

# Refrigerant R410A Cassette Type SPLIT TYPE AIR CONDITIONER INSTALLATION INSTRUCTION SHEET

(PART NO. 9366382034)  
For authorized service personnel only.

- WARNING** This mark indicates procedures which, if improperly performed, might lead to the death or serious injury of the user.
- CAUTION** This mark indicates procedures which, if improperly performed, might possibly result in personal harm to the user, or damage to property.

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

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

- Since the working pressure is 1.6 times higher than that of conventional refrigerant models, some of the piping and installation and service tools are special. (See the table below.) Especially, when replacing a conventional refrigerant 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 and for safety. Therefore, check beforehand. [The charging port thread diameter for R410A is 1/2 UNF 20 threads per inch.]
- Be more careful that foreign matter (oil, water, etc.) does not enter the piping than with refrigerant models. Also, when storing the piping, securely seal the openings 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.

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 (-76 cmHg to 53 kgf/cm <sup>2</sup> ) for high pressure. -0.1 to 3.8 MPa (-76 cmHg to 38 kgf/cm <sup>2</sup> ) 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	Thicknesses of Annealed Copper Pipes (R410A)												
It is necessary to use seamless copper pipes and it is desirable that the amount of residual oil is less than 40 mg/10 m. 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 conventional refrigerant, it is necessary to choose adequate materials. Thicknesses of copper pipes used are as shown in the table. Never use copper pipes thinner than that in the table even when it is available on the market.	<table border="1"> <thead> <tr> <th>Pipe outside diameter</th> <th>Thickness</th> </tr> </thead> <tbody> <tr> <td>6.35 mm (1/4 in.)</td> <td>0.80 mm</td> </tr> <tr> <td>9.52 mm (3/8 in.)</td> <td>0.80 mm</td> </tr> <tr> <td>12.70 mm (1/2 in.)</td> <td>0.80 mm</td> </tr> <tr> <td>15.88 mm (5/8 in.)</td> <td>1.00 mm</td> </tr> <tr> <td>19.05 mm (3/4 in.)</td> <td>1.20 mm</td> </tr> </tbody> </table>	Pipe outside diameter	Thickness	6.35 mm (1/4 in.)	0.80 mm	9.52 mm (3/8 in.)	0.80 mm	12.70 mm (1/2 in.)	0.80 mm	15.88 mm (5/8 in.)	1.00 mm	19.05 mm (3/4 in.)	1.20 mm
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19.05 mm (3/4 in.)	1.20 mm												

- WARNING**

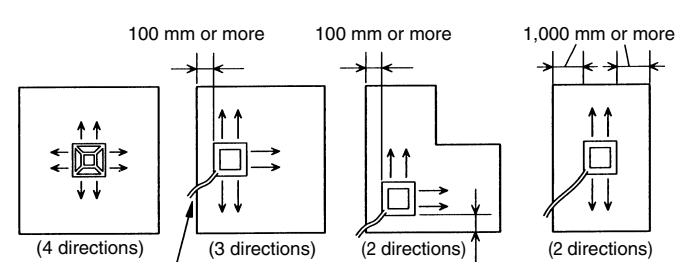
  - For the air conditioner to operate satisfactorily, install it as outlined in this installation instruction sheet.
  - Connect the indoor unit and outdoor unit with the air conditioner piping and cords available standards parts. This installation instruction sheet describes the correct connections using the installation set available from our standard parts.
  - Installation work must be performed in accordance with national wiring standards by authorized personnel only.
  - If refrigerant leaks while work is being carried out, ventilate the area. If the refrigerant comes in contact with a flame, it produces a toxic gas.
  - Do not use an extension cord.
  - 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 instruction sheet because it is used when the air conditioner is serviced or moved.

## SELECTING THE MOUNTING POSITION

- 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.

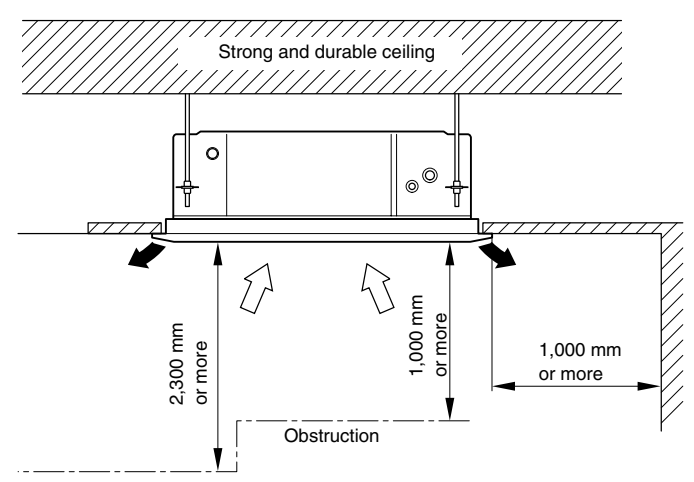
Especially, the installation place is very important for the split type air conditioner because it is very difficult to move from place to place after the first installation. Decide the mounting position together with the customer as follows: The discharge direction can be selected as shown below.



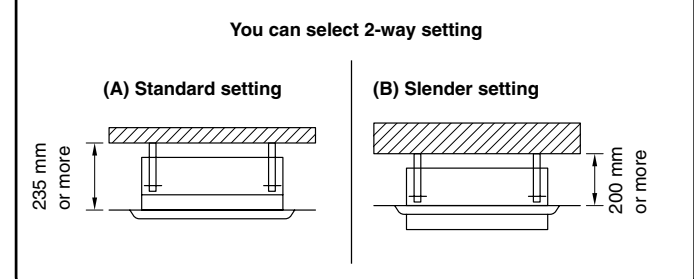
- CAUTION**  
Since 2-way outlet as shown below causes performance problems, do not set.
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## INDOOR UNIT

- Install the indoor unit on a place having a sufficient strength so that it withstands against the weight of the indoor unit.
- The inlet and outlet ports should not be obstructed; the air should be able to blow all over the room.
- Leave the space required to service the air conditioner.
- The ceiling rear height as shown in the figure.
- A place from where the air can be distributed evenly throughout the room by the unit.
- A place from where drainage can be extracted outdoors easily.
- Install the unit where noise and vibrations are not amplified.



This mechanism enables the cassette body to move 35 mm downward and realizes installation to the space of 200 mm. No special works and option is needed.



## STANDARD PARTS

The following installation parts are furnished. Use them as required.

