Nortek Global HVAC, LLC

Flex Match Series
Console Type Indoor Unit
(For North America)

Owner's Manual

Heat Pump

MODEL:
GCH09(2.6)FMK4DH
GCH12(3.5)FMK4DH
GCH18(5.3)FMK4DH

Please read this owner's manual carefully before operation and retain for future reference.
Specifications & illustrations subject to change without notice or incurring obligations

Contents

Thank you for selecting our products

One of the benefits awaiting you with our room air conditioner is not only comfort but also good health. This installation manual describes the comfort and technology features your unit has to offer. In addition, it provides you vital information about maintenance, service and economical operation. Take the next few minutes to discover how to get the most out of the operation of your new room air conditioner.

Illustrations in this manual are for reference only. Actual equipment may look slightly different based on model and size.

This appliance is not intended for use by persons (including children) with reduced physical , sensory or mental capabilities or lack of experience and knowledge. Children should not play with the appliance.
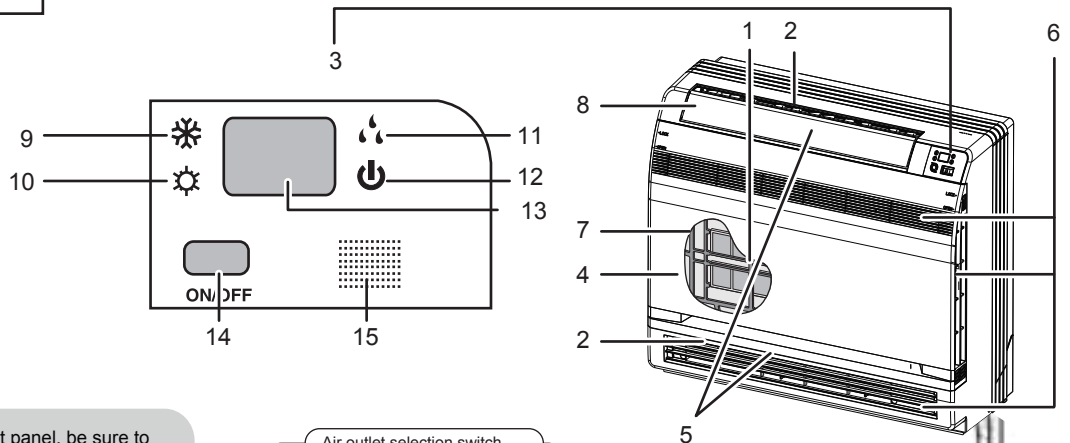
External static pressures at the appliance was tested is 0 Pa
Fuse link: T250 V; 3.15 A

INDOOR UNIT

⚠ CAUTION

Before opening the front panel, be sure to turn unit off and disconnect power.

Do not touch the metal parts on the inside of the indoor unit, as it may result in injury.

Air outlet selection switch
- This setting blows air from upper outlet only.
- This setting automatically decides a blow pattern depending on mode and conditions.
- This setting is recommended.
- The unit is shipped from the factory with this setting.

Opening the Front Panel

Indoor unit wiring terminal

N(1)	2	3	⏚
BU	BK	BN	YELLOW/GREEN

1. Titanium Apatite Photocatalytic Air-Purifying Filter:
   - These filters are attached to the inside of the air filter frame..
2. Air outlet
3. Display
4. Front panel
5. Louvers (vertical blades)
   - The louvers are inside of the air outlet.
6. Air inlet
7. Air filter frame
8. Flap (horizontal blade)
9. Cool mode indicator
10. Heat mode indicator
11. Dry mode indicator
12. Run ON/OFF indicator
13. LED display
14. Indoor Unit ON/OFF switch:
15. Push this switch once to start operation. Push again to stop it.
16. The operation mode refers to the following table.

Model	Mode	Temperature setting	Air flow rate
COOLING ONLY	COOL	25℃ (77° F)	AUTO
HEAT PUMP	AUTO	25℃ (77° F)	AUTO

   - This switch is useful when the remote controller is missing.
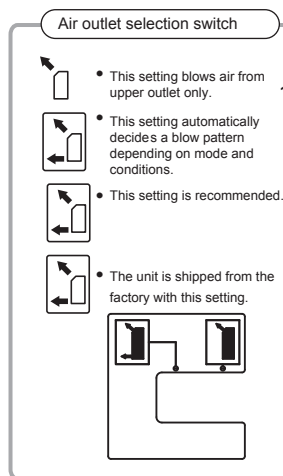
15. Signal receiver:
   - It receives signals from the remote controller.
   - When the unit receives a signal, you will hear a short beep.
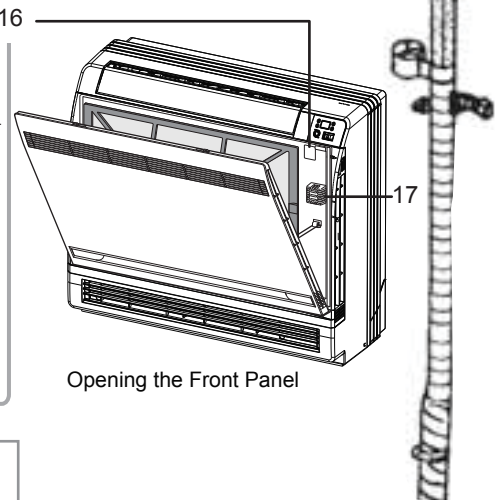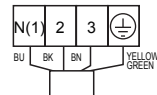   - Settings changed.....beep

16. Air outlet selection switch

17. Room temperature sensor:
   - It senses the air temperature around the unit.
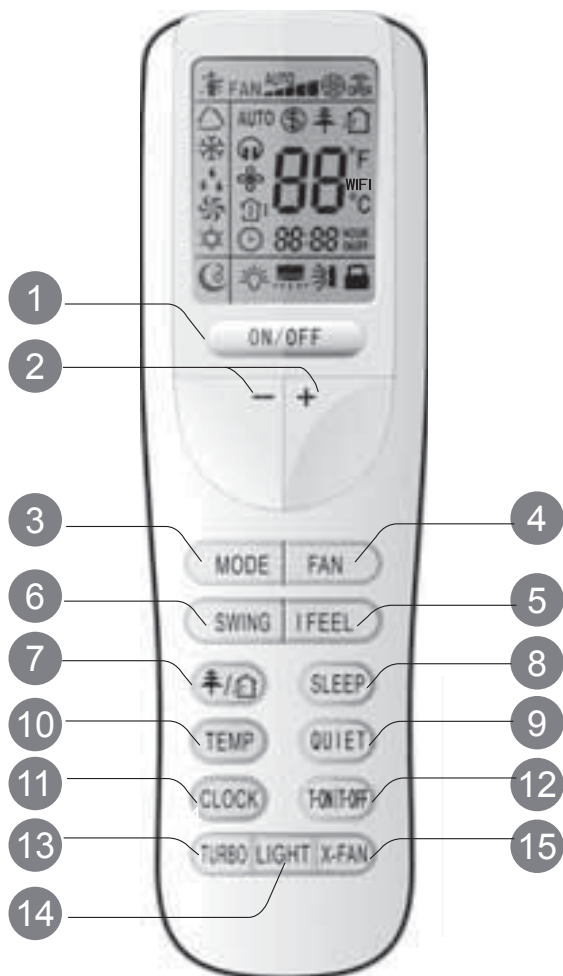
NOTE:
① If the supply cord is damaged, it must be replaced by qualified person avoid a hazard.
② The appliance shall be installed in accordance with national wiring regulations.
③ An all-pole disconnection switch having a contact separation of at least 3mm(1/8 in) in all poles should be connected in fixed wiring.
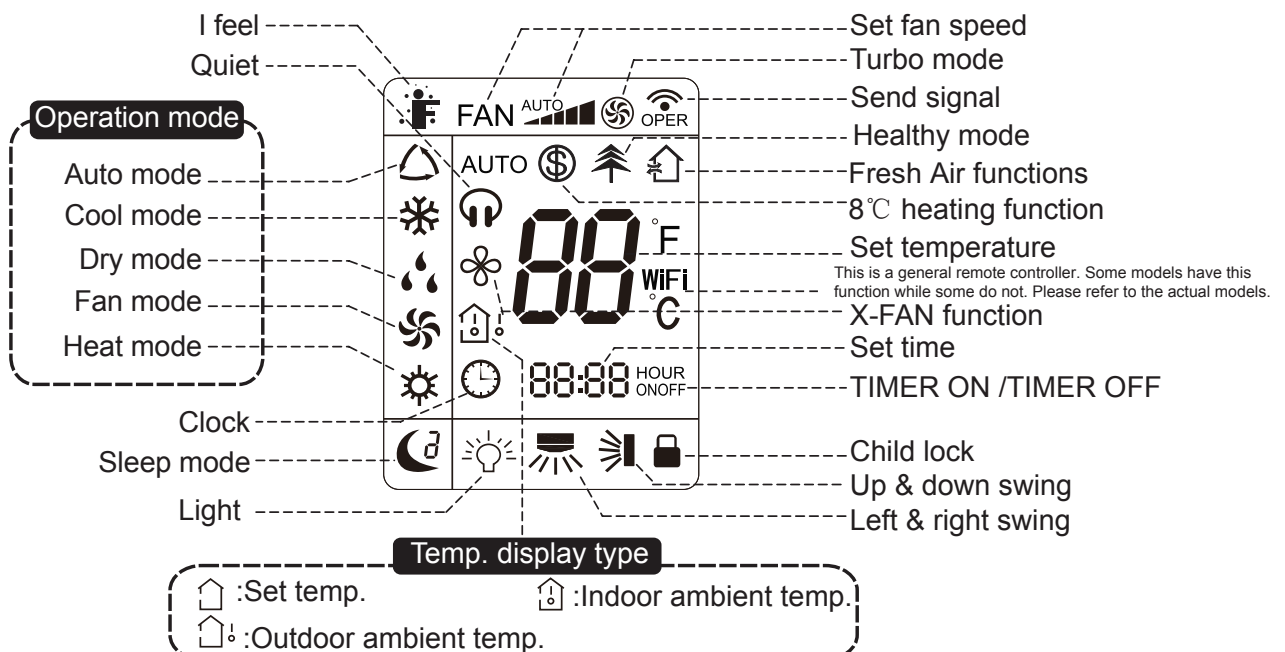
Remote Controller Description

