

### (PART NO. 9365388068)

For authorized se	rvice personnel only.
△WARNING	This mark indicates procedures which, if improperly performed, might lead to the death or serious injury of the user.
△ CAUTION	This mark indicates procedures which, if improperly performed, might possibly result in personal harm to the user, or damage to property.

The basic installation work procedures are the same as conventional refrigerant (R22) models. However, pay careful attention to the following points:	
Since the working pressure is 1,5 times higher than that of conventional refrigerant (R22) models, some of the pip-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 replaced to the replace of the refrigerant refrigeran	
Models that use refrigerant R410A have a different charging port thread diameter to prevent erroneous charging w ventional refrigerant (R22) and for safety. Therefore, check beforehand. [The charging port thread diameter for R410 UNP 20 threads per Inch.]	
Be more careful that foreign matter (oil, water, etc.) does not enter the piping than with refrigerant (R22) models. Als storing the piping, securely seal the openings by pinching, taping, etc.	o, when
Care and the second of the sec	

Gauge manifold	Pressure is high and cannot be measured with a conventional gauge. To prevent erroneous mixing of other refrigerants, the diameter of each top on than been changed. It is recommended the gauge with seals: ~0.1 to 5.3 MPs (~76 cmblg to 5.3 lightom) for high pressure. ~1.0 5.0 MPs (~76 cmblg to 5.0 lightom) 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 RH10A.

esidual oil is less than 40 mg/10 m. Do not use copper pipes having a collapsed,	П
seformed or discolored portion (especially on the interior surface). Otherwise, the	
spansion valve or capillary tube may become blocked with contaminants.	н
As an air conditioner using R410A incurs pressure higher than when using	н
conventional refrigerant, it is necessary to choose adequate materials.	п
Pricknesses of copper pipes used with R41DA are as shown in the table. Never use copper pipes thinner than that in the table even when it is available on	ı
he market.	Ł

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
15.00 mm (50 in.)	1.00 mm
19.05 mm (2H in.)	1,20 mm

The following installation parts :	ore furnic	hed. Use them as required.				
INDOOR UNIT ACCESSORIES						
Name and Shape	O'ty	Application				
Coupler heat insulation	2	For indoor side pipe joint				
Special nut A (large flange)	4	For installing indoor unit				
Special nut III (small flange)	4	For installing indoor unit				
Template O o	1	For ceiling hole cutting				
Blower cover insulation	10	For discharged air				
O	2	For installing intake grills.				
Binder	t (small)	For fixing the remote controller cord				
Remote controller						
Tapping screw (flush heads)	2	For installing the remote controller				
Remote controller cord	1	For connecting the remote controller				

OUTDOOR UNIT ACCESSORIES					
Drain pipe		1	For outdoor unit drain piping work (May not be supplied, depending on the model.)		
Drain cap	8	1			

### OPTIONS

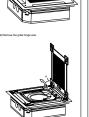
### INSTALLATION PROCEDURE STANDARD PARTS

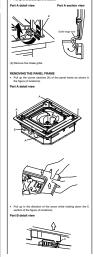


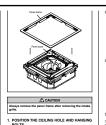
	~			
	R UNIT ACC	ESSC	RIES	
Drain pipe		1	For outdoor unit drain piping work (May not be supplied, depending on the model.)	
Drain cap	(650)			

## INDOOR UNIT INSTALLATION





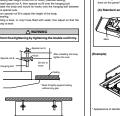


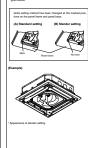








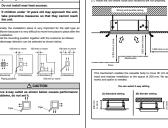












0	Install the unit where it will not be tilted by more than 5'.
	When installing the outdoor unit where it may exposed to strong wind, fasten it securely.



