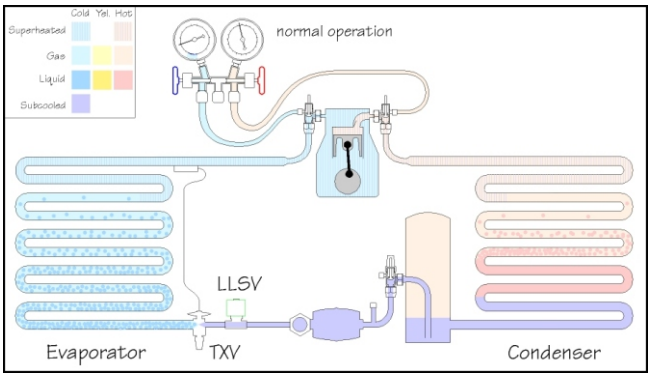
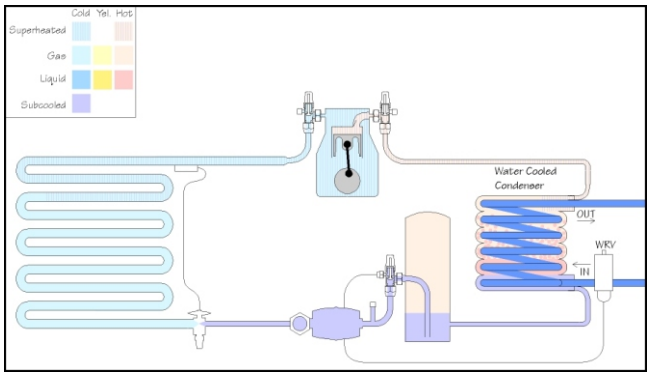
REFRIGERATION BASICS

Seaside Computing

Refrigeration Basics is the premier interactive training software for the refrigeration and air conditioning industry. It is used world wide by universities, trade colleges, trade unions,OEM's, contractors and individuals. There are a great number of technical publications dealing with refrigeration training but few are written from a mechanics perspective. This one is. It illustrates the mechanical refrigeration process and related topics with straight forward explanations and graphics. It's intent is to make it easy to understand important concepts and terminology. Traditional refrigeration textbooks cover such a wide scope of material and in such great detail that rudimentary concepts often become lost in the process. Refrigeration Basics is an introduction to the Refrigeration & Air Conditioning Trade and focuses on creating a solid foundation which can be built upon readily. Learning about refrigeration is a never ending process and well understood fundamentals make learning more advanced concepts much easier. Refrigeration Basics is a preparation for anyone interested in entering the Refrigeration & Air Conditioning trade and is an introduction to some of the immediate problems one will face in the field. It is designed for those who:

*are considering going into the Refrigeration & Air Conditioning trade
*wish an easily understandable overview of HVAC/R
*wish a reference of basic refrigeration concepts
*are interested in these topics.



