Refrigerant
R410A

Duct Type

SPLIT TYPE AIR CONDITIONER

INSTALLATION INSTRUCTION SHEET

(PART NO. 9364658049-03)

⚠ 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 (R22) models. However, pay careful attention to the following points:

(1) Since the working pressure is 1.6 times higher than that of conventional refrigerant (R22) models, some of the piping and installation and service tools are special. (See the table below.) Especially, when replacing a conventional refrigerant (R22) model with a new refrigerant R410A model, always replace the conventional piping and flare nuts with the R410A piping and flare nuts.

(2) Models that use refrigerant R410A have a different charging port thread diameter to prevent erroneous charging with conventional refrigerant (R22) and for safety. Therefore, check beforehand. [The charging port thread diameter for R410A is 1/2 UNF 20 threads per inch.]

(3) Be more careful that foreign matter (oil, water, etc.) does not enter the piping than with refrigerant (R22) models. Also, when storing the piping, securely seal the openings by pinching, taping, etc.

(4) When charging the refrigerant, take into account the slight change in the composition of the gas and liquid phases, and always charge from the liquid phase side whose composition is stable.

Special tools for R410A

Tool name	Contents of change
Gauge manifold	Pressure is high and cannot be measured with a conventional gauge. To prevent erroneous mixing of other refrigerants, the diameter of each port has been changed. It is recommended the gauge with seals –0.1 to 5.3 MPa (–76 cmHg to 53 kgf/cm²) for high pressure. –0.1 to 3.8 MPa (–76 cmHg to 38 kgf/cm²) for low pressure.
Charge hose	To increase pressure resistance, the hose material and base size were changed.
Vacuum pump	A conventional vacuum pump can be used by installing a vacuum pump adapter.
Gas leakage detector	Special gas leakage detector for HFC refrigerant R410A.

Copper pipes

It is necessary to use seamless copper pipes and it is desirable that the amount of residual oil is less than 40 mg/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 R22, it is necessary to choose adequate materials.
Thicknesses of copper pipes used with R410A are as shown in Table 1. Never use copper pipes thinner than 0.8 mm (Nominal diameter is 1/4 in., 3/8 in. 1/2 in.), 1.0 mm (Nominal diameter is 5/8 in.) even when it is available on the market.

Table 1 Thicknesses of Annealed Copper Pipes

Nominal diameter (inch)	Outer diameter (mm)	Thickness (mm) R410A	Thickness (mm) [ref.] R22
1/4	6.35	0.80	0.80
3/8	9.52	0.80	0.80
1/2	12.70	0.80	0.80
5/8	15.88	1.00	1.00

For authorized service personnel only.

⚠ WARNING
(1) For the room air conditioner to operate satisfactorily, install it as outlined in this installation instruction sheet.
(2) Connect the indoor unit and outdoor unit with the room air conditioner piping and cables available standards parts. This installation instruction sheet describes the correct connections using the installation set available from our standard parts.
(3) Installation work must be performed in accordance with national wiring standards by authorized personnel only.
(4) 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.
(5) Do not use an extension cable.
(6) Do not turn on the power until all installation work is complete.

- **Be careful not to scratch the room 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.

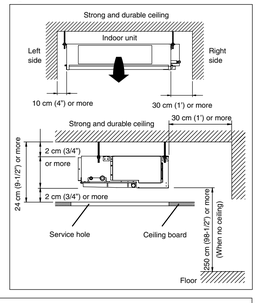
⚠ CAUTION
(1) Do not install where there is the danger of combustible gas leakage.
(2) Do not install near heat sources.
(3) If children under 10 years old may approach the unit, take preventive measures so that they cannot reach the unit.
(4) Take precautions to prevent the unit from falling.

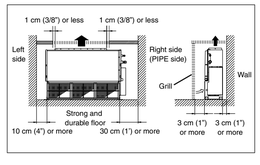
Decide the mounting position with the customer as follows:

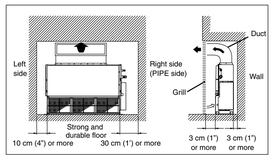
INDOOR UNIT

(1) Install the indoor unit level on a strong wall, floor, ceiling which is not subject to vibration.
(2) The inlet and outlet ports should not be obstructed : the air should be able to blow all over the room.
(3) Install the unit near an electric outlet or special branch circuit.
(4) Do not install the unit where it will be exposed to direct sunlight.
(5) Install the unit where connection to the outdoor unit is easy.
(6) Install the unit where the drain pipe can be easily installed.
(7) Take servicing, etc. into consideration and leave the spaces shown in Fig.1. Also install the unit where the filter can be removed.
(8) Install the indoor unit where vibrations and noise are not amplified.
(9) When installing the unit on the floor, provide an opening that will allow sufficient air to reach the air inlet panel.

