

Refrigerant Pressure with Manifold Gauge Set

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

3. Refrigerant Pressure with Manifold Gauge Set

A: PROCEDURE

1. REFRIGERANT GAS PRESSURE INSPECTION

PREPARATION TOOL:

Manifold gauge set

Thermometer

- 1) Prepare the vehicle.

NOTE:

Check that the ambient temperature is 25 — 40°C (77 — 104°F) and humidity is 30% — 80%.

- Place the vehicle in the shade and windless condition, and open the front hood.
- Open the front windows and close all doors.

- 2) Connect the manifold gauge set, and then check the refrigerant pressure.

- (1) Connect the manifold gauge set, and then start the engine.

- (2) Set the vehicle to the following conditions.

Item	Condition
Engine	Warmed up (Engine coolant temperature indicator light goes off.)
Air vent grille	Shutter: Fully open
A/C switch	ON
Temperature control dial	LO (MAX COOL)
FRESH/RECIRC switch	RECIRC
Air flow control dial or switch	VENT
Fan dial	Auto A/C model: 5/7 level
	Manual A/C model: 3/4 level

- (3) With the condition of Step (2), idle the engine for 30 minutes.

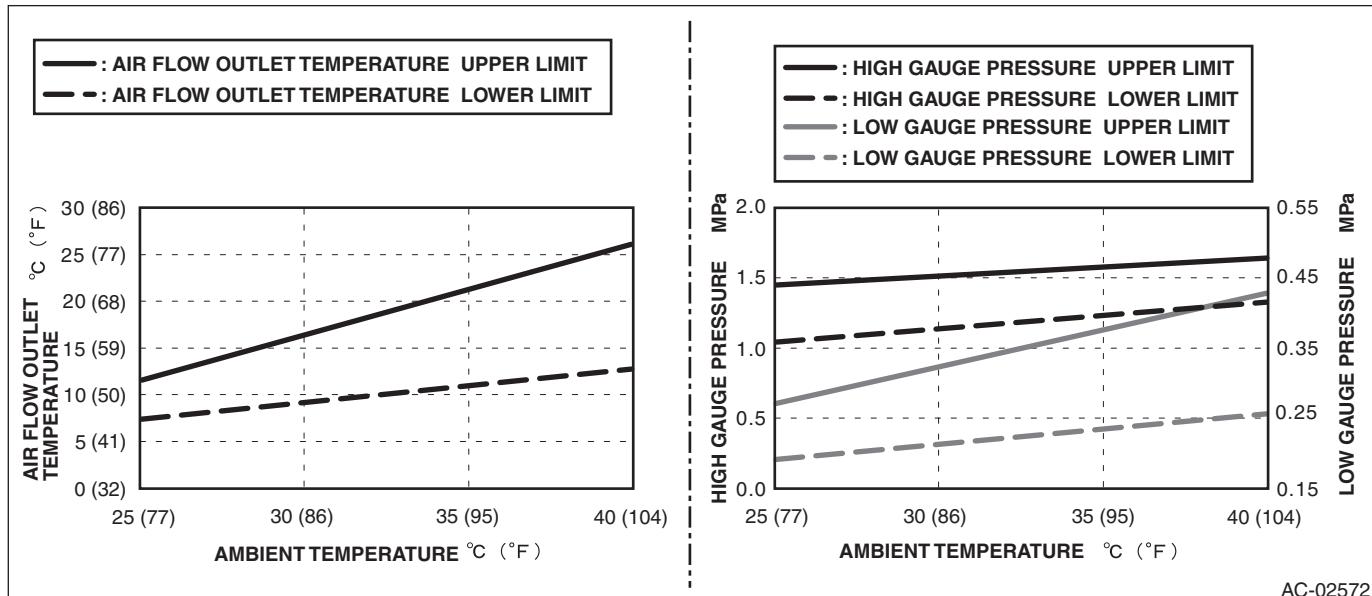
- (4) Read the gauges for high pressure and low pressure of the manifold gauge.

- 3) Measure the air flow outlet temperature at the air vent grille, ambient temperature and humidity.

