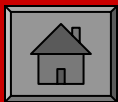




Modern Automotive Technology Chapter 75

Heating and Air Conditioning Fundamentals



*North Montco
Technical Career Center*

Learning Objectives

- Explain the principles of refrigeration.
- Describe the four cycles of refrigeration.
- Describe the high- and low-pressure sides of an air conditioning system.
- Explain the basic function and construction of each major part of a typical heating and air conditioning system.
- Summarize the operation and interaction of heating, ventilation, and air conditioning systems.
- Describe safety precautions to be observed when working on heating and air conditioning systems.



Chapter 75

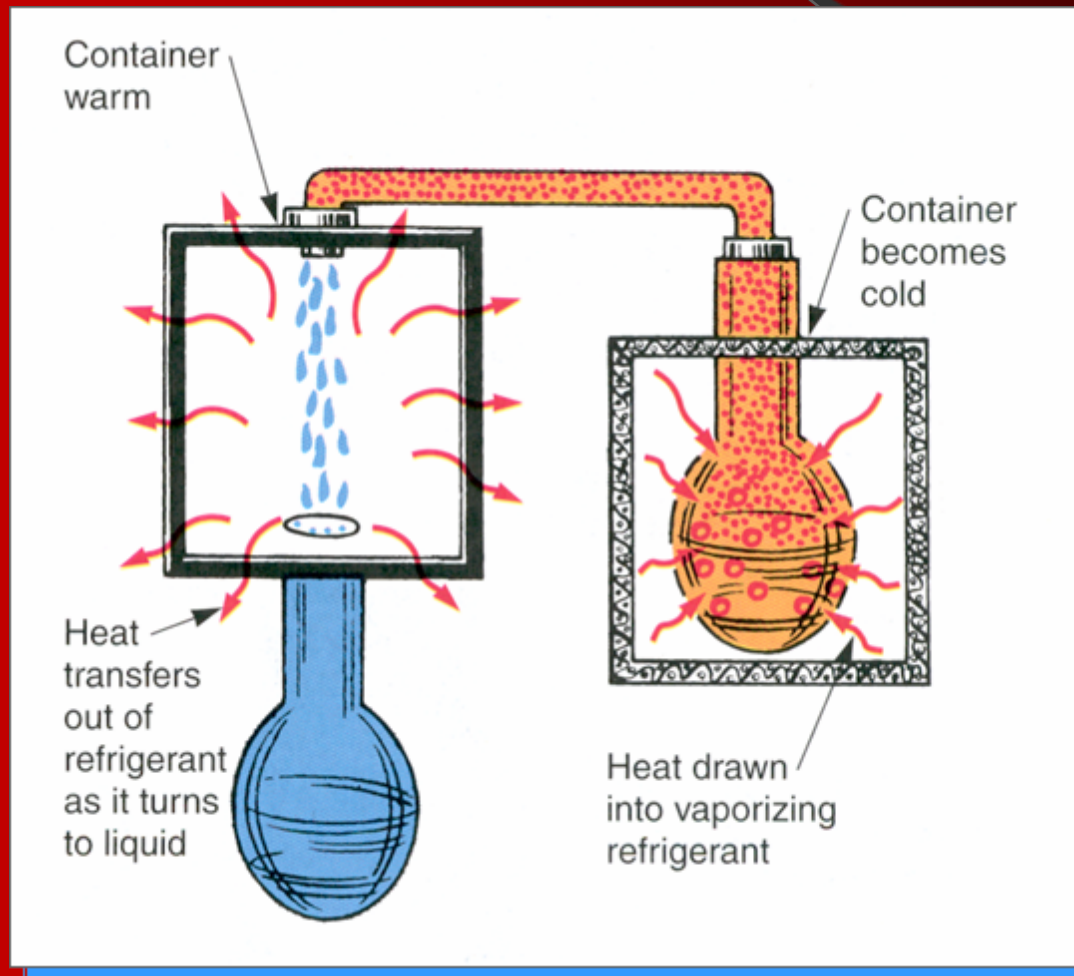
1 .The Super Heat Switch can be used to prevent compressor damage when the refrigerant level or oil level is too low.

2. The Heater Core is a small radiator-like unit that provides a large surface area for heat dissipation into passenger compartment.