1	ON/OFF button
2	+/- button
3	MODE button
4	FAN button
5	I FEEL button
6	SWING button
7	全/⌂ button
8	SLEEP button
9	QUIET button
10	TEMP button
11	CLOCK button
12	T-ON|T-OFF button
13	TURBO button
14	LIGHT button
15	X-FAN button

Introduction for icons on display screen

I feel

Quiet

Operation mode

Auto mode

Cool mode

Dry mode

Fan mode

Heat mode

Clock

Sleep mode

Light

Set fan speed

Turbo mode

Send signal

Healthy mode

Fresh Air functions

8℃ heating function

Set temperature

This is a general remote controller. Some models have this function while some do not. Please refer to the actual models.

X-FAN function

Set time

TIMER ON /TIMER OFF

Child lock

Up & down swing

Left & right swing

Temp. display type

⌂ :Set temp.   ⌂ :Indoor ambient temp.
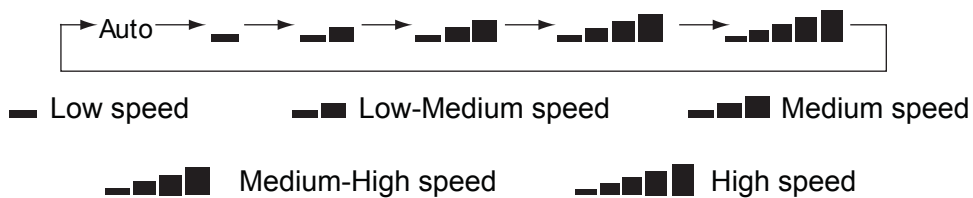
⌂ :Outdoor ambient temp.

Remote Controller Description

1 ON/OFF :

Press this button to turn on the unit .Press this button again to turn off the unit.

2 —:

Press this button to decrease set temperature. Press and hold for 2 seconds rapidly decreases set temperature. In AUTO mode, set temperature is not adjustable.

3 + :

Press this button to increase set temperature. Press and hold for 2 seconds rapidly increases set temperature. In AUTO mode, set temperature is not adjustable.

4 MODE :

Each time you press this button,a mode is selected in a sequence that goes from AUTO, COOL,DRY, FAN,and HEAT *, as shown below:

AUTO ▶ COOL ▶ DRY ▶ FAN ▶HEAT *

*Note:Only for models with heating function.

AUTO is the default mode when unit is first started. In AUTO mode, the set temperature will not be displayed on the LED of the indoor, and the weeeeeeeeeeeeeeeenit will automatically select the suitable operation mode based on the room temperature to make indoor room comfortable.

5 FAN :

This button is used for setting Fan Speed in the sequence that goes from AUTO, ▬ ,

▬▬ , ▬▬■ , ▬▬■▇ to ▬▬■▇█ , then back to Auto.

Auto → ▬ → ▬▬ → ▬▬■ → ▬▬■▇ → ▬▬■▇█

▬ Low speed   ▬▬ Low-Medium speed   ▬▬■ Medium speed

▬▬■▇ Medium-High speed   ▬▬■▇█ High speed

6 SWING:

Press this button to set up &down swing angle, in sequence as shown below:

OFF

This remote controller is universal . If some functions, such as ⋛▌ , ⋛▌ or ⋛▌ are not available on a specific unit, it will default to ⋛▌

⋛▌ indicates the guide louver swings as:

7 I FEEL:

Press this button to turn on I FEEL function. The unit automatically adjust temperature according to the sensed temperature. Press this button again to cancel I FEEL function.

8 ☂/⌂

Press this button to achieve the on and off of healthy and **Fresh Air** functions in operation status.
Press this button for the first time to start Fresh Air function;
LCD displays "⌂". Press the button for the second time to start healthy and Fresh Air functions
simultaneously; LCD displays "⌂" and "☂". Press this button for the third time to quit healthy and
Fresh Air functions simultaneously. Press the button for the fourth time to start healthy function; LCD
display "☂". Press this button again to repeat the operation above.

9 SLEEP:

● Press this button, t o select Sleep 1 (☾1), Sleep 2 (☾2),Sleep 3 (☾3)

 fourth time to cancel Sleep mode. Sleep mode off is the default setting.

● Sleep 1 is Sleep mode 1, in Cool, Dehumidify modes: the unit will run for 1 hour, then the
 temperature setting will automatically be increased approximately 1 degree. After another hour,
 the temperature setting will be increased approximately 1 degree again and remain at this
 temperature until manually changed. In Heat mode: Sleep mode 1 will operate the same except
 the temperature will be decreased approximately 1 degree each hour for 2 hours.

● Sleep 2 is sleep mode 2, the air conditioner will run a preset schedule.
● Sleep 3- allows the user to set up the sleep temperature schedule:

 (1) Under Sleep 3 mode, press and hold the "Turbo" button until the remote displays "1 hour" and the
 temperature setting blinks. The first time the factory default setting will display. After that, the last
 selected temperature setting will display.;
 (2)Adjust the temperature setting up or down with the "+" or "-" buttons. Then press the "Turbo" button to
 confirm.
 (3)The "1 hour" display will be replaced with "2 hour" and the temperature setting will blink. Select
 temperature setting as described and press "Turbo" to confirm.
 (4)Repeat steps (2) and (3) above until 8 hour temperature settings have been selected. After the 8th
 selection, press "Turbo" to confirm and the remote will resume the original display.

● NOTE: You can run through the steps listed above simply to review the temperature settings selected without
 changing any temperature settings.
 (2) NOTE: When setting Sleep 3 mode, if no button is selected for approximately 10 seconds, the remote will
 automatically quit Sleep mode setting and return to the main display.

10 TEMP:

 Press this button, to display the indoor setting temperature or indoor ambient temperature.
 The temperature setting is the default display. Press the TEMP button once and the " ⌂ "
 displays the ambient temperature, 5s later or within 5s, it receives oticon will and the
 indoor ambient temperature will be displayed on the remote. If another button is pressed
 within 5 seconds, or if no button is pressed for 5 seconds, the remote will display the
 temperature setting.

11 QUIET:

Press this button to turn on Quiet mode. The 🎧 icon will light up. Press again to turn off Quiet mode and the 🎧 will no longer be lit up. Quiet OFF is the default setting.

Note: Quiet function can not be select in Fan or Dry modes. In Quiet mode fan speed can not be adjusted.

12 Press CLOCK button, and the 🕐 icon will blink. Press the + or - buttons within 5 seconds to adjust the time. Hold down either button for 2 seconds to adjust time more quickly. When display shows current time, release button and press clock button again. The 🕐 icon will stop blinking.

13 T-ON T-OFF (Timer On/Timer Off)

Press T-ON button to set the auto-ON timer. To cancel the auto-timer program, simply press this button again.
Press this button 🕐 disappears and "ON "blinks .00:00 is displayed for ON time setting. Within 5 seconds, press + or - button to adjust the time value. Press and hold the buttons to change the time setting more quickly. When desired time is reach, release the button and press T-ON button again within 5 seconds to confirm.
Press T-OFF button to initiate the auto-off timer. To cancel the auto-timer program, simply press the button again.TIMER OFF setting is the same as TIMER ON.

14 TURBO:

Press this button to activate / deactivate the Turbo function which enables the unit to reach the preset temperature in the shortest time. It will activate the fan to blow at its highest speed.

15 LIGHT:

Press LIGHT button to turn on the display's light and press this button again to turn off the display's light. If the light is turned on , 💡 is displayed. If the light is turned off, 💡 disappears.

16 X-FAN:

Press the X-FAN button in COOL or DRY mode for the fan to continue to blow for 10 minutes after heat/cool function has ceased. This will help to keep the inside of the air conditioner dry. The ✿ icon will be displayed.The default setting is X-Fan off .X-FAN is not available in AUTO,FAN or HEAT mode.

