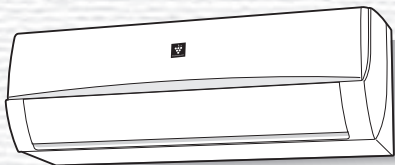


# SHARP®

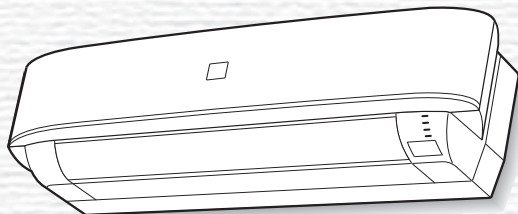


## OPERATION MANUAL INSTALLATION MANUAL

AH-PN10, 10GY AH-L10  
AH-PN13, 13GY AH-L13



AH-PN19, AH-PN24



INDOOR UNIT      OUTDOOR UNIT

<b>AH-PN10</b>	<b>AU-PN10</b>
<b>AH-PN10-GY</b>	<b>AU-PN10</b>
<b>AH-PN13</b>	<b>AU-PN13</b>
<b>AH-PN13-GY</b>	<b>AU-PN13</b>
<b>AH-PN19</b>	<b>AU-PN19</b>
<b>AH-PN24</b>	<b>AU-PN24</b>
<b>AH-L10</b>	<b>AU-L10</b>
<b>AH-L13</b>	<b>AU-L13</b>

Thank you for purchasing a SHARP air conditioner.  
Please read this manual carefully before operating  
the product



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Please read this manual carefully before using the product. This manual should be kept in a safe place for handy reference.

## IMPORTANT SAFETY INSTRUCTIONS

### WARNINGS

- Do not pull or deform the power supply cord. Pulling and misuse of the power supply cord can result in damage to the unit and cause electrical shock.
- Be careful not to expose your body directly to the outlet air for a long time. It may affect your physical conditions.
- When using the air conditioner for infants, children, elderly, bedridden, or disabled people make sure the room temperature is suitable for those in the room.
- Never insert objects into the unit. Inserting objects can result in injury due to the high speed rotation of internal fans.
- Ground the air conditioner without fail. Do not connect the grounding wire to gas pipe, water pipe, lightning rod or telephone grounding wire. Incomplete grounding may cause electric shock.
- If anything is abnormal with the air conditioner (ex. a burning smell), stop the operation immediately and turn the circuit breaker OFF.
- The appliance shall be installed in accordance with national wiring regulations. Improper cable connection can cause the power supply cord, plug and the electrical outlet to overheat and cause fire.
- If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similarly qualified person in order to avoid a hazard. Use only the manufacture specified power cord for replacement.
- Do not splash or pour water directly on the unit. Water can cause electrical shock or equipment damage.
- Do not attempt to install/remove/repair the unit by yourself. Incorrect work will cause electric shock, water leak, fire etc. Consult your dealer or other qualified service personnel for the installation/removal/repair of the unit.

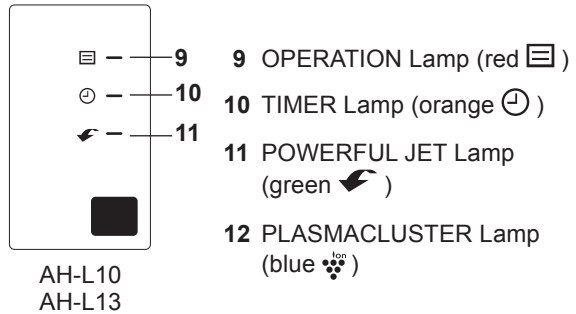
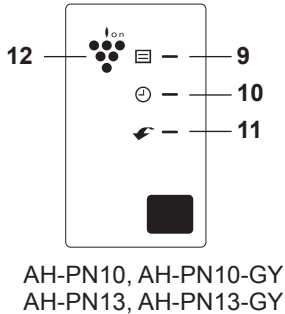
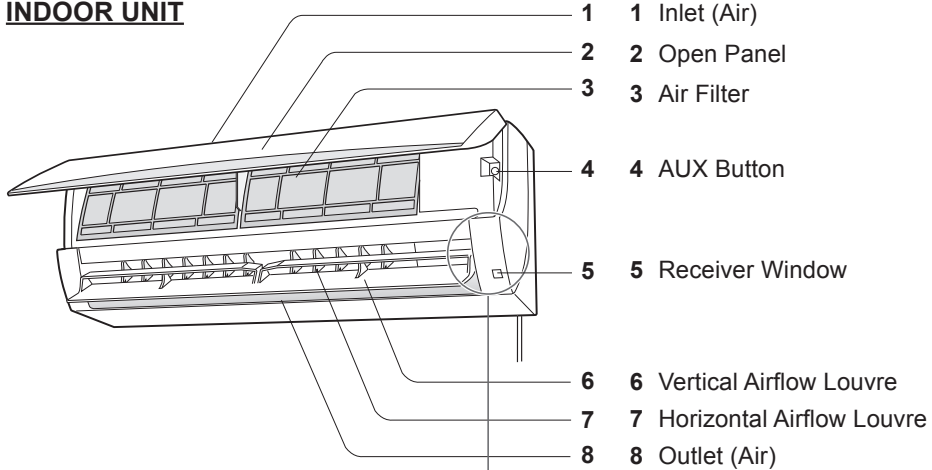
### CAUTIONS

- Open a window or door periodically to ventilate the room, especially when using gas appliances. Insufficient ventilation may cause oxygen shortage.
- Do not operate the buttons with wet hand. It may cause electric shock.
- For safety, turn the circuit breaker off when not using the unit for an extended period of time.
- Check the outdoor unit mounting rack periodically for wear and to make sure it is firmly in place.
- Do not put anything on the outdoor unit nor step on it. The object or the person may fall down or drop, causing injury.
- This unit is designed for residential use. Do not use for other applications such as in a kennel or greenhouse to raise animals or grow plants.
- Do not place a vessel with water on the unit. If water penetrates into the unit, electrical insulations may deteriorate and cause electric shock.
- Do not block the air inlets nor outlets of the unit. It may cause insufficient performance or troubles.
- Be sure to stop the operation and turn the circuit breaker off before performing any maintenance or cleaning. A fan is rotating inside the unit and you may get injured.
- This appliance is not intended for use by young children or infirm persons without supervision. Young children should be supervised to ensure that they do not play with the appliance.
- Make sure to connect the air conditioner to power supply of the rated voltage and frequency. Use of a power supply with improper voltage and frequency can result in equipment damage and possible fire.
- Do not install the unit in a place where inflammable gas may leak. It may cause fire. Install the unit in a place with minimal dust, fumes and moisture in the air.
- Arrange the drain hose to ensure smooth drainage. Insufficient drainage may cause wetting of the room, furniture etc.
- Make sure a leak breaker or a circuit breaker is installed, depending on the installation location, to avoid electrical shock.



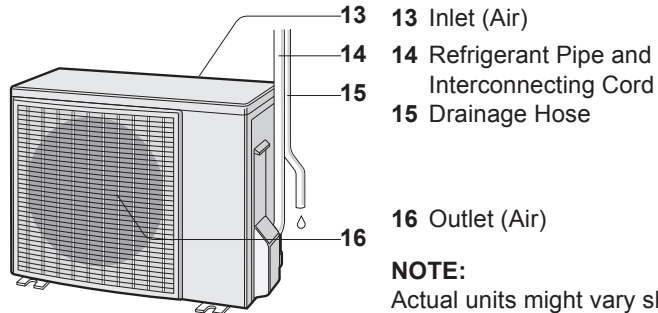
# PART NAMES

## INDOOR UNIT



## OUTDOOR UNIT

AU-PN10  
AU-PN13  
AU-L10  
AU-L13

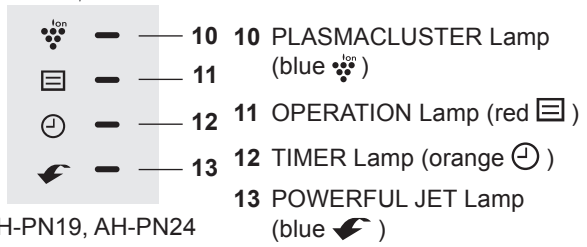
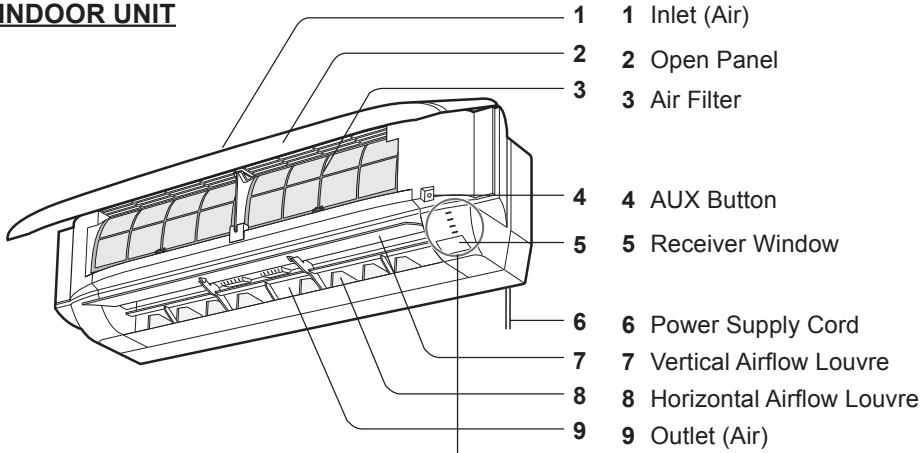