### INDOOR UNIT ACCESSORIES

Name and Shape	Q'ty	Application
Coupler heat insulation	2	For indoor side pipe joint
Screw	2	For installing the remote controller
Special nut A (large flange)	4	For installing indoor unit
Special nut B (small flange)	4	For installing indoor unit
Template	1	For ceiling hole cutting
Binder	1 (small)	For remote controller and remote controller cord binding
Blower cover insulation	2	For discharged air
Hook wire	2	For installing intake grille
Remote controller	1	
Remote controller cord	1	For connecting the remote controller

### OUTDOOR UNIT ACCESSORIES

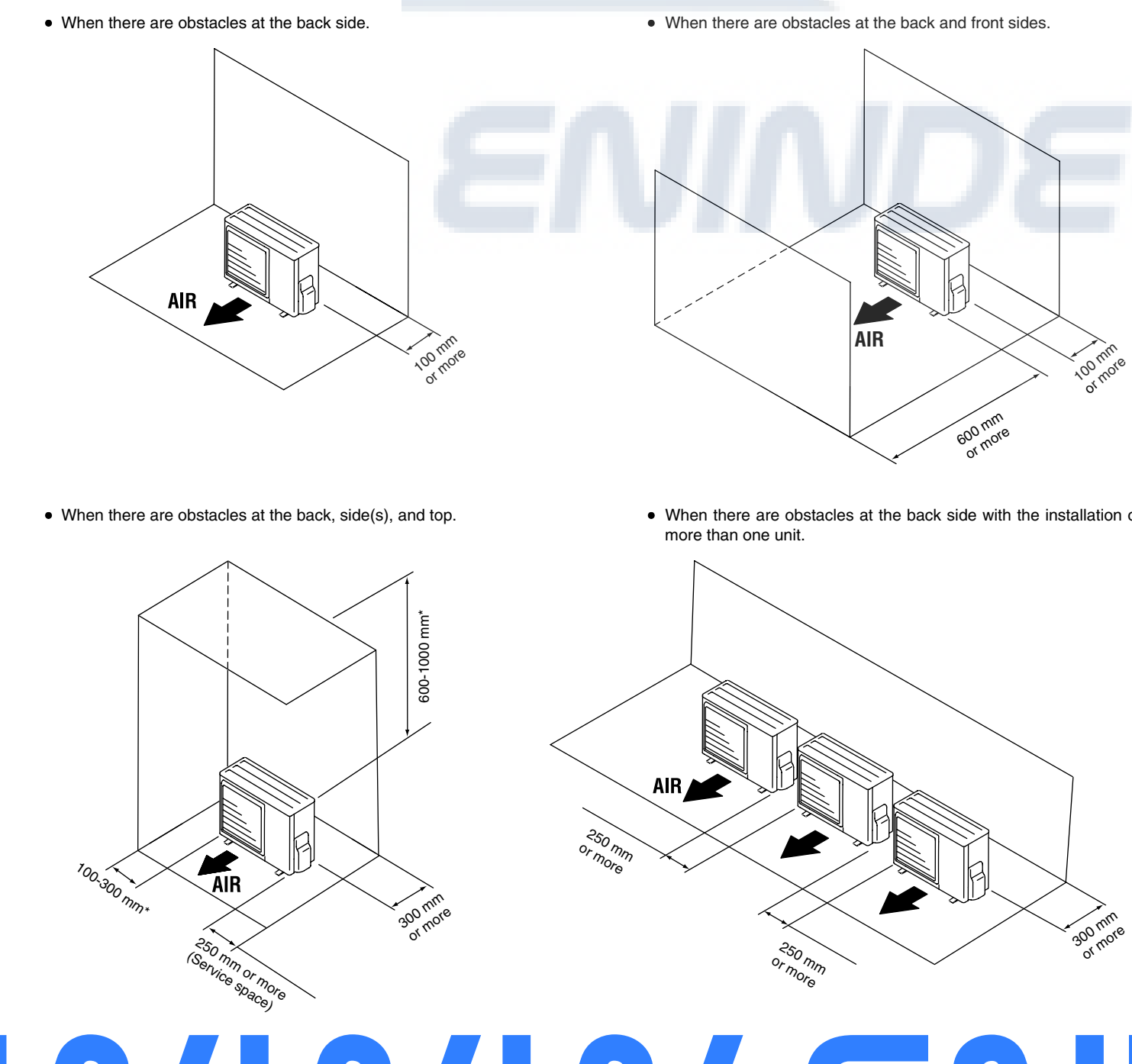
Name and Shape	Q'ty	Application
Drain pipe	1	For outdoor unit drain piping work (May not be supplied, depending on the model.)
Drain cap	2	
Insulation (seal)	1	For filling in a gap at the entrance of connection cords

## OUTDOOR UNIT

- WARNING**

  - Install the unit where it will not be tilted by more than 5°.
  - When installing the outdoor unit where it may be exposed to strong wind, fasten it securely.

  - Install the outdoor unit in a location which can withstand the weight of the unit and vibration, and which can install horizontally.
  - Provide the indicated space to ensure good airflow.
  - 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 airflow.)
  - Do not install the unit near a source of heat, steam, or flammable gas.
  - During heating operation, drain water flows from the outdoor unit. Therefore, install the outdoor unit in a place where the drain water flow will not be obstructed. (Reverse cycle model only)
  - Do not install the unit where strong wind blows or where it is very dusty.
  - Do not install the unit where people pass.
  - Install the outdoor unit in a place where it will be free from being dirty or getting wet by rain as much as possible.
  - Install the unit where connection to the indoor unit is easy.



## CONNECTION PIPE REQUIREMENT

CAUTION		
The maximum lengths of this product are shown in the following table. If the units are further apart than this, correct operation can not be guaranteed.		
Diameter	Liquid	9.52 mm (3/8 in.)
	Gas	15.88 mm (5/8 in.)
Pipe length	Max.	30 m
	Min.	5 m
Maximum height (between indoor and outdoor)		
		15 m

- Use pipe with water-resistant heat insulation.
- CAUTION**
- Install heat insulation around both the gas and liquid pipes. Failure to do so may cause water leaks. Use heat insulation with heat resistance above 120 °C. (Reverse cycle model only)
- In addition, if the humidity level at the installation location of the refrigerant piping is expected to exceed 70%, install heat insulation around the refrigerant piping. If the expected humidity level is 70-80%, use heat insulation that is 15 mm or thicker and if the expected humidity exceeds 80%, use heat insulation that is 20 mm or thicker. If heat insulation is used that is not as thick as specified, condensation may form on the surface of the insulation. In addition, use heat insulation with heat conductivity of 0.045 W/(m·K) or less (at 20 °C).

## ELECTRICAL REQUIREMENT

- Electric wire size and breaker capacity:
- | Power supply cord (mm <sup>2</sup> ) | MAX. | MIN. |
|--------------------------------------|------|------|
|                                      | 4.0  | 3.5  |
| Connection cord (mm <sup>2</sup> )   | 2.5  | 1.5  |
| Breaker capacity (A)                 | 30   |      |
- Always use H07RN-F or equivalent to the connection cord.
  - Install all electrical works in accordance to the standard.
  - Install the disconnect device with a contact gap of at least 3 mm in all poles nearby the units. (Both indoor unit and outdoor unit)
  - Install the circuit breaker nearby the units.

