



REFRIGERANT RECYCLE EQUIPMENT RRDQ220V1

OPERATION MANUAL



【Please read this manual before operation】

【Original operation manual】

English



Refrigerant Recycle Equipment

FOR SAFE OPERATION

Thank you for selecting Refrigerant Recycle Equipment RRDQ220V1.


- Please give this operation manual to anyone who operates this unit.
- For safe and efficient operation any operator should read this manual thoroughly before operation.
- Keep this manual at a safe place that is easily accessible by operators.
- Do not use this unit for purposes other than originally intended.
- Check the following as soon the unit is delivered:
 - Is the specification same as the ordered product?
 - Has there been any damage or deformation during delivery?
 - Are any accessories missing?


If you have any questions, please contact the store where you have purchased this unit or our sales department.

(The contents of this manual may be changed without prior notice.)

CATEGORIES OF WARNING SIGNS

The warning signs used in this manual or on the product are divided in the following two categories.

 **WARNING** Situation that may cause death or serious injury to the operator or anyone in the immediate area.

 **CAUTION** Situation that may cause minor to medium injury to the operator or anyone in the immediate area or may cause damage to the unit.



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WARNING FOR SAFETY

- General warnings in operating this unit are mentioned in this section.
- While specific details are mentioned in each particular clause.

⚠ WARNING



- ◆ **When performing recycle operation, choose a location that has good ventilation. In enclosed areas, mechanical ventilation should provide at least four air changes per hour or the unit should be used at least 0.5m above the floor.**

Leakage of gas without sufficient ventilation may cause suffocation due to lack of oxygen.



- ◆ **Do not recycle flammable gas(hydrocarbon or hydrocarbon material) . If anything other than fluorocarbon [Ammonia, hydrocarbon (propane, isobutene,) ,etc.] gets into the unit, it may cause an explosion.**



- ◆ **Burning refrigerant creates a deadly poisonous Carbon Oxy-Chloride and inhaling this gas is very dangerous.**

There should be absolutely no flammable material near the working area and the unit must be operated under good ventilation.



- ◆ **Absolutely no smoking or any open flame during the work in process.**

Cigarettes may create Carbon Oxy-Chloride and cause a fire.



- ◆ **Use safety glasses and leather hand gloves during operation or when disconnecting hoses.**

Refrigerant gas may cause frostbite or damage your eye sight.



- ◆ **Do not close the valves of the unit and the hoses when they are full of liquid refrigerant.**

- ◆ **Do not operate or store the unit at temperature above 35°C .**

When the recycle operation is done, operate the purge procedure to prevent the liquid refrigerant from expanding which may cause an explosion.



- ◆ **Use a scale to monitor the amount of refrigerant in the cylinder.**

Stop filling at 80% or less as the cylinder may explode in the event of full filling.

- ◆ **Use ONLY authorized refillable refrigerant cylinders. The unit requires the use of recycle cylinders with a minimum working pressure of 27.6 bar (2.76 MPa/400psi).**

Do not exceed the working pressure of the recycle cylinder.



- ◆ **Do not operate the unit with wet hands or in the rain.**

Handling the electric plug and power switch with wet hands or in the rain, may cause electric shock.



- ◆ **Make sure to have the unit grounded (earthed).**

If the unit is not properly grounded, it may cause electric shock.

- ◆ **Check the electric power plug regularly to make sure of no damage.**

Always have the plug inserted firmly.



When the plug has dirt or oil or the connection is incomplete, it may cause electric shock or fire.

Refrigerant Recycle Equipment

⚠ WARNING

- ◆ Do not have the electric cord connected to other electrical devices or with other cords.



It may cause fire.

- ◆ Do not pull on the electric power cord to remove from the outlet.

It may cause fire or injury.

- ◆ The power source should be AC220-240V 10A or use a generator with the capacity of 3KVA or more.



If the capacity of the generator is not large enough, it may lead to overheating, smoking or fire. See the specification label or this manual for the detailed specifications.

- ◆ Do not set up the unit in a location where gasoline, thinner, or flammable gas exists.



The recycle unit sparks at the start-up time and may ignite gasoline and thinner.

If leaked gasoline or flammable gas accumulates at near the unit, it may cause explosion and fire.

- ◆ Always turn off the switch and pull out the power cord during inspection and maintenance.



The unit may suddenly start and cause accident.

- ◆ Do not disassemble. The unit should only be repaired by an authorized repair person.



- ◆ Do not operate the unit with the cover removed.

It may cause injury or damage.

- ◆ Various safety devices are built into this unit. Always carry out pre-start inspection according to page 18 "INSPECTION BEFORE WORK" before using.



If any abnormality is found in the unit, please stop using it immediately and contact your dealer or our sales representative.

⚠ CAUTION

- ◆ Transport carefully.



The unit may get damaged but this may also cause injury.

- ◆ When moving the unit, push it with the handle. Do not pull the unit.



- ◆ Install Filter at Suction Port.

Otherwise the compressor may be damaged.

- ◆ Any extension cord should be a three-core cable with at least 2.0mm² diameter if 20m or less or 3.5mm diameter if 20 to 30m long.



An unsuitable extension cord (too thin or too long) may lead to failure or fire, or electrical components may be damaged.



If the cord used is a two-core cord without a ground wire, it may cause an electric shock.

- ◆ Do not recycle refrigerant which contains sealant.



Sealant may clog the valves or the check valves.

⚠ CAUTION



- ◆ **Keep a space of 1 m or more around the unit.**
Do not let other workers come within 1 m of the unit.



- ◆ **Do not let visitors touch the unit.**

- ◆ **Do not use the unit for purposes other than the originally intended.**
This unit is designed to recycle the specified refrigerants.



- ◆ **Do not operate the unit with overload.**
Operating under overload may cause an accident or damage to the unit.

- ◆ **Do not use the unit on an uneven floor.**

The unit or the cylinder may fall over and lead to an accident.

- ◆ **The operating platform and the work area should be kept neat, clean and well-lit to avoid accidents.**

- ◆ **Do not operate the unit when fatigued or under the influence of alcohol or medications.**

- ◆ **When the recycle unit is not in use, store in a dry space and out of reach by children.**



- ◆ **Do not use accessories other than those referenced in this manual or shown in our catalogue. Use of other accessories may cause problems.**

- ◆ **If the recycle unit is dropped or struck, inspect immediately for damage.**
Recycle under damaged, cracked and dented condition may cause injury.

- ◆ **Check daily for deformed or corroded parts.**



- ◆ **If an abnormal condition (strange smell, vibration, strange noise) is noticed, stop operation immediately and refer to page 21 in the manual "BEFORE REQUESTING REPAIR OR SERVICE".**



- ◆ **Request repair or service instead of disassembling the unit. Contact the store where the unit was purchased.**

- ◆ **Use our cylinders that are expressly made for recycling.**

- ◆ **Use cylinders that match the type of refrigerant being recycled.**

- ◆ **Disposal (For EU countries only)**

Components of the unit are recyclable material and should be put to recycling. For this purpose registered and certified recycling companies are available. For an environmental friendly disposal of the non-recyclable parts (e.g. electronic waste) contact your local waste disposal authority.



Do not dispose electric tools with domestic waste. In accordance with the European Directive 2012/19/EC the disposal of electrical and electronic equipment and its implementation as national law, electric tools that are no longer serviceable must be collected separately and utilized for environmentally compatible recycling.

- ◆ **Batteries are used in Auto Stop Timer.**

Dispose them by the regulations.