**NOTE:**  
Actual units might vary slightly from those shown above.

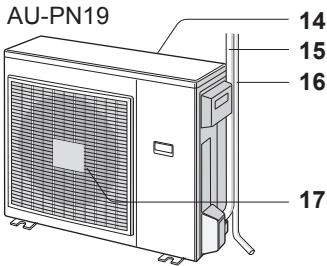




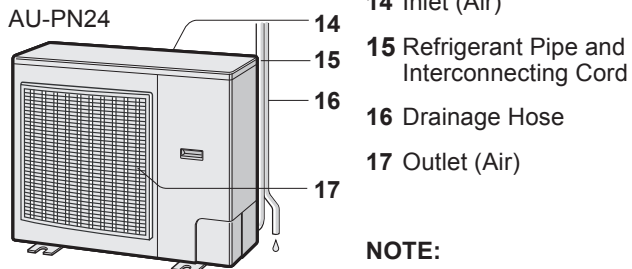
### INDOOR UNIT



### OUTDOOR UNIT



AH-PN19, AH-PN24

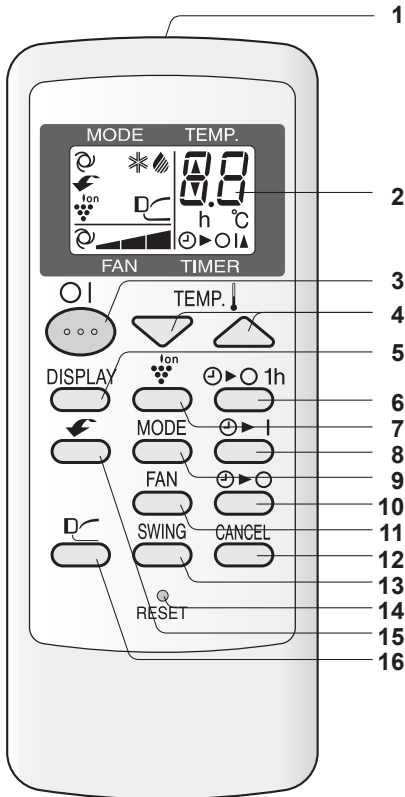


**NOTE:**  
 Actual units might vary slightly from those shown above.




# PART NAMES

## REMOTE CONTROL



- 1 TRANSMITTER
- 2 DISPLAY
- 3 ON/OFF Button
- 4 THERMOSTAT Button
- 5 DISPLAY Button
- 6 ONE-HOUR OFF TIMER Button
- 7 PLASMACLUSTER Button  
(AH-PN10, AH-PN10-GY  
AH-PN13, AH-PN13-GY  
AH-PN19, AH-PN24 ONLY)
- 8 TIMER ON Button
- 9 MODE Button
- 10 TIMER OFF Button
- 11 FAN Button
- 12 TIMER CANCEL Button
- 13 SWING Button
- 14 Reset Button
- 15 POWERFUL JET Button
- 16 GENTLE COOL AIR Button

### 17 MODE Symbols

 : AUTO   
  : COOL   
  : DRY

### 18 POWERFUL JET Symbol

- 19 PLASMACLUSTER Symbol (AH-PN10, AH-PN10-GY  
AH-PN13, AH-PN13-GY  
AH-PN19, AH-PN24 ONLY)

### 20 FAN SPEED Symbols

 : AUTO  
 : Manual setting

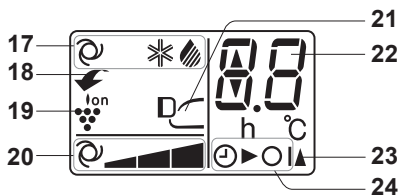
### 21 GENTLE COOL AIR Symbol

### 22 TEMPERATURE AND TIMER COUNT DOWN Indicator

### 23 TRANSMITTING Symbol

### 24 TIMER ON / TIMER OFF Indicator

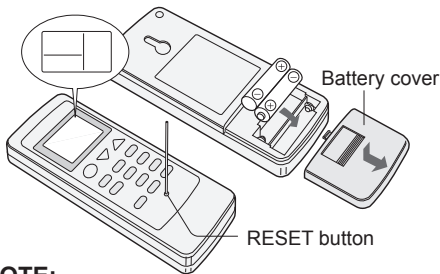
## DISPLAY



## USING THE REMOTE CONTROL

### LOADING BATTERIES

- 1 Remove the battery cover.
- 2 Insert two batteries. (AAA(R03))  
Make sure the (+) and (-) polarities are correctly aligned.
- 3 Reinstall the battery cover.
- 4 Press the RESET button using a thin stick.



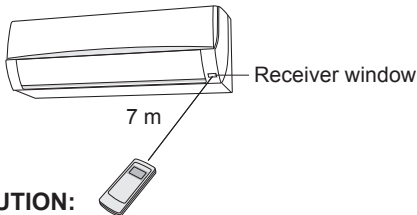
#### NOTE:

- The battery life is approximately 1 year in normal use.
- When replacing the batteries, always change both and use the same type.
- If you will not be using the unit for a long time, remove the batteries from the remote control.

### HOW TO USE THE REMOTE CONTROL

Point the remote control towards the receiver window and press the desired button. The unit generates a beep when it receives the signal.

- Make sure nothing, such as curtains, block the signal receiver window.
- The signal effective distance is 7 m.



#### CAUTION:


- Do not expose the receiver window to direct sunlight. This may adversely affect its operation.
- Use of certain fluorescent lamp in the same room may interfere with transmission of the signal.
- Do not leave the remote control in direct sunlight or near a heater. Protect the remote control from moisture and shock.

## AUXILIARY MODE

Use this mode when the remote control is not available.

### TO TURN ON

Press the AUX button.

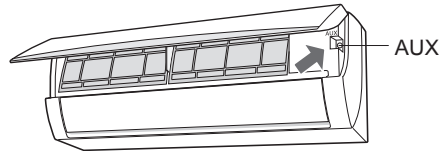
- The red OPERATION lamp (  ) will light and the unit will start operating in the AUTO mode.
- The fan speed and temperature setting are set to AUTO.

### TO TURN OFF

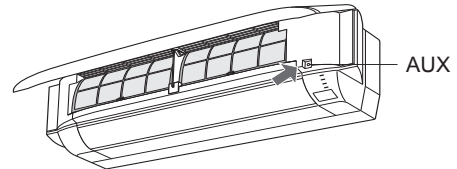
Press the AUX button again.

- The red OPERATION lamp (  ) will turn off.

9,000/12,000 BTU



18,000/24,000 BTU



## TIPS ON SAVING ENERGY

Below are some simple ways to save energy when you use your air conditioner.

#### Set the proper temperature

- Setting the temperature lower than necessary during cooling operation will result in increased power consumption.

#### Block direct sunlight and prevent drafts

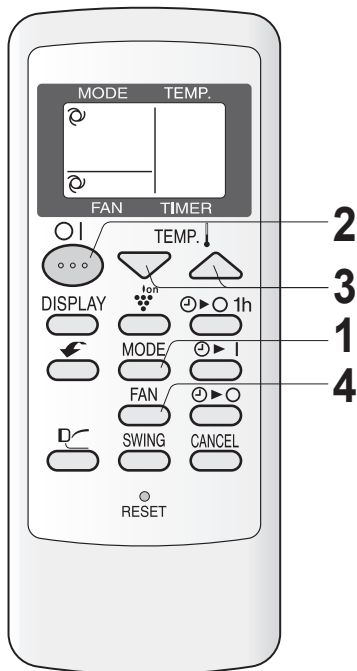
- Blocking direct sunlight during cooling operation will reduce power consumption.
- Close the windows and doors during cooling operation.

