

Floor Console/Under Ceiling Dual Type

INSTALLATION INSTRUCTION SHEET

(PART NO. 9374318346)
For authorized service personnel only.

CAUTION

R410A REFRIGERANT

This Air Conditioner contains and operates with refrigerant R410A and R410A Plus. Refer to Commonwealth, State, Territory and local legislation, regulations, codes, installation & operation manuals, before the installation, maintenance and/or service of this product.

DANGER	This mark indicates procedures which, if improperly performed, are most likely to result in the death of or serious injury to the user or service personnel.
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.

DANGER

Never touch electrical components immediately after the power supply has been turned off. Electrical shock may occur. After turning off the power, always wait 5 minutes or more before touching electrical components.

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.

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/cm ²) for high pressure. -0.1 to 3.8 MPa (-76 cmHg to 38 kgf/cm ²) 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 conventional refrigerant, it is necessary to choose adequate materials. Thicknesses of copper pipes used with R410A are as shown in the table. Never use copper pipes thinner than that in the table even when it is available on the market.

Thicknesses of Annealed Copper Pipes (R410A)

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

STANDARD PARTS

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

INDOOR UNIT ACCESSORIES

Name and Shape	Qty	Application
Cover plate (left)	1	
Cover plate (right)	1	
Tapping screw (ø4 × 10)	2	
Installation template	1	For positioning the indoor unit For under ceiling type
Bracket (left)	1	For suspending the indoor unit from ceiling
Bracket (right)	1	
Anchor bolt (M12)	4	
Spring washer	4	
Special nut	4	
Wall bracket	2	For suspending the indoor unit on the wall
Tapping screw (ø4 × 20)	6	For fixing the wall bracket
Coupler heat insulator (large)	1	For indoor side pipe joint (Large pipe)
Coupler heat insulator (small)	1	For indoor side pipe joint (Small pipe)
Nylon fastener	1	For fixing the drain hose

Name and Shape	Qty	Application
Drain hose	1	
Insulation (drain hose)	1	Adhesive type 70 × 230
VT wire	1	For fixing the drain hose L 280 mm
Remote control unit	1	Use for air conditioner operation
Battery (penlight)	2	For remote control unit
Remote control unit holder	1	Use as remote control unit holder
Tapping screw (ø3 × 12)	2	For remote control unit holder installation

OPTIONAL PARTS

The following options are available.
• WIRED REMOTE CONTROLLER: UTB-UD

- 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 from our 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.
 - Do not turn on the power until all installation work is complete.

CAUTION

This installation instruction sheet describes how to the indoor unit only.
To install the outdoor unit, refer to the installation instruction sheet included with the outdoor unit.

- 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.

CONNECTION PIPE REQUIREMENT

CAUTION

Refer to the installation instruction sheet of the outdoor unit for description of the length of connecting pipe or for difference of its elevation.

MODEL	14,000, 18,000 BTU/h model	24,000 BTU/h model
Diameter	Liquid 6.35 mm (1/4 in.) Gas 12.70 mm (1/2 in.)	6.35 mm (1/4 in.) 15.88 mm (5/8 in.)

- 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

Connection cord (mm ²)	
MAX.	MIN.
2.5	1.5

- Use conformed cord with Type 245 IEC57.
- 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)

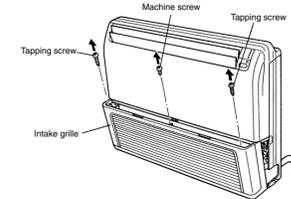
INSTALLATION PROCEDURE

Install the room air conditioner as follows:

1 PREPARING INDOOR UNIT INSTALLATION

1. REMOVE THE INTAKE GRILLE

Open the intake grille and remove the three screws.



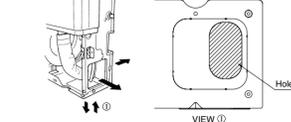
Remark: The main unit can be wired before the indoor unit is installed. Select the most appropriate installation order.

2 INDOOR UNIT INSTALLATION

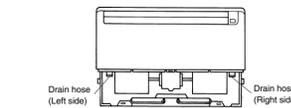
A. FLOOR CONSOLE TYPE

1. DRILLING FOR PIPING

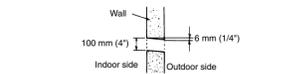
Select piping and drain directions.
The piping and drain can be made in three directions as shown below.