- ◆ **When disposing the unit :**

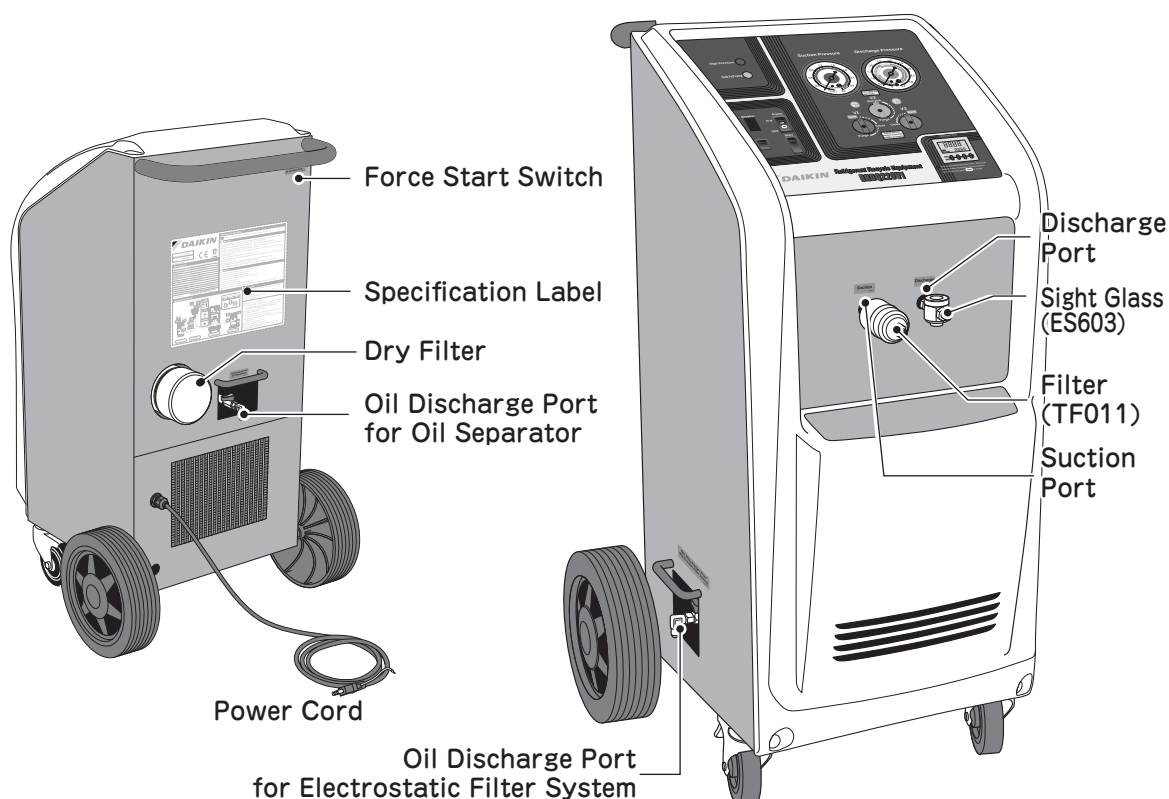
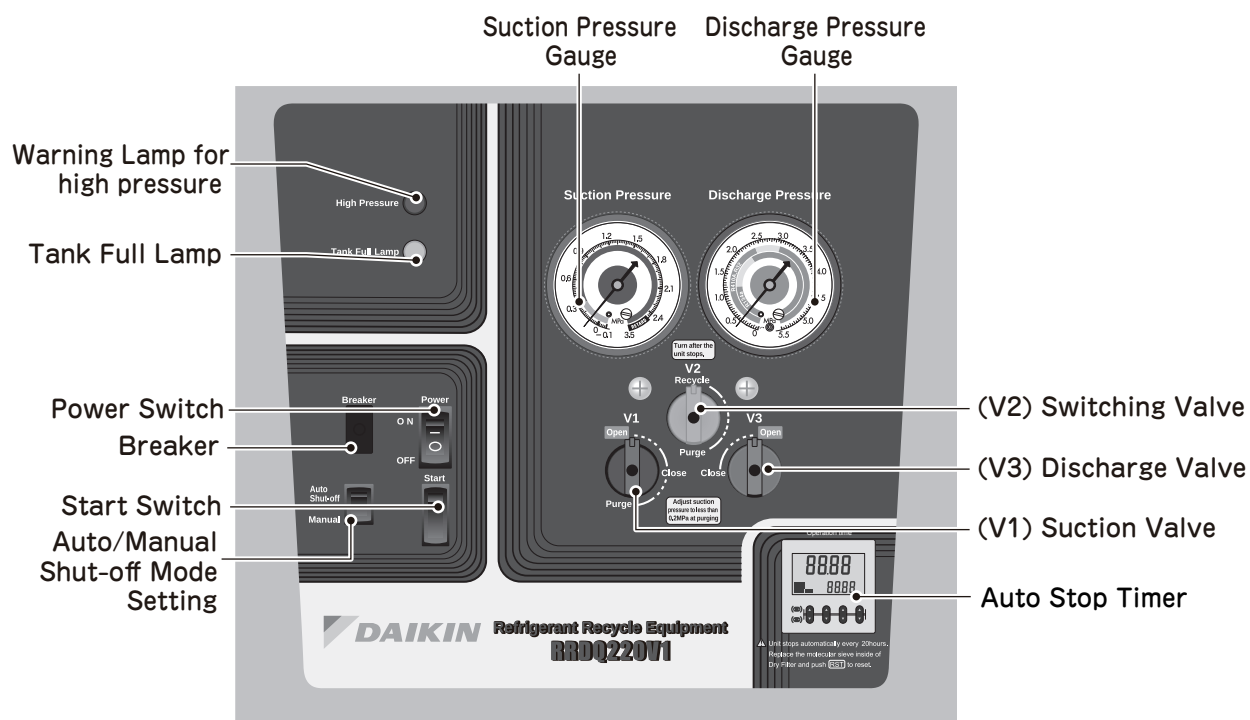
Handle according to the regulations or the method defined by each municipality.
(Molecular Sieve , Filter, various plastic parts, etc.)

Refrigerant Recycle Equipment

COMPONENTS OF THE UNIT

Name of Each Part

Labels are required by law for safety and the warnings are placed on the recycle unit.
If the label comes off the unit or became dirty and unreadable, request us for new label.
Replace the label at the same position on the unit.



Specifications

Description	Refrigerant Recycle Equipment
Code No. / Type	AR023E / RRDQ220V1
Recycle refrigerant	R410A, R32, R134a
Recycle method	Liquid, Electrostatic separation recycle method (possible to vapor recycle)
Power supply	220 - 240V/ Single-phase (50 / 60Hz) > 8 Amps recommended
Compressor	750W (1HP) Oil free
Dimension / Weight	562 x 538 x 976mm (L x W x H) / 60kg
Electric current of operation	8.0/6.0A (50/60Hz)
Operating temperature	5 - 35°C
Degrees of protection	IP20
Applicable cylinder	Refrigerant Recycle Cylinder (minimum working pressure of 400 psi)

Recycle rate	R410A	R32	R134a
Liquid (g/min)	220	100	100
Vapor (g/min)	90	90	90

- * Specifications are subject to change without prior notice.
- * Recycle rates vary under different conditions.
- * When recycle R134a, follow page 11 in the operation manual.

Recycled refrigerant	R410A	R32	R134a
Performance standard	AHRI 740		
Moisture (ppm)	< 20	< 20	< 20
Total residue on evaporation (%)	< 0.01	< 0.01	< 0.01

- * Results of the recycle varies depending on the contamination of the refrigerant to be recycled.

Standard Accessories

Description	Code No.
1/4" Charging Hose with Ball Valve (Red) 152cm	AR344
1/4" Charging Hose with Ball Valve (Blue) 152cm	AR345
Filter	TF011
Dry Filter Cartridge with Molecular Sieve	AR179E
Sight Glass 1/4"	ES603
Flare Joint 1/4" Female x 1/4" Female	BF0020
Operation Manual RRDQ220V1	IM0496

Optional Accessories

Description	Code No.	Explanation of the Item
Liquid Charge Adapter 1/4"	Y41123	Used for recycle of R134a

Refrigerant Recycle Equipment

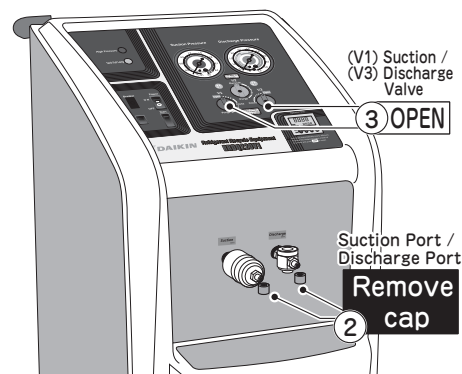
HOW TO USE

Preparation Before Operation

1) Discharge nitrogen gas from the unit

The new unit is filled with nitrogen gas to prevent damage during transit.

- ① Connect the unit to proper power supply.
- ② Connect Filter to Suction Port.
(Refer to page 8 ③)
- ③ Connect Sight Glass to Discharge Port.
- ④ Open Suction Valve and Discharge Valve.



2) Installation of the unit

Install the unit according to the following.

- ① Flat space indoors.
- ② Lock Casters properly.
- ③ Keep 1 m or more around the unit for safe operation.

3) Preparation of Cylinder

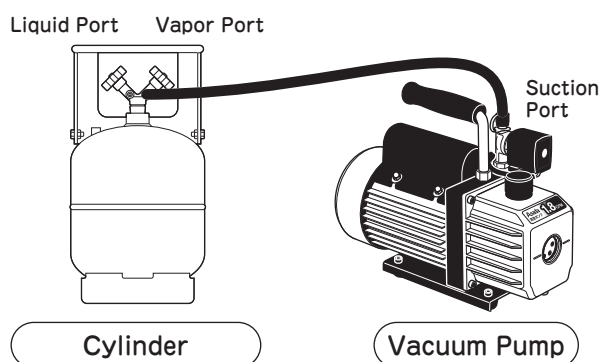
⚠ CAUTION



- ◆ Brand-new cylinders have nitrogen inside.
Evacuation should be done after discharging nitrogen by opening the vapor valve.
- ◆ Do not evacuate cylinders which contain refrigerant.
The refrigerant will be discharged to the air and the vacuum pump oil will blow out.

Evacuate a cylinder by using a vacuum pump (optional accessories).

- ① Connect the suction port of the vacuum pump to the vapor port of the cylinder with a hose.
- ② Switch on the vacuum pump.
- ③ Close the liquid port of the cylinder and open the vapor port.
- ④ Close the vapor port of the cylinder when the vacuum reaches -0.095MPa (-13.8psi) \sim -0.1MPa (-14.5psi).
- ⑤ Switch off the vacuum pump.
- ⑥ Disconnect the hose between the vacuum pump and the cylinder.

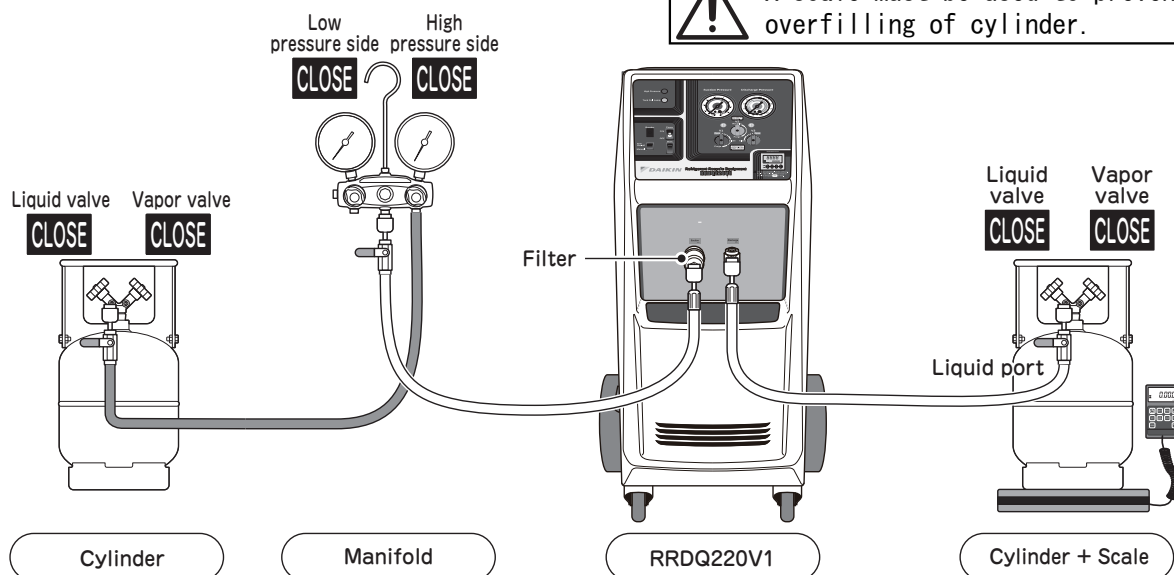


4) Precautions

- ① In case ambient temperature is under 10°C , the unit needs warming up before operation. Refer to the page 16, Warm Up Operation. Do not operate at temperature under 5°C and over 35°C .
- ② Filter provided as standard accessory must be installed on Suction Port when operating the unit.
- ③ Do not recycle following refrigerant with the unit :
 - The purity of recycled refrigerant is low and, it may cause damage to the unit.
 - Refrigerant charged in a system which the compressor has been burned out.
 - Refrigerant which may be mixed with other type of refrigerant.
 - Refrigerant which contains sealant.