Fig. 1







STANDARD PARTS

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

INDOOR UNIT ACCESSORIES

Name and Shape	Q'ty	Application
Installation template	1	For positioning the indoor unit
Hanger	4	For suspending the indoor unit from ceiling
Tapping screw (ø4 × 10)	8	For installing the hanger
Special nut A (large flange)	4	For suspending the indoor unit from ceiling
Special nut B (small flange)	4	
Coupler heat insulation (large)	1	For indoor side pipe joint (large pipe)
Coupler heat insulation (small)	1	For indoor side pipe joint (small pipe)
Binder	(Small) 1	For remote controller and remote controller cable binding
	(Large) 4	For fixing the coupler heat insulation
Remote controller	1	
Remote controller cable	1	For connecting the remote controller
Tapping screw (ø4 × 16)	2	For installing the remote controller
Filter	2	7000 and 9000 BTU/h models
	3	12000, 14000, and 18000 BTU/h models
Drain hose insulation	1	Insulates the drain hose and vinyl hose connection

OUTDOOR UNIT ACCESSORIES

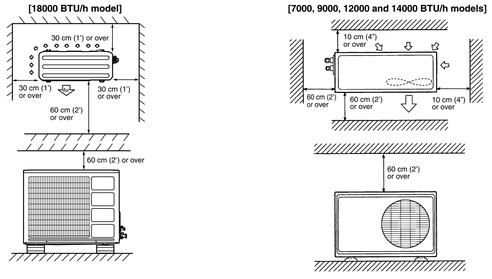
Name and Shape		Q'ty	Application
Drain pipe		1	For outdoor unit drain piping work [Heat & Cool model (Reverse cycle) only]
Drain cap	7000, 9000, 12000 and 14000 BTU/h models	2	
	18000 BTU/h model	1	

OUTDOOR UNIT

⚠ WARNING
(1) Install the unit where it will not be tilted by more than 5˚.
(2) When installing the outdoor unit where it may exposed to strong wind, fasten it securely.

(1) If possible, do not install the unit where it will exposed to direct sunlight. (If necessary, install a blind that does not interfere with the air flow.)
(2) Install the outdoor unit in a place where it will be free from being dirty or getting wet by rain as much as possible.
(3) Install the unit when connection to the indoor unit is easy.
(4) 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)
(5) Do not place animals and plants in the path of the warm air.
(6) Take the air conditioner weight into account and select a place where noise and vibration are small.
(7) Select a place so that the warm air and noise from the air conditioner do not disturb neighbors.
(8) Provide the space shown in Fig. 2 so that the air flow is not blocked. Also for efficient operation, leave open three of the four directions front, rear, and both sides.

Fig. 2



CONNECTION PIPE REQUIREMENT

Table 2

MODEL		7000, 9000 and 12000 BTU/h models	14000 BTU/h model	18000 BTU/h model
Diameter	Small	6.35 mm (1/4 in.)	6.35 mm (1/4 in.)	6.35 mm (1/4 in.)
	Large	9.52 mm (3/8 in.)	12.70 mm (1/2 in.)	15.88 mm (5/8 in.)
Maximum length		15 m (49 ft)	15 m (49 ft)	20 m (66 ft)
Maximum Height (between indoor and outdoor)		8 m (26 ft)	8 m (26 ft)	8 m (26 ft)

- Use pipe with water-resistant heat insulation.

ELECTRICAL REQUIREMENT

- Electric wire size and fuse capacity:

Table 3

MODEL		7000 BTU/h model 9000 BTU/h model	12000 BTU/h model 14000 BTU/h model	18000 BTU/h model
Power supply cable (mm²)	MAX.	3.0	3.0	3.0
	MIN.	1.5	2.0	2.5
Connection cable (mm²)	MAX.	2.5	2.5	2.5
	MIN.	1.5	1.5	1.5
Fuse capacity (A)		10	15	20

- Always use H07RN-F or equivalent to the connection cable.
- Install the disconnect device with a contact gap of at least 3 mm nearby the units. (Both indoor unit and outdoor unit)

1 INDOOR UNIT INSTALLATION

A. CEILING CONCEALED TYPE

1. INSTALL THE FILTERS

- Install the filters to the unit (Fig. 3).

Fig. 3-(1)

[12000, 14000, and 18000 BTU/h models] **[7000 and 9000 BTU/h models]**

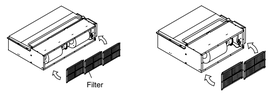
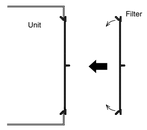


Fig. 3-(2)

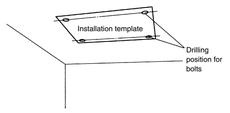


This unit may also be installed with the air inlet facing down.
See also Figs. 11 and 12 for such cases.