Refrigerant

Cools an object when it vaporizes. Releases the heat when it condenses

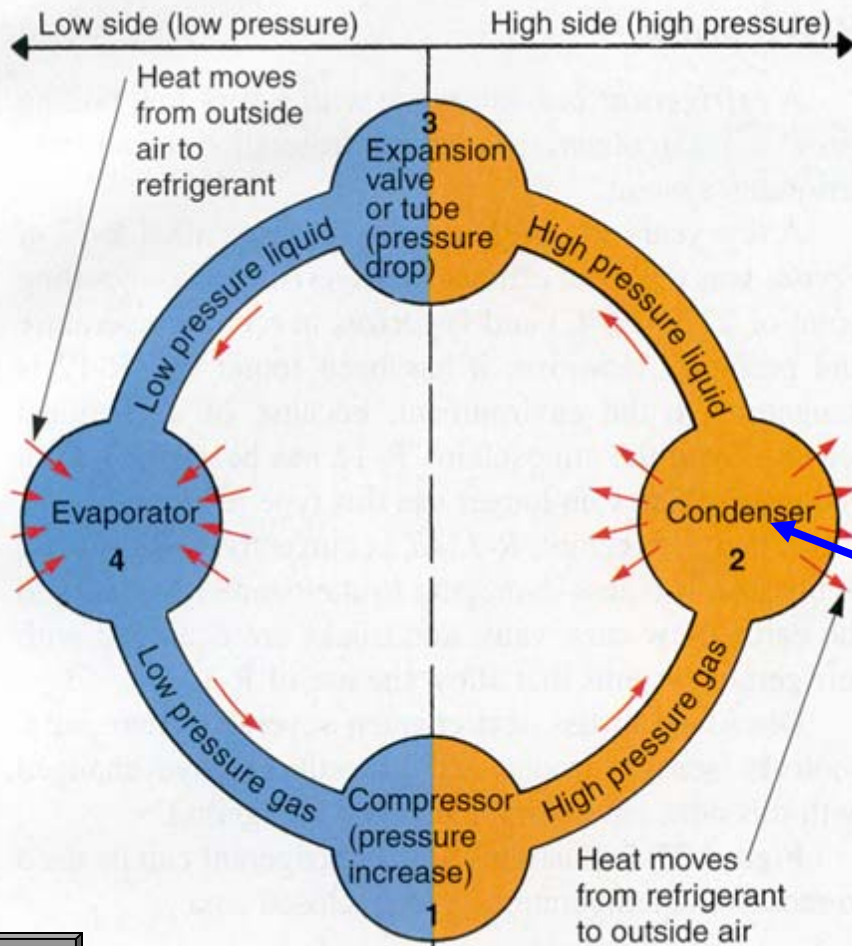


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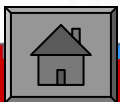
3. Condensation causes refrigerant to change from a gaseous state into a liquid state.
4. A Thermostatic Switch shuts compressor off when evaporator temperature nears freezing.
5. The Evaporator uses cooling action of vaporizing refrigerant to cool air inside vehicle.



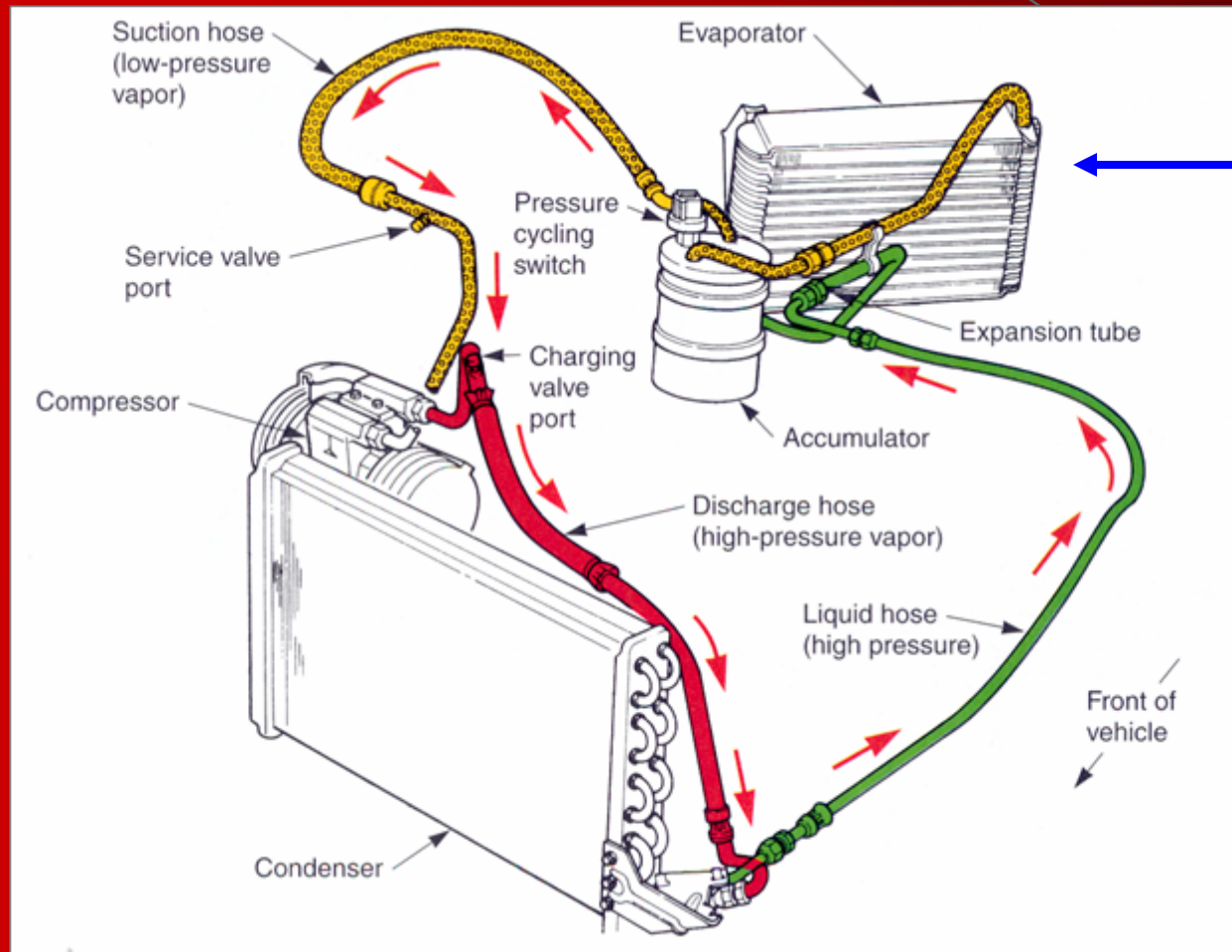
Heating and Air Conditioning Fundamentals



