R410A Duct Type SPLIT TYPE AIR CONDITIONER **INSTALLATION INSTRUCTION**

(PART NO. 9364658049)

△ 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 refringrant (822) models some of the pinion and

Conner nines	Table 1 Thinkseese of Asserted Connect Bines
Gas leakage detector	Special gas leakage detector for HFC refrigerant R410A.
Vacuum pump	A conventional vacuum pump can be used by installing a vacuum pump adapter.
Charge hose	To increase pressure resistance, the hose material and base size were changed.
Gauge manifold	selfigerants, the diameter of each port has been changed. It is recommended the gauge with seals = 0.1 to 5.3 MPs (~76 cmHg to 53 kgficm*) for high pressure. -0.1 to 3.8 MPs (~76 cmHg to 36 kgficm*) for low pressure.

opper pipes	
s necessary to use seamless copper pipes and it is desirable that the amount residual of its less than 40 mg/10 m. Do not use copper pipes having a lispeed, deformed or discolored portion (especially on the interior surface), herwise. The expansion valve or casellary tube may become blocked with	dian
ntaminants.	_
an air conditioner using R490A incurs pressure higher than when using	
12, it is necessary to choose adequate materials.	
icknesses of copper pipes used with FH10A are as shown in Table 1. Never	

Table 1	Thicknesses of A	innealed Cop	per Pipes
		Thickn	sss (mm)
Nominal diameter (inch)	Outer diameter (mm)	R410A	[ref.] R22
1/4	6.35	0.80	0.80
28	9.52	0.80	0.00
1/2	12.70	0.80	0.90
56	15.00	1.00	1.00

Tapping screw (p4 × 16)	2	For installing the remote controller
Filter	2	7000 and 9000 BTU/h models
_	э	12000, 14000, and 18000 BTU/h models
Drain hose insulation	1	Insulates the drain hose and viryl hose connection

STANDARD PARTS

6

(2)

OUTDOOR UNIT		∆ WARNING	
	OUTDOOR UNIT		

ZSWARING
Install at a place that can withstand the weight of the indoor and outdoor units and install positively so that the units will r 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.



Drain hose insulation I Insulates the drain hose and why if hose connection		э	12000, 14000, and 19000 BTU/h models
	Drain hose insulation	1	

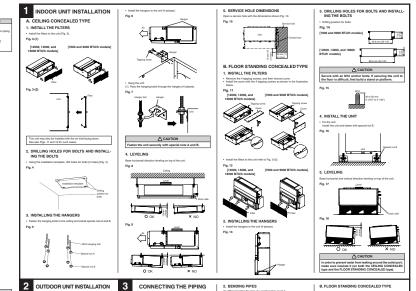






ONNECTION	NC	PIPE REQUIREMENT			
		Table 2			
ODEL		7000, 9000 and 12000 STUh models	14000 BTU/h model	19000 BTUh model	
Small		6.35 mm (14 in.)	6.35 mm (1/4 in.)	6.35 mm (1.4 in.	
and the same of th	Large	9.52 mm (3/8 in.)	12.70 mm (12 in.)	15.00 mm (50 in	
aximum length		15 m (49 ft)	15 m (49 f)	20 m (66 ft)	
aximum Height shasen indoor and out	door)	8 m (26 ft)	8 m (26 ft)	8 m (261)	

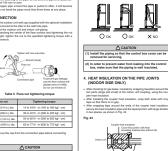
Electric wire size and tusk	сарас	ay:		
		Table 3		
MODEL		7000 BTUh model 9000 BTUh model	12000 BTUh model 14000 BTUh model	18000 BTU1: mod
Power supply cord (mm²)	MAX.	3.0	3.0	3.0
Power supply cord (mmr)	MIN.	1.5	2.0	2.5
Connection cord (mm²) MAX		2.5	2.5	2.5
		1.5	1.5	1.5
Fuse capacity (A)		10	15	20
Always use H07F0N-F or e Install the disconnect dev				by the units. (So













CAUTION

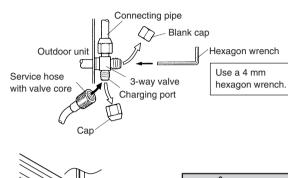
(1) Do not purge the air with refrigerants but use a vacuum pump to vacuum the installation! There is no extra refrigerant in the outdoor unit for air purging!

