

# SPLIT TYPE ROOM AIR CONDITIONER INSTALLATION MANUAL

(PART No. 9314963018-02)

(Z14LB/Z18LB)

## This air conditioner uses new refrigerant HFC (R410A).

The basic installation work procedures are the same as conventional refrigerant (R22) models. However, pay careful attention to the following points:

- Since the working pressure is 1.6 times higher than that of conventional refrigerant(R22) models, some of the piping and installation and service tools are special.(See the table below.) Especially, when replacing a conventional refrigerant(R22) model with a new refrigerant R410A model, always replace the conventional piping and flare nuts with the R410A piping and flare nuts.
- Models that use refrigerant R410A have a different charging port thread diameter to prevent erroneous charging with conventional refrigerant(R22) and for safety. Therefore, check beforehand.[The charging port thread diameter for R410A is 1/2 threads per inch.]
- Be more careful that foreign matter (oil, water, etc.) does not enter the piping than with refrigerant(R22) models. Also, when storing the piping, securely seal the opening by pinching, taping, etc.
- When charging the refrigerant, take into account the slight change in the composition of the gas and liquid phases, and always charge from the liquid phase side whose composition is stable.

## Special tools for R410A

Tool name	Contents of change
Gauge manifold	Pressure is high and cannot be measured with a conventional gauge. To prevent erroneous mixing of other refrigerants, the diameter of each port has been changed. It is recommended the gauge with seals-0.1 to 5.3 MPa (-1 to 53 bar) for high pressure. -0.1 to 3.8 MPa (-1 to 38 bar) for low pressure.
Charge hose	To increase pressure resistance, the hose material and base size were changed.
Vacuum pump	A conventional vacuum pump can be used by installing a vacuum pump adapter.
Gas leakage detector	Special gas leakage detector for HFC refrigerant R410A.

## Copper pipes

It is necessary to use seamless copper pipes and it is desirable that the amount of residual oil is less than 40 mg/10m. Do not use copper pipes having a collapsed, deformed or discolored portion (especially on the interior surface). Otherwise, the expansion valve or capillary tube may become blocked with contaminants.

As an air conditioner using R410A incurs pressure higher than when using R22, it is necessary to choose adequate materials. Thicknesses of copper pipes used with R410A are as shown in Table1.Never use copper pipes thinner than 0.8mm even when it is available on the market.

Table 1 Thicknesses of Annealed Copper Pipes

Nominal diameter	Outer diameter (mm)	Thickness (mm)	
		R410A	[ref.] R22
1/4	6.35	0.80	0.80
1/2	12.7	0.80	0.80

## WARNING

- Do not use the existing (for R22) piping and flare nuts.
  - If the existing materials are used, the pressure inside the refrigerant cycle will rise and cause breakage, injury, etc.(Use the special R410A materials.)
- When installing and relocating the air conditioner, do not mix gases other than the specified refrigerant(R410A) to enter the refrigerant cycle.
  - If air or other gas enters the refrigerant cycle, the pressure inside the cycle will rise to an abnormally high value and cause breakage, injury, etc.

## CAUTION

When installing pipes shorter than 3m, sound of the outdoor unit will be transferred to the indoor unit, which will cause large operating sound or some abnormal sound.

## For authorized service personnel only.

## WARNING

- For the room air conditioner to operate satisfactory, install it as outlined in this installation manual.
- Connect the indoor unit and outdoor unit with the air conditioner piping and cords available standards parts. This installation manual describes the correct connections using the standard accessories and the parts specified in this installation manual.
- Have installation work done by authorized service personnel only.
- Never cut the power cord, lengthen or shorten the cord, or change the plug.
- Also do not use an extension cord.
- Plug in the power cord plug firmly. If the receptacle is loose, repair it before using the room air conditioner.
- Do not turn on the power until all installation work is complete.

- Be careful not to scratch the air conditioner when handling it.
- After installation, explain correct operation to the customer, using the operating manual.
- Let the customer keep this installation manual because it is used when the air conditioner is serviced or moved.
- The maximum length of the piping is 20 m. The maximum height difference of the piping is 15 m, if the units are further apart than these, correct operation can not be guaranteed.

## STANDARD ACCESSORIES

The following installation accessories are supplied. Use them as required.

Name and Shape	Q'ty	Name and Shape	Q'ty
Wall hook bracket	1	Drain pipe	1
Remote control unit	1	Cloth tape	1
Battery	2	Tapping screw(big)	8
Remote control unit holder	1	Tapping screw(small)	2
		Seal A	1

One set of following parts are necessary in installation of this product.

Name
Connection pipe assembly
Connection cord
Wall pipe
Decorative tape
Vinyl tape
Wall cap
Saddle
Drain hose
Tapping screws
Sealant

## ELECTRICAL REQUIREMENT

Always make the air conditioner power supply a special branch circuit and provide a special switch and receptacle. Do not extend the power cord.

