

DUCTLESS MINI SPLIT SYSTEM AIR CONDITIONER / HEAT PUMP

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FOR FLOOR - CEILING - LOW WALL TYPE INSTALLATIONS

**PIONEER**<sup>®</sup>

## UAB / UYB Series (Flex Mount)

UAB: Cooling Only Version

UYB Cooling and Heating Version

Inverter+<sup>®</sup> and Inverter++<sup>®</sup> Models

18,000-48,000 BTU/hr



# Installation Manual

### IMPORTANT NOTICE:

Please read this manual carefully before installing or operating your new air conditioning system. Be sure to save this manual for your future reference.



- If used as a part of a MULTI Split System, please refer to the Installation & Operation manuals packed with the multi split outdoor unit.

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## 1. PRECAUTIONS

- **Keep this manual in a handy place for future reference.**
- **Read this manual attentively before starting up the unit.**
- **The following precautions include important safety steps. Observe them in their entirety to avoid being in violation.**
- **Installation must be performed in accordance with the requirement of NEC and CEC by authorized personnel only. (Applicable to the North American area only)**

The safety precautions listed here are divided into two categories.



### WARNING

If these instructions are not followed exactly, the unit may cause property damage, personal injury, or loss of life.



### CAUTION

If these instructions are not followed exactly, the unit may cause minor or moderate property damage, and/or personal injury.

After completing installation, make sure that the unit operates properly during the start-up operation. Please instruct the customer on how to operate the unit and keep it properly maintained. Also, inform customers that they should store this installation manual, along with the owner's manual, for their future reference.



### WARNING

**Be sure to only hire trained and qualified service personnel to install, repair, or service the equipment.**

Improper installation, repair, and maintenance may result in electrical shocks, short-circuits, leaks, fires, or other damage to the equipment.

**Strictly adhere to these installation instructions.**

If installation is done improperly, it may cause water leakage, electrical shock, and possibly fire.

**When installing the unit inside a small room, take measures toward keeping refrigerant concentration from exceeding allowable safety limits, in the event of refrigerant leakage. Contact the place of purchase for more information.**

Excessive refrigerant inside a closed environment can lead to oxygen deficiency.

**Use only the attached accessories and specified parts for installation.**

Unauthorized parts and accessories can cause the set to fall, develop water leakage, or cause electrical shock or fire.

**Install in a strong, stable location that will be able to withstand the full weight of the set.**

If the mount location's stability is insufficient, or the installation is improperly done, the set can possibly drop and cause injury.

**The appliance shall not be installed in, or near, the laundry room.**

**Before obtaining access to the terminals, all supply circuits must be disconnected.**

**The appliance must be positioned so that the plug is easily accessible.**

**The enclosure of the appliance shall be marked by words, or by symbols, with the direction of the fluid flow.**

**For electrical work, follow all local and national wiring standards and regulations, as well as these installation instructions. An independent circuit and single outlet must be used.**

If the electrical circuit capacity is insufficient, or there is a defect in the electrical work, it will cause electrical shock or fire.

**Use the specified cable and connect tightly and clamp the cable so that no external force will act upon the terminal.**

If the connection or fixture is not perfect, it will cause heating-up of, or fire at, the connection.

**Wiring routing must be properly arranged, so that the control board cover is fixed properly.**

If control board cover is not fixed perfectly, it will lead to heating-up at the connection point of terminal, fire, or electrical shock.

**If the supply cord is damaged, it must be replaced by the manufacturer, service agent, or similarly qualified personnel, in order to avoid a hazard.**

**An all-pole disconnection switch, having a contact separation of at least 3mm in all poles, should be implemented within the fixed wiring.**

**When carrying out a piping connection, take care not to let air pockets leak into the refrigeration cycle.**

Otherwise, it can lead to lowered capacity, abnormally 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.**

It can lead to possible fire or electrical shock.

**Carry out the specified installation work only after taking into account strong winds, typhoons, or earthquakes.**

Improper installation work may result in the equipment falling and causing accidents during possible natural disasters.

**If the refrigerant leaks during installation, ventilate the area immediately.**

Toxic gas may be produced if the refrigerant comes into contact, whether direct or indirect, with fire.

**Since the temperature of the refrigerant circuit will be high, please keep the interconnection cable away from the copper tube.**

**After completion of all installation work, check that the refrigerant does not leak.**

Toxic gas may be produced if the refrigerant leaks into the room and comes into contact with a fire source, such as a fan heater, stove, or cooker.

The appliance shall be installed in accordance with national wiring regulations.

Do not operate your air conditioner in a wet room, such as a bathroom or laundry room.

An all-pole disconnection device, which has at least 3mm clearances in all poles, and has a leakage current that may exceed 10mA, and the residual current device (RCD) having a rated residual operating current not exceeding 30mA, with disconnection, must be incorporated in the fixed wiring, in accordance with all relevant wiring laws.



## CAUTION

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### **Ground the air conditioner.**

Do not connect the ground wire to gas or water pipes, lightning rods, or telephone ground wires. Incomplete grounding may result in electric shocks.

### **Be sure to install an earth leakage breaker.**

Failure to install an earth leakage breaker may result in electrical shocks.

### **Connect the outdoor unit wires before connecting the indoor unit wires.**

You are not permitted to connect the air conditioner with the power source until the wiring and piping for the air conditioner is completed.

### **When following the instructions in this installation manual, be sure to install drain piping to ensure proper drainage, and insulate piping in order to prevent condensation.**

Improper or lack of drain piping may result in water leakage and property damage.

### **Install the indoor and outdoor units, power supply wiring, and connecting wires at least 1 meter away from any televisions or radios, in order to prevent possible image interference or noise.**

Depending on the radio waves, a distance of 1 meter may not be sufficient enough to eliminate the noise.

### **This appliance is not intended for use by young children, or infirm persons, without supervision.**

### **Don't install the air conditioner in the following locations:**

- Anywhere that contains unsealed petrolatum.
- Areas with salt-saturated air (such as near the coast).
- Areas with caustic gas (sulfide, for example) existent in the air (such as near a hot spring).
- Areas with fluctuations in incoming power supply (or unstable power where the voltage fluctuates). This can happen in some factories where some large machinery can cause noise on power lines.
- In buses or cabinets.
- In kitchens that contain gas or oil.
- Areas with electromagnetic waves.
- Areas with inflammable gases or other materials.
- Anywhere near evaporating acids or alkaline liquids.
- Any locations undergoing special delicate conditions.