#### Keep filter clean to ensure the most efficient operation

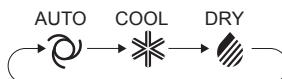
#### Disconnect the power cord or turn off the circuit breaker when the unit is not used for an extended period of time

- The indoor unit still consumes a small amount of power when it is not operating.

# BASIC OPERATION



**1 Press the MODE button to select the operation mode.**



**2 Press the ON/OFF button to start operation.**

- The red OPERATION lamp (  ) will light up.

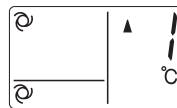
### **TO TURN OFF**

Press the ON/OFF button again.

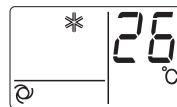
- The red OPERATION lamp (  ) will turn off.

**3 Press the THERMOSTAT button to set the desired temperature.**

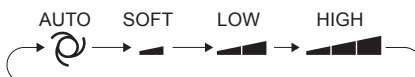
(AUTO/DRY mode)  
The temperature can be changed up to  $\pm 2$  °C the automatically set of temperature.



(COOL mode)  
The temperature setting range:  
16-30°C.



**4 Press the FAN button to set the desired fan speed.**



## **NOTE:**

### **AUTO MODE**

In the AUTO mode, the temperature setting and mode are automatically selected according to the room temperature when the unit is turned on.

### **DRY MODE**

The fan speed is preset to AUTO and cannot be changed.

### **WHEN POWER FAILURE OCCURS**

This air conditioner has a memory function to store settings when a power failure occurs.

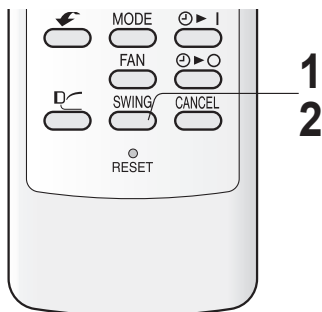
After power recovery, the unit will automatically re-start in the same settings which were active before the power failure, except for timer settings.



## ADJUSTING THE AIR FLOW DIRECTION

### VERTICAL AIR FLOW DIRECTION

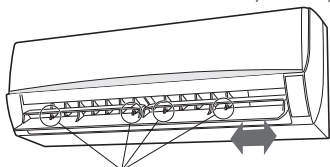
- 1 Press the SWING button.**
  - The vertical airflow louvre will swing.
- 2 Press the SWING button again to stop the desired position.**
  - The adjustment range is narrower the swing range in order to prevent condensation from dripping.



### HORIZONTAL AIR FLOW DIRECTION

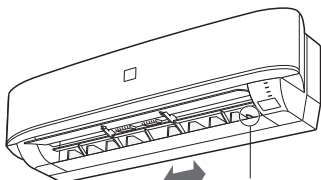
Hold the horizontal airflow louvre levers and adjust the air flow direction.

9,000/12,000 BTU



Louvre lever

18,000/24,000 BTU



Louvre lever



#### CAUTION:

Never attempt to adjust the vertical airflow louvre manually.

- Manual adjustment of the vertical airflow louvre can cause the unit to malfunction.
- When the vertical adjustment louvre is positioned at the lowest position in the COOL or DRY mode for an extended period of time, condensation may result.


## POWERFUL JET OPERATION

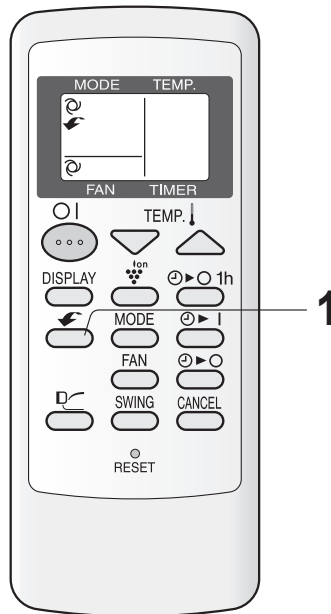
The air conditioner works at the maximum power and optimum louvre direction to makes the room cool rapidly.

- 1 During operation, press the POWERFUL JET button.**
  - The remote control will display “”.
  - The temperature display will go off.
  - The green POWERFUL JET lamp (  ) will light up.
  - The vertical airflow louvre will be set obliquely downward.

#### TO CANCEL

Press the POWERFUL JET button again.

- The green POWERFUL JET lamp (  ) will turn off.
- The vertical airflow louvre will return to the original direction.



#### NOTE:


- The air conditioner will operate at “Extra HIGH” fan speed for 30 minutes, and then shift to “HIGH” fan speed.
- You can not set the temperature or fan speed during the POWERFUL JET operation.



## GENTLE COOL AIR

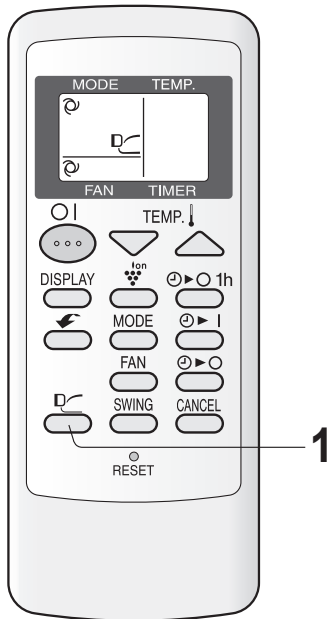
The vertical airflow louvre is set obliquely upward to deliver cool air to the ceiling in order to avoid direct airflow.

### 1 During operation, press the GENTLE COOL AIR button.

- The remote control will display “”.

#### **TO CANCEL**

Press the GENTLE COOL AIR button again.



#### **NOTE:**



- If you want GENTLE COOL AIR operation in POWERFUL JET mode, press GENTLE COOL AIR button during POWERFUL JET operation.

## PLASMACLUSTER OPERATION

(AH-PN10, AH-PN10-GY  
AH-PN13, AH-PN13-GY  
AH-PN19, AH-PN24 ONLY)

Plasmacluster ions released into the room will reduce some airborne mold.

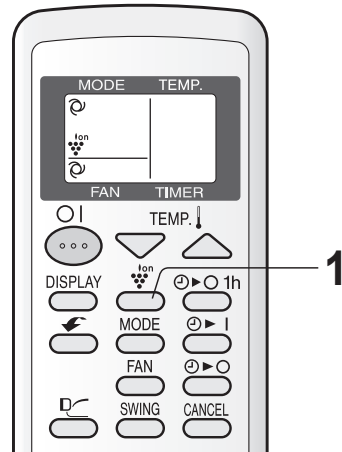
### 1 During operation, press the PLASMACLUSTER button.

- The remote control will display “”.
- The blue PLASMACLUSTER lamp () will light up.

#### **TO CANCEL**

Press the PLASMACLUSTER button again.

- The blue PLASMACLUSTER lamp () will turn off.



#### **NOTE:**


- Use of the PLASMACLUSTER operation will be memorized, and it will be activated the next time you turn on the unit.
- To perform Plasmacluster operation in FAN only mode, press the PLASMACLUSTER button when the unit is not operating. The mode symbol of the remote control will go off and the fan speed cannot be set to AUTO.

## TIMER OPERATION

### TIMER OFF

- 1 Press the **TIMER OFF** button and set the time as desired.

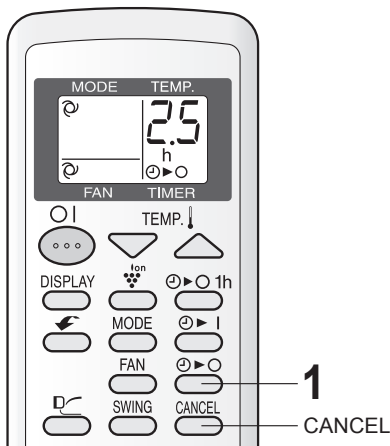
→0.5h →1.0h →1.5h →10h →11h →12h

- The orange **TIMER** lamp (  ) will light up.
- The time setting will count down to show the remaining time.

#### TO CANCEL

Press the **CANCEL** button.


- The orange **TIMER** lamp (  ) will turn off.



### TIMER ON

- 1 Press the **TIMER ON** button and set the time as desired.

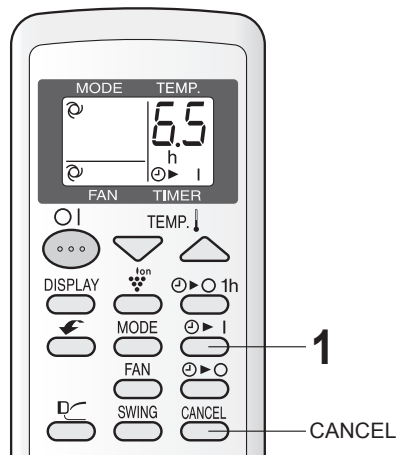
→0.5h →1.0h →1.5h →10h →11h →12h

- The orange **TIMER** lamp (  ) will light up.
- The time setting will count down to show the remaining time.