Condensation (refrigerant changes from high-pressure vapor to high-pressure liquid) takes place in the condenser. Heat is released from the refrigerant.



Heating and Air Conditioning Fundamentals



Evaporator

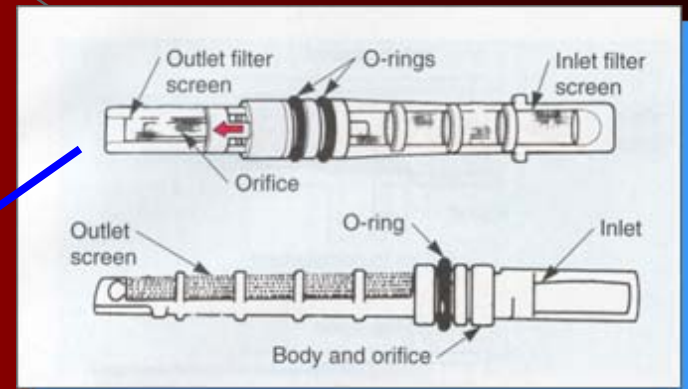
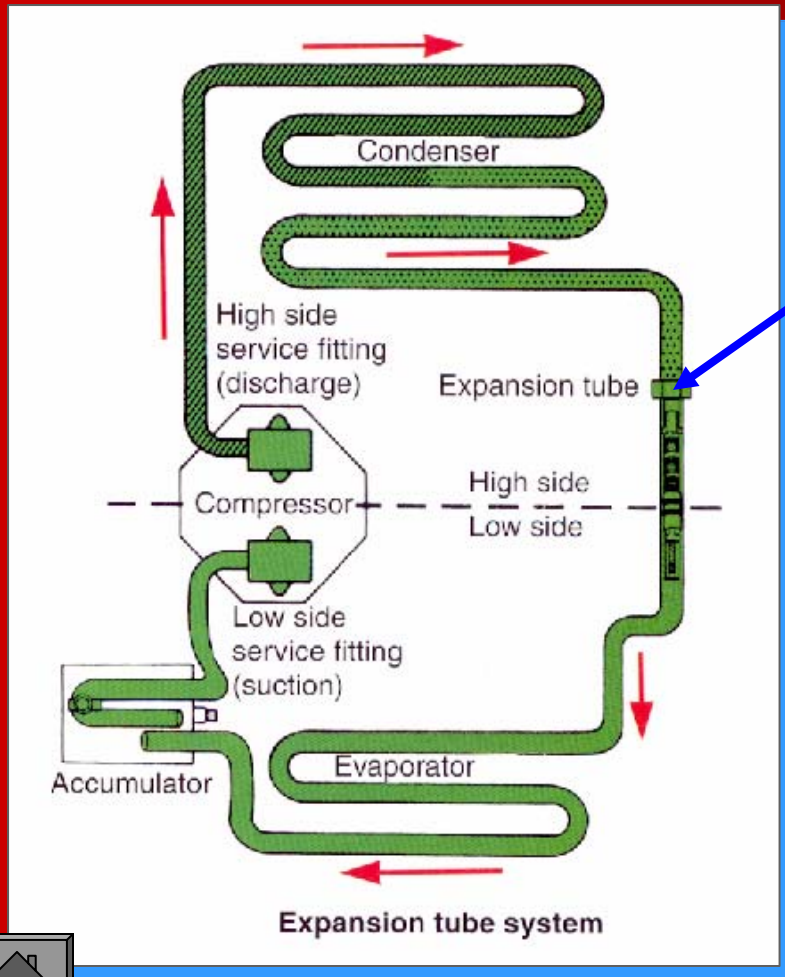