2. DRILLING HOLES FOR BOLTS AND INSTALLING THE BOLTS

- Using the installation template, drill holes for bolts (4 holes).(Fig. 4)

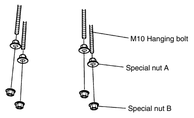
Fig. 4



3. INSTALLING THE HANGERS

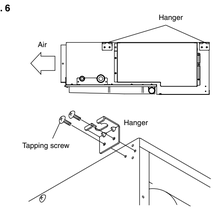
- Fasten the hanging bolts to the ceiling and install special nuts A and B.

Fig. 5



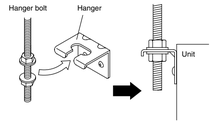
- Install the hangers to the unit (4 places).

Fig. 6



- Hang the unit.
(1) Pass the hanging bolts through the hangers (4 places).

Fig. 7



⚠ CAUTION
Fasten the unit securely with special nuts A and B.

4. LEVELING

Base horizontal direction leveling on top of the unit.

Fig. 8

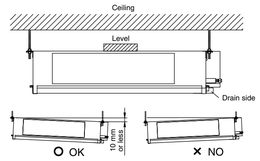
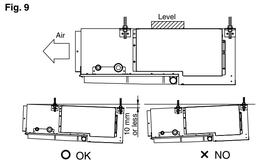


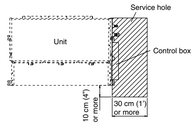
Fig. 9



5. SERVICE HOLE DIMENSIONS

Open a service hole with the dimensions shown Fig. 10.

Fig. 10



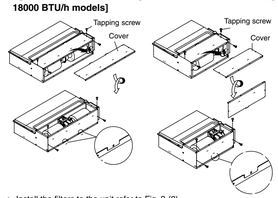
B. FLOOR STANDING CONCEALED TYPE

1. INSTALL THE FILTERS

- Remove the 4 tapping screws, and then remove cover.
- Install the cover with the 4 tapping screws as shown in the illustration below.

Fig. 11

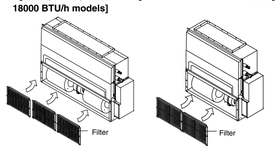
[12000, 14000, and 18000 BTU/h models] **[7000 and 9000 BTU/h models]**



- Install the filters to the unit refer to Fig. 3-(2).

Fig. 12

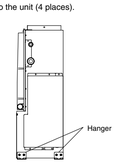
[12000, 14000, and 18000 BTU/h models] **[7000 and 9000 BTU/h models]**



2. INSTALLING THE HANGERS

- Install the hangers to the unit (4 places).

Fig. 13

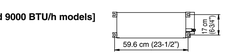


3. DRILLING HOLES FOR BOLTS AND INSTALLING THE BOLTS

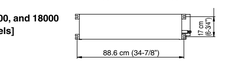
- Drilling position for bolts.

Fig. 14

[7000 and 9000 BTU/h models]

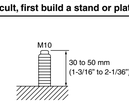


[12000, 14000, and 18000 BTU/h models]



⚠ CAUTION
Secure with an M10 anchor bolts. If securing the unit to the floor is difficult, first build a stand or platform.

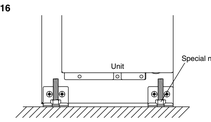
Fig. 15



4. INSTALL THE UNIT

- Fix the unit.
Install the unit and fasten with special nut B.

Fig. 16



5. LEVELING

Base horizontal and vertical direction leveling on top of the unit.

Fig. 17

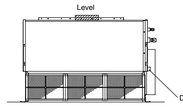
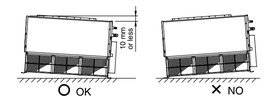


Fig. 18



⚠ CAUTION
In order to prevent water from leaking around the outlet port, make sure insulate it (on both the CEILING CONCEALED type and the FLOOR STANDING CONCEALED type).

2 OUTDOOR UNIT INSTALLATION

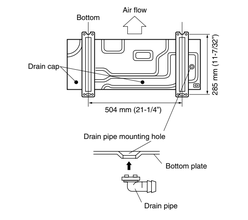
⚠ WARNING
(1) Install the unit where it will not be tilted by more than 5˚.
(2) When installing the outdoor unit where it may exposed to strong wind, fasten it securely.

- Set the unit on a strong stand, such as one made of concrete blocks to minimize shock and vibration.
- Do not set the unit directly on the ground because it will cause trouble.
- Since the drain water flows out of the outdoor unit during heating operation, install the drain pipe and connect it to an commercial 16 mm hose. (Heat & Cool model (Reverse cycle) only)
- When installing the drain pipe, plug all the holes (• hole at one place) other than the drain pipe mounting hole in the bottom of the outdoor unit with putty so there is no water leakage. (Fig. 19) (Heat & Cool model (Reverse cycle) only)

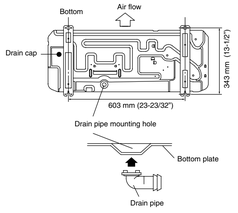
⚠ CAUTION
Installation in cold regions. Do not use the accessory drain pipe and drain cap. (If the drain pipe and drain cap are used, the drain water in the pipe may freeze in extremely cold weather.)