## OPTIONS

- The following options are available.
- ADDITIONAL GRILLE ASSY: UTG-AGEA-W (P/N 9002230002)
- Simple remote controller: UTB-YPB (P/N 9077582006)

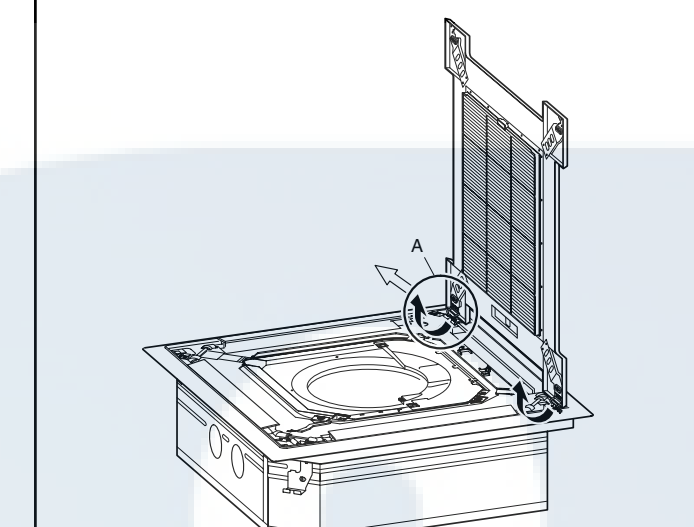
## INSTALLATION PROCEDURE

### 1 INDOOR UNIT INSTALLATION

- WARNING**
- Install the air conditioner in a location which can withstand a load do at least five times the weight of the main unit and which will not amplify sound or vibration. If the installation location is not strong enough, the indoor unit may fall and cause injuries.
- If the job is done with the panel frame only, there is a risk that the unit will come loose. Please take care.

### REMOVING THE INTAKE GRILLE

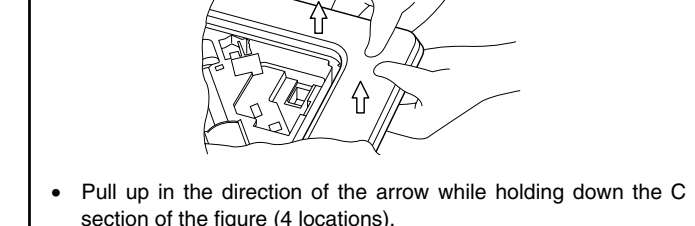
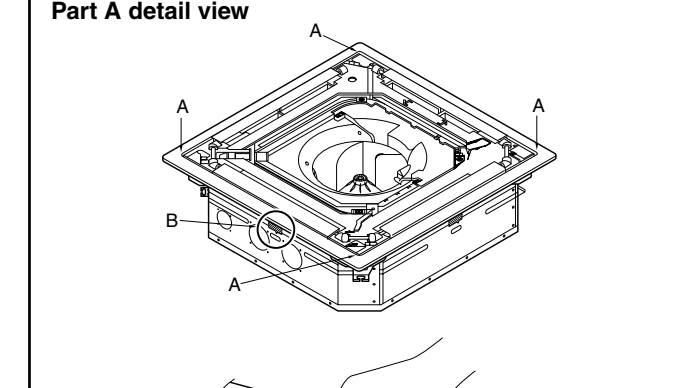
- Push the intake grille pushbuttons (two places).
  - Open the intake grille.
- 
- Remove the grille hinge wire.



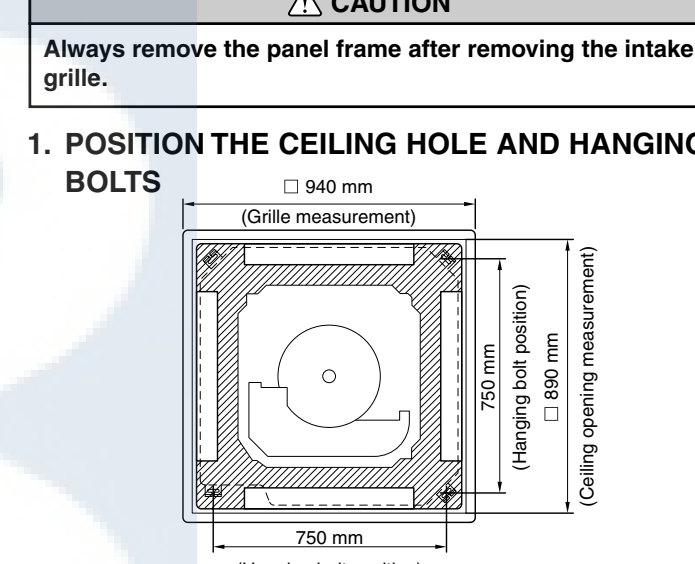
- Pull up while pressing the B section.
- CAUTION**
- Always remove the panel frame after removing the intake grille.
- ### 1. POSITION THE CEILING HOLE AND HANGING BOLTS
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### REMOVING THE PANEL FRAME

- Pull up the corner sections (A) of the panel frame as shown in the figure (4 locations).



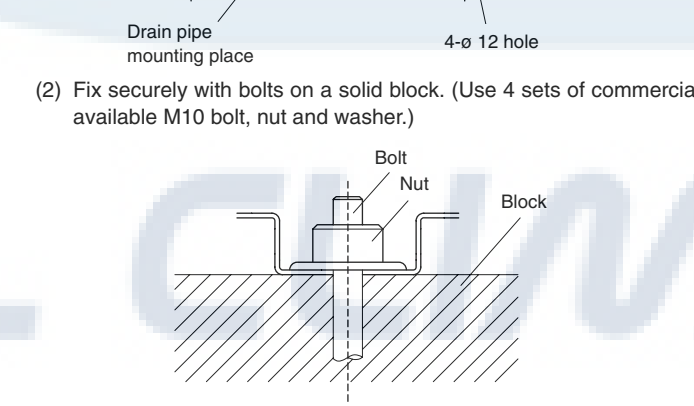
- Pull up in the direction of the arrow while holding down the C section of the figure (4 locations).
- CAUTION**
- Always remove the panel frame after removing the intake grille.



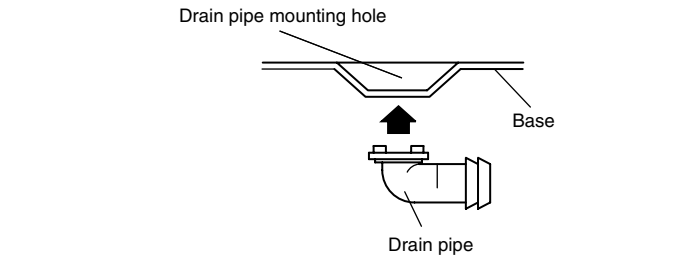
### 3 OUTDOOR UNIT INSTALLATION

#### 1. OUTDOOR UNIT PROCESSING

- Outdoor unit to be fasten with bolts at the four places indicated by the arrows without fail. Bottom side.
- 
- Fix securely with bolts on a solid block. (Use 4 sets of commercially available M10 bolt, nut and washer.)
- Since the drain water flows out of the outdoor unit during heating operation, install the drain pipe and connect it to a commercial 16 mm hose. (Reverse cycle model only)
  - When installing the drain pipe, plug all the holes other than the drain pipe mounting hole in the bottom of the outdoor unit with putty so there is no water leakage. (Reverse cycle model only)