#### TO CANCEL

Press the **CANCEL** button.

- The orange **TIMER** lamp (  ) will turn off.



### NOTE:

- Timer duration can be set from a minimum of half an hour to a maximum of 12 hours. Up to 9.5 hours, you can set in half-hour increments, and from 10 to 12 hours, in 1-hour increments.
- The **TIMER OFF** and **TIMER ON** can not be set together.
- The **ONE-HOUR OFF TIMER** operation has priority over **TIMER ON** and **TIMER OFF** operations.
- When the temperature is set during timer setting, the temperature will show in the display for 5 seconds and then return to the timer display.
- If a power failure occurs while the **TIMER** is set, the **TIMER** setting will be cancelled and will not be retrieved even after the power is restored.

### TIMER OFF

- When the **TIMER OFF** is set, the temperature setting is automatically adjusted to prevent the room from becoming excessively cold while you sleep. (Auto Sleep function) One hour after the time operation begins, the temperature setting rises 1°C higher than the original temperature setting.



### TIMER ON

- The unit will turn on prior to the set time to allow the room to reach the desired temperature by the programmed time. (Awaking function)

## ONE-HOUR OFF TIMER

When the ONE-HOUR OFF TIMER is set, the unit will automatically turn off after one hour.

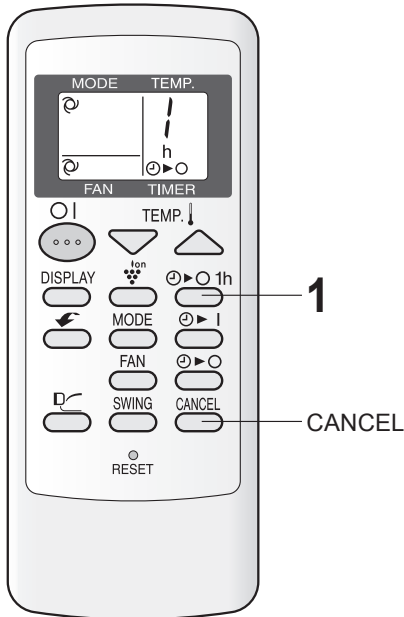
### 1 Press the ONE-HOUR OFF TIMER button.

- The remote control will display “”.
- The orange TIMER lamp (  ) will light up.

### TO CANCEL

Press the CANCEL button.



- The orange TIMER lamp (  ) will turn off.



## DISPLAY BUTTON

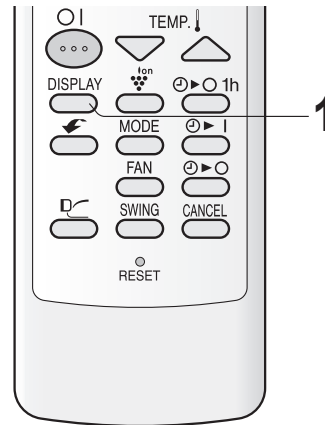
Use when the lamps on the unit are too bright. (The red OPERATION lamp and the orange TIMER lamp cannot be turned off.)

### 1 During operation, press the DISPLAY button.

- The blue PLASMACLUSTER lamp (  ) and/or the green POWERFULL JET lamp (  ) will turn off.

### TO LIGHT UP

Press the DISPLAY button again.



### NOTE:

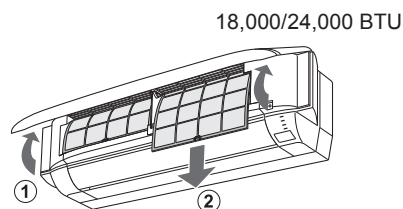
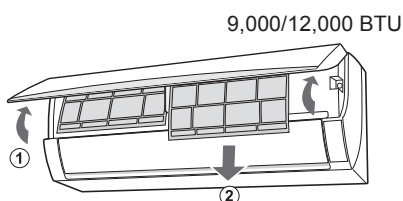
- The ONE-HOUR OFF TIMER operation has priority over TIMER ON and TIMER OFF operations.
- If the ONE-HOUR OFF TIMER is set while the unit is not operating, the unit will operate for an hour at the formerly set condition.
- If you wish to operate the unit for another hour before the ONE-HOUR OFF TIMER is activated, press the ONE-HOUR OFF TIMER button again during operation.

## MAINTENANCE

Be sure to disconnect the power cord from the wall outlet or turn off the circuit breaker before performing any maintenance.

### CLEANING THE FILTERS

- 1 Turn off the unit.
- 2 Remove the filters.
  - ① Lift the open panel.
  - ② Pull the air filters down to remove them.



- 3 Clean the filters.

Use a vacuum cleaner to remove dust. If the filters are dirty, wash them with warm water and a mild detergent. Dry filters in the shade before reinstalling.

- 4 Reinstall the filters and close the open panel.

### CLEANING THE UNIT AND THE REMOTE CONTROL

- Wipe them with a soft cloth.
- Do not directly splash or pour water on them. It can cause electrical shock or equipment damage.
- Do not use hot water, thinner, abrasive powders or strong solvents.

### MAINTENANCE AFTER AIR CONDITIONER SEASON

- 1 Operate the unit in the COOL mode, temperature setting 30°C, to thoroughly dry inside the unit.
- 2 Stop the operation and unplug the unit. Turn off the circuit breaker, if you have one exclusively for the air conditioner.
- 3 Clean the filters, then reinstall them.

### MAINTENANCE BEFORE AIR CONDITIONER SEASON

- 1 Make sure that the air filters are not dirty.
- 2 Make sure that nothing obstructs the air inlet or outlet.

## OPERATING CONDITION

Mode		Indoor Temp.	Outdoor Temp.
Cooling	Upper limit	32°C	43°C
	Lower limit	21°C	21°C

- The built-in safety device may prevent the unit from operating when used out of this range.
- Condensation may form on the air outlet if the unit operates continuously in the COOL or DRY mode when humidity is over 80 %.



## BEFORE CALLING FOR SERVICE

The following conditions do not denote equipment malfunctions

### UNIT DOES NOT OPERATE

The unit will not operate if it is turned on immediately after it is turned off. The unit will not operate immediately after the mode is changed. This is to protect the unit. Wait 3 minutes before operating the unit.

### ODORS

Carpet and furniture odors that entered into the unit may be sent out from the unit.

### CRACKING NOISE

This sound is generated by the friction of the unit expanding or connecting due to a temperature change.

### SWISHING NOISE

The soft, swishing noise is the sound of the refrigerant flowing inside the unit.

### MIST SEEN AT INDOOR AIR OUTLET

In cooling operation, this is caused by the difference between the room air temperature and the air discharged.

### ODOR EMITTED FROM THE PLASMACLUSTER AIR OUTLET

(AH-PN10, AH-PN10-GY  
AH-PN13, AH-PN13-GY  
AH-PN19, AH-PN24 ONLY)

This is the smell of ozone generated from the Plasmacluster Ion generator. The ozone concentration is very small, posing no adverse effect on your health. The ozone discharged into the air rapidly decomposes, and its density in the room will not increase.

### A LOW BUZZING NOISE

(AH-PN10, AH-PN10-GY  
AH-PN13, AH-PN13-GY  
AH-PN19, AH-PN24 ONLY)

This is a sound of the unit generating Plasmacluster ions.

Check the following points before calling for service.

### The unit does not operate

- Check if the circuit breaker has tripped or the fuse has blown.

### The unit does not cool effectively

- Check the filters. If dirty, clean them.
- Check the outdoor unit to make sure nothing is blocking the air inlet or outlet.
- Check the thermostat is proper setting.
- Make sure windows and doors are closed tightly.

### The unit does not receive the remote control signal

- Check whether the remote control batteries have become old and weak.
- Try to send the signal again with the remote control pointed properly towards the unit's signal receiver window.
- Check whether the remote control batteries are installed properly.