Fig. 19

[7000, 9000, 12000 and 14000 BTU/h models]



[18000 BTU/h model]



3 CONNECTING THE PIPING

⚠ WARNING
Do not use the existing (for R22) piping and flare nuts. • If the existing materials are used, the pressure inside the refrigerant cycle will rise and cause breakage, injury, etc. (Use the special R410A materials.)

⚠ CAUTION
(1) 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.
(2) While welding the pipes, be sure to blow dry nitrogen gas through them.
(3) The maximum lengths of this product are shown in table 2. If the units are further apart than this, correct operation can not be guaranteed.

⚠ 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).**

1. FLARING

(1) Cut the connection pipe to the necessary length with a pipe cutter.
(2) Hold the pipe downward so that cuttings will not enter the pipe and remove the burrs.
(3) 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.
Use the special R410A flare tool, or the conventional (for R22) flare tool.
When using the conventional flare tool, always use an allowance adjustment gauge and secure the A dimension shown in table 4.

Fig. 20

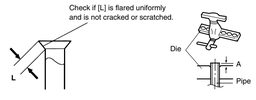


Table 4 Pipe outside diameter

Pipe outside diameter	A (mm) Flare tool for R410A, clutch type	A (mm) Conventional (R22) flare tool Clutch type	A (mm) Conventional (R22) flare tool Wing nut type
6.35 mm (1/4 in.)	0 to 0.5	1.0 to 1.5	1.5 to 2.0
9.52 mm (3/8 in.)	0 to 0.5	1.0 to 1.5	1.5 to 2.0
12.70 mm (1/2 in.)	0 to 0.5	1.0 to 1.5	2.0 to 2.5
15.88 mm (5/8 in.)	0 to 0.5	1.0 to 1.5	2.0 to 2.5

2. BENDING PIPES

(1) When bending the pipe, be careful not to crush it.
(2) To prevent crushing of the pipe, do not bend the pipe at a radius curvature of 100 mm or over.
(3) If the copper pipe is bend the pipe or pulled to often, it will become stiff. Do not bend the pipes more than three times at one place.

3. CONNECTION

(1) Install the outdoor unit wall cap (supplied with the optional installation set or procured at the site) to the wall hole pipe.
(2) Connect the outdoor unit and indoor unit piping.
(3) After matching the center of the flare surface and tightening the nut hand tight, tighten the nut to the specified tightening torque with a torque wrench.

Fig. 21

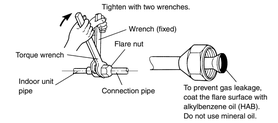


Table 5 Flare nut tightening torque

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)

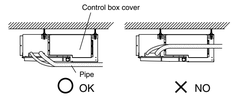
Do not remove the cap from the connection pipe before connecting the pipe.

⚠ CAUTION
Be sure to connect the large pipe after connecting the small pipe completely.

- Lay the piping.

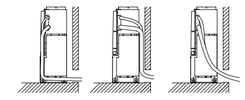
A. CEILING CONCEALED TYPE

Fig. 22



B. FLOOR STANDING CONCEALED TYPE

Fig. 23



⚠ CAUTION
(1) Install the piping so that the control box cover can be removed for servicing.
(2) In order to prevent water from leaking into the control box, make sure that the piping is well insulated.

4. HEAT INSULATION ON THE PIPE JOINTS (INDOOR SIDE ONLY)

- After checking for gas leaks, insulate by wrapping insulation around the two parts (large and small) of the indoor unit coupling, using the coupler heat insulation.
- After installing the coupler heat insulation, wrap both ends with vinyl tape so that there is no gap.
- After wrapping tape around the ends of the coupler heat insulation, secure the heat insulation pipe and the taped portion with large binders in two places, as shown in Fig. 24.

Fig. 24

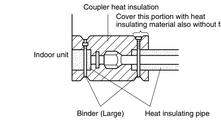
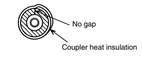


Fig. 25



- Continued on back -

4 VACUUM PROCESS

⚠ CAUTION

(1) 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 air purging!

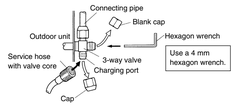
(2) Use a vacuum pump for R410A exclusively. Using the same vacuum pump for different refrigerants may damage the vacuum pump or the unit.

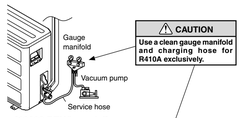
1. VACUUM

(1) Remove the cap, and connect the gauge manifold and the vacuum pump to the charging valve by the service hoses.
(2) Vacuum the indoor unit and the connecting pipes until the pressure gauge indicates –0.1 MPa (–76 cmHg).
(3) When –0.1 MPa (–76 cmHg) is reached, operate the vacuum pump for at least 15 minutes.
(4) Disconnect the service hoses and fit the cap to the charging valve to the specified torque.
(5) Remove the blank caps, and fully open the spindles of the 2-way and 3-way valves with a hexagon wrench (Torque : 6 to 7 N · m (60 to 70 kgf · cm).
(6) Tighten the blank caps of the 2-way valve and 3-way valve to the specified torque.

