Subcooling Charging Method
METERING DEVICES - TXV
Charging Thermostatic Expansion Valve (TEV) Systems

• The TEV will maintain design superheat under a variety of conditions
• For this reason, these systems must be CHARGED using sub-cooling
• Proper sub-cooling will maintain a positive liquid seal at the TEV entrance
• Determine the required sub-cooling from the IO or the unit datasheet (usually from about 7°F to about 12°F)
Determine Operating Subcooling

Measure Liquid Line Temperature

- Suction Line (Vapor)
- Liquid Line

111°F
• Measure Liquid Line Pressure
• Convert Pressure to Saturation Temperature
• Subtract SATURATION Temperature from ACTUAL Temperature
• The Difference is OPERATING Sub-cooling
Checking Subcooling


**EXAMPLE:**

a. Liquid Line Pressure = 417
b. Corresponding Temp. °F. = 120°
c. Thermometer on Liquid line = 111°F.

To obtain the amount of sub-cooling subtract 111°F from 120°F.
The difference is ° sub-cooling.

**Sub-cooling should be 9 °F (± 2°F)**

- Add charge to raise subcooling.
- Recover charge to lower subcooling.
Temperature Probe

Test Point Locations

- LIQUID LINE SERVICE VALVE
- (Smaller of the two copper lines)
- INSULATE THE PROBE FOR A MORE ACCURATE READING