

SERVICE MANUAL

Manual No. '10 . PAC - SM - 137 updated July 08, 2011

HYPER INVERTER PACKAGED AIR-CONDITIONERS

(Split system, Air to air heat pump type)

CEILING CASSETT	E- 4 WAY COMPAC	TTYPE	DUCT CONNECTE	D-LOW / MIDDLE ST	ATIC PRESSURE TYPE
Twin type	Triple type		Single type	Twin type	Triple type
FDTC71VNXPVD	FDTC140VNXTVD		FDUM71VNXVD	FDUM100VNXPVD	FDUM140VNXTVD
100VNXPVD	140VSXTVD		100VNXVD	100VSXPVD	140VSXTVD
100VSXPVD			100VSXVD	125VNXPVD	
125VNXPVD			125VNXVD	125VSXPVD	
125VSXPVD			125VSXVD	140VNXPVD	
			140VNXVD	140VSXPVD	
			140VSXVD		
CEILING CASSET				D-HIGH STATIC PRE	
	Twin type	Triple type			1050NE TIPE
Single type FDT71VNXVD	FDT71VNXPVD	Triple type FDT140VNXTVD	Single type FDU71VNXVD		
100VNXVD		140VSXTVD	100VNXVD		
100VNXVD	100VIXPVD	140037100	100VNXVD		
125VNXVD	125VNXPVD		125VNXVD		
125VSXVD	125VNXPVD 125VSXPVD		125VNXVD		
140VNXVD	140VNXPVD		140VNXVD		
140VIXVD	140VNXPVD 140VSXPVD		140VNXVD		
14003800	140037500		14003800		
CEILING SUSPEN	DED TYPE		WALL MOUNTED	ТҮРЕ	
Single type	Twin type	Triple type	Twin type	Triple type	
FDEN71VNXVD	FDEN71VNXPVD	FDEN140VNXTVD	SRK100VNXPZIX	SRK140VNXTZIX	
100VNXVD	100VNXPVD	140VSXTVD	100VSXPZIX	140VSXTZIX	
100VSXVD	100VSXPVD		125VNXPZIX		
125VNXVD	125VNXPVD		125VSXPZIX		
125VSXVD	125VSXPVD				
140VNXVD	140VNXPVD				
140VSXVD	140VSXPVD				

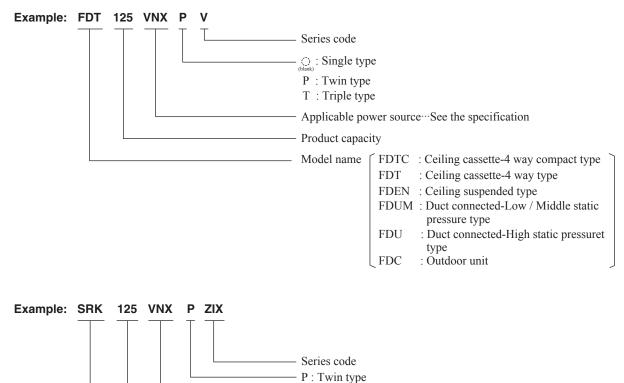


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How to read the model name



T : Triple type

Product capacity

Applicable power source...See the specification

Model name [Wall mounted type]

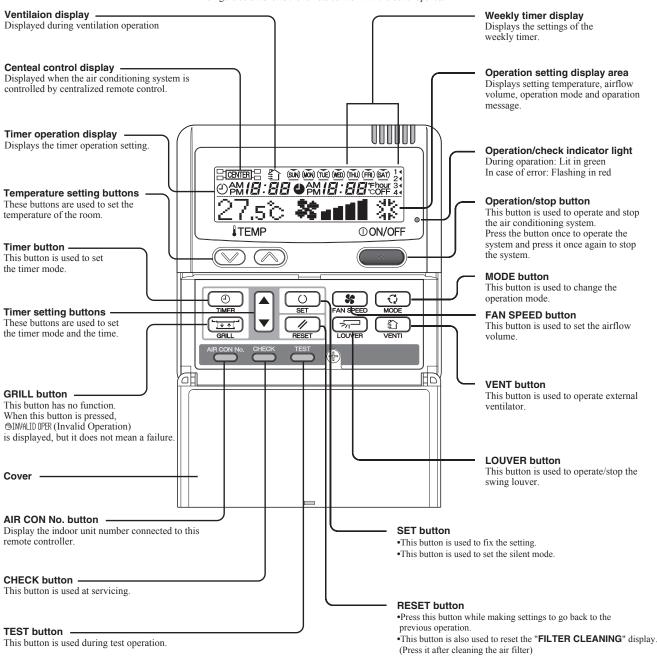
1. OUTLINE OF OPERATION CONTROL BY MICROCOMPUTER

1.1 Remote controller

(1) Wired remote controller

The figure below shows the remote controller with the cover opened. Note that all the items that may be displayed in the liquid crystal display area are shown in the figure for the sake of explanation

Characters displayed with dots in the liquid crystal display area are abbreviated.



The figure below shows the remote control with the cover opened.

* All displays are described in the liguid crystal display for explanation.

(2) Wireless remote controllerFDEN series only

Indication section ROOM TEMP display AIR FLOW display Indicates set temperature. Indicates the status of swing louver. **OPERATION MODE display** FAN SPEED display Indicates selected operation with Indicates the selected airflow volume FILTER display FII TER Indicates for two seconds when FILTER ON-TIMER display button is pressed. Indicates when ON-TIMER is set. Ш ON OFF MPM MED ()**OFF-TIMER** display Indicates when OFF-TIMER is set. ON TIMER setting time display -S Indicates the ON-TIMER setting time. Nothing displayed when ON-TIMER is OFF-TIMER setting time display not set. Indicates OFF-TIMER setting time. Indicates the current time when the OFF-TIMER is not set. Operation section Transmitter · **ON/OFF** button Sends signal to the air conditioner. When this is pressed once, the unit starts to operate and when this is pressed once again, it stops operating. FILTER AA. FAN SPEED button -Every time this button is pressed, the mode is IĤ switched as below. **AIR FLOW button** +HI→MED→LO-Used to swing the louver. FILTER FILTER button **OPERATION MODE select button** Used to reset (turn off) the filter sign. Every time this button is pressed, displays switch Press the button only after completing the filter cleaning. as below. CANCEL 10 @(AUTO)→ * (COOL) → ☆ (HEAT) ≇ (FAN) ← ◊ (DRY) ← ACL TIME SET UF ON TIMER button Sets ON TIMER operation. ROOM TEMP/TIME SETTING button Sets room temperature by pressing or button. Sets time when setting the time. OFF TIMER button Sets OFF TIMER operation. TIMER CANCEL button Used to cancel the TIMER SETTINGS. TIME SET UP switch -**RESET** switch Sets current time. Used to reset the microcomputer.

* All displays are described in the liquid crystal display for explanation

1.2 Operation control function by the wired remote controller

(1) Switching sequence of the operation mode switches of remote controller



(2) [CPU reset]

This functions when "CHECK" and "GRILL" buttons on the remote controller are pressed simultaneously. Operation is same as that of the power supply reset.

(3) [Power failure compensation function]...Electric power supply failure

- This becomes effective if "Power failure compensation effective" is selected with the setting of remote controller function.
- Since it memorizes always the condition of remote controller, it starts operation according to the contents of memory no sooner than normal state is recovered after the power failure. Although the auto swing stop position and the timer mode are cancelled, the weekly timer setting is restored with the holiday setting for all weekdays.

After recovering from the power failure, it readjusts the clock and resets the holiday setting for each weekday so that the setting of weekly timer becomes effective.

- Content memorized with the power failure compensation are as follows.
- Note (1) Items[®], *O* and [®] are memorized regardless whether the power failure compensation is effective or not while the setting of silent mode is cancelled regardless whether the power failure compensation is effective or not.
 - ① At power failure Operating/stopped

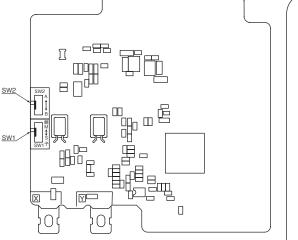
If it had been operating under the off timer mode, sleep timer mode, the state of stop is memorized. (Although the timer mode is cancelled at the recovery from power failure, the setting of weekly timer is changed to the holiday setting for all weekdays.)

