

# A/C SYSTEM DIAGNOSIS

1988 Jeep Cherokee

1988 AIR CONDITIONING & HEAT  
A/C General Servicing  
Diagnostic Procedures

Jeep; All Models

## DIAGNOSTIC PROCEDURES

Diagnosis is an important first step in A/C system servicing. To save time and effort, systems should be carefully checked to identify the causes of poor performance. By using the following diagnostic charts, defective components or system damage can be quickly located. To identify problems that are specific to one system, refer to the repair section of this manual. The charts in this section apply to all systems.

## PREPARATION FOR TESTING

- 1) Attach Low and High side gauges.
- 2) Start engine and allow it to warm up.
- 3) Set system to COOL and blower to HIGH.
- 4) Open car doors and hood.
- 5) Run at fast idle for 2-3 minutes.

## ALTITUDE PRESSURE VARIATIONS TABLE

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Altitude (Ft. Above Sea Level)	Absolute Pressure Of Atmosphere (psi)	Gauge Altitude Correction (1) (psi)
0	14.7	0
1000	14.2	0.5
2000	13.7	1.0
3000	13.2	1.5
4000	12.7	2.0
5000	12.2	2.5
6000	11.7	3.0
7000	11.3	3.4
8000	10.9	3.8
9000	10.5	4.2
10,000	10.1	4.6

(1) - Add correction shown from gauge readings

## ALTITUDE VACUUM VARIATIONS TABLE

ALTITUDE VACUUM VARIATIONS TABLE

Altitude (Ft. Above Sea Level)	Complete Vacuum (In. Hg)	Gauge Altitude Correction (1) (In. Hg)
0	29.92	0
1000	28.92	1.0

2000	.....	27.82	.....	2.1
3000	.....	26.82	.....	3.1
4000	.....	25.82	.....	4.1
5000	.....	24.92	.....	5.0
6000	.....	23.92	.....	6.0
7000	.....	23.02	.....	6.9
8000	.....	22.22	.....	7.7
9000	.....	21.32	.....	8.6
10,000	.....	20.52	.....	9.4

(1) - Add correction shown to gauge readings

#### OPERATIONAL TEST GAUGE READINGS

Normal System Operating Pressures (PSI) (1)

Application	Low Side Gauge (Suct.)	High Side Gauge (Disc.)
Jeep 1980-87 (Thermostatic Switch) .....	5-24 .....	208-250
1988 (Accumulator Type) .....	24-50 .....	160-250

(1) - Pressure readings given are for a system in good operating condition, at sea level and an ambient temperature of 80°F (27°C).

#### AIR CONDITIONING SYSTEM PERFORMANCE CHECK TABLE

PERFORM TESTS:	SHOULD BE:	IF:
Temperature Check		Temperature Check is
* Switch to LOW blower		
* Close doors		
* Check outlet temperature.	35-45°F (1.7-7.2°C)	Too warm-Check control lever operation, heater water valve, cooling system and gauge readings.
Visual Check		Visual Check Shows:
* Compressor	Quiet, no leaks	Noisy-Check belts, oil level, seals, gaskets, reed valves.
* Condenser	Free of obstructions	Blocked-Clean off. Plugged-Flush or replace.
* Receiver-Drier	Dry and warm to touch.	Frosty-Check for restriction, replace desiccant.
* Sight Glass	Clear or few bubbles	Bubbly, foamy or streaks-Check gauge readings.
* High Side	Dry and warm to touch.	Frosty or very hot-Check for restriction or overcharge.
* Low Side Lines	Dry and cool to touch.	Frosty or warm-Check for restriction, low charge or bad valve.

* Expansion Valve	Dry	Frosty—Check for moisture or restriction. Check sensing bulb.
* STV	Dry and cool to touch.	Frosty or warm—Check gauge readings for valve malfunction
* Evaporator	Dry and cold to touch.	Freezing or warm—Check expansion valve, STV or thermo switch.

Gauge Readings

Gauge Readings are

* High Side Gauge	See Pressure Chart	Above or below normal—See A/C Diagnosis on next page.
* Low Side Gauge	See Pressure Chart	Above or below normal—See A/C Diagnosis on next page.