## CONNECTION PIPE REQUIREMENT

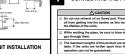
	Δ	CAUTIO	ON	
The maximur following tab correct opera	le. If the unit	are furt	her ap	shown in the art than this,
Dias	meter	Pipe	length	Maximum height

Liquid	Gas	MAX.	MIN.	and outdoor)
9.52 mm (3/8 in.)	15.00 mm (5/0 in.)	25 m	5 m	15 m
<ul> <li>Use pipe with ws</li> </ul>	ster-resistant heat in	nsulation		

	Power supp	ly cord (mm <sup>2</sup> )	Connection	Breaker		
	MAX	MIN.	MAX	MN	(A)	
phase TYPE	2.5	1.5	2.5		10	
phase TYPE	4.0	3.5	2.5	1.5	30	















TE îo III				
Exmension A (mm)				
Flare tool for R410A, clutch type				
1				
0 to 0.5				
Dimension B 1 (mm)				
9.1				
13.2				
16.6				
19.7				
24.0				

















## 4 CONNECTING THE PIPE

### **⚠** CAUTION

Do not purge the air with refrigerants but use a vacuum pump to vacuum the installation! There is no extra refrigerant in the outdoor unit for air purging!

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

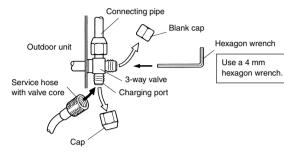
### 4. VACUUM

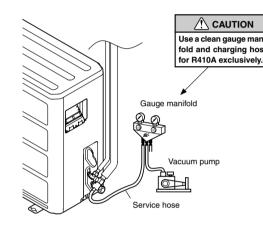
- (1) Remove the cap, and connect the gauge manifold and the vacuum pump to the charging valve by the service hoses.
- (2) Vacuum the indoor unit and the connecting pipes until the pressure gauge indicates -0.1 MPa (-76 cmHg).
- 3) When -0.1 MPa (-76 cmHg) is reached, operate the vacuum pump for at least 30 minutes.
- 4) Disconnect the service hoses and fit the cap to the charging valve to

and 3-way valves with a hexagon wrench [Torque: 6~7 N·m (60 to

- the specified torque. (5) Remove the blank caps, and fully open the spindles of the 2-way
- (6) Tighten the blank caps of the 2-way valve and 3-way valve to the specified torque.
- Tightening torque 6.35 mm (1/4 in.) 20 to 25 N·m (200 to 250 kgf·cm)

9.52 mm (3/8 in.) 20 to 25 N·m (200 to 250 kgf·cm) 12.70 mm (1/2 in.) 28 to 32 N·m (280 to 320 kgf·cm) 15.88 mm (5/8 in.) 30 to 35 N·m (300 to 350 kgf·cm) 19.05 mm (3/4 in.) 35 to 40 N·m (350 to 400 kgf·cm) Charging port cap 12.5 to 16 N·m (125 to 160 kgf·cm)





### 5. ADDITIONAL CHARGE

Refrigerant suitable for a piping length of 7.5 m is charged in the outdoor When the piping is longer than 7.5 m, additional charging is necessary.

To the additional amount, see the table below.						
Pipe length		7.5 m	10 m	15 m	20 m	25 m
		(25 ft)	(33 ft)	(49 ft)	(66 ft)	(82 ft
Additional refrigerant	Heat & Cool (Reverse cycle)	None	100 g (3.5 oz)	300 g (10.6 oz)	500 g (17.6 oz)	700 g (24.7 d
	Cooling model	None	50 g (1.8 oz)	150 g (5.3 oz)	250 g (8.8 oz)	350 ( (12.3 c

Between 7.5 m and 25 m, when using a connection pipe other than that in the table, charge additional refrigerant with 40 g (1.4 oz)/1 m (3.3 ft) (Reverse cycle model), 20 g (0.71 oz)/1 m (3.3 ft) (Cooling model) as the