### Please call for service when OPERATION lamp, TIMER lamp and/or PLASMACLUSTER lamp on the unit blink.

(AH-PN10, AH-PN10-GY  
AH-PN13, AH-PN13-GY  
AH-PN19, AH-PN24 ONLY)










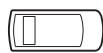


# INSTALLATION MANUAL

## SPLIT TYPE ROOM AIR CONDITIONER

### SAFETY PRECAUTIONS

- **Installation must be made in accordance with the installation manual by qualified service personnel.**  
Incorrect work will cause electric shock, water leak, fire.
- **Be sure to use the attached accessories parts and specified parts for installation.**  
Use of other parts will cause electric shock, water leak, fire, the unit falling.
- **The appliance shall be installed in accordance with national wiring regulations.**  
Wrong connection can cause overheating or fire.
- **After installation has complete, check that there is no leakage of refrigerant gas.**  
If the refrigerant gas contact with fire, it may generate toxic gas.
- **Ventilate the room if refrigerant gas leaks during installation.**  
If the refrigerant gas contact with fire, it may generate toxic gas.
- **Use the specified electrical cable.**  
Make sure the cable is secured in place and that the terminals are free of any excess force from the cable.  
Otherwise overheating or fire may result.
- **Form the cable so that the control box cover, the cord holder and cable holder are not loose.**  
Otherwise overheating, fire or electric shock may result.
- **Tighten the flare nut with a torque wrench according to the specified method.**  
If the flare nut is tightened too hard, the flare nut may be broken after a long time and cause refrigerant gas leakage.
- **When installing the unit, take care not to enter air substance other than the specified refrigerant (R22) in the refrigerant cycle.**  
Otherwise, it will cause burst and injury as a result of abnormal high pressure in the refrigerant cycle.
- **Be sure to connect the refrigerant pipe before running the compressor.**  
Otherwise, it will cause burst and injury as a result of abnormal high pressure in the refrigerant cycle.
- **Earth the unit.**  
Incomplete earth may cause electrical shock.
- **Install an earth leakage breaker to avoid electric shock in case of leak.**  
Use the current-activated, high-sensitivity, high-speed type breaker with a rated sensitivity current of below 30 mA and an operating time of below 0.1 second.
- **Arrange the drain hose to ensure smooth drainage.**  
Insufficient drainage may cause wetting of the room, furniture etc.

### ACCESSORIES

ITEMS	Q'ty	ITEMS	Q'ty	ITEMS	Q'ty
<b>1</b> MOUNTING PLATE 9K, 12K BTU  18K, 24K BTU 	1	<b>3</b> DRY BATTERY 	2	<b>5</b> CABLE COVER 9K, 12K BTU  18K, 24K BTU 	1
<b>2</b> REMOTE CONTROL 	1	<b>4</b> REMOTE CONTROL HOLDER 	1	<b>6</b> OPERATION AND INSTALLATION MANUAL 	1





## NOTES ON LOCATIONS

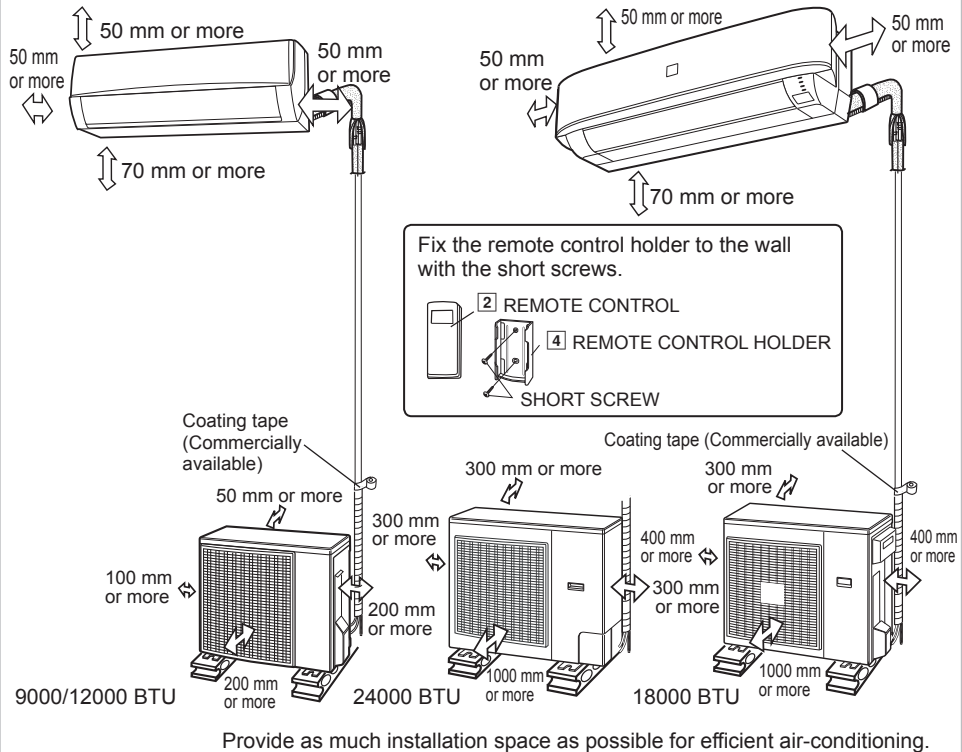
### INDOOR UNIT

1. Keep the air outlet clear of any obstacle so that outgoing air flows smoothly in the entire room.
2. Make a drain hose hole for easy drainage.
3. Provide sufficient space on both sides and above the unit.
4. The air filters should be easily taken in and out.
5. Keep TV set, radio and the like 1 m or more away from the unit and the remote control.
6. Keep the air inlet clear of obstacles that could block incoming air.
7. The remote control may not function properly in a room equipped with an electronic simultaneous-start or rapid-start fluorescent lighting.
8. Select a location that does not cause loud operation noise and extreme vibrations.

### OUTDOOR UNIT

1. Place the outdoor unit on a stable base.
2. Provided sufficient space around the unit. It should also be well ventilated.
3. The unit should not be exposed to strong wind nor splashed with rain water.
4. Water drain from the unit should be let out without problem. Lay a drain hose if required. In cold regions, installation of the drain pipe is not advisable as freezing could result.
5. Keep TV set, radio and the like 1 m or more away from the unit.
6. Avoid locations exposed to machine oil vapor, salty air (facing the seashore, for example), hot spring vapor sulfur gas, etc. Such location can cause breakdown.
7. Avoid locations exposed to muddy water (along a road, for example) or where the unit can be tampered with.
8. Select a location where the outgoing air or operating noise cannot annoy others.
9. Keep the air outlet opening free of any obstacle. This could affect the performance of the unit and create loud noises.

## INSTALLATION DIAGRAM



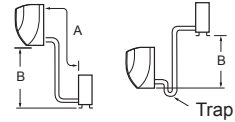




## PIPES

Model	Max. piping length:A	Max. height difference:B	Min. piping length	Additional refrigerant (piping length exceeds 7.5m)
9K-Btu/h type	10 m	5 m	1 m	15 g/m
12K-Btu/h type	15 m	7 m		10 g/m
18K 24K-Btu/h type	15 m	10 m		

- Standard piping length is 7.5m.
- When the outdoor unit is placed at a higher level than the indoor unit, provide a trap near the hose's lead-in port.



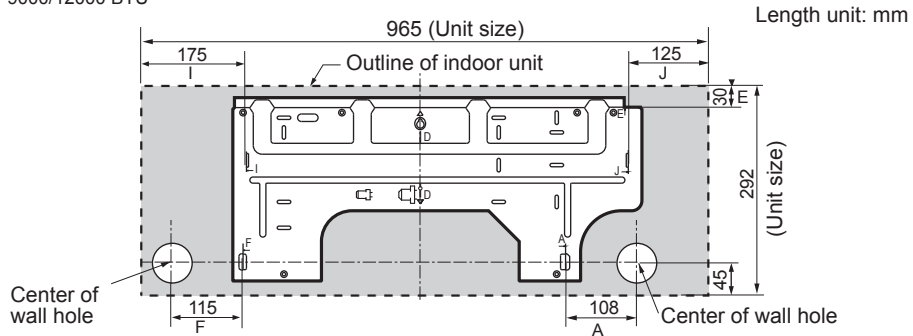
Use the refrigerant pipes shown in the table below.

Pipe size		Pipe thickness	Thermal insulation
Liquid side	1/4" (Ø 6.35 mm)	0.8 mm	Thickness: 6 mm or thicker Material: Polyethylene foam
Gas side	9K-Btu/h type 3/8" (Ø 9.52 mm)		
	12K-Btu/h type 1/2" (Ø 12.7 mm)		
	18K 24K-Btu/h type 5/8" (Ø 15.88 mm)	1.0 mm	

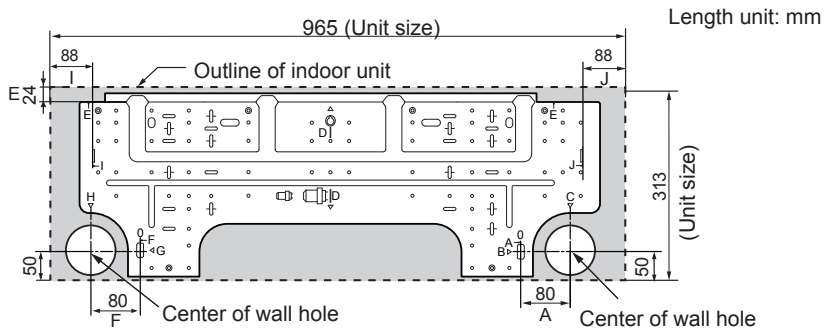
- The thermal insulation should cover both the gas and liquid pipes.