- CAUTION**  
When the outdoor temperature is 0 °C or less, do not use the accessory drain pipe and drain cap. If the drain pipe and drain cap are used, the drain water in the pipe may freeze in extremely cold weather. (Reverse cycle model only)



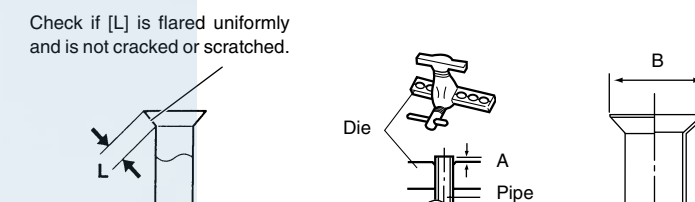
#### 2. BENDING PIPES

- CAUTION**  
Do not use mineral oil on flared part. Prevent mineral oil from getting into the system as this would reduce the lifetime of the units.
- When the outdoor temperature is 0 °C or less, do not use the accessory drain pipe and drain cap. If the drain pipe and drain cap are used, the drain water in the pipe may freeze in extremely cold weather. (Reverse cycle model only)

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#### 1. FLARING

- Cut the connection pipe to the necessary length with a pipe cutter.
- Hold the pipe downward so that cuttings will not enter the pipe and remove the burrs.
- Insert the flare nut (always use the flare nut attached to the indoor and outdoor units respectively) onto the pipe and perform the flare processing with a flare tool.



Pipe outside diameter	Dimension A (mm)
6.35 mm (1/4 in.)	0 to 0.5
9.52 mm (3/8 in.)	
12.70 mm (1/2 in.)	
15.88 mm (5/8 in.)	
19.05 mm (3/4 in.)	

Pipe outside diameter	Dimension B (mm)
6.35 mm (1/4 in.)	9.1
9.52 mm (3/8 in.)	13.2
12.70 mm (1/2 in.)	16.6
15.88 mm (5/8 in.)	19.7
19.05 mm (3/4 in.)	24.0

When using conventional flare tools to flare R410A pipes, the dimension A should be approximately 0.5 mm more than indicated in the table (for flaring with R410A flare tools) to achieve the specified flaring. Use a thickness gauge to measure the dimension A.

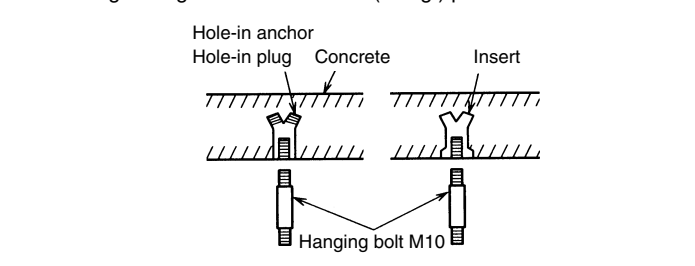
Pipe outside diameter	Width across flats of Flare nut
6.35 mm (1/4 in.)	17 mm
9.52 mm (3/8 in.)	22 mm
12.70 mm (1/2 in.)	26 mm
15.88 mm (5/8 in.)	29 mm
19.05 mm (3/4 in.)	36 mm

- The pipes are shaped by your hands. Be careful not to collapse them. Do not bend the pipes in an angle more than 90°. When pipes are repeatedly bent or stretched, the material will harden, making it difficult to bend or stretch them any more. Do not bend or stretch the pipes more than three times.

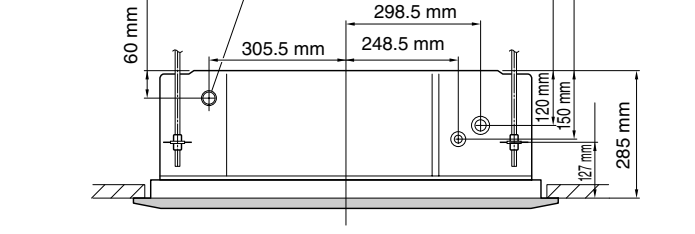
- CAUTION**  
Do not purge the air with refrigerants, but use a vacuum pump to vacuum the installation! There is no extra refrigerant in the outdoor unit for purging!
- Use a vacuum pump and gauge manifold and charging hose for R410A exclusively. Using the same vacuum for different refrigerants may damage the vacuum pump or the unit.

### 2. HANGING PREPARATIONS

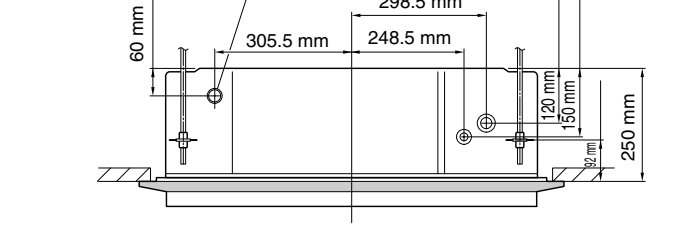
- Firmly fasten the hanging bolts as shown in the figure or by another method.
- Install the hanging bolts at a place where they would be capable of holding a weight of at least 490 N (50 kgf) per bolt.



#### (A) Standard setting



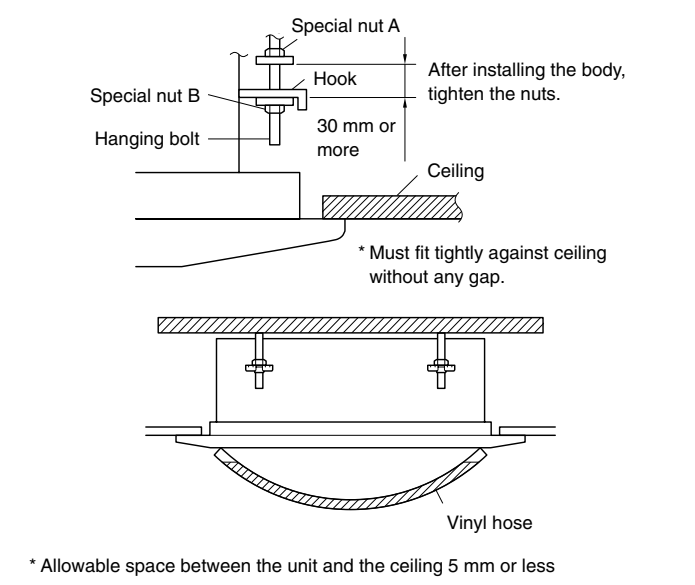
#### (B) Slender setting



### 3. BODY INSTALLATION

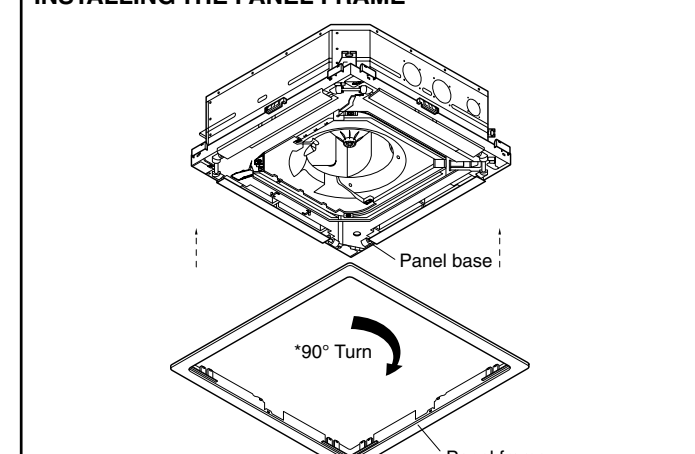
- [The ceiling rear height is 285 mm or more.] [Standard setting]  
[The ceiling rear height is 250 mm or more.] [Slender setting]
- Install special nut A, then special nut B onto the hanging bolt.
  - Raise the body and mount its hooks onto the hanging bolt between the special nuts.
  - Turn special nut B to adjust the height of the body.
  - Leveling  
Using a level, or vinyl hose filled with water, fine adjust so that the body is level.