### **↑** CAUTION

- When moving and installing the air conditioner, do not mix gas other than the specified refrigerant (R410A) inside the refrigerant cycle.
- When charging the refrigerant R410A, always use an electronic balance for refrigerant charging (to measure the refrigerant by weight).
- When charging the refrigerant, take into account the slight change in the composition of the gas and liquid phases, and always charge from the liquid phase side whose composition is stable. Add refrigerant from the charging valve after the com-
- pletion of the work. The maximum length of piping is 25 m. If the units are
- further apart than the maximum pipe length, correct operation can not be guaranteed

### 6. GAS LEAKAGE INSPECTION **↑** CAUTION

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

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

After checking for gas leaks, insulate by wrapping insulation around the two parts (gas and liquid) of the indoor unit coupling, using the coupler After installing the coupler heat insulation, wrap both ends with vinyl tape so that there is no gap.



Must fit tightly against body without any gap.

move the front case of the remote controller.

## **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

board. Imperfect installation may cause a fire.

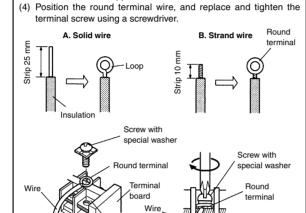
Always fasten the outside covering of the connection

cord with the cord clamp. (If the insulator is chafed,

electric leakage may occur.) Always connect the ground wire.

## HOW TO CONNECT WIRING TO THE TERMINALS

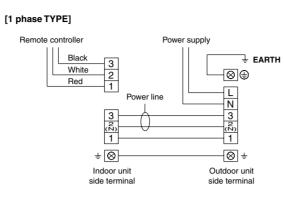
- A. For solid core wiring (or F-cable) ) Cut the wire end with a wire cutter or wire-cutting pliers, then strip the insulation to about 25 mm to expose the solid wire. Using a screwdriver, remove the terminal screw(s) on the termina
- Using pliers, bend the solid wire to form a loop suitable for the ) Shape the loop wire properly, place it on the terminal board and tighten securely with the terminal screw using a screwdriver.
- 3. For strand wiring Cut the wire end with a wire cutter or wire-cutting pliers, then strip the insulation to about 10 mm to expose the strand wiring.
- Using a screwdriver, remove the terminal screw(s) on the termin Using a round terminal fastener or pliers, securely clamp a round
- terminal to each stripped wire end.



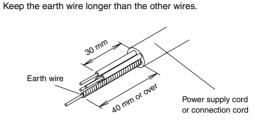
**↑** CAUTION Do not bundle the remote controller cord, or wire the remote controller cord in parallel, with the indoor unit con nection wire (to the outdoor unit) and the power supply cord. It may cause erroneous operation.

## 1. CONNECTION DIAGRAMS

[3 phase TYPE] Black White Indoor unit Outdoor unit side terminal side terminal



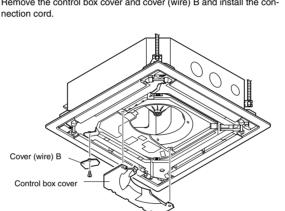
## 2. CONNECTION CORD PREPARATION



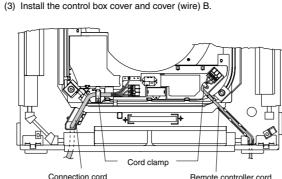
## 3. INDOOR UNIT SIDE

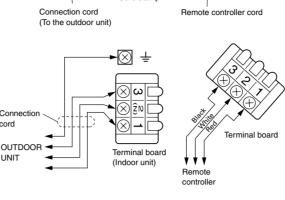
**?** CAUTION Use care not to mistake the power supply cord and onnection wires when installing.

(1) Remove the control box cover and cover (wire) B and install the connection cord.