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## 2. INSTALLATION INFORMATION

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
- To guarantee proper installation, please first read this "installation manual" in its entirety.
  - The air conditioner must be installed by qualified persons.
  - When installing the indoor unit or its tubing, please follow this manual as strictly as possible.
  - If the air conditioner is installed on a metallic part of the building, it must be electrically insulated according to the relevant standards for electrical appliances.
  - When all of the installation work is finished, please turn on the power only after a thorough inspection is performed.
  - This handbook guarantees successful system operation. However, future manuals will contain the latest information.
- 

## INSTALLATION ORDER

- Select the location
- Install the indoor unit
- Install the outdoor unit
- Install the connecting pipe
- Connect the drain pipe
- Complete all wiring
- Test the system operation

### 3. ACCESSORIES



Please check whether the following list of accessories are of full scope. If there are some spare items, please store them carefully aside.

	NAME	SHAPE	QUANTITY
Remote Controller & Its Holder	1. Remote Controller (on some models)		1
	2. Remote Controller Holder (on some models)		1
	3. Mounting Screw(ST2.9×10-C-H)		2
	4. Alkaline Dry Batteries (AM4)		2
Others	5. Owner's Manual	_____	1
	6. Installation Manual	_____	1
	7. Remote Controller Manual	_____	1

## 4. INSPECTING AND HANDLING THE UNIT

On delivery, the package should be inspected, and any damage should be reported to the service agent immediately.

When handling the unit, take into account the following:

- 1  - Fragile, handle the unit with care.
- 1  - Keep the unit upright, in order to avoid compressor damage.
- 2 **Pre-determine the path along which the unit is to be brought in.**
- 3 **Move and carry this unit without changing its original packaging position, by as much as possible.**
- 4 **When lifting the unit, always use protectors to prevent belt damage, and pay special attention to the position of**

## 5. INDOOR UNIT INSTALLATION

### 5.1 Installation Location

(Refer to Fig. 5-1, Fig. 5-2, and Table 5-1 for specific details.)

The indoor unit should be installed in a location that meets the following requirements:

- There is sufficient room for installation and maintenance.
- The ceiling is horizontal, and its structure can endure the weight of the indoor unit.
- The outlet and the inlet are not impeded, and the influence of external air is the least.
- The air flow has reach throughout the room.
- The connecting pipe and drainpipe can be easily removed.
- There is no direct radiation from heaters.

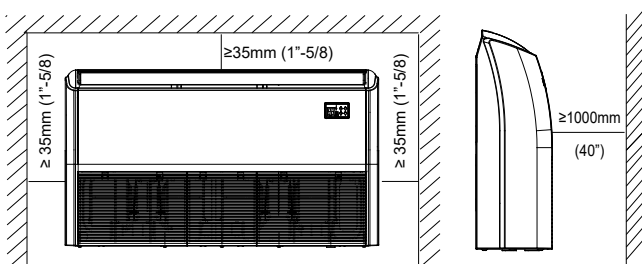


Fig.5-1



### CAUTION

Keep indoor unit, outdoor unit, power supply wiring, and transmission wiring at least 1 meter away from televisions and radios. This is to prevent image interference and noise coming from those electrical appliances. (Noise may be generated depending on the conditions under which the electric wave is generated, even if a 1 meter distance is kept.)

## 5.2 Install the Main Body

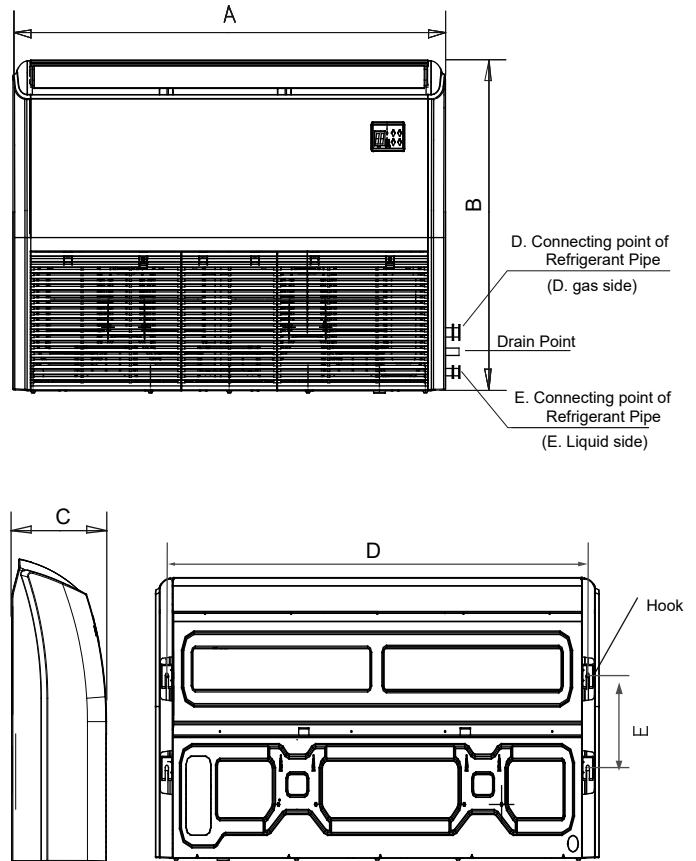


Fig. 5-2

### 1 Installing Ø10 hanging screw bolts. (4 bolts)

- Please Refer to Fig. 5-3 and Fig. 5-4 for the hanging screw bolts distance.
- Evaluate the ceiling construction and install using Ø10 hanging screw bolts.
- The handling of the ceiling varies with construction details, consult the construction specialist for specific conditions.
  - Do keep the ceiling flat. Consolidate the roof beam to avoid possible vibration.
  - Cut off the roof beam.
  - Strengthen the place that has been cut off, and consolidate the roof beam.
- After selection of the installation location, position the refrigerant pipes, drain pipes, indoor & outdoor wires to the connection points before hanging up the machine.
- Installation of hanging screw bolts:

#### WOODEN CONSTRUCTION

Put the square timber transversely over the roof beam, then install the hanging screw bolts.

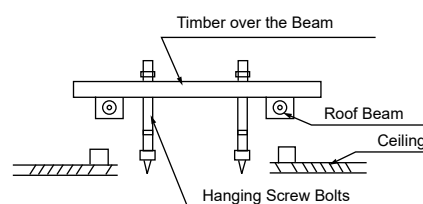


Fig.5-3

## NEW CONCRETE BRICKS

Inlaying or embedding the screw bolts.