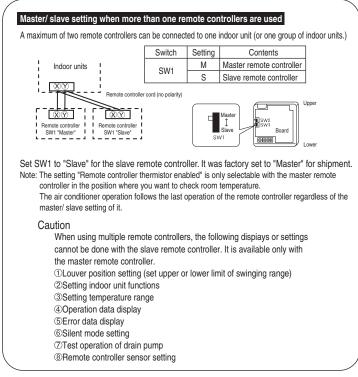
- ② Operation mode
- ③ Airflow volume mode
- ④ Room temperature setting
- ⑤ Louver auto swing/stop

However, the stop position (4-position) is cancelled so that it returns to Position (1).

- (6) "Remote controller function items" which have been set with the remote controller function setting ("Indoor function items" are saved in the memory of indoor unit.)
- ⑦ Upper limit value and lower limit value which have been set with the temperature setting control
- [®] Sleep timer and weekly timer settings (Other timer settings are not memorized.)

[Parts layout on remote controller PCB]



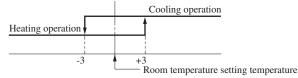


1.3 Operation control function by the indoor controller

(1) FDTC, FDT, FDEN, FDUM and FDU series

(a) Auto operation

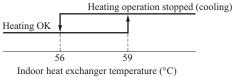
If "Auto" mode is selected by the remote controller, the heating and the cooling are automatically switched according to the difference between outdoor air temperature and setting temperature and the difference between setting temperature and return air temperature. (When the switching of cooling mode \leftrightarrow heating mode takes place within 3 minutes, the compressor does not operate for 3 minutes by the control of 3-minute timer.) This will facilitate the cooling/heating switching operation in intermediate seasons and the adaptation to unmanned operation at stores, etc (ATM corner of bank).



Room temperature (detected with ThI-A) [deg]

Note (1) Room temperature control during auto cooling/auto heating is performed according to the room temperature setting temperature. (DIFF: ±1 deg) (2) If the indoor heat exchanger temperature rises to 59°C or higher during

heating operation, it is switched automatically to cooling operation. In addition, for 1 hour after this switching, the heating operation is not performed, regardless of the temperature shown at right.



- - -

(b) Operations of functional items during cooling/heating

Operation	Coc	oling		Heating			
Functional item	Thermostat ON	Thermostat OFF	Fan	Thermostat ON	Thermostat OFF	Hot start (Defrost)	Dehumidify
Compressor	0	×	×	0	×	0	O/X
4-way valve	×	×	×	0	0	O(×)	×
Outdoor unit fan	0	×	×	0	×	O(×)	O/×
Indoor unit fan	0	0	0	O/×	O/×	O/×	O/×
Louver motor		O/×		O/X	O/x	O/×	O/×
Drain pump ⁽³⁾	0	× ⁽²⁾	\times ⁽²⁾		$O/\times^{(2)}$		Thermostat ON: O Thermostat OFF: X ⁽²⁾

Note (1) ○: Operation ×: Stop ○/×: Turned ON/OFF by the control other than the room temperature control.
(2) ON during the drain motor delay control.

(3) Drain pump ON setting may be selected with the indoor unit function setting of the wired remote controller.

(c) Dehumidifying operation

Return air temperature thermistor [Thi-A (by the remote controller when the remote controller thermistor is enabled)] controls the indoor temperature environment simultaneously.

- Operation is started in the cooling mode. When the difference between the return air temperature and the setting temperature is 2°C or less, the indoor unit fan tap is brought down by one tap. That tap is retained for 3 minutes after changing the indoor unit fan tap.
- 2) If the return air temperature exceeds the setting temperature by 3°C during defrosting operation, the indoor unit fan tap is raised. That tap is retained for 3 minutes after changing the indoor unit fan tap.
- 3) If the thermostat OFF is established during the above control, the indoor unit fan tap at the thermostat ON is retained so far as the thermostat is turned OFF.
- 4) After stopping the cooling operation, the indoor unit continues to run at Lo for 15 seconds.

(d) Timer operation

1) Sleep timer

Set the duration of time from the present to the time to turn off the air-conditioner.

It can be selected from 10 steps in the range from "OFF 1 hour later" to "OFF 10 hours later". After the sleep timer setting, the remaining time is displayed with progress of time in the unit of hour.

2) OFF timer

Time to turn OFF the air-conditioner can be set in the unit of 10 minutes.

3) ON timer

Time to turn ON the air-conditioner can be set. Indoor temperature can be set simultaneously.

4) Weekly timer

Timer operation (ON timer, OFF timer) can be set up to 4 times a day for each weekday.

5) Timer operations which can be set in combination

Item	Sleep timer	OFF timer	ON timer	Weekly timer
Sleep timer		×	0	×
OFF timer	×		0	×
ON timer	0	0		×
Weekly timer	×	×	×	

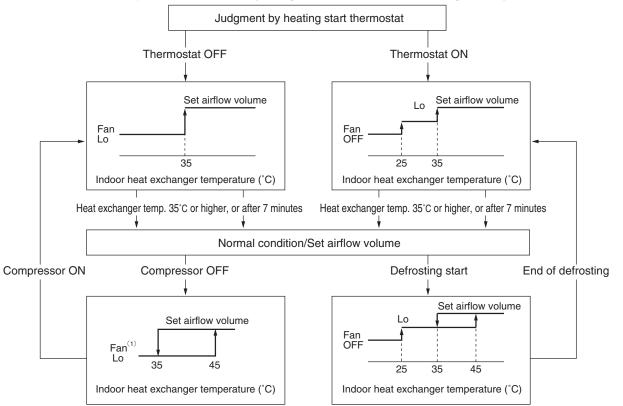
Note (1) \bigcirc : Allowed \times : Not

(e) Remote controller display during the operation stop

- 1) "Centralized control ON" is displayed always on the LCD under the "Center/Remote" and "Center" modes during the operation stop (Power ON). This is not displayed under the "Remote" mode.
- 2) If this display is not shown under the "Center/Remote" mode, check if the indoor unit power switch is turned on or not.

(f) Hot start (Cold draft prevention at heating)

At the startup of heating operation, at resetting of the thermostat, during defrost operation and at returning to heating, the indoor fan is controlled by the indoor heat exchanger temperature (detected with Thi-R) for preventing the cold draft.



Note (1) Heating preparation is displayed during the hot start (when the compressor is operating and the indoor fan does not provide the set airflow volume).

(g) Hot keep

Hot keep control is performed at the start of the defrost control.

- 1) Control
 - a) When the indoor heat exchanger temperature (detected with Thi-R1 or R2) drops to 35°C or lower, the speed of indoor fan is changed to the lower tap at each setting.
 - b) During the hot keep, the louver horizontal control signal is transmitted.
- 2) Ending condition

When the indoor fan is at the lower tap at each setting, it returns to the set airflow volume as the indoor heat exchanger temperature rises to 45°C or higher.

(h) Fan control during the heating thermostat OFF

When the heating thermostat is turned OFF, the setting of the fan control is selectable using the indoor function of wired remote controller [☆ FAN CONTROL].

1) Low fan speed (Factory default)

If the indoor heat exchanger temperature drops below 35°C with the heating thermostat OFF, the indoor fan operate at the lower speed tap at each setting.

2) Set fan speed

Even if the indoor heat exchanger temperature drops below 35°C with the heating thermostat OFF, the indoor fan continues to run at the set airflow volume.

3) Intermittence

If the indoor heat exchanger temperature drops below 35° C with the heating thermostat OFF, the indoor fan operates at the lower speed tap at each setting and, when the indoor heater exchanger temperature drops below 25° C, the indoor fan stops for 5 minutes. Then the fan runs at the low speed tap for 2 minutes, and the judgment is made by the thermostat.