- WARNING**  
Perform final tightening by tightening the double nut firmly.



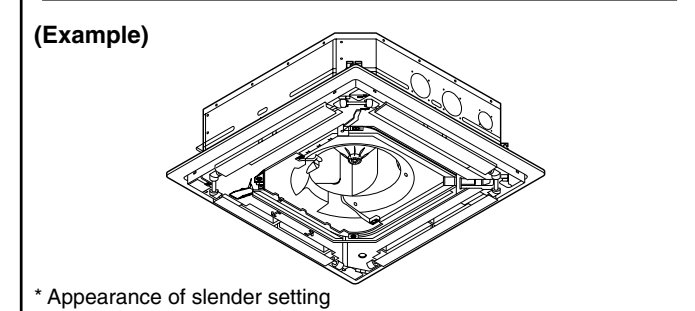
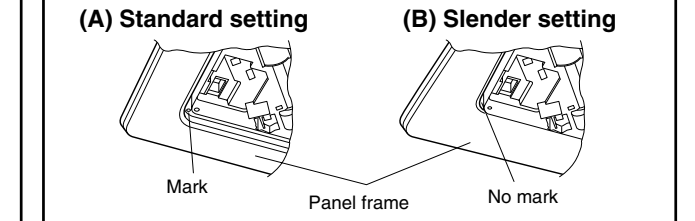
\* Allowable space between the unit and the ceiling 5 mm or less

### INSTALLING THE PANEL FRAME



- With slender setting, turn the panel frame 90° as shown in the diagram above.

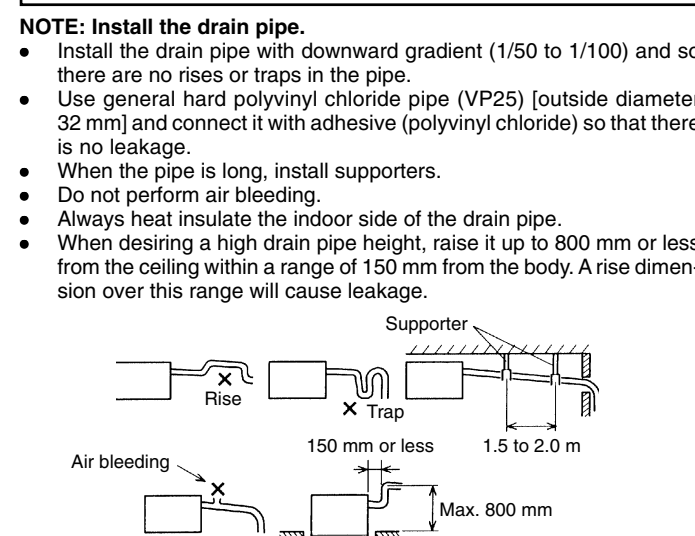
Grille setting method has been changed at the marked positions on the panel frame and panel base.



### 2 INSTALLING DRAIN PIPE

- CAUTION**  
Install the drain pipe in accordance with the instructions in this installation instruction sheet and keep the area warm enough to prevent condensation. Problems with the piping may lead to water leaks.

- NOTE: Install the drain pipe.**
- Install the drain pipe with downward gradient (1/50 to 1/100) and so there are no rises or traps in the pipe.
  - Use general heat polyvinyl chloride pipe (VP25) [outside diameter 32 mm] and connect it with adhesive (polyvinyl chloride) so that there is no leakage.
  - When the pipe is long, install supporters.
  - Do not perform air bleeding.
  - Always heat insulate the indoor side of the drain pipe.
  - When designing a high drain pipe height, raise it up to 800 mm or less from the ceiling within a range of 150 mm from the body. A rise dimension over this range will cause leakage.

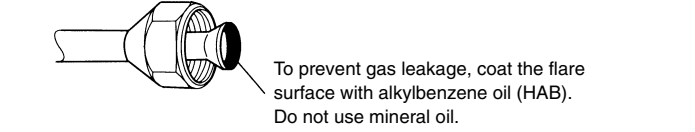


#### 3. CONNECTION PIPES

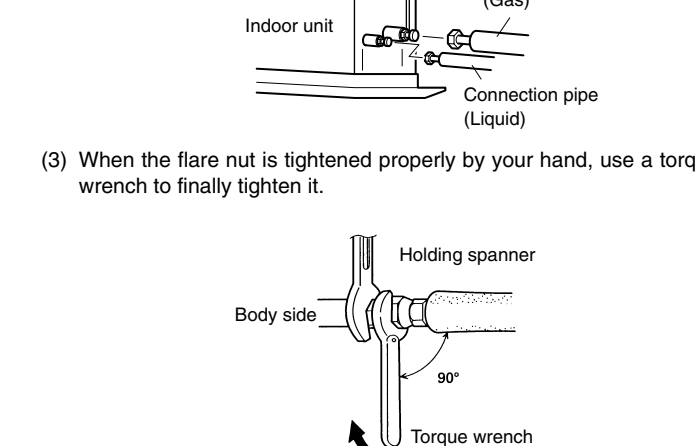
##### Indoor unit

- Detach the caps and plugs from the pipes.
- CAUTION**  
Be sure to apply the pipe against the port on the indoor unit correctly. If the centering is improper, the flare nut cannot be tightened smoothly. If the flare nut is forced to turn, the threads will be damaged.  
Do not remove the flare nut from the indoor unit pipe until immediately before connecting the connection pipe.

- Centering the pipe against port on the indoor unit, turn the flare nut with your hand.



- When the flare nut is tightened properly by your hand, use a torque wrench to finally tighten it.