Table 6

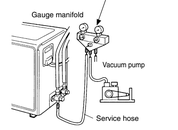
		Tightening torque
Blank cap (2-way valve)		20 to 25 N · m (200 to 250 kgf · cm)
Blank cap (3-way valve)	9.52 mm (3/8 in.)	20 to 25 N · m (200 to 250 kgf · cm)
	12.70 mm (1/2 in.)	25 to 30 N · m (250 to 300 kgf · cm)
	15.88 mm (5/8 in.)	30 to 35 N · m (300 to 350 kgf · cm)
Charging port cap		10 to 12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





⚠ CAUTION
Use a clean gauge manifold and charging hose for R410A exclusively.

[18000 BTU/h model]



[7000, 9000, 12000 and 14000 BTU/h models]

2. 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 / Additional refrigerant	7.5 m (25 ft)	10 m (33 ft)	15 m (49 ft)	20 m (66 ft)	g/m (oz/ft)
7000, 9000 12000 and 14000 BTU/h models	None	37.5 g (1.3 oz)	112.5 g (4.0 oz)	–	15 g/m (0.53 oz/3.3 ft)
18000 BTU/h model	None	50 g (1.8 oz)	150 g (5.3 oz)	250 g (8.8 oz)	20 g/m (0.71 oz/3.3 ft)

⚠ CAUTION

(1) When moving and installing the air conditioner, do not mix gas other than the specified refrigerant (R410A) inside the refrigerant cycle.

(2) When charging the refrigerant R410A, always use an electronic balance for refrigerant charging (to measure the refrigerant by weight).

(3) 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.

(4) Add refrigerant from the charging valve after the completion of the work.

(5) If the units are further apart than the maximum pipe length, correct operation can not be guaranteed.

3. GAS LEAKAGE INSPECTION

⚠ CAUTION

After connecting the piping, check the joints for gas leakage with gas leak detector.

⚠ WARNING

(1) During installation, make sure that the refrigerant pipe is attached firmly before you run the compressor. Do not operate the compressor under the condition of refrigerant piping not attached properly with 2-way or 3-way valve open.
This may cause abnormal pressure in the refrigeration cycle that leads to breakage and even injury.

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

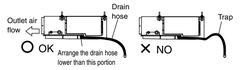
(3) When installing and relocating the air conditioner, do not mix gases other than the specified refrigerant (R410A) to enter the refrigerant cycle.
If air or other gas enters the refrigerant cycle, the pressure inside the cycle will rise to an abnormally high value and cause breakage, injury, etc.

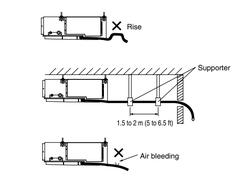
5 INSTALLING DRAIN HOSE

INSTALL THE DRAIN HOSE

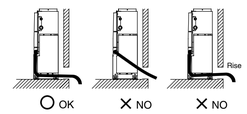
- Install the drain hose with downward gradient (1/50 to 2/50) and so there are no rises or traps in the hose.
- Use general hard polyvinyl chloride pipe and connect it with adhesive (polyvinyl chloride) so that there is no leakage.
- When the hose is long, install supporters.
- Do not perform air bleeding.
- Always heat insulate the indoor side of the drain hose.

A. CEILING CONCEALED TYPE





B. FLOOR STANDING CONCEALED TYPE



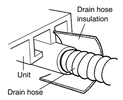
⚠ CAUTION

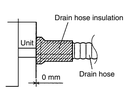
(1) Install the drain hose so that the control box cover can be removed for servicing.

(2) In order to prevent water from leaking into the control box, make sure that the drain hose is well insulated.

(3) After the wiring is connected and installation of the piping and drain hose is complete, make a seal around the opening in the wall.

The out side diameter of drain port is 26 mm, use a suitable drain hose.





6 ELECTRICAL WIRING

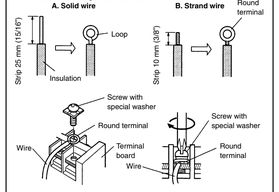
HOW TO CONNECT WIRING TO THE TERMINALS

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

(1) Cut the wire end with a wire cutter or wire-cutting pliers, then strip the insulation to about 25 mm (15/16") of expose the solid wire.
(2) Using a screwdriver, remove the terminal screw(s) on the terminal board.
(3) Using pliers, bend the solid wire to form a loop suitable for the terminal screw.
(4) Shape the loop wire properly, place it on the terminal board and tighten securely with the terminal screw using a screwdriver.