## INSTALLATION DIMENSION OF INDOOR UNIT

9000/12000 BTU



18000/24000 BTU



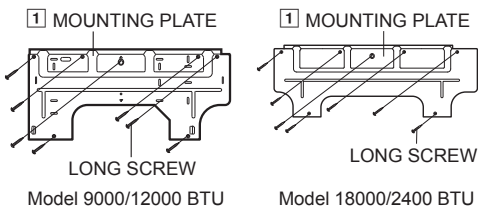
## PLACING THE MOUNTING PLATE AND MAKING A PIPING HOLE

### Installing the mounting plate

(1) Referring to the "INSTALLATION DIMENSION OF INDOOR UNIT", mark the location for the fixing holes and the piping hole.

- Recommended fixing holes are marked in circle around the hole. (7 points)
- Make sure that the mounting plate is horizontally.

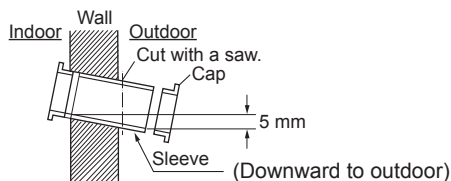
(2) Secure the mounting plate to the wall with the long screws and check the stiffness.



### Making a piping hole

(1) Drill a piping hole with 70mm diameter concrete drill or a hole saw with a 5mm down ward slant to the outside.

(2) Set the sleeve and caps.



## SETTING UP THE INDOOR UNIT

### Piping route

For directions 1, 2, 4 and 5, cut out the specific zone without leaving any sharp edge. (Keep the cut-out plate for possible future use.)

### Mounting the indoor unit

#### For right side piping

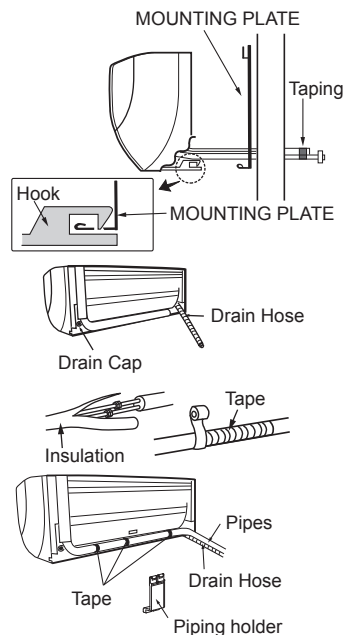
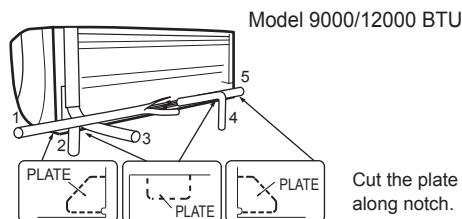
- (1) Pass the pipes and the drain hose through the piping hole.
- (2) Hook the unit onto the mounting plate.
- (3) Pull the connecting cable into the indoor unit.
- (4) Push the unit and apply the bottom hooks to the mounting plate's support.
- (5) Pull the bottom of the unit to check that the unit is fixed in place.

#### For left side piping

- (1) Reverse the positions of the drain hose and drain cap. Refer to "Exchange the drain hose"
- (2) Connect the pipes and wrap tape around the insulation of the piping joints tightly not to become thick.
- (3) Bind the pipes and connecting cable with tape.
- (4) Set the pipes and connecting cable along the back of the unit, and attach the piping holder.
- (5) Pass the pipes, connecting cable and the drain hose through the piping hole.
- (6) Hook the unit onto the mounting plate.
- (7) Push the unit and apply the bottom hooks to the mounting plate's support.
- (8) Pull the bottom of the unit to check that the unit is fixed in place.

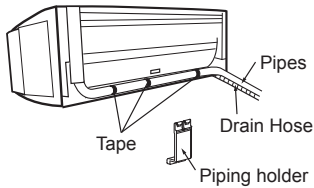
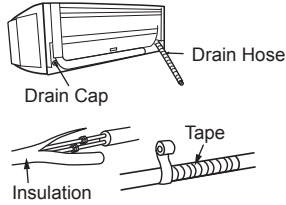
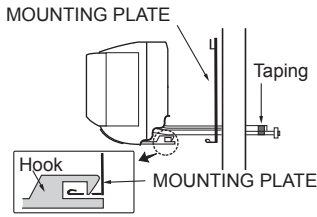
#### NOTES:

- Bend the pipes carefully as not to damage them.
- Lay the drain hose below the pipes.



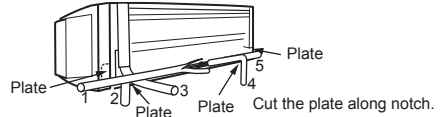


## Model 18000/24000 BTU



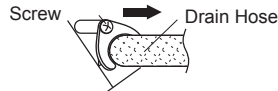
### Piping route

For directions 1, 2, 4 and 5, cut out the specific zone without leaving any sharp edge.  
(Keep the cut-out plate for possible future use.)

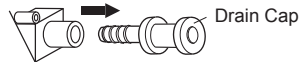


### Exchange the drain hose

(1) Remove the screw and pull out the drain hose.

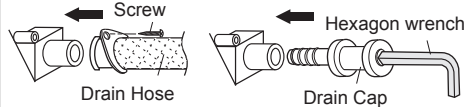


(2) Pull out the drain cap.



(3) Reconnect the drain hose to the right and insert the drain cap to the left.

- Fully insert the drain hose until it stops and fix the screw removed in (1).
- Insert a hexagon wrench (4 mm diagonal) into the drain cap, and press it fully.



**WARNING:**  
After replacing, make sure that both the drain hose and drain cap are firmly inserted.

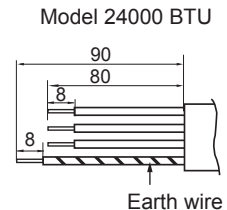
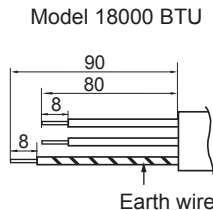
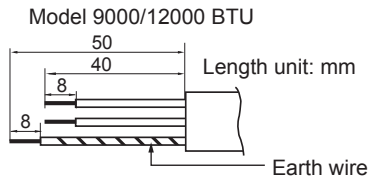
## CONNECTING THE CABLE TO THE INDOOR UNIT

Use a copper cable. (Cross-section area: 2.0 mm<sup>2</sup>) 9,000-12,000-18,000 BTU only

Use a cable which is not lighter than polychloroprene sheathed flexible cord (Code designation 60245 IEC 57).

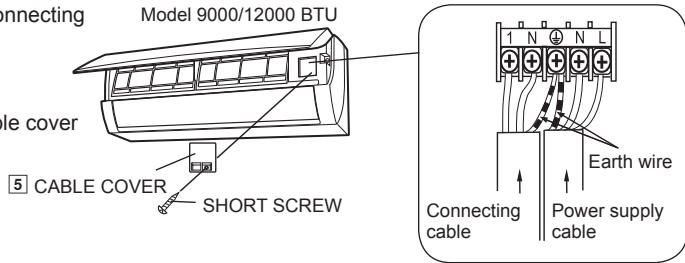
Use a copper cable. (Cross-section area: 2.0 mm<sup>2</sup>) 24,000 BTU only

### Connecting cable

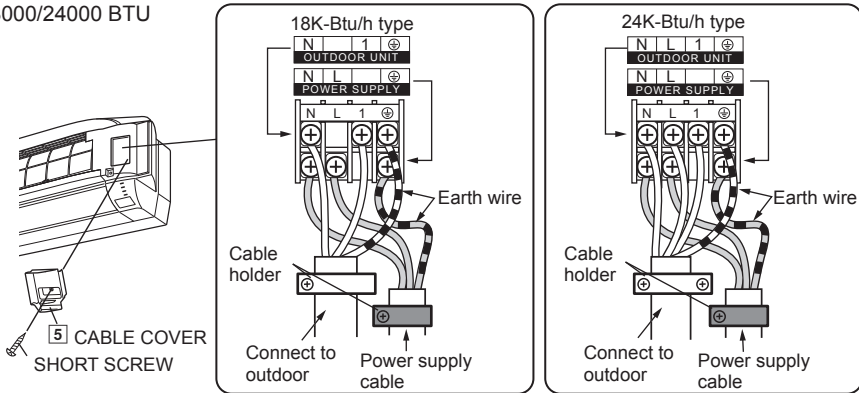




- (1) Process the end of the connecting cable for the indoor side.
- (2) Open the open panel.
- (3) Connect the cable.
- (4) Fix the cable with the cable cover and the short screw.
- (5) Close the open panel.



