

REFRIGERANT CHARGING

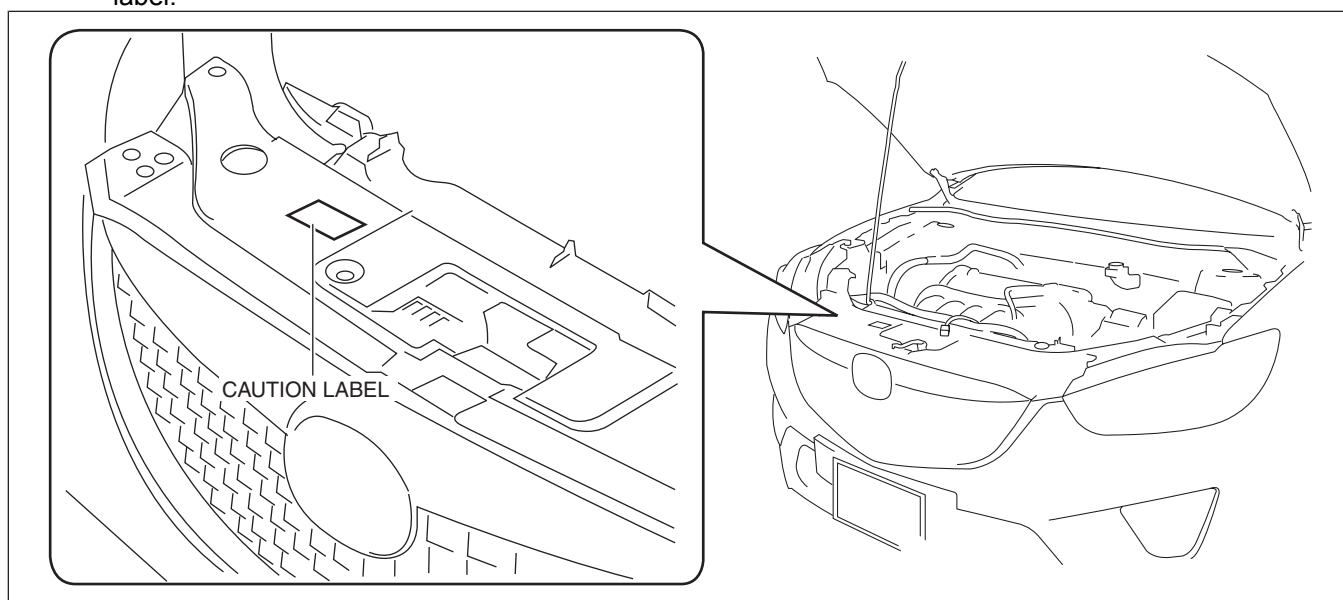
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Caution

- Do not use a different type of refrigerant or charge beyond the specified level. Otherwise, cooling ability will be lowered and the A/C compressor could be damaged.

Note

- The refrigerant used for the refrigerant system differs depending on the country. When draining or adding the refrigerant, verify the appropriate refrigerant type and specified amount of refrigerant from the caution label.



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Refrigerant type

- HFO-1234yf
- HFC-134a

Regular amount of refrigerant (approx. quantity)

- 475—525 g {16.8—18.5 oz} (SKYACTIV-G 2.0, SKYACTIV-G 2.5 (HFO-1234yf))
- 445—495 g {15.7—17.4 oz} (SKYACTIV-D 2.2 (HFO-1234yf))
- 465—515 g {16.5—18.1 oz} (HFC-134a)