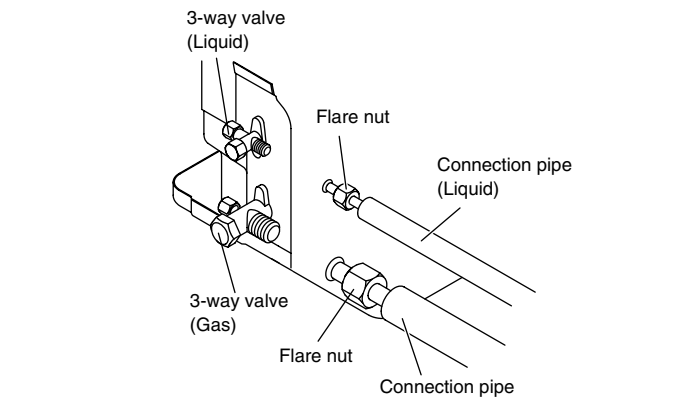


##### Outdoor unit

- CAUTION**  
Hold the torque wrench at its grip, keeping it in the right angle with the pipe, in order to tighten the flare nut correctly.

Flare nut	Tightening torque
6.35 mm (1/4 in.) dia.	14 to 18 N·m (140 to 180 kgf·cm)
9.52 mm (3/8 in.) dia.	33 to 42 N·m (330 to 420 kgf·cm)
12.70 mm (1/2 in.) dia.	50 to 62 N·m (500 to 620 kgf·cm)
15.88 mm (5/8 in.) dia.	63 to 77 N·m (630 to 770 kgf·cm)
19.05 mm (3/4 in.) dia.	100 to 110 N·m (1000 to 1100 kgf·cm)

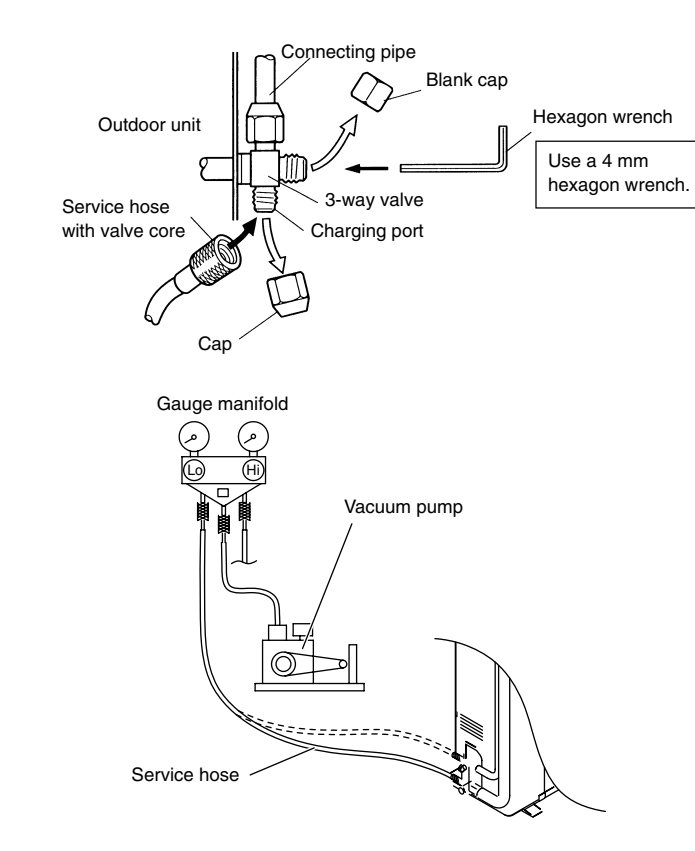
- CAUTION**  
Tighten the flare nut of the connection pipe at the outdoor unit valve connector. The tightening method is the same as that as at the indoor side.



#### 4. VACUUM

- Remove the cap, and connect the gauge manifold and the vacuum pump to the charging valve by the service hoses.
- Vacuum the indoor unit and the connecting pipes until the pressure gauge indicates -0.1 MPa (-76 cmHg).
- When -0.1 MPa (-76 cmHg) is reached, operate the vacuum pump for at least 30 minutes.
- Disconnect the service hoses and fit the cap to the charging valve to the specified torque.
- Remove the blank caps, and fully open the spindles of the 2-way and 3-way valves with a hexagon wrench [Torque: 6-7 N·m (60 to 70 kgf·cm)].
- Tighten the blank caps of the 2-way valve and 3-way valve to the specified torque.

Blank cap	Tightening torque	
	6.35 mm (1/4 in.)	20 to 25 N·m (200 to 250 kgf·cm)
9.52 mm (3/8 in.)	20 to 25 N·m (200 to 250 kgf·cm)	
12.70 mm (1/2 in.)	25 to 30 N·m (250 to 300 kgf·cm)	
15.88 mm (5/8 in.)	30 to 35 N·m (300 to 350 kgf·cm)	
19.05 mm (3/4 in.)	35 to 40 N·m (350 to 400 kgf·cm)	
Charging port cap	10 to 12 N·m (100 to 120 kgf·cm)	



- CAUTION**  
Do not purge the air with refrigerants, but use a vacuum pump to vacuum the installation! There is no extra refrigerant in the outdoor unit for purging!
- Use a vacuum pump and gauge manifold and charging hose for R410A exclusively. Using the same vacuum for different refrigerants may damage the vacuum pump or the unit.



**5. ADDITIONAL CHARGE**

Refrigerant suitable for a piping length of 7.5 m is charged in the outdoor unit at the factory. When the piping is longer than 7.5 m, additional charging is necessary. For the additional amount, see the table below.

Pipe length	7.5m	10m	15m	20m	25m	30m
	(25 ft)	(33 ft)	(49 ft)	(66 ft)	(82 ft)	(99 ft)
Heat & Cool (Reverse cycle)	None	100g (3.5 oz)	300g (10.6 oz)	500g (17.6 oz)	700g (24.7 oz)	900g (31.7 oz)
Cooling model	None	50g (1.8 oz)	150g (5.3 oz)	250g (8.8 oz)	350g (12.3 oz)	450g (15.9 oz)

Between 7.5 m and 30 m, when using a connection pipe other than that in the table, charge additional refrigerant with 40 g (1.4 oz)/1 m (3.3 ft) (Reverse cycle mode), 20 g (0.71 oz)/1 m (3.3 ft) (Cooling mode) as the criteria.

**CAUTION**

- When moving and installing the air conditioner, do not mix gas other than the specified refrigerant (R410A) inside the refrigerant cycle.
- When charging the refrigerant R410A, always use an electronic balance for refrigerant charging (to measure the refrigerant by weight).
- 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.
- Add refrigerant from the charging valve after the completion of the work.
- If the units are further apart than the maximum pipe length, correct operation can not be guaranteed.

**5 POWER**

**WARNING**

- The rated voltage of this product is 230 V A.C. 50 Hz.
- Before turning on verify that the voltage is within the 198 V to 264 V range.
- Always use a special branch circuit and install a special receptacle to supply power to the air conditioner.
- Use a special branch circuit breaker and receptacle matched to the capacity of the air conditioner. (Install in accordance with standard.)
- Perform wiring work in accordance with standards so that the air conditioner can be operated safely and positively.
- Install a leakage special branch 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.

