Inspection of Refrigeration System with Manifold Gauge Set

This is a method in which the trouble is located by using a manifold gauge set. (See "Installation of Manifold Gauge Set" on page AC–16.) Read the manifold gauge pressure when the following conditions are established:

(b) Engine running at 2,000 rpm

(a) Temperature at the air inlet with the switch set at RECIRC is 30 – 35°C (86 – 95°F)

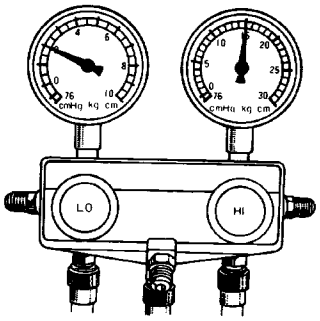
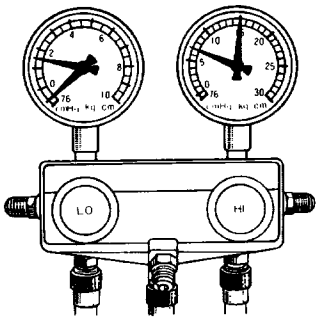
(c) Blower fan speed control switch set at high speed

(d) Temperature control switch set at max. cool side

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

NOTICE:

- **Always recover refrigerant before removing the parts in the refrigerant line and evacuating air.**
- **Evacuate air and charge proper amount of purified refrigerant after installing the parts in the refrigerant line.**

No.	Gauge reading kPa (kgf/cm^2, psi)	Condition	Probable cause	Remedy
1	LO: 147 – 196 (1.5 – 2.0, 21 – 28) HI: 1,422 – 1,471 (14.5 – 15.0, 206 – 213)  AC0067	Normal cooling	Normally functioning system	
2	During operation, pressure at low pressure side sometimes becomes a vacuum and sometimes normal  AC0068	Periodically cools and then fails to cool	Moisture present in refrigeration system	(1) Replace receiver (2) Remove moisture in system through repeatedly evacuating air

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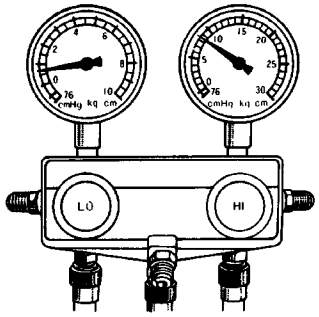
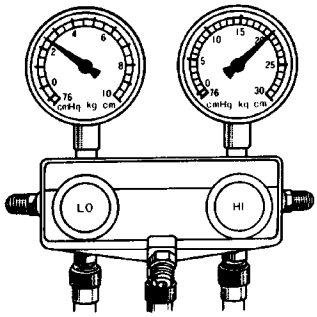
No.	Gauge reading kPa (kgf/cm^2, psi)	Condition	Probable cause	Remedy
3	Pressure low at both low and high pressure sides  AC0069	• Insufficient cooling • Bubbles seen in sight glass	Insufficient refrigerant	(1) Check for gas leakage with gas leak tester and repair if necessary (2) Add refrigerant until bubbles dis–appear
		• Insufficient cooling • Frost on tubes from receiver to unit	Refrigerant flow ob–structed by dirt in re ceiver	Replace receiver
4	Pressure too high at both low and high pressure sides	Insufficient cooling	Insufficient cooling of condenser	(1) Clean condenser (2) Check fan motor operation
5			Refrigerant over–charged	(1) Check amount of refrigerant If refrigerant is over–charged (2) Recover refriger–ant (3) Evacuate air and charge proper amount of purified refrigerant
6			Air present in system	(1) Replace receiver (2) Check compressor oil to see if dirty (3) Remove air in sys–tem through re–peatedly evacuat–ing air
7	AC0070	• Insufficient cooling • Frost or Large amount of dew on piping at low pres–sure side	Expansion valve im–properly mounted,heat sensing tube defective (Opens too wide)	(1) Check heat sens–ing tube installa–tion condition If (1) is normal (2) Check expansion valve and replace if defective

Hint at 6:

These gauge indications are for when the refrigeration system has been opened and the refrigerant charged without evacuating air.

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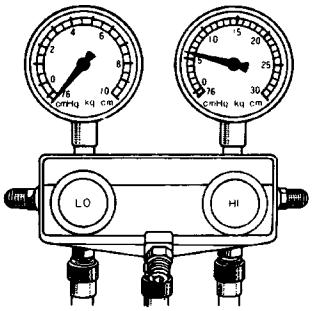
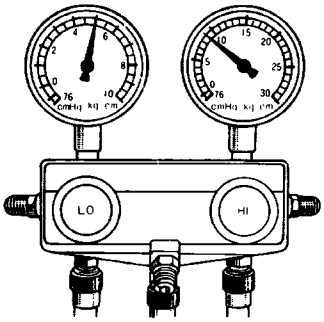
- **Evacuate air and charge proper amount of purified refrigerant after installing the parts in the refrigerant line.**

No.	Gauge reading kPa (kgf/cm^2, psi)	Condition	Probable cause	Remedy
8	Vacuum indicated at low pressure side, very low pressure indicated at high pressure  AC0156	• Does not cool (Cools from time to time in some cases) • Frost or dew seen on piping before and after receiver or expansion valve	Refrigerant does not circulate	(1) Check heat sens–ing tube for gas leakage and re–place expansion valve if defective If (1) is normal (2) Clean out dirt in expansion valve by blowing with air If not able to re–move dirt, replace expansion valve (3) Replace receiver
9	Pressure too high at low pressure side, pressure too low at high pres-sure side  AC0157	Does not cool	Insufficient compres–sion	Repair or replace com–pressor