Charging Recycled R-134a Refrigerant

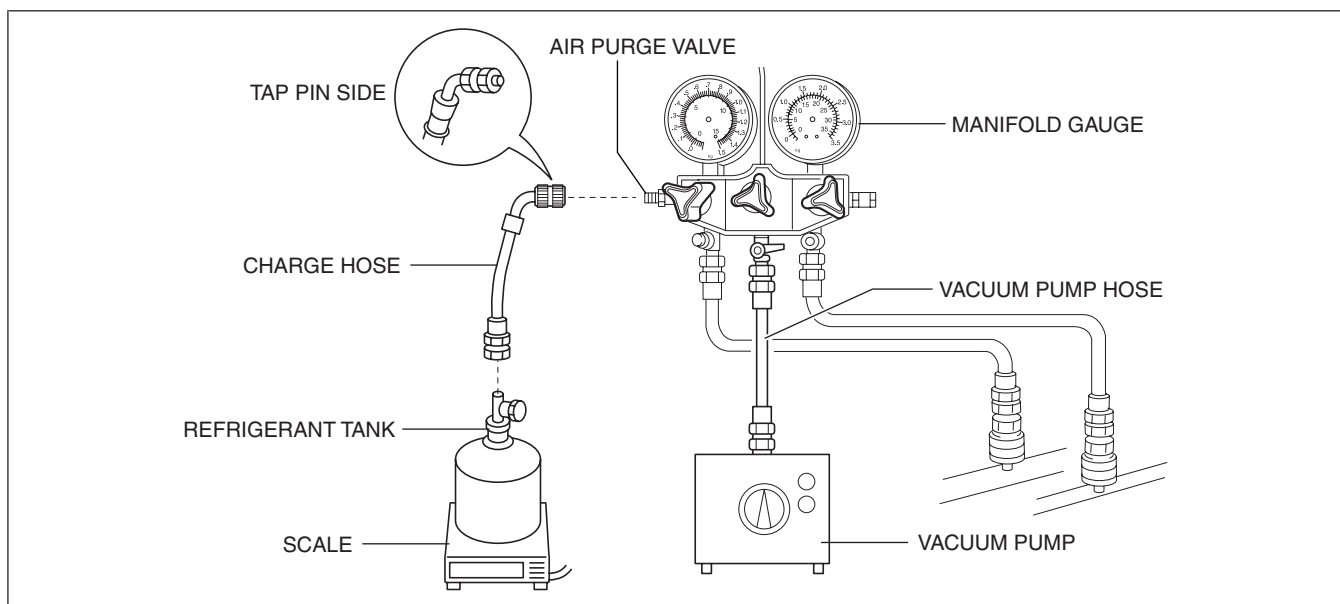
1. Connect an R-134a recovery/recycling/recharging device to the vehicle and follow the device manufacturer's instructions.

Charging Recycled R-1234yf Refrigerant

1. Connect an R-1234yf recovery/recycling/recharging device to the vehicle and follow the device manufacturer's instructions.

Charging Preparation

1. Install the manifold gauge set.
2. Connect the tap pin side of the charging hose to the air purge valve of the manifold gauge.



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3. Connect the vacuum pump hose to the center joint of the manifold gauge.
4. Connect the vacuum pump hose to the vacuum pump.
5. Connect the charging hose to the refrigerant tank.
6. Place the refrigerant tank on the scale.

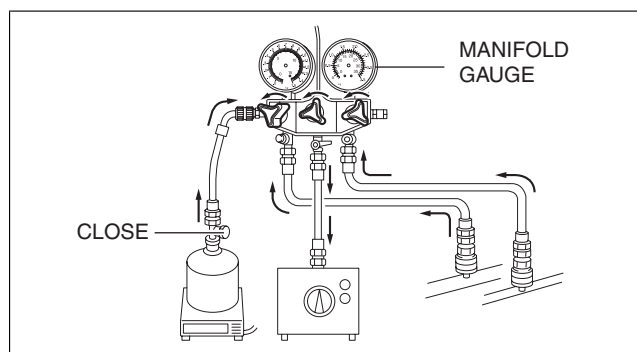
Evacuation

1. Open all the valves of the manifold gauge.

Caution

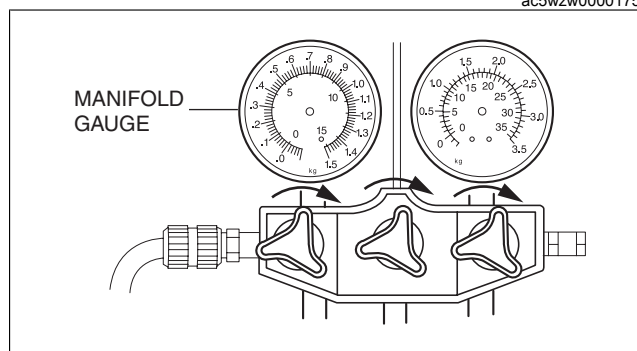
- Close the manifold gauge valve immediately after stopping the vacuum pump. If the valve is left open, the vacuum pump oil will flow back into the refrigeration cycle and cause a decrease in the efficiency of the air conditioner.