17 LOCK the remote control

Press "+ " and "-" buttons simultaneously to lock or unlock the keypad. If the remote controller is locked, 🔒 is displayed. Press any button and the, 🔒 icon will blink three times.

18 Switch from Fahrenheit to Centigrade:While the unit is turned off, press "MODE"

and " - " buttons simultaneously to switch between ℃ and ℉

19 Energy Saving Function

Press "TEMP" and "CLOCK" simultaneously in COOL mode to start energy-saving function:
The remote controller displays "SE". Repeat the operation to quit the function.

20 8℃ (46° F) Heating Function

Press "TEMP" and "CLOCK" simultaneously in HEAT mode to start 8℃ Heating Function
The remote controller displays "⑨" and a selected temperature of " 8℃ (46° F)".
(46 ℉). Repeat the operation to quit the function.

21 Back-lighting Function

The unit lights for 4 seconds when energizing for the first time (3 seconds for future operation).

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┌─────────────────────────────────┐
│      Replacement of Batteries     │
└─────────────────────────────────┘
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1.Remove the battery cover plate from the rear of the remote controller.

(As shown in the figure)

2.Take out the old batteries.

3.Insert two new AAA1.5V dry batteries, check polarity (+ and - poles).

4. Reinstall the battery cover plate.

★ Notes:

● When replacing the batteries, do not use old or different types of batteries,
otherwise, it may cause malfunction.

● If the remote controller will not be used for a long time, please
remove batteries to prevent batteries from leaking.

● Keep remote control within receiving range.

● It should be kept 1m(3 ft) away from the TV set or stereo .

● If remote controller will not operate after fresh batteries have been installed,
try removing batteries, wait 30 seconds and reinstall.
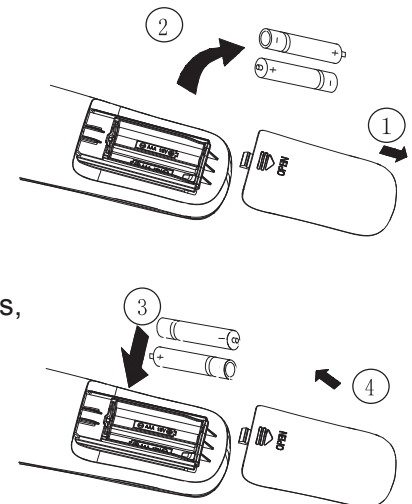
Sketch map for
replacing batteries

3 Maintenance

Before inspection and maintenance of the unit. PLEASE set power switch to "OFF" and turn off the power supply.
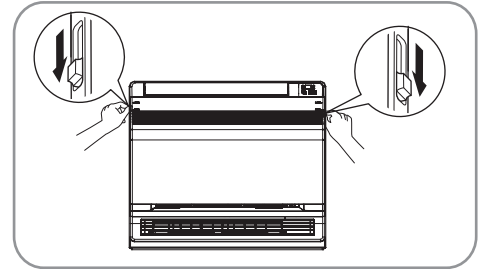
3.1 Units

● Indoor unit, Outdoor unit and Remote controller

1. Wipe them with dry soft cloth.

● Front panel
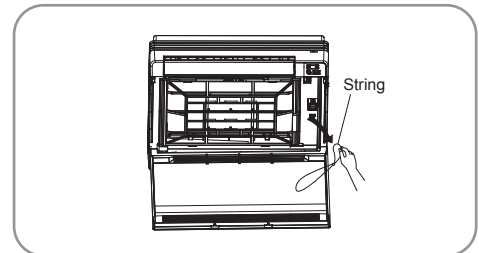
1. Open the front panel.

   Slide the two stoppers on the left and right sides inward until they click.

2. Remove the front panel.

   • Remove the string.

   • Allowing the front panel to swing forward will enable you to remove it.

3. Clean the front panel.

   • Wipe it with a soft damp cloth .

   • Use mild detergent only.

   • After wiping panel with damp cloth, wipe with dry cloth or place in
     shade to dry.

4. Attach the front panel.

   • Insert the front panel into the grooves of the unit (3 places).

   • Attach the string to the right, inner-side of the front grille.

   • Close the panel slowly.
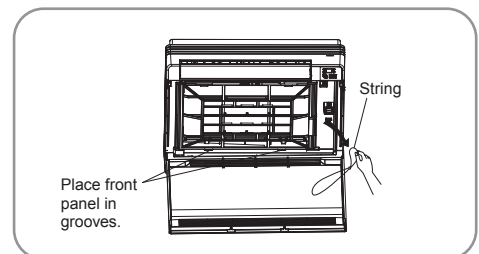
CAUTION

   • Don't touch the metal parts of the indoor unit. If you touch those parts, this may cause an injury.

   • When removing or attaching the front panel, use a ladder or other stable platform..

   • Do not drop front panel to avoid damage.

   • For cleaning, do not use hot water over 40°C(104°F), benzine, gasoline, pain thinner, other volatile oils, polishing
     compound, scrubbing brushes, or other caustic or abrasive utensils.

   •After cleaning, make sure that the front panel is securely installed.
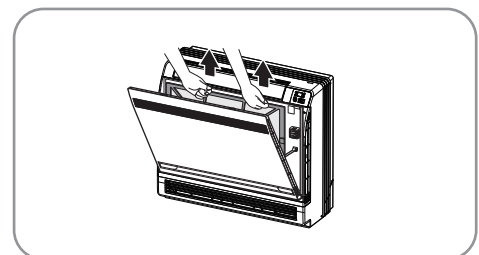
3.2 Filters

1. Open the front panel.

2. Remove the air filter frame.

   • Press the claws on the right and left of the air filter down slightly, then
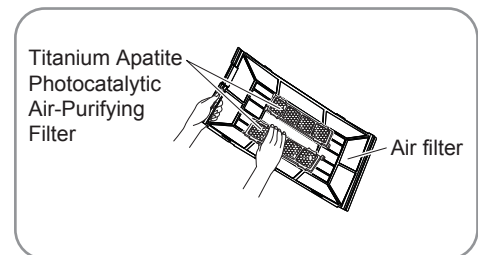   pull upward.

3. Take off the Titanium Apatite Photocatalytic Air-Purifying
   Filter.

   • Hold the tabs of the frame, and remove the claws in 4 places.

4. Clean or replace each filter.

   See figure.

Titanium Apatite Photocatalytic Air-Purifying Filter

Air filter

5. Reset the air filter frame and Titanium Apatite Photocatalytic
   Air-Purifying Filter as they were and close the front panel.

   • Operation without air filters may result in malfunction as dust will
     accumulate inside the indoor unit.
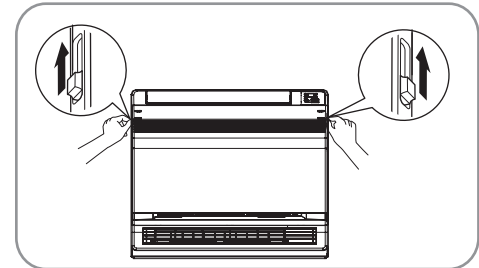
6. Wash the air filters with water or clean them with vacuum cleaner.

   • If the dust does not come off easily, wash them with mild detergent
     thinned with lukewarm water, then dry them up in the shade.
   • It is recommended to clean the air filters every week.
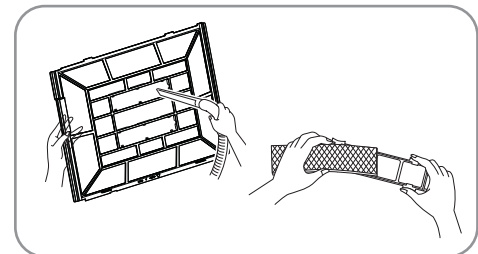
3.3 Titanium Apatite Photocatalytic Air-Purifying Filter

The Titanium Apatite Photocatalytic Air-Purifying Filter can be cleaned by washing it with water once every 6 months. We recommend replacing it once every 3 years.

● Maintenance

1. Vacuum dusts, and soak in warm water or water for about 10 to 15 minutes if dirt is heavy.
2. Do not remove filter from frame when washing with water.
3. After washing, shake off remaining water and dry in the shade.
4. Since the material is made out of paper, do not wring out the filter when removing water from it.

● Replacement

Remove the tabs on the filter frame and replace with a new filter.

• Dispose of the old filter as flammable waste.

NOTE

• Effects of not cleaning air filters
  (1) cannot deodorize the air.   (2) cannot clean the air.
  (3) results in poor heating or cooling.   (4) may cause odor

Check

Check that the base, stand and fittings of the outdoor unit are not decayed or corroded.
Check that nothing blocks the air inlets and the outlets of the indoor unit and the outdoor unit.
Check that condensate water drains smoothly out of the hose during COOL or DRY operation. • If no drain water is seen, water may be leaking from the indoor unit. Stop operation and consult the service shop if this is the case.

3.4 If unit is to be off for an extended time

1. Operate the "FAN only" for several hours on a fine day to dry out the inside.

    • Press "MODE" button and select "FAN" operation.

    • Press "ON/OFF" button and start operation.

