

## Test no. 1 System Inoperative

1. Check system fuse.
2. Check belt tension. Tighten or replace belt.
3. Check for current at clutch coil. If present, check defective clutch coil or clutch. Ensure good earth connection.
4. Check system controls, relay, wiring, thermostat & other control equipment in the system.
5. Make visual check on all fittings & for burst or leaking hoses.
6. Check air gap of clutch.

## Test no. 2 Insufficient Cooling

High side: Low  
Low side: Low

- No Refrigerant in System**  
Refrigeration is low. May be caused by a leak.
1. Connect RRR machine & check for pressure & system leaks.\*
  2. Repair any leaks.
  3. Vacuum & recharge system.\*

High side: High  
Low side: High

- Refrigerant Overcharge**
1. Connect RRR machine & confirm that pressures are within specification.\*
  2. Correct pressures through running the appropriate procedures with your RRR machine.\*

- Engine Cooling System**
1. Check belt tension & adjust. Use tension gauge.
  2. Test radiator pressure cap & system thermostat.
  3. Check all hoses for perishing & leaks.
  4. Ensure there is antifreeze in coolant.
  5. Check heater water valve.

- Condenser**
1. May be blocked & not having sufficient air flow. Remove bug screen & clean condenser.
  2. Clearance between radiator & condenser must be to system's designed dimensions.

High side: Normal  
Low side: Normal

- Note: Low side gauge reading may drop into vacuum while testing.**
- Moisture in System**
1. Recover refrigerant from system.\*
  2. Replace drier.
  3. Evacuate system & recharge.\*

- Expansion Valve**  
Test valve with the proper equipment.
1. Block valve is probably stuck closed or blocked. Replace valve & clean system if necessary.
  2. If capillary valve responds to the test, clean bulb contacts; otherwise replace valve.

High side: High  
Low side: Normal

- Note: Low side gauge reading will be constant & will not drop.**
- Air in System**
1. Recover refrigerant from system.\*
  2. Replace drier.
  3. Evacuate system & recharge.\*

High side: High  
Low side: Low

- Restriction**  
Liquid line or receiver-drier shows heavy sweating or frost immediately after point of restriction.
1. Remove component clear restriction or renew component.
  2. Evacuate system & recharge.\*

High side: Normal  
Low side: Normal~High

- Thermostatic Switch (Compressor)**  
Compressor cuts out too soon.
1. Thermostatic switch defective or range between points is incorrectly set.
  2. Replace thermostat.
  3. Evacuate system & recharge.\*

## Test no. 3 Compressor & Clutch

Lack of Cooling

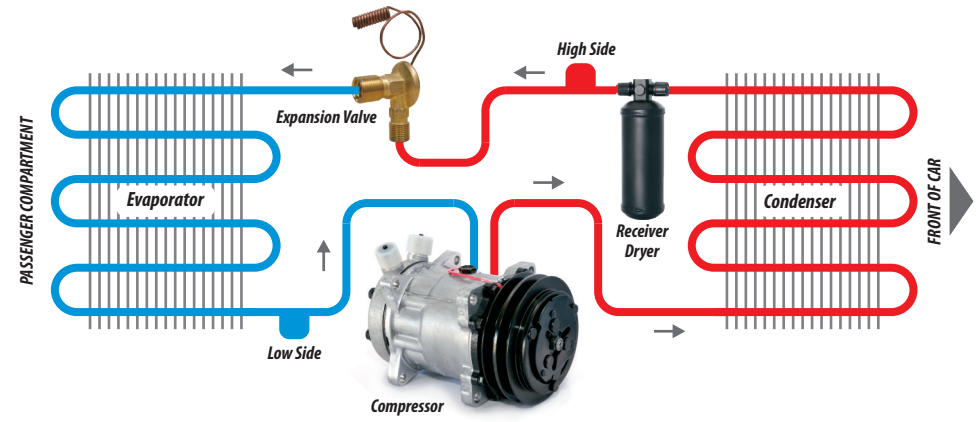
- Compressor Running Rough or Intermittently or Inoperative**
1. Check belt & belt tension.
  2. Check clutch gap.
  3. Check clutch voltage, amps, lead wire & earth.
  4. Turn shaft & make sure that compressor turns smoothly.
  5. Check for low refrigerant charge.
  6. Leak test compressor.
  7. Test system with RRR machine.\*

Unusual Noise when Clutch Engaged

1. Check all compressor mounting components.
2. Check engine components.
3. Checked for intermittent operation or slipping of clutch.
4. Check drive belt.
5. Turn compressor shaft & make sure it turns smoothly.
6. Check oil level.

Unusual Noise/Chatter when Clutch Disengaged

1. Check electrical system.
2. Check air gap of clutch.
3. Check bearing for excessive wear.



## Automotive Air-Conditioning

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

- CHECK THESE FIVE POINTS**
1. Test gauges connected.
  2. All gauge hoses are purged.
  3. System is stabilised (operating temperature).
  4. Performance test was conducted.
  5. Gauge readings are documented.

\*MACS Auto recommends using a RRR machine to recover, re-gas & carry out diagnostics on mobile air-conditioning systems.