

# INSTALLATION MANUAL FOR ROOM AIR CONDITIONER (Split Wall-Mounted Type)

- For correct installation, read this manual before starting installation and save this manual in a safe place for future reference.
- Only trained and qualified service personnel should install, repair or service air conditioning equipment. Users should not install the air conditioner by themselves.
- All pictures are only sketches. If there is any difference between pictures in this manual and the actual shape of the air conditioner you purchased, the actual shape shall prevail.

## INSTALLATION PRECAUTION

### WARNING

- Engage dealer or specialist for installation. If installation done by the user is defective, it will cause water leakage, electrical shock fire.
- Install according to this installation instructions strictly. If installation is defective, it will cause water leakage, electrical shock fire.
- Use the attached accessories parts and specified parts for installation. Otherwise, it will cause the set to fall, water leakage, electrical shock fire.
- Install at a strong and firm location which is able to withstand the set's weight. If the strength is not enough or installation is not properly done, the set will drop and cause injury.
- For electrical work, follow the local national wiring standard, regulation and this installation instructions. An independent circuit and single outlet must be used. If electrical circuit capacity is not enough or defect found in electrical work, it will cause electrical shock fire.
- Use the specified cable and connect tightly and clamp the cable so that no external force will be acted on the terminal. If connection or fixing is not perfect, it will cause heat-up or fire at the connection.
- Wiring routing must be properly arranged so that control board cover is fixed properly. If control board cover is not fixed perfectly, it will cause heat-up at connection point of terminal, fire or electrical shock.
- When carrying out piping connection, take care not to let air substances other than the specified refrigerant go into refrigeration cycle. Otherwise, it will cause lower capacity, abnormal high pressure in the refrigeration cycle, explosion and injury.
- Do not modify the length of the power supply cord or use of extension cord, and do not share the single outlet with other electrical appliances. Otherwise, it will cause fire or electrical shock.

### CAUTION

- This equipment must be earthed and installed with earth leakage current breaker. It may cause electrical shock if grounding is not perfect.
- Do not install the unit at place where leakage of flammable gas may occur. In case gas leaks and accumulates at surrounding of the unit, it may cause fire.
- Carry out drainage piping as mentioned in installation instructions. If drainage is not perfect, water may enter the room and damage the furniture.

Installation in the following places may cause trouble. If it is unavoidable, please consult with the local dealer.

- A place full of machine oil.
- A saline place such as coast.
- A place full of sulfide gas such as hot-spring resort.
- Places where there are high frequency machines such as wireless equipment, welding machine, and medical facility.
- A place there is no combustible gases and volatile matter.
- A place of special environmental conditions.

### Indoor Unit

- A place where there is no obstacle near the inlet and outlet area.
- A place which can bear the weight of the indoor unit.
- A place which is convenient to maintenance.
- A place which provides the space around the indoor unit as required in the diagram.
- A place 1m or more to TV, radio instrument, in the center of the room is perfect.
- A place which is far from heat, steam and inflammable gas.
- There should not be any direct sunlight. Otherwise, the unit will fade the plastic cabinet and affect its appearance.
- Unavoidable, sunlight prevention should be taken in the room.

### Outdoor Unit

- A place, which is convenient to installation and not exposed to a strong wind. A place that is dry and ventilated.
- A place can bear the weight of the outdoor unit and where the outdoor unit can be held in the horizontal position.
- A place which does not allow an increase in noise level and vibration.
- A place where the operation noise and discharge air do not disturb the neighbor or animals.
- A place free of a leakage of combustible gases.
- An allowable head level at the connective piping is less than 10m, and length of the connective piping is up less than 10m.
- No any obstacle which block radiating air.
- Unavailable to children.
- A place, which provides the space around the outdoor unit as required in the diagram.

## PARTS INSTALLATION

Part No.	Name of Accessories	Q'ty
1	Installation Plate	1
2	Clip Anchor	8
3	Self-tapping Screw A ST3.9X25	8
4	Seal (See next page for details)	1
5	Drain Joint(See next page for details)	1
6	Connecting pipe assembly Liquid side $\phi 6.35$ Gas side $\phi 9.52 (<12000\text{Btu/h model})$ $\phi 12.7 (\geq 12000\text{Btu/h model})$	Parts you must purchase (A minimum pipe wall-thickness of 0.7mm is required.)
7	Remote controller	1
8	Mounting screw B ST2.9x10-C-H	2
9	Remote controller holder	1

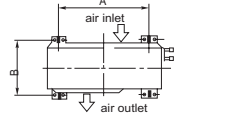
Please install the accessories attached with unit correctly according to this installation manual.