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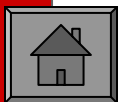
6. Refrigerant is the fluid that carries heat through system to lower air temperature in vehicle.
7. A Blower Fan forces air through evaporator and into passenger compartment.
8. An Expansion Tube a fixed opening (an orifice) that meters refrigerant flowing into the evaporator.



Expansion Tube

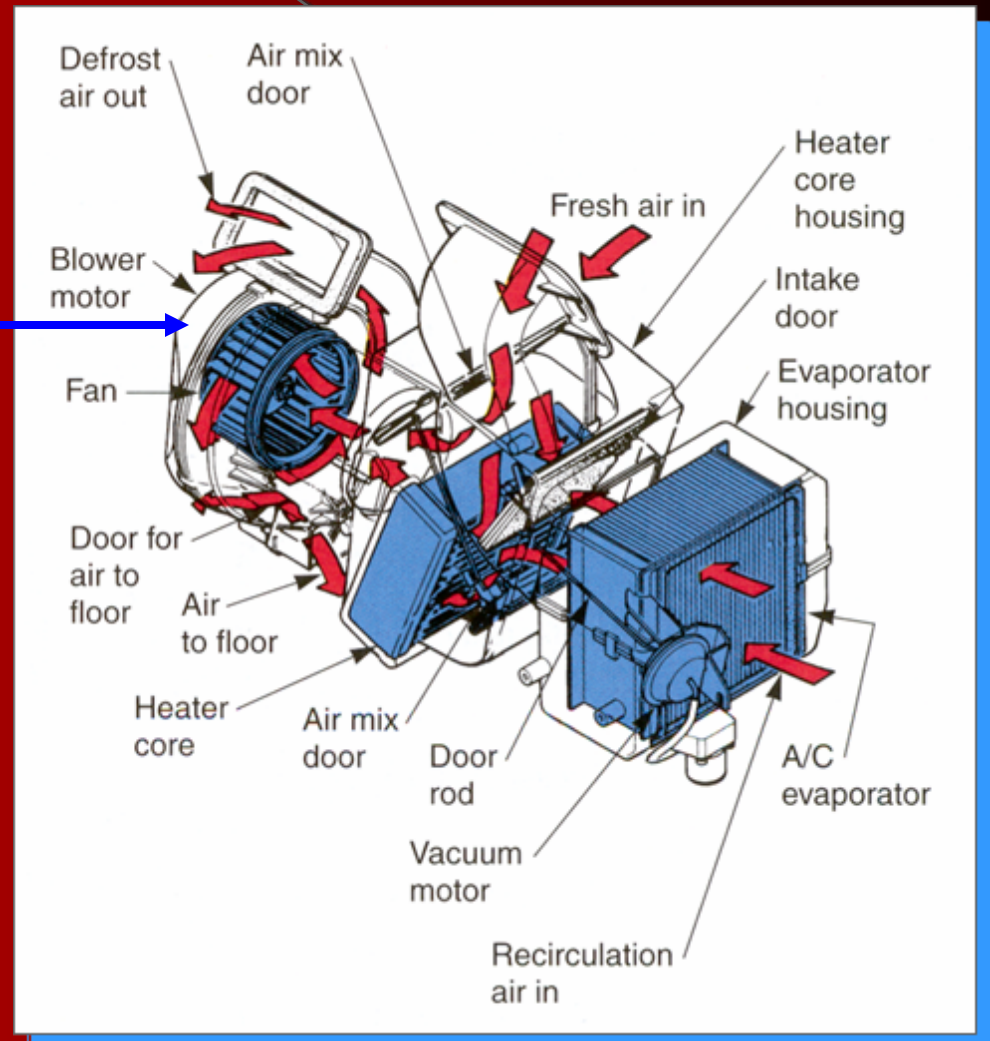


Expansion Tube
Has a fixed opening
that controls the
amount of refrigerant
entering the
evaporator.