For direction ①, bore the oval hole shown in the above figure. The drain hose can be connected to either the left or right side.



When the directions are selected, drill a 10 cm (4") dia. hole on the wall so that the hole is tilted downward toward the outdoor for smooth water flow. When the pipe is led out from the rear, make a hole as shown in the figure, at the position shown.



3 CONNECTING THE PIPE

1. FLARING

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

2. BENDING PIPES

- Centering the pipe against port on the indoor unit, turn the flare nut with your hand.
- Be sure that the small pipe is completely installed before connecting the large pipe.

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.

Pipe outside diameter	Dimension A (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

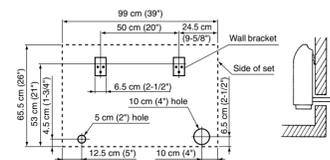
Pipe outside diameter	Dimension B (mm)
6.35 mm (1/4 in.)	17
9.52 mm (3/8 in.)	22
12.70 mm (1/2 in.)	26
15.88 mm (5/8 in.)	29
19.05 mm (3/4 in.)	36

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

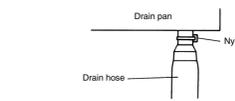
When using conventional flare tools to flare R410A pipes, the dimension A should be approximately 0.5 mm more than indicated in the table (for flaring with R410A flare tools) to achieve the specified flaring. Use a thickness gauge to measure the dimension A.

When installing set to wall install the accessory wall bracket at the position as shown in the figure, and mount the set to it.

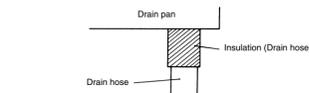


2. INSTALLING THE DRAIN HOSE

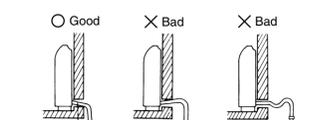
Select whether the drain hose will be connected to the left or right side. Insert the drain hose into the drain pan, then secure the drain hose with a nylon fastener.



Wrap the insulation (drain hose) around the drain hose connection.



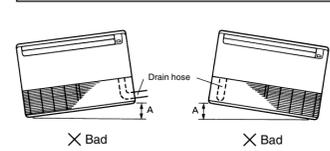
Be sure to arrange the drain hose so that it is leveled lower than the drain hose connecting port of the indoor unit.



For direction ①, bore the oval hole shown in the above figure. The drain hose can be connected to either the left or right side.

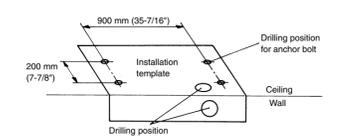
CAUTION

Do not install the unit so that the drain hose side is too high. Height A should be less than 5 mm.



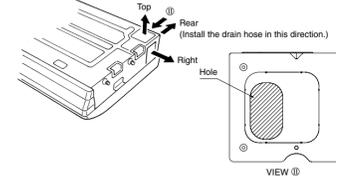
B. UNDER CEILING TYPE

Using the installation template, drill holes for piping and anchor bolts (for holes).



1. DRILLING FOR PIPING

Select piping and drain directions.

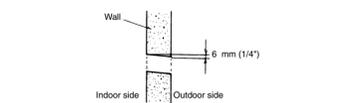


For direction ①, bore the oval hole shown in the above figure.

CAUTION

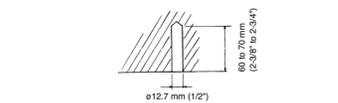
Install the drain hose at the rear; it should not be installed on the top or right side.

When the directions are selected, drill 80 mm (3-1/8") and 50 mm (2") or 150 mm (6") dia. hole on the wall so that the hole is tilted downward toward the outdoor for smooth water flow.

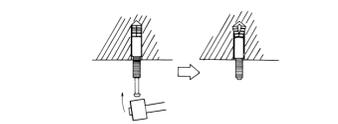


2. DRILLING HOLES FOR ANCHOR BOLTS AND INSTALLING THE ANCHOR BOLTS

With a concrete drill, drill four 12.7 mm (1/2") dia. holes.

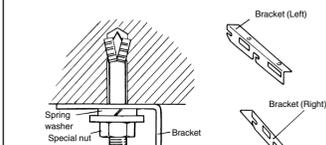


Insert the anchor bolts into the drilled holes, and drive the pins completely into the anchor bolts with a hammer.