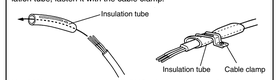
B. For strand wiring

(1) Cut the wire end with a wire cutter or wire-cutting pliers, then strip the insulation to about 10 mm (3/8") of expose the strand wiring.
(2) Using a screwdriver, remove the terminal screw(s) on the terminal board.
(3) Using a round terminal fastener or pliers, securely clamp a round terminal to each stripped wire end.
(4) Position the round terminal wire, and replace and tighten the terminal screw using a screwdriver.



HOW TO FIXED CONNECTION CABLE AND POWER CABLE AT THE CABLE CLAMP

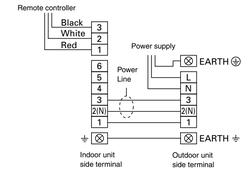
After passing the connection cable and power cable through the insulation tube, fasten it with the cable clamp.



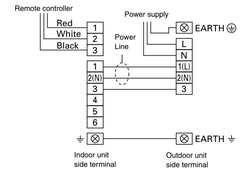
Use VW-1, 0.5 to 1.0 mm thick, PVC tube as the insulation tube.

1. CONNECTION DIAGRAM

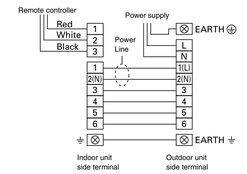
[18000 BTU/h model Cooling, Heat&Cool model (Reverse cycle)]



[7000, 9000, 12000 and 14000 BTU/h models Cooling model]

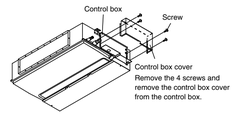


[7000, 9000, 12000 and 14000 BTU/h models Heat&Cool model (Reverse cycle)]



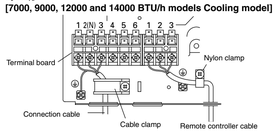
2. INDOOR UNIT SIDE

(1) Remove the control box cover from the control box.

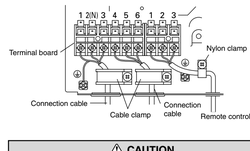


(2) Cable connection.
- Clamp the connection cable with the cable clamp.
- Connect the connection cable to the terminal board.
- Clamp the remote control cable with nylon clamp.
- Connect the remote control cable to the terminal board.

[18000 BTU/h model Cooling, Heat&Cool model (Reverse cycle)]
[7000, 9000, 12000 and 14000 BTU/h models Cooling model]



[7000, 9000, 12000 and 14000 BTU/h models Heat&Cool model (Reverse cycle)]



⚠ CAUTION

(1) Tighten the indoor unit connection cable (to the outdoor unit) and power supply indoor and outdoor unit terminal board connections firmly with the terminal board screws. Faulty connection may cause a fire.

(2) If the indoor unit connection cable (to the outdoor unit) and power supply are wired incorrectly, the air conditioner may be damaged.

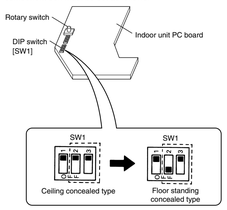
(3) Wire the indoor unit connection cable (to the outdoor unit) by matching the numbers of the outdoor and indoor units terminal board numbers as shown in terminal label.

(4) Ground both the indoor and outdoor units by attaching a ground wire.

(5) Unit shall be grounded in compliance with the applicable local and national codes.

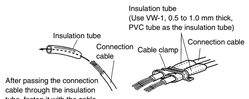
3. Floor standing concealed/ceiling concealed select switch

(1) The DIP switches were set for use as a ceiling concealed type at the factory.
(2) The following changes must be made to the settings if the unit is to be used as a floor standing concealed type.
(3) Changing the settings for the electrical circuits.
DIP Switch 1 (SW1) on the printed circuit board inside the electric component box must be set as follows.

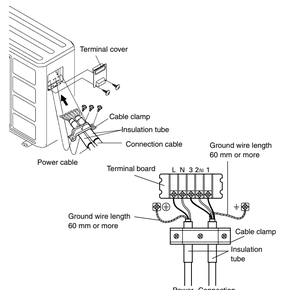


4. OUTDOOR UNIT SIDE

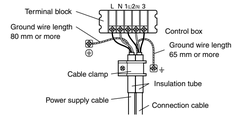
(1) Remove the terminal cover of the outdoor unit, and insert the end of the connection cable and the power cable into the terminal board.
(2) Fasten the connection cable with the cable clamp, and install the terminal cover.



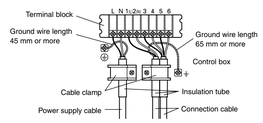
[18000 BTU/h model Cooling, Heat&Cool model (Reverse cycle)]



[7000, 9000, 12000 and 14000 BTU/h models Cooling model]



[7000, 9000, 12000 and 14000 BTU/h models Heat & Cool model (Reverse cycle)]



⚠ CAUTION

When routing the ground wires, leave slack as shown in the illustrations.

7 POWER

⚠ WARNING

(1) The rated voltage of this product is 230 V A.C. 50 Hz.