Blower Fans/Motors

Blower
Motor/Blower
Fan Assembly

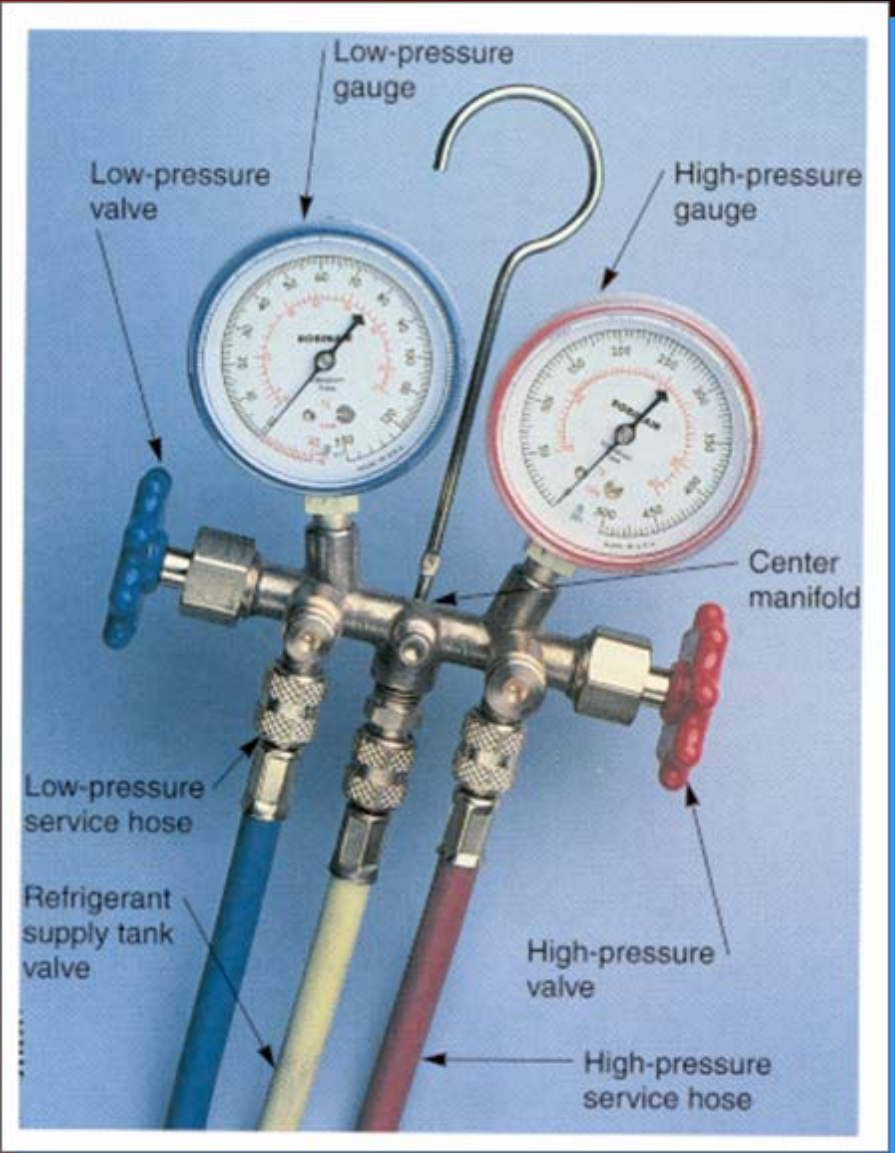


Chapter 75

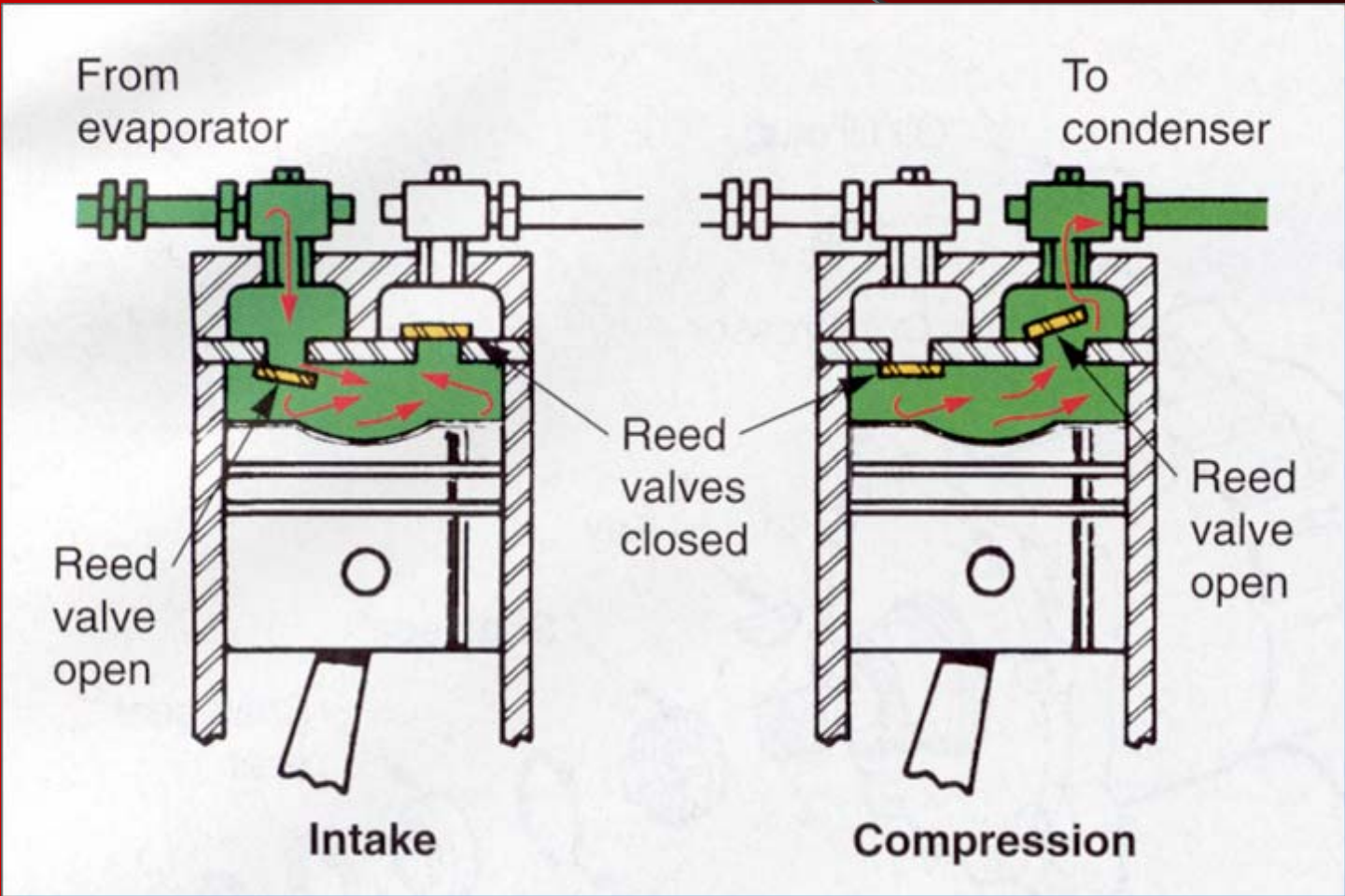
9. The Wide Open Throttle Switch shuts off the compressor during rapid acceleration to save power.