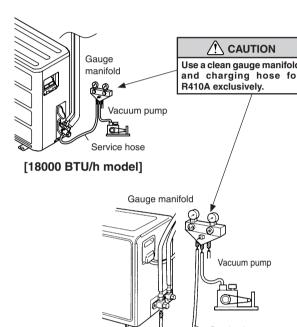
(2) Use a vacuum pump for R410A exclusively. Using the same vacuum pump for different refrigerants may damage the vacuum pump or the unit.

. 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 (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 \cdot m (200 to 250 kgf \cdot cm)
Blank cap	9.52 mm (3/8 in.)	20 to 25 N · m (200 to 250 kgf · cm)
(3-way valve)	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 \cdot m (300 to 350 kgf \cdot cm)
Charging port cap		10 to 12 N · m (100 to 120 kgf · cm)





(1) Remove the cap, and connect the gauge manifold and the vacuum

- 15 g/m 7000, 9000 12000 and 37.5 g 112.5 g 14000 BTU/h models (1.3 oz) (4.0 oz) (0.53 oz/3.3 f 50 g | 150 g | 250 g | 20 g/m None |(1.8 oz)|(5.3 oz)|(8.8 oz)|(0.71 oz/3.3 ft)18000 BTU/h model
 - **↑** CAUTION
 - (1) When moving and installing the air conditioner, do not mix gas other than the specified refrigerant (R410A) inside the refrigerant cycle.

Refrigerant suitable for a piping length of 7.5 m is charged in the outdoor

7.5 m | 10 m | 15 m | 20 m | g/m

(25 ft) | (33 ft) | (49 ft) | (66 ft) | (oz/ft)

When the piping is longer than 7.5 m, additional charging is necessary.

For the additional amount, see the table below.

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

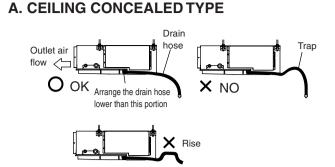
3. GAS LEAKAGE INSPECTION

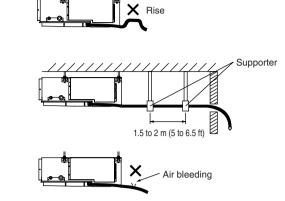
CAUTION After connecting the piping, check the joints for gas leakage with gas leak detector.

INSTALLING DRAIN HOSE 2. ADDITIONAL CHARGE

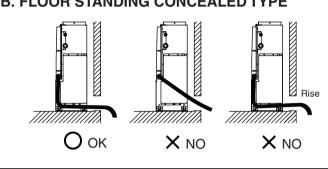
INSTALL THE DRAIN HOSE

- 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.





B. FLOOR STANDING CONCEALED TYPE

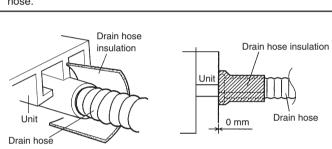


⚠ CAUTION (1) Install the drain hose so that the control box cover can be removed for servicing. (2) In order to prevent water from leaking into the control

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



ELECTRICAL WIRING

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 10 mm (3/8") of expose the strand wiring.

(2) Using a screwdriver, remove the terminal screw(s) on the terminal

(3) Using a round terminal fastener or pliers, securely clamp a round

4) Position the round terminal wire, and replace and tighten the ter

HOW TO FIXED CONNECTION CORD AND

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

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

___⊗ EARTH⊕

⊗ EARTH ±

Outdoor unit

side terminal

Error contents

After passing the connection cord and power cable through the insula-

POWER CABLE AT THE CORD CLAMP

tion tube, fasten it with the cord clamp.

1. CONNECTION DIAGRAM

White

Indoor unit

side terminal

cycle)]

Remote controlle

B. Strand wire

terminal screw.

B. For strand wiring

terminal to each stripped wire end.

minal screw using a screwdriver.

