



Room Air Conditioner

SERVICE MANUAL

CAUTION

- BEFORE SERVICING THE UNIT, READ THE SAFETY PRECAUTIONS IN THIS MANUAL.
- ONLY FOR AUTHORIZED SERVICE PERSONNEL.

SPLIT MONO TYPES

-OPERATION-

MODELS: S4-S5-SE Chassis

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Functions

Indoor Unit

Operation ON/OFF by Remote controller

Sensing the Room Temperature

- Room temperature sensor. (THERMISTOR)

Room temperature control

- Maintains the room temperature in accordance with the Setting Temp.

Starting Current Control

- Indoor fan is delayed for 5 sec at the starting.

Time Delay Safety Control

- Restarting is inhibited for approx. 3 minutes.

Indoor Fan Speed Control

- High, Med, Low, CHAOS, JET COOL

Operation indication Lamps (LED)

- ⏻ --- Lights up in operation
- ☆ --- Lights up in Sleep Mode (for without Plasma Model)
- 🕒 --- Lights up in Timer Mode
- Lights up in Sleep Mode (for Plasma Model)
- ✱ --- Lights up in Defrost Mode or hot Start operation (for Heating Model)

OUTDOOR --- Lights up in compressor operation (for Cooling Model)

88 --- Indicates the setting temperature (for Plasma Model)

PLASMA --- Lights up in plasma operation (for Plasma Model)

IN DOOR -- Lights up during indoor unit operation.

Soft Dry Operation Mode

- Intermittent operation of fan at low speed.

Sleep Mode Auto Control

- The fan is switched to low(Cooling), med(Heating) speed.
- The unit will be stopped after 1, 2, 3, 4, 5, 6, 7 hours.

Natural Air Control by CHAOS Logic

- The fan is switched to intermittent or irregular operation
- The fan speed is automatically switched from high to low speed.

Airflow Direction Control

- The louver can be set at the desired position or swing up and down automatically.

PLASMA (Optional)

- The function will be operated while in any operation mode with selecting the function.
- The function is to be stopped while it is operating with selecting the function.

Defrost(Deice) control (Heating)

- Both the indoor and outdoor fan stops during defrosting.

Hot-start Control (Heating)

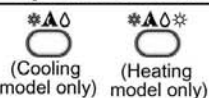
- The indoor fan stops until the evaporator pipe temperature will be reached at 28°C.

Remote Control

Operation ON/OFF

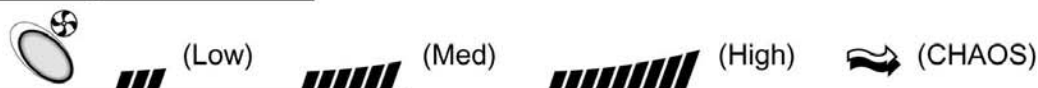


Operation Mode Selection



Cooling Operation Mode.(❄) Auto Operation Mode.(⬆) (Optional)
 (Cooling model only) (Heating model only) Healthy Dehumidification Operation Mode.(⬇) Heating Operation Mode.(☀)

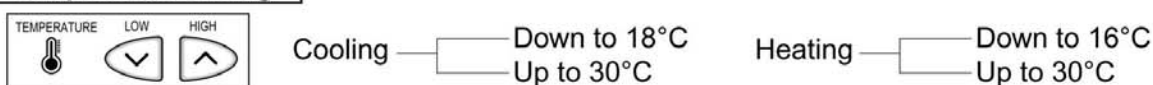
Fan Speed Selection



Room, Temperature Checking



Temperature Setting



JET COOL



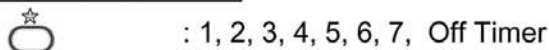
PLASMA(Optional)



Setting the Time or Timer



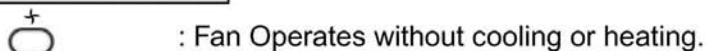
Sleep Operation



Airflow Direction Control



Air Circulation



Horizontal Airflow Direction Control Button(Optional)



2nd F



Auto Clean (Optional)

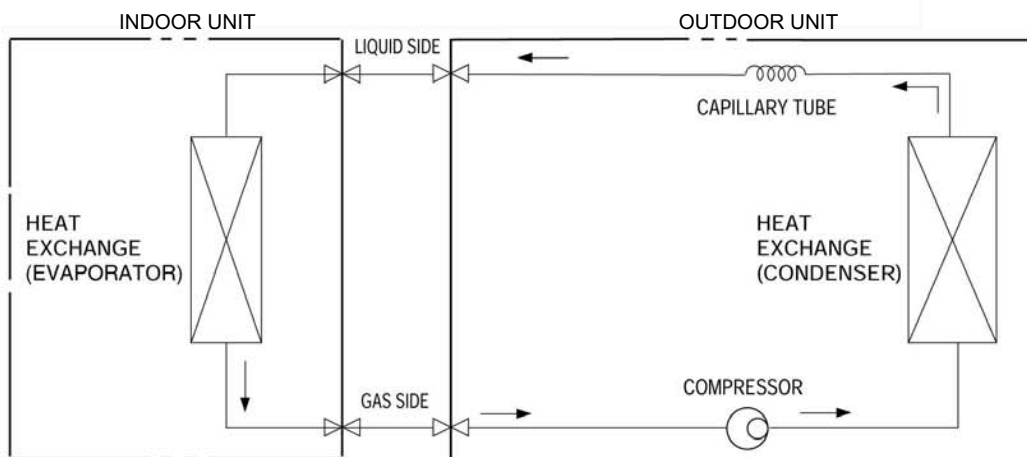


Reset

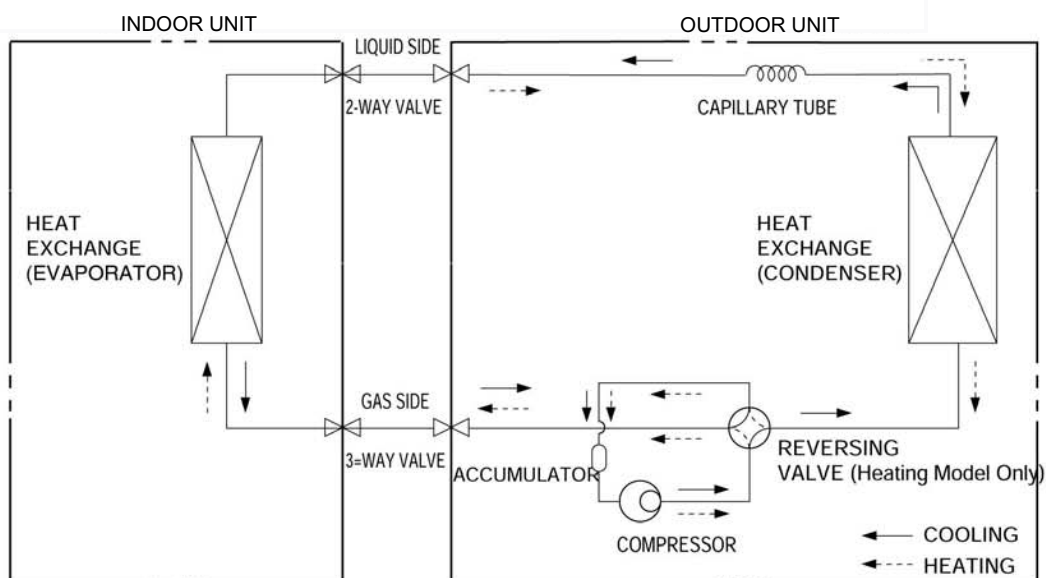


Refrigeration Cycle Diagram

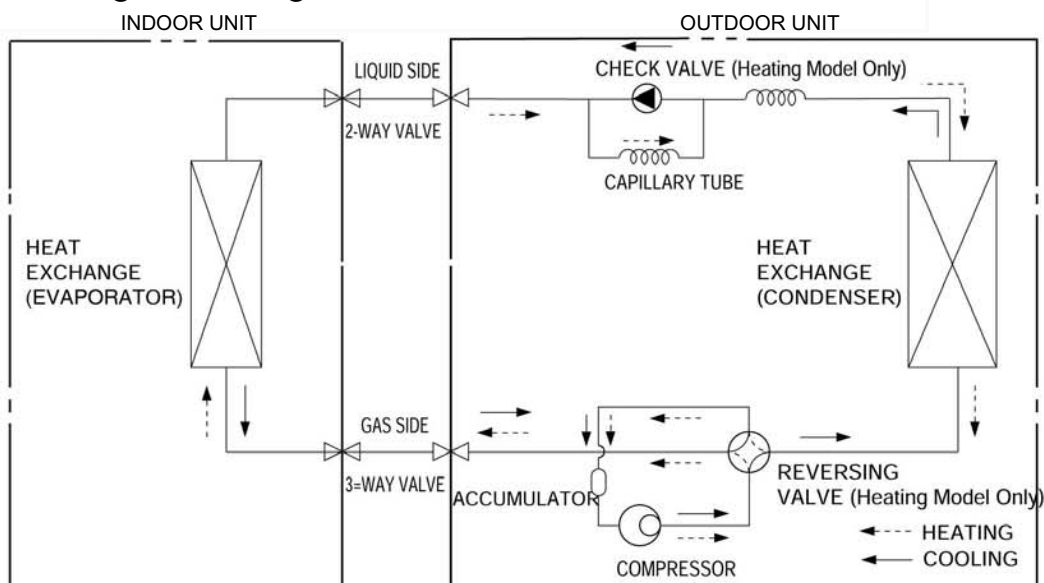
(1) Cooling Only Models



(2-a) Cooling & Heating Models 12K-18K-24K



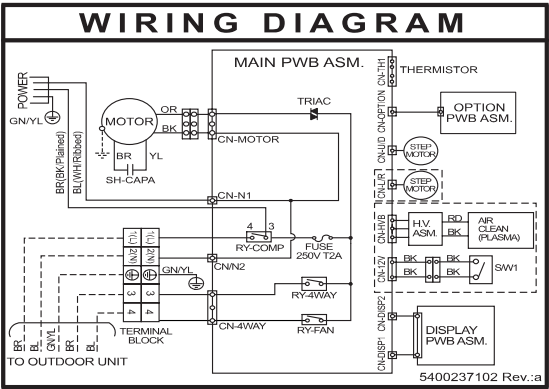
(2-b) Cooling & Heating Models 9K



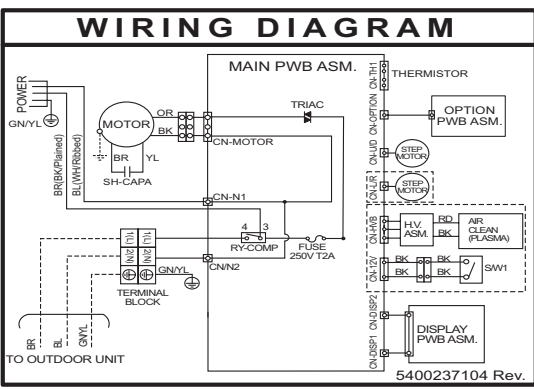
Wiring Diagram

(1) Indoor Unit

Heat pump



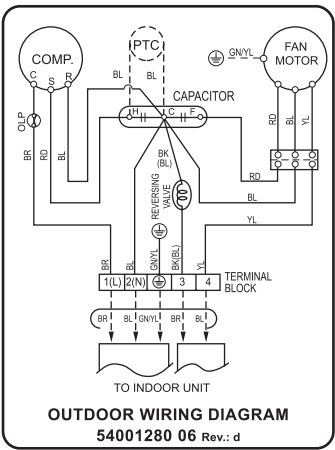
Cooling Only



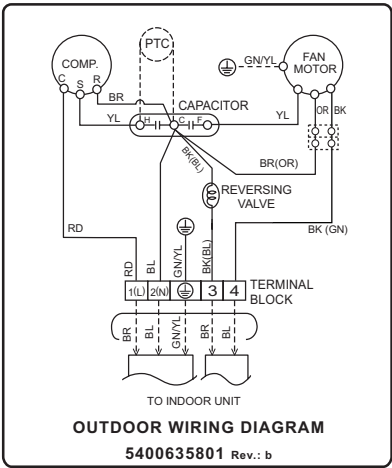
(2) Outdoor Unit

Heat pump

09K-12K

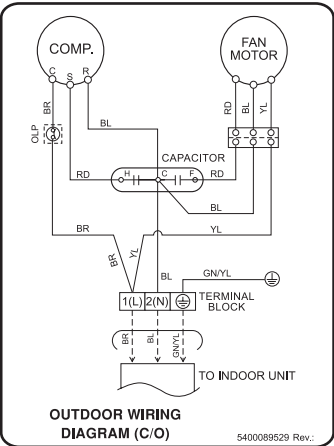


18K-24K

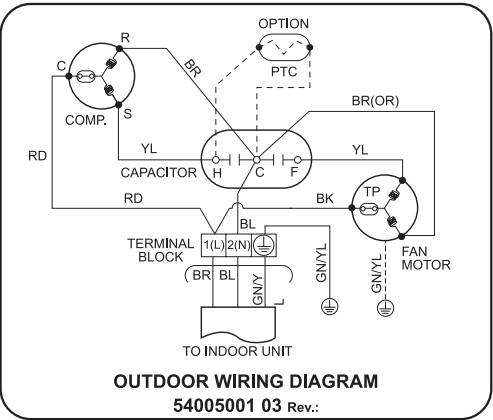


Cooling Only

09K-12K



18K-24K



Operation Details

1. MAIN UNIT FUNCTION

• DISPLAY

1) C/O Model

Operation Indicator

- ON while in appliance operation, OFF while in appliance pause.
- Flashing while in disconnection or short in Thermistor. (3 sec off / 0.5 sec on)

Sleep Timer Indicator

- ON while in sleep timer mode, OFF when sleep timer cancel or appliance operation pause.

IN DOOR Indicator

- While in appliance operation, ON while in indoor unit running, OFF while in indoor unit off.

Comp. Running Indicator

- While in appliance operation, ON while in outdoor unit compressor running, OFF while in compressor off.

BB Display Indicator (Optional)

- While in appliance operation, indicates the setting temperature.

Plasma Indicator (Optional)

- On while in plasma mode, off while plasma mode is canceled.

Power (Forced) Operation

- Operation starts when this button is pressed and stops when you press the button again.

2) H/P Model

Operation Indicator

- ON while in appliance operation, OFF while in appliance pause.
- Flashing while in disconnection or short in Thermistor. (3 sec off / 0.5 sec on)

Sleep Timer Indicator

- ON while in sleep timer mode, OFF when sleep timer cancel or appliance operation pause.

IN DOOR Indicator

- While in appliance operation, ON while in indoor unit running, OFF while in indoor unit off.

Defrost Indicator

- OFF except when hot start during heating mode operation or while in defrost control.

BB Display Indicator (Optional)

- While in appliance operation, indicates the setting temperature.

Plasma Indicator (Optional)

- On while in plasma mode, off while plasma mode is canceled.

Power (Forced) Operation

- Operation starts when this button is pressed and stops when you press the button again.

■ Cooling Mode Operation

- When the intake air temperature reaches 0.5°C below the setting temp, the compressor and the outdoor fan stop.
- When it reaches 0.5°C above the setting temp, they start to operate again.
 - Compressor ON Temp ⇨ Setting Temp+0.5°C
 - Compressor OFF Temp ⇨ Setting Temp-0.5°C
- While in compressor running, operating with the airflow speed set by the remote control. While in compressor not running, operating with the low airflow speed regardless of the setting.

■ Healthy Dehumidification Mode

- When the dehumidification operation input by the remote control is received, the intake air temperature is detected and the setting temp is automatically set according to the intake air temperature.
 - 26°C ≤ Intake Air Temp ⇨ 25°C
 - 24°C ≤ Intake Air Temp < 26°C ⇨ Intake Air Temp-1°C
 - 18°C ≤ Intake Air Temp < 24°C ⇨ Intake Air Temp-0.5°C
 - Intake Air Temp < 18°C ⇨ 18°C

- Compressor ON Temp ➡ Setting Temp+0.5°C
Compressor OFF Temp ➡ Setting Temp-0.5°C

- Compressor ON Temp ⌚ Setting Temp+2°C
Compressor OFF Temp ⌚ Setting Temp+4°C

- Compressor ON Temp ↻ Setting Temp+0.5°C
Compressor ON Temp ↻ Setting Temp+0.5°C

- | | |
|-------------------------------|--------------------------|
| 26°C ≤ Intake Air Temp | ⊃ 25°C |
| 24°C ≤ Intake Air Temp < 26°C | ⊃ Intake Air Temp +1°C |
| 22°C ≤ Intake Air Temp < 24°C | ⊃ Intake Air Temp +0,5°C |
| 18°C ≤ Intake Air Temp < 22°C | ⊃ Intake Air Temp |
| Intake Air Temp < 18°C | ⊃ 18°C |

- 8-

■ Fuzzy Operation (H/P Model)

- When any of operation mode is not selected like the moment of the power on or when 3 hrs has passed since the operation off, the operation mode is selected.
- When determining the operation mode, the compressor, the outdoor fan, and the 4 way valve are off and only the indoor fan is operated for 15 seconds. They an operation mode is selected according to the intake air temp at that moment as follows.

24°C ≤ Intake Air Temp	↷ Fuzzy Operation for Cooling
21°C ≤ Intake Air Temp < 24°C	↷ Fuzzy Operation for Dehumidification
Intake Air Temp < 21°C	↷ Fuzzy Operation for Heating

- If any of the operation modes among cooling / dehumidification / heating mode operations is carried out for 10 sec or longer before Fuzzy operation, the mode before Fuzzy operation is operated.