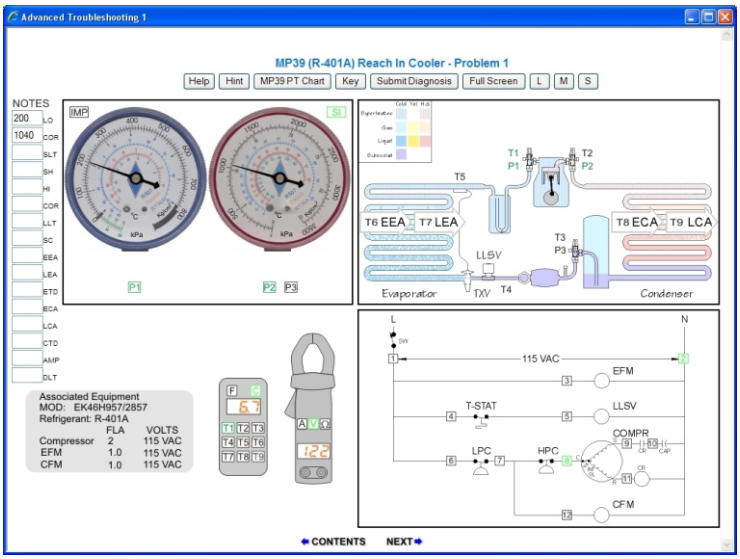


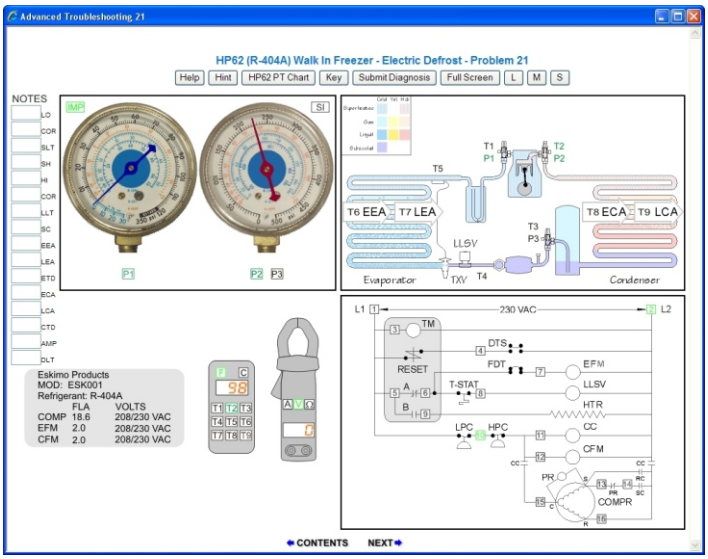
100 Troubleshooting Boards

Refrigeration Basics contains an amazing 100 interactive troubleshooting boards with fully functional test instruments. Learn the basics and then develop troubleshooting skills on various types of refrigeration and air conditioning systems. All 100 boards utilize high and low side pressure gauges, a 9 point digital thermometer for measuring refrigerant, air and water temperatures and an Amp/Ohm/Volt meter which measures all test points on the electrical schematics. The troubleshooting board help screen is available at the click of a button from every board. All troubleshooting boards and all parts of Refrigeration Basics can be used in SI or Imperial Units. View large, medium, small or full screen versions of the boards and choose how many windows to simultaneously display. (Help, PT Chart, Key List, Submit Diagnosis)

Use Metric or Imperial Units

The temperature meter can be toggled to display SI Units in °C or Imperial units in °F. The animated refrigerant gauges can be toggled to display kPa or PSIG.





Features

Interactive Graphics Sequential overlaid graphics are used to clearly illustrate the topic at hand. Buttons allow interactive back and forth control for logical comparisons.

Animated Graphics Animations are used to clearly demonstrate concepts like heat flow and the mechanical workings of things like reciprocating, scroll and rotary compressors and bimetal warp switches.

Full Screen Graphics Many sections, especially the troubleshooting boards use full screen graphics. All resolutions are supported and exact full screen implementation is provided for [640x480], [800x600], [1024x768].

Actively Linked Index The Contents section is presented in a logical learning progression. There is also a linked Index to quickly locate topics. The links take you instantly to the exact spot on the page that covers the topic.

Actively Linked Review Questions Each section has review questions which link to the spot on the page that covers the topic.

PT Chart Refrigerant Data Base 92 Pressure/Temperature Charts linked by ASHRAE and Trade Name Index. Each PT Chart also shows chemical formula, chemical name, recommended oil and if it is a blend lists the ODS refrigerant that it replaces.

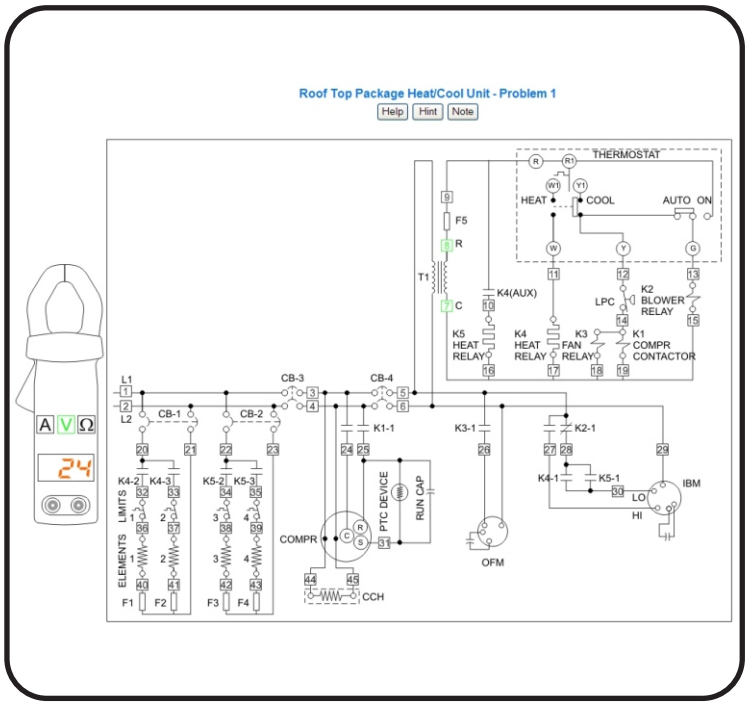
Interactive Refrigerant Side Diagnostics The relationship between refrigerant side parameters are explored with the interactive Causes & Effects tutorial. Although this course starts off with the basics it lets the participant advance to the point where complex refrigerant side parameters are dealt with in an interactive way.