(2) Before turning on the verify that the voltage is within the 198 V to 264 V range.

(3) Always use a special branch circuit and install a special breaker to supply power to the room air conditioner.

(4) Use a circuit breaker matched to the capacity of the room air conditioner. (Install in accordance with standard)

(5) The circuit breaker is installed in the permanent wiring. Always use a circuit that can trip all the poles of the wiring and has an isolation distance of at least 3 mm between the contacts of each pole.

(6) Perform wiring work in accordance with standards so that the room air conditioner can be operated safely and positively.

(7) Install a leakage circuit breaker in accordance with the related laws and regulations and electric company standards.

⚠ CAUTION

(1) The power source capacity must be the sum of the room air conditioner current and the current of other electrical appliances. When the current contracted capacity is insufficient, change the contracted capacity.

(2) When the voltage is low and the air conditioner is difficult to start, contact the power company the voltage raised.

8 REMOTE CONTROLLER SETTING

⚠ CAUTION

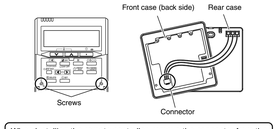
(1) When detecting the room temperature using the remote controller, please set up the remote controller according to the following conditions.
If the remote controller is not well set, the correct room temperature will not be detected, and thus the abnormal conditions like "not cooled" or "not heated" will occur even if the air-conditioner is running normally.
- **A location with an average temperature for the room being airconditioned.**
- **Not directly exposed to the outlet air from the air-conditioner.**
- **Out of direct sunlight.**
- **Away from the influence of other heat sources.**

(2) When installing the remote controller and cable near a source of electromagnetic waves, separate the remote controller from the source of the electromagnetic waves and use shielded cable.

(3) Do not touch the remote controller PC board and PC board parts directly with your hands.

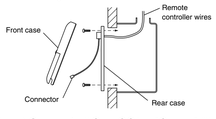
1. INSTALLING THE REMOTE CONTROLLER

(1) 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.



When installing the remote controller, remove the connector from the front case. The wires may break if the connector is not removed and the front case hangs down.
When installing the front case, connect the connector to the front case.

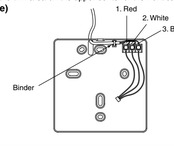
(2) Install the rear case to the wall, etc. with the two tapping screws.
Refer to the following information to install the remote controller wires.



2. ROUTING THE REMOTE CONTROLLER WIRES

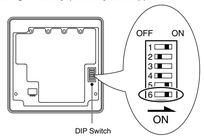
(1) Install the remote controller wires to the terminals on the top of the rear case as shown in the following figure.
(2) Fasten the wires with the binder.
(3) If the remote controller wires run through the room, use a tool to cut away the thin area on the upper center of the front case.

(Example)



3. SETTING THE DIP SWITCHES

When using a battery (memory backup)



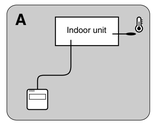
Change the DIP switch setting to use batteries. (The DIP switch is not set to use batteries at the factory.)
Change DIP switch No. 6 from OFF to ON.
If batteries are not used, all of the settings stored in memory will be deleted if there is a power failure.

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)

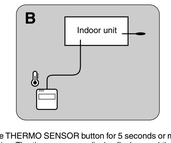
The room temperature is detected by the indoor unit temperature sensor.



(1) 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.

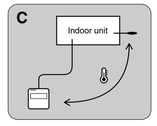


(1) Press the THERMO SENSOR button for 5 seconds or more to unlock the function. The thermo sensor display flashes and then disappears when the function is unlocked.
(2) Press the THERMO SENSOR button. The thermo sensor display appears.

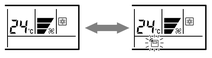
(3) Press the THERMO SENSOR button again for 5 seconds or more to lock the function. The thermo sensor display flashes and then remains on when the function is locked.
(4) Make sure that the function is locked.

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.



(1) 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.
(2) Press the THERMO SENSOR button to select the temperature sensor of the indoor unit or the remote controller.



⚠ CAUTION

(1)  **When select the "Remote controller setting", if the detected temperature value between the temperature sensor of the indoor unit and the temperature sensor of the remote controller varies significantly, it is likely to return to the control status of temperature sensor of the indoor unit temporarily.**

(2) As the temperature sensor of remote controller detects the temperature near the wall, when there is a certain difference between the room temperature and the wall temperature, the sensor will not detect the room temperature correctly sometimes.
Especially when the outer side of the wall on which the sensor is positioned is exposed to the open air, it is recommended to use the temperature sensor of the indoor unit to detect the room temperature when the indoor and outdoor temperature difference is significant.

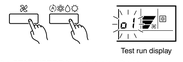
(3) The temperature sensor of the remote controller is not only used when there is a problem in the detection of the temperature sensor of the indoor unit.

i 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

(1) Stop the air conditioner operation.
(2) Press the MODE button and the FAN button simultaneously for 2 seconds or more to start the test run.