1) Fuzzy Operation for Cooling

- According to the setting temperature selected by Fuzzy rule, when the intake air temp is 0.5°C or more below the setting temp, the compressor is turned off. When 0.5°C or more above the setting temp, the compressor is turned on.

Compressor ON Temp	↷ Setting Temp+0.5°C
Compressor OFF Temp	↷ Setting Temp+0.5°C

- At the beginning of Fuzzy mode operation, the setting temperature is automatically selected according to the intake air temp at that time.

26°C ≤ Intake Air Temp	↷ 25°C
24°C ≤ Intake Air Temp < 26°C	↷ Intake Air Temp +1°C
22°C ≤ Intake Air Temp < 24°C	↷ Intake Air Temp +0,5°C
18°C ≤ Intake Air Temp < 22°C	↷ Intake Air Temp
Intake Air Temp < 18°C	↷ 18°C

- When the Fuzzy key (Temperature Control key) is input after the initial setting temperature is selected, the Fuzzy key value and the intake air temperature at that time are compared to select the setting temperature automatically according to the Fuzzy rule.
- While in Fuzzy operation, the airflow speed of the indoor fan is automatically selected according to the temperature

2) Fuzzy Operation for Dehumidification

- According to the setting temperature selected by Fuzzy rule, when the intake air temp is 0.5°C or more below the setting temp, the compressor is turned off. When 0.5°C or more above the setting temp, the compressor is turned on.

Compressor ON Temp	↷ Setting Temp+0.5°C
Compressor OFF Temp	↷ Setting Temp+0.5°C

- At the beginning of Fuzzy mode operation, the setting temperature is automatically selected according to the intake air temp at that time.

26°C ≤ Intake Air Temp	↷ 25°C
24°C ≤ Intake Air Temp < 26°C	↷ Intake Air Temp +1°C
22°C ≤ Intake Air Temp < 24°C	↷ Intake Air Temp +0,5°C
18°C ≤ Intake Air Temp < 22°C	↷ Intake Air Temp
Intake Air Temp < 18°C	↷ 18°C

- When the Fuzzy key (Temperature Control key) is input after the initial setting temperature is selected, the Fuzzy key value and the intake air temperature at that time are compared to select the setting temperature automatically according to the Fuzzy rule.
- While in Fuzzy operation, the airflow speed of the indoor fan repeats the low airflow speed or pause as in dehumidification operation.

3) Fuzzy Operation for Heating

- According to the setting temperature selected by Fuzzy rule, when the intake air temp is 3°C or more above the setting temp, the compressor is turned off. When below the setting temp, the compressor is turned on.

Compressor ON Temp	↷ Setting Temp
Compressor OFF Temp	↷ Setting Temp+3°C

- At the beginning of Fuzzy mode operation, the setting temperature is automatically selected according to the intake air temp at that time.

20°C Intake Air Temp	↷ Intake Air Temp +0,5°C
Intake Air Temp < 20°C	↷ 20°C

- When the Fuzzy key (Temperature Control key) is input after the initial setting temperature is selected, the Fuzzy key value and the intake air temperature at that time are compared to select the setting temperature automatically according to the Fuzzy rule.
- While in Fuzzy operation, the airflow speed of the indoor fan is set to the high or the medium according to the intake air temperature and the setting temperature.

■ Airflow Speed Selection

- The airflow speed of the indoor fan is set to high, medium, low, or chaos (auto) by the input of the airflow speed selection key on the remote control.

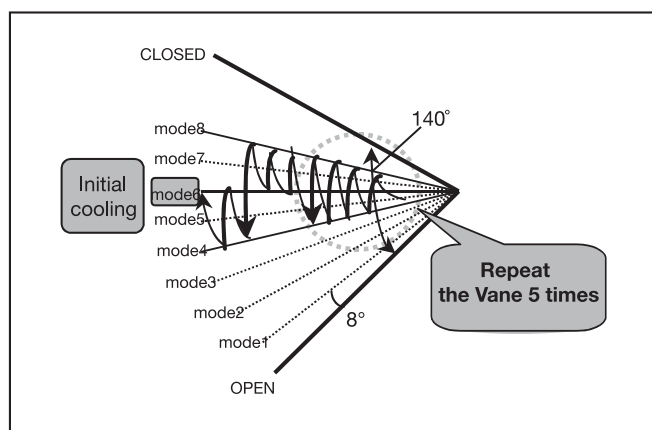
■ Sleep Timer Operation

- When the sleep time is reached after <1, 2, 3, 4, 5, 6, 7, 8, 9, 0 (cancel) hr > is input by the remote control while in appliance operation, the operation of the appliance stops.
- While the appliance is on pause, the sleep timer mode cannot be input.

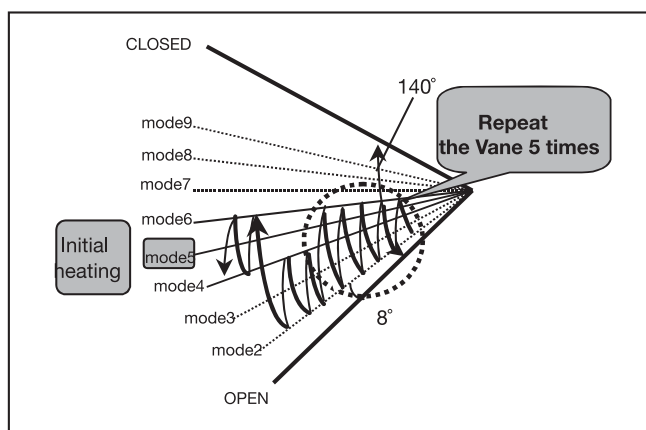
■ Chaos Swing Mode

- By the Chaos Swing key input at first 5 cycles the upper / lower vane swing up and down at max angle. Then the airflow direction automatically operates with the Chaos Swing or they are fixed to the desired direction.
- While in Chaos Swing mode, the angles of cooling and heating cycle operations are different.

<Cooling Mode>



<Heating Mode>



■ Chaos Naturel Wind Mode

- When the Chaos Naturel Wind mode is selected and then operated, the high, medium, or low speed of the airflow mode is operated for 2 ~ 15 sec. randomly by the Chaos Simulation.

■ Jet Cool Mode Operation (C/O Model)

- If the Jet Cool key is input at any operation mode while in appliance operation, the Jet Cool mode operates.
- In the Jet Cool mode, the indoor fan is operated at super-high speed for 30 min at cooling mode operation.
- In the Jet Cool mode operation, the room temperature is controlled to the setting temperature, 18°C
- When the sleep timer mode is input while in the Jet Cool mode operation, the Jet Cool mode has the priority.
- When the Jet Cool key is input, the upper/lower vanes are reset to those of the initial cooling mode and then operated in order that the air outflow could reach further.

■ Jet Cool Mode Operation (H/P Model)

- While in heating mode or Fuzzy operation, the Jet Cool key cannot be input. When it is input while in the other mode operation (cooling, dehumidification, ventilation), the Jet Cool mode is operated.
- In the Jet Cool mode, the indoor fan is operated at super-high speed for 30 min at cooling mode operation.
- In the Jet Cool mode operation, the room temperature is controlled to the setting temperature, 18°C.
- When the sleep timer mode is input while in the Jet Cool mode operation, the Jet Cool mode has the priority.
- When the Jet Cool key is input, the upper/lower vanes are reset to those of the initial cooling mode and then operated in order that the air outflow could reach further.

■ Forced Operation

- Operation procedures when the remote control can't be used.
- The operation will be started if the power button is pressed.
- If you want to stop operation, re-press the button.

	Cooling Model	Heat pump Model		
		Room Temp. $\geq 24^{\circ}\text{C}$	$21^{\circ}\text{C} \leq \text{Room Temp.} < 24^{\circ}\text{C}$	Room Temp. $< 21^{\circ}\text{C}$
Operating mode	Cooling	Cooling	Healthy Dehumidification	Heating
Indoor FAN Speed	High	High	High	High
Setting Temperature	22°C	22°C	23°C	24°C

- While in forced operation, the key input by the remote control has no effect and the buzzer sounds 10 times to indicate the forced operation.

■ Test operation

- During the TEST OPERATION, the unit operates in cooling mode at high speed fan, regardless of room temperature and resets in 18 ± 1 minutes.
- During test operation, if remote controller signal is received, the unit operates as remote controller sets.
If you want to use this operation, open the front panel upward and Press the power button let it be pressed for about 3 seconds.
- If you want to stop the operation, re-press the button.
- For this operations LB appears on the display (plasma model only)

■ Auto restart

- In case the power comes on again after a power failure, Auto Restarting Operation is the function to operate procedures automatically to the previous operating conditions.
It is also possible that this operation can be canceled. In order to cancel auto restart operation press power button let it be pressed for about 6 seconds, to operate auto restart operation again, press power button let it be pressed for about 6 seconds as well.

■ Air Cleaner Operation (Plasma Model)

- When an air cleaner function is selected during Air Conditioner operation
 - Plasma air cleaner function will be operated while in any operation mode with selecting the function.
 - The function is to be stopped while it is operating with selecting the function.
- When an air cleaner function is selected during operation off
 - The function will be only operated.
- When inlet grille of air conditioner is opened during plasma operation, High Voltage Generator(H.V.B) is to be stopped. When inlet grille of air conditioner is closed during plasma operation, High Voltage Generator(H.V.B) will be operated again.

■ Protection of the evaporator pipe from frosting

- If the indoor pipe temp is below 0°C in 7 min. after the compressor operates without any pause while in cooling cycle operation mode, the compressor and the outdoor fan are turned off in order to protect the indoor evaporator pipe from frosting.
- When the indoor pipe temp is 7°C or higher after 3 min. pause of the compressor, the compressor and the outdoor fan is turned on according to the condition of the room temperature.

■ Buzzer Sounding Operation

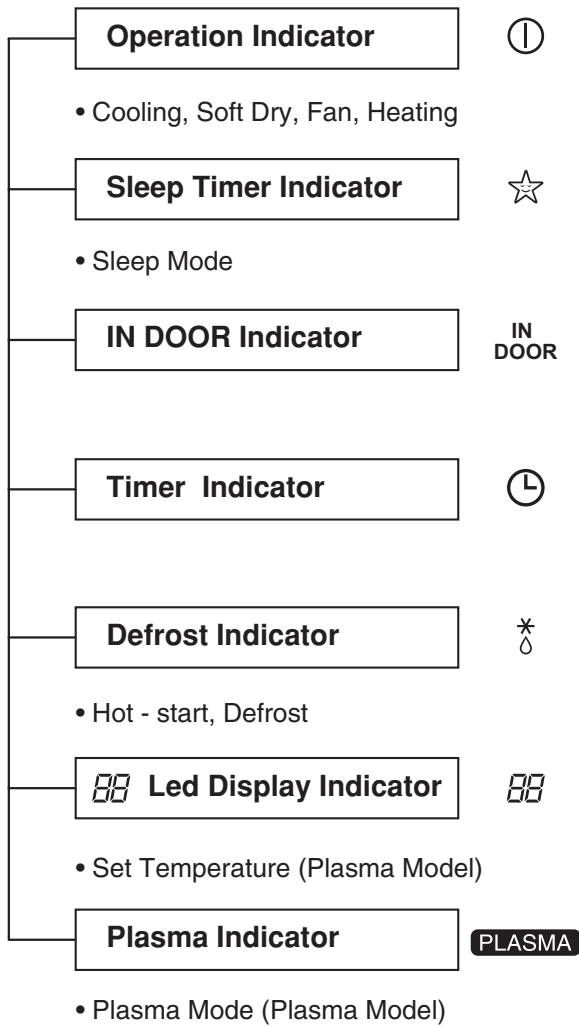
- When the appliance-operation key is input by the remote control, the short "beep-beep-" sounds.
- When the appliance-pause key is input by the remote control, the long "beep—" sounds.
- When a key is input by the remote control while the slide switch on the main unit of the appliance is on the forced operation position, the error sound "beep-beep-beep-beep-beep-" is made 10 times to indicate that the remote control signal cannot be received.

■ Auto Clean Operation (Plasma Model)

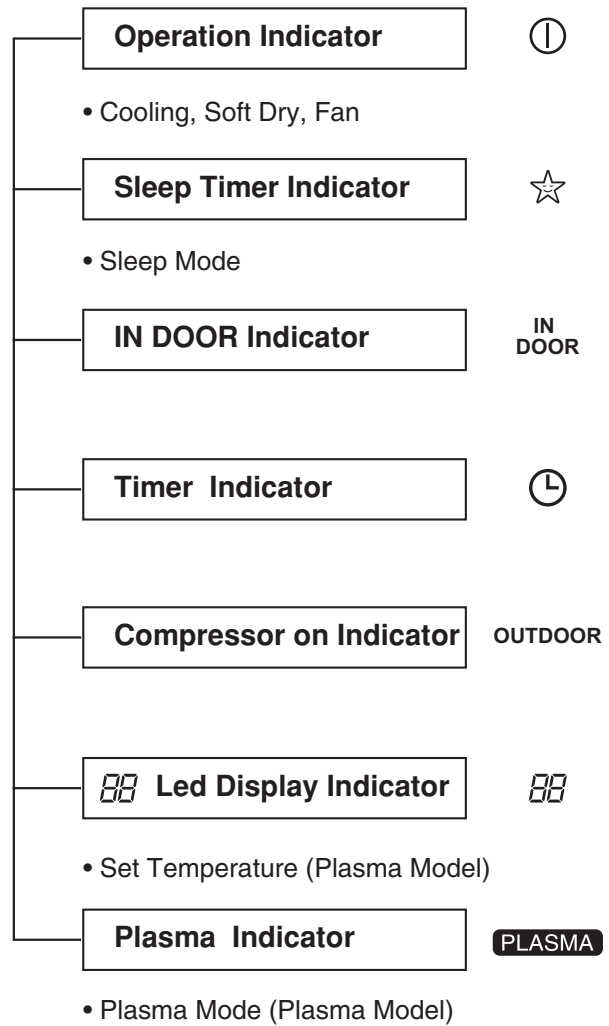
- This function is to remove unpleasant smells from mold and other bacteria in the air conditioner, and to remove humidity automatically during humid summer, which supplies purified air inside the room
- Whenever pressing the Auto Clean button, Auto Clean function will be reserved or cancelled.
- When the unit is started after the reservation of Auto Clean (both in C/O & H/P models) the cool start function operates and indoor fan is started after 20 seconds.
- When turn off the unit that you have already reserved Auto Clean function, the unit circulates the indoor air in the Auto Clean mode with no more cooling or dehumidification operations for about 30 minutes for the cooling only model. For heat pump model, the unit circulates the indoor air for 13 minutes without cooling or heating operation. Then unit operates 1 minute heating mode, and for 2 minutes circulates the indoor air without heating or cooling operations.
- For this operations ☐☐ appears on the display.

Display Function

1. Heating Mode



2. Cooling Mode



Self - diagnosis Function

Error Code	Error Display LED (Indoor body operation LED)	Error contents	SVC check point
1	<p>(once)</p> <p>3 sec. 3 sec. 3 sec.</p>	<ul style="list-style-type: none"> • Indoor room temperature thermistor open / short • Indoor pipe temperature thermistor open / short 	<ul style="list-style-type: none"> • Indoor Thermistor assembly check

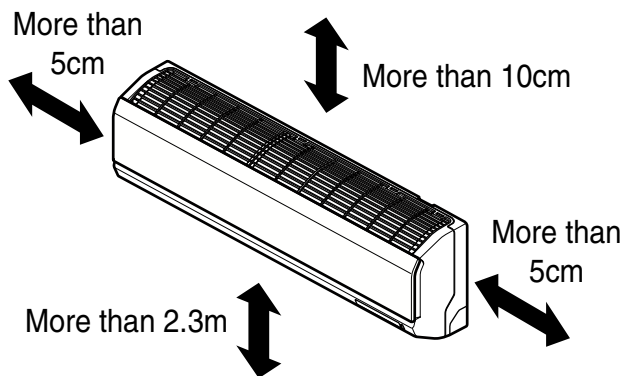
Installation

1. Installation of indoor, Outdoor unit

1) Selection of the best location

1. Indoor unit

- Do not have any heat or steam near the unit.
- Select a place where there are no obstacles in front of the unit.
- Make sure that condensation drainage can be conveniently routed away.
Do not install near a doorway.
- Ensure that the space around the left and right of the unit is more than 10cm. The unit should be installed as high on the wall as possible, allowing a minimum of 5cm. from ceiling.
- Use a stud finder to locate studs to prevent unnecessary damage to the wall.



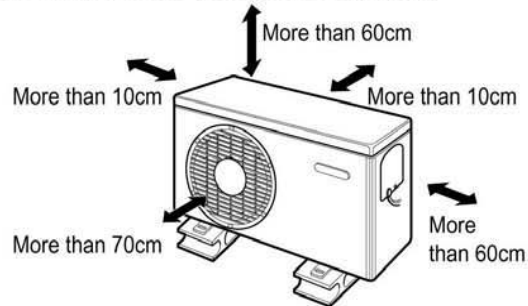
CAUTION

Install the indoor unit on the wall where the height from the floors more than 2.3 meters.