4) Fan OFF

If the indoor heat exchanger temperature drops below 35°C with the heating thermostat OFF, the indoor fan is turned OFF. The same applies also when the remote controller sensor is effective.

(i) Filter sign

As the operation time (Total ON time of ON/OFF switch) accumulates to 180 hours (1), "FILTER CLEANING" is displayed on the remote controller. (This is displayed when the unit is in trouble and under the centralized control, regardless of ON/OFF) Note (1) Time setting for the filter sign can be made as shown below using the indoor function of wired remote controller "FILTER SIGN SET". (It is set at 1 at the shipping from factory.)

Filter sign setting	Function
TYPE 1	Setting time: 180 hrs (Factory default)
TYPE 2	Setting time: 600 hrs
TYPE 3	Setting time: 1,000 hrs
TYPE 4	Setting time: 1,000 hrs (Unit stop) ⁽²⁾

(2) After the setting time has elapsed, the "FILTER CLEANING" is displayed and, after operating for 24 hours further (counted also during the stop), the unit stops.

(j) Auto swing control [Applicable model: FDTC, FDT and FDEN]

- 1) Louver control
 - a) Press the "LOUVER" button to operate the swing louver when the air conditioner is operating.

 b) To fix the swing louver at a position, press one time the "LOUVER" button while the swing louver is moving so that four stop positions are displayed one after another per second.
 When a desired stop position is displayed, press the "LOUVER" button again. The display stops, changes to show

the "STOP 1 -----" for 5 seconds and then the swing louver stops.

c) Louver operation at the power on with a unit having the louver 4-position control function

The louver swings one time automatically (without operating the remote controller) at the power on.

This allows inputting the louver motor (LM) position, which is necessary for the microcomputer to recognize the louver position.

Note (1) If you press the "LOUVER" button, the swing motion is displayed on the louver position LCD for 10 second. The display changes to the "SWING 7,77" display 3 seconds later.

2) Automatic louver level setting during heating

At the hot start with the heating thermostat OFF, regardless whether the auto swing switch is operated or not (auto swing or louver stop), the louver takes the level position (In order to prevent the cold start). The louver position display LCD continues to show the display which has been shown before entering this control.

3) Louver-free stop control

When the louver-free stop has been selected with the indoor function of wired remote controller " $=_{n}$ POSITION", the louver motor stops when it receives the stop signal from the remote controller. If the auto swing signal is received from the remote controller, the auto swing will start from the position where it was before the stop.

Note (1) When the indoor function of wired remote controller " \neq_{n} " POSITION" has been switched, switch also the remote control function " \neq_{n} " POSITION" in the same way.

(k) Compressor inching prevention control

1) 3-minute timer

When the compressor has been stopped by the thermostat, remote controller operation switch or anomalous condition, its restart will be inhibited for 3 minutes. However, the 3-minute timer is invalidated at the power on the electric power source for the unit.

- 2) 3-minute forced operation timer
 - Compressor will not stop for 3 minutes after the compressor ON. However, it stops immediately when the unit is stopped by means of the ON/OFF switch or by when the thermister turned OFF the change of operation mode.
 - If the thermostat is turned OFF during the forced operation control of heating compressor, the louver position (with the auto swing) is returned to the level position.

Note (1) The compressor stops when it has entered the protective control.

(I) Drain motor (DM) control [Applicable model: FDTC, FDT and FDUM]

1) Drain motor (DM) is operated during the cooling or dehumidifying mode operations and simultaneously with the compressor ON. The DM continues to operate for 5 minutes after the operation stop, anomalous stop, thermostat stop or when it was switched from the cooling and dehumidifying operations to the fan or heating operation.

Indoor unit operation mode						
	Stop (1)	Cooling	Dehumidifying	Fan (2)	Heating	Note (1) Including the stop from the cooling, dehumidifying, fan
Compressor ON		Control A				and heating, and the anomalous stop (2) Including the "Fan" operation according to the
Compressor OFF	essor OFF Control B					mismatch of operation modes

a) Control A

- i) If the float switch detects any anomalous draining condition, the unit stops with the anomalous stop (displays E9) and the drain pump starts. After detecting the anomalous condition, the drain motor continues to be ON.
- ii) It keeps operating while the float switch is detecting the anomalous condition.
- b) Control B

If the float switch detects any anomalous drain condition, the drain motor is turned ON for 5 minutes, and at 10 seconds after the drain motor OFF it checks the float switch. If it is normal, the unit is stopped under the normal mode or, if there is any anomalous condition, E9 is displayed and the drain motor is turned ON. (The ON condition is maintained during the drain detection.)

2) Drain motor (DM) interlock control

a) Start conditions

Depending on the function setting by the remote controller, the drain motor is turned ON under either one of the following conditions.

- i) During heating mode operation (Both the thermostat ON/OFF)
- ii) During heating mode operation (Both the thermostat ON/OFF) + Fan operation
- iii) Fan operation
- b) End conditions

The drain motor is turned OFF 5 minutes after the stop of operations i) to iii) above.

(m) Operation check/drain pump test run operation mode

- 1) If the power is turned on by the dip switch (SW7-1) on the indoor PCB when electric power source is supplied, it enters the mode of operation check/drain pump test run. It is ineffective (prohibited) to change the switch after turning power on.
- 2) When the communication with the remote controller has been established within 60 seconds after turning power on by the dip switch (SW7-1) ON, it enters the operation check mode. Unless the remote controller communication is established, it enters the drain pump test run mode.
 - Note (1) To select the drain pump test run mode, disconnect the remote controller connector (CNB) on the indoor PCB to shut down the remote controller communication.

3) Operation check mode

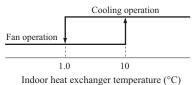
There is no communication with the outdoor unit but it allows performing operation in respective modes by operating the remote controller.

4) Drain pump test run mode

As the drain pump test run is established, the drain pump only operates and during the operation protective functions by the microcomputer of indoor unit become ineffective.

(n) Cooling, dehumidifying frost protection

1) To prevent frosting during cooling mode or dehumidifying mode operation, the of compressor speed is reduced if the indoor heat exchanger temperature (detected with Thi-R) drops to 1.0 °C or lower at 4 minutes after the start of compressor operation. If the indoor unit heat exchanger temperature is 1.0 °C or lower after 1 minutes, the compressor speed is reduced further. If it becomes 2.5 °C or higher, the control terminates. When the indoor heat exchanger temperature has become as show below after reducing the compressor speed, it is switched to the fan operation. For the selection of indoor fan speed, refer to item 2).



2) Selection of indoor fan speed

If it enters the frost prevention control during cooling operation (excluding dehumidifying), the indoor unit fan speed is switched.

- (a) In cases of FDUM, FDU and FDEN
 - i) When the indoor unit return air temperature (detected with Thi-A) is 23°C or lower, this control is invalidated and, as 2 hours elapse after starting the frost prevention control, it is terminated.
 - ii) If it is detected again within 15 minutes from the start of frost prevention control, the indoor fan speed is raised by 1 tap to increase the indoor unit fan speed. If it is detected within further 15 minutes, the indoor unit fan speed is raised by 1 tap more.

Note (1) Indoor unit fan speed can be increased by up to 2 taps.

- iii) "*FAN SPEED SW VALID/INVALID" of this control is selectable with the function setting of remote controller.
- b) In the case of FDT and FDTC
 - When the indoor return air detection temperature (detected with ThI-A) is 23°C or higher and the indoor heat exchanger temperature (detected with ThI-R) detects the compressor frequency drop start temperature A°C+1°C, of indoor unit fan speed is increased by 20rpm.
 - ii) If the phenomenon of i) above is detected again after the acceleration of indoor unit fan, indoor unit fan speed is increased further by 20rpm.

Note (1) Indoor unit fan speed can be increased by up to 2 taps.

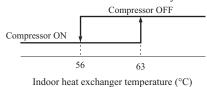
 Compressor frequency 	drop start temperature
--	------------------------

Item	А
Temperature - Low (Factory default)	1.0
Temperature - High	2.5

Note (1) Frost prevention temperature setting can be selected with the indoor unit function setting of the wired remote controller.