2. Turn unit off and shut off main power

3. Clean the air filters and replace them..

4. Take out batteries from the remote controller.

NOTE

• When a multi outdoor unit is connected, make sure the heating operation is not used at the other room before you use the fan operation.

Working principle and special functions for cooling

Principle:

Air conditioner absorbs heat in the room and transmits it to the outdoors to be discharged, so that indoor ambient temperature is cooled, its cooling capacity will depend on the outdoor ambient temperature.

Anti-freezing function:

If the unit is running in COOL mode and in low temperature, there will be frost formed on the heat exchanger, when indoor heat exchanger temperature drops below 0℃（32°F）, the indoor unit microcomputer will stop compressor running to protect the unit.

Working principle and special functions for heating

Principle:

∗ Air conditioner absorbs heat from outdoors and transmits to indoors to increase room temperature. This is the heat pump heating principle. Its heating capacity will be reduced as the outdoor temperature decreases.

∗ If outdoor temperature becomes very low, please operate secondary heating equipments.

Defrosting:

∗ When outdoor temperature is low with high humidity, after a long while running, frost will form on outdoor unit. This will adversely affect the heating capacity. When this happens, the auto defrosting function will engage and furn for 8-10mins.

∗ During the auto defrosting, the fan motors of indoor unit and outdoor unit will stop.

∗ During the defrosting, the indoor indicator display "H1" and the outdoor unit may emit vapor, This is due to the defrosting,not a malfunction.

∗ After defrosting finished,the heating will recover automatically.

Anti-cool air function:

In Heat mode, if any of the following conditions are present, and the heat exchanger hasn't achieved the desired temperature, the indoor fan will delay coming on (about 3 minutes) to prevent blowing cold air into the room.
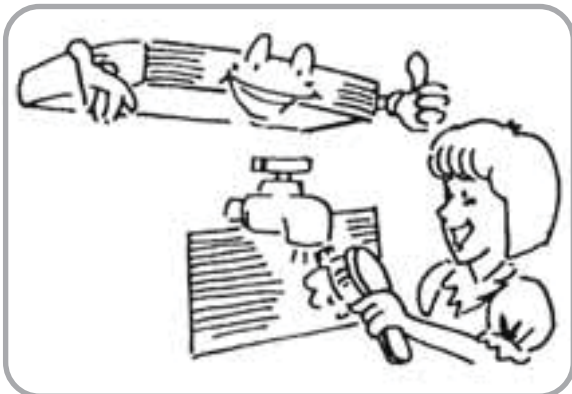
1. Heat operation just startedup.   2. After Auto defrosting operation is finished.

3. Heating under low temperature.

The unit type and other specifications can be found on the nameplate.

● The temperature should not be set lower than what you need. This would result to increase energy cost.

● To distribute cool air through out the room, adjust air flow direction as shown by the arrows (see picture) to diffuse cool air.
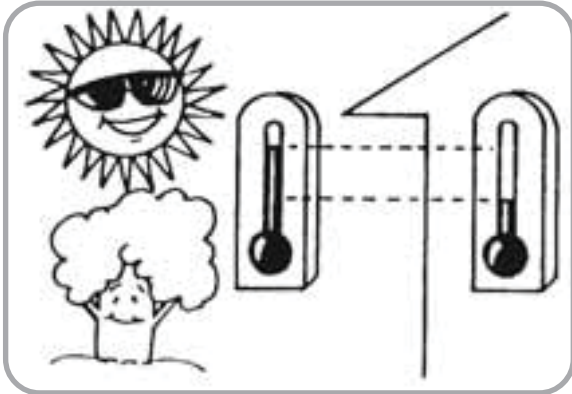
● Clean the air filter every week for higher efficiency.
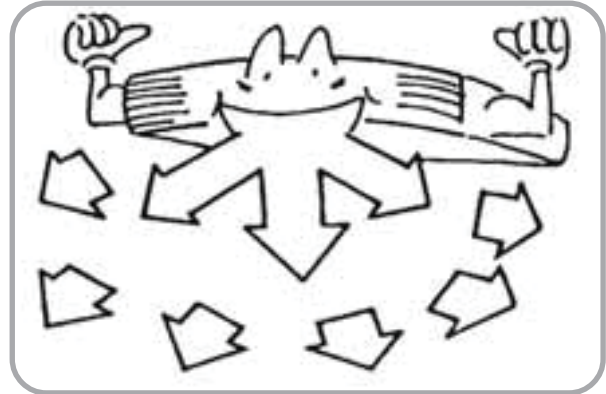
● Close window and door while operating the unit to prevent leakage of cooled air to save energy.
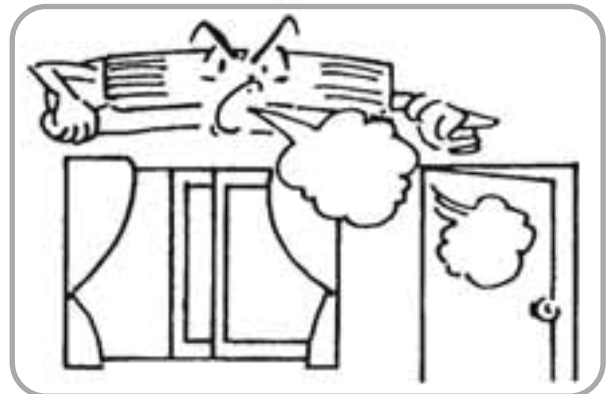

● Draw close curtains or close glass windows when cooling to prevent heat load from sun light which may cause more electricity cost.

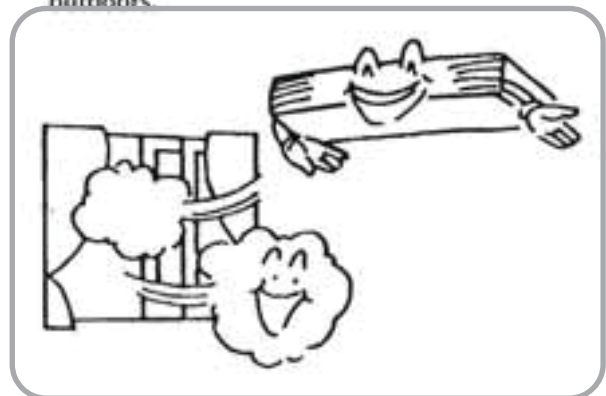● Open window for fresh air as needed, but leaving window open too long will cause conditioned inside air to be lost to the outdoors.

● Check electrical system (voltage and frequency). Use the proper power supply indicated on the unit to operate the airconditioner and only fuses with specified capacity.

● Do not insert objects into the air inlet or outlet when the airconditioner is running as it may cause damage or personal injury. Also pay special attention when children are around.

● Do not channel the air flow directly at people, especially infants, aged persons, or patients.

● Turn off the airconditioner if, while running, electricity interference occurs. If the unit is not to be used for a long time, cut off the power supply main switch.
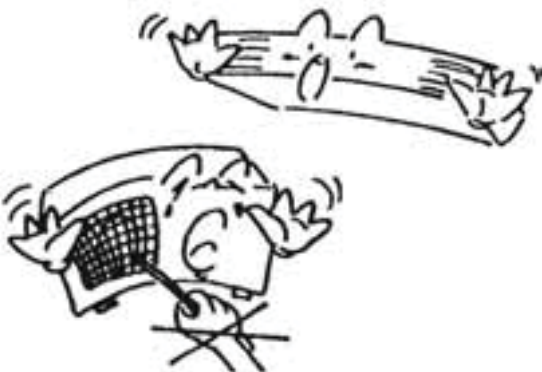
● Do not place objects near the inlet or outlet air flow vents of either the indoor or outdoor unit. This may cause poor heating/cooling efficiency or malfunction.

● Do not locate a heater or any other heat source close to the unit.

Check the following before contact the service man. You may find the solution to your problems. After checking, if it still does not operate, please contact your local dealer.

PROBLEM	CAUSES
No operation	● Check if eletrical wire is damaged & check if breaker switch is still on. ● Check if the power supply is in order. ● Check if the timer switch is on or not.
The air conditioner runs but does not cool enough.	● Check if the preset temperature is too high. ● Check if the sunlight shines directly into the room. ● Check if the door and window are opened. ● Check if there is anything obstructing the air discharge. ● Check if the exhaust fan still operates. ● Check if the air filter is dirty or clogged.
Vapor or mist fume coming out of the unit while running.	● Warm, humid air when rapidly cooled will sometimes produce mist.
Inoperative remote control.	● Loosened or disconnected wire between the unit and the display. ● Check if the batteries are inserted in correct directions ● Check if batteries need replacing.

SELECTION OF INSTALLATION LOCATION.

● Location where cool air can be distributed throughout the room.

● Location where condensation water is easily drained out.

● Location that can support the weight of indoor unit.

● Location that is easily accessible for maintenance. The

● appliance shall not be installed in the laundry.

THERE ARE 2 STYLES OF INSTALLATION.

● **CEILING TYPE**

● **FLOOR TYPE**

Each type is similar to the other as follows;
Indoor unit
The indoor unit should be l o c a t e d in a place where:

1) proper clearances can be maintained for service.

2) both air intake and exhaust are not blocked

3) the unit is not in the path of direct sunlight.