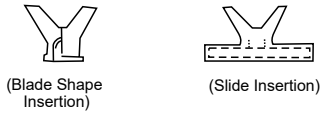


Fig.5-4

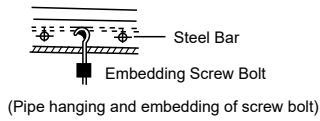


Fig.5-5

## FOR ORIGINAL CONCRETE BRICKS

Install the hanging hook with expanding bolt into the concrete 45-50mm deep, to prevent loosening.

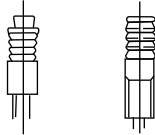


Fig.5-6

## STEEL ROOF BEAM STRUCTURE

Install and use the supporting steel angle directly.

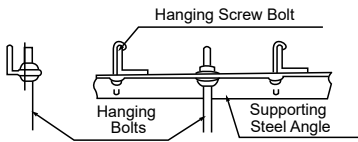


Fig.5-7

## 2 Install the Indoor Unit.

- Remove the side board and the grille. (Refer to Fig. 5-8)

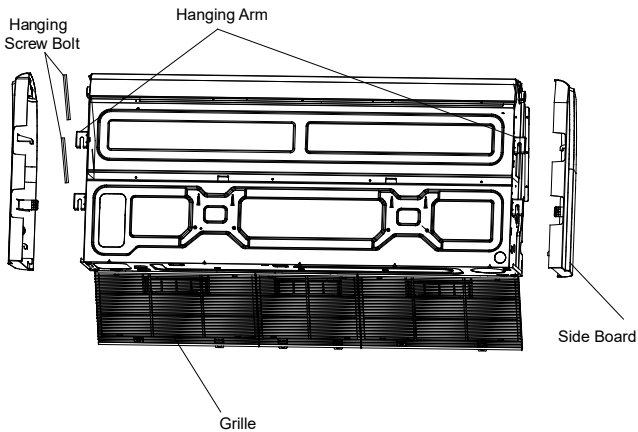


Fig.5-8

- Locate the hanging arm on the hanging screw bolt. (Refer to Fig. 5-9)

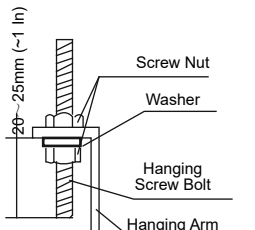


Fig.5-9

## 2. Ceiling Installation

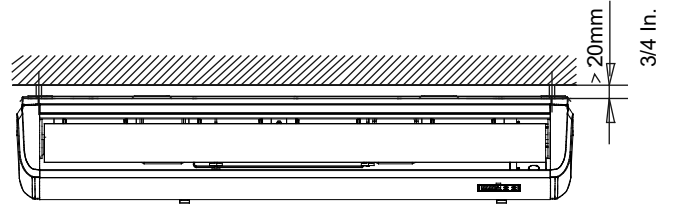


Fig. 5-10

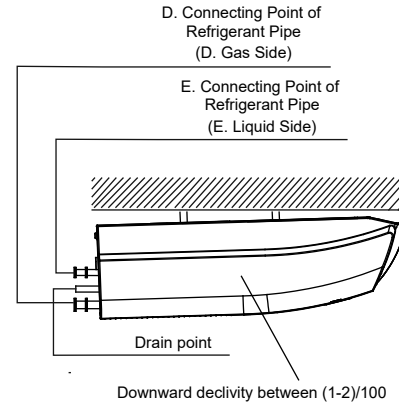


Fig. 5-11

## 3. Wall Mounting Installation

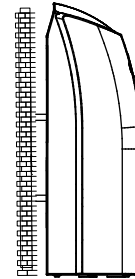


Fig. 5-12

## 5.3 Unit Dimensions

Table 5-1

unit: mm

MODEL	A	B	C	D	E
18~24	1068	675	235	983	220
30~48	1285	675	235	1200	220
36~48	1650	675	235	1565	220
60 (Int'l)	1650	675	235	1565	220

unit: In.

MODEL	A	B	C	D	E
18~24	42	26-1/2	9-1/4	38.75	8-5/8
30~48	50-5/8	26-1/2	9-1/4	47-1/4	8-5/8
36~48	65	26-1/2	9-1/4	61-5/8	8-5/8
60 (Int'l)	65	26-1/2	9-1/4	61-5/8	8-5/8

## 6. OUTDOOR UNIT INSTALLATION

### Outdoor Unit Installation Instructions

#### Step 1: Select the Installation Location.

The outdoor unit should be installed in a location that meets the following requirements:

- ☑ The location is as close to the indoor unit as possible.
- ☑ Ensure that there is enough room for installation and maintenance.
- ☑ The air inlet and outlet must not be obstructed or exposed to strong wind.
- ☑ Ensure the location of the unit will not be subject to snowdrifts, accumulation of leaves, or other seasonal debris. If possible, provide an awning for the unit. Ensure the awning does not obstruct airflow.
- ☑ The installation area must be dry and well ventilated.
- ☑ There must be enough room to install the connecting pipes and cables to access them for maintenance.

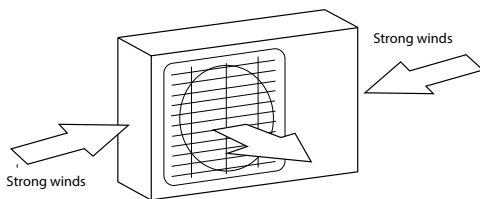


Fig. 6.1

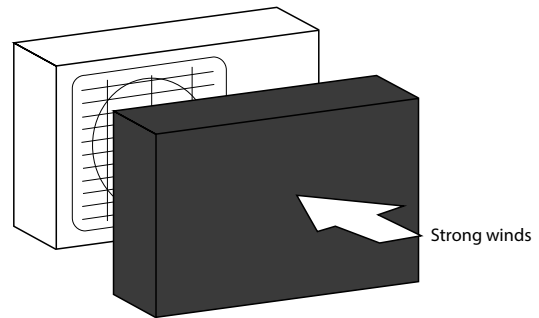


Fig. 6.2

- ☑ The area must be free of combustible gases and chemicals.
- ☑ The pipe length between the outdoor and indoor unit must not exceed the maximum allowable pipe length.
- ☑ If possible, **DO NOT** install the unit where it will be exposed to direct sunshine.
- ☑ If possible, make sure the unit is located far away from your neighbors' property, so that the noise from the unit will not cause a disturbance for them.
- ☑ If the location is exposed to strong winds (for example: near a seaside), the unit must be placed against the wall to shelter it from the wind. If necessary, use an awning. (See Fig. 6.1 & 6.2)
- ☑ Install the indoor and outdoor units, cables and wires at least 1 meter from televisions or radios to prevent static or image distortion. Depending on the radio waves, a 1 meter distance may not be enough to eliminate all interference.

