

Inspection of Refrigeration System with Manifold Gauge Set

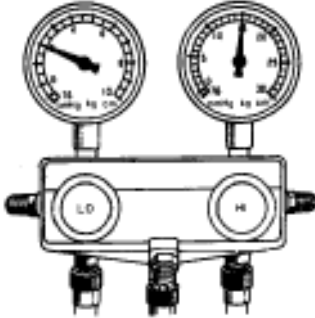
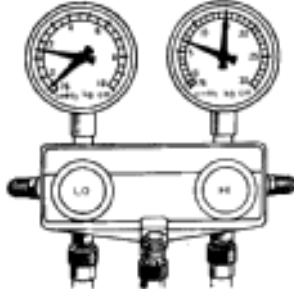
This is a method in which the trouble is located by using a manifold gauge set. (See "Installation of Manifold Gauge Set" on page AC-15) Read the manifold gauge pressure when the following conditions are established:

- (a) Temperature at the air inlet with the switch set at RECIRC is 30–35°C (86–95°F).
- (b) Engine running at 2,000 rpm.
- (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 the parts in the refrigerant line.

No.	Gauge Reading kPa (kgf/cm ² , psi)	Condition	Probable cause	Remedy
1	LO: 1.5 — 2.0 (21 — 28, 147 — 196) HI: 14.5 — 15.0 (206 — 213, 1,422 — 1,471) 	Normal cooling	Normally functioning system	
2	During operation, pressure at low pressure side sometimes becomes a vacuum and sometimes normal 	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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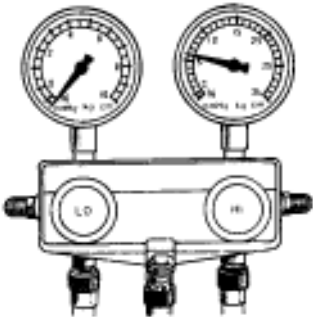
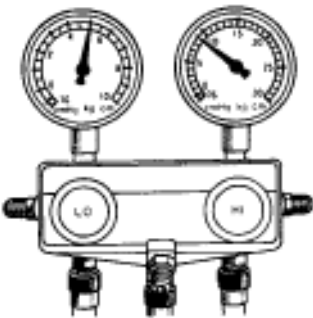
No.	Gauge reading kPa (kgf/cm ² , psi)	Condition	Probable cause	Remedy
3	Pressure low at both low and high pressure sides	<ul style="list-style-type: none"> • Insufficient cooling • Bubbles seen in sight glass 	Insufficient refrigerant	(1) Check for gas leakage with gas leak ester and repair if necessary (2) Add refrigerant until bubbles disappear
		<ul style="list-style-type: none"> • Insufficient cooling • Frost on tubes from receiver to unit 	Refrigerant flow obstructed by dirt in receiver	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 overcharged	(1) Check amount of refrigerant If refrigerant is over-charged (2) Recover refrigerant (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 system through repeatedly evacuating air
7		<ul style="list-style-type: none"> • Insufficient cooling • Frost or Large amount of dew on piping at low pressure side 	Expansion valve improperly mounted, heat sensing tube defective (Opens too wide)	(1) Check heat sensing tube installation condition If (1) is normal (2) check expansion valve and replace if defective

HINT at 6:

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

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No.	Gauge Reading kPa (kgf/cm ² , psi)	Condition	Probable cause	Remedy
8	<p>Vacuum indicated at low pressure side, very low pressure indicated at high pressure</p> 	<ul style="list-style-type: none"> • 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	<p>(1) Check heat sensing tube for gas leakage and replace expansion valve if defective</p> <p>If (1) is normal</p> <p>(2) Clean out dirt in expansion valve by blowing with air if not able to remove dirt, replace expansion valve</p> <p>(3) replace receiver</p>
9	<p>Pressure too high at low pressure side, pressure too low at high pressure side</p> 	Does not cool	Insufficient compression	Repair or replace compressor