2. Outdoor unit

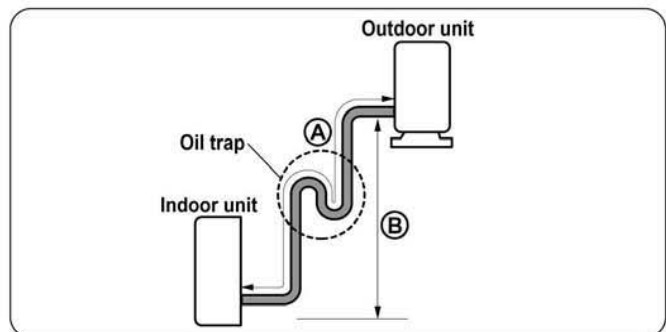
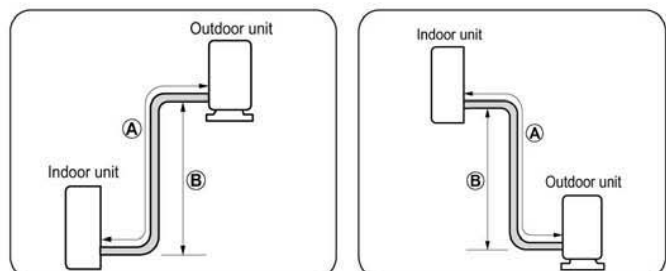
- If an awning is built over the unit to prevent direct sunlight or rain exposure, make sure that heat radiation from the condenser is not restricted.
- Ensure that the space around the back and sides is more than 10cm. The front of the unit should have more than 70cm of space.
- Do not place animals and plants in the path of the warm air.
- Take the air conditioner weight into account and select a place where noise and vibration are minimum.

- Select a place so that the warm air and noise from the air conditioner do not disturb neighbors.



2) Piping length and elevation

Capacity (Btu/h)	Pipe Size		Standard Length (m)	Max. Elevation B (m)	Max. Length A (m)	Additional Refrigerant (g/m)
	GAS	LIQUID				
7K-9K	3/8" (Ø9.52)	1/4" (Ø6.35)	5	7	15	20
12K-15K	1/2" (Ø12.7)	1/4" (Ø6.35)	5	7	15	20
18K	1/2" (Ø12.7)	1/4" (Ø6.35)	5	15	30	20
24K-26K	5/8" (Ø15.88)	3/8" (Ø9.52)	5	15	30	30
	5/8" (Ø15.88)	3/8" (Ø9.52)	5	15	30	30



If case more than 5m

CAUTION

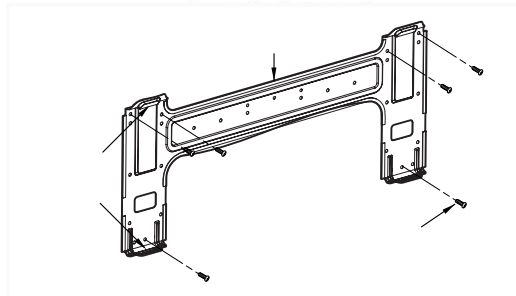
- Capacity is based on standard length and maximum allowance length is on the basis of reliability.
- Oil trap should be installed every 5~7 meters.

3) How to fix installation plate

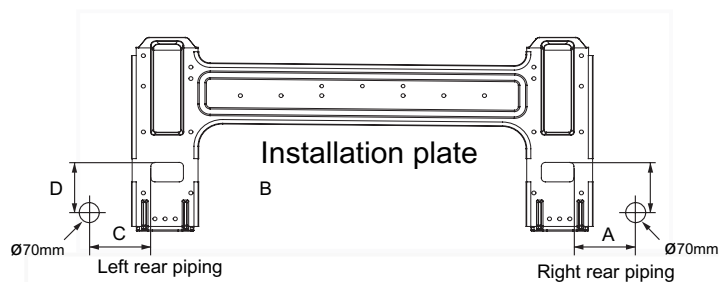
The wall you select should be strong and solid enough to prevent vibration

1. Mount the installation plate on the wall with four type A screws. If mounting the unit on a concrete wall, use anchor bolts.

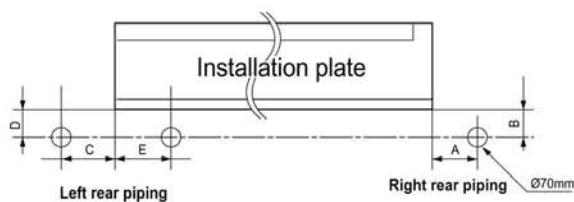
- Mount the installation plate horizontally by aligning the centerline using a level.



2. Measure the wall and mark the centerline. It is also important to use caution concerning the location of the installation plate-routing of the wiring to power outlets is through the walls typically. Drilling the hole through the wall for piping connections must be done safely.

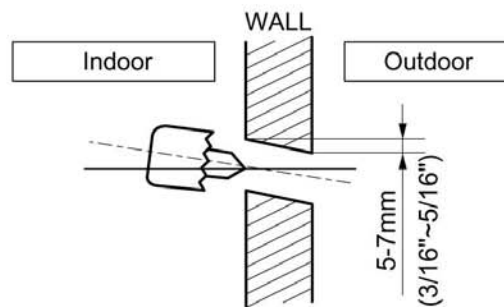


CHASSIS (Grade)	Distance (mm)			
	A	C	B	D
9k, 12k	105	65	60	65
18k, 24k	105	65	260	65



4) Drill a hole in the wall

- Drill the piping hole with a $\varnothing 70\text{mm}$ hole core drill. Drill the piping hole at either the right or the left with the hole slightly slanted to the outdoor side.



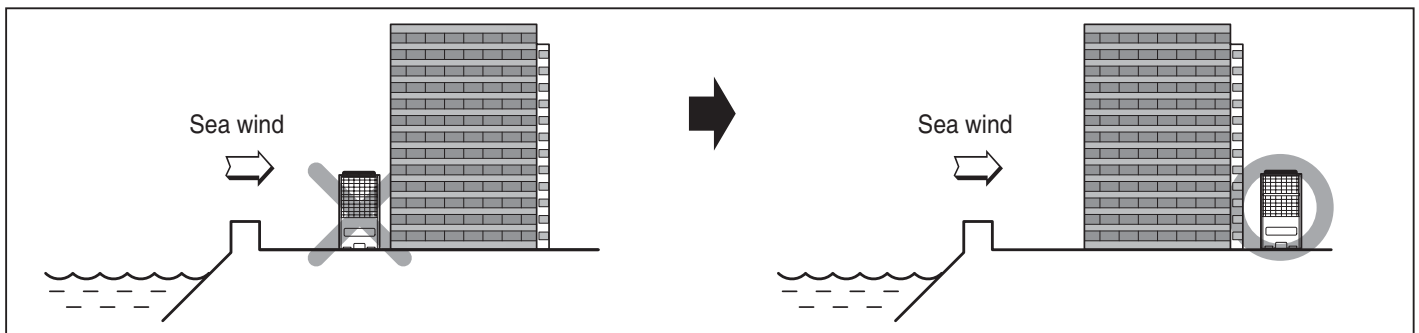
5) Installation guide at the seaside

⚠ CAUTION

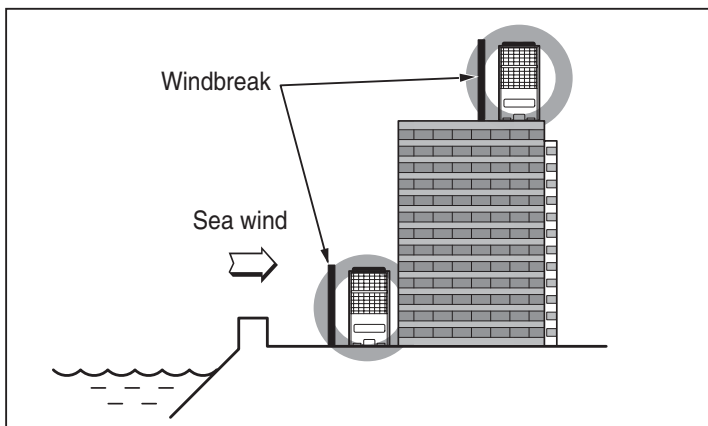
1. Air conditioners should not be installed in areas where corrosive gases, such as acid or alkaline gas, are produced.
2. Do not install the product where it could be exposed to sea wind (salty wind) directly. It can result corrosion on the product. Corrosion, particularly on the condenser and evaporator fins, could cause product malfunction or inefficient performance.
3. If outdoor unit is installed close to the seaside, it should avoid direct exposure to the sea wind. Otherwise it needs additional anticorrosion treatment on the heat exchanger.

Selecting the location(Outdoor Unit)

- 1) If the outdoor unit is to be installed close to the seaside, direct exposure to the sea wind should be avoided. Install the outdoor unit on the opposite side of the sea wind direction.



- 2) In case, to install the outdoor unit on the seaside, set up a windbreak not to be exposed to the sea wind.



- It should be strong enough like concrete to prevent the sea wind from the sea.
- The height and width should be more than 150% of the outdoor unit.
- It should be keep more than 70 cm of space between outdoor unit and the windbreak for easy air flow.

- 3) Select a well-drained place.

1. If you can't meet above guide line in the seaside installation, please contact LG Electronics for the additional anticorrosion treatment.
2. Periodic (more than once/year) cleaning of the dust or salt particles stuck on the heat exchanger by using water

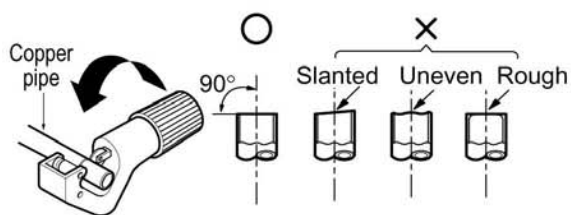
2. Flaring Work and Connection of Piping

1) Flaring work

Main cause for refrigerant leakage is due to defect in the flaring work. Carry out correct flaring work using the following procedure.

1. Cut the pipes and the cable.

- Use the piping kit accessory or pipes purchased locally.
- Measure the distance between the indoor and the outdoor unit.
- Cut the pipes a little longer than the measured distance.
- Cut the cable 1.5m longer than the pipe length.



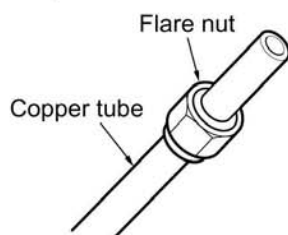
2. Burr removal

- Completely remove all burrs from the cut cross section of pipe/tube.
- Put the end of the copper tube/pipe in a downward direction as you remove burrs in order to avoid dropping burrs into the tubing.



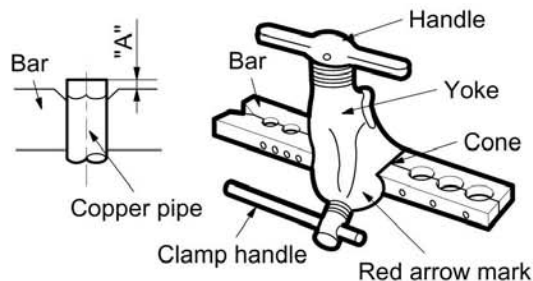
3. Putting nut on

- Remove flare nuts attached to indoor and outdoor unit, then put them on pipe/tube having completed burr removal.
- (not possible to put them on after flaring work)



4. Flaring work

- Firmly hold copper pipe in a die in the dimension shown in the table above.

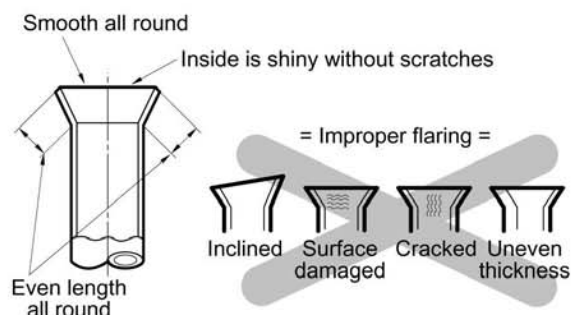


- Carry out flaring work using flaring tool as shown below.

Outside diameter		
mm	inch	mm
Ø6.35	1/4	0~0.5
Ø9.52	3/8	0~0.5
Ø12.7	1/2	0~0.5
Ø15.88	5/8	0~1.0

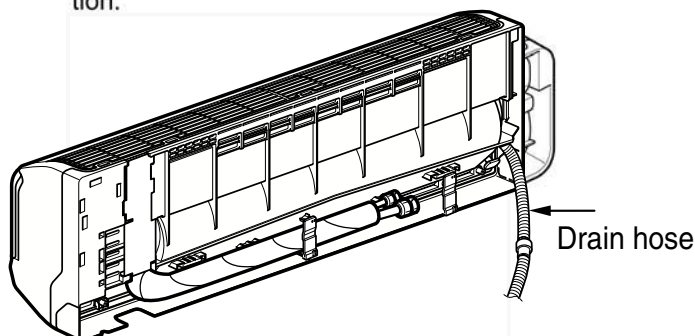
5. Check

- Compare the flared work with figure below.
- If flare is noted to be defective, cut off the flared section and re-flare it.



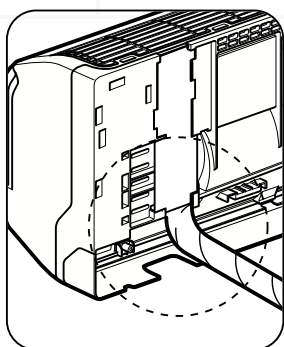
2) Connection of piping Indoor

- Preparing the indoor unit's piping and drain hose for installation through the wall.
- Remove the plastic tubing retainer(see illustration below) and pull the tubing and drain hose away from chassis.
- Replace the plastic tubing holder in the original position.



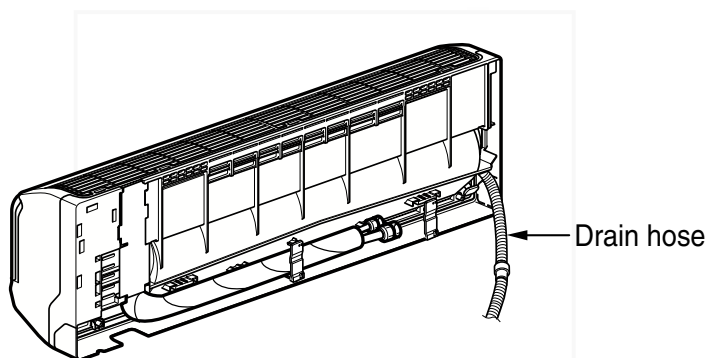
CAUTION

When install, make sure that the remaining parts must be removed clearly so as not to damage the piping and drain hose, especially power cord and connecting cable.



For right rear piping

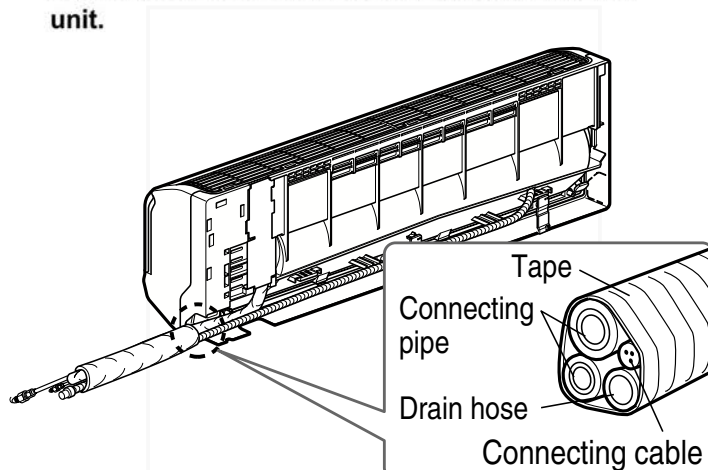
1. Route the indoor tubing and the drain hose in the direction of rear right.



2. Insert the connecting cable into the indoor unit from the outdoor unit through the piping hole.

- Do not connect the cable to the indoor unit.
- Make a small loop with the cable for easy connection later.

3. Tape the tubing, drain hose, and the connecting cable. Be sure that the drain hose is located at the lowest side of the bundle. Locating at the upper side can cause drain pan to overflow inside the unit.

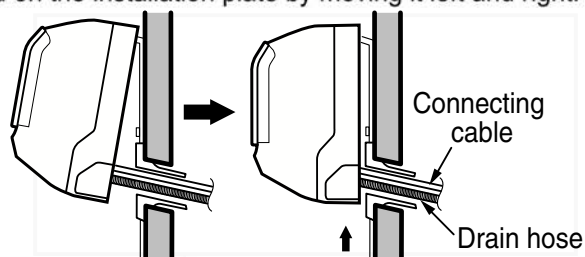


NOTE: If the drain hose is routed inside the room, insulate the hose with an insulation material* so that dripping from "sweating"(condensation) will not damage furniture or floors.

*Foamed polyethylene or equivalent is recommended.

4. Indoor unit installation

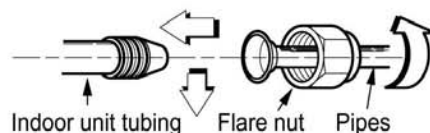
- Hook the indoor unit onto the upper portion of the installation plate.(Engage the two hooks of the rear top of the indoor unit with the upper edge of the installation plate.) Ensure that the hooks are properly seated on the installation plate by moving it left and right.