NOTE:

Obtain the air flow outlet temperature by measuring the average temperature of center grille assembly and side grille assembly.

- 4) High and low pressures and air flow outlet temperature in relation to the ambient temperature and humidity are within the specified range shown in the graph below.



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5) Refer to "DIAGNOSIS WITH SYMPTOM" if the inspection result is not within the standard. <Ref. to AC-23, INSPECTION WITH PRESSURE SYMPTOMS, INSPECTION, Refrigerant Pressure with Manifold Gauge Set. >

B: INSPECTION

1. INSPECTION WITH PRESSURE SYMPTOMS

Symptoms	Reference
Both high and low pressure sides are low.	<Ref. to AC-23, BOTH HIGH AND LOW PRESSURE SIDES ARE LOW., INSPECTION, Refrigerant Pressure with Manifold Gauge Set. >
Both high and low pressure sides are high.	<Ref. to AC-23, BOTH HIGH AND LOW PRESSURE SIDES ARE HIGH., INSPECTION, Refrigerant Pressure with Manifold Gauge Set. >
Both high and low pressure sides are equal, or high-pressure side is low.	<Ref. to AC-24, BOTH HIGH AND LOW PRESSURE SIDES ARE EQUAL, OR HIGH-PRESSURE SIDE IS LOW., INSPECTION, Refrigerant Pressure with Manifold Gauge Set. >
High-pressure side is high.	<Ref. to AC-24, HIGH-PRESSURE SIDE IS HIGH., INSPECTION, Refrigerant Pressure with Manifold Gauge Set. >
Low-pressure side is low.	<Ref. to AC-25, LOW-PRESSURE SIDE IS LOW., INSPECTION, Refrigerant Pressure with Manifold Gauge Set. >
Low-pressure side is high.	<Ref. to AC-25, LOW-PRESSURE SIDE IS HIGH., INSPECTION, Refrigerant Pressure with Manifold Gauge Set. >

2. BOTH HIGH AND LOW PRESSURE SIDES ARE LOW.

Step	Check	Yes	No
1 CHECK REFRIGERANT LEAKAGE. Check the refrigerant for leakage. <Ref. to AC-30, INSPECTION, Refrigerant Leak Check.> NOTE: When the pressure on the high-pressure side is less than 0.69 Mpa: Go to Step 2.	Are there any refrigerant leakage?	Repair the refrigerant leakage.	Go to step 2.
2 FILL PROPER AMOUNT OF REFRIGERANT. Drain the refrigerant completely, and then refill the proper amount of refrigerant. <ul style="list-style-type: none">• Recovery: <Ref. to AC-26, PROCEDURE, Refrigerant Recovery Procedure.>• Refill: <Ref. to AC-27, PROCEDURE, Refrigerant Charging Procedure.>	Is the refrigerant pressure within the specified range?	Refrigerant pressure is normal.	Perform appropriate inspection with pressure symptoms.

3. BOTH HIGH AND LOW PRESSURE SIDES ARE HIGH.

Step	Check	Yes	No
1 FILL PROPER AMOUNT OF REFRIGERANT. Drain the refrigerant completely, and then refill the proper amount of refrigerant. <ul style="list-style-type: none">• Recovery: <Ref. to AC-26, PROCEDURE, Refrigerant Recovery Procedure.>• Refill: <Ref. to AC-27, PROCEDURE, Refrigerant Charging Procedure.>	Is the refrigerant pressure within the specified range?	Refrigerant pressure is normal.	Perform appropriate inspection with pressure symptoms.

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4. BOTH HIGH AND LOW PRESSURE SIDES ARE EQUAL, OR HIGH-PRESSURE SIDE IS LOW.