4) the unit is away from other sources of heat or steam.

5) There is no machine oil or other contaminants in the air.

6) cool(warm) air can be circulated throughout the room.

7) the unit is away from electromagnetic interferences such as fluorescent

lamps as they may shorten the remote

controller range.

8) the unit is at least 1 meter(3ft) away from any television or radio

(unit may cause interference with the picture or sound).

DO NOT INSTALL WHERE THE FOLLOWING CONDITIONS ARE PRESENT.
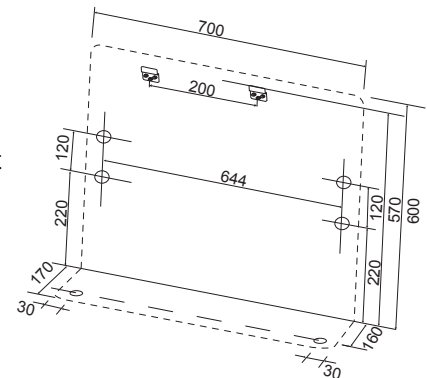
● There is a lot of oil or other contaminants

● There are acids or other corrosives.

● The power supply is not reliable.
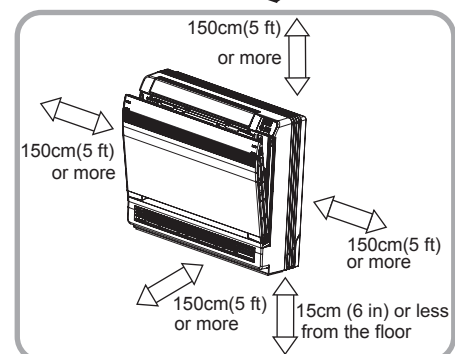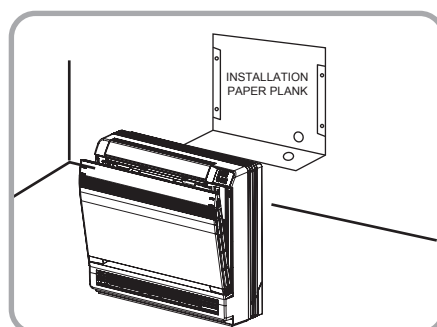
Indoor Unit Installation Drawings

The indoor unit may be mounted in any of the styles shown here.
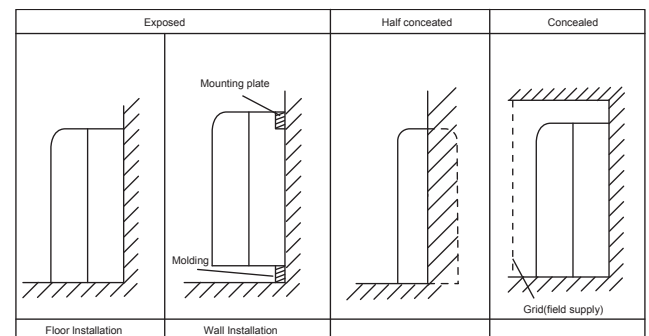
Location for securing the installation panel.

Schematic drawing of hooks:
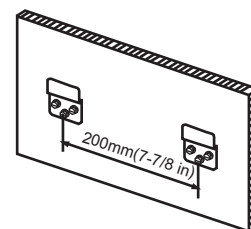
Refrigerant piping

1) Drill a hole (55mm(2-1/4 in) in diameter) in the spot indicated by the ⊘ symbol in the illustration as below .

2) The location of the hole depends on where the piping will be run.

3) For piping ,see **Connecting the refrigerant pipe** ,under Indoor Unit Installation(1).

4) Allow space around the pipe for a easier indoor unit pipe connection.

(Unit : mm)

45mm (1-3/4 in)

Wall

60mm (2-3/8 in)

Left bottom piping

Right bottom piping

75mm (2-15/16 in)   75mm (2-15/16 in)

75mm (2-15/16 in)   75mm (2-15/16 in)

45mm (1-3/4 in)

Left back piping

Right back piping

Left/right piping

45mm (1-3/4 in)   45mm (1-3/4 in)

45mm (1-3/4 in)
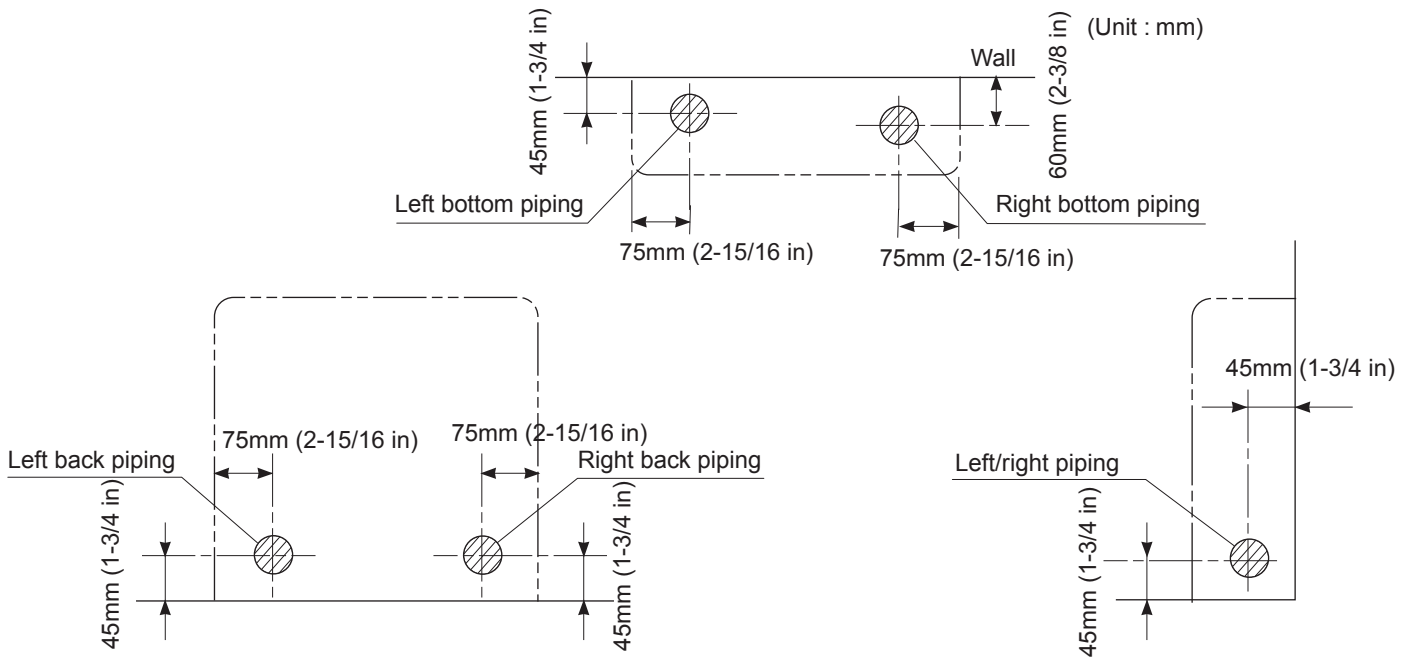
⚠ CAUTION

Min.allowable length

● The suggested shortest pipe length is 2.5m(8 ft), to avoid noise from the outdoor unit

(Mechanical noise and vibration will vary depending on how the unit is installed and the environment in which it is used.)

● See the installation manual for the outdoor unit for the maximum pipe length.

wall

350mm (14 in)

Refrigerant pipe

45mm (1-3/4 in)

Floor

75mm (2-15/16 in)

15
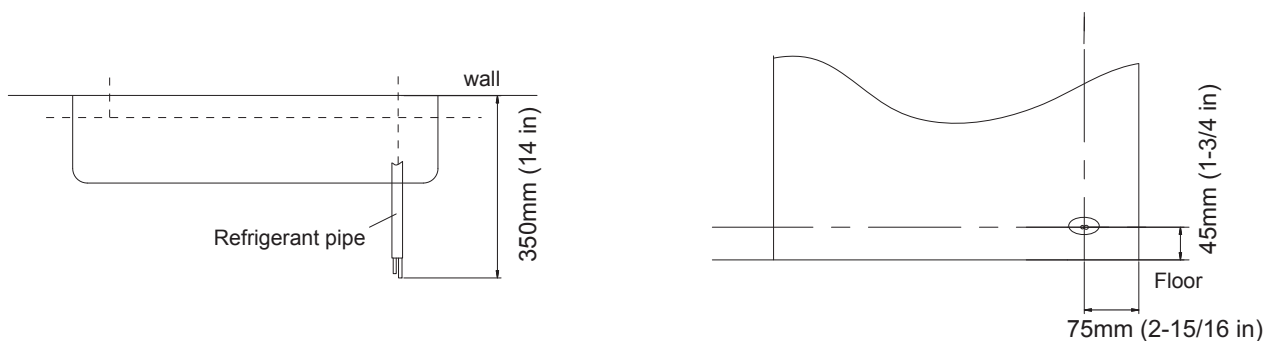
Boringawallholeandinstalling embeddedpipe

● For walls containing metal frame or metal board ,be sure to use a wall embedded pipe and wall cover in the feed-through hole to prevent water leakage.