**HOW TO CONNECT WIRING TO THE TERMINALS**

**A. For solid core wiring (or F-cable)**

- Cut the wire end with a wire cutter or wire-cutting pliers, then strip the insulation to about 25 mm to expose the solid wire.
- Using a screwdriver, remove the terminal screw(s) on the terminal board.
- Using pliers, bend the solid wire to form a loop suitable for the terminal screw.
- Shape the loop wire properly, place it on the terminal board and tighten securely with the terminal screw using a screwdriver.

**B. For strand wiring**

- Cut the wire end with a wire cutter or wire-cutting pliers, then strip the insulation to about 10 mm to expose the strand wiring.
- Using a screwdriver, remove the terminal screw(s) on the terminal board.
- Using a round terminal fastener or pliers, securely clamp a round terminal to each stripped wire end.
- Position the round terminal wire, and replace and tighten the terminal screw using a screwdriver.

**CAUTION**

Do not bundle the remote controller cord, or wire the remote controller cord in parallel, with the indoor unit connection wire (to the outdoor unit) and the power supply cord. It may cause erroneous operation.

**3. INDOOR UNIT**

- Remove the control box cover and cover (wire) B and install the connection cord.
- After wiring is complete, clamp the remote controller cord and connection cord with the cord clamp.
- Install the control box cover and cover (wire) B.

**CEILING HEIGHT SETTING**

Set the DIP switch for the ceiling height according to the table below.

Ceiling height (m)		DIP-SW4		
		1	2	3
2.5 - 3.0	Normal	—	OFF	OFF
3.0 - 3.5	High ceiling 1	—	ON	OFF
More than 3.5	High ceiling 2	—	OFF	ON
Less than 2.5	Low ceiling	—	ON	ON

**CAUTION**

- If the setting for a low ceiling is selected, the capacity of the air conditioner decreases slightly.
- Do not set any switches other than those specified in this sheet or the remote controller installation instruction sheet. The air conditioner may not operate correctly if any switches other than those specified are changed.

**4. OUTDOOR UNIT**

- Service cover removal
  - Remove the two mounting screws.
  - Remove the service cover by pushing downwards.
- Valve cover removal
  - Remove the one mounting screw.
  - Remove the valve cover by sliding upward.
- Connect the power supply cord and the connection cord to terminal.
- Fasten the power supply cord and connection cord with cord clamp.

**CAUTION**

Do not make power supply cord and connection cord come in contact with valve (Gas).

(6) Put the service cover and valve cover back after completion of the work.

(5) Fill in a gap at the entrance of the cords with insulation (seal).

**CAUTION**

Do not make power supply cord and connection cord come in contact with valve (Gas).

Put the service cover and valve cover back after completion of the work.

**7 GRILLE INSTALLATION**

**BLOWER COVER INSULATION**

Install the blower cover insulation only when the outlet direction is not specified. Two blower cover insulations are packed with the indoor unit. Install the blower cover insulation at the diffuser position shown in the figure. At this time, use the piping position as the criteria.

**INSTALLING THE INTAKE GRILLE**

- Mount the grille hinge wire to the hook shaft as shown in the figure.
- Latch the grille hinge wire to the hook shaft, and fasten.

**CAUTION**

Install the intake grille hook wire to the grille assembly. If it falls, it may cause injuries.

(2) Install the hook wire.

Pass the hook wire through the panel base from the rear side as shown in the figure, and fasten to the reinforced metal fitting of the intake grille using a screw.

**Section view**

(3) Loosen the screw, put the loop of the hook wire over it, and tighten the screw again.

(4) Bring up the intake grille by pushing it up at an angle as shown in the figure, and fasten.

**CAUTION**

Install the intake grille hook wire to the grille assembly. If it falls, it may cause injuries.

(4) Bring up the intake grille by pushing it up at an angle as shown in the figure, and fasten.

**6. GAS LEAKAGE INSPECTION**

**CAUTION**

- After connecting the piping, check the all joints for gas leakage with gas leak detector.
- When inspecting gas leakage, always use the vacuum pump for pressure. Do not use nitrogen gas.

**6 ELECTRICAL WIRING**

**WARNING**

- Before starting work, check that power is not being supplied to the indoor unit and outdoor unit.
- Match the terminal board numbers and connection cord colors with those of the outdoor unit. Erroneous wiring may cause burning of the electric parts.
- Connect the connection cords firmly to the terminal board. Imperfect installation may cause a fire.
- Always fasten the outside covering of the connection cord with the cord clamp. (If the insulator is chafed, electric leakage may occur.)
- Always connect the ground wire.

**2. CONNECTION CORD PREPARATION**

Strip 25 mm insulation. Strip 10 mm insulation.

Wire terminals and connection diagrams are shown.

**CEILING HEIGHT SETTING**

Set the DIP switch for the ceiling height according to the table below.

**CAUTION**

- If the setting for a low ceiling is selected, the capacity of the air conditioner decreases slightly.
- Do not set any switches other than those specified in this sheet or the remote controller installation instruction sheet. The air conditioner may not operate correctly if any switches other than those specified are changed.

**INDOOR UNIT**

Terminal connections and wiring diagrams are shown.

**CAUTION**

Do not make power supply cord and connection cord come in contact with valve (Gas).

Put the service cover and valve cover back after completion of the work.

**INSTALLING THE INTAKE GRILLE**

(1) Mount the grille hinge wire to the hook shaft as shown in the figure.

**CAUTION**

Install the intake grille hook wire to the grille assembly. If it falls, it may cause injuries.

(4) Bring up the intake grille by pushing it up at an angle as shown in the figure, and fasten.

**CAUTION**

Install the intake grille hook wire to the grille assembly. If it falls, it may cause injuries.

(4) Bring up the intake grille by pushing it up at an angle as shown in the figure, and fasten.

**8 REMOTE CONTROLLER SETTING**

**CAUTION**

- In order to detect the room temperature correctly when using the temperature sensor of the remote controller, do not install the remote controller in a place where it will be exposed to direct sunlight or directly below the air outlet of the indoor unit.
- When installing the remote controller and cord near a source of electromagnetic waves, separate the remote controller from the source of the electromagnetic waves and use shielded cord.
- Do not touch the remote controller PC board and PC board parts directly with your hands.

**1. INSTALLING THE REMOTE CONTROLLER**

- Open the operation panel on the front of the remote controller, remove the two screws indicated in the following figure, and then remove the front case of the remote controller.
- Install the rear case to the wall, etc. with the two tapping screws. Refer to the following information to install the remote controller wires.

**2. ROUTING THE REMOTE CONTROLLER WIRES**

- Install the remote controller wires to the terminals on the top of the rear case as shown in the following figure.
- Fasten the wires with the binder.

**3. SETTING THE DIP SWITCHES**

When using a battery (memory backup)

**4. SETTING THE ROOM TEMPERATURE DETECTION LOCATION**

**A. Indoor unit setting (factory setting)**

The room temperature is detected by the indoor unit temperature sensor.

- When the THERMO SENSOR button is pressed, the lock display flashes because the function is locked at the factory.

**B. Remote controller setting**

The room temperature is detected by the remote controller temperature sensor.