Step	Check	Yes	No
1 CHECK REFRIGERANT LEAKAGE. Check the refrigerant for leakage. <Ref. to AC-30, INSPECTION, Refrigerant Leak Check.> NOTE: When the pressure on the high-pressure side is less than 0.69 Mpa: Go to Step 2.	Are there any refrigerant leakage?	Repair the refrigerant leakage.	Go to step 2.
2 FILL PROPER AMOUNT OF REFRIGERANT. Drain the refrigerant completely, and then refill the proper amount of refrigerant. • Recovery: <Ref. to AC-26, PROCEDURE, Refrigerant Recovery Procedure.> • Refill: <Ref. to AC-27, PROCEDURE, Refrigerant Charging Procedure.>	Is the refrigerant pressure within the specified range?	Refrigerant pressure is normal.	Inspect the compressor. <Ref. to AC(diag)-34, COOL AIR DOES NOT COME OUT WHEN PRESSING THE A/C SWITCH. FOG CANNOT BE CLEARED. (COMPRESSOR DOES NOT OPERATE.), DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.>

5. HIGH-PRESSURE SIDE IS HIGH.

Step	Check	Yes	No
1 CHECK CONDENSER. Check the condenser. <Ref. to AC-58, INSPECTION, Condenser.>	Is condenser normal?	Go to step 2.	Clean or replace the condenser.
2 CHECK RADIATOR FAN. Check the radiator fan system. <Ref. to CO(H4DO)-7, Radiator Fan System.>	Is radiator fan system normal?	Go to step 3.	Repair or replace the faulty parts of the radiator fan system.
3 FILL PROPER AMOUNT OF REFRIGERANT. Drain the refrigerant completely, and then refill the proper amount of refrigerant. • Recovery: <Ref. to AC-26, PROCEDURE, Refrigerant Recovery Procedure.> • Refill: <Ref. to AC-27, PROCEDURE, Refrigerant Charging Procedure.>	Is the refrigerant pressure within the specified range?	Refrigerant pressure is normal.	Check the high-pressure hose and condenser for deformation or clogging, and replace if defective.

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6. LOW-PRESSURE SIDE IS LOW.

Step	Check	Yes	No
1 CHECK REFRIGERANT LEAKAGE. Check the refrigerant for leakage. <Ref. to AC-30, INSPECTION, Refrigerant Leak Check.> NOTE: When the pressure on the high-pressure side is less than 0.69 Mpa: Go to Step 2.	Are there any refrigerant leakage?	Repair the refrigerant leakage.	Go to step 2.
2 FILL PROPER AMOUNT OF REFRIGERANT. Drain the refrigerant completely, and then refill the proper amount of refrigerant. • Recovery: <Ref. to AC-26, PROCEDURE, Refrigerant Recovery Procedure.> • Refill: <Ref. to AC-27, PROCEDURE, Refrigerant Charging Procedure.>	Is the refrigerant pressure within the specified range?	Refrigerant pressure is normal.	Go to step 3.
3 REPLACE EXPANSION VALVE. Replace the expansion valve. <Ref. to AC-69, REMOVAL, Expansion Valve.>	Is the refrigerant pressure within the specified range?	Refrigerant pressure is normal. Inspect the compressor. <Ref. to AC(diag)-34, COOL AIR DOES NOT COME OUT WHEN PRESSING THE A/C SWITCH. FOG CANNOT BE CLEARED. (COMPRESSOR DOES NOT OPERATE.), DIAGNOSTIC PROCEDURE WITH PHENOMENON, Diagnostics with Phenomenon.>	

7. LOW-PRESSURE SIDE IS HIGH.

Step	Check	Yes	No
1 FILL PROPER AMOUNT OF REFRIGERANT. Drain the refrigerant completely, and then refill the proper amount of refrigerant. • Recovery: <Ref. to AC-26, PROCEDURE, Refrigerant Recovery Procedure.> • Refill: <Ref. to AC-27, PROCEDURE, Refrigerant Charging Procedure.>	Is the refrigerant pressure within the specified range?	Refrigerant pressure is normal.	Go to step 2.
2 REPLACE EXPANSION VALVE. Replace the expansion valve. <Ref. to AC-69, REMOVAL, Expansion Valve.>	Is the refrigerant pressure within the specified range?	Refrigerant pressure is normal.	Replace the evaporator. <Ref. to AC-63, REMOVAL, Evaporator.>