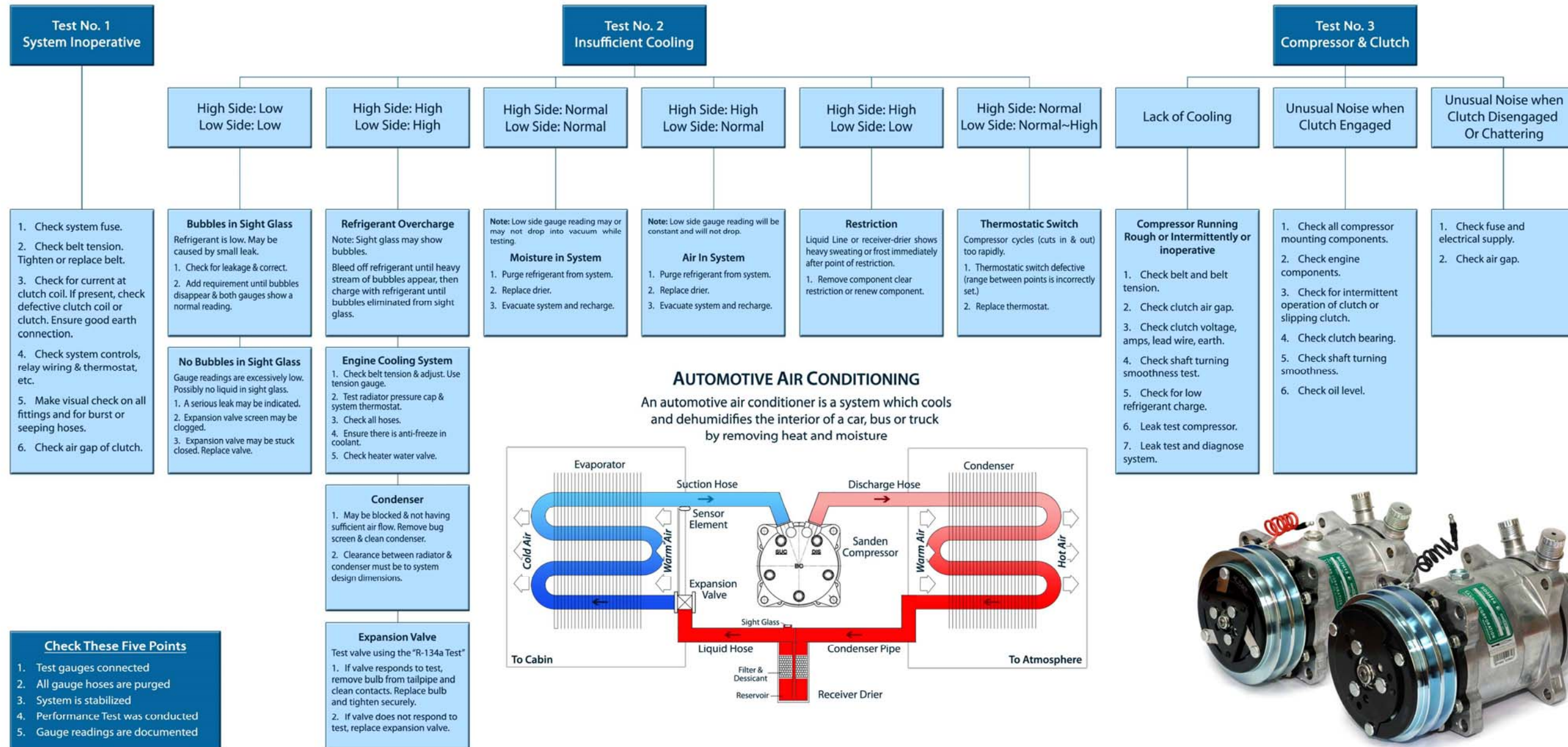
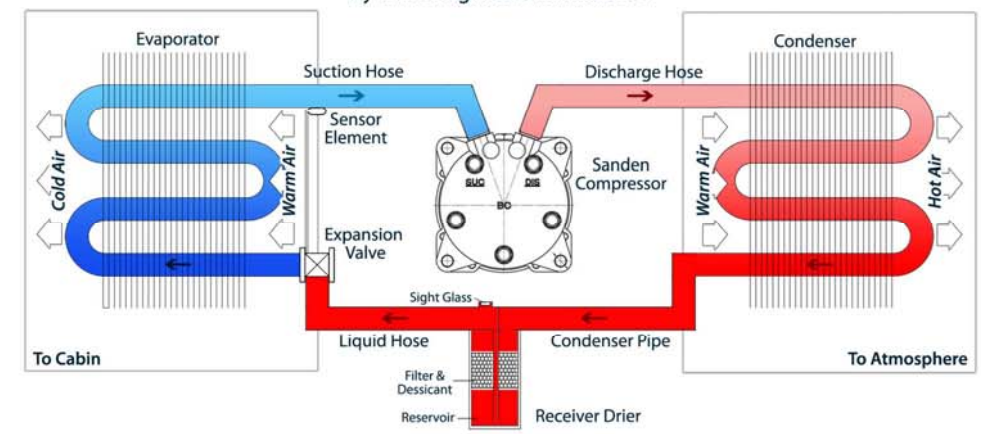