## SELECTING THE MOUNTING POSITION

Decide the mounting position with the customer as follows:

### 1. INDOOR UNIT

- Install the indoor unit level on a strong wall which is not subject to vibration.
- The inlet and outlet ports should not be obstructed : the air should be able to blow all over the room.
- Install the unit near an electric outlet or special branch circuit.
- Do not install the unit where it will be exposed to direct sunlight.
- Install the unit where connection to the outdoor unit is easy.
- Install the unit where the drain pipe can be easily installed.
- Take servicing, etc. into consideration and leave the spaces shown in (Fig. 2). Also install the unit where the dustbox and the filter can be removed.

### 2. OUTDOOR UNIT

- If possible, do not install the unit where it will be exposed to direct sunlight. (If necessary, install a blind that does not interfere with the air flow.)
- Do not install the unit where a strong wind blows or where it is very dusty.
- Do not install the unit where people pass.
- Take your neighbors into consideration so that they are not disturbed by air blowing into their windows or by noise.
- Provide the space shown in Fig. 2 so that the air flow is not blocked. Also for efficient operation, leave open three of the four directions front, rear, and both sides.

## WARNING

Install at a place that can withstand the weight of the indoor and outdoor units and install positively so that the units will not topple or fall.

## CAUTION

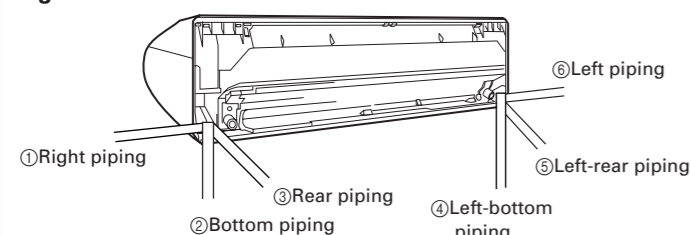
- Do not install where there is the danger of combustible gas leakage.
- Do not install near heat sources.
- If children under 10 years old may approach the unit, take preventive measures so that they cannot reach the unit.
- Install the indoor unit on the wall where the height from the floors more than 230 cm.

## [Indoor unit piping direction]

The piping can be connected in the six directions indicated by ①, ②, ③, ④, ⑤ and ⑥ in (Fig. 1). When the piping is connected in direction ① or ⑥, cut along the piping groove in the side of the front panel with a hacksaw.

When connecting the piping in direction ② or ④, cut a notch in the thin wall at the front bottom of the front panel.

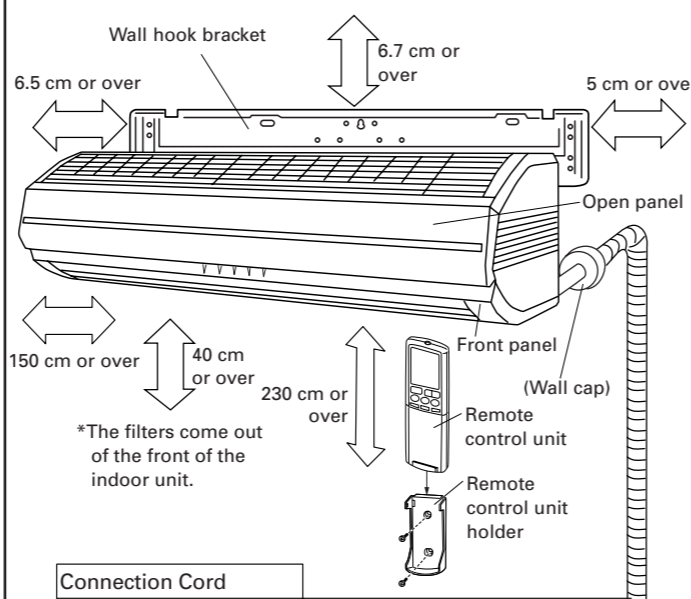
Fig. 1



## INSTALLATION DIAGRAM OF INDOOR AND OUTDOOR UNITS

Fig. 2

### [INDOOR UNIT]



### [OUTDOOR UNIT]

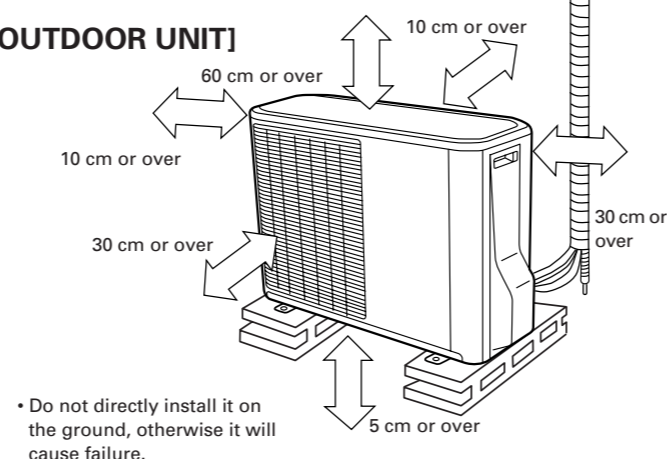
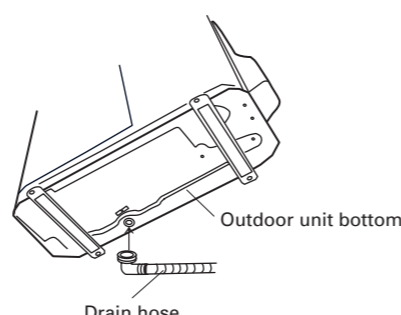


Fig. 3



## NOTE:

In places where the outdoor temperature drops to 0°C or lower, the drain water may freeze and may stop up the drain or cause other outdoor unit trouble. Therefore take measures so that the drain water will not freeze and clog the drain.

