

A/C System Tests

Pressure Test

Test results	Related symptoms	Probable cause	Remedy
Discharge (high) pressure abnormally high	After stopping compressor, pressure drops to about 196 kPa (2.0 kgf/cm ² , 28 psi) quickly, and then falls gradually.	Air in system	Recover, evacuate (see page 21-54), and recharge with specified amount (see page 21-55).
	Reduced or no air flow through condenser	<ul style="list-style-type: none"> • Clogged condenser or radiator fins • Condenser or radiator fan not working properly 	<ul style="list-style-type: none"> • Clean • Check voltage and fan rpm. • Check fan direction.
	Line to condenser is excessively hot.	Restricted flow of refrigerant in system	Restricted lines
Discharge pressure abnormally low	High and low pressures are balanced soon after stopping compressor. Low side is higher than normal.	<ul style="list-style-type: none"> • Faulty compressor discharge valve • Faulty compressor seal 	Replace the compressor.
	Outlet of expansion valve is not frosted, low-pressure gauge indicates vacuum.	<ul style="list-style-type: none"> • Faulty expansion valve • Moisture in system 	<ul style="list-style-type: none"> • Replace • Recover, evacuate, and recharge with specified amount.
Suction (low) pressure abnormally low	Expansion valve is not frosted, and low-pressure line is not cold. Low-pressure gauge indicates vacuum.	<ul style="list-style-type: none"> • Frozen expansion valve (Moisture in system) • Faulty expansion valve 	<ul style="list-style-type: none"> • Recover, evacuate, and recharge with specified amount. • Replace the expansion valve.
	Discharge temperature is low, and the air flow from vents is restricted.	Frozen evaporator	Run the fan with compressor off, then check evaporator temperature sensor.
	Expansion valve is frosted.	Clogged expansion valve	Clean or replace.
	Receiver/dryer outlet is cool, and inlet is warm (should be warm during operation).	Clogged receiver/dryer	Replace
Suction pressure abnormally high	Low-pressure hose and check joint are cooler than the temperature around evaporator.	Expansion valve open too long	Repair or replace.
	Suction pressure is lowered when condenser is cooled by water.	Excessive refrigerant in system	Recover, evacuate, and recharge with specified amount.
	High and low-pressure are equalized as soon as the compressor is stopped, and both gauges fluctuate while running.	<ul style="list-style-type: none"> • Faulty gasket • Faulty high-pressure valve • Foreign particle stuck in high-pressure valve 	Replace the compressor.
Suction and discharge pressures abnormally high	Reduced air flow through condenser.	<ul style="list-style-type: none"> • Clogged condenser or radiator fins • Condenser or radiator fan not working properly 	<ul style="list-style-type: none"> • Clean • Check voltage and fan rpm. • Check fan direction.
Suction and discharge pressure abnormally low	Low-pressure hose and metal end areas are cooler than evaporator.	Clogged or kinked low-pressure hose parts	Repair or replace.
	Temperature around expansion valve is too low compared with that around receiver/dryer.	Clogged high-pressure line	Repair or replace.
Refrigerant leaks	Compressor clutch is dirty.	Compressor shaft seal leaking	Replace the compressor.
	Compressor bolt(s) are dirty.	Leaking around bolt(s)	Tighten bolt(s) or replace compressor.
	Compressor gasket is wet with oil.	Gasket leaking	Replace the compressor.

(cont'd)

Air Conditioning

A/C System Tests (cont'd)

Performance Test

CAUTION

- Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.
- Be careful when connecting service equipment.
- Do not breathe the refrigerant or vapor.

WARNING

- Compressed air mixed R-134a forms a combustible vapor.
- The vapor can burn or explode causing serious injury.
- Never use compressed air to pressure test R-134a service equipment or vehicle air conditioning systems.

1. Connect a R-134a refrigerant recover/recycling/charging station to the high-pressure service port and the low-pressure service port, following the equipment manufacturer's instructions.

Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.

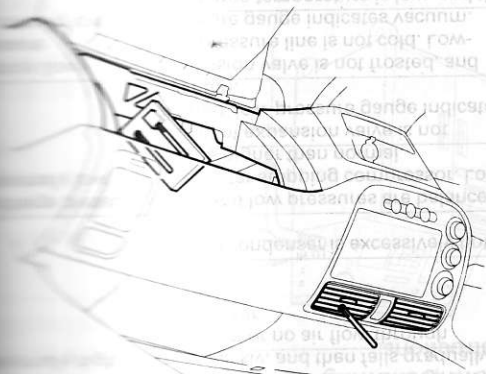
R-134a service equipment or vehicle air conditioning systems should not be pressure tested or leak tested with compressed air.

If accidental system discharge occurs, ventilate work area before resuming service.

Use only service equipment that is U.L.-listed and certified to meet the requirements of SAE J2210 to remove HFC-134a (R-134a) from the air conditioning system.

The performance test will help determine if the air conditioner system is operating within specifications.

2. Insert a thermometer in the center air vent. Determine the relative humidity and air temperature.



3. Test conditions:

- Avoid direct sunlight.
- Open the hood.
- Open the front doors.
- Set the temperature control dial on MAX.
- Turn the A/C switch on and the fan switch on.
- Run the engine at 1,500 rpm.
- No driver or passengers in vehicle.

4. After running the air conditioning for 10 minutes under the above test conditions, read the delivery temperature from the thermometer in the dash vent, the intake temperature near the blower unit behind the glove box and the high and low system pressure from the A/C gauges.

5. After checking and repairing leaks, recover the system.

6. After checking and repairing leaks, the system must be evacuated.

5. To complete the charts:

- Mark the delivery temperature along the vertical line.
- Mark the intake temperature (ambient air temperature) along the bottom line.
- Draw a line straight up from the air temperature to the humidity.
- Mark a point 10 % above and 10 % below the humidity level.
- From each point, draw a horizontal line across the delivery temperature.
- The delivery temperature should fall between the two lines.
- Complete the low-side pressure test and high-side pressure test in the same way.
- Any measurements outside the line may indicate the need for further inspection.