### (2) After wiring is complete, clamp the remote controller cord and connection cord with the cord clamp.

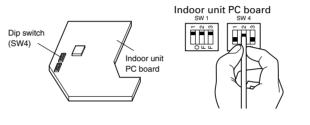




## Ceiling height setting

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

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



### **↑** CAUTION If the setting for a low ceiling is selected, the capacity of the air conditioner decreases slightly

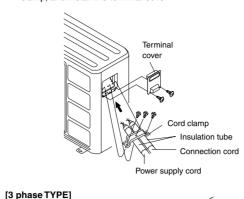
② Do not set any switches other than those specified in this sheet or the remote controller installation in struction sheet. The air conditioner may not operate correctly if any switches other than those specified are

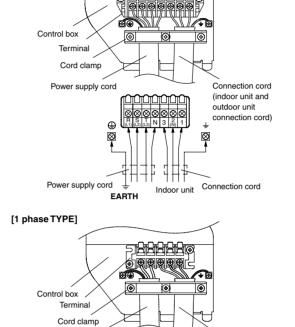
## 4. OUTDOOR UNIT SIDE

### **↑** CAUTION When connecting the power supply cord, make sure that the phase of the power supply matches with the phase of the terminal board. If the phases do not match, the compressor will rotate in reverse and will not be able to compress.

(1) Remove the terminal cover of the outdoor unit, and insert the end of

the connection cord and the power supply cord into the terminal board (2) Fasten the connection cord and the power supply cord with the cord clamp, and install the terminal cover





**⚠** CAUTION When routing the ground wires, leave slack as shown i the illustrations.

EARTH

(indoor unit and

connection cord

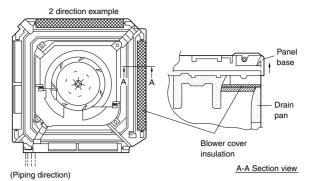
outdoor unit

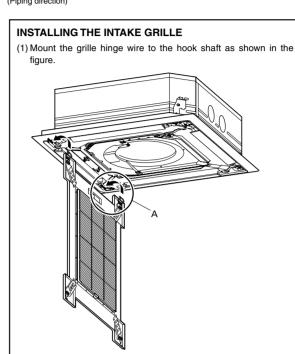
## **GRILLE INSTALLATION**

## **BLOWER COVER INSULATION**

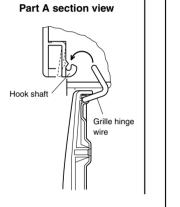
Install the blower cover insulation only when the outlet direction is not Two blower cover insulations are packed with the indoor unit. Install the blower cover insulation at the diffuser position shown in the

figure. At this time, use the piping position as the criteria.





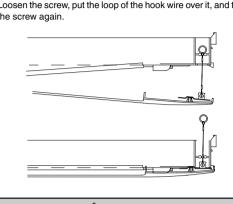
Latch the grille hinge wire to the hook shaft, and fasten

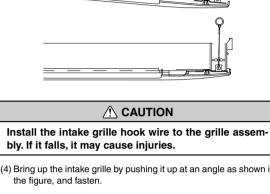


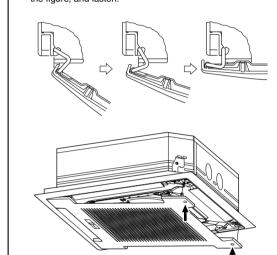
# Pass the hook wire through the panel base from the rear side as shown in the figure, and fasten to the reinforced metal fitting of the intake grille using a screw.

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

(2) Install the hook wire.







## **POWER**

## **WARNING**

- [3 phase TYPE] The rated voltage of this product is 400 V 3N ~ 50 Hz. Before turning on, verify that the voltage is within the 342 V to 457 V range.
- [1 phase TYPE] The rated voltage of this product is 230 V ~ 50 Hz. Before turning on, verify that the voltage is within the 198 V to 264 V range
- Always use a special branch circuit and install a special receptacle to supply power to the air conditioner.
- Use a special branch circuit breaker and receptacle matched to the capacity of the air conditioner. (Install in accordance with standard.)
- Perform wiring work in accordance with standards so that the air conditioner can be operated safely and posi-
- Install a leakage special branch circuit breaker in accordance with the related laws and regulations and electric company standards.