Model 18000/24000 BTU



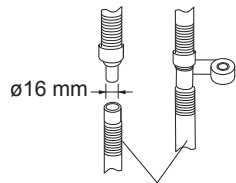
**CAUTIONS:**

- Be very careful not to confuse the terminal connections. Wrong cabling may damage the internal control circuit.
- Be sure to connect the cable to match the markings on the indoor unit's terminal board and those of the outdoor unit.

**CONNECTING THE DRAIN HOSE**

**Connecting the drain hose**

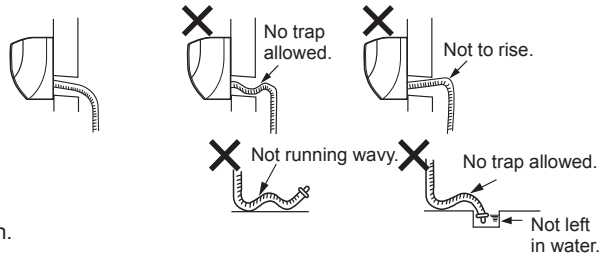
- (1) Connect a drain hose.
- (2) Tape over the connecting part.



Drain Hose (Commercially available)

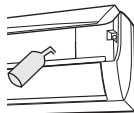
**NOTE:**

- Be sure to lay the drain hose downward for smooth drainflow.
- Be careful not to allow the drain hose to rise, form a trap or leave its end in water, as shown below.
- Coil thermal insulation around a drain hose extension, if running in the room.



**Checking drainage**

- (1) Open the open panel.
- (2) Remove the air filters.
- (3) Pour some water into the drain pan.
- (4) Check the water drains smoothly.





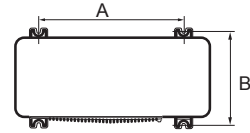
## OUTDOOR UNIT INSTALLATION

Referring to the figure, firmly fasten the outdoor unit with bolts.

[ระบบท่อของขนาดตัวเครื่องปรับอากาศ](#)

Model	A	B
9K/12K Btu/h	515	299
18K Btu/h	557	379
24K Btu/h	590	361

Length unit: mm



Unit size

	AH-PN10 AH-PN10GY AH-PN13 AH-PN13GY AH-L10 AH-L13	AH-PN19 AH-PN24	AU-PN10 AU-PN13 AU-L10 AU-L13	AU-PN19	AU-PN24
WIDTH	223	250	250	330	357
HEIGHT	292	313	540	710	800
DEPTH	860	965	730	850	940

## Connecting the refrigerant pipes

### Flaring the pipe end

- (1) Cutting with a pipe cutter.  
Cut at a right angle.
- (2) Deburring.  
Allow no cuttings in the pipe.
- (3) Putting in the flare nut
- (4) Flaring the pipe end  
Flare processing dimensions (A)

Tool	A
R22 tool	0.5 - 1.0 mm

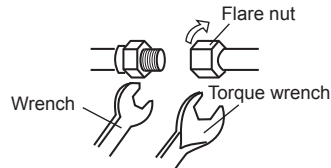
- (5) Checking  
To be flared perfectly circular.  
Flare nut not missing.



### Connecting the pipes

Connect the pipes for the indoor unit first and then for the outdoor unit.

- (1) Tighten the flare nuts by hand for the first 3-4 turns.
- (2) Use a wrench and torque wrench to tighten up the pipes.
  - Do not over tighten the pipes. It may be deformed or damaged.



### Flare nut tightening torque

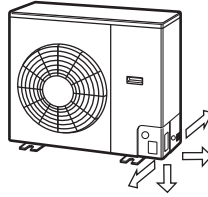
Pipe size	Torque		
Liquid size 1/4"	16 ± 2 N·m (1.6 ± 0.2 kgf·m)		
Gas side	3/8"	9K-Btu/h type	38 ± 4 N·m (3.8 ± 0.4 kgf·m)
	1/2"	12K 18K-Btu/h type	55 ± 5 N·m (5.5 ± 0.5 kgf·m)
	5/8"	24K-Btu/h type	70 ± 7 N·m (7.0 ± 0.7 kgf·m)



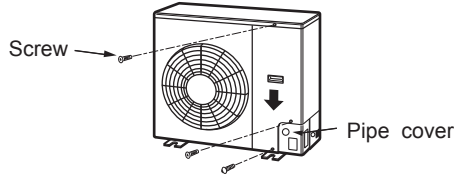


## CONNECTING THE PIPES TO THE OUTDOOR UNIT

Piping can be made in four directions, choose whichever direction convenient according to unit's installation condition.



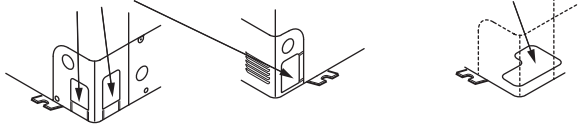
1. Remove 3 screws of service panel.  
Slide the panel downward and detach it.



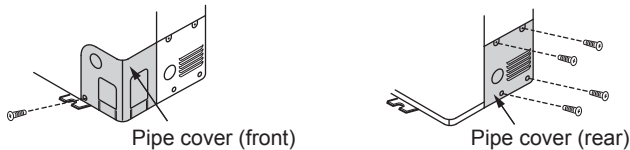
2. Remove the knock out hole of pipe cover or unit base pan, depending on the piping direction intended.  
After removing the knock out hole, remove burrs and attach BUSHING B on the knock out hole to protect the edge.

Knock out hole for refrigerant pipe

Knock out hole for refrigerant pipe and cable



3. Remove the pipe cover.



4. Connect the pipes.

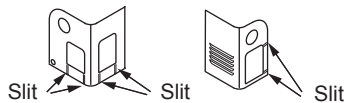
Align the center of the pipes and tighten the flare nuts by hand for the first 3-4 turns.

Use two wrenches to tighten up the pipes.

- Take care so that the connecting pipes will not touch the internal refrigerant piping.
- Be sure to cover the pipe connection area thoroughly with pipe thermal insulation.

5. Replace the pipe cover.

Cut off the remaining portion of the pipe cover slit to widen the pipe opening and replace the pipe cover.



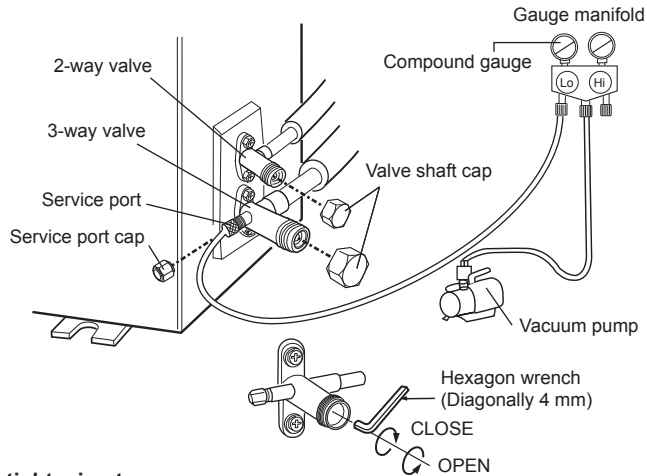
6. Fill up the clearance between the knock out hole and the pipes with putty.



## AIR REMOVAL

- (1) Remove both valve shaft caps of the 2 and 3-way valves.
- (2) Remove the service port cap of the 3-way valve.
- (3) Connect the gauge manifold hose to the service port and the vacuum pump.  
Be sure that the hose end to be connected to the service port has a valve core pusher.
- (4) Open the gauge manifold low-pressure valve(Lo) and operate the vacuum pump for 10-15 minutes.  
Make sure the compound gauge reads -0.1 MPa(-76 cmHg).
- (5) Close the gauge manifold valve.
- (6) Turn off the vacuum pump.  
Leave as it for 1-2 minutes and make sure the needle of the compound gauge does not go back.
- (7) Open the 2-way valve 90° counterclockwise by turning the hexagon wrench. Close it after 5 second, and check for gas leakage.\*
- (8) Disconnect the gauge manifold hose from the service port.
- (9) Fully open the 2-way valve with hexagon wrench.
- (10) Fully open the 3-way valve with hexagon wrench.
- (11) Firmly tighten the service port cap and both valve shaft caps with a torque wrench at the specified tightening torque.