(o) Heating overload protection

 If the indoor heat exchanger temperature (detected with Thi-R) at 63°C or higher is detected for 2 seconds continuously, the compressor stops. When the compressor is restarted after a 3-minute delay, if a temperature at 63°C or higher is detected for 2 seconds continuously within 60 minutes after initial detection and if this is detected 5 times consecutively, the compressor stops with the anomalous stop (E8). Anomalous stop occurs also when the indoor heat exchanger temperature at 63°C or higher is detected for 6 minutes continuously.



2) Indoor unit fan speed selection

If, after second detection of heating overload protection up to fourth, the indoor fan is set at Me and Lo taps when the compressor is turned ON, the indoor fan speed is increased by 1 tap.

(p) Anomalous fan motor [In case of FDT, FDTC only]

After starting the fan motor, if the fan motor speed is 200rpm or less is detected for 30 seconds continuously and 4 times within 60 minutes, then fan motor stops with the anomalous stop (E16).

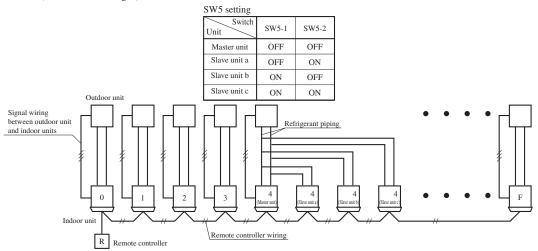
(q) Plural unit control – Control of 16 units group by one remote controller

1) Function

One remote controller switch can control a group of multiple number of unit (Max. 16 indoor units). "Operation mode" which is set by the remote controller switch can operate or stop all units in the group one after another in the order of unit No.⁽¹⁾. Thermostat and protective function of each unit function independently.

Note (1) Unit No. is set by SW2 on the indoor unit control PCB. Unit No. setting by SW2 is necessary for the indoor unit only. In cases of the twin, triple and double-twin specification, it is necessary set for the master and the slave units. This can be selected by SW5. (All are set for the master unit at the shipping from factory.)

SW2: For setting of 0 - 9, A - FSW5: For setting of master and slave units (See table shown at right.)



(2) Unit No. may be set at random unless duplicated, it should be better to set orderly like 0, 1, 2..., F to avoid mistake.

- 2) Display to the remote controller
 - a) Center or each remote controller basis, heating preparation: the youngest unit No. among the operating units in the remote mode (or the center mode unless the remote mode is available) is displayed.
 - b) Inspection display, filter sign: Any of unit that starts initially is displayed.
 - c) Confirmation of connected units

Pressing "AIR CON No." button on the remote controller displays the indoor unit address. If " \blacktriangle " " \checkmark " button is pressed at the next, it is displayed orderly starting from the unit of youngest No.

- d) In case of anomaly
 - i) If any anomaly occurs on a unit in a group (a protective function operates), that unit stops with the anomalous stop but any other normal units continue to run as they are.
 - ii) Signal wiring procedure

Signal wiring between indoor and outdoor units should be made on each unit same as the normal wiring. For the group control, lay connect with sires wiring between rooms using terminal blocks (X, Y) of remote controller.

Connect the remote controller communication wire separately from the power supply wire or wires of other electric devices (AC220V or higher).

(r) High ceiling control

In the case of indoor unit installed in a higher ceiling room, the airflow volume mode control can be changed with the wired remote controller indoor unit function "FAN SPEED SET".

Fan tap		Indoor unit airflow setting					
Fai	гар	8 11 - 81 - 8 0 - 80	8afi - 8afi - 8afi	8 111 - 81 00	8ad - 8ad		
FAN SPEED SET	STANDARD	UH - Hi - Me - Lo	Hi - Me - Lo	Hi - Lo	Hi - Me		
FAN SPEED SET	HIGH SPEED1, 2	UH - UH - Hi - Me	UH - Hi - Me	UH - Me	UH - Hi		

Note (1) Factory default is Standard

⁽²⁾ At the hot-start and heating thermostat OFF, or other, the indoor unit fan is operated at the low speed tap of each setting.

(s) Abnormal temperature thermistor (return air/indoor heat exchanger) wire/short-circuit detection

1) Broken wire detection

When the return air temperature thermistor detects -50°C or lower or the heat exchanger temperature thermistor detect -50°C or lower for 5 seconds continuously, the compressor stops. After a 3-minute delay, the compressor restarts but, if it is detected again within 60 minutes after the initial detection for 6 minutes continuously, stops again (the return air temperature thermistor: E7, the heat exchanger temperature thermistor: E6).

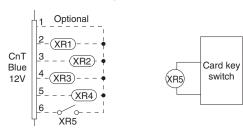
2) Short-circuit detection

If the heat exchanger temperature thermistor detects 70°C or higher for 5 seconds continuously at 2 minutes and 20 seconds after the compressor ON during cooling operation, the compressor stops (E6).

(t) Operation permission/prohibition

(In case of adopting card key switches or commercially available timers)

When the indoor function setting of wired remote controller for "Operation permission/prohibition" is changed from "Invalid (Factory default)" to "Valid", following control becomes effective.



		operation default)	Operation permission/prohibition mode "Valid" (Local setting)		
	ON	OFF	ON	OFF	
CnT-6	Operation	Stop	Operation permission*1	Operation prohibition (Unit stops)	

*1 **Only the "LEVEL INPUT" is acceptable for external input**, however when the indoor function setting of "Level input (Factory default)" or "Pulse input" is selected by the function for "External input" of the wired remote controller, operation status will be changed as follows.

In case of "Level input" setting	In case of "Pulse input" setting
Unit operation from the wired remote controller becomes available*(1)	Unit starts operation *(2)

- *(1) In case that "Operation permission/prohibition mode" setting is "Valid" and "External input" setting is "Level input (Factory default)";
 - ① When card key switch is ON (CnT-6 ON: Operation permission), start/stop operation of the unit from the wired remote controller becomes available.
 - 2 When card key switch is OFF (CnT-6 OFF: Operation prohibition), the unit stops operation in conjunction with OFF signal, and start/stop operation of the unit from the wired remote controller becomes not available.
- *(2) In case that "Operation permission/prohibition mode" setting is "Valid" and "External input" setting is "Pulse input (Local setting)";
 - ① When card key switch is ON (Operation permission), the unit starts operation in conjunction with ON signal. and also start/stop operation of the unit from the wired remote controller becomes available.
 - (2) When card key switch is OFF (Operation prohibition), the unit stops operation in conjunction with OFF signal, and start/stop operation of the unit from the wired remote controller becomes not available.
- (3) This function is invalid only at "Center mode" setting done by central controller.

(u) External input/output control (CnT)

Be sure to connect the wired remote controller to the indoor unit. Without wired remote controller remote operation by CnT is not possible to perform.

[1_Optional	①Operation output	(CnT-2: XR1)
	2-(XR1)+	(2)Heating output	(CnT-3: XR2)
CnT Blue	3 (XR2) •	③Thermostat ON output	(CnT-4: XR3)
12V	4-(XR3)•	④Error output	(CnT-5: XR4)
	(<u>XR4</u>) •	⑤Remote operation input	(CnT-6: No-voltage contactor)
Į	T XR5		

1) Output for external control (remote display)

Following output connectors (CnT) are provided on the indoor control PCB for monitoring operation status.

- ① **Operation output:** Outputs DC12V signal for driving relay during operation
- (2) Heating output: Outputs DC12V signal for driving relay during heating operation
- 3 Thermostat ON output: Outputs DC12V signal for driving relay when compressor is operating.
- (4) Error output: Outputs DC12V signal for driving relay when anomalous condition occurs.

2) Remote operation input

Remote operation input connector (CnT-6) is provided on the indoor control PCB.

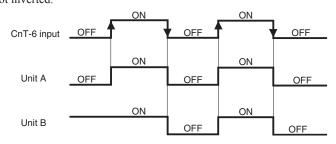
However remote operation by CnT-6 is not effective, when "Center mode" is selected by center controller.