### CAUTION

- Ensure that the space around the left and right of the indoor unit is more than 12cm. The indoor unit should be installed allowing a minimum clearance of 15cm from the ceiling.
- Use a stud finder to locate studs to prevent unnecessary damage to the wall.
- A minimum pipe run of 3 metres is required to minimise vibration & excessive noise.
- The indoor unit should be installed on the wall at a height of 2.3 metres or more from the floor.
- Two of the A, B and C directions should be free from obstructions.

### Anchor bolts of out door unit installation

- The outdoor unit should not be exposed to strong wind.
- Fix the outdoor unit with  $\phi 10$  or  $\phi 8$  anchor bolts.

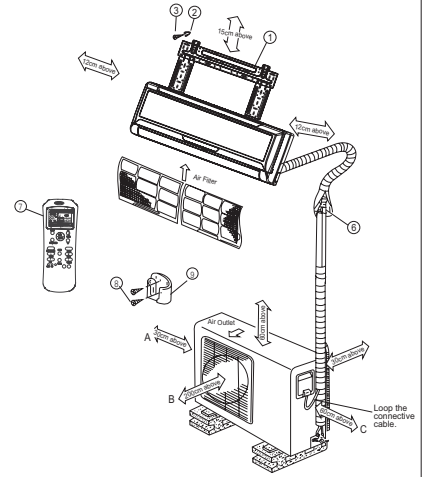


Outdoor unit dimension your mm(WxHxD)	Mounting dimensions	
	A(mm)	B(mm)
780x540x250	549	276
760x590x285	530	290

- If need suspending installation, consults the corresponding requirement.

### Cautions on remote controller installation

- Before installation, operate the remote controller to determine its location in a reception range.
- Keep the remote controller at least 1m apart from the nearest TV set or stereo equipment.
- Do not install the remote controller in a place exposed to direct sunlight or close to a heating source, such as a stove.
- Note that the positive and negative poles are right positions when loading batteries.



- This illustration is for explanation purposes only.
- Copper lines must be insulated independently.

## INDOOR UNIT INSTALLATION

### 1. Cutting A Hole and Mounting Installation Plate

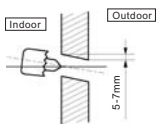
#### 1. Fix the installation plate.

- Fit the installation plate horizontally on structural parts of the wall with spaces around the installation plate.
- If the wall is made of brick, concrete or the like, drill eight (8) 5mm diameter holes in the wall. Insert Clip anchor for appropriate mounting screws.
- Fit the installation plate on the wall with eight (8) type A screws.

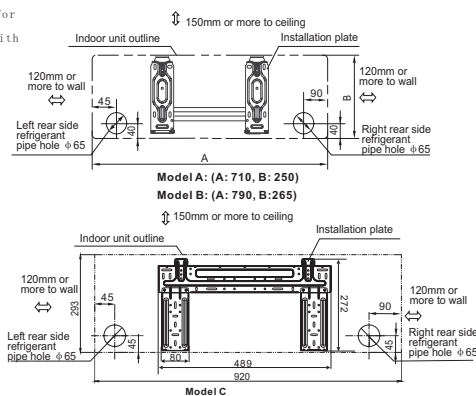


#### 2. Cutting a hole.

- Determine hole positions according to the diagram detailed in Fig.5. Drill one (1) hole ( $\phi 65\text{mm}$ ) slanting slightly to outdoor side.
- Always use wall hole conduit when drilling metal grid, metal plate or the like.



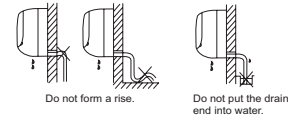
**Note:**  
The shape of the mounting plate may be slightly different according to the models.  
(Dimensions are in mm unless otherwise stated)



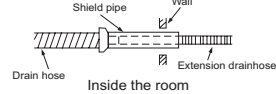
### 2. Connective Pipe and Drainage Installation

#### 1. Drainage

- Run the drain hose sloping downward. Do not install the drain hose as illustrated below.

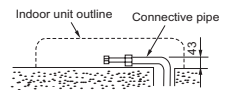


- When connection extension drain hose, insulate the connecting part of extension drain hose with a shield pipe.



