

# Refrigerant Charging Procedure

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

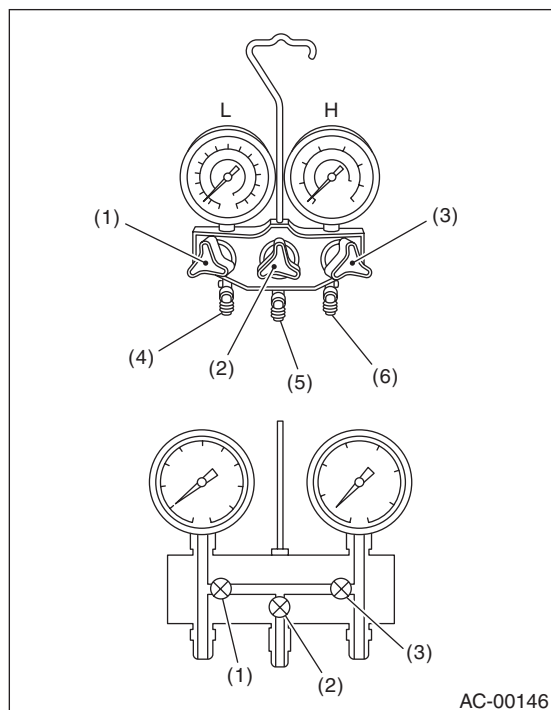
## 4. Refrigerant Charging Procedure

### A: PROCEDURE

#### CAUTION:

- While working, make sure to wear protective goggles and gloves.
- Air in the cycle can cause insufficient air conditioning, and water in the cycle can cause clogging in the cycle (icing) and rust. To eliminate such air and moisture, vacuum using the vacuum pump before refilling refrigerant. By vacuuming the inside of the cycle, it is possible to boil away and evaporate moisture even at room temperature.

1) Close all valves of the manifold gauge.

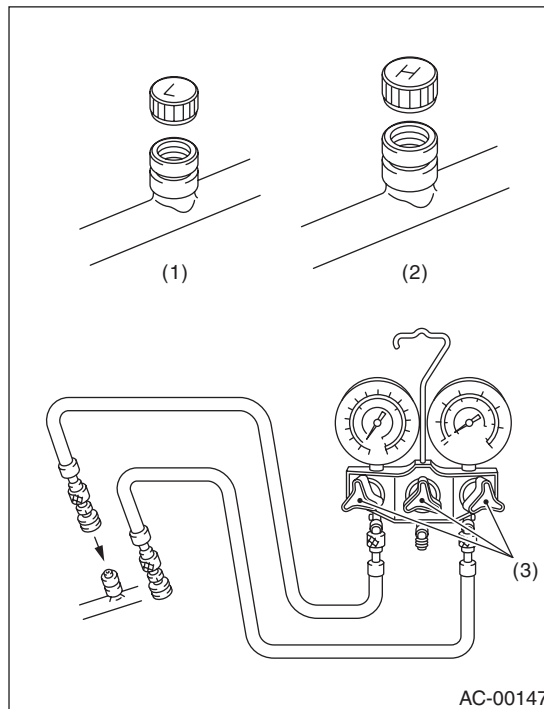


- L: Low pressure gauge  
H: High-pressure gauge  
(1) Low pressure valve  
(2) Vacuum pump valve  
(3) High pressure valve  
(4) For low pressure  
(5) For vacuum pump  
(6) For high pressure

2) Attach the low pressure side and high pressure side hoses to the service port of the vehicle.

#### CAUTION:

Confirm that the connection is secure.



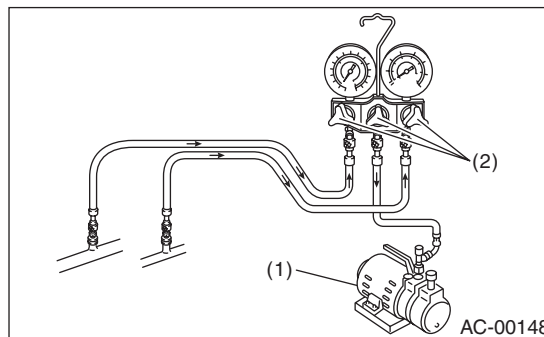
- (1) Low-pressure side service port  
(2) High-pressure side service port  
(3) Close

3) Connect the center manifold hose of the manifold gauge to the vacuum pump.

4) Operate the vacuum pump, then open the valve on the low-/high-pressure sides. Next, open the center manifold hose valve to begin vacuuming.

#### CAUTION:

Always use a vacuum pump to vacuum.



- (1) Vacuum pump  
(2) Open

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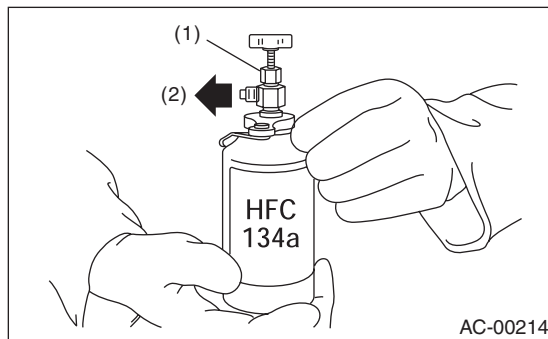
5) After performing evacuation for over 5 minutes, when the low pressure gauge needle reaches above  $-100.0 \text{ kPa}$  ( $-750 \text{ mmHg}$ ,  $-29.5 \text{ inHg}$ ), close the center manifold hose valve, and stop the vacuum pump.