In case of plural unit (twin, triple, double twin), remote operation input to CnT-6 on the slave indoor unit is invalid.

Only the "LEVEL INPUT" is acceptable for external input, however when the indoor function setting of "Level input (Factory default)" or "Pulse input" is selected by the function for "External input" of the wired remote controller, operation status will be changed as follows.

a) In case of "Level input" setting (Factory default)

Input signal to CnT-6 is OFF \rightarrow ON unit ON Input signal to CnT-6 is ON \rightarrow OFF unit OFF Operation is not inverted.

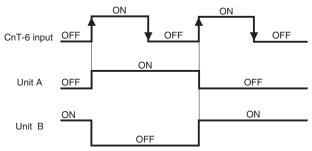


Note: The latest operation has priority

It is available to operate/stop by remote controller or center controller

b) In case of "Pulse input" setting (Local setting)

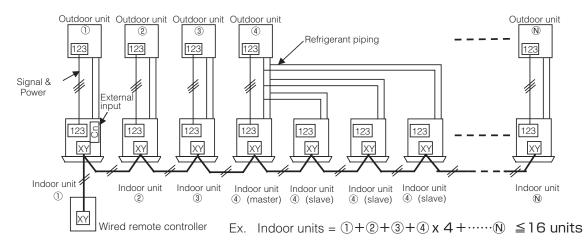
It is effective only when the input signal to CnT-6 is changed OFF \rightarrow ON, and at that time unit operation [ON/OFF] is inverted.



3) Remote operation

a) In case of multiple units (Max. 16 indoor units group) are connected to one wired remote controller

When the indoor function setting of wired remote controller for "External control set" is changed from "Individual (Factory default)" to "For all units", all units connected in one wired remote controller system can be controlled by external operation input.



	Individual operation	on (Factory default)	All units operation (Local setting)		
	ON	OFF	ON	OFF	
CnT-6	Only the unit directly connected to the remote controller can be operated.	Only the unit directly connected to the remote controller can be stopped opeartion.	All units in one remote controller system can be operated.	All units in one remote controller system can be stopped operation.	
	Unit ① only	Unit ① only	Units ① – 🕅	Units $(1) - (N)$	

When more than one indoor unit (Max. 16 indoor units) are connected in one wired remote controller system:

- (1) With the factory default, external input to CnT-6 is effective for only the unit (1).
- (2) When setting "For all unit" (Local setting), all units in one remote controller system can be controlled by external input to CnT-6 on the indoor unit ①.
- (3) External input to CnT-6 on the other indoor unit than the unit (1) is not effective.

(v) Fan control at heating startup (Applicable model: FDTC and FDT)

1) Start conditions

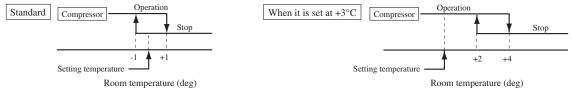
At the start of heating operation, if the difference of setting temperature and return air temperature is 5°C or higher after the end of hot start control, this control is performed.

- 2) Contents of control
 - a) Sampling is made at each minute and, when the indoor unit heat exchanger temperature (detected with Thi-R) is 37°C or higher, present number of revolutions of indoor unit fan speed is increased by 10min⁻¹.
 - b) If the indoor unit heat exchanger temperature drops below 37°C at next sampling, present number of revolutions of indoor unit fan speed is reduced by 10min⁻¹.
- 3) End conditions

Indoor fan speed is reduced to the setting airflow volume when the compressor OFF is established and at 30 minutes after the start of heating operation.

(w) Room temperature detection temperature compensation during heating

With the standard specification, the compressor is turned ON/OFF with the thermostat setting temperature. When the thermostat is likely to turn OFF earlier because the unit is installed at the ceiling where warm air tends to accumulate, the setting can be changed with the wired remote controller indoor unit function " $\Re \ P \ DFF \ PT$ ". The compressor and the heater are turned ON/OFF at one of the setting temperature +3, +2 or +1°C in order to improve the feeling of heating. The setting temperature, however, has the upper limit of 30°C.



(x) Return air temperature compensation

This is the function to compensate the deviation between the detection temperature by the return air temperature thermistor and the measured temperature after installing the unit.

- 1) It is adjustable in the unit of 0.5°C with the wired remote controller indoor unit function "RETURN AIR TEMP".
- +1.0°C, +1.5°C, +2.0°C -1.0°C, -1.5°C, -2.0°C
- 2) Compensated temperature is transmitted to the remote controller and the compressor to control them. Note (1) The detection temperature compensation is effective on the indoor unit thermistor only.

(2) SRK series

(a) Unit ON/OFF button

If the remote control is malfunctioning, this button may be used to turn the unit on and off.

1) Operation

Push the button once to place the unit in the automatic mode. Push it once more to turn the unit off.

2) Details of operation

The unit will go into the automatic mode in which it automatically determines, from room temperature (as detected by sensor), whether to go into the cooling, thermal dry or heating modes.

Function Operation mode	Roon temperature setting	Fan speed	Swing contral	Timer switch
Cooling	About 24°C			
Thermal dry	About 25°C	Auto	Auto	Continuous
Heating	About 26°C			

(b) Auto restart function

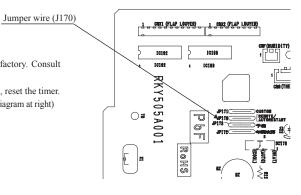
1) Auto restart function records the operational status of the air-conditioner immediately prior to be switched off by a power cut, and then automatically resumes operations after the power has been restored.

2) The following settings will be cancelled:

· Timer settings

Notes (1) Auto restart function is set at on when the air-conditioner is shipped from the factory. Consult with your dealer if this function needs to be switched off.

- (2) When power failure occurs, the timer setting is cancelled. Once power is resumed, reset the timer.
- (3) If the jumper wire (J170) "AUTO RESTART" is cut, auto restart is disabled. (See the diagram at right)



(c) Auto swing control

- 1) Louver control
 - a) Press the "LOUVER" button to operate the swing louver when the air conditioner is operating. "AUTO $=_{71}$ " is displayed for 3 seconds and then the swing louver moves up and down continuously.
 - b) To fix the swing louver at a position, press one time the "LOUVER" button while the swing louver is moving so that four stop positions are displayed one after another per second.

When a desired stop position is displayed, press the "LOUVER" button again. The display stops, changes to show the "STOP 1 — " for 5 seconds and then the swing louver stops.

2) Automatic louver level setting during heating

At the hot start with the heating thermostat OFF, regardless whether the auto swing switch is operated or not (auto swing or louver stop), the louver takes the level position (In order to prevent the cold start). The louver position display LCD continues to show the display which has been shown before entering this control.

3) Louver-free stop control

When the louver-free stop has been selected with the indoor function of wired remote controller " $=_{71}$ " POSITION", the louver motor stops when it receives the stop signal from the remote controller. If the auto swing signal is received from the remote controller, the auto swing will start from the position where it was before the stop.

Note (1) When the indoor function of wired remote controller "Louver control setting" has been switched, switch also the remote control function " $\frac{1}{2n-1}$ POSITION" in the same way.

(d) Timer operation

1) Timer

Set the duration of time from the present to the time to turn off the air-conditioner.

It can be selected from 10 steps in the range from "OFF 1 hour later" to "OFF 10 hours later". After the clock timer setting, the remaining time is displayed with progress of time in the unit of hour.

- 2) OFF timer
 - Time to turn OFF the air-conditioner can be set in the unit of 10 minutes.
- 3) ON timer
- Time to turn ON the air-conditioner can be set. Indoor temperature can be set simultaneously.
- 4) Weekly timer
- Timer operation (ON timer, OFF timer) can be set up to 4 times a day for each weekday.
- 5) Timer operations which can be set in combination

Item Item	Timer	OFF timer ON timer Weekly		Weekly timer
Timer		×	0	×
OFF timer	×		0	×
ON timer	0	0		×
Weekly timer	×	×	×	

Note (1) O: Allowed X: Not

(e) Remote controller display during the operation stop

- 1) "Centralized control ON" is displayed always on the LCD under the "Center/Remote" and "Center" modes during the operation stop (Power ON). This is not displayed under the "Remote" mode.
- 2) If this display is not shown under the "Center/Remote" mode, check if the indoor unit power switch is turned on or not.