● Be sure to caulk the gaps around the pipes with caulking material to prevent drafts and rain runoff.

1)Bore a feed-through hole of 55mm(2-1/4 in) in the wall so it has a down slope toward the outside.

2)Insert a wall pipe into the hole.

3)Insert a wall cover into wall pipe .

4)After completing refrigerant piping, wiring, and drain piping, caulk pipe hole gap with putty.

Drain piping

1)Use commercial rigid polyvinyl chloride pipe   general VP 20 pipe, outer diameter 26mm(1 in), inner diameter 20mm(13/16 in) for the drain pipe.
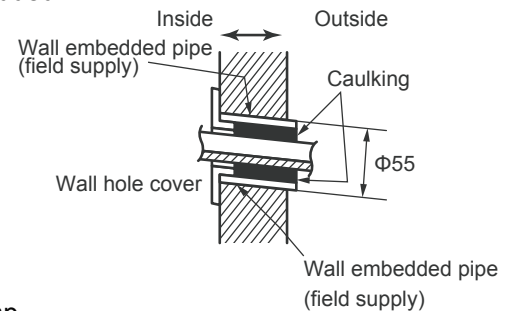
2)The drain hose (outer diameter 18mm(11-16 in) at connecting end, 220mm(9 in) long)is supplied with the indoor unit. Prepare the drain pipe picture below position.

3)The drain pipe should be sloped downward so that water will flow smoothly without any accumulation.(No trap should be installed.)

4)Insert the drain hose to this depth so it won't be pulled out of the drain pipe.

5)Insulate the indoor drain pipe with 10mm(3/8 in) or more of insulation material to prevent condensation.

6)Remove the air filters and pour some water into the drain pan to check the water flows smoothly.
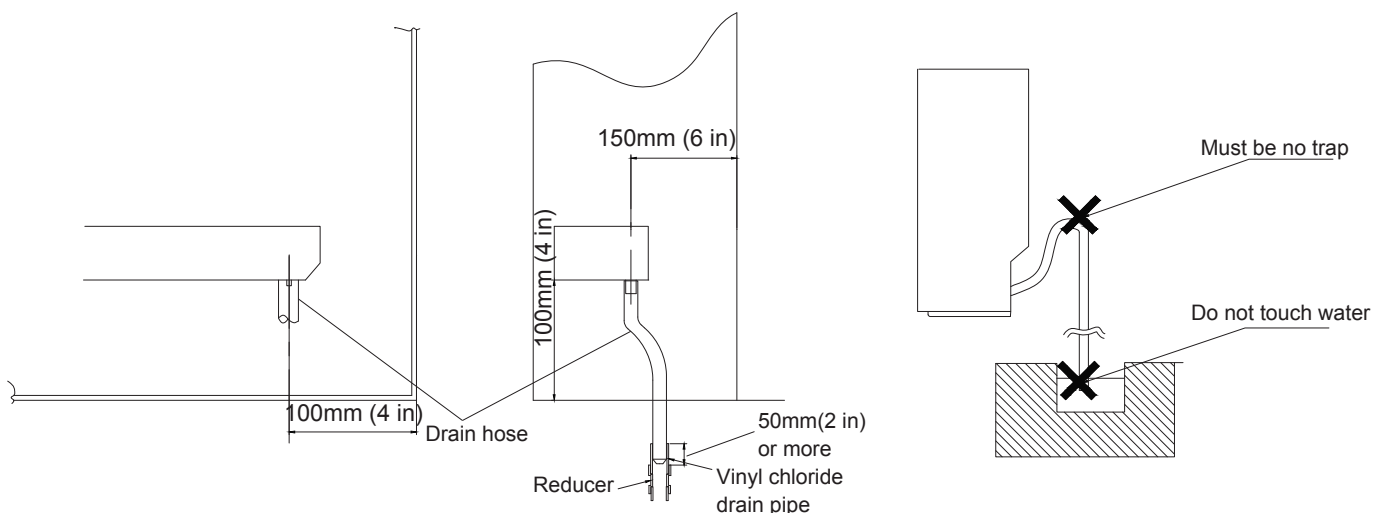
Installing indoor unit

1.Preparation

● Open the front panel, remove the 4 screws and remove the front grille while pulling it forward.

● Follow the arrows to disengage the clasps on the front case to remove it.

● Follow the procedure below when removing the slit portions.

3 tabs

Casing

Front grille

Front panel

Remove front grille

Remove 4 screws

Open the front panel
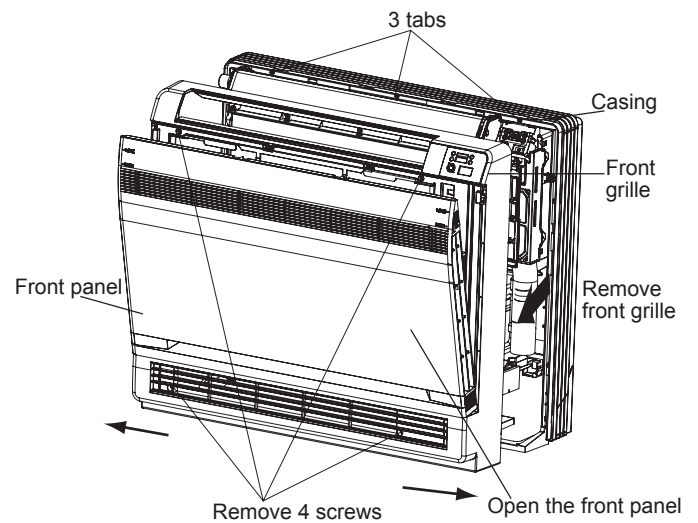
■ For Moldings

● Remove the pillars. (Remove the slit portions on the bottom frame using nippers.)

■ For Side Piping

● Remove the pillars.

1)Remove the 7screws.

2)Remove the upper casing (2 tabs).

3)Remove the left and right casings (2 tabs on each side).

4)Remove the slit portions on the bottom frame and casings using nippers .

5)Return by following the steps in reverse .

2)Upper casing

3)Side casings

3)Side casings

Remove 7 screws

Remove the pillar

Casing

Remove the pillar

Bottom frame

Casing

Remove the pillar
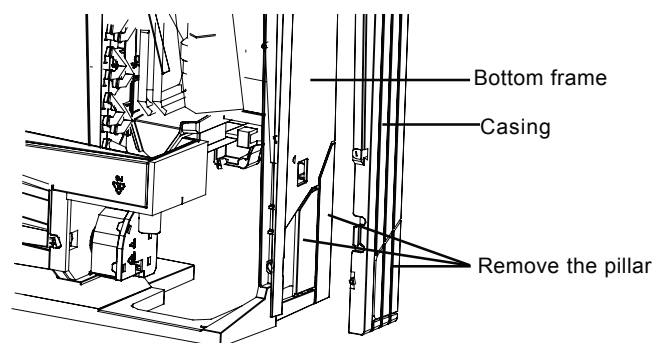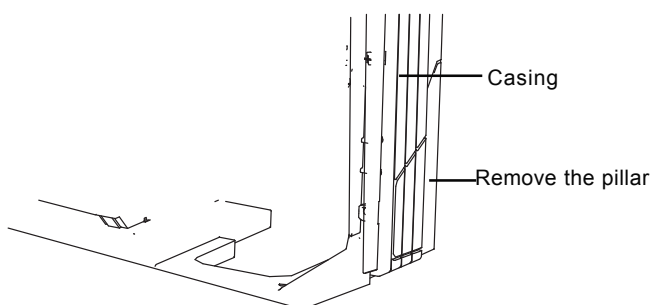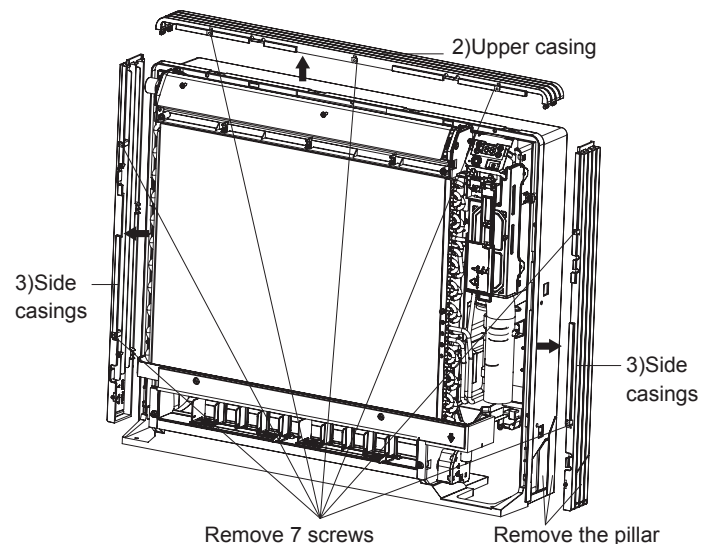
2.Installation

● Secure using 6 screws for floor installations.(Do not forget to secure to the rear wall.)

● For wall installations, secure the mounting plate using 5 screws and the indoor unit using 4 screws.

The mounting plate should be installed on a wall which can support the weight of the indoor unit.