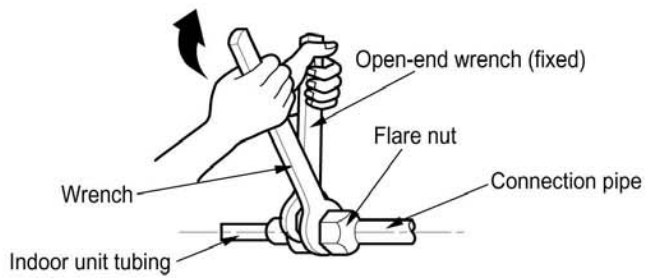
Press the lower left and right sides of the unit against the installation plate until the hooks engage into their slots(clicking sound).

4. Connecting the pipings to the indoor unit and drain hose to drain pipe.

- Align the center of the pipes and sufficiently tighten the flare nut by hand.

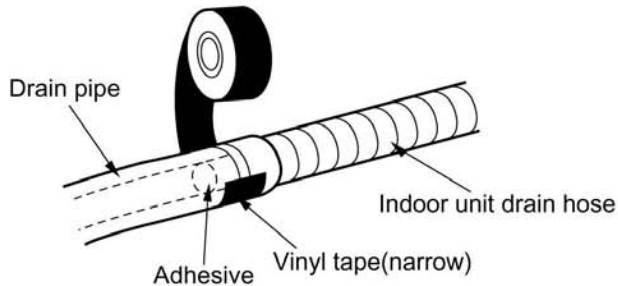


- Tighten the flare nut with a wrench.



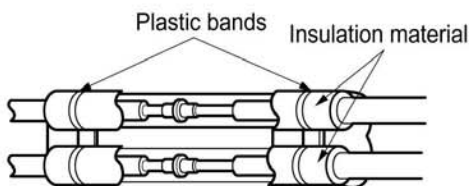
Outside diameter		Torque
mm	inch	kg·m
Ø6.35	1/4	1.8
Ø9.52	3/8	4.2
Ø12.7	1/2	5.5
Ø15.88	5/8	6.6

- When extending the drain hose at the indoor unit, install the drain pipe.

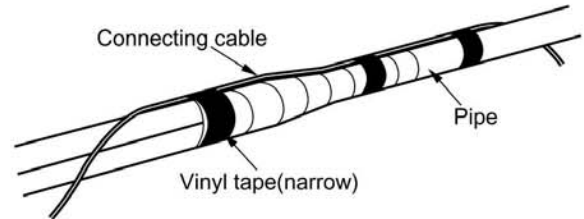
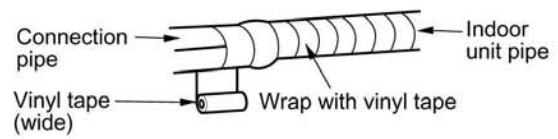


5. Wrap the insulation material around the connecting portion.

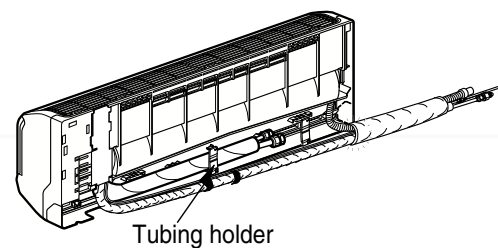
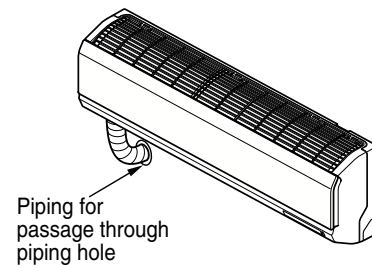
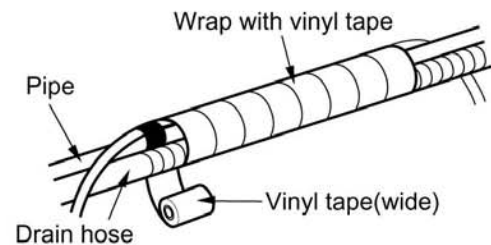
- Overlap the connection pipe insulation material and the indoor unit pipe insulation material. Bind them together with vinyl tape so that there is no gap.



- Wrap the area which accommodates the rear piping housing section with vinyl tape.

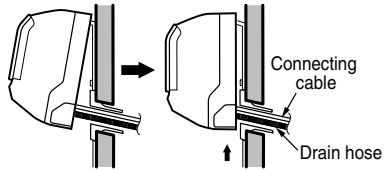


- Bundle the piping and drain hose together by wrapping them with vinyl tape for enough to cover where they fit into the rear piping housing section.



Indoor unit installation

- Remove the spacer.
- Ensure that the hooks are properly seated on the installation plate by moving it left and right.

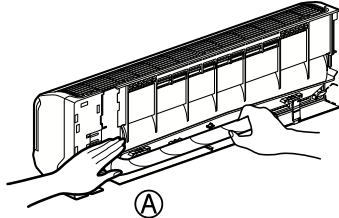


Press the lower left and right sides of the unit against the installation plate until the hooks engage into their slots (clicking sound).

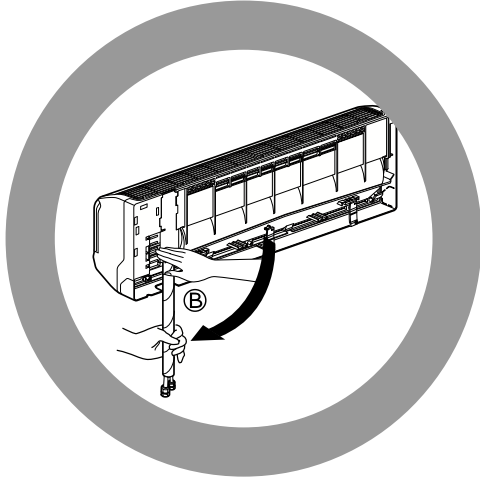
⚠ CAUTION

Installation Information (For left piping)

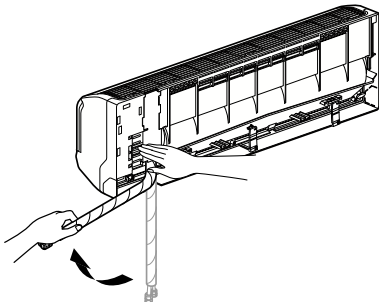
- Good case
For left piping. Follow the instruction below.
- Press on the upper side of clamp. (A)



- Unfold the tubing to downward slowly. (B)

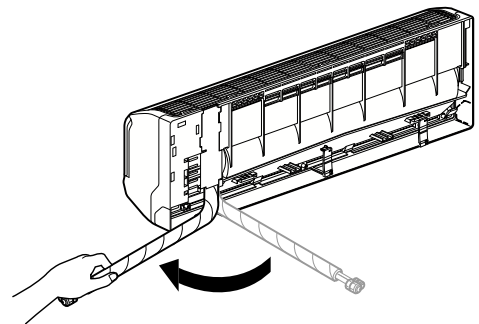
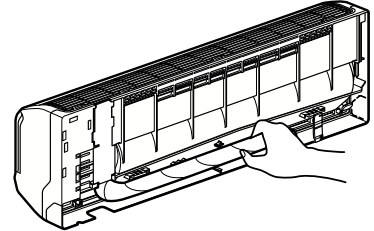


- Bend the tubing to the left side of chassis.



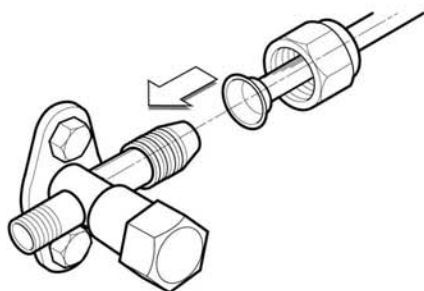
⚠ CAUTION

- Bad case
- Following bending type from right to left could cause problem of pipe damage.



3) Connection of the pipes-Outdoor

1. Align the center of the pipings and sufficiently tighten the flare nut by hand.

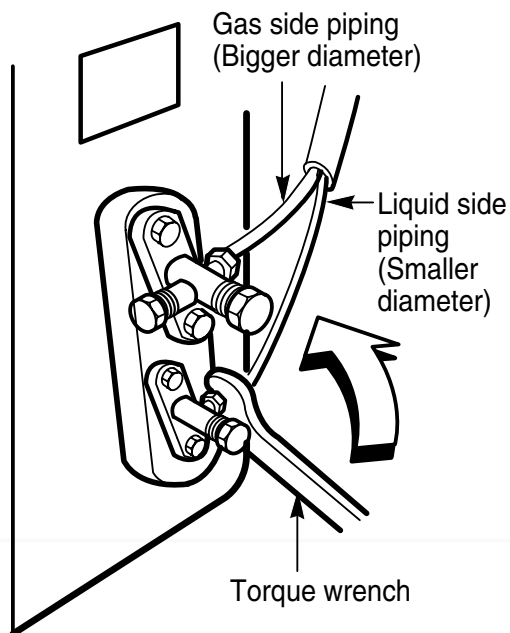


2. Finally, tighten the flare nut with torque wrench until the wrench clicks.

- When tightening the flare nut with torque wrench, ensure the direction for tightening follows the arrow on the wrench.

Outside diameter		Torque
mm	inch	kg-m
Ø6.35	1/4	1.8
Ø9.52	3/8	4.2
Ø12.7	1/2	5.5
Ø15.88	5/8	6.6

Outdoor unit



3. Connecting The Cable Between Indoor Unit and Outdoor Unit

1) Connect the cable to the Indoor unit.

- Connect the cable to the indoor unit by connecting the wires to the terminals on the control board in **dividually according to the outdoor unit connection**. (Ensure that the color of the wires of the outdoor unit and the terminal No. are the same as those of the indoor unit.)

The earth wire should be longer than the common wires.

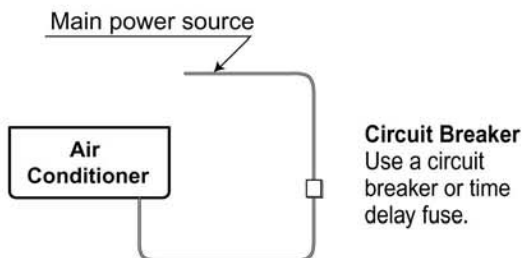
- When installing, refer to the circuit diagram on the Control Box of Indoor Unit.
- When installing, refer to the wiring diagram on the Control Cover Inside Outdoor Unit.

⚠ CAUTION

- The above circuit diagram is subject to change without notice.
- Be sure to connect wires according to the wiring diagram.
- Connect the wires firmly, so that not to be pulled out easily.
- Connect the wires according to color codes by referring the wiring diagram.

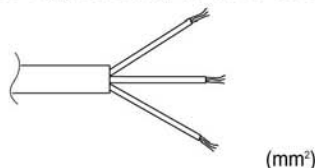
⚠ CAUTION

If a power plug is not to be used, provide a circuit breaker between power source and the unit as shown below.



⚠ CAUTION

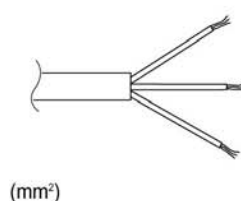
The power cord connected to the "A" unit should be complied with the following specifications (Type "B" approved by HAR or SAA).



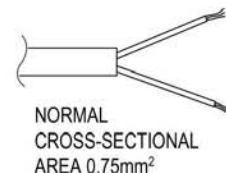
NORMAL CROSS-SECTIONAL AREA	Grade		
	7k~15k	18k	24k~26k
	1.0	1.5	2.5
Unit(A)	Indoor	Indoor	Indoor
Cable Type(B)	H05VV-F	H05VV-F	H05VV-F

The power connecting cable connected to the indoor and outdoor unit should be complied with the following specifications

(Type "B" approved by HAR or SAA).



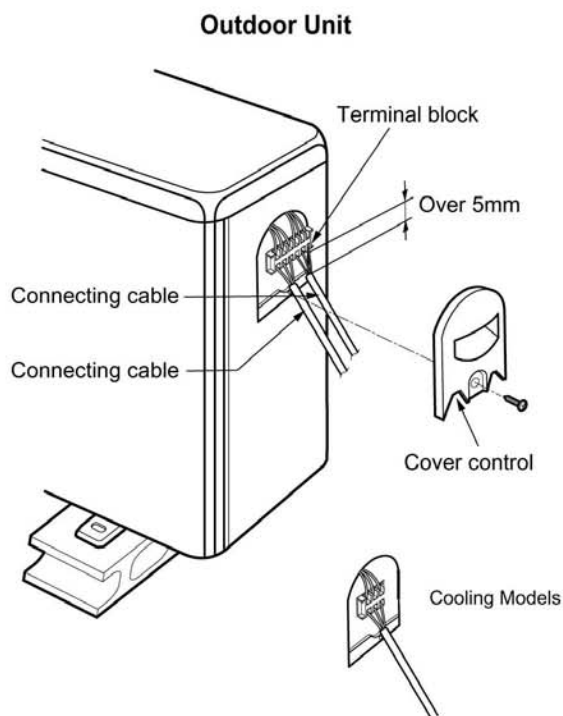
NORMAL CROSS-SECTIONAL AREA	Grade		
	7k~15k	18k	24k~26k
	1.0	1.5	2.5
Cable Type(B)	H07RN-F	H07RN-F	H07RN-F



2) Connect the cable to the outdoor unit

1. Remove the control cover from the unit by loosening the screw.
Connect the wires to the terminals on the control board individually.
2. Secure the cable onto the control board with the cord clamp.
3. Refix the control cover to the original position with the screw.
4. Use a recognized circuit breaker "A"
between the power source and the unit.
A disconnecting device to adequately disconnect all supply lines must be fitted.

Circuit Breaker (A)	Grade		
	9k~12k	18k	24k
	15	20	30



After the confirmation of the above conditions, prepare the wiring as follows:

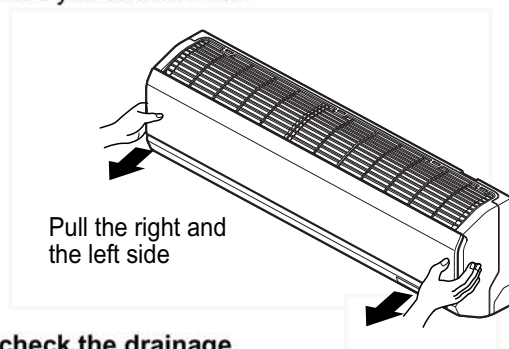
- 1) Never fail to have an individual power circuit specifically for the air conditioner. As for the method of wiring, be guided by the circuit diagram posted on the inside of control cover.
- 2) The screw which fasten the wiring in the casing of electrical fittings are liable to come loose from vibrations to which the unit is subjected during the course of transportation. Check them and make sure that they are all tightly fastened. (If they are loose, it could cause burn-out of the wires.)
- 3) Specification of power source.
- 4) Confirm that electrical capacity is sufficient.
- 5) See to that the starting voltage is maintained at more than 90 percent of the rated voltage marked on the name plate.
- 6) Confirm that the cable thickness is as specified in the power source specification.
(Particularly note the relation between cable length and thickness. (Refer to page 26)
- 7) Always install an earth leakage circuit breaker in a wet or moist area.
- 8) The following would be caused by voltage drop.
 - Vibration of a magnetic switch, which will damage the contact point, fuse breaking, disturbance of the normal function of the overload.
- 9) The means for disconnection from a power supply shall be incorporated in the fixed wiring and have an air gap contact separation of at least 3mm in each active(phase) conductors.

4. Checking the Drainage and Forming the Pippings

1) Checking the drainage

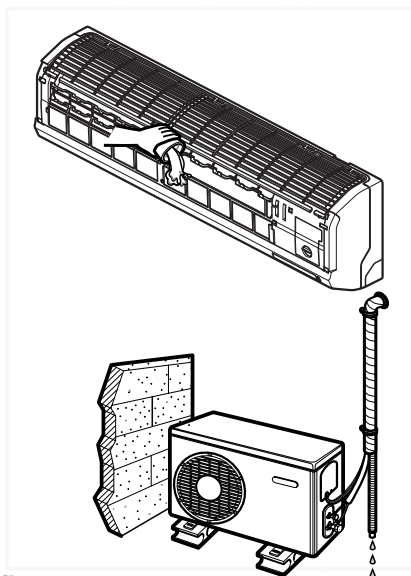
1. To remove the front panel from the indoor unit.

- Set the air direction louvers up-and-down to the position(horizontally) by hand.
- Remove the securing screws that retain the front panel. Pull the lower left and right sides of the grille toward you and lift it off.



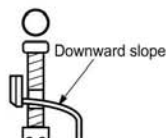
2. To check the drainage.

- Pour a glass of water on the evaporator.
- Ensure the water flows through the drain hose of the indoor unit without any leakage and goes out the drain exit.

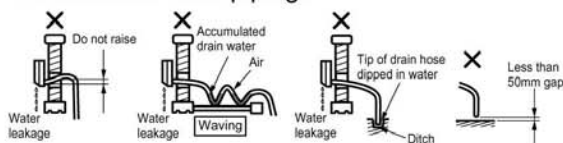


3. Drain piping

- The drain hose should point downward for easy drain flow.



- Do not make drain piping.



