

# REFRIGERANT CHARGING PROCEDURE

HVAC SYSTEM (HEATER, VENTILATOR AND A/C)

## 4. Refrigerant Charging Procedure

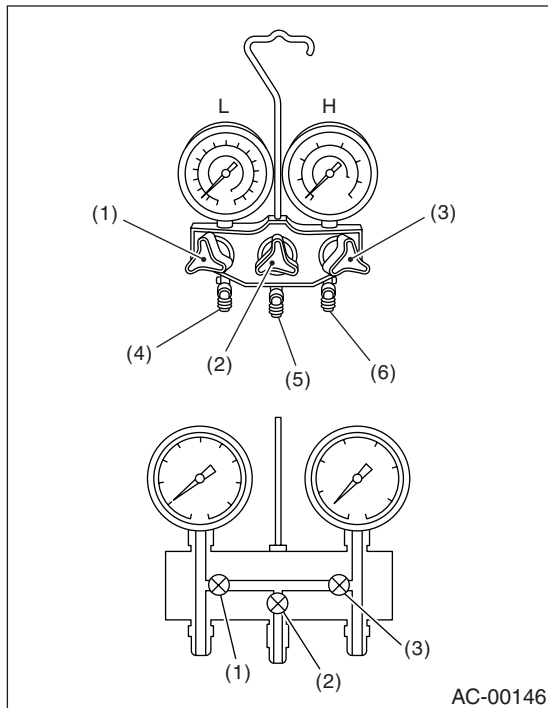
### A: OPERATION

#### CAUTION:

- During operation, be sure to wear safety goggles and protective gloves.
- If air is mixed in refrigeration cycle, poor cooling may result, and also if moisture is mixed in refrigeration cycle, clogging (freezing) or rust may result.

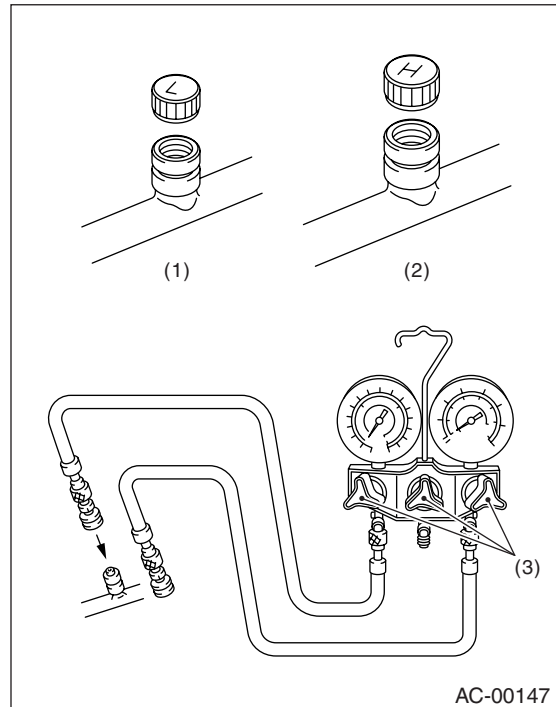
Before charging the refrigerant, evacuate the system using vacuum pump to remove air and moisture in the system. Moisture can be evaporated and removed easily even at normal temperature, if the system is evacuated using vacuum pump.

1) Close all valves of 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) Install the low-/high-pressure hoses to corresponding service ports on vehicle.



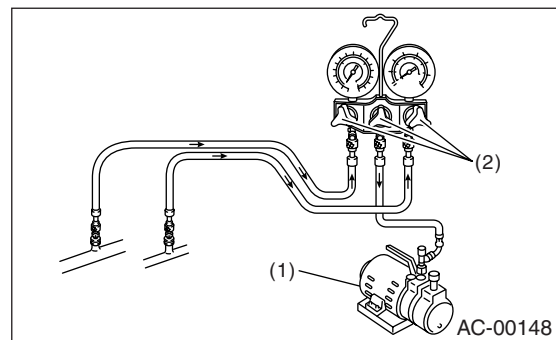
- (1) Low service port
- (2) High service port
- (3) Close

#### CAUTION:

Be sure that the hoses are securely connected.

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

4) Activate the vacuum pump and then open the valves on low-/high-pressure sides.



- (1) Vacuum pump
- (2) Open

#### CAUTION:

Be sure to evacuate the system using vacuum pump.