#### Step 2: Install the Outdoor Unit.

Fix the outdoor unit with anchor bolts (M10)

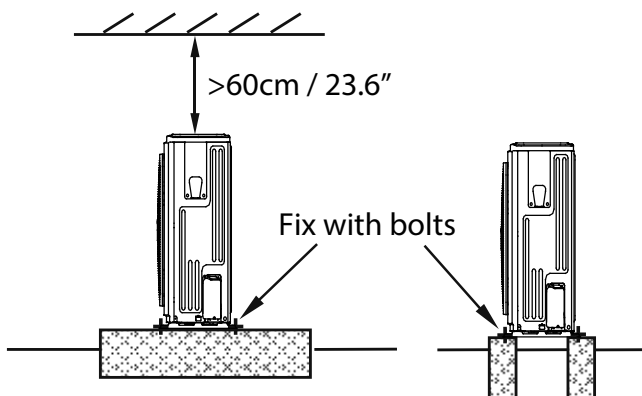


Fig. 6.3

#### ! CAUTION

- Be sure to remove any obstacles that may block air circulation.
- Make sure you refer to Length Specifications, to ensure there is enough room for installation and maintenance.



## Split Type Outdoor Unit

(Refer to Fig. 6.4, 6.5, 6.6, 6.10, and Table 6.1)

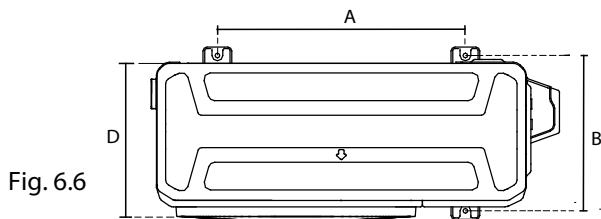
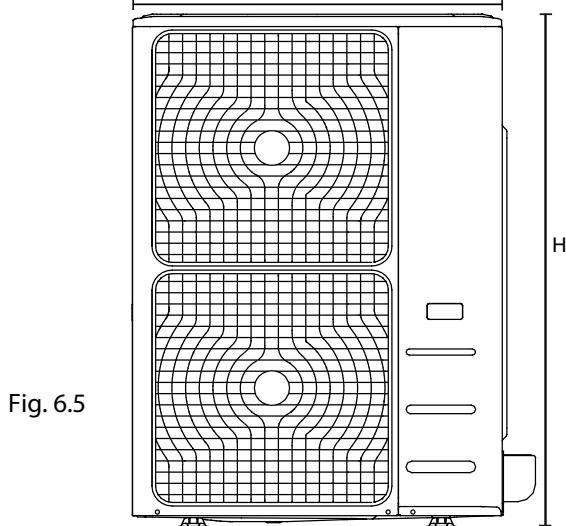
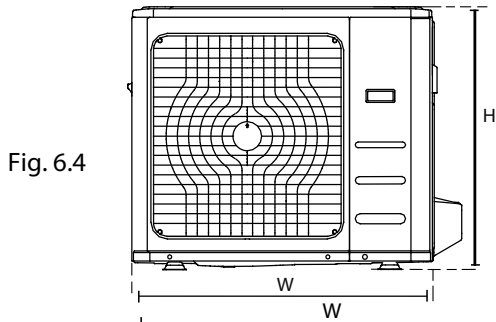


Table 6.1: Length Specifications of Split Type Outdoor Unit (unit: mm/inch)

Outdoor Unit Dimensions W x H x D	Mounting Dimensions	
	Distance A	Distance B
YN009GMFI22RPD:		
770x555x300 (30.3x21.9x11.8)	549 (21.6)	325 (12.8)
YN012GMFI22RPD:		
800x554x333 (31.5x21.8x13.1)	514 (20.24)	340 (13.39)
YN018GMFI22RPD:		
845x702x363 (33.27x27.6x14.3)	540 (21.26)	350 (13.8)
YN024GMFI22RPD:		
946x810x410 (37.24x31.9x16.14)	673 (26.5)	403 (15.87)
YN036GMFI17RUD:		
946x810x410 (37.24x31.9x16.14)	673 (26.5)	403 (15.87)
YN048GMFI17RUD:		
952x1333x415 (37.5x52.5x16.34)	634 (24.96)	404 (15.9)

**NOTE:** The minimum distance between the outdoor unit and walls described in the installation guide does not apply to airtight rooms. Be sure to keep the unit unobstructed in at least two of the three vectors (M, N, P) (See Fig. 6.10)

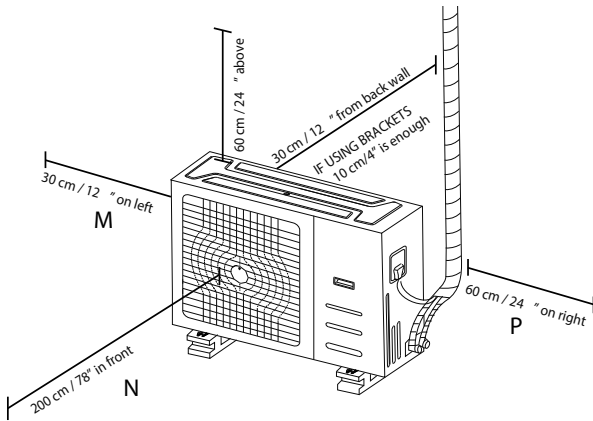


Fig. 6.10

### Drain Joint Installation

Before bolting the outdoor unit in place, you must install the drain joint at the bottom of the unit. (See Fig. 6.11)

1. Fit the rubber seal on the end of the drain joint that will connect to the outdoor unit.
2. Insert the drain joint into the hole in the base pan of the unit.
3. Rotate the drain joint 90° until it clicks into place, facing the front of the unit.
4. Connect a drain hose extension (not included) to the drain joint, to redirect water from the unit during heating mode.

**NOTE:** Make sure the water drains to a safe location where it will not cause water damage or a slipping hazard.

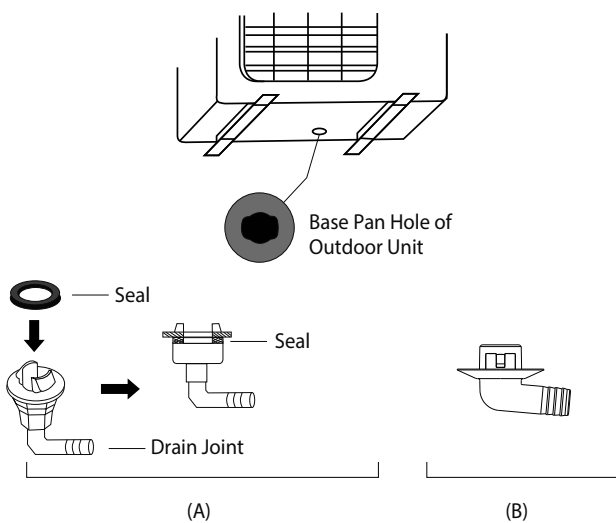


Fig. 6.11

### Notes On Drilling Hole In Wall

You must drill a hole in the wall for the refrigerant piping, and the signal cable that will connect the indoor and outdoor units.

