE DETAILS
at 7:30
Wednesday September 9th, 2015
EDUCATIONAL PROGRAM

