

TROUBLESHOOTING

Use the table below to help you find the cause of the problem. The numbers indicate the priority of the likely cause of the problem. Check each part in order. If necessary, replace these parts.

See page	Parts Name	Trouble	AC-2	AC-2	AC-7	-	-	AC-5	AC-1	AC-3	AC-2	AC-3	AC-3	AC-3	
			2	1	2	3			5	5	5	4	4	4	4
		Inspect volume of refrigerant		Inspect refrigeration system with manifold gauge set	Inspect drive belt tension	Fusible link	Circuit breaker	Fuse	Pressure switch	Thermistor	Engine Coolant Temp. Cut Switch	Blower speed control relay	Heater relay	Magnetic clutch relay	Blower resistor
No blower operation						1	2					6	3		7
No blower control												2			3
No air flow mode control															
No air inlet control															
Insufficient flow of cool air													1		3
Insufficient flow of warm air													1		3
No cool air comes out	3	4	5					1	6	13				2	
Cool air comes out intermittently	1	2	3							5					
Cool air comes out only at high engine speed	2	3	1												
Insufficient cooling	1	2	3							12	6				
No warm air comes out															
Air temp. control not functioning															

[illegible]

REFRIGERANT SYSTEM INSPECTION WITH MANIFOLD GAUGE SET

This is a method in which the trouble is located by using a manifold gauge set.

(See "USE OF MANIFOLD GAUGE SET" on page [AC-11](#))

Read the manifold gauge pressure when the following conditions are established:

- (a) Temperature at the air inlet with the switch set at RECIRC is 30 – 35°C (86 – 95°F)
- (b) Engine running at 1,500 rpm
- (c) Blower speed control switch set at high
- (d) Temperature control set at max. cool

HINT: It should be noted that the gauge indications may vary slightly due to ambient temperature conditions.

1. NORMALLY FUNCTIONING REFRIGERATION SYSTEM%ACONR-0F%

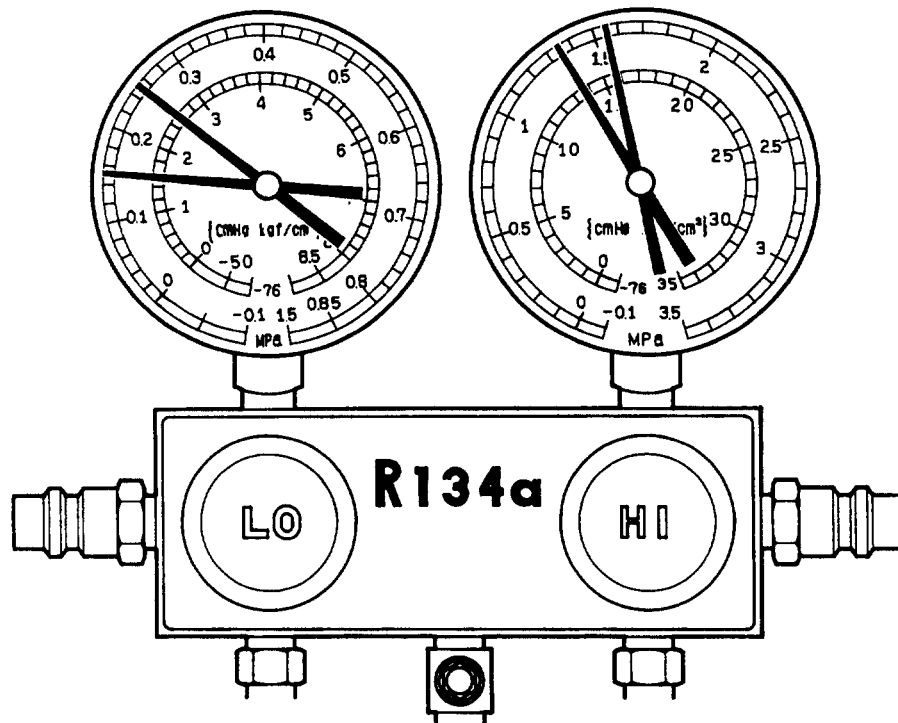
Gauge reading:

Low pressure side:

0.15 – 0.25 MPa (1.5 – 2.5 kgf/cm²)

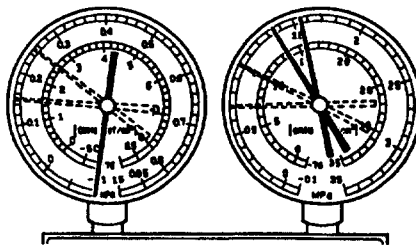
High pressure side:

1.37 – 1.57 MPa (14 – 16 kgf/cm²)



2. MOISTURE PRESENT IN REFRIGERATION SYSTEM

Condition: Periodically cools and then fails to cool



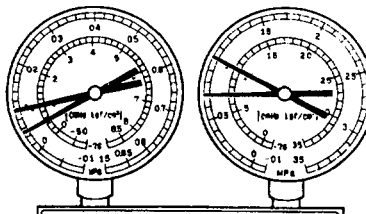
NO4148

Symptom seen in refrigeration system	Probable cause	Diagnosis	Remedy
During operation, pressure on low pressure side sometimes becomes a vacuum and sometimes normal	Moisture entered in refrigeration system freezes at expansion valve orifice and temporarily stops cycle, but normal state is restored after a time when the ice melts	- Drier in oversaturated state ↓ - Moisture in refrigeration system freezes at expansion valve orifice and blocks circulation of refrigerant	- Replace receiver/drier - Remove moisture in cycle through repeatedly evacuating air - Charge new refrigerant to proper amount

W0103

3. INSUFFICIENT REFRIGERANT

Condition: Insufficient cooling

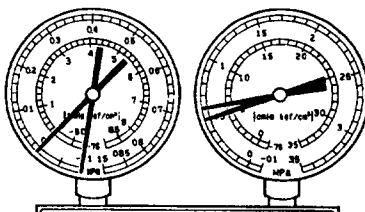


NO4149

Symptom seen in refrigeration system	Probable cause	Diagnosis	Remedy
- Pressure low on both low and high pressure sides - Bubbles seen in sight glass continuously - Insufficient cooling performance	Gas leakage at some place in refrigeration system	- Insufficient refrigerant in system ↓ - Refrigerant leaking	- Check for gas leakage with leak detector and repair if necessary - Charge refrigerant to proper amount - If pressure indicated value is near 0 when connected to gauge, create the vacuum after inspecting and repairing the location of the leak

4. POOR CIRCULATION OF REFRIGERANT

Condition: Insufficient cooling

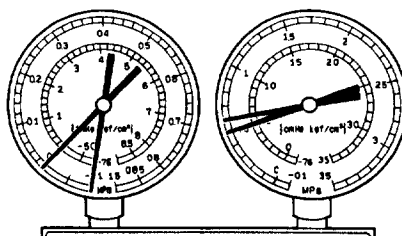


N04150

Symptom seen in refrigeration system	Probable cause	Diagnosis	Remedy
- Pressure low on both low and high pressure sides - Frost on tubes from receiver to unit	Refrigerant flow obstructed by dirt in receiver	Receiver logged	Replace receiver

5. REFRIGERANT DOES NOT CIRCULATE

Condition: Does not cool (Cools from time to time in some cases)

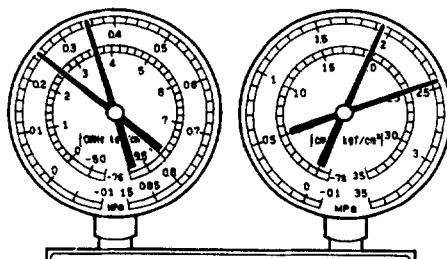


N04150

Symptom seen in refrigeration system	Probable cause	Diagnosis	Remedy
- Vacuum indicated on low pressure side, very low pressure indicated on high pressure side - Frost or dew seen on piping before and after receiver/drier or expansion valve	- Refrigerant flow obstructed by moisture or dirt in refrigeration system - Refrigerant flow obstructed by gas leakage from expansion valve heat sensing tube	Refrigerant does not circulate	- Check heat sensing tube, expansion valve and EPR. - Clean out dirt in expansion valve by blowing with air. If not able to remove dirt, replace expansion valve - Replace receiver. - Evacuate air and charge new refrigerant to proper amount. For gas leakage from heat sensing tube, replace expansion valve.