1. Determine the location of the wall hole, based on the location of the outdoor unit.
2. Using a 65-mm (2.56") core drill, drill a hole into the wall.

**NOTE:** When drilling the wall hole, make sure to avoid wires, plumbing, and other sensitive components.

3. Place the protective wall cuff inside the hole. This protects the edges of the hole, and will help seal it when you finish the installation process.

## 7. CONNECT THE DRAIN PIPE

### ■ Install the Drainpipe of the Indoor Unit

The outlet has PTI screw thread, please use sealing materials and a pipe sheath (fitting) when connecting the PVC pipes.



### CAUTION

- The drain pipe of the indoor unit must be heat-insulated, or it, as well as the connections of the indoor unit, will condense dew.
- Hard PVC binder must be used for the pipe connection. Make sure there is no leakage.
- With the connection part to the indoor unit, please ensure not to apply pressure on the side of indoor unit pipes.
- When the declivity of the drain pipe downwards is over 1/100, there should not be any winding.
- The total length of the drain pipe, when pulled out transversely, shall not exceed 20m. When the pipe is overlong, a prop stand must be installed to prevent winding.
- Refer to the figures below for the installation of the pipes.

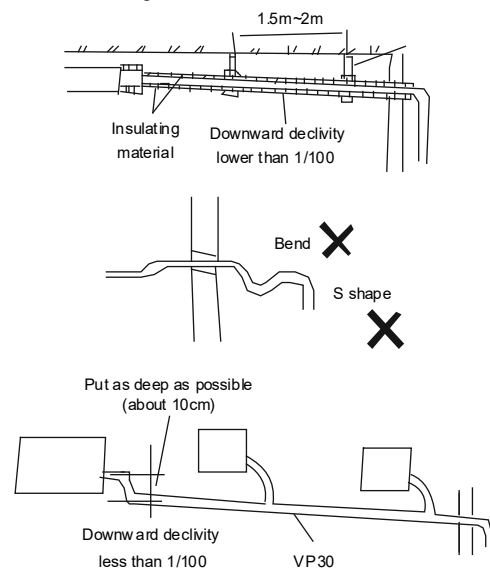


Fig. 7-1

### ■ Drainage test

- Check whether the drainpipe is unhindered.
- Newly-built houses should have this test done before paving the ceiling.

## 8. INSTALL THE CONNECTING PIPE

### Safety Precautions

#### WARNING

- All field piping must be performed by a licensed technician, and must comply with all local and national regulations.
- When the air conditioner is installed in a small room, measures must be taken to prevent the refrigerant concentration in the room from exceeding the safety limit, in the event of refrigerant leakage. If the refrigerant leaks, and its concentration exceeds its allowable limit, hazards due to lack of oxygen may result.
- When installing the refrigeration system, ensure that air, dust, moisture or foreign substances do not enter the refrigerant circuit. Contamination in the system may cause poor operating capacity, high pressure in the refrigeration cycle, explosions, or injuries.
- Ventilate the area immediately if there is refrigerant leakage during the installation. Leaked refrigerant gas is both toxic and flammable. Ensure there is no refrigerant leakage after completing the installation work.

### Notes On Pipe Length and Elevation

Ensure that the length of the refrigerant pipe, the number of bends, and the drop height between the indoor and outdoor units meets the requirements shown in Table 8.1:

Table 8.1: The Maximum Length And Drop Height Based on Models. (Unit: m/ft.)

Type of Model	Capacity (Btu/hr)	Length of piping	Maximum drop height
R410A Inverter Split Type	12 K	25/82	10/33
	18K - 24 K	30/100	20/66
	30K - 36 K	50/164	25/82
	48K - 60 K	65/213	30/100

## Refrigerant Piping Connection Instructions

### ! CAUTION

- The branching pipe must be installed horizontally. An angle of more than 10° may cause malfunction.
- **DO NOT** install the connecting pipe until both indoor and outdoor units have been installed.
- Insulate both the gas and liquid piping to prevent water leakage.

#### Step 1: Cut pipes

When preparing refrigerant pipes, take extra care to cut and flare them properly. This will ensure efficient operation and minimize the need for future maintenance.

1. Measure the distance between the indoor and outdoor units.
2. Using a pipe cutter, cut the pipe a bit longer than the measured distance.

### ! CAUTION

**DO NOT** deform pipe while cutting. Be extra careful not to damage, dent, or deform the pipe while cutting. This will drastically reduce the heating efficiency of the unit.

1. Make sure that the pipe is cut at a perfect 90° angle. Refer to Fig. 8.1 for examples of bad cuts

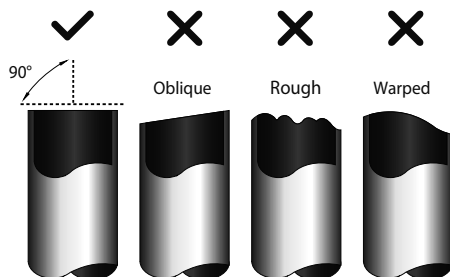


Fig. 8.1

#### Step 2: Remove burrs.

Burrs can affect the air-tight seal of the refrigerant piping connection. They must be completely removed.

1. Hold the pipe at a downward angle to prevent burrs from falling into the pipe.
2. Using a reamer or deburring tool, remove all burrs from the cut section of the pipe.

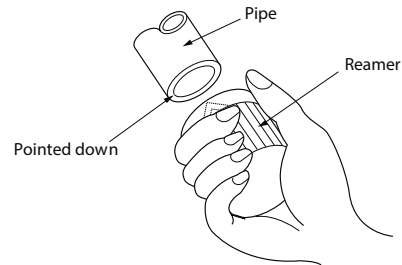


Fig. 8.2

#### Step 3: Flare pipe ends

Proper flaring is essential to achieve an airtight seal.

