

REFRIGERANT

ON-VEHICLE INSPECTION

1. INSPECT REFRIGERANT PRESSURE WITH MANIFOLD GAUGE SET

- (a) Check the sight glass of the cooler unit refrigerant liquid pipe E.
- (1) Set the vehicle according to the conditions below.

Item	Condition
All doors	Fully open
Temperature setting	MAX COLD
Blower speed	HI
A/C switch	ON

- (2) Check the sight glass under these conditions.

Item	Symptom	Amount of refrigerant	Corrective Actions
1	Bubbles exist	Insufficient*	1. Check for gas leakage and repair if necessary 2. Add refrigerant until bubbles disappear
2	No bubbles exist (DTC 76 is output)	Empty, insufficient or excessive	Refer to 3 and 4
3	No temperature difference between compressor inlet and outlet	Empty or nearly empty	1. Check for gas leakage and repair if necessary 2. Add refrigerant until bubbles disappear
4	Considerable temperature difference between compressor inlet and outlet	Proper or excessive	Refer to 5 and 6
5	Immediately after air conditioning is turned off, refrigerant remains clear	Excessive	1. Discharge refrigerant 2. Remove air and supply proper amount of purified refrigerant
6	Immediately after air conditioning is turned off, refrigerant foams and then becomes clear	Proper	-

HINT:

Bubbles in the sight glass with the room temperature higher than usual can be considered normal if cooling is sufficient.

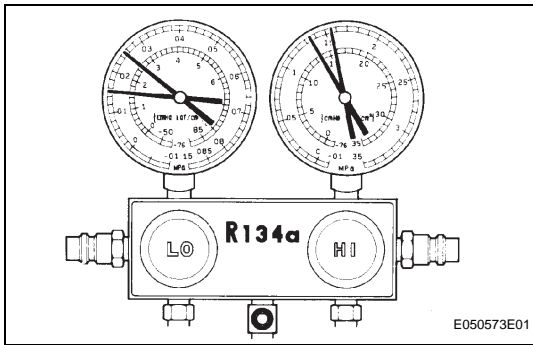
2. INSPECT REFRIGERANT PRESSURE WITH MANIFOLD GAUGE SET

- (a) This is a method in which the trouble is located by using a manifold gauge set. Read the manifold gauge pressure when these conditions are established.

Gauge readings (Reference)

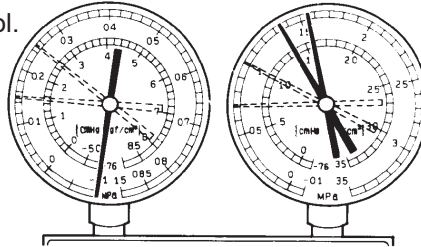
Test conditions:

- Temperature at the air inlet with the switch set at RECIRC is 30 to 35°C (86 to 95°F)
- Blower speed control switch at "HI" position
- Temperature control switch at "MAX COLD" position
- A/C switch ON
- Fully open doors



- (1) The refrigeration system functions normally
Gauge reading:
Low-pressure side:
0.15 to 0.25 MPa (1.5 to 2.5 kgf/cm²)
High-pressure side:
1.37 to 1.57 MPa (14 to 16 kgf/cm²)
- (2) Moisture present in refrigeration system

Condition:
Periodically cools and then fails to cool.

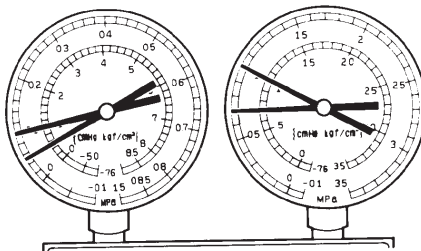


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Symptoms	Probable Cause	Diagnosis	Corrective Actions
During operation, pressure on low-pressure side cycles between normal and vacuum	Moisture in refrigerating system freezes at expansion valve orifice, causing a temporary stop of cycle. However, when it melts, normal state is restored.	- Cooler dryer in oversaturated state Moisture in refrigeration system freezes at expansion valve orifice and blocks circulation of refrigerant	1. Replace cooler dryer 2. Remove moisture in cycle by repeatedly evacuating air 3. Supply proper amount of new refrigerant

(3) Insufficient cooling

Condition: Cooling system does not function effectively.