A. Solid wire

6

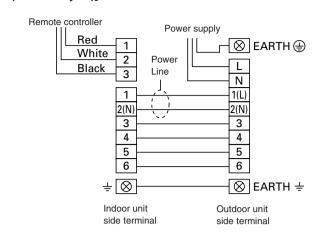
HOW TO CONNECT WIRING TO THE TERMINALS (1) Cut the wire end with a wire cutter or wire-cutting pliers, then strip the insulation to about 25 mm (15/16") of expose the solid wire. (2) Using a screwdriver, remove the terminal screw(s) on the terminal (3) Using pliers, bend the solid wire to form a loop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

side terminal

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

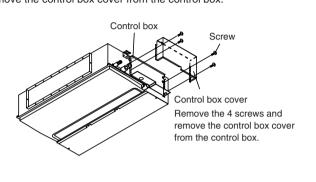
side terminal

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



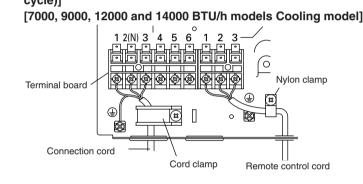
2. INDOOR UNIT SIDE

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

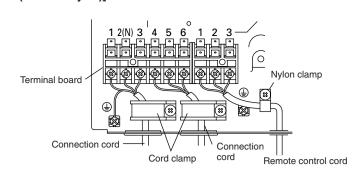


- Clamp the connection cord with the cord clamp. Connect the connection cord to the terminal board.
- Clamp the remote control cord with nylon clamp. Connect the remote control cord to the terminal board.

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



[7000, 9000, 12000 and 14000 BTU/h models Heat&Cool model



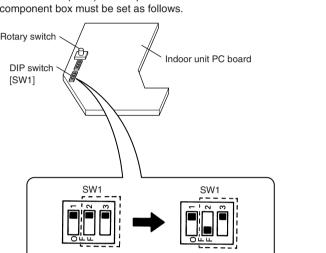
CAUTION

- (1) Tighten the indoor unit connection cord (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 cord (to the outdoor unit) and power supply are wired incorrectly, the air condi-
- (3) Wire the indoor unit connection cord (to the outdoo unit) by matching the numbers of the outdoor and indoor units terminal board numbers as shown in termi-
- (4) Ground both the indoor and outdoor units by attaching a ground wire. (5) Unit shall be grounded in compliance with the applica-
- 3. Floor standing concealed/ceiling concealed select switch

ble local and national codes.

- (1) The DIP switches were set for use as a ceiling concealed type at the
- (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

Ground wire length

60 mm or more

cord through the insulation

tube, fasten it with the cord

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

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

Ground wire length

60 mm or more

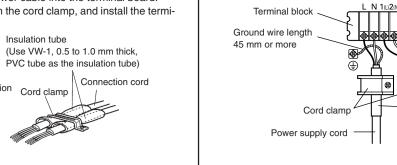
8 8 8

cable cord

Cord clamp

Ground wire length

65 mm or more



model (Reverse cycle)]

↑ CAUTION

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

[7000, 9000, 12000 and 14000 BTU/h models Heat & Cool

Ground wire length

65 mm or more

POWER

(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.

↑ WARNING

(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 stand-

(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

↑ CAUTION

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

REMOTE CONTROLLER **SETTING**

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

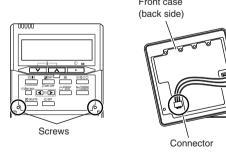
(1) In order to detect the room temperature Temperature sens correctly when using the temperature sensor of the remote controller, do not install the remote controller in a place where it will be exposed to direct sunlight or directly below the air outlet of the indoor unit.

source of electromagnetic waves, separate the remote controller from the source of the electromagnetic waves and use shielded cord.

board parts directly with your hands.

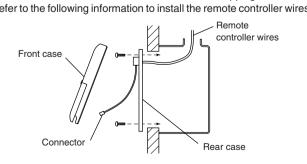
1. INSTALLING THE REMOTE CONTROLLER

move the front case of the remote controller.



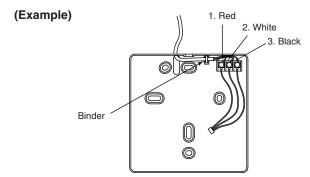
When installing the remote controller, remove the connector from the front case. The wires may break if the connector is not removed and the front case hangs down. When installing the front case, connect the connector to the front case.