2) Form the piping

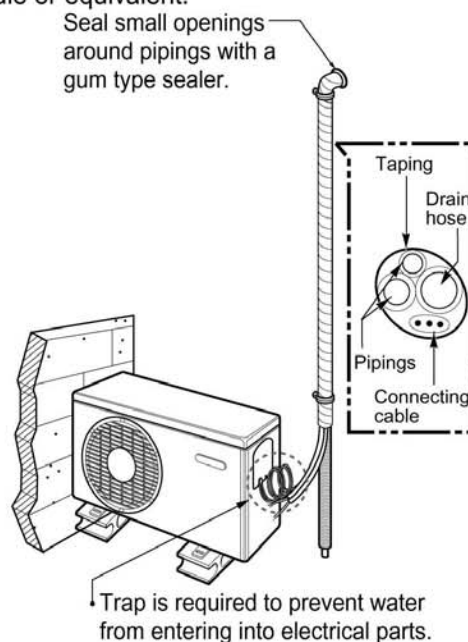
1. Form the piping by wrapping the connecting portion of the indoor unit with insulation material and secure it with two kinds of vinyl tapes.

- If you want to connect an additional drain hose, the end of the drain outlet should be routed above the ground. Secure the drain hose appropriately.

2. In cases where the outdoor unit is installed below the indoor unit perform the following.

- Tape the piping, drain hose and connecting cable from down to up.
- Secure the tapped piping along the exterior wall using saddle or equivalent.

Seal small openings around pipings with a gum type sealer.

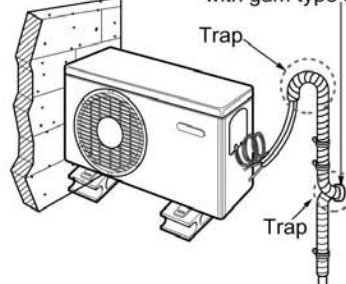


Trap is required to prevent water from entering into electrical parts.

3. In cases where the Outdoor unit is installed above the Indoor unit perform the following.

- Tape the piping and connecting cable from down to up.
- Secure the taped piping along the exterior wall. Form a trap to prevent water entering the room.
- Fix the piping onto the wall by saddle or equivalent.

Seal a small opening around the pipings with gum type sealer.

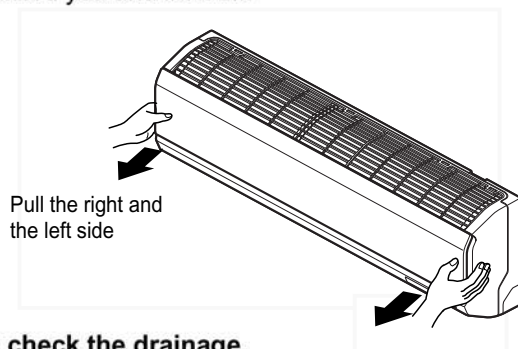


4. Checking the Drainage and Forming the Pippings

1) Checking the drainage

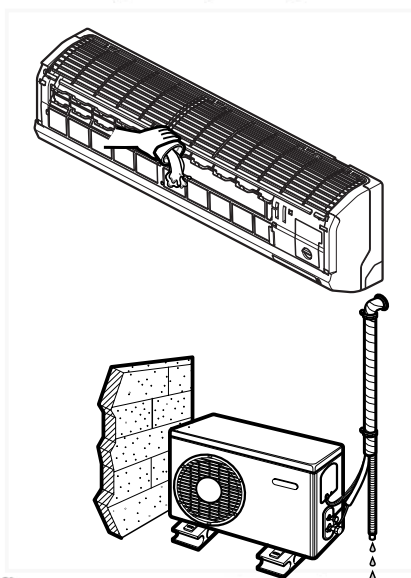
1. To remove the front panel from the indoor unit.

- Set the air direction louvers up-and-down to the position(horizontally) by hand.
- Remove the securing screws that retain the front panel. Pull the lower left and right sides of the grille toward you and lift it off.



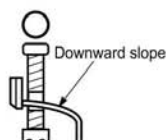
2. To check the drainage.

- Pour a glass of water on the evaporator.
- Ensure the water flows through the drain hose of the indoor unit without any leakage and goes out the drain exit.

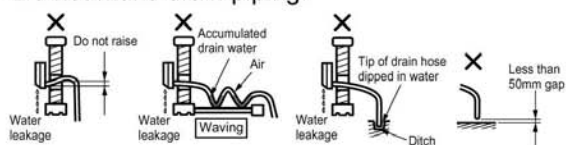


3. Drain piping

- The drain hose should point downward for easy drain flow.



- Do not make drain piping.



2) Form the piping

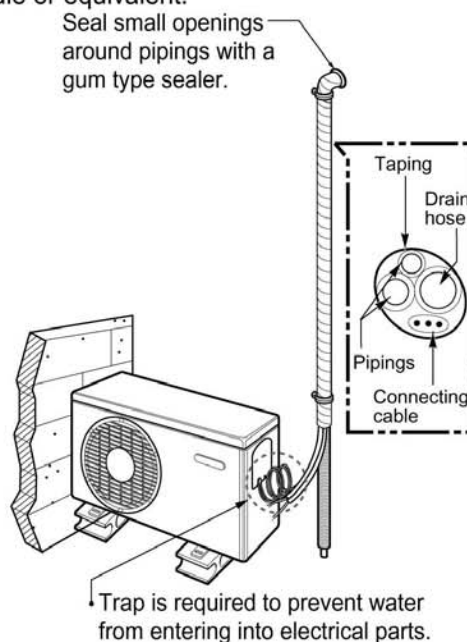
1. Form the piping by wrapping the connecting portion of the indoor unit with insulation material and secure it with two kinds of vinyl tapes.

- If you want to connect an additional drain hose, the end of the drain outlet should be routed above the ground. Secure the drain hose appropriately.

2. In cases where the outdoor unit is installed below the indoor unit perform the following.

- Tape the piping, drain hose and connecting cable from down to up.
- Secure the tapped piping along the exterior wall using saddle or equivalent.

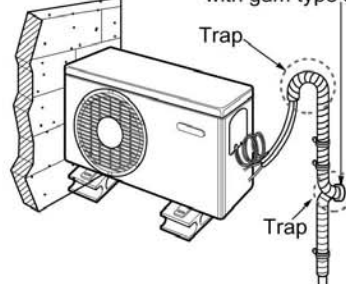
Seal small openings around pipings with a gum type sealer.



3. In cases where the Outdoor unit is installed above the Indoor unit perform the following.

- Tape the piping and connecting cable from down to up.
- Secure the taped piping along the exterior wall. Form a trap to prevent water entering the room.
- Fix the piping onto the wall by saddle or equivalent.

Seal a small opening around the pipings with gum type sealer.



5. Test Running

1. Check that all tubing and wiring have been properly connected.
2. Check that the gas and liquid side service valves are fully open.

1. Prepare remote control

1. Remove the battery cover by pulling it according to the arrow direction.
2. Insert new batteries making sure that the (+) and (-) of battery are installed correctly.
3. Reattach the cover by pushing it back into position.

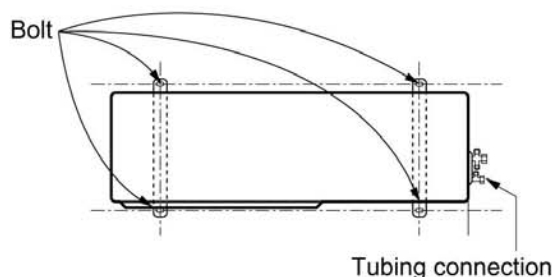


NOTE:

- Use 2 AAA(1.5volt) batteries. Do not use rechargeable batteries.
- Remove the batteries from the remote control if the system is not going to be used for a long time.

2. Settlement of outdoor unit

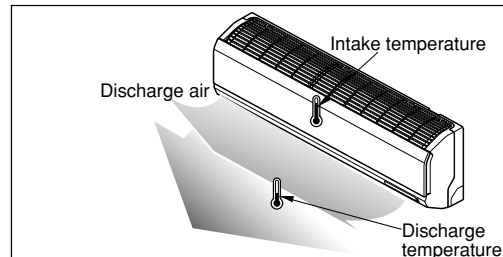
- Anchor the outdoor unit with a bolt and nut(ø10mm) tightly and horizontally on a concrete or rigid mount.
- When installing on the wall, roof or rooftop, anchor the mounting base securely with a nail or wire assuming the influence of wind and earthquake.
- In the case when the vibration of the unit is conveyed to the hose, secure the unit with an anti-vibration bushing.



3. Evaluation of the performance

Operate unit for 15~20 minutes, then check the system refrigerant charge:

1. Measure the pressure of the gas side service valve.
2. Measure the temperature of the intake and discharge of air.
3. Ensure the difference between the intake temperature and the discharge is more than 8°C(46°F) (Cooling) or (Heating).



4. For reference; the gas side pressure of optimum condition is as below.(Cooling)

Refrigerant	Outside ambient TEMP.	The pressure of the gas side service valve.
R-22	35°C (95°F)	4~5kg/cm ² G(56.8~71.0 P.S.I.G.)
R-410A	35°C (95°F)	8.5~9.5kg/cm ² G(120~135 P.S.I.G.)

NOTE: If the actual pressure is higher than shown, the system is most likely over-charged, and charge should be removed. If the actual pressure are lower than shown, the system is most likely undercharged, and charge should be added.

The air conditioner is now ready for use.

PUMP DOWN

This is performed when the unit is to be relocated or the refrigerant circuit is serviced.

Pump Down means collecting all refrigerant in the outdoor unit without loss in refrigerant gas.

CAUTION:

Be sure to perform Pump Down procedure with the unit cooling mode.

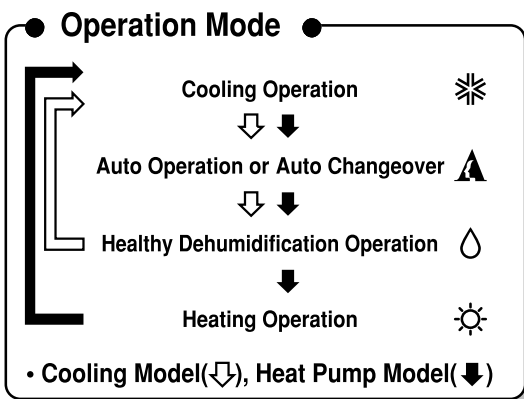
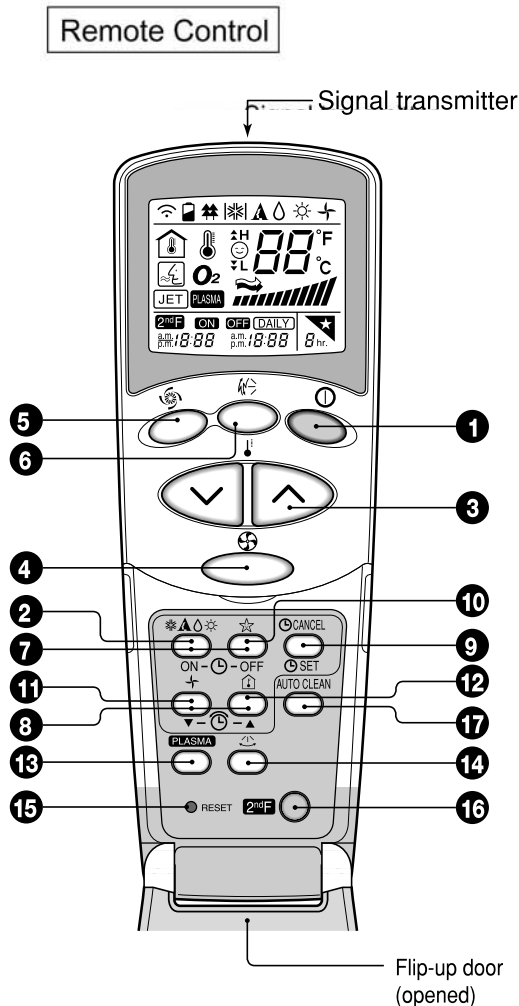
Pump Down Procedure

1. Connect a low-pressure gauge manifold hose to the charge port on the gas side service valve.
2. Open the gas side service valve halfway and purge the air from the manifold hose using the refrigerant gas.
3. Close the liquid side service valve(all the way in).
4. Turn on the unit's operating switch and start the cooling operation.
5. When the low-pressure gauge reading becomes 1 to 0.5kg/cm² G(14.2 to 7.1 P.S.I.G.), fully close the gas side valve stem and then quickly turn off the unit. At that time, Pump Down has been completed and all refrigerant gas will have been collected in the outdoor unit.

Operation

Name and Function-Remote Control

The remote control transmits the signals to the system.



- 1 START/STOP BUTTON**
Operation starts when this button is pressed and stops when the button is pressed again.
- 2 OPERATION MODE SELECTION BUTTON**
Used to select the operation mode.
- 3 ROOM TEMPERATURE SETTING BUTTONS**
Used to select the room temperature.
- 4 INDOOR FAN SPEED SELECTOR**
Used to select fan speed in four steps low, medium, high and CHAOS.
- 5 JET COOL**
Used to start or stop the speed cooling. (Speed cooling operates super high fan speed in cooling mode.)
- 6 CHAOS SWING BUTTON**
Used to stop or start louver movement and set the desired up/down airflow direction.
- 7 ON/OFF TIMER BUTTONS (OPTIONAL)**
Used to set the time of starting and stopping operation. (See page 17)
- 8 TIME SETTING BUTTONS**
Used to adjust the time. (See page 17)
- 9 TIMER SET/CANCEL BUTTON (OPTIONAL)**
Used to set the timer when the desired time is obtained and to cancel the Timer operation. (See page 17)
- 10 SLEEP MODE AUTO BUTTON**
Used to set Sleep Mode Auto operation. (See page 17)
- 11 AIR CIRCULATION BUTTON**
Used to circulate the room air without cooling or heating. (See page 19)
- 12 ROOM TEMPERATURE CHECKING BUTTON**
Used to check the room temperature.
- 13 PLASMA(OPTIONAL)**
Used to start or stop the plasma-purification function. (See page 15)
- 14 HORIZONTAL AIRFLOW DIRECTION CONTROL BUTTON (NOT ON ALL MODELS)**
Used to set the desired horizontal airflow direction. (See page 18)
- 15 RESET BUTTON**
Used prior to resetting time or after replacing batteries.
- 16 2nd F Button**
Used prior to using modes printed in blue at the bottom of buttons. (See page 16)
- 17 AUTO CLEAN(OPTIONAL)**
Used to set Auto Clean mode.

Disassembly of the parts (Indoor unit)

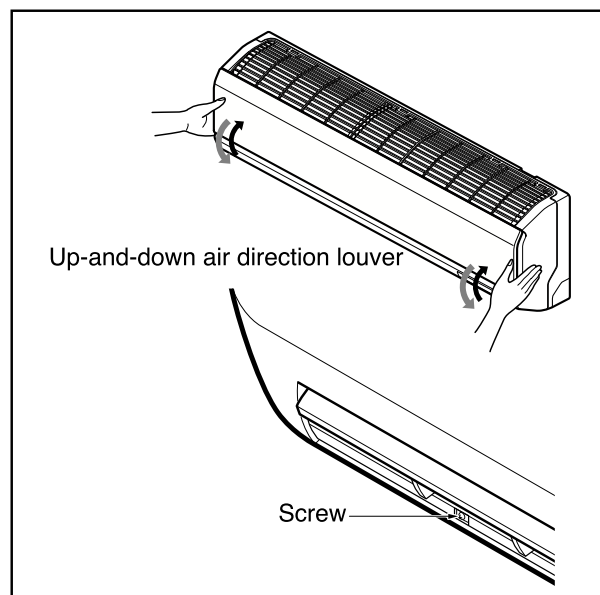
Warning :

Disconnect the unit from power supply before making any checks.

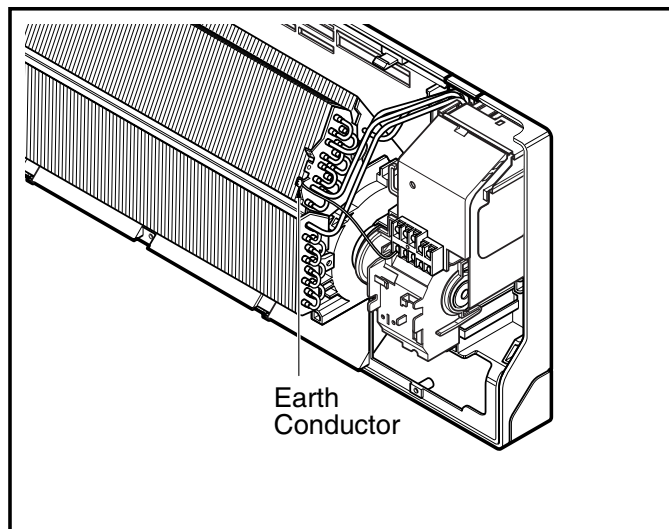
Be sure the power switch is set to "OFF".

To remove the Grille from the Chassis.

- Set the up-and-down air discharge louver to open position (horizontally) by finger pressure.
- Remove the securing screws.
- To remove the Grille, pull the lower left and right side of the grille toward you (slightly tilted) and lift it straight upward.

