

**Air Conditioning Operation and Troubleshooting**  
**Matt Dunham**

**Major Components (10 Minutes)**

- Compressor – heart of the system, causes refrigerant to flow by increasing the pressure of the refrigerant
- Metering Device – fixed orifices and modulating (Expansion Style)
  - Thermostatic Expansion Device
  - Electronic Expansion Device
- Evaporator – Absorbs heat into the refrigeration cycle.
- Condenser – Rejects heat from the refrigeration cycle.

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**Additional Components**

- Indoors – Evaporator and metering device
- Outdoors – Compressor and Condenser
- Two connection lines
  - Suction Line - Larger line, typically insulated, vapor state, low pressure side
  - Liquid Line – Smaller line, un-insulated, liquid state, high pressure

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**Refrigerants (10 Minutes)**

- R-22 (HCFC)
  - Contains chlorine, which is destructive to the ozone layer
  - Phased out of new equipment Jan 1, 2010
  - Scheduled for no production January 1, 2020
  - Typical operating pressures,

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