(2) Install the rear case to the wall, etc. with the two tapping screws.



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.
- away the thin area on the upper center of the front case.

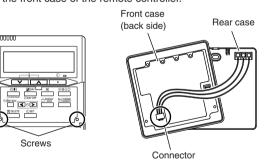


↑ CAUTION

(2) When installing the remote controller and cord near a

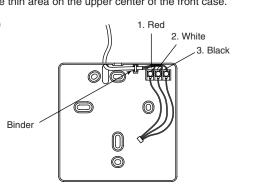
(3) Do not touch the remote controller PC board and PC

(1) Open the operation panel on the front of the remote controller, remove the two screws indicated in the following figure, and then re-

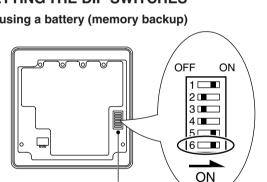


Refer to the following information to install the remote controller wires.

- (3) If the remote controller wires run through the room, use a tool to cut



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.

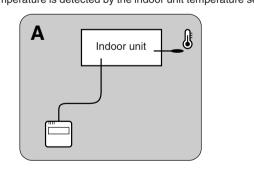
leted if there is a power failure. 4. SETTING THE ROOM TEMPERATURE DETEC-TION LOCATION

If batteries are not used, all of the settings stored in memory will be de-

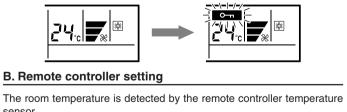
The detection location of the room temperature can be selected from the following three examples. Choose the detection location that is best for the installation location.

A. Indoor unit setting (factory setting)

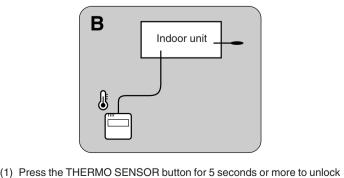
The room temperature is detected by the indoor unit temperature sensor.



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



B. Remote controller setting

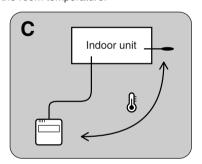


when the function is unlocked. (2) Press the THERMO SENSOR button. The thermo sensor display appears.

the function. The thermo sensor display flashes and then disappears

(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.

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.

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.

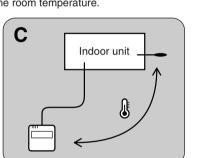
(3) Press the start/stop button to stop the test run.

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

onds or more to start the self-diagnosis. Unit number (usually 0)

Ex. Self-diagnosis

C. Indoor unit/remote controller setting (room temperature sensor selection) The temperature sensor of the indoor unit or the remote controller can be



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

TEST RUN

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

[SELF-DIAGNOSIS]

1) Stop the air conditioner operation.

1. REMOTE CONTROLLER DISPLAY

2) Press the set temperature buttons Λ/V simultaneously for 5 sec-Refer to the following tables for the description of each error code.

(3) Press the set temperature buttons Λ/V simultaneously for 5 seconds or more to stop the self-diagnosis. Error contents Communication error

(indoor unit --- outdoor unit)

Communication error

(indoor unit - remote controller

Room temperature sensor open Room temperature sensor short-circuited Indoor heat exchanger temperature sensor open Indoor heat exchanger temperature sensor short-Outdoor heat exchanger temperature sensor open Outdoor heat exchanger temperature sensor short-Power source connection error Float switch operated Outdoor temperature sensor open Outdoor temperature sensor short-circuited Discharge pipe temperature sensor open Discharge pipe temperature sensor short-circuited Outdoor high pressure abnormal Discharge pipe temperature abnormal

Outdoor signal abnormal 13

2. OUTDOOR UNIT LEDS

11

14

Model abnormal

Indoor fan abnormal

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

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

Outdoor EEPROM abnormal

=== .apo oporato ao romo ao ao amig to ano onto como ao ao					
Error o					
LED1	LED2	Error contents			
ON OFF OUT OF CONTROL	ON OFF OUT OF CONTROL ON OFF OUT O	Model abnormal or EEPROM abnormal			
ON 0.5 sec. OFF 2 sec. 1 quick flash repeated	ON OFF	Power source connection error			
OFF 2 sec. 2 quick flash repeated	ON OFF	Discharge tempera- ture sensor error			
ON OFF O		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			