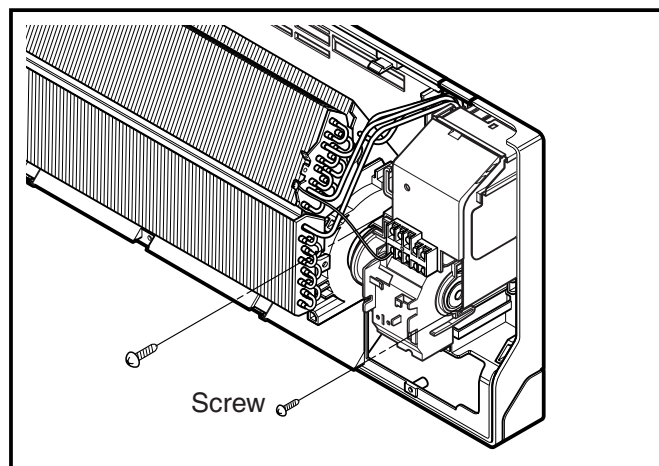


1. Before removing the control box, be sure to take out the wire screwed at the other end.



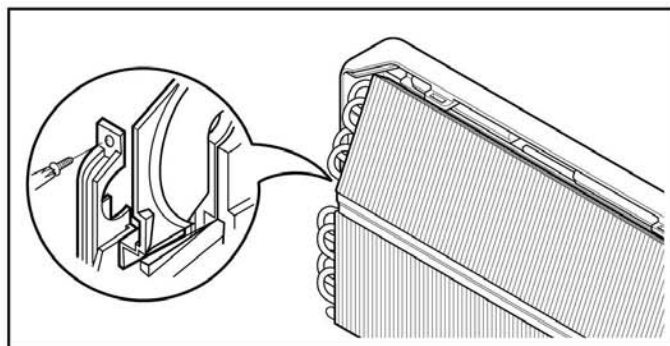
2. To remove the Control Box.

- Remove securing screws.
- Pull the control box out from the chassis carefully.



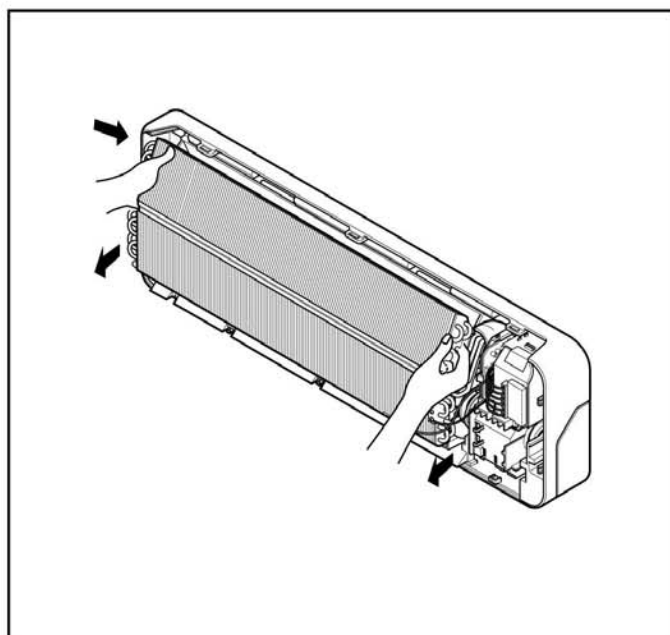
3. To remove the Discharge Grille.

- Unhook the discharge grille and pull the discharge grille out from the chassis carefully.

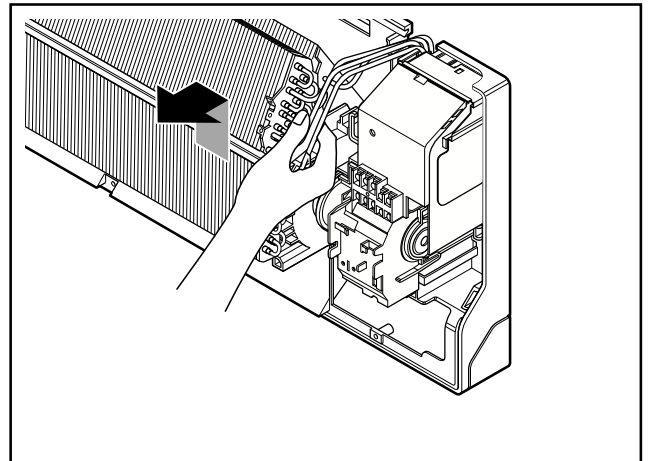


4. To remove the Evaporator.

- Remove 3 screws securing the evaporator(at the left 2EA in the Eva Holder, at the right 1EA).

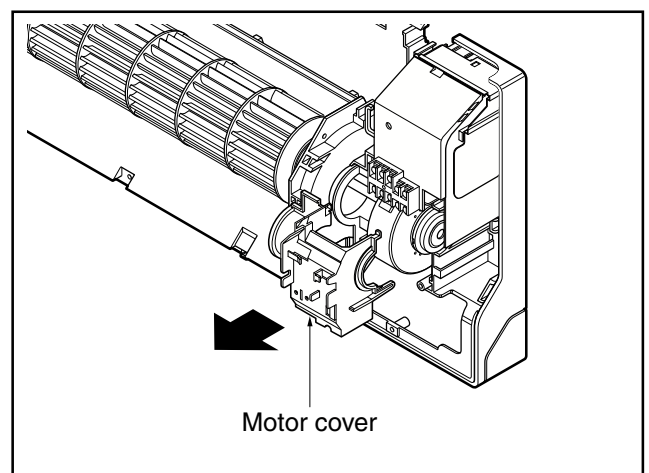


- Unhook the tab on the right inside of the chassis at the same time, slightly pull the evaporator toward you until the tab is clear of the slot.



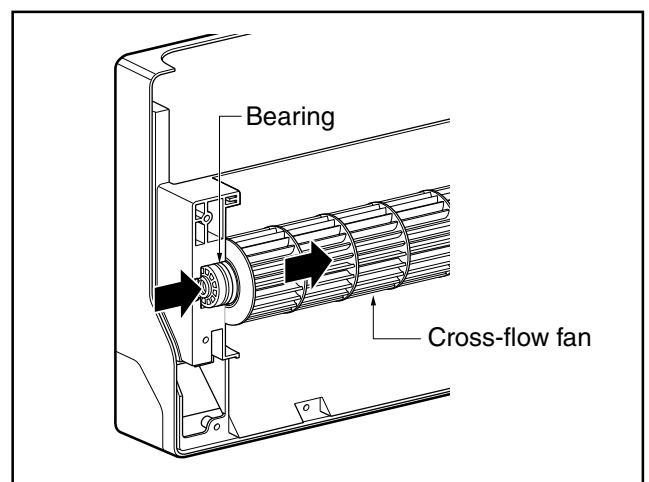
5. To remove the Motor Cover

- Remove 2 securing screw.
- Pull the motor cover out from the chassis carefully.



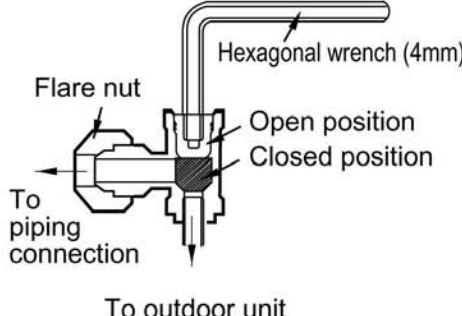
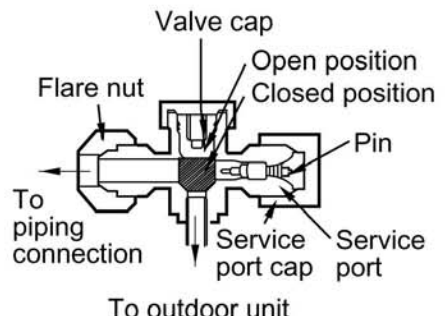
6. To remove the Cross-Flow Fan

- Loosen the screw securing the cross-flow fan to the fan motor (do not remove).
- Lift up the right side of the cross-flow fan and the fan motor, separate the fan motor from the cross-flow fan.

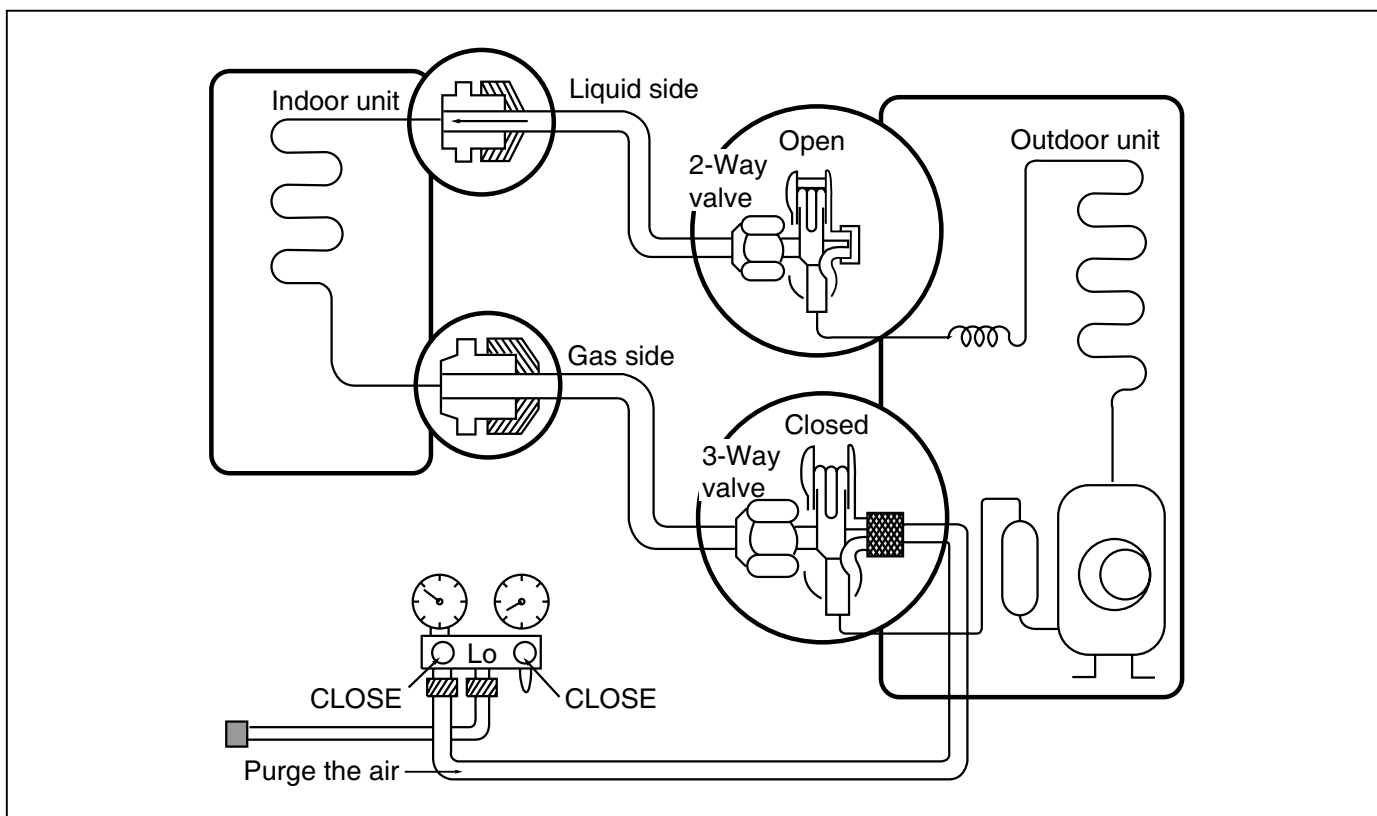


- Remove the left end of the cross-flow fan from the self-aligning bearing.

2-way, 3-way Valve

		2-way Valve (Liquid Side)	3-way Valve (Gas Side)
			
Works		Shaft position	Shaft position Service port
Shipping		Closed (with valve cap)	Closed (with valve cap) Closed (with cap)
1.	Air purging (Installation)	Open (counter-clockwise)	Closed (clockwise) Open (push-pin or with vacuum pump)
Operation		Open (with valve cap)	Open (with valve cap) Closed (with cap)
2.	Pumping down (Transferring)	Closed (clockwise)	Open (counter-clockwise) Open (connected manifold gauge)
3.	Evacuation (Servicing)	Open	Open Open (with charging cylinder)
4.	Gas charging (Servicing)	Open	Open Open (with charging cylinder)
5.	Pressure check (Servicing)	Open	Open Open (with charging cylinder)
6.	Gas releasing (Servicing)	Open	Open Open (with charging cylinder)

Pumping Down



Procedure

- (1) Confirm that both the 2-way and 3-way valves are set to the open position.**

Remove the valve stem caps and confirm that the valve stems are in the raised position.

Be sure to use a hexagonal wrench to operate the valve stems.

- (2) Operate the unit for 10 to 15 minutes.**

- (3) Stop operation and wait for 3 minutes, then connect the charge set to the service port of the 3-way valve.**

Connect the charge hose with the push pin to the service port.

- (4) Air purging of the charge hose.**

Open the low-pressure valve on the charge set slightly to air purge from the charge hose.

- (5) Set the 2-way valve to the closed position.**

- (6) Operate the air conditioner at the cooling cycle and stop it when the gauge indicates $1\text{kg/cm}^2\text{g}$.**

- (7) Immediately set the 3-way valve to the closed position.**

Do this quickly so that the gauge ends up indicating 3 to $5\text{kg/cm}^2\text{g}$.

- (8) Disconnect the charge set, and mount the 2-way and 3-way valve s stem nuts and the service port nut.**

Use torque wrench to tighten the service port nut to a torque of 1.8 kg.m .

Be sure to check for gas leakage.

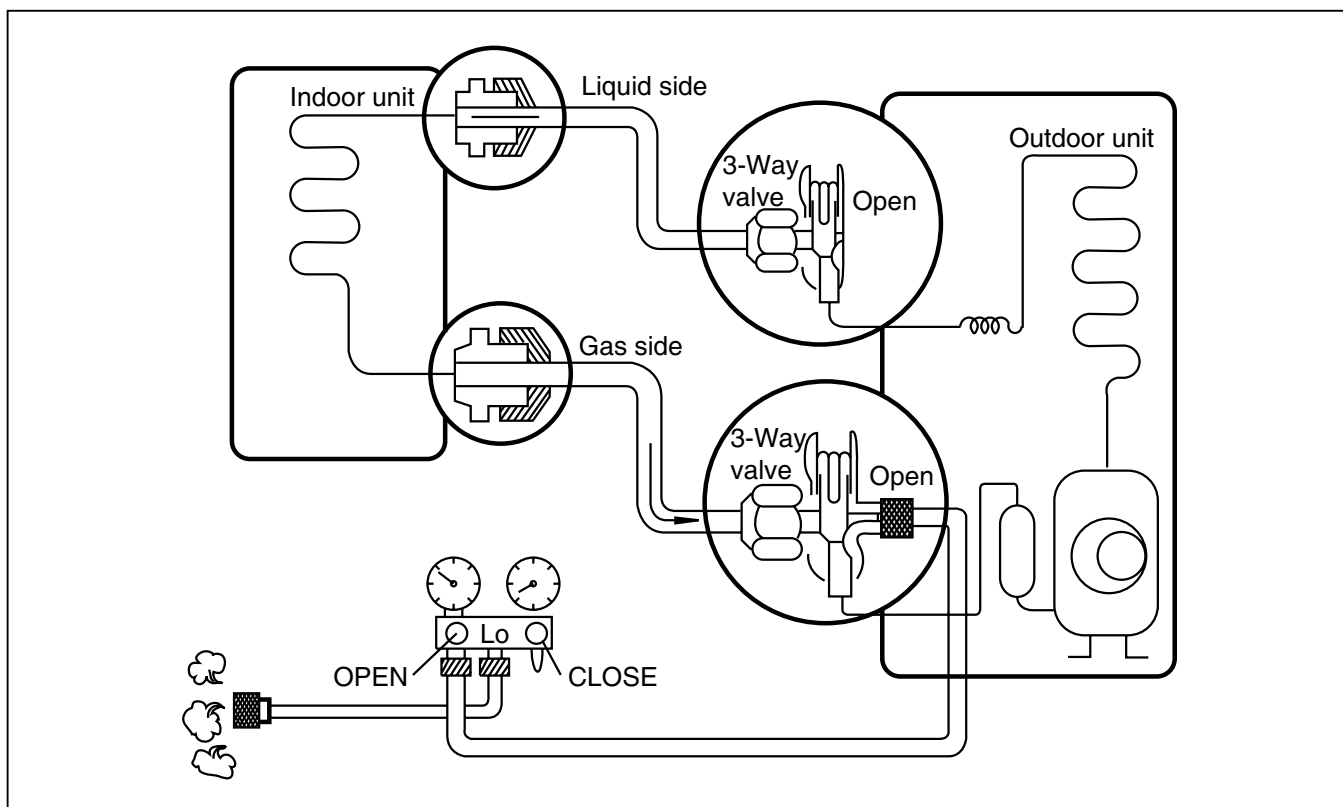
⚠ CAUTION

Do not use the existing charge set for R-22.

It is necessary to use new charge set for R-410A. The pressure of R-410A is 1.6 times higher than that of R-22. Thus, the high pressure side gauge of charge set should be used higher pressure gauge of 50kg/cm^2 range.

Balance Refrigerant of the 3-way Valve

(Gas leakage)



Procedure

(1) Confirm that both the 2-way and 3-way valves are set to the back seat.

(2) Connect the charge set to the 3-way valve s port.

Leave the valve on the charge set closed.
Connect the charge hose to the service port.