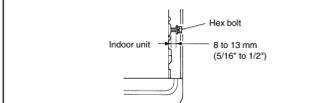
3. INSTALLING BRACKETS

Install the brackets with nuts, washers and spring washers.

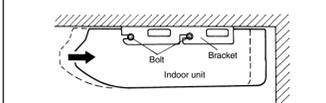


4. INSTALLING INDOOR UNIT

Reset the hex bolts as shown in the figure.

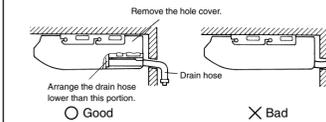


Apply the indoor unit to the brackets.

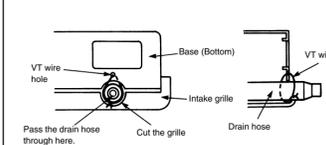


5. INSTALLING THE DRAIN HOSE

Select whether the drain hose will be connected to the left or right side. Insert the drain hose into the drain pan, then secure the drain hose with a nylon fastener. Wrap the insulation (drain hose) around the drain hose connection. Be sure to arrange the drain hose so that it is leveled lower than the drain hose connecting port of the indoor unit.



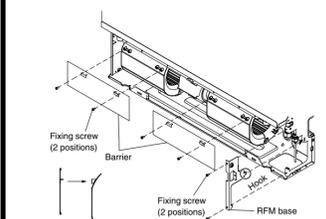
When drain hose is arranged backward. Secure the drain hose with the VT wire.



4 BARRIER AND RFM BASE REMOVAL

BARRIER AND RFM BASE REMOVAL AND INSTALLATION

- Remove the barriers by removing the 4 fixing screws (2 screws each).
- Remove the RFM base by removing the 2 fixing screws and unhooking the 1 hook.
- After completing the work, install the barriers and RFM base as they were originally.



Install the barriers in the correct direction.

Flare nut tightening torque	
Flare nut	Tightening torque
6.35 mm (1/4 in.) dia.	16 to 18 N·m (160 to 180 kgf-cm)
9.52 mm (3/8 in.) dia.	30 to 42 N·m (300 to 420 kgf-cm)
12.70 mm (1/2 in.) dia.	49 to 61 N·m (490 to 610 kgf-cm)
15.88 mm (5/8 in.) dia.	63 to 75 N·m (630 to 750 kgf-cm)
19.05 mm (3/4 in.) dia.	90 to 110 N·m (900 to 1100 kgf-cm)

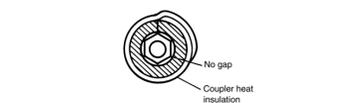
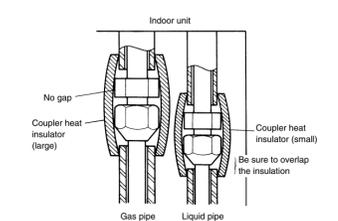
Do not remove the cap from the connection pipe before connecting the pipe.

CAUTION

Be sure to connect the gas pipe after connecting the liquid pipe completely.

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

Put coupler heat insulator on the joints (indoor side only).

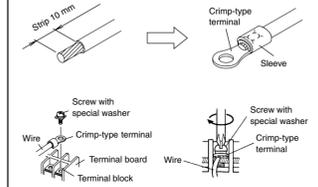


5 ELECTRICAL WIRING

- 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.
 - Install the remote controller wires so as not to be directly touched with your hand.

HOW TO CONNECT WIRING TO THE TERMINALS

- ### For strand wiring
- Use crimp-type terminals with insulating sleeves as shown in the figure below to connect to the terminal block.
 - Securely crimp the crimp-type terminals to the wires using an appropriate tool so that the wires do not come loose.
 - Use the specified wires, connect them securely, and fasten them so that there is no stress placed on the terminals.
 - Use an appropriate screwdriver to tighten the terminal screws. Do not use a screwdriver that is too small, otherwise, the screw heads may be damaged and prevent the screws from being properly tightened.
 - Do not tighten the terminal screws too much, otherwise, the screws may break.
 - See the table below for the terminal screw tightening torques.



Setting Description	Function Number	Setting Value
Standard	30	00
Lower control		01

When using floor console installation, change the setting value to "01".