Recycle Operation

1) Connection of hose and cords



① Connect the hoses as above.

CAUTION



- ◆ Be sure to use a scale to prevent overfilling of cylinder.
- ◆ Overfilling may cause cylinder rupture.

② Check elapsed time of timer

CAUTION



- ◆ Please check if elapsed time of the timer has reached 20hours.
- ◆ In R32·R134a recycle, press Reset Key of Auto Stop Timer at first automatic stop to initialize the timer and replace Molecular Sieve Replacement Kit and Filter at second automatic stop (40 hours).
- ◆ Please replace Molecular Replacement Kit and Filter and press Reset Key of Auto Stop Timer to initialize the timer.

③ Connect Filter to Suction Port of the unit. (Code No.TF011)

CAUTION



- ◆ Make sure the installing direction.
- ◆ Hold Suction Port firmly with a wrench to prevent damage of inside parts when connecting Filter.
- ◆ After 20 hours(R410A) or 40 hours(R32·R134a) of operation, or when clogging, replace Filter.



④ Install Molecular Sieve provided as a standard accessory. (Refer to page 17)

CAUTION

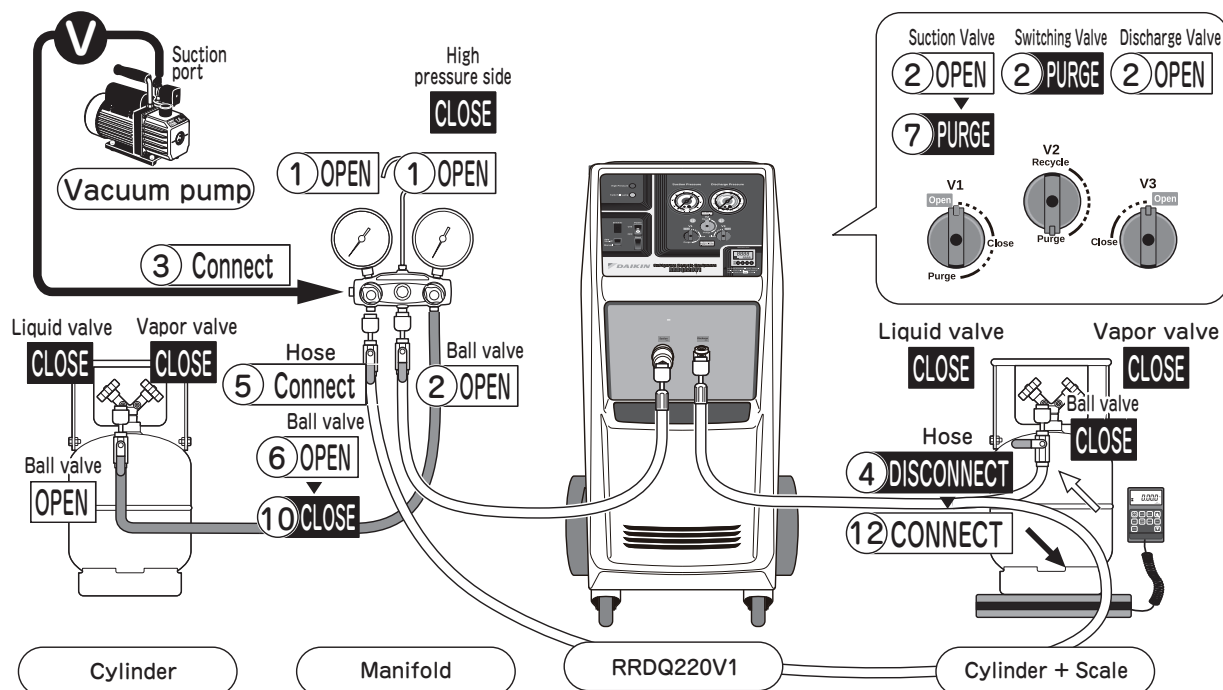


- ◆ This installation should be done quickly after open the package to avoid spoiling the quality of Molecular Sieve.

⑤ Connect Liquid Charge Adapter (Code No. Y41123) as an optional accessory for R134a.

Refrigerant Recycle Equipment

2) Evacuation of the recycle unit and the hoses

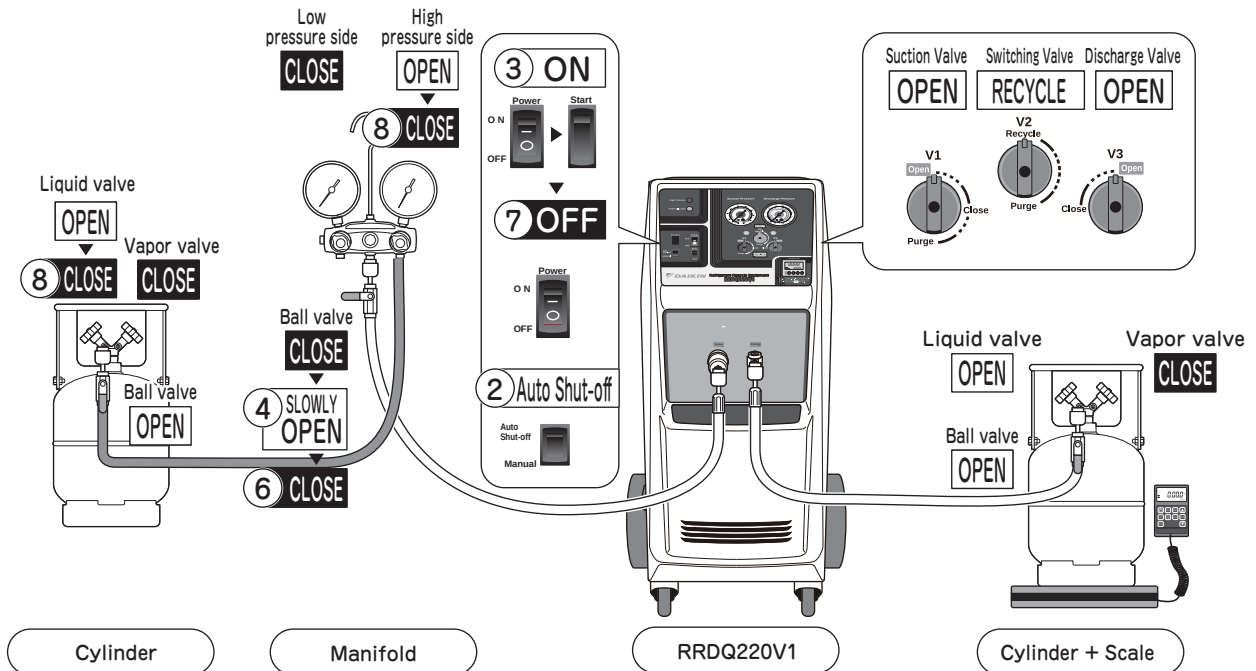


- ① Open high and low pressure side valve of manifold.
- ② Open the ball valve of the hose.
- ③ Connect vacuum pump to side port of manifold.
- ④ Disconnect the hose which is connected to the liquid port of the cylinder.
- ⑤ Connect hose removed in ④ to low pressure side of manifold.
- ⑥ Open the ball valve of the hose.
- ⑦ Turn Suction Valve (V1) to [OPEN] position.
Turn Switching Valve (V2) to [Recycle] position.
Turn Discharge Valve (V3) to [Open] position.
- ⑧ Turn on the power switch of the vacuum pump and evacuate the suction side of the unit.
* If refrigerant remains in the unit, do not evacuate.
⇒ Continue until low pressure gauge becomes vacuum.
- ⑨ Turn Suction Valve (V1) to [PURGE] position.
Turn Switching Valve (V2) to [PURGE] position.
⇒ Continue until low pressure gauge becomes vacuum.
- ⑩ Close the discharge hose ball valve.
- ⑪ Turn off the vacuum pump power switch.
- ⑫ Connect discharge hose to liquid side port of collection cylinder.

3) Recycle procedure

⚠ CAUTION

- ◆ Warm up the unit when ambient temperature is under 10°C .
Refer to page 16 "Warm Up Operation"
- ◆ A scale must be used to prevent overfilling of cylinder.



- ① Set each valve as above.
- ② Set Auto Shut-off/Manual Mode Setting to [Auto Shut-off] position.
- * **When using the Auto Shut-off mode, Suction Pressure must be higher than atmospheric pressure for operation.**
- ③ Set the Power Switch to [ON] position.
Push Start Switch once.
- ④ Open the suction hose ball valve from the manifold slowly so as not to raise Suction Pressure suddenly.
- ⑤ The unit automatically stops when Suction Pressure becomes -0.03MPa (psi).
- ⑥ Close the suction hose ball valve.
- ⑦ Set Power Switch to [OFF] position.
- ⑧ Close high pressure side of the manifold and liquid valve of the cylinder to be recycled.

⚠ Caution (for Timer)

- ◆ When the operation time of the unit has passed 20 hours with Auto Stop Timer, the unit stops automatically to maintain the recycle performance.
- ◆ Replace Molecular Sieve Replacement Kit and Filter according to the following procedure.
 - ① Press Reset Key of Auto Stop Timer once to cancel the automatic stop.
 - ② Close the valve of the manifold and remove the refrigerant in the unit by operating. [Recycle → Purge operation].
 - ③ Replace Molecular Sieve Replacement Kit and Filter.
 - ④ Restart recycle operation after pressing Reset Key of Auto Stop Timer.