**AMBIENT TEMPERATURE/PRESSURE**

**Pressure**  
**psi**

**High Side Pressure**

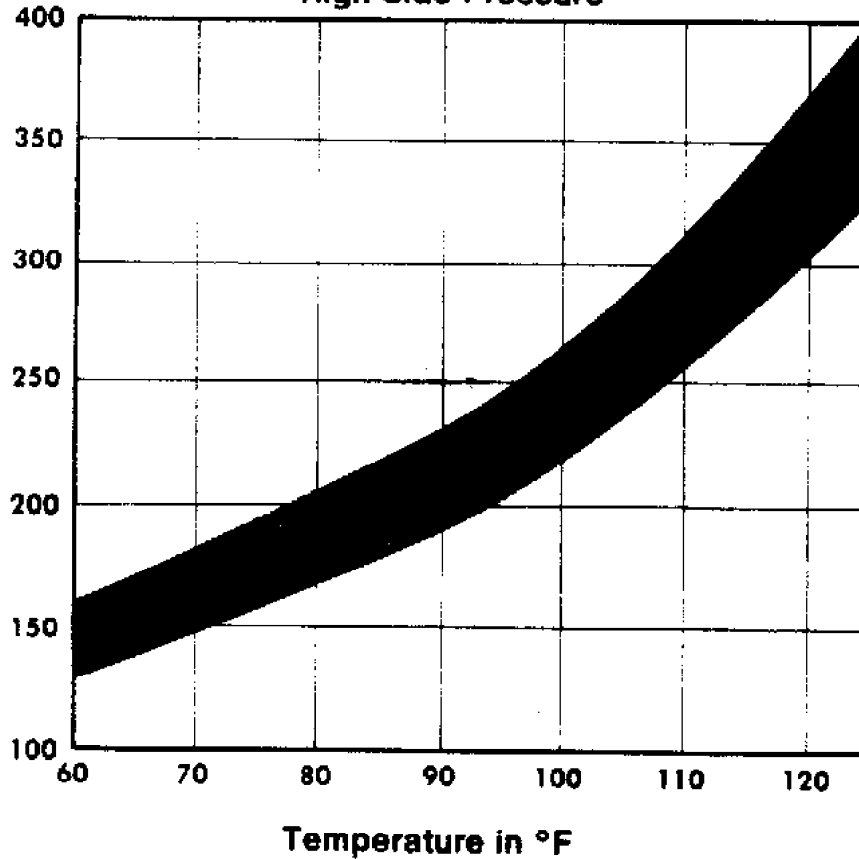


Fig. 1: AMBIENT TEMPERATURE/PRESSURE

# EVAPORATOR TEMPERATURE/PRESSURE

Pressure

psi

Low Side Pressure

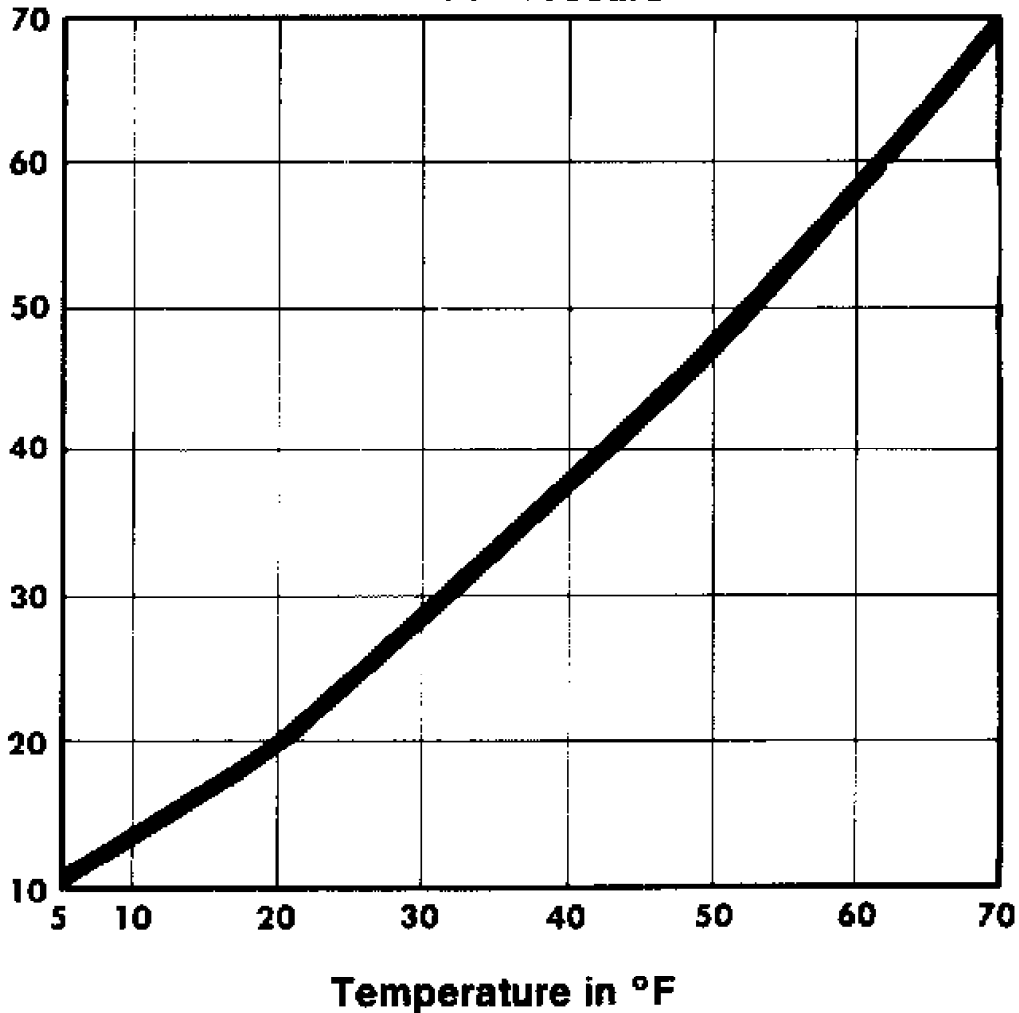


Fig. 2: EVAPORATOR TEMPERATURE/PRESSURE

AIR CONDITIONING DIAGNOSIS WITH GAUGES FOR SYSTEMS WITH INSUFFICIENT OR NO COOLING

LOW SIDE GAUGE	HIGH SIDE GAUGE	OTHER SYMPTOMS (1)	DIAGNOSIS
Normal	Normal	No or few bubbles in sight glass. High side gauge may go high. Low side gauge does not fluctuate with compressor on/off cycle.	Some Air and Moisture in System.
Normal	Normal	Cools okay in morning but not during hot part of day. Tiny bubbles in sight glass.	Excessive Moisture

Discharge air warm when low side gauge drops into vacuum.

Normal	Normal	Thermostatic switch system only-compressor cycles off and on too rapidly.	Defective Thermostatic Switch
Normal	Normal	Cycling clutch systems only-Compressor doesn't turn on soon enough. Discharge air becomes warm as low side pressure rises.	Misadjusted Thermostatic Switch or Defective Pressure Sensing Switch
Low	Low	Bubbles in sight glass. Outlet air slightly cool.	Low R-12 Charge
Low	Low	Sight glass clear or oil-streaked. Outlet air very warm.	Excessively Low R-12 Charge
Low	Low	Outlet air slightly cool. Sweating or frost at expansion valve.	Expansion Valve Stuck Closed. Screen Plugged or Sensing Bulb Malfunction.
Low	Low	Outlet air slightly cool. High side line cool to touch. Sweating or frost on high side.	Restriction on High Side
Low	High	Evaporator outlet pipe cold. Low side goes into vacuum when blower is disconnected.	STV Stuck Open
High	Low	Evaporator outlet pipe warm. Outlet air warm.	STV Stuck Open
High	Low	Noise from compressor.	Compressor Malfunction
High	High	Outlet air warm. Liquid line very hot. Bubbles in sight glass.	Condenser Malfunction or R-12 Overcharge.
High	High	Outlet air slightly cool. Bubbles in sight glass.	Large Amount of Air and Moisture in System.
High	High	Outlet air warm. Evaporator outlet sweating and frost.	Expansion Valve Stuck Open

(1) - If equipped with a low refrigerant charge protection system, compressor operation may have stopped.

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