(f) Outline of heating or cooling operation

1) Operation of major functional components in heating mode

		Heating				
	Thermostat ON	Thermostat OFF	Failure			
Compressor	ON	OFF	OFF			
Indoor fan motor	ON	ON(HOT KEEP)	OFF			
Outdoor fan motor	ON	OFF	OFF			
4-way valve	ON	ON	OFF (3 minutes ON)			

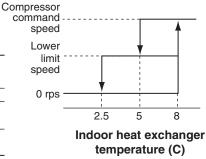
2) Operation of major functional components in Cooling mode

		Cooling	
	Thermostat ON	Thermostat OFF	Failure
Compressor	ON	OFF	OFF
Indoor fan motor	ON	ON	OFF
Outdoor fan motor	ON	OFF	OFF (few minutes ON)
4-way valve	OFF	OFF	OFF

(g) Frost prevention control

- 1) Operating conditions
 - a) Indoor heat exchanger temperature (Th2) is lower than 5°C.
 - b) 5 minutes after reaching the compressor command speed except 0 rps.
- 2) Detail of anti-frost operation

Indoor heat exchanger temperature Item	5°C or lower	2.5°C or lower
Lower limit speed	25 rps	0rps
Indoor fan	Depends on operation mode	Protects the fan tap just before frost prevention control
Outdoor fan	Depends on operation mode	Danan da an atau ma da
4-way valve	OFF	Depends on stop mode



Notes (1) When the indoor heat exchanger temperature is in the range of 2.5~5 °C, the speed is reduced by 4 rps at each 20 seconds.

(2) When the temperature is lower than 2.5 °C, the compressor is stopped.

(3) When the indoor heat exchanger temperature is in the range of $5\sim8$ °C, the compressor command speed is been maintained.

- 3) Reset conditions: When either of the following condition is satisfied.
 - a) The indoor heat exchanger temperature (Th2) is 8°C or higher.
 - b) The compressor command speed is 0 rps.

(h) Indoor fan motor protection

When the air conditioner is operating and the indoor fan motor is turned ON, if the indoor fan motor has operated at 300 rpm or under for more than 30 seconds, the unit enters first in the stop mode and then stops the entire system.

(i) Serial signal transmission error protection

- (a) **Purpose:** Prevents malfunction resulting from error on the indoor \leftrightarrow outdoor signals.
- (b) Detail of operation: If the compressor is operating and a serial signal cannot be received from the indoor control with outdoor control having serial signals continues for 7 minute and 35 seconds, the compressor is stopped. After the compressor has been stopped, it will be restarted after the compressor start delay if a serial signal can be received again from the indoor control.

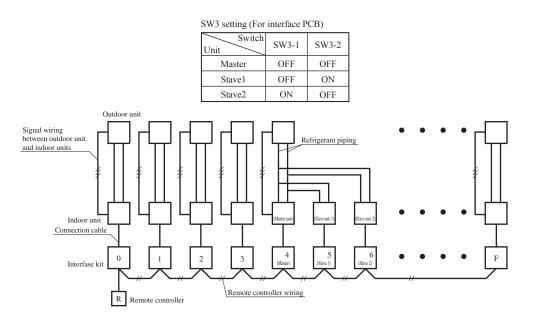
(j) Plural unit control – Control of 16 units group by one remote controller

1) Function

One remote controller switch can control a group of multiple number of unit (Max. 16 indoor units). "Operation mode" which is set by the remote controller switch can operate or stop all units in the group one after another in the order of unit No.⁽¹⁾. Thermostat and protective function of each unit function independently.

Note (1) Unit No. is set by SW1 on the interface PCB. Unit No. setting by SW1 is necessary for the interface only. In cases of the twin and triple specification, it is necessary set for the master and the slave units. This can be selected by SW3. (All are set for the master unit at the shipping from factory.)

```
SW1: For setting of 0-9, A-F
SW3: For setting of master and slave units
(See table shown at right.)
```



(2) Unit No. may be set at random unless duplicated, it should be better to set orderly like 0, 1, 2..., F to avoid mistake.

2) Display to the remote controller

- a) Center or each remote controller basis, heating preparation: the youngest unit No. among the operating units in the remote mode (or the center mode unless the remote mode is available) is displayed.
- b) Inspection display: Any of unit that starts initially is displayed.
- c) Confirmation of connected units
 - Pressing "AIR CON No." button on the remote controller displays the indoor unit address. If " \blacktriangle " " \forall " button is pressed at the next, it is displayed orderly starting from the unit of youngest No.

- d) In case of anomaly
 - i) If any anomaly occurs on a unit in a group (a protective function operates), that unit stops with the anomalous stop but any other normal units continue to run as they are.
 - ii) Signal wiring procedure

Signal wiring between indoor and outdoor units should be made on each unit same as the normal wiring. For the group control, lay connect with sires wiring between rooms using terminal blocks (X, Y) of interface kit. Connect the remote controller communication wire separately from the power supply wire or wires of other electric devices (AC220V or higher).

(k) Filter sign

As the operation time (Total ON time of ON/OFF switch) accumulates to 180 hours (1), "Filter cleaning" is displayed on the remote controller. (This is displayed when the unit is in trouble and under the centralized control, regardless of ON/OFF) Note (1)Time setting for the filter sign can be made as shown below using the indoor function of wired remote controller "FILTER SIGN SET". (It is set at 1 at the shipping from factory.)

Filter sign setting	Function
Setting 1	Setting time: 180 hrs (Factory default)
Setting 2	Setting time: 600 hrs
Setting 3	Setting time: 1,000 hrs
Setting 4	Setting time: 1,000 hrs (Unit stop) (2)

(2) After the setting time has elapsed, the "FILTER CLEANING" is displayed and, after operating for 24 hours further (counted also during the stop), the unit stops.

1.4 Operation control function by the outdoor controller

(1) Determination of compressor speed (frequency)

Required frequency

(a)	Cooling/dehumidifying operation					Unit: rps
	Model 71 100 125				140	
	Max. required	Indoor unit air flow "P-Hi", "Hi"	88	75	95	95
	frequency	Indoor unit air flow "Me", "Lo"	80	60	60	70
	Min. required frequency			20	20	20

(b) Heating operation

Heating operation					
Model 71				125	140
Max. required	Indoor unit air flow "P-Hi", "Hi"	112	120	120	120
frequency	Indoor unit air flow "Me", "Lo"	90	60	70	70
Min. required frequency		20	20	20	20

(c) If "Silent mode start" signal is received from the remote controller, the maximum required frequency becomes same as when the indoor air flow is set at "Lo".

(d) Max. required frequency under high outdoor air temperature in cooling mode

Maximum required frequency is selected according to the outdoor air temperature (Tho-A).

					Unit: rps
	Model	71	100	125	140
Max. required	Outdoor air temperature is 40°C or higher	76	75	75	75
frequency	Outdoor air temperature is 46°C or higher	62	75	70	70

(e) Max. required frequency under outdoor air temperature in heating mode

Maximum required frequency is selected according to the outdoor air temperature (Tho-A).

					Unit: rps
	Model	71	100	125	140
Max. required frequency	Outdoor air temperature is 18°C or higher	76	60	80	85

(f) Selection of max. required frequency by heat exchanger temperature

1) Maximum required frequency is selected according to the outdoor unit heat exchanger temperature (Tho-R) during cooling/dehumidifying or according to the indoor unit heat exchanger temperature (Thi-R) during heating mode.

TT .

2) When there are 3 indoor unit heat exchanger temperatures (ThI-R), whichever the highest applies,

						Unit: rps
	Model		71	100	125	140
Max. required frequency	Cooling/ dehumidifying	Outdoor unit heat exchanger temperature is 56°C or higher	-	_	-	-
	Heating	Indoor unit heat exchanger temperature is 56°C or higher	_	100	100	100

(g) When any of the controls from (a) to (f) above may duplicate, whichever the smallest value among duplicated controls is taken as the maximum required frequency.