1. After removing burrs from cut pipe, seal the ends with PVC tape to prevent foreign materials from entering the pipe.
2. Sheath the pipe with insulating material.
3. Place flare nuts on both ends of pipe. Make sure they are facing the right direction, because it won't be possible to put them on or change their direction after flaring. See Fig. 8.3

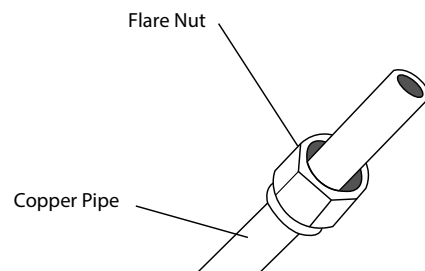


Fig. 8.3

4. Remove PVC tape from ends of pipe when ready to perform flaring work.
5. Clamp flare form on the end of the pipe. The end of the pipe must extend beyond the flare form.

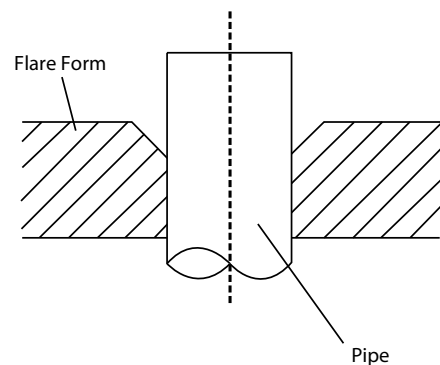


Fig. 8.4

6. Place flaring tool onto the form.
7. Turn the handle of the flaring tool clockwise until the pipe is fully flared. Flare the pipe in accordance with the dimensions shown in table 8-2.

Table 8.2: PIPING EXTENSION BEYOND FLARE FORM

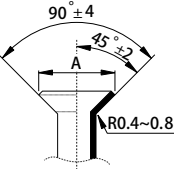
Pipe Gauge	Tightening torque	Flare dimension (A) (Unit: mm/Inch)		Flare shape
		Min.	Max.	
Ø 1/4	14.2-17.2 N.m (10.5-12.5 Lb.Ft.)	8.3/0.3	8.3/0.3	
Ø 3/8	32.7-39.9 N.m (24-29.5 Lb.Ft.)	12.4/0.5	12.4/0.5	
Ø 1/2	49.5-60.3 N.m (36.5-44.5 Lb.Ft.)	15.4/0.6	15.8/0.6	
Ø 5/8	61.8-75.4 N.m (45.5-55.5 Lb.Ft.)	18.6/0.7	19/0.74	
Ø 3/4	97.2-118.6 N.m (71.5-87.5 Lb.Ft.)	22.9/0.9	23.3/0.91	
Ø 7/8	109.5-133.7 N.m (80-90 Lb.Ft.)	27/1.06	27.3/1.07	

Fig. 8.5

8. Remove the flaring tool and flare form, then inspect the end of the pipe for cracks and even flaring.

#### Step 4: Connect the Pipes

Connect the copper pipes to the indoor unit first, then connect to the outdoor unit. You should first connect the low-pressure pipe, then the high-pressure pipe.

1. When connecting the flare nuts, apply a thin coat of refrigeration oil to the flared ends of the pipes.
2. Align the center of the two pipes that you will connect.

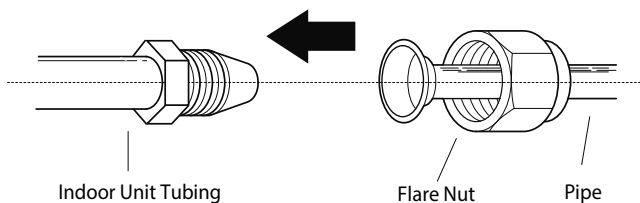


Fig. 8.6

3. Tighten the flare nut as tightly as possible by hand.
4. Using a spanner, grip the nut on the unit's tubing.
5. While firmly gripping the nut, use a torque wrench to tighten the flare nut according to the torque values in table 8.2.

**NOTE:** Use both a spanner and a torque wrench when connecting or disconnecting pipes to/from the unit.

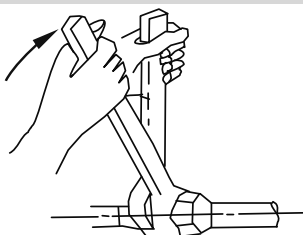


Fig. 8.7

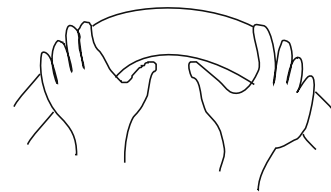
### ! CAUTION

- Be sure to wrap insulation around the piping. Direct contact with the bare piping may result in burns or frostbite.
- Make sure the pipe is properly connected. Over-tightening may damage the bell mouth, and under-tightening may lead to leakage.

### NOTE ON MINIMUM BEND RADIUS

Carefully bend the tubing in the middle, according to the diagram below. **DO NOT** bend the tubing by more than 90°, or more than 3 times.

Bend the pipe with thumbs



Min. radius: 10cm (3.9")

Fig. 8.8

6. After connecting the copper pipes to the indoor unit, wrap the power cable, signal cable, and the piping together with binding tape.

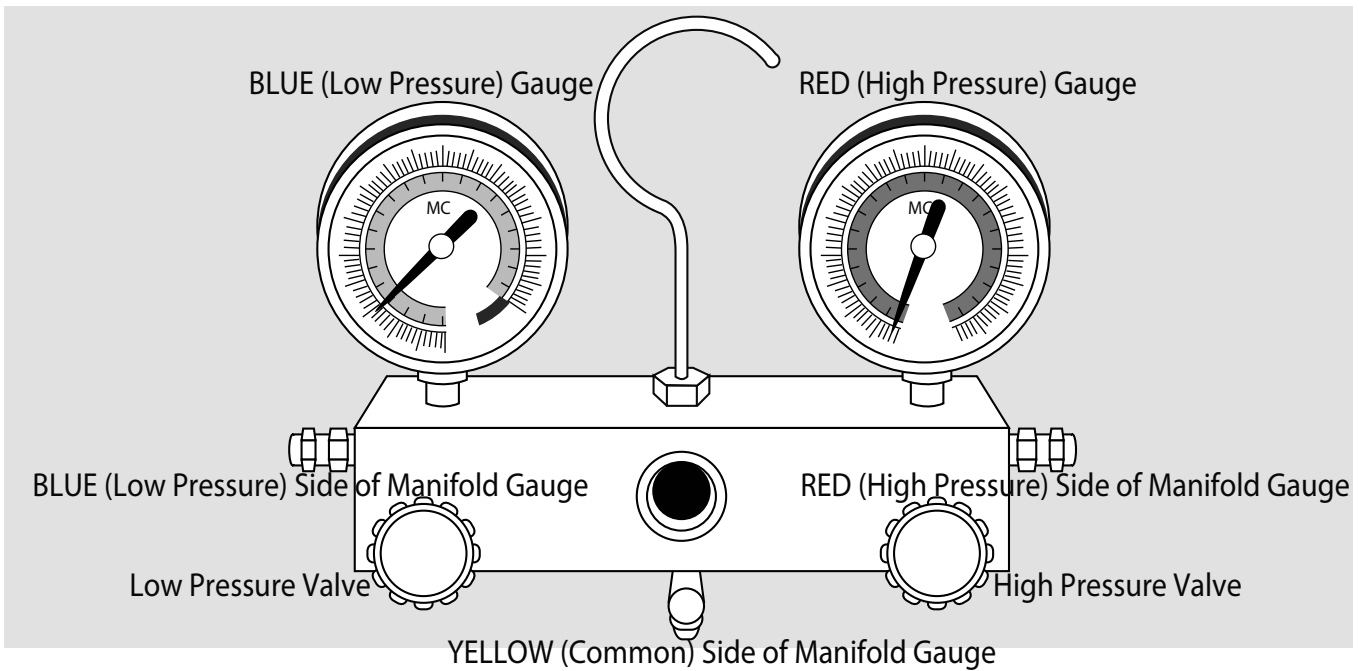
**NOTE:** **DO NOT** intertwine signal cable with other wires. While bundling these items together, do not intertwine or cross the signal cable with any other wiring.