- Press the THERMO SENSOR button for 5 seconds or more to unlock the function. The thermo sensor display flashes and then disappears when the function is unlocked.
- Press the THERMO SENSOR button. The thermo sensor display appears.
- Press the THERMO SENSOR button again for 5 seconds or more to lock the function. The thermo sensor display flashes and then remains on when the function is locked.
- Make sure that the function is locked.

**3. SETTING THE DIP SWITCHES**

When using a battery (memory backup)

Change the DIP switch setting to use batteries. (The DIP switch is not set to use batteries at the factory.) Change DIP switch No. 6 from OFF to ON. If batteries are not used, all of the settings stored in memory will be deleted if there is a power failure.

**4. SETTING THE ROOM TEMPERATURE DETECTION LOCATION**

The detection location of the room temperature can be selected from the following three examples. Choose the detection location that is best for the installation location.

**A. Indoor unit setting (factory setting)**

The room temperature is detected by the indoor unit temperature sensor.

**B. Remote controller setting**

The room temperature is detected by the remote controller temperature sensor.

**C. Indoor unit/remote controller setting (room temperature sensor selection)**

The temperature sensor of the indoor unit or the remote controller can be used to detect the room temperature.

**NOTES**

- If the function to change the temperature sensor is used as shown in examples A and B (other than example C), be sure to lock the detection location. If the function is locked, the lock display will flash when the THERMO SENSOR button is pressed.

**9 TEST RUN**

**CAUTION**

Supply power to the crankcase heater for at least 12 hours before the start of operation in winter.

- Stop the air conditioner operation.
- Press the master control button and the fan control button simultaneously for 2 seconds or more to start the test run.
- Press the start/stop button to stop the test run.

**[SELF-DIAGNOSIS]**

When the error indication "E.EE" is displayed, follow the following items to perform the self-diagnosis. "E.EE" indicates an error has occurred.

**1. REMOTE CONTROLLER DISPLAY**

- Stop the air conditioner operation.
- Press the set temperature buttons  $\Delta/V$  simultaneously for 5 seconds or more to start the self-diagnosis. Refer to the following tables for the description of each error code.
- Press the set temperature buttons  $\Delta/V$  simultaneously for 5 seconds or more to stop the self-diagnosis.

Error code	Error contents
00	Communication error (indoor unit → remote controller)
01	Communication error (indoor unit → outdoor unit)
02	Room temperature sensor open
03	Room temperature sensor short-circuited
04	Indoor heat exchanger temperature sensor open
05	Indoor heat exchanger temperature sensor short-circuited
06	Outdoor heat exchanger temperature sensor open
07	Outdoor heat exchanger temperature sensor short-circuited
08	Power source connection error
09	Float switch operated
0A	Outdoor temperature sensor open
0b	Outdoor temperature sensor short-circuited
0c	Discharge pipe temperature sensor open
0d	Discharge pipe temperature sensor short-circuited
0E	Outdoor pressure sensor error
0F	Discharge pipe temperature sensor error

**2. OUTDOOR UNIT LEDES**

**Heat & Cool mode (reverse cycle) only**

When a malfunction occurs in the outdoor unit, the LEDs on the circuit board light to indicate the error. Refer to the following table for the description of each error according to the LEDs.

Error code	Error contents
11	Model abnormal
12	Indoor fan abnormal
13	Outdoor signal abnormal
14	Outdoor EEPROM abnormal

**2. OUTDOOR UNIT LEDES**

**Heat & Cool mode (reverse cycle) only**

When a malfunction occurs in the outdoor unit, the LEDs on the circuit board light to indicate the error. Refer to the following table for the description of each error according to the LEDs.

Error display	LED1	LED2	Error contents
ON (0.1 sec.)	ON (0.1 sec.)	ON (0.1 sec.)	Model abnormal or EEPROM abnormal
Quick flash continued	Quick flash continued	Quick flash continued	Power source connection error
ON (0.5 sec.)	ON (0.5 sec.)	ON (0.5 sec.)	Discharge temperature sensor error
1 quick flash repeated	Lighting continued	Lighting continued	High pressure abnormal (24h)
2 quick flash repeated	Lighting continued	Lighting continued	High pressure abnormal (24h)
3 quick flash repeated	Lighting continued	Lighting continued	Outdoor heat exchanger temperature sensor error
4 quick flash repeated	Lighting continued	Lighting continued	Communication signal error
5 quick flash repeated	Lighting continued	Lighting continued	Indoor unit error
6 quick flash repeated	Lighting continued	Lighting continued	Discharge temperature abnormal
8 quick flash repeated	Lighting continued	Lighting continued	High pressure abnormal (24h)
5 quick flash repeated	Dislighting continued	Dislighting continued	Discharge temperature abnormal (24h)
6 quick flash repeated	Dislighting continued	Dislighting continued	High pressure abnormal (24h)

**3. CHECKING DRAINAGE**

To check the drain, remove the water cover and fill with 2 to 3 l of water as shown in the figure. The drain pump operates when operating in the cooling mode.

**10 SPECIAL INSTALLATION METHODS**

**CAUTION**

- When setting the rotary switch and DIP switches, do not touch any other parts on the circuit board directly with your bare hands.
- Be sure to turn off the main power.

**1. GROUP CONTROL SYSTEM**

A number of indoor units can be operated at the same time using a single remote controller.

**2. DUAL REMOTE CONTROLLERS (OPTIONAL)**

Two separate remote controllers can be used to operate the indoor units.

**3. CANCELING AUTO RESTART**

When the air conditioner power was temporarily turned off by a power failure etc., it restarts automatically after the power recovers. (Operated by setting before the power failure)

The auto restart function can be canceled.

**DIP-SWITCH SETTING**

DIP-Switch 1	SW state		Detail
	OFF	ON	
1	Invalidity	Validity	Auto restart setting
2	—	—	Temperature correction setting for heating
3	—	—	Remote controller setting
DIP-Switch 4	1	—	Remote controller setting
2	—	—	Air flow setting
3	—	—	Air flow setting

DIP-Switch	SW state		Detail
	OFF	ON	
1	—	*	Dual remote controller setting
2	*	—	Multiple unit Group control setting
3	—	—	Cooling only mode Model setting
4	Invalidity	Validity	Auto changover setting
5	Invalidity	Validity	Memory backup setting
6	Invalidity	Validity	Memory backup setting

\*: Factory setting

**11. OPENING THE DUCT CONNECTION HOLE**

**CAUTION**

- When performing hole opening work, be careful not to damage the drain pan.
- When connecting the distribution duct, to make the air flow easily, block the outlet port with the blower cover insulation as shown by the hatched lines in the figure. For the blocking direction, refer to blower cover insulation figure.

**1. DIMENSION**

Screw position and connection hole which are fresh air duct and distribution duct.

**2. DISTRIBUTION DUCT AND FRESH AIR DUCT HOLE PROCESSING**

Use the distribution duct hole and fresh air duct hole by removing the insulation material as shown below.

**CAUTION**

The air conditioner cannot take in fresh air by itself. When connecting a fresh air duct, always use a duct fan.