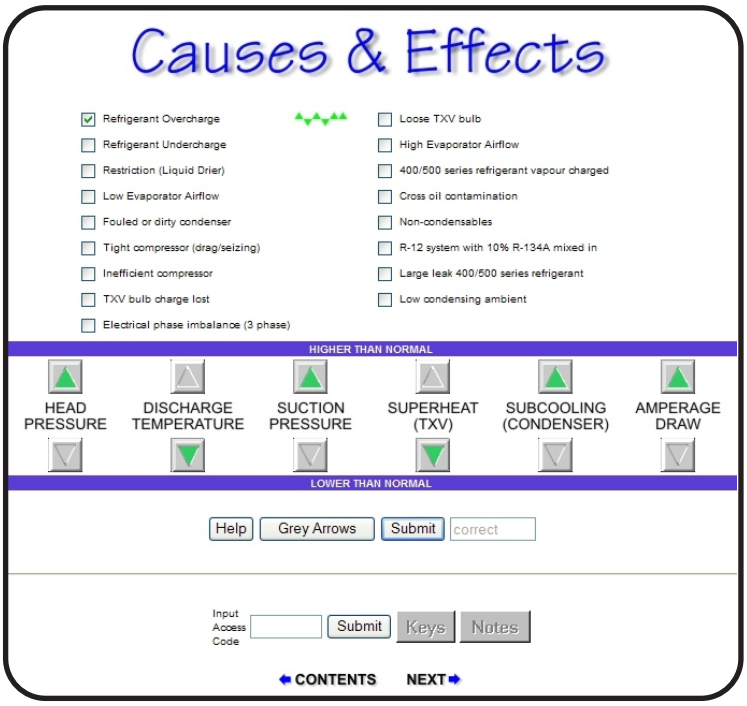
Interactive Electrical Troubleshooting After being presented with electrical basics, learn to troubleshoot electrical schematics with built in faults with simulated Amp/Volt/Ohm meters.

Exam marks itself 100 question, multiple choice exam fully tests participants grasp of the material. Submit button displays participant's mark in percentage.

Photo Gallery 100's of photos used throughout Refrigeration Basics are accessable in the organized Photo gallery.

Portability Created in HTML using CSS & JavaScript for the interactivity. Usable in any operating system in any browser.