1) Temporarily secure the mounting plate to the wall, make sure that the panel is completely level, and mark the drill points on the wall.

2) Attach the mounting plate to the wall with screws.

Floor Installation

Wall Installation

Casing

200mm

6screws

6screws

Molding
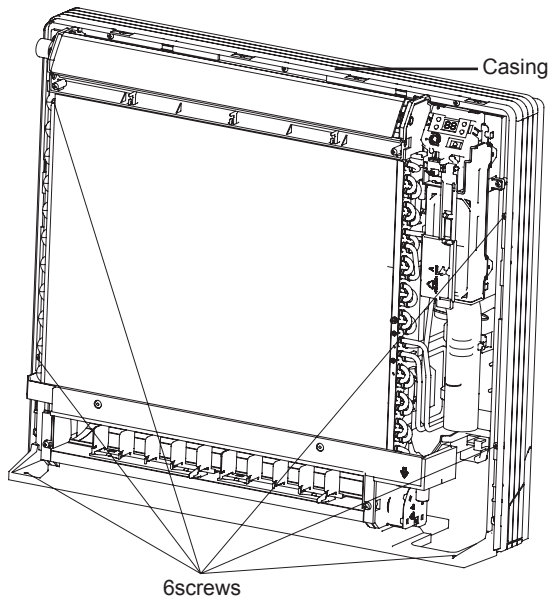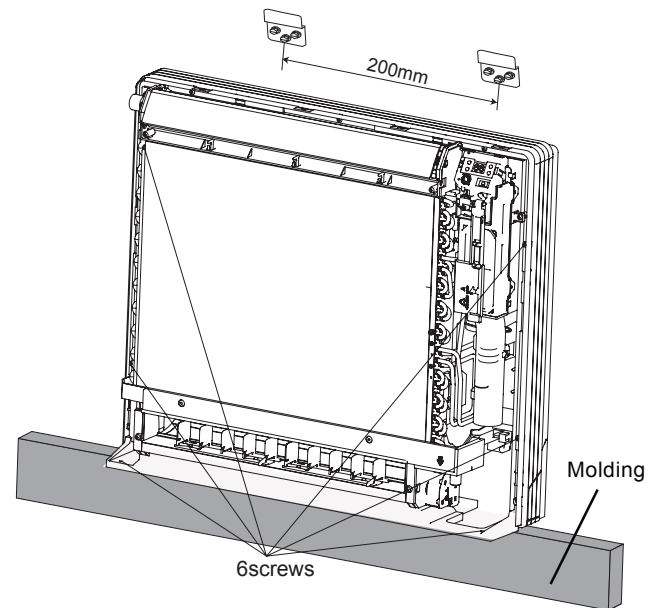
3) Once refrigerant piping and drain piping connections are complete, fill in the gap with putty. A gap can lead to condensation on the refrigerant pipe, and drain pipe; and drafts or insects inside the room.

4) Attach the front panel and front grille in their original positions once all connections are complete.

Flaring the pipe end

1) Cut the pipe end with a pipe cutter.

2) Remove burrs with the cut surface facing downward so that the chips do not fall into the pipe.

3) Fit the flare nut on the pipe.

4) Flare the pipe.

5) Check that the flaring is suitable.

⚠ WARNING

1) DO not use mineral oil on flared part.

2) Prevent mineral oil from getting into the system as this would reduce the lifetime of the units.

3) Never use piping which had been used for previous installations. Only use parts which are delivered with the unit.

4) Do not install a drier to this R410A unit in order to guarantee its lifetime.

5) The drying material may dissolve and damage the system.

6) Incomplete flaring may cause refrigerant gas leakage.

Cut exactly at right angles

Renove burrs
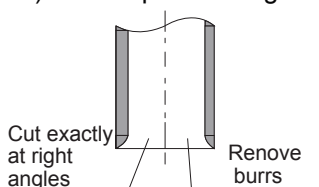
Flaring

Set exactly at the position shown below

A
Die

	Flare tool for R410A	Conventional flare tool	
	Clutch-type	Clutch-type (Rigid-type)	Wing-nut type (Imperial-type)
A	0-0.5mm	1.0-1.5mm	1.5-2.0mm

Flare's inner surface must be scratch-free

The pipe end must be evenly flared in a perfect circle

Make sure that the flare nut is fitted
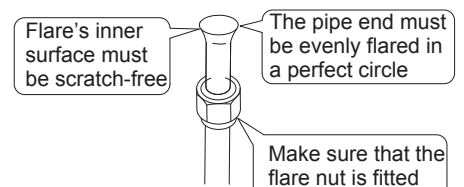
Connecting the refrigerant pipe

1)Use torque wrenches when tightening the flare nuts to prevent damage to the flare nuts and gas leaks.

Coat here with refrigeration oil

Open-end wrench (fixed)

Flare nut

Wrench

Connection pipe

Indoor unit tubing

2)Align the centers of both flares and tighten the flares and tighten the flare nuts 3 or 4 turns by hand.

Then tighten them fully with the torque wrenches.

3)To prevent gas leakage, apply refrigeration oil on both inner and outer surfaces in the flare. (Use refrigeration oil for R410A.)

Flare nut tightening torque		
Gas side		Liquid side
09K/12K	18K	09K/12K/18K
3/8 inch	1/2 inch	1/4 inch
31-35 N.m	50-55 N.m	15-20 N.m

Caution on piping handling

1)Protect the open end of the pipe against dust and moisture.

2)All pipe bends should be as gentle as possible. Use a pipe bender for bending.

(Bending radius should be 30 to 40mm (1 1/8 to 1 5/8 in) or larger.)
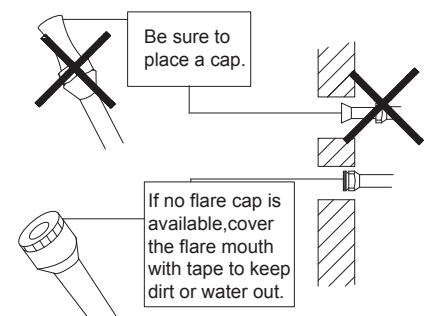
Be sure to place a cap.

If no flare cap is available,cover the flare mouth with tape to keep dirt or water out.

Selection of copper and heat insulation materials

♣ When using commercial copper pipes and fittings, observe the following:

1)Insulation material: Polyethylene foam

Heat transfer rate:0.041 to 0.052W/mK(0.035 to 0.045kca/(mh℃)

Refrigerant gas pipe's surface temperature reaches 110℃ (230°F)max. Choose heat insulation materials that will withstand this temperature.

Inter-unit wiring

Gas pipe

Liquid pipe

Gas pipe insulstion

Liquid pipe insulation

Finising tape
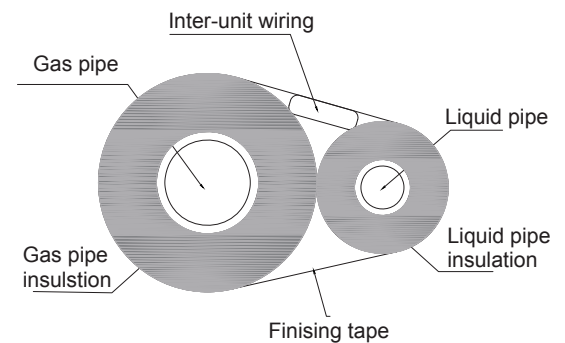
2)Be sure to insulate both the gas and liquid piping and to provide insulation dimensions as below.

Gas side		Liquid side	Gas pipe thermal insulation		Liquid pipe thermal insulation
09K/12K	18K		09K	18K	
O.D. 9.55mm(3/8 in)	O.D. 12.7mm(1/2 in)	O.D. 6.4mm(1/4 in)	I.D.12-15mm (1/2 - 9/16 in)	I.D.14-16mm (9/16 - 5/8 in)	I.D.8-10mm(5/16 - 3/8 in)
Thickness 0.8mm			Thickness 10mm Min.		

3)Use separate thermal insulation pipes for gas and liquid refrigerant pipes.

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Checking for gas leakage

1)Check for leakage of gas after air purging
2)See the sections on air purges and gas leak checks in
the installation manual for the outdoor unit.

Check for leakage here
● Apply soapy water and ch-
eck carefully for leaking gas.
● wipe soapy water off after
the check is complete.
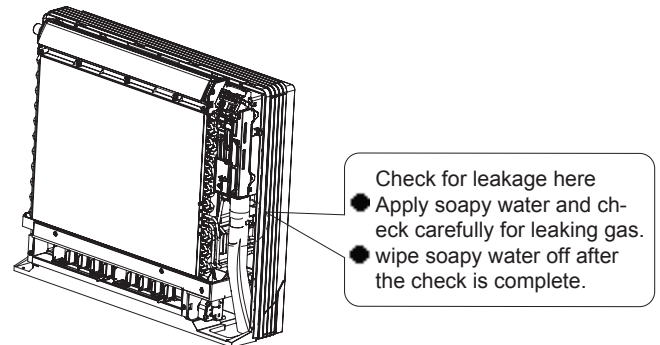
Attaching the connection pipe

● Attach the pipe after checking for gas leakage, described above.
1)Cut the insulated portion of the on-site piping, matching it up with the connecting portion.
2)Secure the slit on the refrigerant piping side with the butt joint on the auxiliary piping using the tape, making sure there
are no gaps.
3)Wrap the slit and butt joint with the included insulation sheet, making sure there are no gaps.