7. Thread this pipeline through the wall, and connect it to the outdoor unit.
8. Insulate all the piping, including the valves of the outdoor unit.
9. Open the stop valves of the outdoor unit to start the flow of the refrigerant between the indoor and outdoor unit.

### ! CAUTION

Check to make sure there is no refrigerant leak after completing the installation work. If there is a refrigerant leak, ventilate the area immediately, and evacuate the system (refer to the Air Evacuation section of this manual).

## 9. AIR EVACUATION



Caution: Systems are precharged with refrigerant (entire amount necessary for the system set has been charged into the outdoor section). The line sets and the indoor units are not charged, and must be evacuated prior to releasing the refrigerant from the outdoor unit to the rest of the system.

Do NOT open the valves of the 2 service ports on your outdoor unit, until the air evacuation is completed successfully, and system passes leak checks. BOTH of those Service valves MUST BE OPENED to release the refrigerant before turning the system ON. Operating the system with service valves closed will result in compressor damage.

### Preparations and Precautions

Air and foreign matter in the refrigerant circuit can cause abnormal rises in pressure, which can damage the air conditioner, reduce its efficiency, and cause injury. Use a vacuum pump and manifold gauge to evacuate the line set and the Indoor Unit, removing any non-condensable gas and moisture from the system.

Evacuation should be performed upon initial installation and when unit is relocated.

#### BEFORE PERFORMING EVACUATION

- ☑ Check to make sure that both LIQUID SIDE and GAS SIDE pipes between the indoor and outdoor units are connected properly in accordance with the Refrigerant Piping Connection section of this manual.
- ☑ Check to make sure all wiring is connected properly.

Before using the manifold gauge and vacuum pump, read their operation manuals to familiarize yourself with how to use them properly.

### Evacuation Instructions

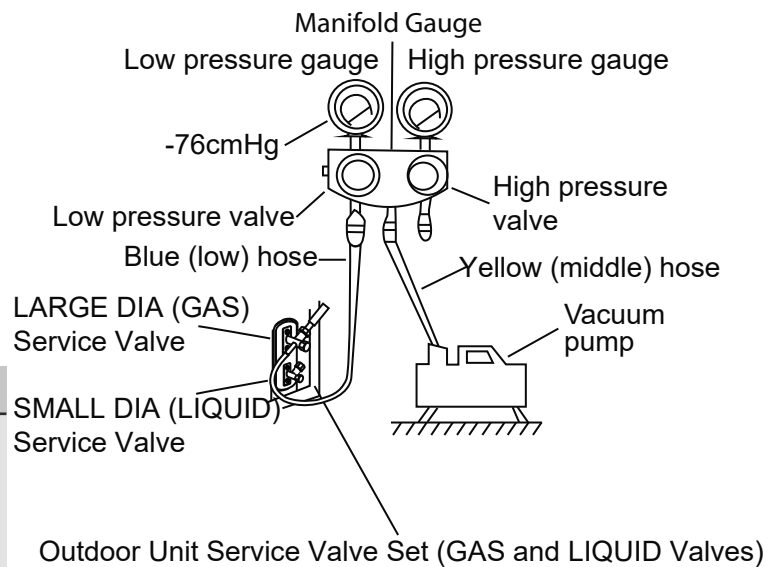


Fig. 6.1

1. Connect the blue (low side) hose of the manifold gauge to service port on the outdoor unit's GAS SIDE valve (use a 1/4" to 5/16" port adapter if needed, which is sold separately)
2. Connect yellow (middle or common) hose from the manifold gauge to the vacuum pump.

3. Open the BLUE (Low Pressure) Valve of Manifold Gauge. Keep the RED (High Pressure) Valve closed.
4. Turn the vacuum pump ON to start evacuating the air from the line set and indoor unit circuits.
5. Run the vacuum pump for at least 15 minutes, or until the Low Pressure Gauge reads -76cmHG (-100 kPa or -30 In Hg). (Negative value)
6. Close the Blue (Low Pressure) valve of Manifold Gauge, then turn the vacuum pump OFF.
7. Wait for 5 minutes, then check that there has been no rise in Low Pressure Gauge reading.
8. If there is a rise (Vacuum Loss), refer to the Gas Leak Check section for information on how to check for leaks. If there is no change in vacuum reading, unscrew the cap from the LIQUID Side Service Valve (Fig. 6.2)
9. Insert hexagonal wrench into the service valve (LIQUID Side Valve) and open the valve by turning the wrench in a 1/4 counterclockwise turn. Listen for the sound of gas exiting the system, then close the valve after 5 seconds.
10. The Low Pressure Gauge should now show a positive pressure value (Above Zero). Watch the Pressure Gauge for few minutes to make sure that there is no drop in the pressure value (Indicating a leak)