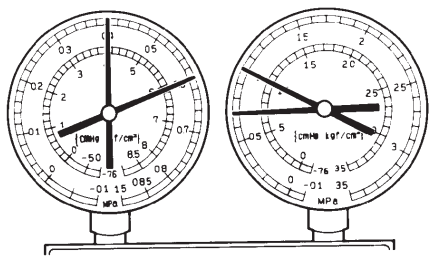


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Symptoms	Probable Cause	Diagnosis	Corrective Actions
- Pressure is low on both low and high-pressure sides - Bubbles are continuously seen through sight glass - Insufficient cooling performance	Gas leakage in refrigeration system	- Insufficient refrigerant - Refrigerant leaking	1. Check for gas leakage and repair if necessary 2. Supply proper amount of new refrigerant 3. If the indicated pressure value is close to 0 when connected to the gauge, create a vacuum after inspecting and repairing location of leakage

(9) Defective compression in compressor

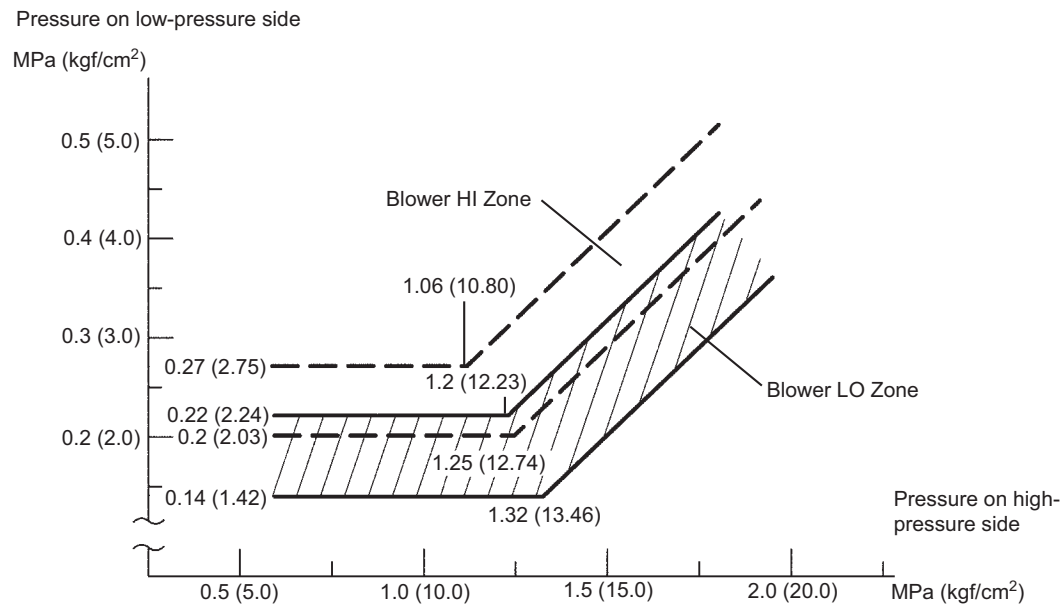
Condition: Insufficient Cooling



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Symptoms	Probable Cause	Diagnosis	Corrective Actions
<ul style="list-style-type: none"> - Pressure is too high on both low and high-pressure sides - Pressure is too low on high-pressure side 	Internal leak in cooler compressor	<ul style="list-style-type: none"> - Compression failure - Leakage from damaged valve or broken sliding parts 	Repair or replace compressor

Gauge readings (Reference)



I030081E04