10. The Compressor is a pump that pressurizes refrigerant and forces it through system.



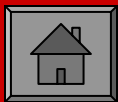
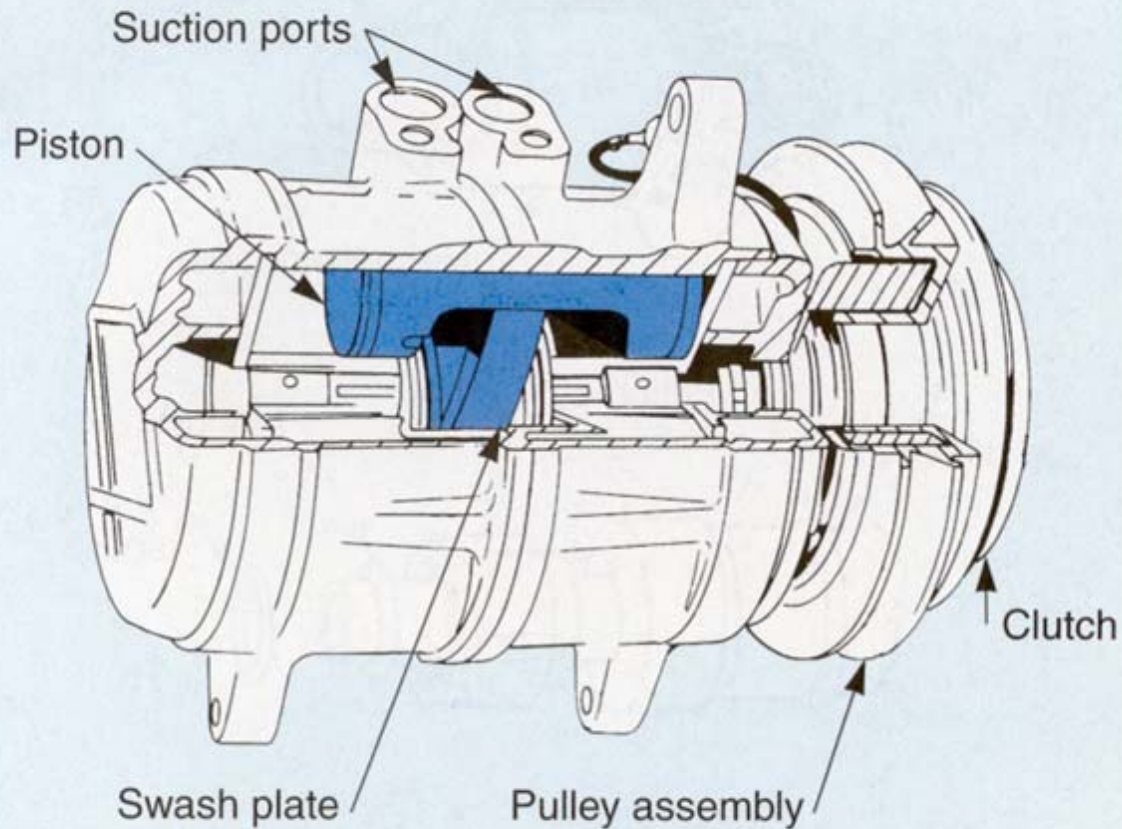
Pressure Gauge Assembly