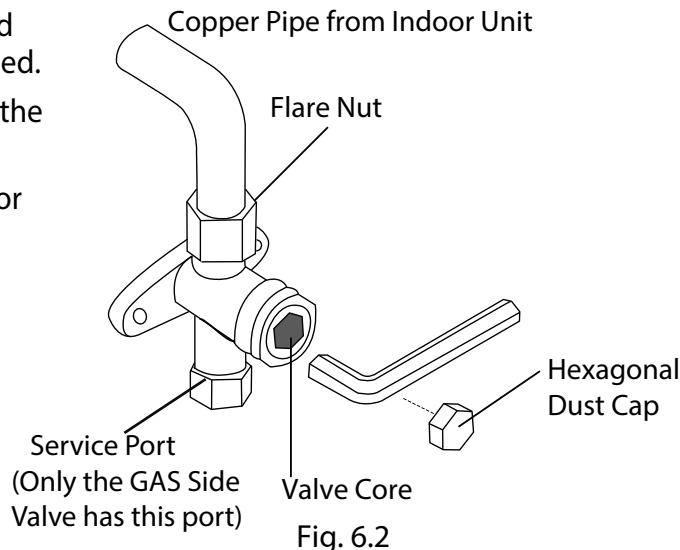


Fig. 6.2

11. Using hexagonal wrench, fully open both the LIQUID side and GAS side Service Valves.
12. Remove the charging hose from the service port.
13. Tighten valve caps on all three valves (service port, Liquid Side, Gas Side) by hand. Then, tighten it further using a torque wrench, if needed.

**! OPEN VALVE STEMS GENTLY**

When opening valve stems, turn the hexagonal wrench until it seats against the stopper. Do not try to force the valve to open further.

**Note on Adding Refrigerant**

Some systems require additional charging depending on pipe lengths. The pipe length varies according to locations of the indoor and outdoor units. The system has been factory charged with sufficient R410a refrigerant for the standard pipe length of 5m (16'). The additional refrigerant to be charged can be calculated using the following formula. This is necessary only if the length exceeds 7.5m (25 feet).

**ADDITIONAL REFRIGERANT PER PIPE LENGTH**

Connective Pipe Length (m)	Air Purging Method	Additional Refrigerant	
≤ Standard pipe length	Vacuum Pump	N/A	
> Standard pipe length (5m/16ft)	Vacuum Pump	Liquid Side: Ø 6.35 (ø 1/4") Gas side either Ø 9.52 (ø 3/8") or Ø 12.7 (ø 1/2")  Add for lengths beyond 5m (16 feet) (Per additional meter) x 15g /m (Per additional feet) x 0.16 oz/ft	Liquid Side: Ø 9.52 (ø 3/8") Gas side either Ø 15.87 (ø 5/8") or Ø 19.05 (ø 3/4")  Add for lengths beyond 5m (16 feet) (Per additional meter) x 30 g/m (Per additional feet) x 0.32 oz/ft

**! CAUTION**

**DO NOT** mix refrigerant types. Assure to use only the same type of refrigerant (R410a).

## 10. WIRING

The appliance shall be installed in accordance with national wiring regulations.

The air conditioner should use an independent power supply with a properly-rated voltage.

The external power supply to the air conditioner should have ground wiring, which is linked to the ground wiring of the indoor and outdoor unit.

The wiring work should be done by qualified persons, and done according to circuit drawing.

An all-pole disconnection device which has at least 3mm separation distance in all-pole, and a residual current device (RCD) with a rating of above 10mA, shall be incorporated in the fixed wiring, according to the national rules.

Be sure to locate the power wiring and the signal wiring well to avoid cross-disturbance.

Do not turn on the power until you have carefully checked everything after wiring.

The power cord type designation is H07RN-F.

**NOTE:** Remark per EMC Directive 2004/108/EC.

To prevent flicker impressions during the start of the compressor (technical process), following installation conditions apply:

1. The power connection for the air conditioner has to be done at the main power distribution. The distribution has to be of a low impedance, normally the required impedance is reached at a 32A fusing point.
2. No other equipment should be connected with this power line.
3. For detailed installation exceptions, please refer to your power supplier, to confirm if restrictions apply for products like washing machines, air conditioners or electrical ovens.
4. For power details of the air conditioner refer to the rating plate of the product.
5. For any other questions, please contact your local dealer.

### 10.1 Connect the Cable

- Remove the electric cover of the outdoor unit.  
If there is no cover on the outdoor unit, disassemble the bolts from the maintenance board and remove the protection board. (See Fig. 10.1, 10.2)

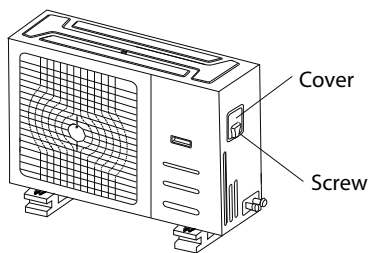


Fig. 10.1

Fig. 10.2

- Link the connective cables to the terminals, as identified with their respective matched numbers on the terminal block of indoor and outdoor units.
- Re-install the cover or the protection board.

## 11. TEST OPERATION

- 1 The test operation must be carried out after the entire installation has been completed.
- 2 Please confirm the following points before the test operation:
  - The indoor unit and outdoor unit are installed properly.
  - Tubing and wiring are correctly completed.
  - The refrigerant pipe system is leakage-checked.
  - The drainage is unimpeded.
  - The heating insulation works well.
  - The ground wiring is connected correctly.
  - The length of the tubing and the added stow capacity of the refrigerant have been recorded.
  - The power voltage fits the rated voltage of the air conditioner.
  - There is no obstacle at the outlet and inlet of the outdoor and indoor units.
  - The gas-side and liquid-side stop valves are both opened.
  - The air conditioner is pre-heated by turning on the power.
- 3 According to the user's requirements, install the remote controller frame in a place where the remote controller's signal can reach the indoor unit easily.
- 4 Test the operation.
  - Set the air conditioner to "COOLING" mode with the remote controller, and check the following points. If there are any malfunctions, please resolve it according to the chapter "Troubleshooting" in the "Owner's Manual".
    - 1) The Indoor Unit. Check:
      - a. Whether the switch on the remote controller works well.
      - b. Whether the buttons on the remote controller work well.
      - c. Whether the air flow louver moves normally.
      - d. Whether the room temperature is adjusted well.
      - e. Whether the indicator lights work normally.
      - f. Whether the temporary buttons work well.
      - g. Whether the drainage is normal.
      - h. Whether there is vibration or abnormal noise during operation.
      - i. Whether the air conditioner heats well, in the case of the HEATING/COOLING type.
    - 2) The Outdoor Unit. Check:
      - a. Whether there are any vibrations or abnormal noises during operation.
      - b. Whether the generated wind, noise, or condensation from the air conditioner create any local disturbances.
      - c. Whether any of the refrigerant has leaked.



### CAUTION

After restarting, a protection feature prevents the air conditioner from being activated for approximately 3 minutes after shut off.