(h) During heating, it is operated with the maximum required frequency until the indoor unit heat exchanger temperature becomes 40°C or higher.

(2) Compressor start control

- (a) Compressor starts upon receipt of the thermostat ON signal from the indoor unit.
- (b) However, at initial start after turning the power supply breaker, it may enter the standby state for maximum 30 minutes (" ⁽¹⁾ PREPARATION" is displayed on the remote controller) in order to prevent the oil loss in the compressor.

If the cooling/dehumidifying/heating operation is selected from the remote controller when the outdoor unit is in the standby state, " (B PREPARATION" is displayed for 3 seconds on the remote controller.

Compressor soft start control (3)

(a) Compressor protection start I

[Control condition] Normally, the compressor operation frequency is raised in this start pattern.

[Control contents] 1) Starts with the compressor's target frequency at **A** rps.

- However, when the ambient air temperature (Tho-A) is 35°C or higher during cooling/ dehumidifying or the indoor return air temperature (ThI-A) is 25°C or higher during heating, it starts at C rps.
- 2) At 30 seconds after the start of compressor, its target frequency changes to **B** rps and the compressor is operated for 2 - 4 minutes with its operation frequency fixed at **B** rps.

Model	Operation mode	A rps	B rps	C rps
71	Cooling/Dehumidifying	42	42	40
/1	Heating	62	62	40
100	Cooling/Dehumidifying	55	55	30
100	Heating	55	55	30
125 140	Cooling/Dehumidifying	45	45	25
125, 140	Heating	45	45	25

(b) Compressor protection start III

[Control condition] Number of compressor starts is only 1 counted after the power supply breaker ON.

[Control contents] Operates by selecting one of following start patterns according to the operation mode and the outdoor air temperature (Tho-A).

- Low frequency operation control during cooling/dehumidifying 1)
 - [Control condition] Upon establishing the conditions of compressor protection start III, the low frequency operation control is performed during cooling/dehumidifying.
 - [Control contents] a) Starts with the compressor's target frequency at A rps. When the outdoor air temperature (Tho-A) is 35°C or higher, it starts at **C** rps.

b) At 30 seconds after the compressor start, the compressor's target frequency is changed to **B** rps and the compressor's operation frequency is fixed for 10 minutes.

Model	Operation mode	A rps	B rps	C rps
71	Cooling/Dehumidifying	42	42	40
100	Cooling/Dehumidifying	55	55	30
125, 140	Cooling/Dehumidifying	45	45	25

2) Low frequency operation control during heating

[Control condition] When the conditions of compressor protection start III are established and one of following conditions a) and b) is satisfied, the low number of revolutions operation control is performed during heating.

- a) At 30 minutes or more after turning the power supply breaker on
- b) Compressor underneath temperature (Tho-H) is 4°C or higher and the difference from the outdoor air temperature (Tho-A) becomes 4°C or higher. [model 200, 250 only]

[Control contents]

- a) Starts the compressor with its target frequency at **A** rps. However, when the indoor unit
- return air temperature (ThI-A) is 25°C or higher, it start at C rps.

b) At 30 seconds after the start of compressor, the compressor's target frequency is changed to **B** rps and the compressor's operation frequency is fixed for 10 minutes.

Model	Operation mode	A rps	B rps	C rps
71	Heating	42	42	40
100	Heating	55	55	30
125, 140	Heating	45	45	25

(4) Outdoor unit fan control

(a) Outdoor unit fan tap and fan motor speed

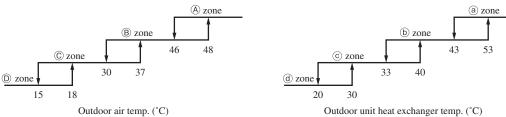
Unit: min ⁻¹								
Model	Mode			F	an motor ta	ар		
71		① speed	2 speed	③ speed	(4) speed	(5) speed	6 speed	⑦ speed
	Cooling/Dehumidifying	200	400	600	710	810	850	950
	Heating	200	400	600	710	810	850	950
		① speed	2 speed	3 speed	(4) speed	(5) speed	6 speed	⑦ speed
100	Cooling/Dehumidifying	200	350	600	740	820	870	950
	Heating		350	600	740	820	870	950
		① speed	2 speed	③ speed	(4) speed	(5) speed	6 speed	⑦ speed
125, 140	Cooling/Dehumidifying	200	370	560	640	745	870	910
	Heating	200	370	560	640	800	870	910

(b) Fan tap control during cooling/heating operation

Fan taps are selected depending on the outdoor unit heat exchanger temperature (Tho-R1, R2) and the outdoor air temperature (Tho-A). Note (1) It is detected by Tho-R1 or R2, whichever the higher.

	(A) zone	B zone	© zone	D zone
(a) zone	Tap 5(6)	Tap 5(6)	Tap 5(6)	Tap 4
(b) zone	Tap 5(6)	Tap 5(6)	Tap 4(6)	Tap 3
© zone	Tap 4	Tap 4	Tap 3	Tap 2
d zone	Tap 3	Tap 3	Tap 2	Tap 1

Note (1) Value in () are for the model 71.



(c) Fan tap control during heating operation

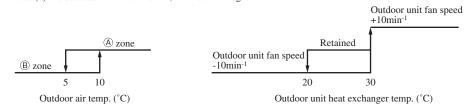
Fan taps are selected depending on the outdoor unit heat exchanger temperature (Tho-R1, R2) and the outdoor air temperature (Tho-A). Note (1) It is detected by Tho-R1 or R2, whichever the lower.

	(A) zone	B zone	© zone		
(a) zone	Tap 3	Tap 3	Tap 4		
(b) zone	Tap 3	Tap 4(5)	Tap 5		
© zone	Tap 4	Tap 5	Tap 6		
Note (1) Value	in () are fo	r the model 71.			
(A) zone					
		A			



(d) Outdoor unit fan control at cooling low outdoor air

 When all the following conditions are established after the start of compressor, the following control is implemented. If the outdoor air temperature (Tho-A) is in the zone (B) in the cooling/dehumidifying mode, it has elapsed 20 seconds from the start of outdoor unit fan and the outdoor unit fan is at the tap 1 speed, the outdoor unit fan speed is controlled according to the outdoor unit heat exchanger temperature (Tho-R1, R2). Note (1) It is detected with Tho-R1 or R2, whichever the higher.



- 2) The outdoor unit heat exchanger temperature is detected always and, when the number of revolutions of the outdoor fan speed has been increased or decreased, there is no change of fan speed for 20 seconds.
 - Rage of the outdoor unit fan speed under this control is as follows.
 - a) Lower limit: 130rpm
 - b) Upper limit: 500rpm
- 4) As any of the following conditions is established, this control terminates.
 - a) When the outdoor air temperature is in the zone (A) and the outdoor unit heat exchanger temperature at 30°C or higher is established for 40 seconds or more continuously.
 - b) When the outdoor fan speed is 500rpm and the outdoor unit heat exchanger temperature at 30°C or higher is established for 40 seconds or more continuously.
 - c) When the outdoor unit heat changer temperature at 45°C or higher is established for 40 seconds or more.

(e) Outdoor unit fan control by the power transistor radiator fin temperature

When all the following conditions are established later than 3 minutes after the start of compressor, the following control is implemented.