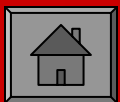
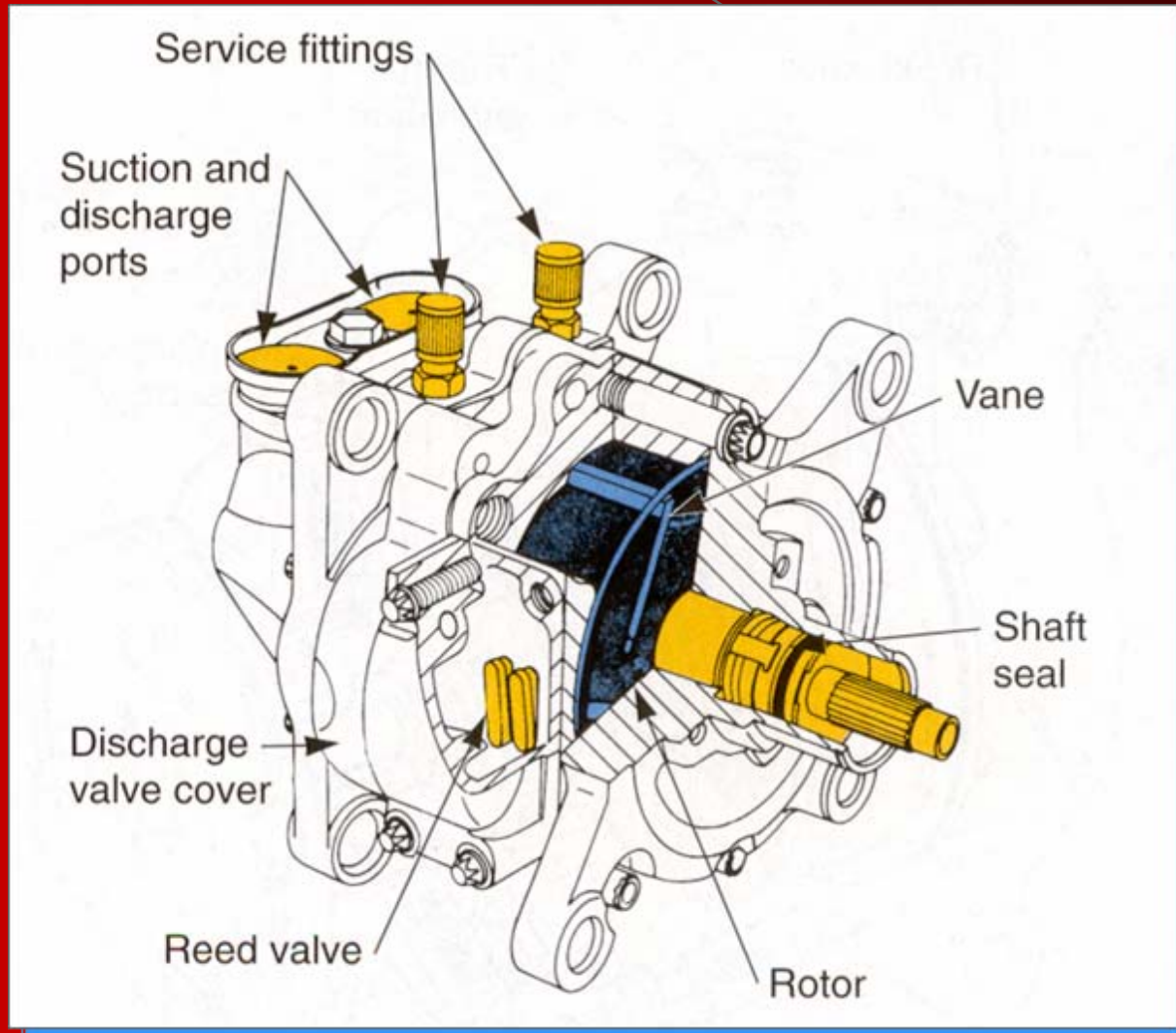
Compressor Operation