Refrigerant Recycle Equipment

Operation procedure of R134a recycle

- In case of recycling R134a, the efficiency of the heat exchanger in Oil Separator is not adequate even if the ambient temperature is 10°C or higher.

Liquid R134a accumulates in Oil Separator and the full tank sensor unit.

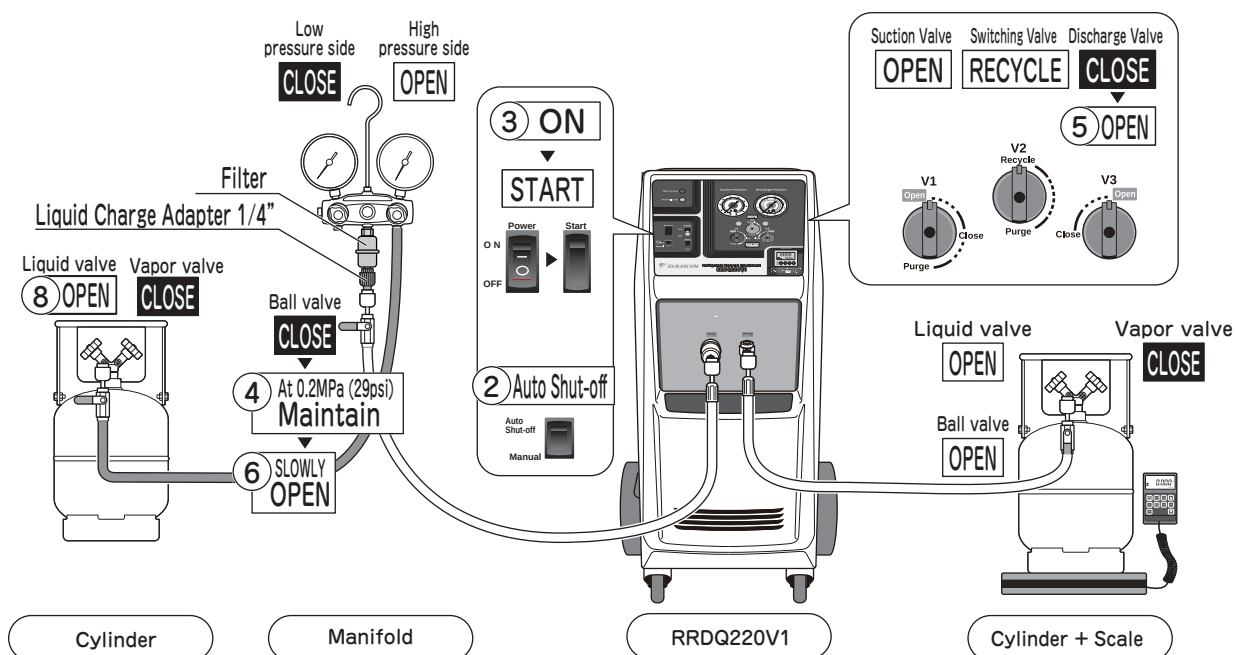
■ Prepare the following accessories in advance. (Optional accessories)

(A) Code No. Y41123	Liquid Charge Adapter 1/4 "	1 piece
(B) Code No. TF011	Filter	1 piece

- Connect Liquid Charge Adapter 1/4" (A) and Filter (B) between the suction hose and the manifold center port.

■ Warm up

- Warm up the unit every time regardless of temperature. (Refer to page 16 "Warm Up Operation".)
- If the pressure of the recycled R134a is low (if the temperature is low), warm the R134a in the cylinder with a heater to increase the pressure.



■ Operation method

- ① Connect hoses as above after carrying out procedure on Page 9 "2) Evacuation of the recycle unit and the hoses".
- ② Set Auto Shut-off/Manual Mode Setting to [Auto Shut -off] position.
- ③ Set Power Switch to [ON] and press Start Switch once.
- ④ Adjust Suction Pressure between 0.1MPa (14.5psi) ~ 0.2MPa (29psi) by opening the suction hose ball valve from the manifold and keep operating until discharge pressure becomes 1.0MPa (145psi).

- ⑤ After ④, turn Suction Valve (V1) to [OPEN] position.
- ⑥ Open the suction hose ball valve from the manifold slowly for approximately 20 seconds.
- ⑦ Follow usual recycle procedure.

■ Note (CAUTION)

- (1) R134a has a high boiling point and is harder to gasify than R410A.

Avoid working in a low temperature environment as much as possible.

- (2) Even if the normal recycling procedure is performed after a warm-up operation, if the oil tank full sensor stops the procedure, reduce Suction Pressure to less than 0.2MPa (29psi) to prevent R134a from accumulating.

- (3) The recycle speed of R134a is slower than R410A.

Adjust the timing to replace Molecular Sieve Replacement Kit considering the condition of recycled R134a.

Press Reset Key of Auto Stop Timer at first automatic stop to initialize the timer to replace Molecular Sieve Replacement Kit, and Filter at the second automatic stop (40 hours).

- (4) If the surface of Filter connected to the manifold becomes frozen during recycling and it stops recycling, replace or clean Filter according to the following procedure and then restart recycling:

- 1 - Set Auto Shut-off/Manual Mode Switch to [Auto Shut-off] and close the high pressure side valve of the manifold.
- 2 - Close the suction hose ball valve from the manifold.
- 3 - Wait until the unit stops automatically.
- 4 - When the unit stops, carefully remove Filter. (Be careful of squirting liquid R134a.)
- 5 - Clean or replace Filter and Liquid Charge Adapter 1/4".
- 6 - Connect Filter and Liquid Charge Adapter 1/4" to the center port of the manifold.
- 7 - Connect the suction hose to Liquid Charge Adapter 1/4" and open the high pressure side valve of the manifold and the suction hose ball valve from the manifold.
- 8 - Press Start Switch once to resume recycling.

Refrigerant Recycle Equipment

Recycle Procedure When the Pressure of Refrigerant is High

- Use the following procedure when refrigerant which becomes high pressure due to temperature rise. Refer to page 10 "Recycle Procedure".

⚠ CAUTION



- ◆ Non-condensable substance (air) may exist in the cylinder when the temperature of the cylinder rises abnormally during recycle.
Remove the air or replace the cylinder.

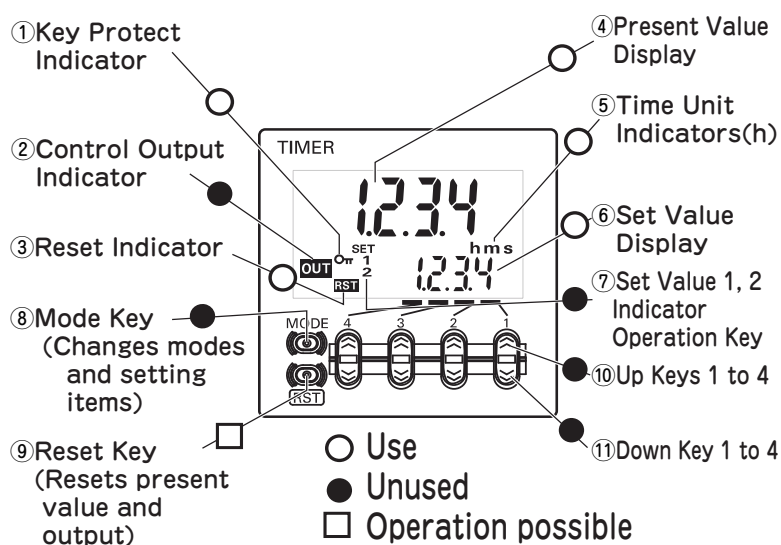
HOW TO USE

■ Replacement of spare cylinder

- Even if the cylinder is not full, if the inside pressure of the cylinder is high, replace it with an evacuated spare cylinder.

Description of Auto Stop Timer

- The timer measures [ON] time of Power Switch and it is set to stop automatically after 20 hours have elapsed.
- The setting value is locked by Key Protect, do not change it.
- The function of ● mark in right figure is not used.
- ○ mark parts are used as a display function.
- □ mark part is a function that can be operated.
- When press Reset Key, measurement is canceled and the display time returns to [0 h].



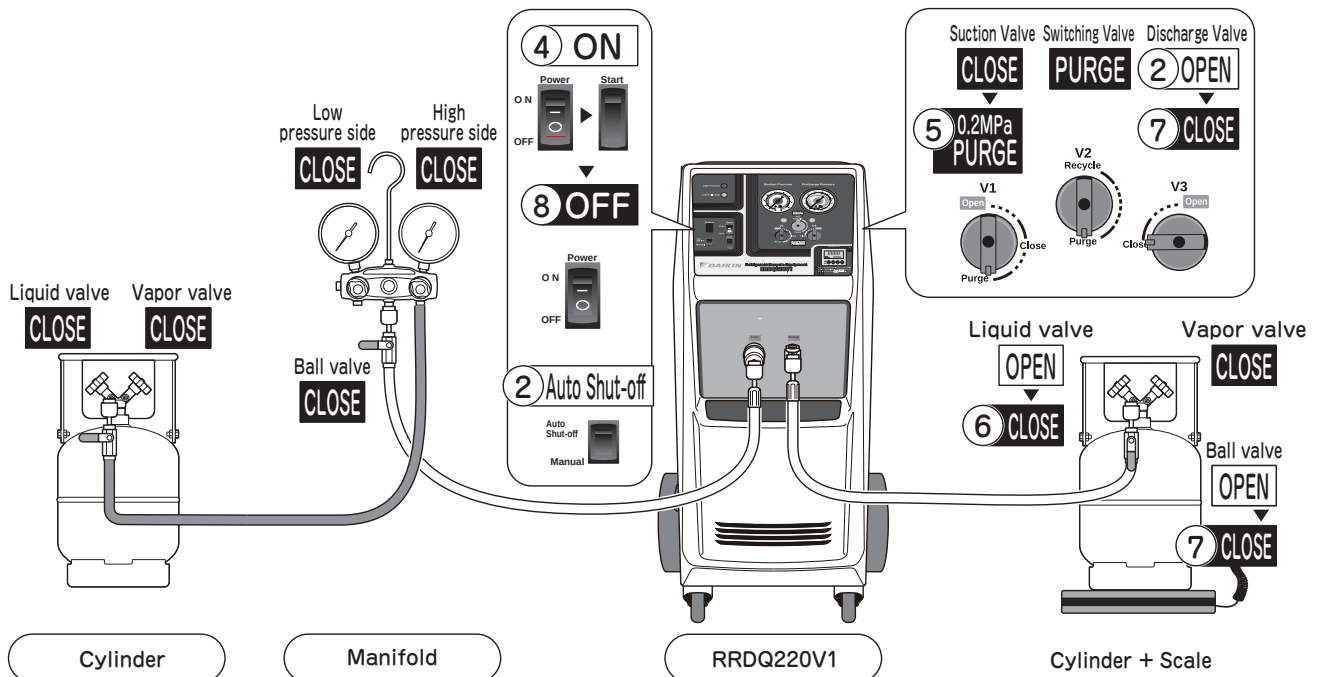
- ※ For R410A, Molecular Sieve and Filter have to be replaced after every 20 hours operation.
- ※ For R32·R134a, Molecular Sieve and Filter have to be replaced every 40 hours operation.
At first automatic stop after 20 hours operation, press Reset Key to restart the unit.
- ※ For R134a, adjust the timing to replace Molecular Sieve considering the condition of recycled R134a.