6) Keep the status for 5 to 10 minutes after closing both the low pressure side and high pressure side valves, then check if there is any change in the low pressure gauge indicator. When the gauge indicator changes, it is a sign of leakage. Check the connections of pipes and hoses, and repair the problem locations. In this case, repeat from step 1).

7) If there is no leak, continue vacuuming for another 20 to 30 minutes.

8) Close all the valves and stop the vacuum pump.

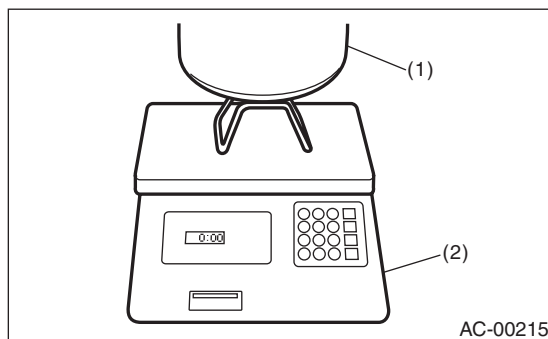
9) Following the can tap operation manual, install it to the refrigerant can.



- (1) Tap valve
- (2) To center manifold hose

10) Disconnect the center manifold hose from the vacuum pump, and connect the hose to the tap valve.

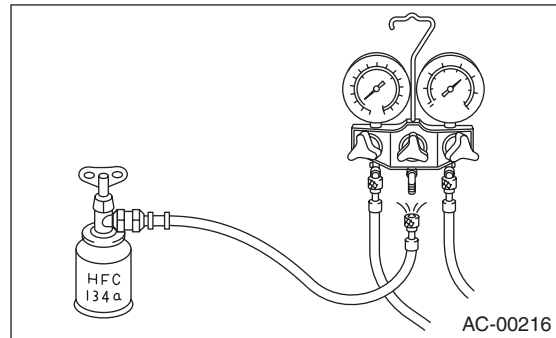
11) When a 13.6 kg (30 lb) refrigerant container is used, measure the weight of the refrigerant first on a scale, then connect to the center manifold hose.



- (1) Refrigerant container (HFC-134a)
- (2) Weight scale

12) Open the valve on the HFC-134a source.

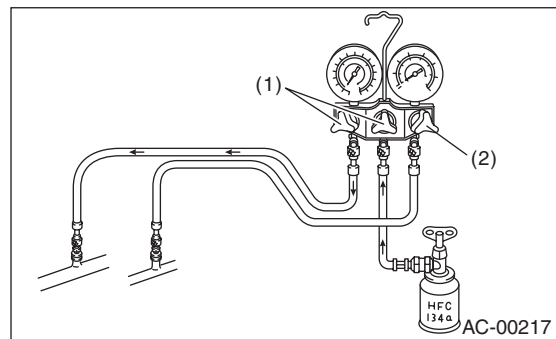
13) Loosen the center manifold hose connection on the manifold gauge set (if applicable, press a purge valve on the manifold gauge) only for a couple of seconds to allow the air in the center manifold hose to be bled by the refrigerant pressure.



14) Open the high pressure side valve and the low pressure side valve on the manifold gauge and fill the refrigerant.

### CAUTION:

**When filling while running the engine, do not open the high pressure side valve. Always make sure to fill from the lower pressure side.**



- (1) Open
- (2) Open

15) When the gauge needle reaches approximately  $200 \text{ kPa}$  ( $1,500 \text{ mmHg}$ ,  $59.1 \text{ inHg}$ ), close all valves.

16) Using a leak tester, check the system for refrigerant leaks.

17) After checking for refrigerant leaks, fill the refrigerant to the prescribed level.

18) If the HFC-134a source is empty, close all the valves, close the valve on the can tap, and replace the empty source with a new part. After replacing HFC-134a source with a new part, and purging the air, restart the work.

19) When the filling efficiency of the refrigerant drops, close all the valves.

20) Check that the valves on low-/high-pressure sides are closed. Start the engine with the A/C switch OFF.

21) To prevent damaging the compressor, turn the A/C switch to ON and OFF several times quickly.

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22) Set up the vehicle to the following status:

**CAUTION:**

**When starting the engine and filling, do not open the high pressure side valve.**

**Always fill from the low pressure side valve.**

- A/C switch ON
- Engine running at 1,500 rpm
- Blower speed setting to "HI"
- Temperature setting to "MAX COOL"
- Air inlet setting to "RECIRC"
- Window open

23) Open the low pressure side valve and fill with refrigerant up to the specified amount.

24) After filling with refrigerant, close all valves and disconnect the hose from the service port.

25) Mount the cap to the service port.