# Sanden A/C System Diagnosis (R-134a)



## AUTOMOTIVE AIR CONDITIONING

An automotive air conditioner is a system which cools and dehumidifies the interior of a car, bus or truck by removing heat and moisture



- Check These Five Points**
1. Test gauges connected
  2. All gauge hoses are purged
  3. System is stabilized
  4. Performance Test was conducted
  5. Gauge readings are documented

- NO COOLING FROM SYSTEM**
1. Blown fuse.
  2. Broken or disconnected electrical wire.
  3. Broken or disconnected ground wire.
  4. Clutch coil or solenoid burned out or disconnected.
  5. Electrical switch contacts in thermostat burned excessively or sensing element defective.
  6. Blower motor disconnected or burned out.
  7. Ignition switch ground or relay burned out.
  8. Loose or broken drive belt.
  9. Compressor partially or completely frozen.
  10. Compressor reed valves inoperative - indicated by slight variation of both gauge readings at engine speed.
  11. Expansion valve stuck open - indicated by normal discharge pressure, high suction pressure and evaporator flooding.
  12. Heater valve inoperative - indicated by hot water in heater and hot discharge air from evaporator.
  13. Broken refrigerant line.
  14. Fusible plug blown (not used on all systems).
  15. Leak in system.
  16. Clogged screen or screens in receiver-dehydrator or expansion valve. Plugged hose or coil.
  17. Compressor shaft seal leaking.

- INSUFFICIENT COOLING FROM SYSTEM**
1. Blower motor sluggish.
  2. Compressor clutch slipping.
  3. Obstructed blower discharge passage.
  4. Clogged air intake filter.
  5. Insufficient air circulation over condenser coil (fins clogged with dirt or bugs).
  6. Evaporator clogged.
  7. Outside air vents open.
  8. Insufficient refrigerant in system.
  9. Clogged screen in expansion valve indicated by gauge pressures being normal or showing slightly increased discharge pressure and low suction pressure with evaporator air output temperature high.
  10. Expansion valve thermal bulb has lost its charge - indicated by too high a low gauge reading and excessive sweating of evaporator and suction line.
  11. Clogged screen in receiver - indicated by higher than normal reading on high pressure gauge, lower than normal reading on low pressure gauge, and liquid lines cold to touch with possible frost.
  12. Excessive moisture in system - indicated by excessive head pressure gauge reading.
  13. Air in system - indicated by high head pressure and possibly bubbles in sight glass.
  14. Thermostat defective or improperly adjusted - indicated by low gauge reading high or clutch cycling at too high a reading.

- NOISY SYSTEM**
1. Defective winding or improper connection in compressor clutch coil or solenoid.
  2. Loose or excessively worn drive belts.
  3. Noisy clutch.
  4. Compressor noisy - loose mounting or worn inner parts.
  5. Loose panels on car.
  6. Compressor oil level low.
  7. Blower fan noisy - excessive wear in motor.
  8. Idler pulley and bearing defective.
  9. Excessive charge in system - rumbling noise or vibration in high pressure line, thumping noise in compressor, excessive head pressure and suction pressure, bubbles or cloudiness in sight glass, or low head pressure.
  10. Low charge in system - hissing in evaporator case at expansion valve, bubbles or cloudiness in sight glass, or low head pressure.
  11. Excessive moisture in system - expansion valve noisy, suction pressure low.

- INTERMITTENT COOLING**
1. Defective circuit breaker, blower switch or blower motor.
  2. Bad earth connection or loose electrical connection in compressor clutch coil or solenoid.
  3. Compressor clutch slipping.
  4. Expansion valve icing up - may be caused by excessive moisture in the system or incorrect super heat adjustment.
  5. Evaporator, coil icing up - thermostat probe not in coil fins, thermostat adjusted too low, defective thermostat.
  6. Clogged evaporator fins.