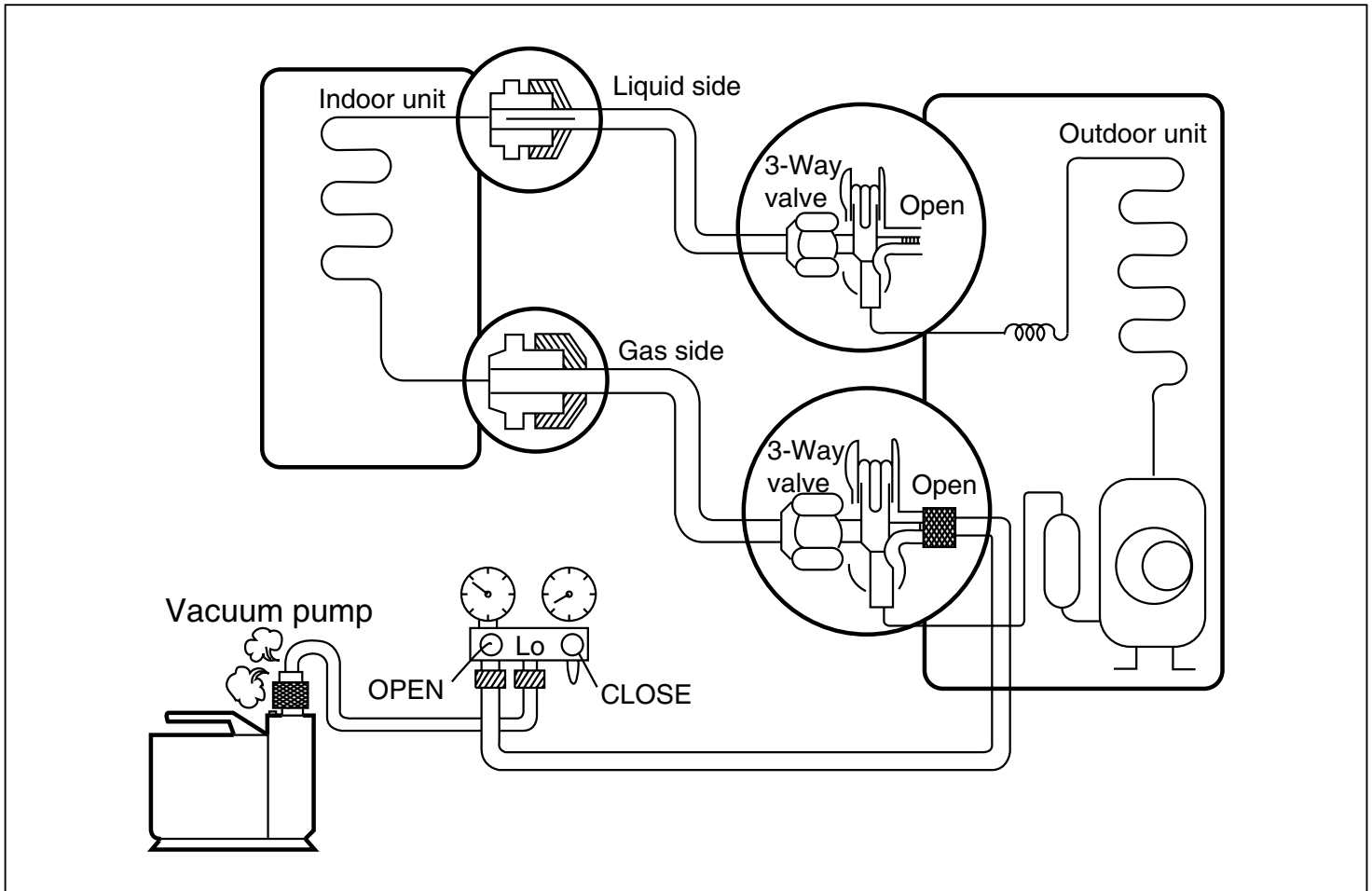
(3) Open the valve (Lo side) on the charge set and discharge the refrigerant until the gauge indicates 0 kg/cm²G.

If there is no air in the refrigerant cycle (the pressure when the air conditioner is not running is higher than 1 kg/cm²G), discharge the refrigerant until the gauge indicates 0.5 to 1 kg/cm²G. if this is the case, it will not be necessary to apply a evacuatín.

Discharge the refrigerant gradually; if it is discharged too suddenly, the refrigeration oil will also be discharged.

Evacuation

(All amount of refrigerant leaked)



Procedure

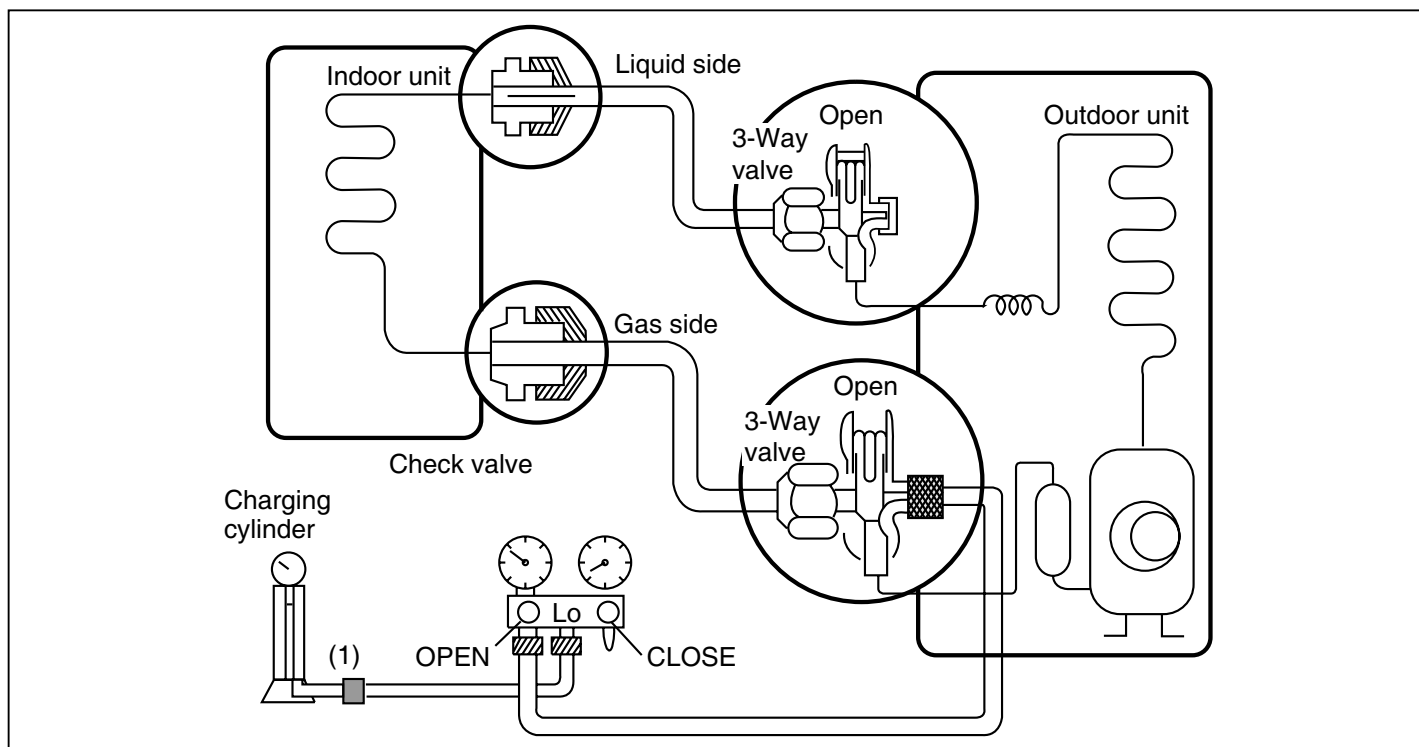
- (1) Connect the vacuum pump to the center hose of charge set center hose
- (2) Evacuation for approximately one hour.
Confirm that the gauge needle has moved toward -76 cmHg (vacuum of 4 mmHg or less).
- (3) Close the valve (Lo side) on the charge set, turn off the vacuum pump, and confirm that the gauge needle does not move (approximately 5 minutes after turning off the vacuum pump).
- (4) Disconnect the charge hose from the vacuum pump.
Vacuum pump oil.
If the vacuum pump oil becomes dirty or depleted, replenish as needed.

⚠ CAUTION

Use vacuum pump equipped with check valve applied to be prevented from flowing backward.

Gas Charging

(After Evacuation)



Procedure

(1) Connect the charge hose to the charging cylinder.

Connect the charge hose which you disconnected from the vacuum pump to the valve at the bottom of the cylinder.

If you are using a gas cylinder, also use a scale and reverse the cylinder so that the system can be charged with liquid.

(2) Purge the air from the charge hose.

Open the valve at the bottom of the cylinder and press the check valve on the charge set to purge the air. (Be careful of the liquid refrigerant). The procedure is the same if using a gas cylinder.

(3) Open the valve (Lo side on the charge set and charge the system with liquid refrigerant.

- If the system can not be charged with the specified amount of refrigerant, it can be charged with a little at a time (approximately 150g each time) while operating the air conditioner in the cooling cycle; however, one time is not sufficient, wait approximately 1 minute and then repeat the procedure (pumping down-pin).

This is different from previous procedures.

Because you are charging with liquid refrigerant from the gas side, absolutely do not attempt to charge with larger amounts of liquid refrigerant while operating the air conditioner.

(4) Immediately disconnect the charge hose from the 3-way valve's service port.

Stopping partway will allow the gas to be discharged.

If the system has been charged with liquid refrigerant while operating the air conditioner turn off the air conditioner before disconnecting the hose.

(5) Mount the valve stem nuts and the service port nut.

Use torque wrench to tighten the service port nut to a torque of 1.8 kg.m.

Be sure to check for gas leakage.

⚠ CAUTION

If the unit is charged with R-410A.
Pay attention not to charge R-22.

Additional gas charging

(Gas leakage)

When refrigerant is insufficient by leakage, recharge the unit with the refrigerant up to normal operating suction pressure.

Use the graph or the equation below to get operating suction pressure according to indoor and outdoor temperature.

Suction pressure was measured at 3-way valve service port after operating the unit for 10 minutes.

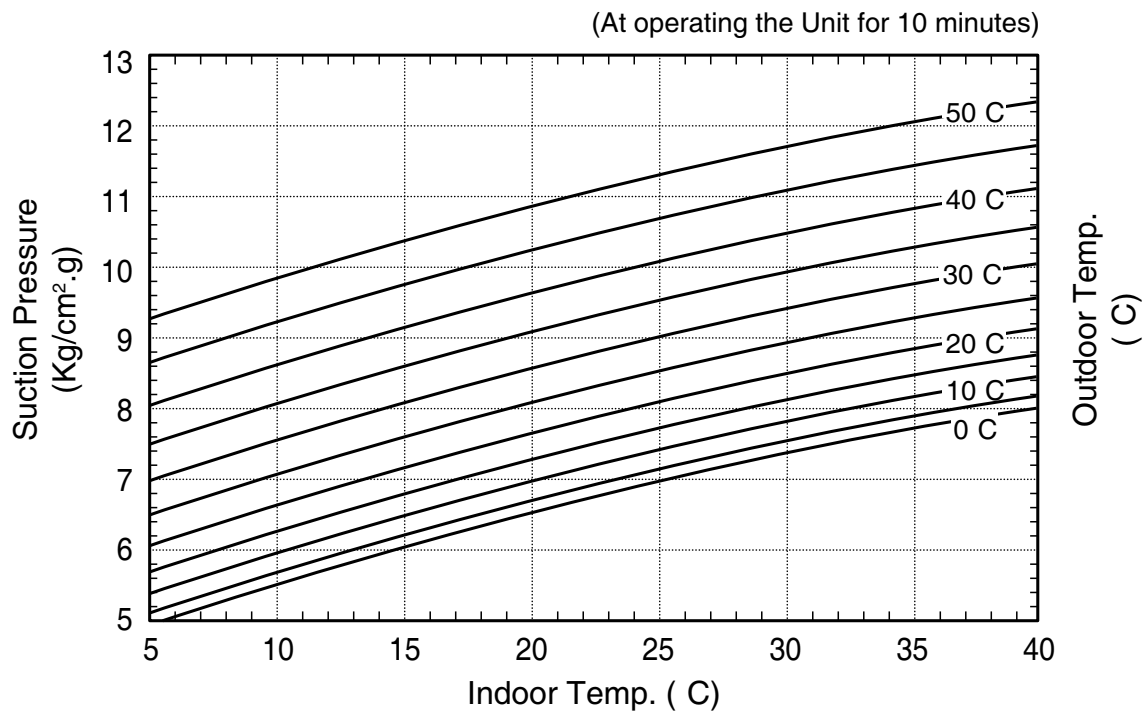
The method of using graph

- Find outdoor temperature.
- Find indoor temperature onto the curve of outdoor temperature.
- Read suction pressure at the axis of ordinates.

The method of using equation

- . Calculate suction pressure after putting indoor and outdoor temperature into the equation.

Operating Suction Pressure (For R410A) (According to Indoor & Outdoor Temperature)



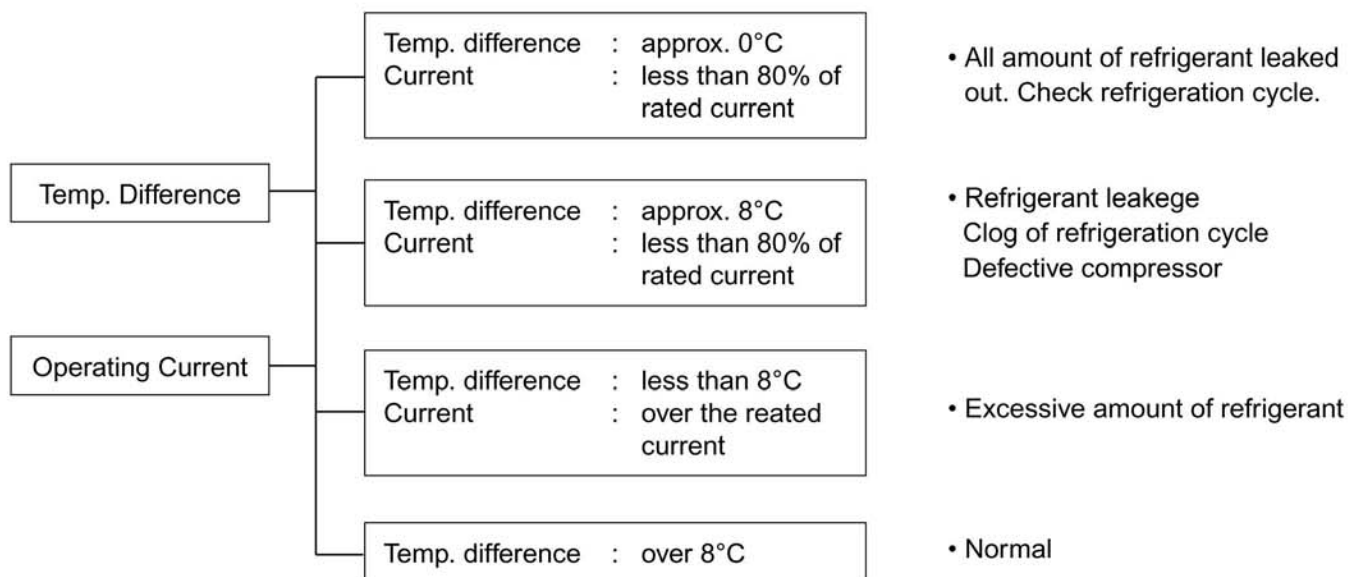
$$P = 3 + 0.0123 \times T_{out}^{1.5} + 0.8 \times T_{in}^{0.5}$$

Where, P : Suction Pressure(kg/cm².g)
T_{out} : Outdoor Temperature(C)
T_{in} : Indoor Temperature(C)

Cycle Troubleshooting Guide

Trouble analysis

1. Check temperature difference between intake and discharge air and operating current.



Notice :

Temperature difference between intake and discharge air depends on room air humidity. When the room air humidity is relatively higher, temperature difference is smaller. When the room air humidity is relatively lower temperature difference is larger.

2. Check temperature and pressure of refrigeration cycle.

Suction pressure (Compared with the normal value)	Temperature (Compared with the normal value)	Cause of Trouble	Description
Higher	High	Defective compressor Defective 4-way reverse valve	Current is low.
	Normal	Excessive amount of refrigerant	High pressure does not quickly rise at the beginning of operation.
Lower	Higher	Insufficient amount of refrigerant (Leakage) Clogging	Current is low. Current is low.