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Advance Software Solutions Centre Pte Ltd (ASSC)
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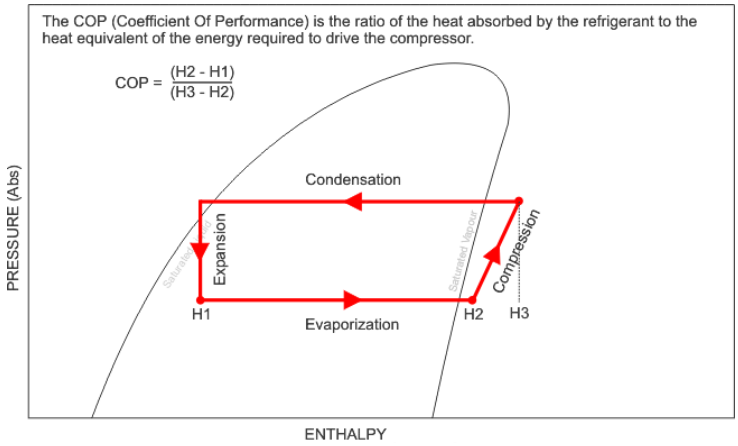
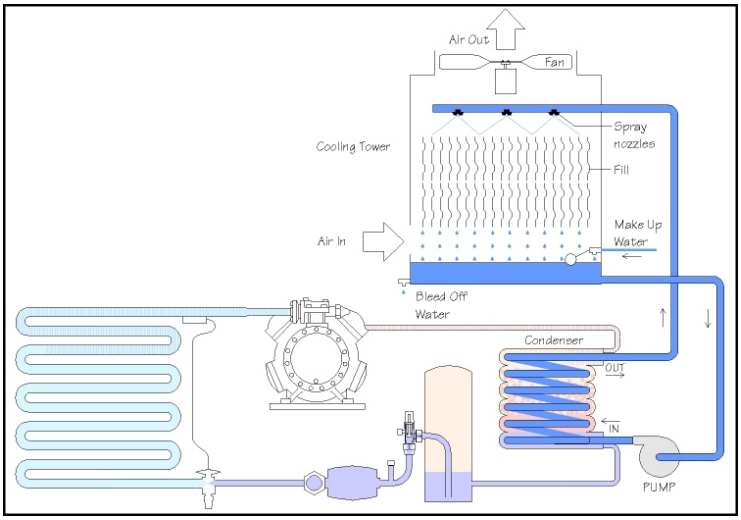
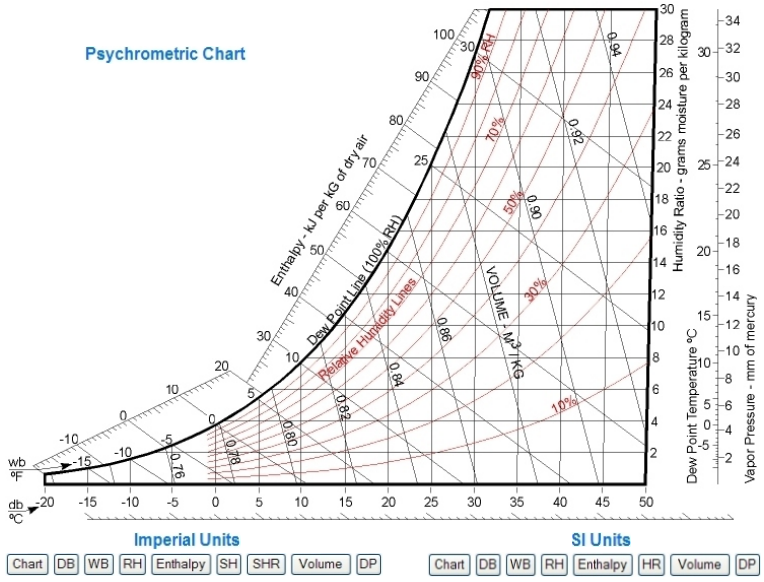
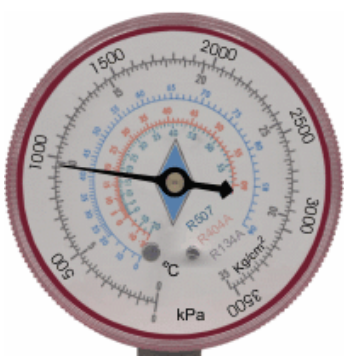

The COP (Coefficient Of Performance) is the ratio of the heat absorbed by the refrigerant to the heat equivalent of the energy required to drive the compressor.
COP = (H2 - H1) / (H3 - H2)
PRESSURE (Abs)
Condensation
Expansion
Compression
Saturated Liquid
Saturated Vapour
H1
Evaporation
H2
H3
ENTHALPY


Air Out
Fan
Cooling Tower
Spray nozzles
Fill
Air In
Make Up Water
Bleed Off Water
Condenser
OUT
IN
PUMP


R-407C


Psychrometric Chart
Enthalpy - kJ per kG of dry air
Dew Point Line (100% RH)
Relative Humidity Lines
VOLUME - M³/KG
Humidity Ratio - grams moisture per kilogram
Dew Point Temperature °C
Vapor Pressure - mm of mercury
wb °F
db °C
Imperial Units
SI Units
Chart DB WB RH Enthalpy SH SHR Volume DP
Chart DB WB RH Enthalpy HR Volume DP


350 psi


R507
R404A
R134A
°C
Kg/cm²
kPa