#### 2. Connective pipe

- For the left-hand and right-hand piping, remove the pipe cover from the side panel.
- For the rear-right-hand and rear-left-hand piping, install the piping as shown in next page. Bend the connective pipe to be laid at 43mm height or less from the wall.
- Fix the end of the connective pipe. (Refer to Tightening connection in REFRIGERANT PIPING CONNECTION)



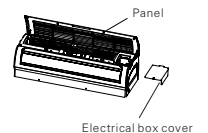
### CAUTION

- Connect the indoor unit first then the outdoor unit.
- Bend and arrange the pipe carefully.
- Insulate both of the auxiliary piping.
- Drainage can not annoy your neighbor.

### 5. Connecting Cables

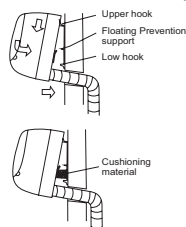
**NOTE:** Before performing any electrical work, turn off the main power to the system.

- The inside and outside connecting cable can be connected without removing the front panel.
- Connecting cable between indoor unit and outdoor unit shall be approved polychloroprene sheathed flexible cord, type designation H07RN-F or heavier cord.
- Lift the indoor unit panel up, remove the electrical box cover by loosening the screw.
- Ensure the colour of wires of outdoor unit and the terminal Nos. are the same to the indoor's respectively.
- Wrap those cables not connected with terminals with insulation tapes, so that they will not touch any electrical components. Secure the cable onto the control board with the cord clamp.



### 3. Indoor unit Installation

- Pass the piping through the hole in the wall.
- Put the upper claw at the back of the indoor unit on the upper hook of the installation plate, move the indoor unit from side to side to see that it is securely hooked.
- Piping can easily be made by lifting the indoor unit with a cushioning material between the indoor unit and the wall. Get it out after finish piping.
- Push the lower part of the indoor unit up on the wall. Then move the indoor unit from side to side, up and down to check if it is hooked securely.



### 4. Electrical Work

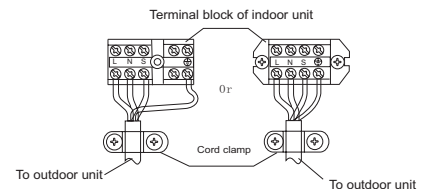
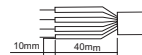
Prepare the power source for exclusive with the air conditioner. The supply voltage must be consistent with the rated voltage of the air conditioner:

Model	Power supply	Input Rated Amp (Switch/Fuse)	Minimum nominal cross-sectional area of conductors:	
			Rated current of appliances (A)	Nominal cross-sectional area (mm <sup>2</sup> )
<12000Btu/h	220-240V-50Hz	16A	>3 and ≤6	0.75
			>6 and ≤10	1
≥12000Btu/h	220-230V-60Hz	25A	>10 and ≤16	1.5
			>16 and ≤25	2.5

**NOTE:** A disconnection device having an air gap contact separation in all active conductors should be incorporated in the fixed wiring according to the National Wiring Regulation.

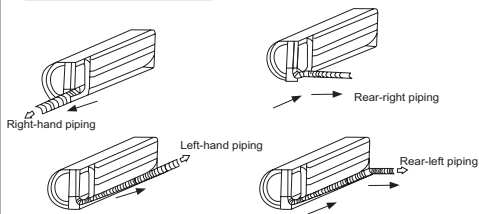
### CAUTION

- Perform the wiring with sufficient capacity.
- Installation places legally require a short circuit isolator to be attached to prevent electrical shock.
- Do not extend the power cable code by cutting.
- The plug of the air conditioner takes a grounding leg, so clients should use a grounding socket so that the air conditioner can be grounded efficiently.
- Power voltage should be in the range of 90%~110% of rated voltage.
- The cross section area of the wiring in the cable is based on the copper core inside plastics.

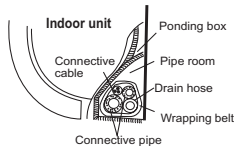


## INDOOR UNIT INSTALLATION

### 6. PIPING AND BANDAGING



- For the left-hand and right-hand piping, remove the pipe cover from the side panel.
  - Wind the connective cable, drain hose and wiring with tape securely, evenly.
  - Bundle the tubing, connecting cable, and drain hose with tape securely, evenly as shown below.
- Because the condensed water from rear of the indoor unit is gathered in ponding box and is piped out of room. Do not put anything else in the box.



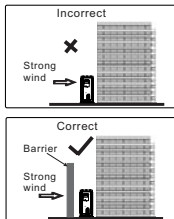
### CAUTION

- Connect the indoor unit first, then the outdoor unit.
- Do not allow the piping to let out from the back of the indoor unit.
- Be careful not to let the drain hose slack.
- Heat insulated both of the auxiliary piping.
- Be sure that the drain hose is located at the lowest side of the bundle. Locating at the upper side can cause drain pan to overflow inside the unit.
- Never intercross nor intertwist the power wire with any other wiring.
- Run the drain hose sloped downward to drain out the condensed water smoothly.