2. Start the vacuum pump and let it operate for **15 min.**



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3. Verify that high- and low-pressure side readings of the manifold gauge are at **-101 kPa {-1.03 kgf/cm², -14.6 psi}**. Close each valve of the manifold gauge.



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Airtightness Check

1. Stop the vacuum pump and wait for **5 min.**
2. Check the high- and low-pressure side readings of the manifold gauge.
 - If the reading has changed, inspect for leakage and go to Evacuation. (See Evacuation.)
 - If the reading has not changed, go to Charging New Refrigerant. (See Charging New Refrigerant.)

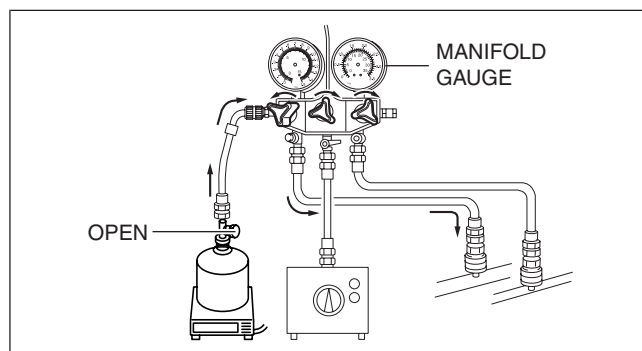
Charging New Refrigerant

1. Open the valve of the refrigerant tank.
2. Weigh the refrigerant tank to charge the suitable amount of refrigerant.

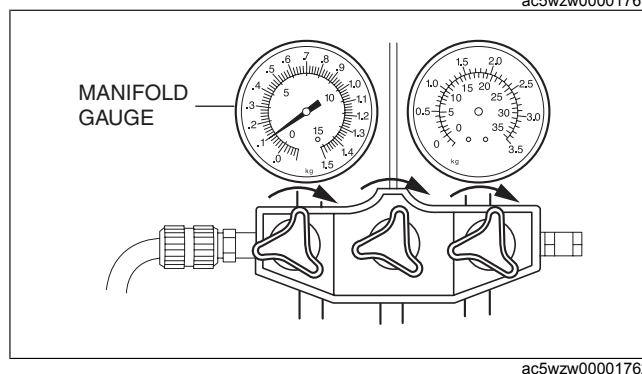
Warning

- If the refrigerant system is charged with a large amount of refrigerant when inspecting for gas leakage, and if any leakage should occur, the refrigerant will be released into the atmosphere. In order to prevent the accidental release of refrigerant which can destroy the ozone layer in the stratosphere, follow the proper procedures and charge with only a small amount of refrigerant when inspecting for gas leakage.
- If charging the system with refrigerant using service cans, running the engine with the high-pressure side valve open is dangerous. Pressure within the service cans will increase and the cans could explode, scattering metal fragments and liquid refrigerant that can seriously injure you. Therefore, do not open the high-pressure side valve while the engine is running.