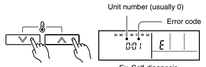
(3) Press the START/STOP button to stop the test run.

[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

(1) Stop the air conditioner operation.
(2) Press the SET TEMP. buttons ∧ / ∨ simultaneously for 5 seconds or more to start the self-diagnosis.
Refer to the following tables for the description of each error code.



(3) Press the SET TEMP. buttons ∧ / ∨ 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)

Error code	Error contents
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 high pressure error
0F	Discharge pipe temperature error
11	Model error
12	Indoor fan error
13	Outdoor signal error
14	Outdoor EEPROM error

2. OUTDOOR UNIT LEDS

When the outdoor temperature drops, the outdoor unit's fans may switch to low speed.
ERROR : 18000 BTU/h model HEAT & COOL MODEL (REVERSE CYCLE) ONLY

The LED lamps operate as follows according to the error contents.

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

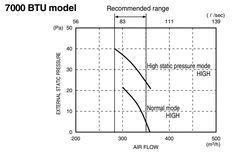
When the fault is cleared, the LED lamp goes off.
However, for discharge pipe temperature abnormal and high pressure abnormal, the LED lamp lights continuously for 24 hours, as long as the power is not turned off.

10 STATIC PRESSURE CHARACTERISTIC

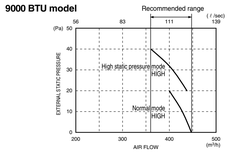
1. FAN PERFORMANCE AND AIR FLOW

EXTERNAL STATIC PRESSURE

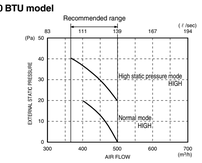
7000 BTU model



9000 BTU model



12000 BTU model



14000 BTU model

18000 BTU model

2. AIR FLOW SETTING

The air flow is set according to the DIP switch settings in the following tables.

[7000, 9000, 12000, and 14000 BTU/h models]

Fan mode	DIP-SW4		
	1	2	3
Normal mode (0 ≦ Pa ≦ 20)	—	OFF	OFF
High static pressure mode (20 < Pa ≦ 40)	—	ON	OFF

[18000 BTU/h model]

Fan mode	DIP-SW4		
	1	2	3
Normal mode (0 ≦ Pa ≦ 70)	—	OFF	OFF
Quiet mode (*0 ≦ Pa ≦ 40)	—	ON	OFF

* When the PC board of the indoor unit is set for the quiet mode, air flow and cooling and heating performance will be reduced slightly. The quiet mode can only be used when the external static pressure is 40 Pa or less.

⚠ CAUTION

Do not set any switches other than those specified in this sheet. The air conditioner may not operate correctly if any switches other than those specified are changed.

11 SPECIAL INSTALLATION METHODS

⚠ CAUTION

(1) When setting the rotary switch and DIP switches, do not touch any other parts on the circuit board directly with your bare hands.

(2) 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.

(1) Wiring method (indoor unit to remote controller)

(2) Rotary switch setting (indoor unit)
Set the unit number of each indoor unit using the rotary switch on the indoor unit circuit board.
The rotary switch is normally set to 0.
(3) DIP switch setting (remote controller)
Change DIP switch No. 3 on the remote controller from OFF to ON.

2. DUAL REMOTE CONTROLLERS (OPTIONAL)

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

(1) Wiring method (indoor unit to remote controller)

(2) DIP switch setting (remote controller)
Set the remote controller DIP switch Nos. 1 and 2 according to the following table.

Number of remote controllers	Master unit	
	DIP-SW No. 1	DIP-SW No. 2
1 (Normal)	ON	OFF
2 (Dual)	OFF	OFF

Number of remote controllers	Slave unit	
	DIP-SW No. 1	DIP-SW No. 2
1 (Normal)	–	–
2 (Dual)	ON	ON

3. 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.

(1) DIP switch setting (indoor unit)
Change the DIP switch (SW1-1) on the indoor unit circuit board from ON to OFF. The auto restart function will be canceled.

[DIP-SWITCH SETTING]

● **Indoor unit**

	NO.	SW state OFF	SW state ON	Detail
DIP-Switch 1	1	Invalidity	Validity ✻	Auto restart setting
	2	—	— ✻	Temperature correction
	3	—	— ✻	setting for heating
DIP-Switch 4	1	—	—	Remote controller setting
	2	— ✻	—	Air flow setting
	3	— ✻	—	

● **Remote controller**

	NO.	SW state OFF	SW state ON	Detail
DIP-Switch	1		✻	Dual remote controller
	2	✻		setting
	3	One unit ✻	Multiple unit	Group control setting
	4	Heat & Cool model	Cooling only model	Model setting
	5	Invalidity	Validity ✻	Auto changeover setting
	6	Invalidity✻	Validity	Memory backup setting

✻ : Factory setting

PART NO. 9364658049-03