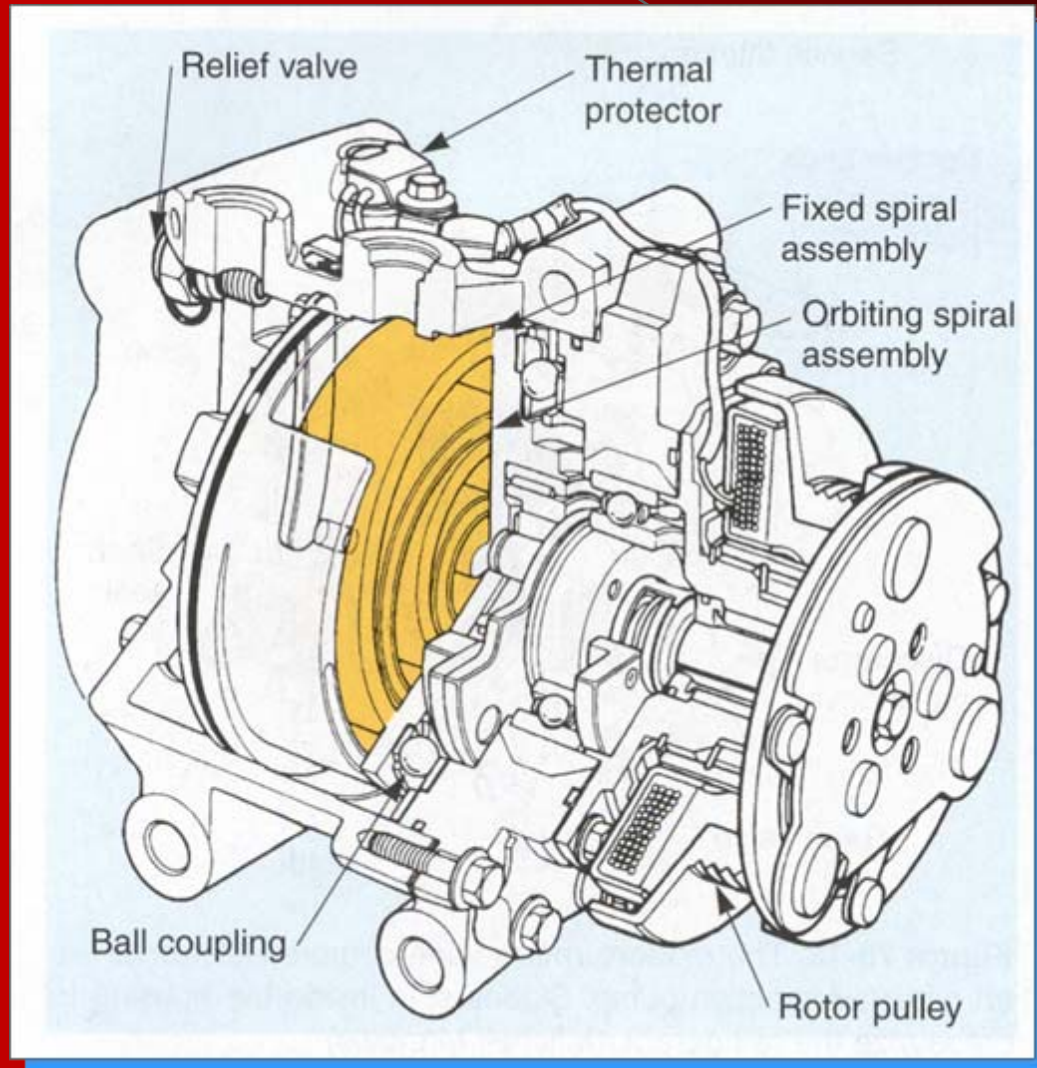
Axial Compressor



Rotary Vane Compressor



Scroll Compressor



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