4) Refrigerant Discharge (Purge) Procedure

⚠ CAUTION



- ◆ Adjust Suction Pressure less than 0.2MPa in purging. Otherwise, it may cause damage on the compressor.



- ① Setting up as the above drawing.
- ② Turn Switching Valve (V2) to [PURGE] position.
 - * Do not turn the valve during operation or Discharge Pressure Gauge may be damaged.
- ③ Set Auto Shut-off/Manual Mode Setting to [Auto Shut-off] position.
 - * When using the Auto Shut-off mode, the unit does not starts when Suction Pressure is lower than atmospheric pressure.
- ④ Set Power Switch to [ON] position.
Push Start Switch once.
- ⑤ Turn Suction Valve (V1) slowly to [PURGE] position adjusting Suction Pressure to less than 0.2MPa.
- ⑥ Close the liquid port of the cylinder when the unit stops automatically.
- ⑦ Turn Discharge Valve (V3) to [CLOSE] position and close the discharge hose ball valve.
- ⑧ Set Power Switch to [OFF] position.
- ⑨ Disconnect the hoses.
 - * Vapor refrigerant remains in the recycle unit and the hose of the discharge side.
Connect the hose of the discharge side to an evacuated cylinder to recover all refrigerant in the recycle unit and the hose.



A scale must be used to prevent overfilling of cylinder.

⚠ CAUTION



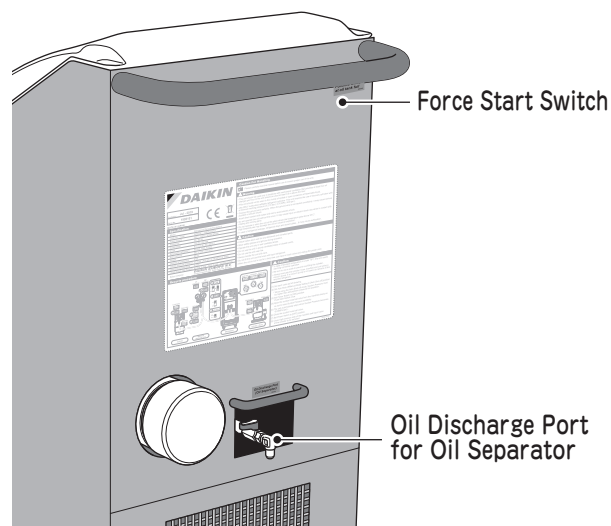
- ◆ Use safety glasses and leather hand gloves when operating or disconnecting hoses. If refrigerant gas touches your skin or gets into your eyes, it may cause frostbite or damage your eye sight.

Refrigerant Recycle Equipment

Oil Discharge Procedure (Oil Separator)

Discharge the oil when Tank Full Lamp is on (①~⑧) or after daily operation (⑤~⑧) .

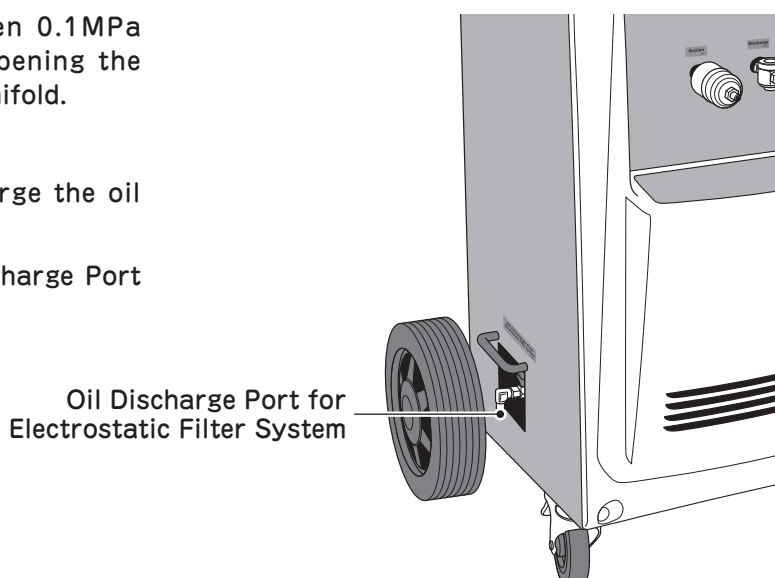
- ① Close the suction hose ball valve from the manifold.
- ② In Auto Shut-off mode, start the unit by pushing Force Start Switch.
- * The switch will release unless you keep it depressed.
- ③ The unit stops automatically when Suction Pressure reaches -0.03MPa (-4.4psi) .
- ④ Set Power Switch to [OFF] position.
- ⑤ Adjust Suction Pressure between 0.1MPa (14.5psi) ~ 0.2MPa (29psi) by opening the suction hose ball valve from the manifold.
- ⑥ Remove the cap of Oil Discharge Port on the back of the unit.
- ⑦ Open the valve slowly and discharge the oil into another container.
- * The oil tank capacity is 2L.
- ⑧ Close the valve and cap of Oil Discharge Port after discharging the oil.



Oil Discharge Procedure (Electrostatic Filter System)

Check every 100 hours of operation for any oil or contamination in the Electrostatic Filter System.

- ① Adjust Suction Pressure between 0.1MPa (14.5psi) ~ 0.2MPa (29psi) by opening the suction hose ball valve from the manifold.
- ② Remove cap of Oil Discharge Port.
- ③ Open the valve slowly and discharge the oil into another container.
- ④ Close the valve and cap of Oil Discharge Port after discharging the oil.



The diagram illustrates the connection of the RRDQ220V1 system. It shows a **Cylinder** connected to a **Manifold**, which is then connected to the **RRDQ220V1** unit. The **Manifold** has two pressure gauges: **Low pressure side** and **High pressure side**. The **RRDQ220V1** unit has a control panel with a **Power** switch (ON/OFF), a **Start** button, and an **Auto Shut-off** switch (Auto/Manual). The **Cylinder** has a **Liquid valve** (OPEN) and a **Vapor valve** (CLOSE). The **Manifold** has a **Ball valve** (CLOSE) and a **Pressure Gauge** (At 0.2MPa (29psi) Maintain). The **RRDQ220V1** unit has a **Suction Valve** (OPEN), a **Switching Valve** (RECYCLE), and a **Discharge Valve** (CLOSE). The **Cylinder + Scale** has a **Liquid valve** (OPEN), a **Vapor valve** (CLOSE), and a **Ball valve** (OPEN). The **RRDQ220V1** unit also has a **Pressure Gauge** (At 0.2MPa (29psi) Maintain).

A scale must be used to prevent overfilling of cylinder.

- 16

Refrigerant Recycle Equipment

MAINTENANCE & INSPECTION

- Inspect and clean regularly as instructed below and perform correction or replacement timely.

Maintenance

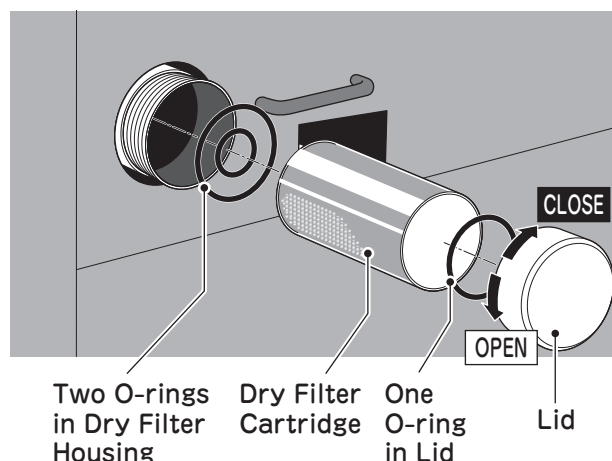
- ① Keep gauges and front panel clean by wiping with a clean cloth.
- ② Keep the air blow hole and condenser clean so as to cool down the condenser efficiently.

Replace Molecular Sieve Replacement Kit

Dry Filter Cartridge is installed at the back side of the unit.

- Replacement period
 - • • R410A : Every 20 hours (every automatic stop by Auto Stop Timer)
 - • • R32·R134a : Every 40 hours (every other automatic stop by Auto Stop Timer)
- Replace Filter TF011 together with Molecular Sieve at the same time.

- ① Remove all refrigerant from the unit until 0MPa (psi) .
- ② Open the lid of Dry Filter and remove Dry Filter Cartridge and two O-rings in Dry Filter Housing(G-85,P-24) and one O-ring in Lid(P-80).
- ③ Open the lid of Dry Filter Cartridge and remove Spring, Mesh Plate, and Filter.
- ④ Take out Molecular Sieve and two Filters in the bottom.