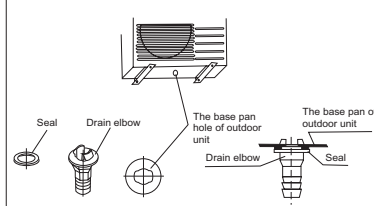
## OUTDOOR UNIT INSTALLATION

### 1. OUTDOOR INSTALLATION PRECAUTION

- Install the outdoor unit on a rigid surface such as a concrete slab to prevent excessive noise and vibration.
- Ensure that the discharge air outlet is not obstructed by any nearby objects such as walls, fencing, or landscaping (shrubs, trees, etc.). If the installation location allows the unit to be exposed to strong winds, ensure that the unit has a barrier from the wind. See the figure.
- This will assist with the proper operation of the fan by obstructing strong gusts of wind from entering the unit's cabinet.
- If the outdoor unit is installed on a rooftop, be sure to level the unit.
- Ensure the roof's structure and unit's anchoring are adequate for the location.
- Consult local codes regarding rooftop mounting.
- If the outdoor unit is installed on rooftops or external walls, this may result in excessive noise and vibration.



### 2. DRAIN ELBOW INSTALLATION

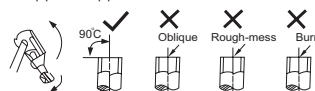


Fit the seal into the drain elbow, then insert the drain elbow into the base pan hole of outdoor unit, rotate 90° to securely assemble them. Connecting the drain elbow with an extension drain hose (Locally purchased), in case of the water draining off the outdoor unit during the heating mode.

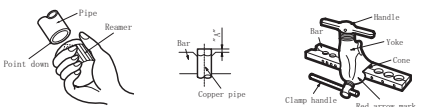
### 3. REFRIGERANT PIPING CONNECTION

#### 1. Flaring

- Cut a pipe with a pipe cutter.



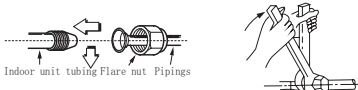
- Completely remove all burrs from the cut cross section of pipe/tube. Remove flare nuts attached to indoor and outdoor unit, then put them on pipe/tube having completed burr removal (not possible to put them on after flaring work). Firmly hold copper pipe in a die in the dimension shown in the table below.



Outer diam. (mm)	A(mm)	
	Max.	Min.
φ 6.35	1.3	0.7
φ 9.52	1.6	1.0
φ 12.7	1.8	1.0

#### 2. Tightening Connection

- Align pipes to be connected.
- Sufficiently tighten the flare nut with fingers, and then tighten it with a spanner and torque wrench as shown.

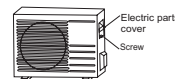


#### CAUTION

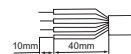
- Excessive torque can break nut depending on installation conditions.

Outer diam.	Tightening torque(N.cm)	Additional tightening torque(N.cm)
φ 6.35	1570 (160kgf.cm)	1960 (200kgf.cm)
φ 9.52	2940 (300kgf.cm)	3430 (350kgf.cm)
φ 12.7	4900 (500kgf.cm)	5390 (550kgf.cm)

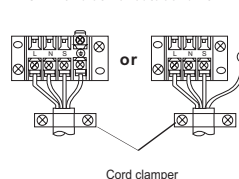
### 4. WIRING CONNECTION



- Remove the electrical control cover from the outdoor unit.
- Connect the cables to the terminals as identified with their respective designated terminal spaces on the terminal block of indoor and outdoor units.
- To prevent the entrance of water into outdoor unit, form a loop in the cable.
- Insulate any unused conductors with PVC/Electrical tape, so that they do not touch any other exposed electrical or metal parts.



#### Terminal block of outdoor unit



**CAUTION**  
Incorrect wiring connections may cause electrical parts to malfunction. All wiring must comply with local and national electrical codes and be installed by qualified and skilled electrician.

## AIR PURGE AND TEST OPERATION

### 1. AIR PURGE

Air and moisture in the refrigerant system have undesirable effects as indicated below:

- Pressure in the system rises.
  - Operating current rises.
  - Cooling or heating efficiency drops.
  - Moisture in the refrigerant circuit may freeze and block capillary tubing.
  - Water may lead to corrosion of parts in the refrigeration system.
- Therefore, the indoor unit and tubing between the indoor and outdoor unit must be leak tested and evacuated to remove any noncondensables and moisture from the system.