## FRONT PANEL REMOVAL AND INSTALLATION

### REMOVING THE FRONT PANEL

- Open the open panel, and then remove the top cover and dust box. (For the removal method of dust box, please refer to the OPERATING MANUAL or Dust Box)
- Remove the top grille. (For the removal method of top grille, please refer to the OPERATING MANUAL)
- Remove the screw cap, and then remove the fixed screws (3 places).
- Press the under cover with hand at [▽] mark and pull out, and remove inside hooks (2 places) from the wall hook bracket.
- Remove the top hooks of under cover (2 places at left and right).
- Remove the front fixed screws (7 places).
- Push the lower side of front panel to outside, and remove the lower hooks from the body.
- After pull out the upper hooks inside the front panel (2 places at right side and left upper body, 1 place in the center upper body), pull them back, and remove the front panel.

### INSTALLING THE FRONT PANEL

- Cover the front panel onto the body from the front side, and mount the upper, central and lower hooks.
- Install the front fixed screws (2 places at left and right side above the body, 1 place in the center of the body, 2 places under the body, 2 places in the center, altogether 7 places).
- Install the top hooks of under cover (2 places at left and right).
- Install the inside hooks (2 places) and front hooks (2 places) of under cover.
- Install fixed screws (3 places) and screw cap.
- Install the top grille.
- Fix with screws, install top cover and dust box.

## CAUTION

- Be sure to remove the top grille at the position where the front panel is installed and removed.
- Be careful that the top grille may fall and cause personal injury.

## CAUTION

Install the open panel and top grill securely. If installation is imperfect, the open panel or top grill may fall off and cause injury.

## CUSTOMER GUIDANCE

Explain the following to the customer in accordance with the operating manual:

- Starting and stopping method, operation switching, temperature adjustment, timer, air flow switching, and other remote control unit operations.
- Dustbox, air filter and top grill removal and cleaning, and how to use the air louvers.
- Give the operating and installation manuals to the customer.

## PUMP DOWN OPERATION (FORCED COOLING OPERATION)

To avoid discharging refrigerant into the atmosphere at the time of relocation or disposal, recover refrigerant by doing the cooling operation or forced cooling operation according to the following procedure. (When the cooling operation cannot start in winter, and so on, start the forced cooling operation.)

- Do the air purging of the charge hose by connecting the charging hose of gauge manifold to the charging port of 3 way valve and opening the low-pressure valve slightly.
- Close the valve stem of 2 way valve completely.
- Start the cooling operation or following forced cooling operation.
  - When using the remote control unit
    - Press the TEST RUN button after starting the cooling operation by the remote control unit.
    - The operation indicator lamp and timer indicator lamp will begin to flash simultaneously during test run.
    - When using the MANUAL AUTO button of the indoor unit (The remote control unit is lost, and so on.)
      - Keep on pressing the MANUAL AUTO button of the indoor unit for more than 10 seconds. (The forced cooling operation cannot start if the MANUAL AUTO button is not kept on pressing for more than 10 seconds.)
  - Close the valve stem of 3 way valve when the reading on the compound pressure gage becomes 0.05-0 Mpa (0.5-0 kg/cm<sup>2</sup>).
  - Stop the operation.
    - Press the START/STOP button of the remote control unit to stop the operation.
    - Press the MANUAL AUTO button when stopping the operation from indoor unit side. (It is not necessary to press on keeping for more than 10 seconds.)

## CAUTION

- During the pump down operation, make sure that the compressor is turned off before you remove the refrigerant piping.
- Do not remove the connection pipe while the compressor is in operation with 2 way or 3 way valve open. This may cause abnormal pressure in the refrigeration cycle that leads to breakage and even injury.

## POWER

## WARNING

- The rated voltage of this product is 230 V AC 50 Hz.
- Before turning on the power, check if the voltage is within the 220 V -10 % to 240 V +10 % range.
- Always use a special branch circuit and install a special receptacle to supply power to the room air conditioner.
- Use a circuit breaker and receptacle matched to the capacity of the air conditioner.
- Do not extend the power cord.
- Perform wiring work in accordance with standards so that the air conditioner can be operated safely and positively.
- Install a leakage circuit breaker in accordance with the related laws and regulations and electric company standards.

## CAUTION

- The power source capacity must be the sum of the air conditioner current and the current of other electrical appliances. When the current contracted capacity is insufficient, change the contracted capacity.
- When the voltage is low and the air conditioner is difficult to start, contact the power company the voltage raised.