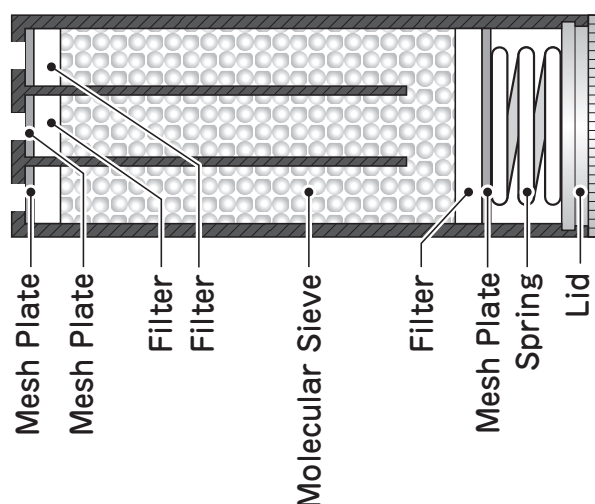
⚠ CAUTION



- ◆ Replacing Molecular Sieve should be done quickly after open the package to avoid spoiling its quality.

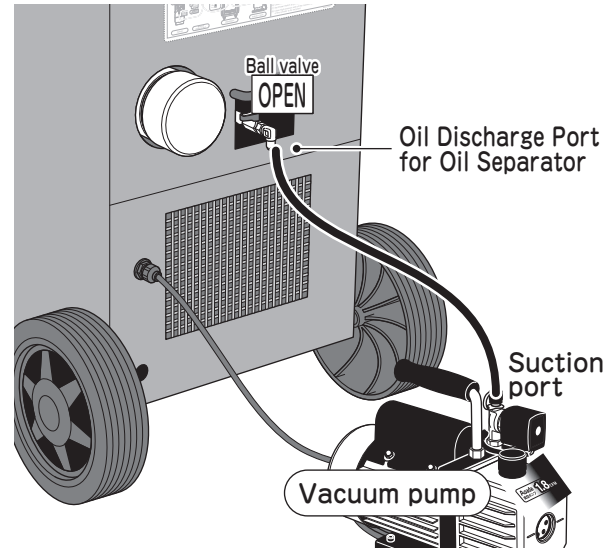
- ⑤ Prepare Molecular Sieve Replacement Kit (AR338) and replace three Filters and Molecular Sieve. Two O-rings will be replaced later on.
- ⑥ Set Mesh Plate and Spring in Dry Filter Cartridge and close the lid.
- ⑦ Properly set two new O-rings from AR338 on Dry Filter Housing and put the refilled Dry Filter Cartridge into the unit and close the lid securely with the holding spring.
- ⑧ Check for leakage, referring to page 19, Confirmation of Leak.

< Internal structure of Dry Filter Cartridge >



In Case of Recycle Other Refrigerant

- ① Replace Molecular Sieve Replacement Kit referring to page 17 after discharging oil referring to page 15.
- ② Connect a vacuum pump to Oil Discharge Port of Oil Separator.
- ③ Turn on the vacuum pump and open the valve of Oil Discharge Port for Oil Separator.
- ④ After one hour evacuation, close the valve of Oil Discharge Port for Oil Separator and turn off the vacuum pump.



INSPECTION BEFORE WORK

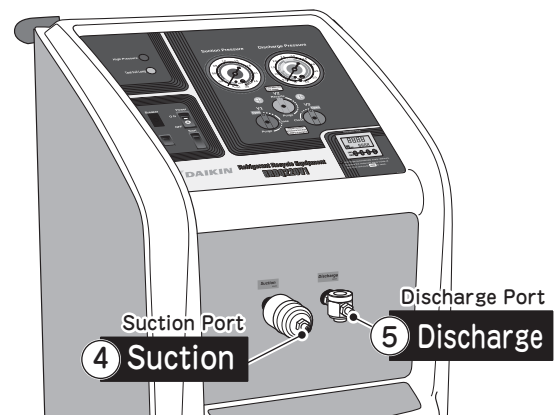
- Periodically inspect and clean the unit according to following. Please correct or replace if necessary.

Inspection in General

- ① Check damage on the plug and cord.
- ② Check for scratches or cracks on the outer surface of each hose.
- ③ Confirm that all gaskets on the hoses are worn or exhausted.
- ④ Confirm the unit starts normally when Power Switch is turned on.
- ⑤ Confirm the unit stops when Power Switch is turned off.

Inspection of Recycle function

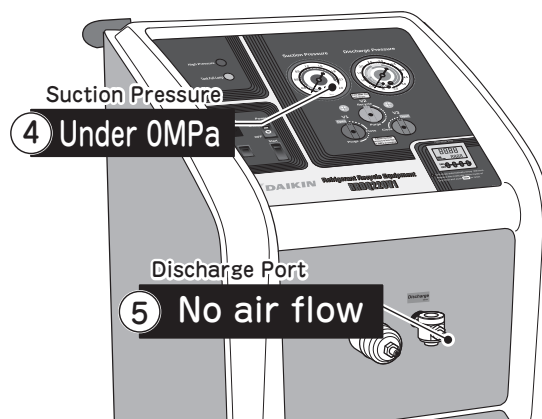
- ① Remove cap of Suction Port and Discharge Port.
- ② Turn Suction Valve (V1) to [OPEN] position.
Turn Switching Valve (V2) to [RECYCLE] position.
Turn Discharge Valve (V3) to [OPEN] position.
- ③ Set Power Switch to [ON] position.
Push Start Switch.
- ④ Confirm suction from Suction.
- ⑤ Confirm discharge from Discharge Port.



Refrigerant Recycle Equipment

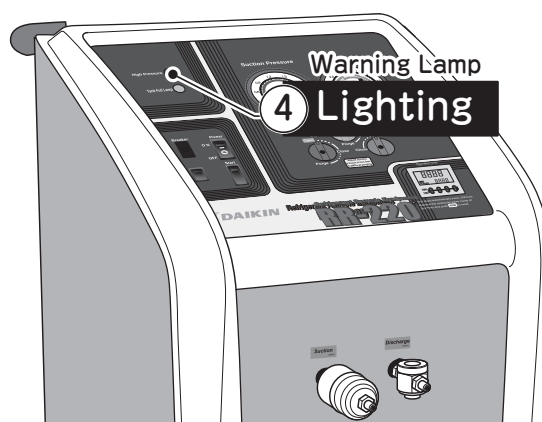
Inspection of Purge function

- ① Remove cap of Suction Port and Discharge Port.
- ② Turn Suction Valve (V1) to [PURGE] position.
Turn Switching Valve (V2) to [PURGE] position.
Turn Discharge Valve (V3) to [OPEN] position.
- ③ Set Power Switch to [ON] position.
Push Start Switch.
- ④ Confirm Suction Pressure is under 0MPa.
- ⑤ Confirm no air flow from Discharge Port.



Inspection of High Pressure Switch Function

- ① Remove cap of Suction Port and Discharge Port.
- ② Turn Suction Valve (V1) to [OPEN] position.
Turn Switching Valve (V2) to [RECYCLE] position.
Turn Discharge Valve (V3) to [CLOSE] position.
- ③ Set Power Switch to [ON] position.
Push Start Switch.
- ④ After a while, High Pressure Shut-off function makes the unit stop automatically and Warning Lamp is turned on.



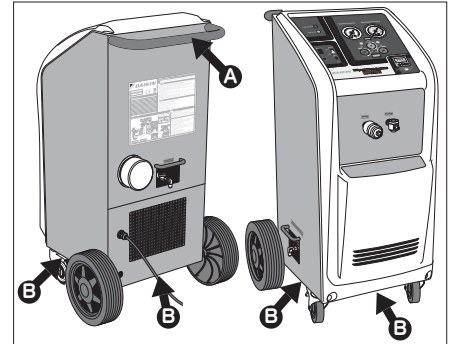
Inspection of Leak

- ① Remove cap of Suction Port and Discharge Port.
- ② Turn Suction Valve (V1) to [OPEN] position.
Turn Switching Valve (V2) to [RECYCLE] position.
Turn Discharge Valve (V3) to [CLOSE] position.
- ③ Set Power Switch to [ON] position.
Push Start Switch.
- ④ After a while, High Pressure Shut-off function makes the unit stop automatically and Warning Lamp is turned on.
- ⑤ Leave this condition for 1 to 2 minutes and confirm that there is no significant pressure drop. (Slight pressure decrease due to pressure balance is normal.)



LOADING / UNLOADING OF THE UNIT

- Weight of this unit is 60 kg.
- Pay attention to the following when loading/unloading the unit from a vehicle.
 - ① Always use gloves.
 - ② Do not handle alone.
 - ③ Pay attention to the holding position.



EU DECLARATION OF CONFORMITY

Equipment Description : Refrigerant Recycle Equipment
Code No. / Type : AR023E / RRDQ220V1

The undersigned hereby declares that the above-referenced product is in conformity with the provisions of the following standards and is in accordance with the following directives.

Applicable Directives : 2014/30/EU (EMC) / 2014/35/EU (LVD) / 2011/65/EU (RoHS2)

Applicable Standards : EN61000-6-2:2005(EMC)
EN61000-6-3:2007+A1:2011(EMC)
EN60335-1:2012+A11:2014(LVD)
IEC60335-2-104:2003(LVD)

CE Implementation Date : July 01, 2019



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Manufacturer:

ASADA CORPORATION

3-60, Kamiida Nishi-machi,
Kita-ku, Nagoya, 462-8551, Japan

TEL +81 52-914-1062

Refrigerant Recycle Equipment

BEFORE REQUESTING REPAIR OR SERVICE

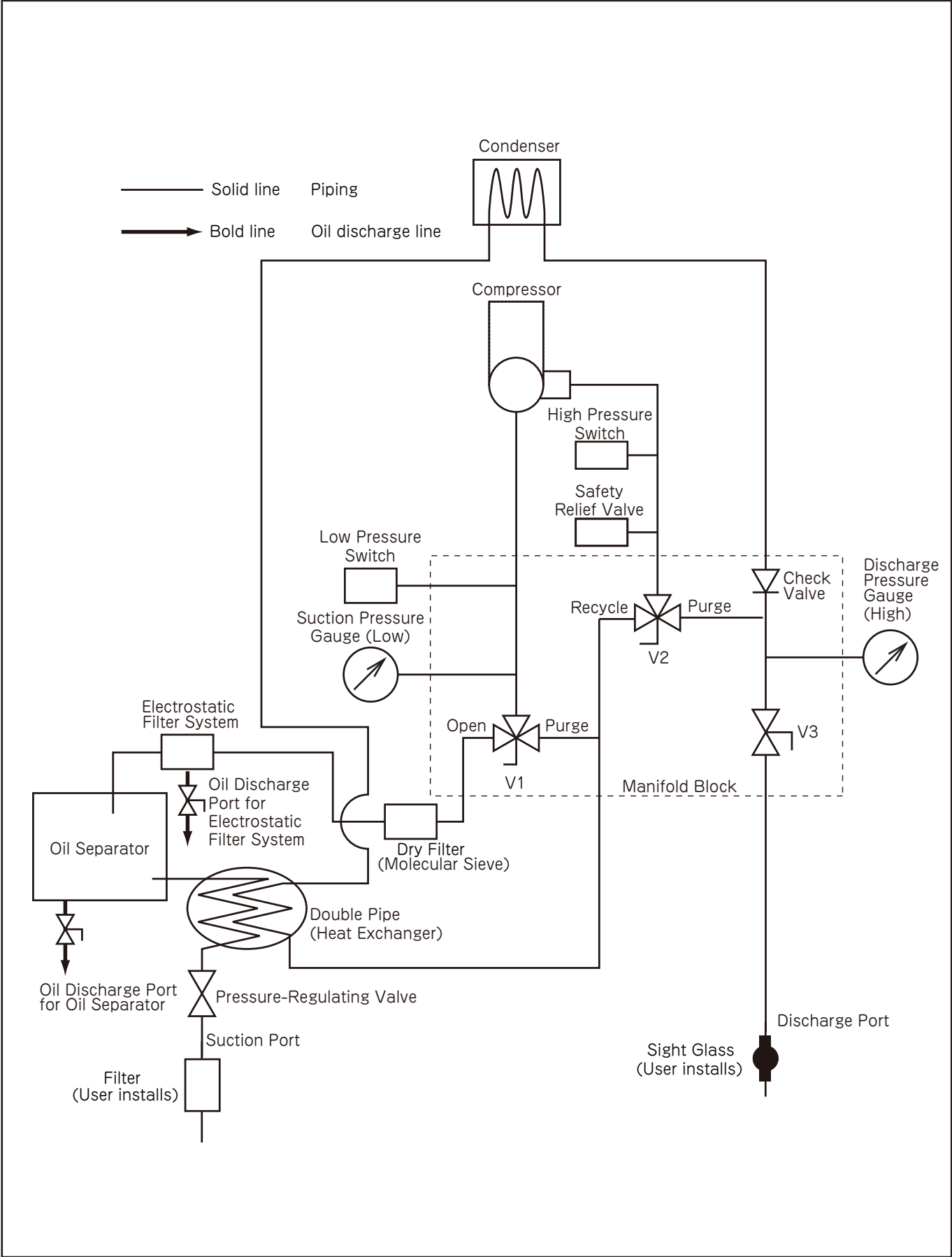
Symptom	Cause	Solution
The unit does not start.	① Power Cord is not plugged in.	① Plug Power Cord in properly.
	② The unit stops due to High Pressure Shut-off function.	② Reduce Discharge Pressure.
	③ Breaker is tripped.	③ Reset Breaker.
	④ The thermal protector is tripped due to the motor overheating.	④ Wait until the motor cools down.
	⑤ The motor has burned out	⑤ Repair.
	⑥ The compressor is locked.	⑥ Repair.
	⑦ Wiring fault or disconnection.	⑦ Repair.
	⑧ The high pressure switch is out of order.	⑧ Repair.
	⑨ The low pressure switch is out of order.	⑨ Repair.
	⑩ Auto Stop Timer shuts down unit. (every 20 hours)	⑩ Replace Molecular Sieve Replacement Kit (AR338) referring to page 17.
The unit stops soon after starting.	① The ball valve on the discharge hose is closed.	① Open the ball valve.
	② The liquid valve of the cylinder to be charged is closed.	② Open the liquid valve.
	③ The pressure in the cylinder to be charged is high.	③ Cool the cylinder.
	④ Voltage drop	④ Connect to a 220V to 240V power source. Use an appropriate extension cord.
The recycle speed is slow or the unit does not recycle.	① The suction hose is connected to the vapor port.	① Connect it to the liquid port.
	② Filter (TF011) is clogged.	② Clean or replace Filter (TF011).
	③ The pressure in the cylinder to be charged is high.	③ Cool the cylinder.
	④ The hose has a core depressor.	④ Remove the core depressor in the hose.
	⑤ The refrigerant in the cylinder is condensing at low temperature.	⑤ Wait until operating temperature is reached.
	⑥ The low pressure switch trips.	⑥ Pressurize the suction port side. Switch the shut-off mode setting to "Manual".
	⑦ Piston Seal Kits in the compressor are worn out.	⑦ Repair.
	⑧ The suction and discharge valves of the compressor work abnormally.	⑧ Repair.
The unit does not restart.	① The motor is overheated.	① Wait until the motor cools down.
	② The difference in pressure between the suction side and the discharge side is too large as the pressure in the cylinder to be charged is high.	② Balance the pressure.
	③ Breaker is tripped.	③ Reset Breaker.
	④ The low pressure switch trips.	④ Raise Suction Pressure higher than atmospheric pressure.
Oil tank full lamp is on.	① Oil Separator is flooded with oil.	① Discharge oil following the procedure on page 14.
Oil full fill lamp lights up when R134a is recycling.	① Liquid R134a accumulates in Oil Separator	① Refer to page 11.

BEFORE REQUESTING REPAIR OR SERVICES

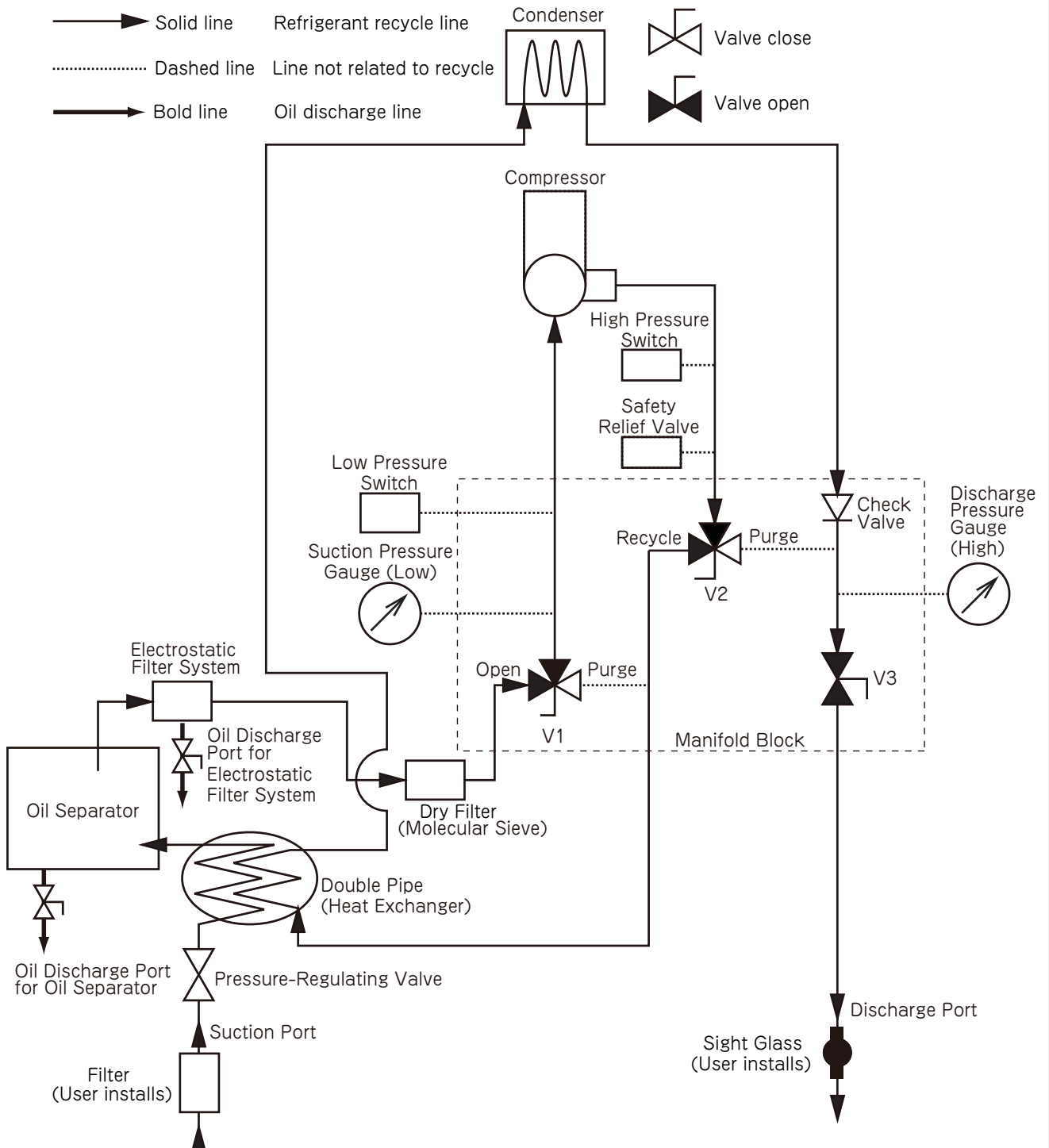
Symptom	Cause	Solution
The high pressure switch does not work.	① The high pressure switch is out of order.	① Repair.
	② Faston terminals are disconnected.	② Connect the faston terminals properly.
The high pressure switch works even at low pressure.	① The high pressure switch is out of order.	① Repair.
The low pressure switch does not work.	① Auto/Manual Shut-off Mode Setting sets at "Manual" side.	① Switch the shut-off mode setting to "Auto Shut-off".
	② The low pressure switch is out of order.	② Repair.
The purity of the recycled refrigerants is not good enough.	① Molecular Sieve is contaminated.	① Replace Molecular Sieve Replacement Kit (AR338) referring to page 17 and Filter (TF011).
	② The O-ring in Dry Filter Housing is damaged.	② Replace Molecular Sieve Replacement Kit (AR338) referring to page 17.
Refrigerants leak from the unit.	① The charging hose and the hose gasket are not in good condition.	① Replace the charging hose and gasket.
	② The lid of Dry Filter Housing is loose.	② Close the lid tight.
	③ Filter and Sight Glass are loose.	③ Tighten Filter and Sight Glass.
	④ The valve of Oil Discharge Port is open.	④ Close the valve and put a cap on the port.