6. REFRIGERANT OVERCHARGE OR INSUFFICIENT COOLING OF CONDENSER

Condition: Insufficient Cooling

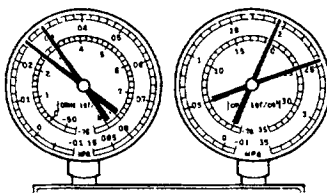


N04151

Symptom seen in refrigeration system	Probable cause	Diagnosis	Remedy
- Pressure too high on both low and high pressure sides - No air bubbles seen through the sight glass even when the engine rpm is lowered	- Unable to develop sufficient performance due to excessive refrigerant in system - Insufficient cooling of condenser	- Excessive refrigerant in cycle → refrigerant overcharged - Condenser cooling insufficient → condenser fins clogged or fan motor faulty	- Clean condenser. - Check fan motor operation. - If (1) and (2) are in normal state, check amount of refrigerant. Charge proper amount of refrigerant.

7. AIR PRESENT IN REFRIGERATION SYSTEM

Condition: Insufficient Cooling



NOTE: These gauge indications are shown when the refrigeration system has been opened and the refrigeration charged without vacuum purging.

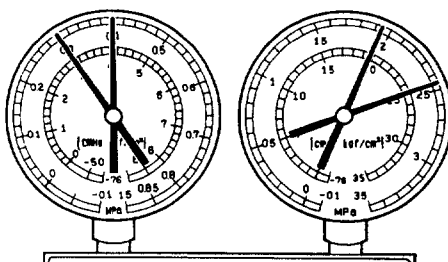
N04153

Symptom seen in refrigeration system	Probable cause	Diagnosis	Remedy
- Pressure too high on both low and high pressure sides - The low pressure piping is hot to the touch - Bubbles seen in sight glass	Air entered in refrigeration system	- Air present in refrigeration system ↓ - Insufficient vacuum purging	- Check compressor oil to see if dirty or insufficient - Evacuate air and charge new refrigerant

V01033

8. EXPANSION VALVE IMPROPERLY MOUNTED/HEAT SENSING TUBE DEFECTIVE (OPENS TOO WIDE)

Condition: Insufficient Cooling

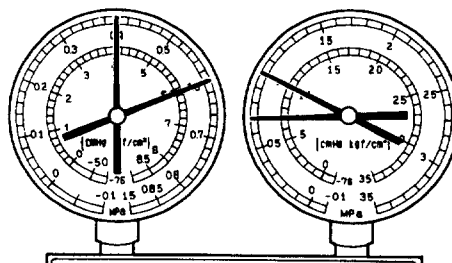


N04152

Symptom seen in refrigeration system	Probable cause	Diagnosis	Remedy
- Pressure too high on both low and high pressure sides - Frost or large amount of dew on piping on low pressure side	Trouble in expansion valve or heat sensing tube not installed correctly	- Excessive refrigerant in low pressure piping ↓ - Expansion valve opened too wide	(1) Check heat sensing tube installed condition. (2) If (1) is normal, check expansion valve. Replace if defective.

9. DEFECTIVE COMPRESSION COMPRESSOR

Condition: Does not cool



N04146

Symptom seen in refrigeration system	Probable cause	Diagnosis	Remedy
- Pressure too high on low pressure side - Pressure too low on high pressure side	Internal leak in compressor	- Compression defective ↓ - Valve leaking or broken, sliding parts	Repair or replace compressor