Setting the Cooler Room Temperature Correction

Depending on the installed environment, the room temperature sensor may require a correction. The settings may be selected as shown in the table below. (The unit is factory-set to "00".)

Setting Description	Function Number	Setting Value
Standard	30	00
Lower control		01

Setting the Heater Room Temperature Correction

Depending on the installed environment, the room temperature sensor may require a correction. The settings may be changed as shown in the table below. (The unit is factory-set to "00".)

Setting Description	Function Number	Setting Value
Standard		00
Lower control	31	01
Slightly warmer control		02
Warmer control		03

Setting Other Functions

The following settings are also possible, depending on the operating conditions. (The unit is factory-set to "00".)

Setting Description	Function Number	Setting Value
Yes	40	00
No		01

Indoor Room Temperature Sensor Switching Function (Wired remote control only)

Setting Description	Function Number	Setting Value
No	42	00
Yes		01

- If setting value is "00", room temperature is controlled by the indoor unit temperature sensor.
- If setting value is "01", room temperature is controlled by either indoor unit temperature sensor or remote control unit sensor.

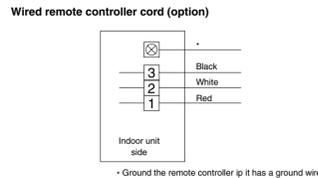
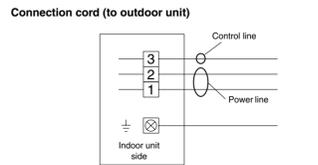
Setting record

Record any changes to the settings in the following table.

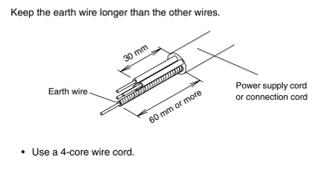
Setting	Setting Value
Ceiling height	
Filter sign	
Cooler room temperature correction	
Heater room temperature correction	
Auto restart	
Indoor room temperature sensor switching function	

After completing the FUNCTION SETTING, be sure to turn off the power and turn it on again.

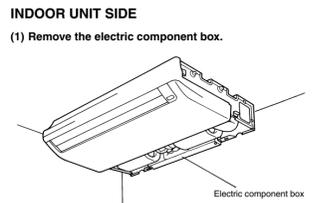
1. CONNECTION DIAGRAMS



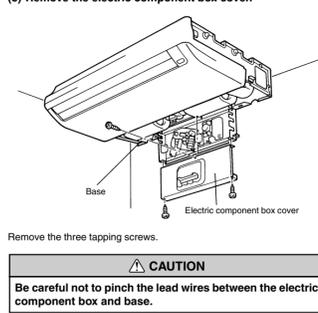
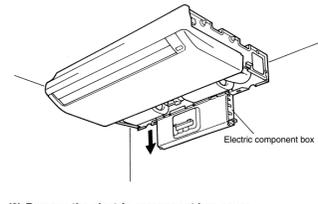
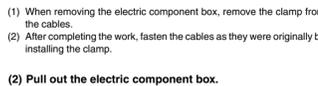
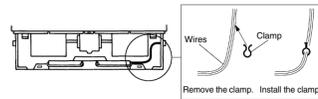
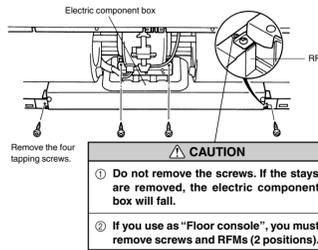
2. CONNECTION CORD PREPARATION



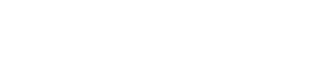
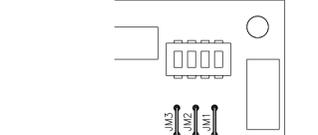
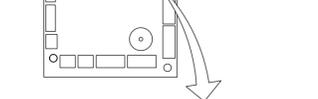
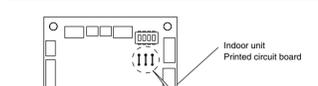
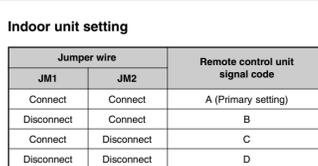
3. CONNECTION OF WIRING



Use crimp-type terminals and tighten the terminal screws to the specified torques, otherwise, abnormal overheating may be produced and possibly cause heavy damage inside the unit.