\* Check the pipe connections for gas leak using a leakage detector or soapy water.



### Valve shaft cap tightening torque

Pipe size		Torque	รุ่นเครื่องปรับอากาศ
Liquid side	1/4"	24±3N · m (2.4±0.3 kgf · m)	AH/AU-PN10, 13, 19 and 24 AH/AU-L10, 13
Gas side	3/8"	9K-Btu/h type	31±3 N · m (3.1±0.3 kgf · m)
	1/2"	12K 18K-Btu/h type	31±3 N · m (3.1±0.3 kgf · m)
	5/8"	24K-Btu/h type	31±3 N · m (3.1±0.3 kgf · m)
			AH/AU-PN24

### Service port cap tightening torque

Torque
11±1 N · m (1.1±0.1 kgf · m)

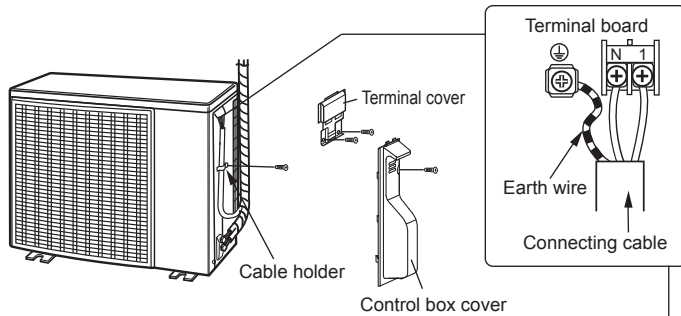
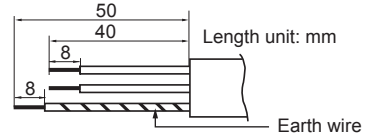


## CONNECTING THE CABLE TO THE OUTDOOR UNIT

### 9K 12K-Btu/h type

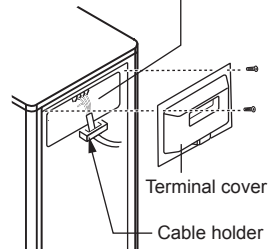
- (1) Process the end of the connecting cable for the outdoor unit.
- (2) Remove the control box cover.
- (3) Connect the cable.
- (4) Put back the control box cover.
- (5) Double-check that the cable is securely in place.

### Connecting cable 9K 12K 18K-Btu/h type



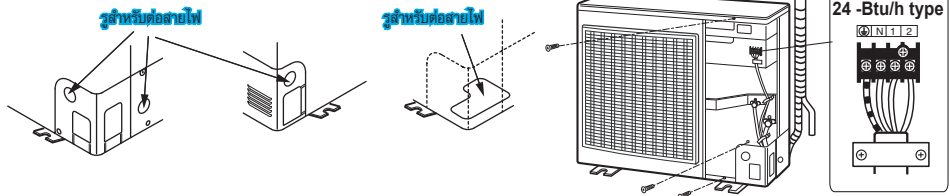
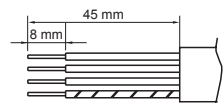
### 18K-Btu/h type

- (1) Process the end of the connecting cable for the outdoor unit.
- (2) Remove the control box cover and the terminal cover.
- (3) Remove the cable holder and connect the cable.
- (4) Fix the cable sheath with the cable holder and the screw.
- (5) Double-check that the cable is securely in place.
- (6) Put back the terminal cover and the control box cover.



### 24K-Btu/h type

- (1) ลอกฉนวนที่ปลายไฟออก โดยกระแทกที่แผ่นเหล็กของคดทำชุดครอบที่ออก
- (2) คัดสายไฟเข้าที่รูคดตามรูป(โดยต้องให้ตรงกับที่คดกับรูคดภายใน)
- (3) ยึดสายไฟให้แน่นด้วยตัวยึดสายไฟ
- (4) Double-check that the cable is securely in place.
- (5) ปิดช่องทำระหว่งสายไฟและรูของแผ่นเหล็กเพื่อป้องกันสิ่งแปลกปลอมเข้าไปในตู้เครื่อง
- (6) ปิดกรอบหน้าตู้ฉนวนที่เดิม



### CAUTIONS:

- Be sure to put the cable leads deep into the terminal board and tighten up the screws. Poor contact can cause overheating or fire, or malfunction.
- Be sure to connect the cable to match the markings on the indoor unit's terminal board and those of the outdoor unit.





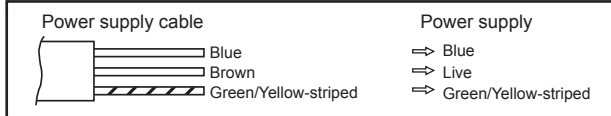


## POWER CABLING

Prepare a dedicated power supply circuit.

	9K-Btu/h type	12K-Btu/h type	18K-Btu/h type	24K-Btu/h type
Power supply	220 V - 240 V, single-phase			
Circuit breaker	10 A	15 A	20 A	25 A

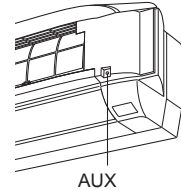
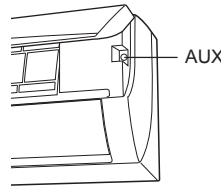
- Fit a disconnect switch, having a contact separation of at least 3mm in all poles, to the electricity power line.



## TEST RUN

- (1) Start the operation with the remote control.
- (2) To start test run in cooling, hold down the AUX button on the unit for over 5 seconds until a beep sound is heard and an operation lamp flashes.
- (3) Make sure the system runs well.  
To stop the operation, press the AUX button again.

Model 9000/12000 BTU    Model 18000/24000 BTU



## ITEMS TO CHECK

- Is the specified power supply voltage used?
- Is the connecting cable fixed to terminal board firmly?
- Is the earth wire connected properly arranged?
- Is the drainage properly?
- Is the indoor unit hooked to the mounting plate firmly?
- Is there any gas leakage at the pipe connection?

### EXPLANATION TO CUSTOMER

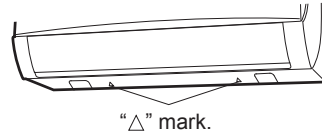
- Explain to the customer how to use and maintain the system, referring to the operation manual.
- Ask the customer to carefully read the operation manual.
- When the system has been set up, hand the installation manual to the customer.





## DETACHING THE UNIT FROM THE MOUNTING PLATE

Push the “△” marks at the bottom of the indoor unit and pull the bottom of the unit. When the hooks are released from the mounting plate, support the bottom of the unit and lift the unit upwards.

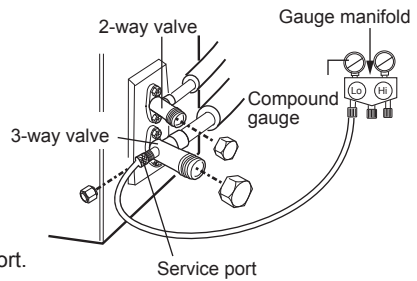


## PUMP DOWN

**Pump down is adopted in the case of unit removal for re-installation, abandonment, repair etc. Pump down is to collect the refrigerant into the outdoor unit.**

### PROCEDURE USING GAUGE MANIFOLD (Recommended procedure)

- (1) Connect the gauge manifold hose to the service port of the 3-way valve.
- (2) Run the air conditioner at cooling test run mode (Refer to 10 TEST RUN).
- (3) After 5-10 minutes, close the 2-way valve.
- (4) Close the 3-way valve when the compound gauge reading becomes almost 0 MPa(0 cmHg).
- (5) Stop the test run operation.
- (6) Disconnect the gauge manifold hose from the service port.
- (7) Disconnect both refrigerant pipes.



### PROCEDURE WITHOUT USING GAUGE MANIFOLD

- (1) Run the air conditioner at cooling test run mode (Refer to TEST RUN).
- (2) After 5-10 minutes, fully close the 2-way valve by turning the hexagon wrench.
- (3) After 2-3 minutes, immediately close the 3-way valve fully.
- (4) Stop the test run operation.
- (5) Disconnect both refrigerant pipes.

### **CUTIONS:**

- Make sure that the compressor is turned off before removing the refrigerant pipes. Otherwise, it will cause burst and injury.
- Do not perform PUMP DOWN when refrigerant is leaking or there is no refrigerant in the refrigerant cycle. Otherwise, it will cause burst and injury.





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