Refrigerant Recycle Equipment

PIPING DIAGRAM

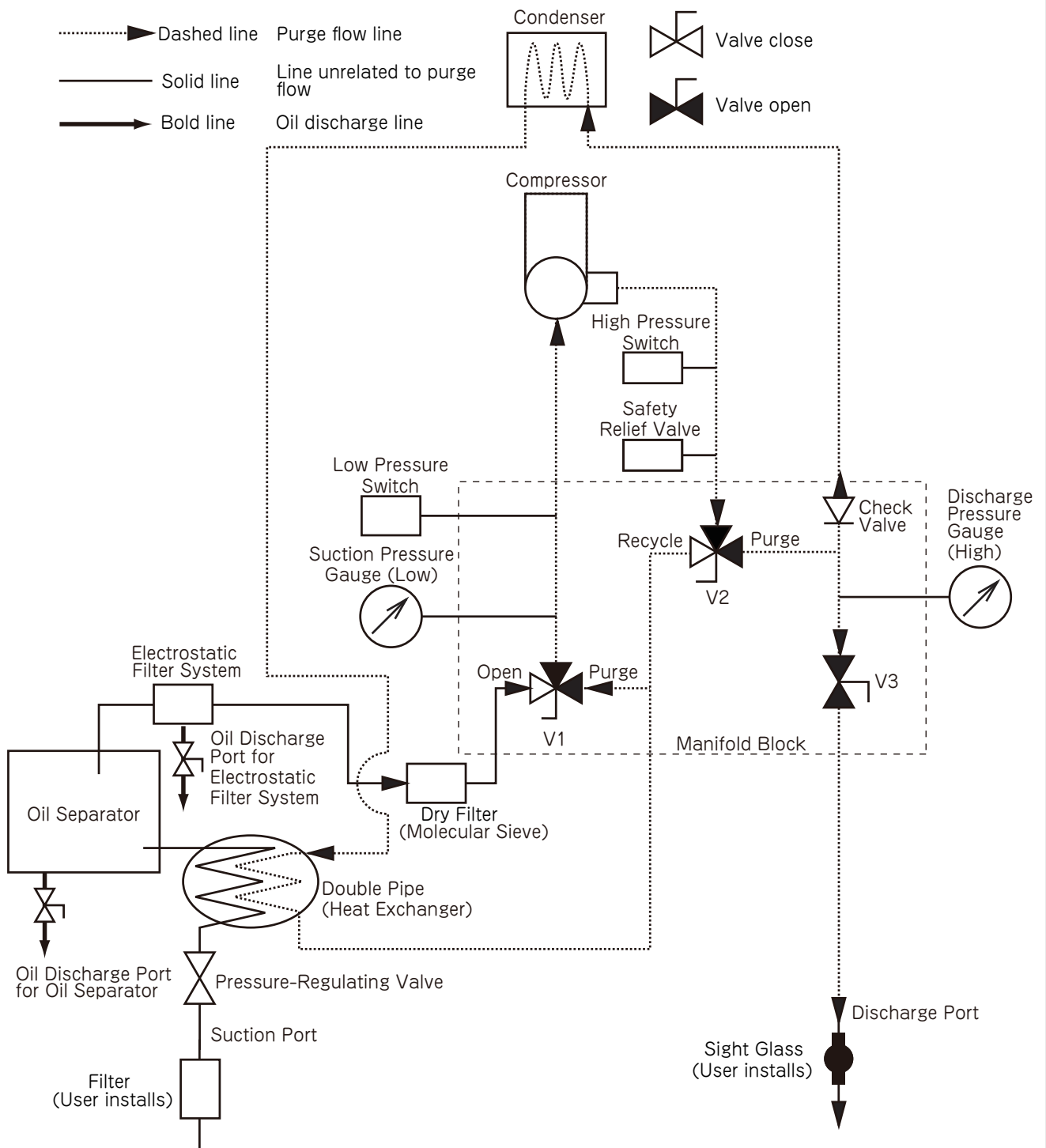


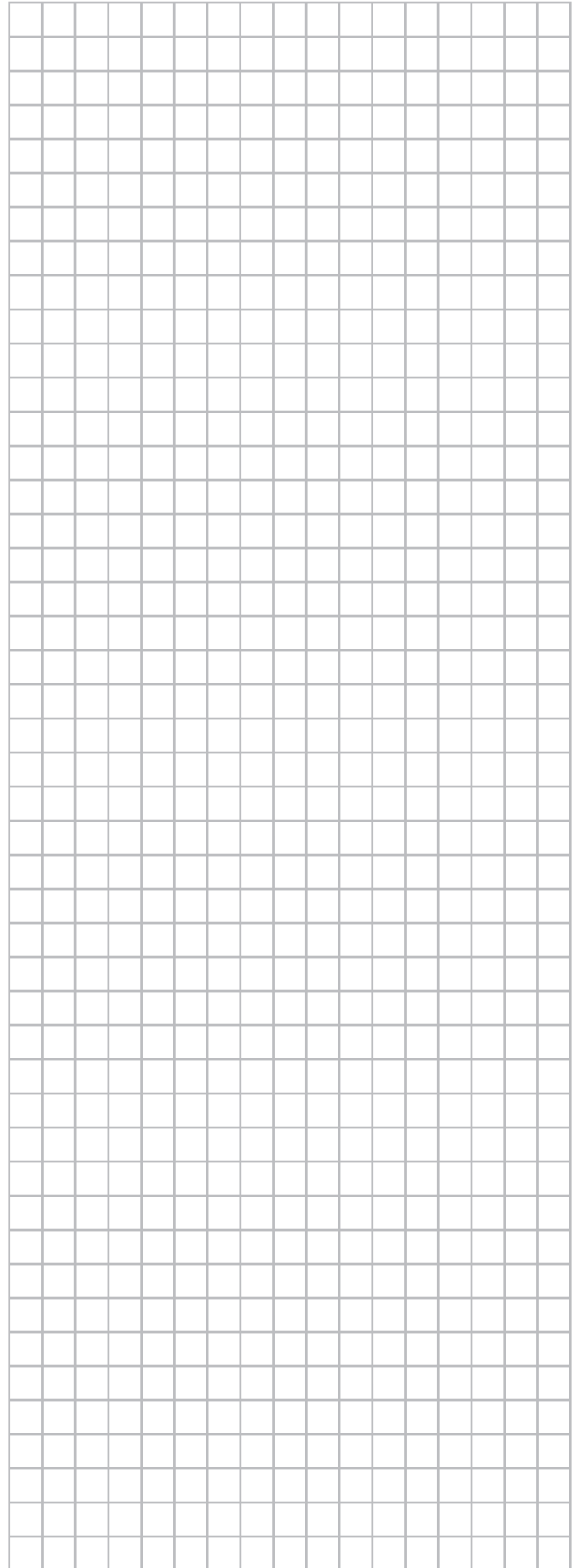
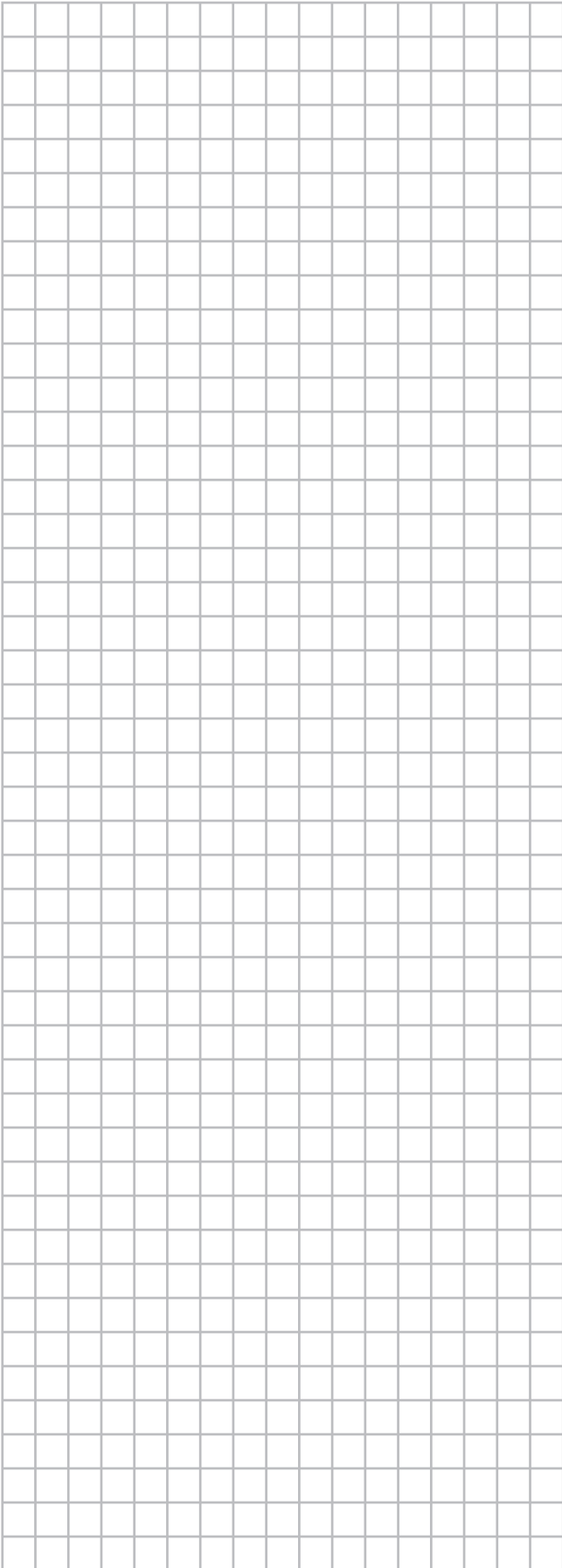
FLOW DIAGRAM (RECYCLE)



Refrigerant Recycle Equipment

FLOW DIAGRAM (PURGE)





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