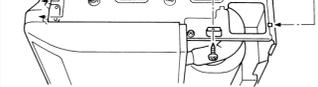
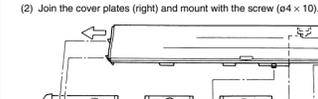
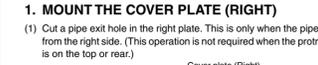
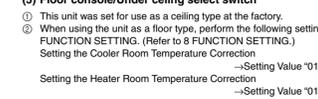
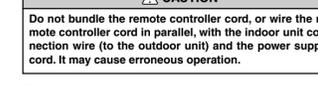
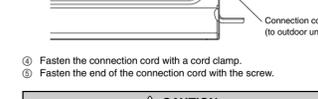
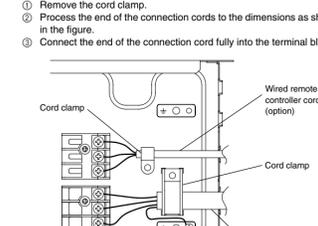
4. WIRING



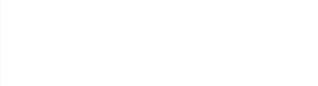
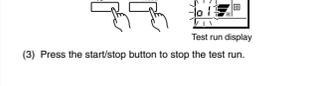
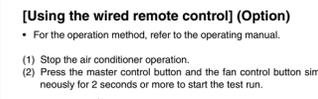
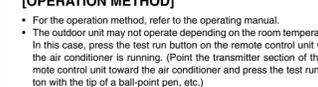
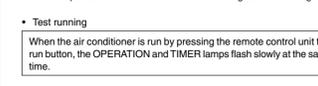
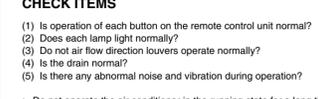
5. MOUNT THE COVER PLATE (LEFT)

Join the cover plates (left) and mount with the screw (ø4 × 10).

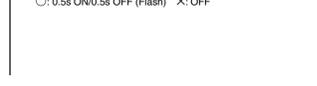
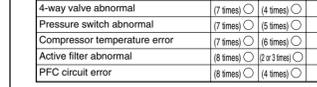
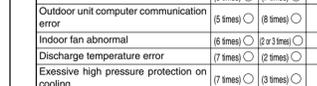
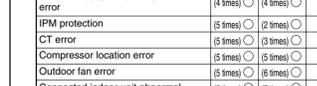
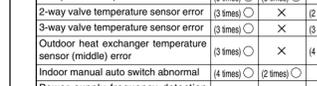
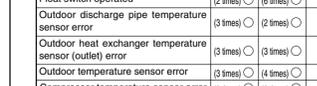
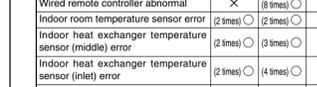
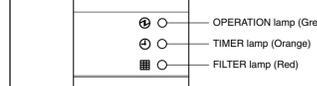
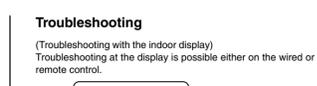
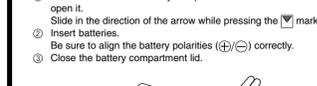
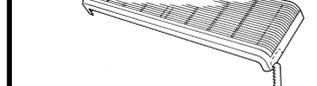
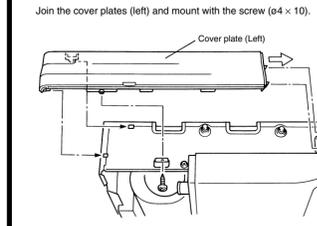
2. MOUNT THE COVER PLATE (LEFT)