Refrigerant
pipe

Slit

Refrigerant
pipe

Slit

Tape

Refrigerant
pipe

Insulation sheet

Auxiliary pipe
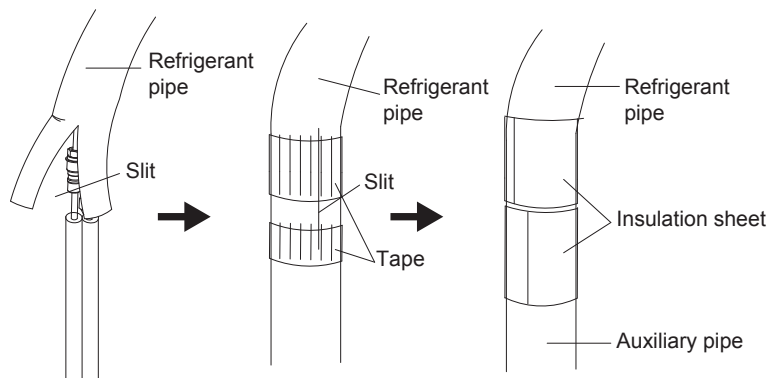
⚠ CAUTION

1)Insulate the joint of the pipes securely.
Incomplete insulation may lead to condensation and water leakage.
2)Push the pipe inside so it does not place undue force on the front grille.

Connecting the drain hose

Insert the supplied C drain hose into the socket
of the drain pan.
Fully insert the drain hose until it adheres to a
seat of the socket.

Drain pan
Seal
Drain hose

Drain pan
Seal

20

● Lift the sensor securing plate, remove the front metal plate cover, and connect the branch wiring to the terminal block.
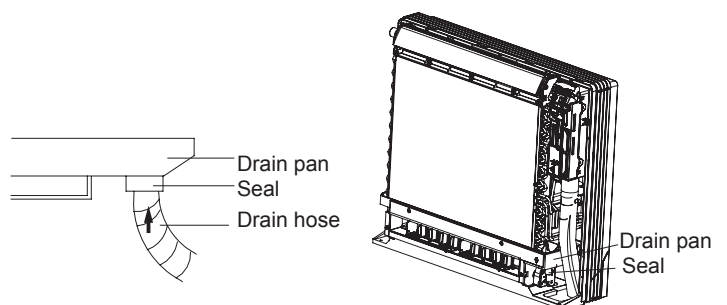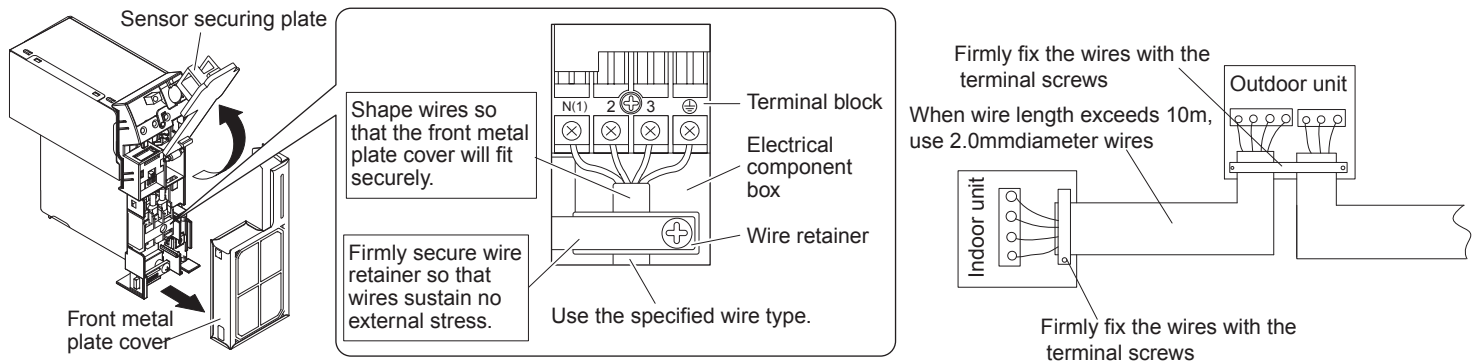
1)Strip wire ends (15mm(1/2 in))

2)Mach wire colors with terminal numbers on indoor and outdoor unit's terminal blocks and firmly screw wires to the corresponding terminals.

3)Connect the ground wires to the corresponding terminals.

4)Lightly tug on wires to make sure that they are securely attached, then secure them with fastener

Sensor securing plate

Shape wires so that the front metal plate cover will fit securely.

Firmly secure wire retainer so that wires sustain no external stress.

N(1) 2 3

Terminal block

Electrical component box

Wire retainer

Use the specified wire type.

Front metal plate cover

Firmly fix the wires with the terminal screws

When wire length exceeds 10m, use 2.0mmdiameter wires

Outdoor unit

Indoor unit

Firmly fix the wires with the terminal screws

⚠ CAUTION

1)Do not use tapped wires, stranded wires, extensioncords, or starburst connections, as they may cause overheating, electrical shock, or fire.

2)Do not use locally purchased electrical parts inside the product. (Do not branch the power for the drain pump, etc, from the terminal block.) Doing so may cause electric shock or fire.)

◑ Check after installation

Items to be checked	Possible malfunction	Situation
Has it been securely mounted?	The unit may fall,shake or emit noise.	
Have you done the refrigerant leakage test?	It may cause poor cooling capacity.	
Is heat insulation sufficient?	It may cause condensation and dripping.	
Does the unit drain well?	It may cause condensation and dripping.	
Is the voltage in accordance with the rated voltage marked on the nameplate?	It may cause electric malfunction or damage .	
Is the electrical wiring and piping connection installed correctly and securely?	It may cause electric malfunction or damage	
Has the unit been connected to a secure ground connection?	It may cause electrical short.	
Is the power cord specified?	It may cause electric malfunction or damage	
Has the inlet and outlet been blocked?	It may cause poor cooling capacity.	
Has the length of connection pipes and the refrigerant charge been recorded?	This will be needed for future service and maintenance.	

1. Standard length of connection pipe

   5m(15 ft)、7.5m(25 ft)、8m(26 ft)

2. Min length of connection pipe

   For the unit with standard connection pipe of 5m(15 ft), there is no limitation for the min length of connection pipe. For the unit with standard connection pipe of 7.5m(25 ft) and 8m(26 ft), the min length of connection pipe is 3m(10 ft).

3. Max length of connection pipe

   Sheet 1 Max length of connection pipe   Unit: m(ft)

Capacity	Max length of connection pipe		Capacity	Max length of connection pipe
5000 Btu/h （1465 W）	15(50)		24000 Btu/h （7032 W）	25(80)
7000 Btu/h （2051 W）	15(50)		28000 Btu/h （8204 W）	30(100)
9000 Btu/h （2637 W）	15(50)		36000 Btu/h （10548 W）	30(100)
12000 Btu/h （3516 W）	20(65)		42000 Btu/h （12306 W）	30(100)
18000 Btu/h （5274 W）	25(80)		48000 Btu/h （14064 W）	30(100)

4. The calculation method of additional refrigerant oil and refrigerant charging amount for longer connection pipe

   After the length of connection pipe is extended for 10m(30 ft) at the basis of standard length, you should add 5ml of refrigerant oil for each additional 5m of connection pipe(1/8 oz per 10 ft).

   The calculation method of additional refrigerant charging amount (on the basis of liquid pipe):

   (1) Additional refrigerant charging amount= extended length of liquid pipe × additional refrigerant charging amount per meter(ft)

   (2) When the length of connection pipe is above 5m, add refrigerant according to the extended length of liquid pipe. The additional refrigerant charging amount per meter is different according to the diameter of liquid pipe. See Sheet 2.

Sheet 2. Additional refrigerant charging amount

Diameter of connection pipe mm		Indoor unit throttle	Outdoor unit throttle	
Liquid pipe mm (in)	Gas pipe mm (in)	Cooling only, cooling and heating	Cooling only	Cooling and heating
Φ6	Φ9.5(3/8) or Φ12(1/2)	20(1/5)	15(1/6)	20(1/5)
Φ6(1/4) or Φ9.5(3/8)	Φ16(5/8) or Φ19(3/4)	50(1/2)	15(1/6)	50(1/2)
Φ12(1/2)	Φ19(3/4) or Φ22.2(7/8)	100 (1/2)	30(1/3)	120(1-1/3)
Φ16(5/8)	Φ25.4(1) or Φ31.8(1-1/4)	170(1-5/6)	60(2/3)	120(1-1/3)
Φ19(3/4)	-	250(2-2/3)	250(2-2/3)	250(2-2/3)
Φ22.2(7/8)	-	350(3-3/4)	350(3-3/4)	350(3-3/4)

Note: The additional refrigerant charging listed in Sheet 2 is a recommended value, not absolute.

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