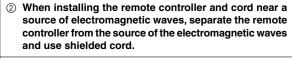
## **↑** CAUTION

- The power source capacity must be the sum of the air conditioner current and the current of other electrical appliances. When the current contracted capacity is insufficient, change the contracted capacity.
- When the voltage is low and the air conditioner is difficult to start, contact the power company the voltage
- This air conditioner must be connected to a power source that has an electrical impedance of 0.159  $\boldsymbol{\Omega}$  or less or has a supply current of 100 A or greater. If the power supply does not meet the specifications, contact the power company.

## REMOTE CONTROLLER **SETTING**

correctly when using the temperature sensor of the remote controller, do not install the remote controller in a place where it will be exposed to direct sunlight or directly below the air outlet of the indoor unit.

board parts directly with your hands.



## **↑** CAUTION

1) In order to detect the room temperature

Do not touch the remote controller PC board and PC

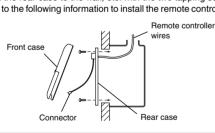
### 1. INSTALLING THE REMOTE CONTROLLER (1) Open the operation panel on the front of the remote controller, re-



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

move the two screws indicated in the following figure, and then re-

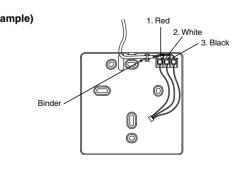
(2) Install the rear case to the wall, etc. with the two tapping screws Refer to the following information to install the remote controller wires.



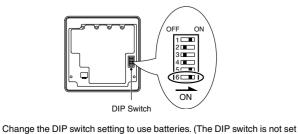
Install the remote controller wires so as not to be direct touched with your hand.

## 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



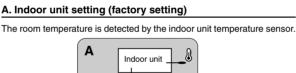
## 3. SETTING THE DIP SWITCHES When using a battery (memory backup)



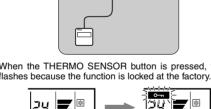
to use batteries at the factory.) Change DIP switch No. 6 from OFF to ON. If batteries are not used, all of the settings stored in memory will be deleted if there is a power failure.

## 4. SETTING THE ROOM TEMPERATURE DETEC-**TION LOCATION**

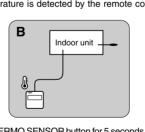
The detection location of the room temperature can be selected from the following three examples. Choose the detection location that is best for the installation location.



(1) When the THERMO SENSOR button is pressed, the lock display



The room temperature is detected by the remote controller temperature



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

(3) Press the THERMO SENSOR button again for 5 seconds or more to

The thermo sensor display appears.

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

(1) Press the THERMO SENSOR button for 5 seconds or more to unlock

the function. The thermo sensor display flashes and then disappears

(2) Press the THERMO SENSOR button to select the temperature sen-

sor of the indoor unit or the remote controlled

when the function is unlocked.

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.

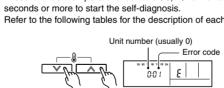
## **TEST RUN**

## **⚠** CAUTION

(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



(3) Press the set temperature buttons  $\Lambda/V$  simultaneously for 5 seconds or more to stop the self-diagnosis.

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

## Error code 11

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



# Refer to the following tables for the description of each error code.

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

(2) Press the master control button and the fan control button simultane

(1) Stop the air conditioner operation. (2) Press the set temperature buttons  $\Lambda/V$  simultaneously for 5

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

## Error contents Model abnormal Indoor fan abnormal Outdoor signal abnormal Outdoor EEPROM abnorma

## 2. OUTDOOR UNIT LEDS

tion of each error according to the LEDs.