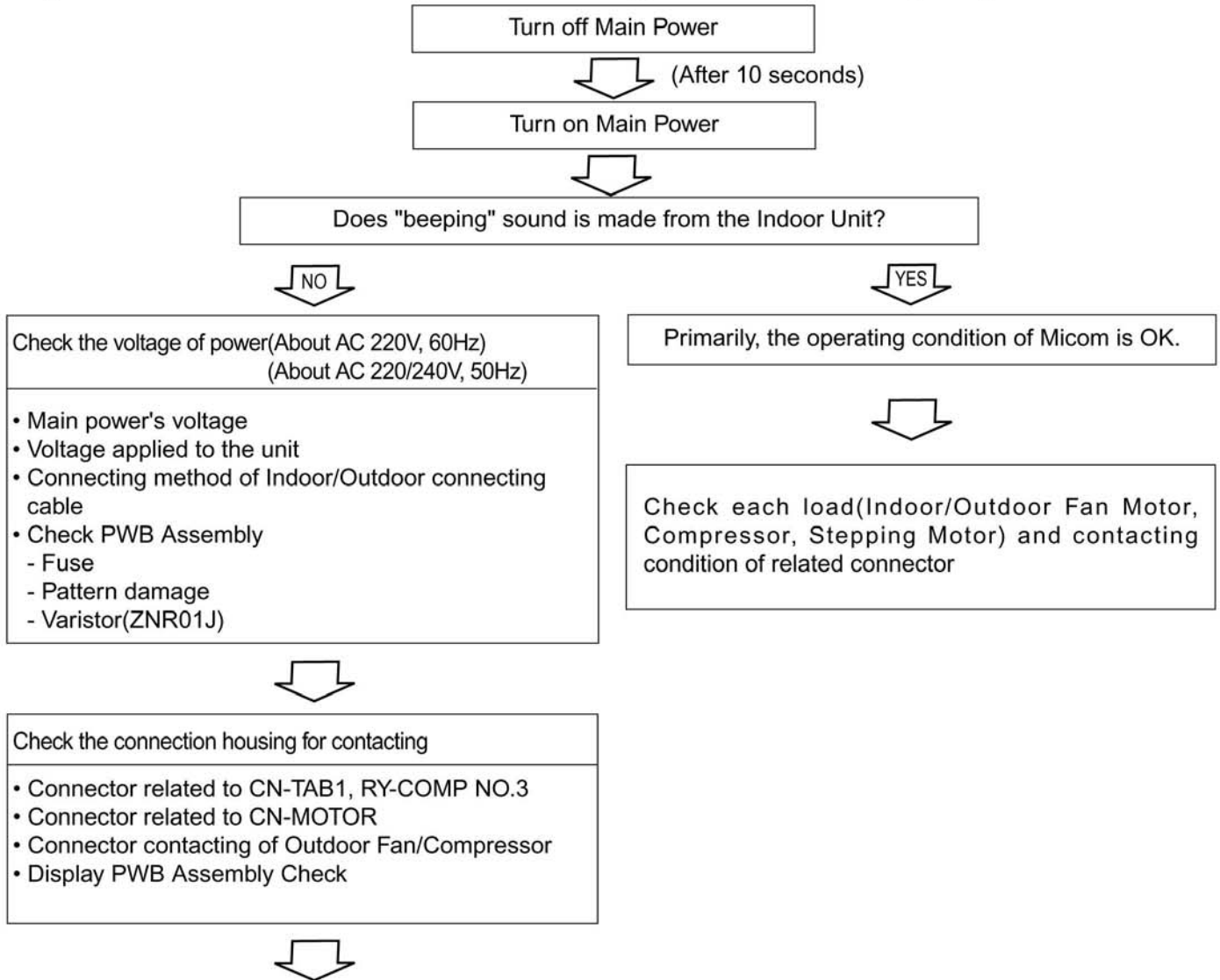
Notice :

1. The suction pressure is usually 4.5~6.0 kg/cm²G(Cooling) at normal condition.
2. The temperature can be measured by attaching the thermometer to the low pressure tubing and wrap it with putty.

Electronic Parts Troubleshooting Guide

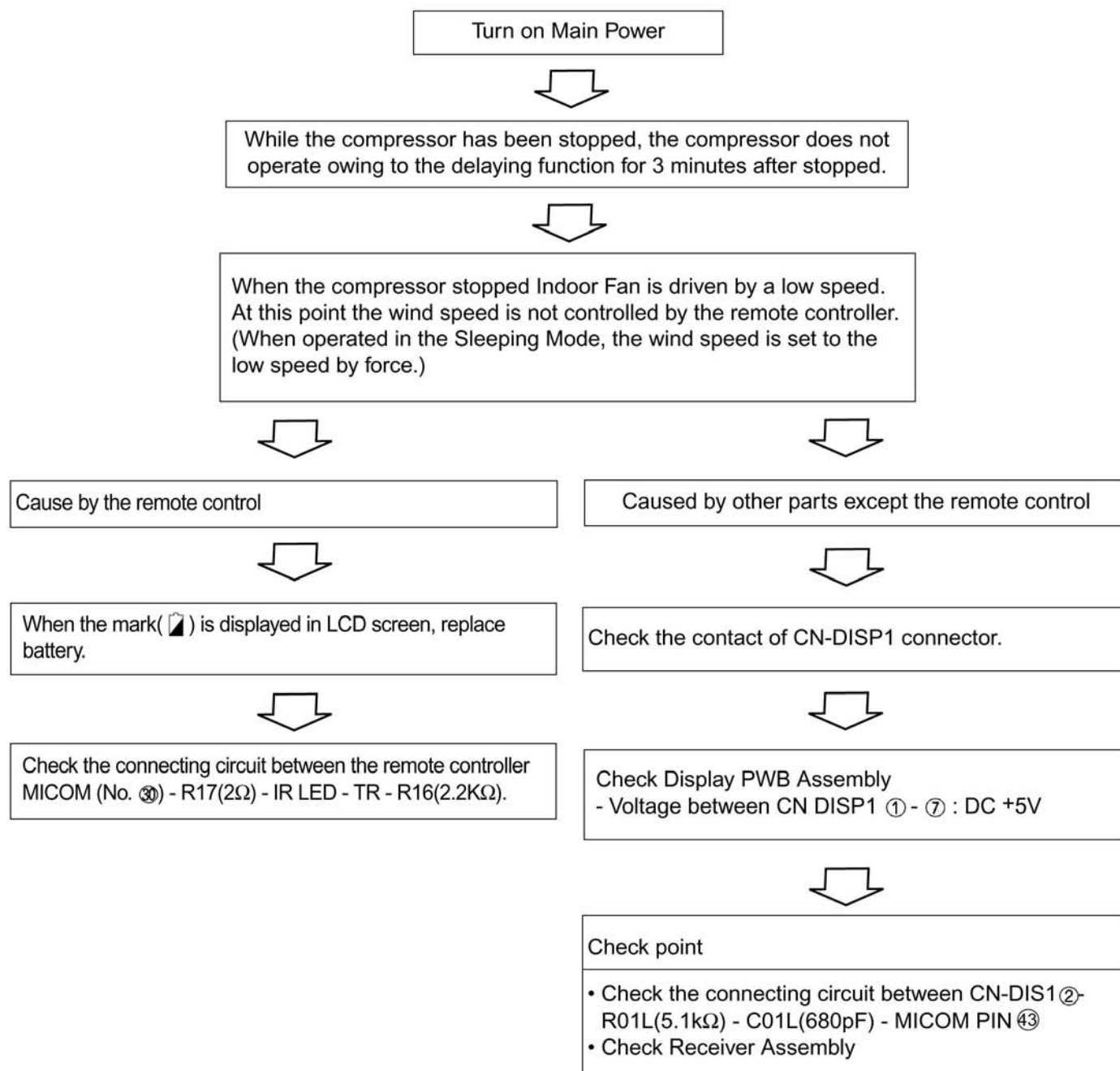
1. Product does not operate at all.

(* Refer to Electronic Control Device drawing and Schematic diagram.)

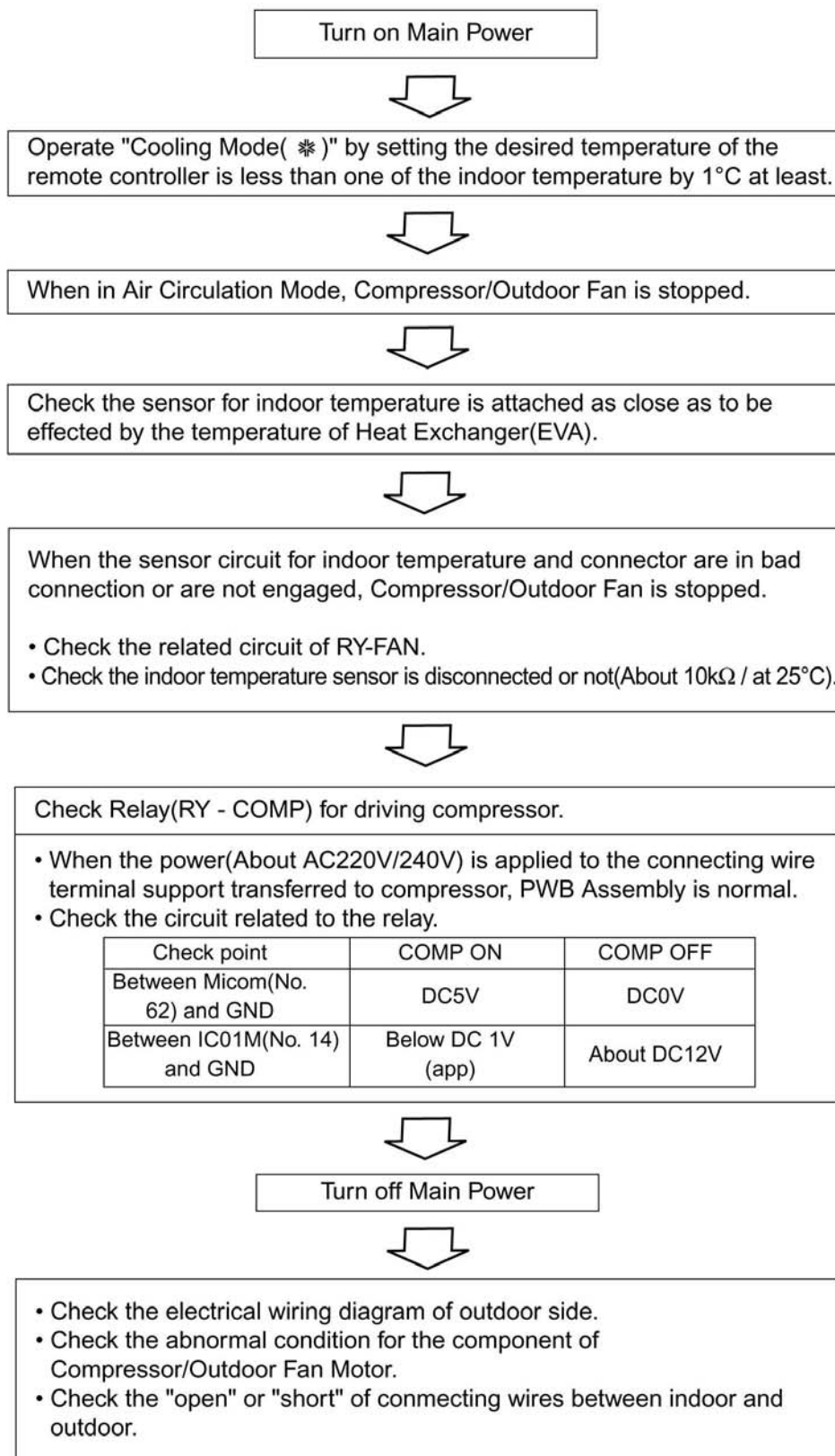


Main PCB Board Operation Check		
Items	Content	Remedy
<ul style="list-style-type: none"> • SMPS Transformer (Indoor unit) <ul style="list-style-type: none"> - Input Voltage - Output Voltage(ZD02D) • IC04D(7805) Output (Indoor/Outdoor unit) • IC01A(KIA7036, Reset IC) X01(8MHz) 	<ul style="list-style-type: none"> - About AC220V/240V±10% - Check the power voltage - About DC12V • DC +5V • Voltage of Micom No. 2, (DC +4.5V over) and Soldering condition. 	<ul style="list-style-type: none"> • Replace Trans • Replace IC04D • Replace faulty parts

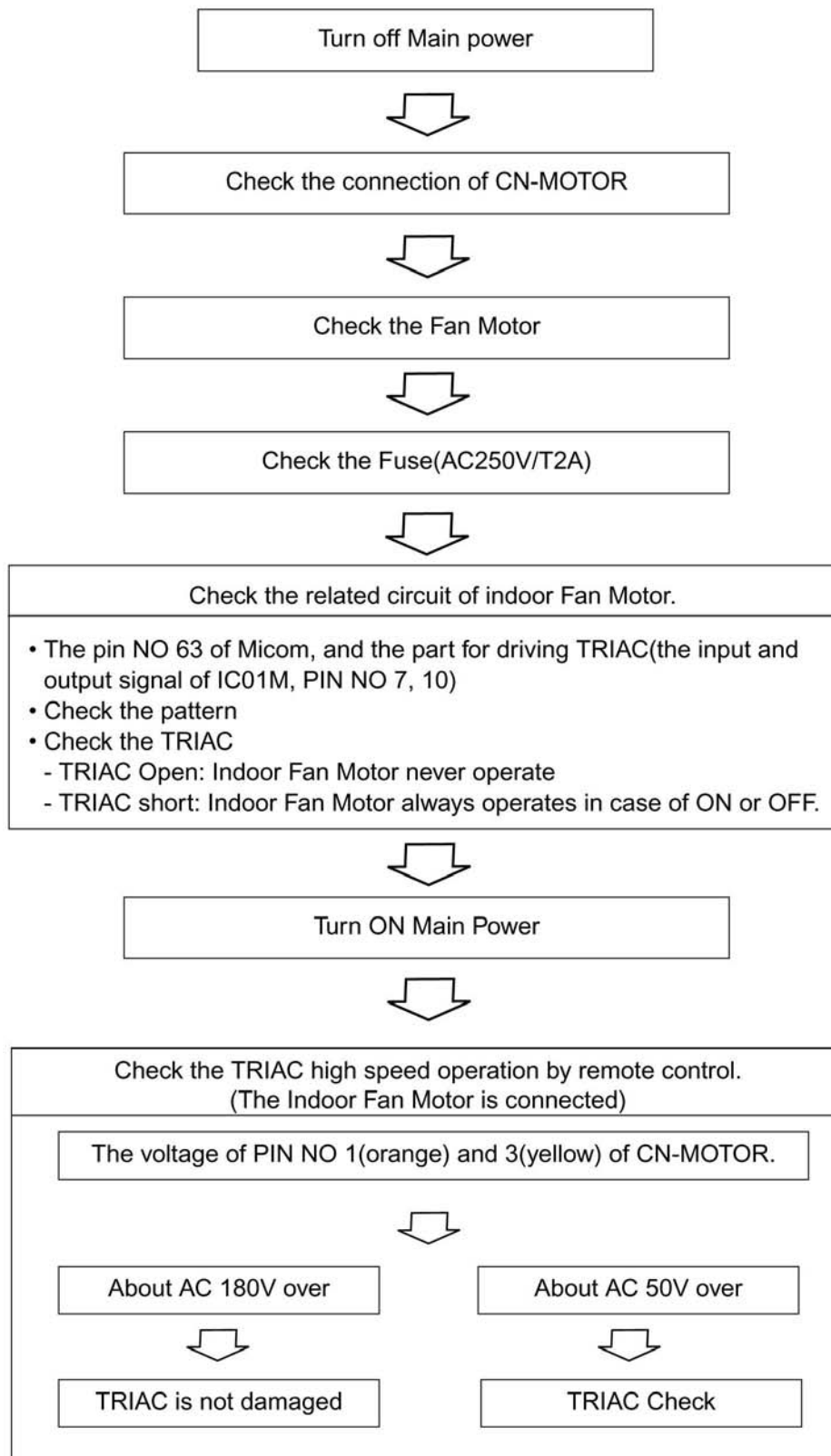
2. The product is not operate with the remote control.



3. Compressor/Outdoor Fan are unable to drive.



4. When indoor Fan does not operate.



5. When Vertical Louver does not operate.

- Confirm that the Vertical Louver is normally geared with the shaft of Stepping Motor.
- If the regular torque is detected when rotating the Vertical Louver with hands ⇒ Normal



- Check the connecting condition of CN-U/D Connector
- Check the soldering condition(on PWB) of CN-U/D Connector



Check the operating circuit of the Vertical Louver

- Confirm that there is DC +12V between pin①(RED) of CN-U/D and GND.
- Confirm that there is a soldering short at following terminals.
 - Between ⑥0, ⑥1, ⑥2 and ⑥3 of MICOM
 - Between ②, ③, ④ and ⑤ of IC01M
 - Between ⑮, ⑭, ⑬ and ⑫ of IC01M



If there are no problems after above checks

- Confirm the assembly conditions that are catching and interfering parts in the rotation radial of the Vertical Louver

6. When Heating does not operate

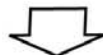
Turn ON Main Power



Operate "Heating Mode(☼)" by setting the desired temperature of the remote control is higher than one of the indoor temperature by 2°C at least.



In heating Mode, the indoor fan operates in case the pipe temperature is higher than 28°C.



Check the connector of intake and pipe sensor(thermistors)

- Check the related circuit of RY-4WAY
- Check the indoor room temperature is disconnected or not (about 10K Ω /at 25°C).
- Check the indoor pipe temperature is disconnected or not (about 5K Ω /at 25°C).



Check the DC voltage on the PWB ASSEMBLY

- The details of check are as followings

- Comp Relay.

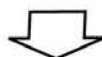
Check point	Comp ON	Comp OFF
Between Micom (NO.59) and GND	DC 5V	DC 0V
Between IC01M (NO.11) and GND	Below DC 1V	About DC 12V

- Outdoor fan Relay

Check point	Fan ON	Fan OFF
Between Micom (NO.53) and GND	DC 5V	DC 0V
Between IC02M (NO.12) and GND	Below DC 1V	About DC 12V

- 4 way Relay

Check point	4 way ON	4 way OFF
Between Micom (NO.51) and GND	DC 5V	DC 0V
Between IC02M (NO.11) and GND	Below DC 1V	About DC 12V



Turn off Main Power



- Check the electrical wiring diagram of outdoor side.
- Check the abnormal condition for the component of Compressor/Outdoor Fan Motor, 4 way.
- Check the "open" or "short" of connecting wires between indoor and outdoor.