#### Air purging with vacuum pump

- Preparation  
Check that each tube (both liquid and gas side tubes) between the indoor and outdoor units have been properly connected and all wiring for the test run has been completed. Remove the service valve caps from both the gas and the liquid side on the outdoor unit. Note that both the liquid and the gas side service valves on the outdoor unit are kept closed at this stage.

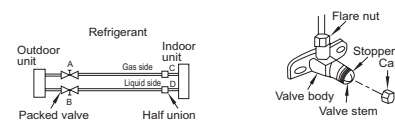
- Pipe length and refrigerant amount:

Connective pipe length	Air purging method	Additional amount of refrigerant to be charged
Less than 5m	Use vacuum pump.	—
More than 5m	Use vacuum pump.	R22: (Pipe length-5)x30g/m R410A: (Pipe length-5)x20g/m

- When relocate the unit to another place, perform evacuation using vacuum pump.
- Make sure the refrigerant added into the air conditioner is liquid form in any case. (Not applicable to the units with R22.)

#### Caution in handling the packed valve

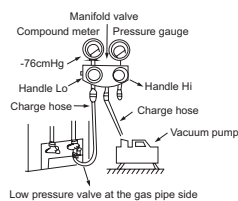
- Open the valve stem until it hits against the stopper. Do not try to open it further.
- Securely tighten the valve stem cap with spanner or the like.
- Valve stem cap tightening torque (See Tightening torque table in previous page).



#### Using the Vacuum Pump

(For method of using a manifold valve, refer to its operation manual.)

- Completely tighten the flare nuts A, B, C, D, connect the manifold valve charge hose to a charge port of the packed valve on the gas pipe side.
- Connect the charge hose connection to the vacuum pump.
- Fully open the handle Lo of the manifold valve.
- Operate the vacuum pump to evacuate. After starting evacuation, slightly loose the flare nut of the packed valve on the gas pipe side and check that the air is entering. (Operation noise of the vacuum pump changes and a compound meter indicates 0 instead of minus)
- After the evacuation is complete, fully close the handle Lo of the manifold valve and stop the operation of the vacuum pump. Make evacuation for 15 minutes and more and check that the compound meter indicates -76cmHg.
- Turn the stem of the packed valve B about 45° counterclockwise, securely tighten the flare nut after 6-7 seconds. Make sure the pressure display in the pressure gauge is a little higher than atmosphere pressure.
- Fully open the packed valves B and A.
- Securely tighten the cap of the packed valve.



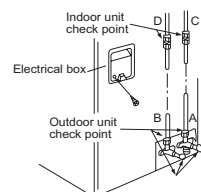
### 2. SAFETY AND LEAK CHECK

#### Electrical safety check

- Perform the electrical safety check after completing installation.
  - Insulated resistance  
The insulated resistance must be more than 2MΩ.
  - Grounding work  
After finishing grounding work, measure the grounding resistance by visual detection and grounding resistance tester. Make sure the grounding resistance is less than 4Ω.
- Electrical leakage check (performing during test running)  
During test operation after finishing installation, the serviceman can use the electroprobe and multimeter to perform the electrical leakage check. Turn off the unit immediately if leakage happens. Check and find out the solution ways till the unit operate properly.

#### Gas leak check

- Soap water method:  
Apply a soap water or a liquid neutral detergent on the indoor unit connection or outdoor unit connections by a soft brush to check for leakage of the connecting points of the piping. If bubbles come out, the pipes have leakage.
- Leak detector  
Use the leak detector to check for leakage.



**CAUTION**  
A: Lo packed valve B: Hi packed valve C and D are ends of indoor unit connection.

### 3. TEST OPERATION

Perform test operation after completing gas leak check at the flare nut connections and electrical safety check.

- Check that all tubing and wiring have been properly connected.
- Check that the gas and liquid side service valves are fully open.
  - Connect the power, press the ON/OFF button on the remote controller to turn the unit on.
  - Use the MODE button to select COOL, HEAT, AUTO and FAN to check if all the functions works well.
- When the ambient temperature is too low (lower than 17°C), the unit cannot be controlled by the remote controller to run at cooling mode, manual operation can be taken. Manual operation is used only when the remote controller is disable or maintenance necessary.
  - Hold the panel sides and lift the panel up to an angle until it remains fixed with a clicking sound.
  - Press the Manual control button to select the AUTO or COOL, the unit will operate under Forced AUTO or COOL mode (see User Manual for details).
- The test operation should last about 30 minutes.