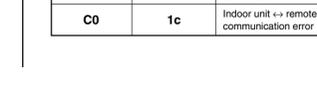
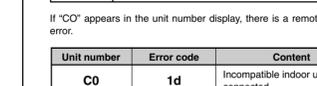
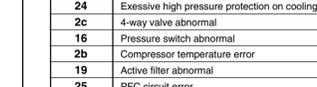
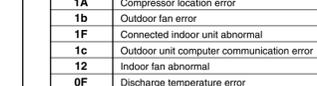
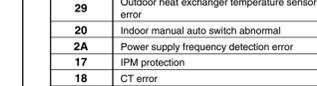
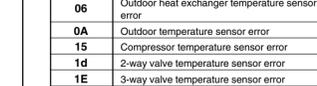
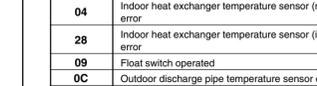
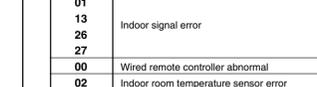
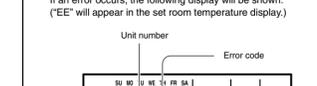
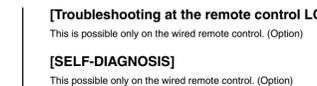
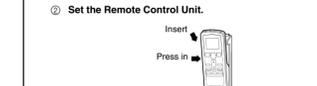
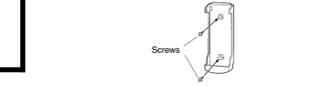
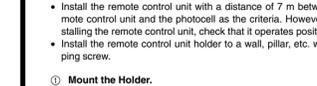
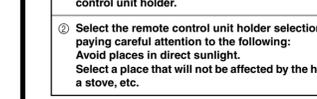
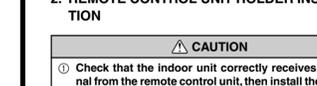
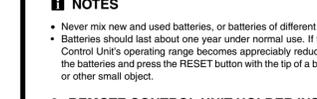
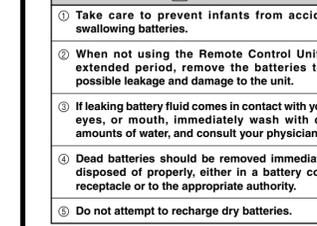
3. MOUNT THE INTAKE GRILLE



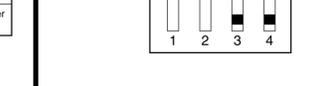
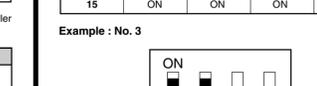
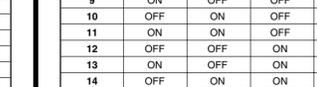
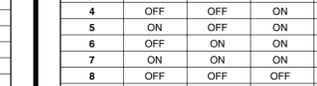
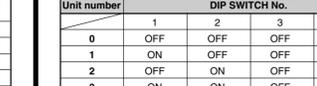
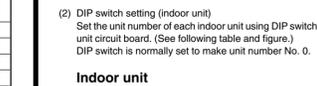
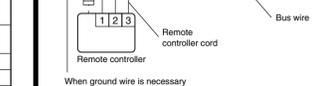
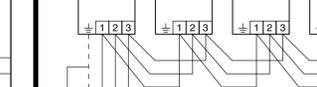
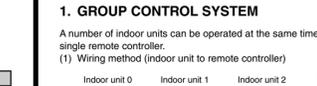
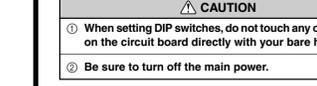
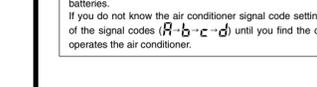
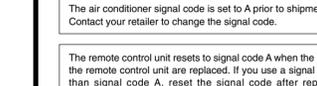
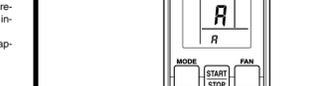
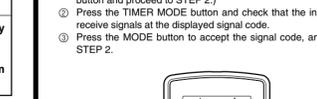
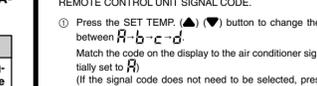
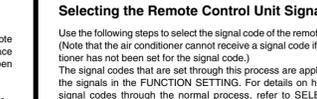
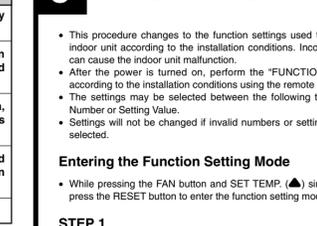
4. WIRING



5. MOUNT THE COVER PLATE (LEFT)



6. REMOTE CONTROL SETTING



7. FUNCTION SETTING