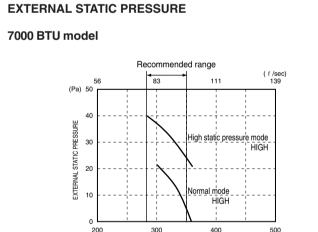
6 quick flash repeated Lighting continued Indoor unit error 7 quick flash repeated | Lighting continued Discharge temperatur 8 quick flash repeated Lighting continued High pressure abnormal When the fault is cleared, the LED lamp goes off.

However, for discharge pipe temperature abnormal and high pressure

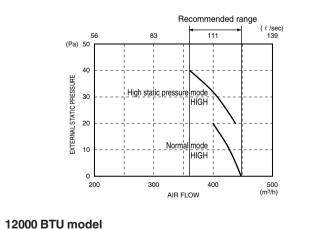
abnormal, the LED lamp lights continuously for 24 hours, as long as the

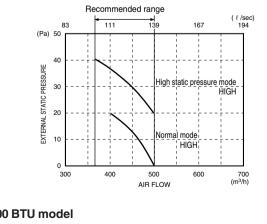
power is not turned off

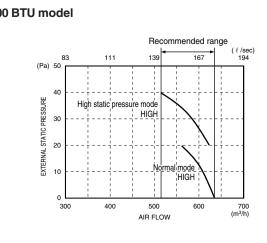
STATIC PRESSURE **CHARACTERISTIC** 1. FAN PERFORMANCE AND AIR FLOW



9000 BTU model







2. AIR FLOW SETTING The air flow is set according to the DIP switch settings in the following

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

1 2 3

— OFF OFF

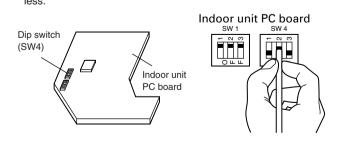
ON OFF

Fan mode		DIP-SW4		
[18000 BTU/h model]				
High static pressure mode (20 < $Pa \le 40$)	_	ON	OFF	
Normal mode $(0 \le Pa \le 20)$	— OFF C			

Normal mode ($0 \le Pa \le 70$)

Quiet mode (*0 \leq Pa \leq 40)

* When the PC board of the indoor unit is set for the guiet 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



↑ 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.

SPECIAL INSTALLATION

with your bare hands.

(2) Be sure to turn off the main power.

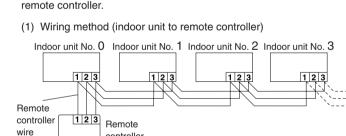
The rotary switch is normally set to 0.

METHODS ⚠ CAUTION (1) When setting the rotary switch and DIP switches, do

not touch any other parts on the circuit board directly

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

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



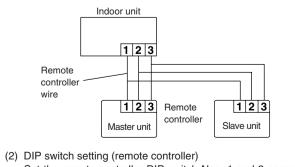
(2) Rotary switch setting (indoor unit) Set the unit number of each indoor unit using the rotary switch on the indoor unit circuit board.

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

ON **DIP Switch** Rotary Switch

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)



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

-4-			Helliote colltion		
ote rollers	DIP-SW No. 1	DIP-SW No. 2	OFF ON		
ormal)	ON	OFF			
Dual)	OFF	OFF	3 -		
			5 💷		
ber of	Slave	unit	6 □■□		
ote rollers	DIP-SW No. 1	DIP-SW No. 2	DID Outlieb		
ormal)	_	_	DIP Switch		

ON

ON

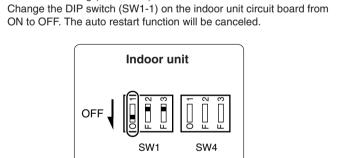
2 (Dual)

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

(1) DIP switch setting (indoor unit)

The auto restart function can be canceled

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



[DIP-SWITCH SETTING]

Indoor unit

			state	Date!!	
	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	- *	_	Air flow actting	
	3	- *	_	Air flow setting	

Remote controlle

OFF ON

	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 settin

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