3. Open the low-pressure side valve of the manifold gauge.



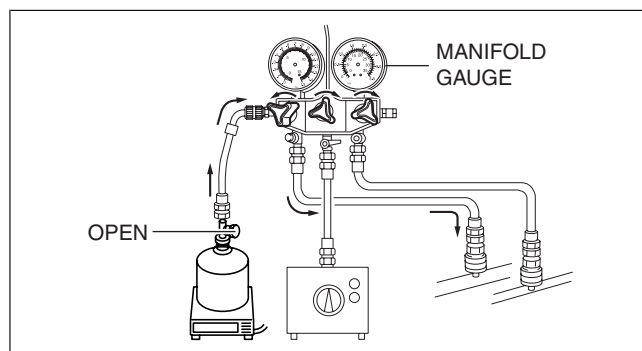
4. When the low-pressure side reading increases to **0.098 MPa {1.0 kgf/cm², 14 psi}**, close the low-pressure side valve of the manifold gauge.
5. Inspect for leakage from the cooler pipe/hose connections using the manifold gauge.
 - If there is no leakage, go to Step 7.
 - If leakage is found at a loose joint, tighten the joint, then go to the next step.
6. Inspect for leakage again.
 - If there is no leakage after tightening the joint, go to the next step.
 - If there is still a leakage at the same joint, discharge the refrigerant and then repair the joint. Repeat the charging procedure from evacuation.



Warning

- If charging the system with refrigerant using service cans, running the engine with the high-pressure side valve open is dangerous. Pressure within the service cans will increase and the cans could explode, scattering metal fragments and liquid refrigerant that can seriously injure you. Therefore, do not open the high-pressure side valve while the engine is running.

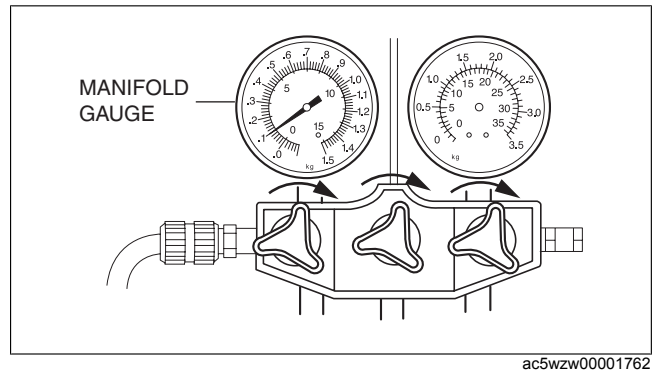
7. Open the low-pressure side valve of the manifold gauge and charge with refrigerant until the weight of refrigerant tank has decreased **250 g {8.82 oz}** from the amount in Step 2.



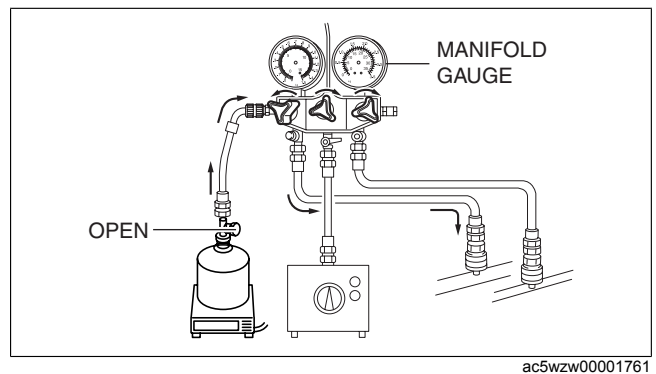
8. Close the low-pressure side valve of the manifold gauge.

Warning

- **If charging the system with refrigerant using service cans, running the engine with the high-pressure side valve open is dangerous. Pressure within the service cans will increase and the cans could explode, scattering metal fragments and liquid refrigerant that can seriously injure you. Therefore, do not open the high-pressure side valve while the engine is running.**



9. Start the engine and actuate the A/C compressor.
10. Open the low-pressure side valve of the manifold gauge and charge with refrigerant until the weight of the refrigerant tank has decreased regular amount from the amount in Step 2.
11. Close the low-pressure side valve of the manifold gauge and the valve of the refrigerant tank.
12. Stop the engine and A/C compressor.



Leak Test

1. Inspect for leakage using the gas leak tester.
 - If there is no leakage, go to Step 3.
 - If leakage is found at a loose joint, tighten the joint, then go to the next step.
2. Inspect for leakage again.
 - If there is no leakage after tightening the joint, go to the next step.
 - If there is still leakage at the same joint, discharge the refrigerant and then repair the joint. Repeat the charging procedure from evacuation.
3. Disconnect the quick couplers from the charging valves.
4. Install the caps to the charging valves.