Error display

Heat & Cool model (reverse cycle) only When a malfunction occurs in the outdoor unit, the LEDs on the circuit

board light to indicate the error. Refer to the following table for the descrip-

LED1	LED2	Error contents
ON OFF OUT OF CONTINUED	ON OFF OUT OF CONTINUED	Model abnormal or EEPROM abnormal
ON 0.5 sec. OFF 2 sec. 1 quick flash repeated	ON OFF	Power source connection error
ON 0.5 sec. 2 sec. 2 quick flash repeated	ON OFF	Discharge tempera- ture sensor error
ON 0.5 sec. OFF 2 sec. 3 quick flash repeated	ON OFF	Outdoor heat exchanger tempera- ture 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 abnormal
8 quick flash repeated	Lighting continued	High pressure abnormal
5 quick flash repeated	Dislighting continued	Discharge temperature abnormal (24h)
6 quick flash repeated	Dislighting continued	High pressure

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.

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

3. CHECKING DRAINAGE

## SPECIAL INSTALLATION **METHODS**

### **⚠** CAUTION When setting the rotary switch and DIP switches, do not touch any other parts on the circuit board directly with your bare hands.

## Be sure to turn off the main power

The rotary switch is normally set to 0.

Rotary Switch

Power supply cord

1. GROUP CONTROL SYSTEM

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

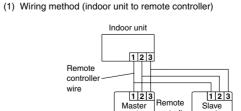
(3) DIP switch setting (remote controller) Change DIP switch No. 3 on the remote controller from OFF to ON. Indoor unit Remote controlle

## 2. DUAL REMOTE CONTROLLERS (OPTIONAL)

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

ON

DIP Switch



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

controlle
oon in one
ON
Switch

### 3. CANCELING AUTO RESTART • When the air conditioner power was temporarily turned off by a power

(Operated by setting before the power failure) The auto restart function can be (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

failure etc., it restarts automatically after the power recovers.

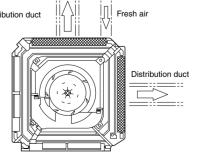
## [DIP-SWITCH SETTING]

		SW state		<b>-</b>
	NO.	OFF	ON	Detail
	1	Invalidity	Validity *	Auto restart setting
DIP-Switch 1	2	_	- *	Temperature correction
	3	_	- *	setting for heating
	1	- *	_	Remote controller setting
DIP-Switch 4	2	- *	_	A la flanca a Abla a

- \* -

 Remote controlle SW state OFF \* Dual remote controller One unit \* Multiple unit | Group control setting Heat & Cool model | Cooling only model | Model setting Invalidity | Validity \* | Auto changeover setting

## **OPENING THE DUCT CONNECTION HOLE**



Invalidity\* Validity Memory backup setting

\* : Factory setting

**↑** CAUTION When performing hole opening work, be careful not to damage the drain pan. When connecting the distribution duct, to make the air

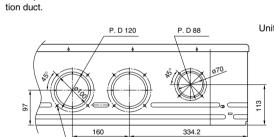
flow easily, block the outlet port with the blower cover

insulation as shown by the hatched lines in the figure.

For the blocking direction, refer to blower cover insu-

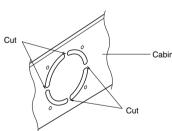
## 1. DIMENSION

Screw position and connection hole which are fresh air duct and distribu

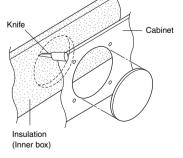


## 12-ø3.3 self tapping screw holes (for 4 mm) 2. DISTRIBUTION DUCT AND FRESH AIR DUCT

Jse the distribution duct hole and fresh air duct hole by removing the



• Cut off the part (Cabinet) indicated by the arrow in the figure with nippers, needle nose pliers, etc.



 Open the holes and cut the insulation with a knife. \* Be careful not to damage the internal parts.

\* When mounting the duct, block the gap so that there is no cold air

connecting a fresh air duct, always use a duct fan.

PART NO. 9365388068

\* Be careful not to cut yourself on the cutout in the metal plate. Please remove the insulation (inner box) left over after cutting. Connect the distribution duct.

\* Insulate the duct and cut connection. **⚠** CAUTION The air conditioner cannot take in fresh air by itself. When