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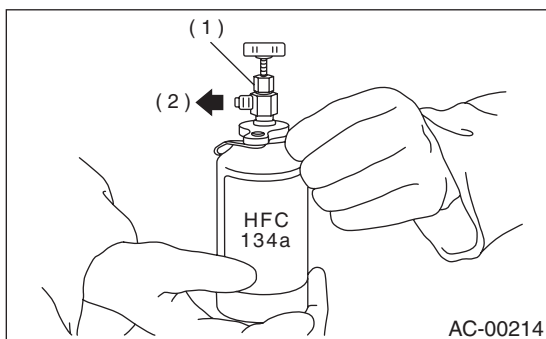
5) After at least 5 minutes of evacuation, if the low-pressure gauge reading shows 100.0 kPa (750 mmHg, 29.5 inHg) or higher, close the valves on center hose to stop the vacuum pump.

6) Leave it at least 5 to 10 minutes after closing the valves on low-/high-pressure sides, and then check the low-pressure gauge reading for any changes. When the gauge reading changes, this is a sign of leakage. Check the pipe or hose connector points, and repair if necessary. Repeat the procedure from 1) after repairing the faulty part.

7) If there are no leaks, further evacuate the system 20 to 30 minutes.

8) Close all valves and stop the vacuum pump.

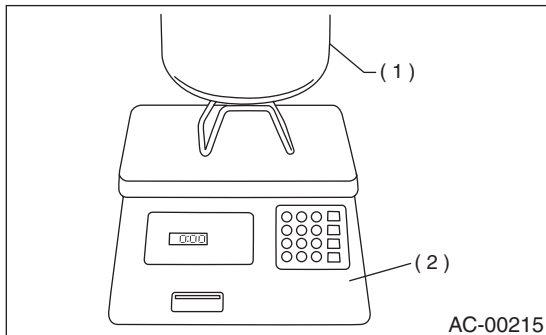
9) Following the can tap operation manual instructions, install it to refrigerant can.



- (1) Tap valve
- (2) Connect to center hose

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

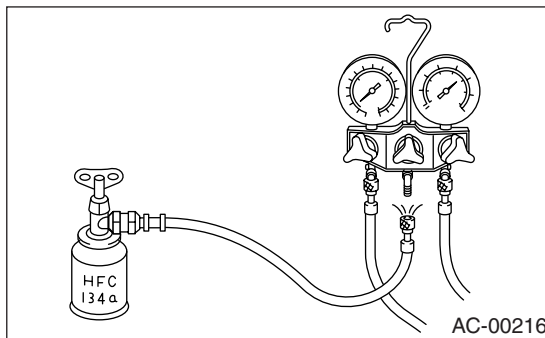
11) When a refrigerant recovery container is used, measure the refrigerant amount in use using a weighting scale before connecting to center hose.



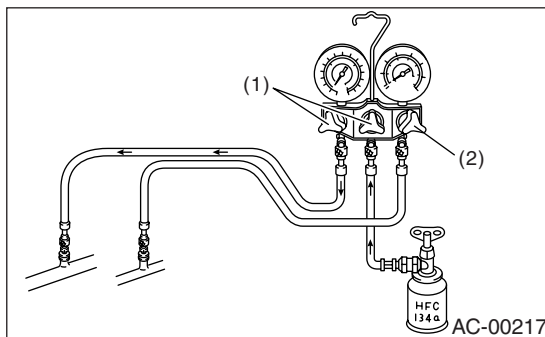
- (1) Refrigerant recovery container
- (2) Weighting scale

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

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



14) Make sure that the high-pressure valve of manifold gauge is closed, and then open the low-pressure side valve only to charge the refrigerant.



- (1) Open
- (2) Close

## CAUTION:

**Do not open the high-pressure valve. Be sure to open the low-pressure valve.**

15) Close the low-pressure valve when the low-pressure gauge reading reaches 200 kPa (1,500 mmHg, 59.1 inHg).

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

17) After confirming that there are no leaks with the leak test, charge the required amount of refrigerant.

18) If the HFC-134a source is empty, close the low-pressure valve and then close the valve on can tap before replacing the empty source. Restart charging operation after replacing the HFC-134a source with a new one and purging.

19) Close the low-pressure valve if the charge rate of refrigerant becomes worse.

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

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- 21) Quickly repeat A/C switch ON-OFF cycles a few times to prevent initial compressor damage.
- 22) Set up the vehicle to the following status:
  - 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 valve and charge the specified amount of refrigerant.
- 24) Close all valves and disconnect the hoses from service port after charging the refrigerant.
- 25) Install the cap to service port.