- 1) Cooling/dehumidifying
 - a) Outdoor air temperature Tho-A \geq 33°C
 - b) Compressor's actual frequency $\geq \mathbf{A}$ rps
 - c) Power transistor radiator fin temperature $\geq \mathbf{C} \circ \mathbf{C}$
- 2) Heating

3)

- a) Outdoor air temperature Tho-A 16°C
- b) Compressor's actual frequency $\geq \mathbf{B}$ rps
- c) Power transistor radiator fin temperature $\geq \mathbf{C} \circ \mathbf{C}$
- 3) Control contents
 - a) Raises the outdoor unit fan tap by 1 tap.
 - b) When the sampling is for 60 minutes and the value of power transistor radiator fin temperature (Tho-P) is as follows.
 - ① When the power transistor radiator fin temperature (Tho-P) $\geq \mathbf{C}$ °C, the outdoor unit fan tap is raised by 1 speed further.
 - ② When C °C > power transistor radiator fin temperature (Tho-P) ≥ D °C, present outdoor unit fan tap is maintained.
 - ③ When the power transistor radiator fin temperature (Tho-P) ≥ D °C, the outdoor unit fan tap is dropped by 1 speed.
- 4) Ending conditions

When the operation under the condition of item b), (3) above and with the outdoor unit fan tap, which is determined by the item (b) is detected 2 times consecutively.

· Compressor's frequency and power transistor radiator fin temperature

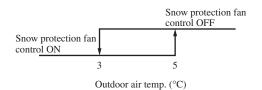
Item	Α	В	С	D
71	60	70	80	75
100	85	85	72	68
125, 140	65	65	72	68

(f) Caution at the outdoor unit fan start control

When the outdoor unit fan is running at 400min⁻¹ before operating the compressor, it may operate with the compressor only, without starting up the outdoor fan This is normal.

(g) Snow protection fan control

If the dip switch (SW3-2) on the outdoor unit control PCB is turned ON, the outdoor unit fan is operated for 30 seconds at 4 tap speed once in every 10 minutes depending on the outdoor air temperature (detected with Tho-A) in the stop mode or anomalous stop mode.

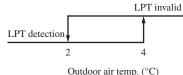


(5) Defrosting

(a) Defrosting start conditions

If all of the following defrosting conditions A or conditions B are met, the defrosting operation starts.

- 1) Defrosting conditions A
 - a) Cumulative compressor operation time after the end of defrosting has elapsed 37 [45] minutes, and the cumulative compressor operation time after the start of heating operation (remote controller ON) has elapsed 30 minutes.
 - b) After 5 minutes from the compressor ON
 - c) After 5 minutes from the start of outdoor unit fan
 - After satisfying all above conditions, if temperatures d) of the outdoor unit heat exchanger temperature thermistor (Tho-R1, R2) and the outdoor air temperature thermistor (Tho-A) become lower than the defrosting start temperature as shown Model 71 by the right figure for 15 seconds continuously, or the suction gas saturation temperature (SST) and the outdoor air temperature (Tho-A), which $\frac{1}{22}$ are obtained from the value detected by the low pressure sensor (LPT) stay for 3 minutes within the range below the defrosting operation start temperature as shown by the right figure. However, it excludes for 10 minutes after the start of compressor and the outdoor air temperature is as shown by the lower figure.



Note (1) Figures in [] are for model 71.

- 2) Defrosting conditions B
 - a) When previous defrosting end condition is the time out of defrosting operation and it is in the heating operation after the cumulative compressor operation time after the end of defrosting has become 30 minutes.
 - b) After 5 minutes from the start of compressor

After 5 minutes from the start of outdoor unit fan

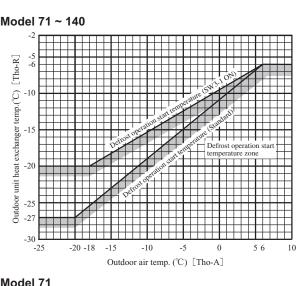
(b) Defrosting end conditions

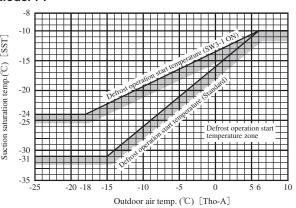
c)

When any of the following conditions is satisfied, the defrosting end operation starts.

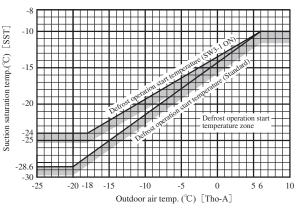
1) When it has elapsed 8 minutes and 20 seconds after the start of defrosting. (After 10 minutes and 20 seconds for model 71)

 When the outdoor unit heat exchanger temperatures (Tho-R1, R2), whichever the lower, becomes 12°C or higher for 10 seconds continuously.









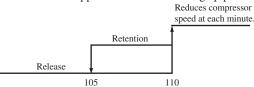
(c) Switching of defrosting control with SW3-1

- 1) If SW3-1 on the outdoor unit control PCB is turned to ON, it becomes easier to enter the defrosting operation. Use this when installing a unit at snowing regions.
- 2) Control contents
 - a) It allows entering the defrosting operation under the defrosting condition A when the cumulative heating operation time becomes 30 minutes. It is 37 [45] minutes at SW3-1 OFF (Factory default).
 - b) It allows entering the defrosting operation under the defrosting condition B when the cumulative heating operation time becomes 25 minutes. It is 30 minutes at SW3-1 OFF (Factory default).
 - c) It allows the defrosting operation with the outdoor unit heat exchanger temperature (Tho-R) and suction pressure saturation temperature (SST) being higher than normal. Note (1) Figures in [] are for model 71.

(6) Protective control/anomalous stop control by compressor's number of revolutions

(a) Compressor discharge pipe temperature protection

- 1) Protective control
 - As the discharge pipe temperature (detected with Tho-D) exceeds the setting value, the compressor speed (frequency) is controlled to suppress the rise of discharge pipe temperature.



Discharge pipe temperature (°C)

- 2) Anomalous stop control
 - a) If the discharge pipe temperature (detected with Tho-D) exceeds the setting value, the compressor stops.
 - b) When it is detected 2 times within 60 minutes or after continuous 60 minutes, including the stop of compressor, E36 is displayed on the remote controller and it enters the anomalous stop mode.



Discharge pipe temperature (°C)

Reset of anomalous stop mode

As it drops to the reset value of 85°C or lower for 45 minutes continuously, it becomes possible to restart from the remote controller.

(b) Cooling high pressure protection

1) Protective control

3)

- a) When the outdoor air temperature (Tho-A) is 40°C or higher and the outdoor unit heat exchanger temperature (Tho-R) exceeds the setting value, the compressor speed (frequency) is controlled to suppress the rise of high pressure.
- b) Control value A is updated to an optimum value automatically according to the operating conditions.

Reduces compressor	
speed at each minute.	Control value A
Reset	
A	54~60°C
Outdoor unit heat exchanger temp. (°C)	

- 2) Anomalous stop control
 - a) As the outdoor unit heat exchanger temperature (Tho-R) exceeds the setting value, the compressor stops.
 - b) If it is detected 5 times within 60 minutes or 65°C or higher continues for 60 minutes, including the stop of compressor, E35 is displayed on the remote controller and it enters the anomalous stop mode.



Outdoor unit heat exchanger temp. (°C)

3) Reset of anomalous stop mode

As it reaches the reset value of 51°C or lower, it becomes possible to restart from the remote controller.

(c) Heating high pressure protection

- 1) Protective control
 - a) As the indoor unit heat exchanger temperature (ThI-R) exceeds the setting value, the compressor speed (frequency) is controlled to suppress the rise of high pressure.
 - b) Control value A is updated to an optimum value automatically according to the operating conditions.

Reduces compressor frequency		Existing piping adaptation switch: SW5-1 (SW8-1: model 80)		
at every 30 seconds.	Model	OFF (Shipping)	ON	
Reset 1		Control value A (°C)		
	71	52~58	46.50	
	100~140	48~54	46~52	
Indoor unit heat exchanger temp. (°C)	Note (1) Adaptation to exi	isting piping is at ON.		

- 2) Anomalous stop control
- Operation control function by the indoor unit controller See the heating overload protection, page 10. 3) Adaptation to existing piping, stop control
 - If the existing piping adaptation switch, SW5-1 (SW8-1: 71 type), is turned ON, the compressor stops to protect existing piping when the indoor unit heat exchanger temperature (Thi-R) exceeds the setting value.



(d) Anomaly detection control by the high pressure switch (63H1)

- 1) If the pressure rises and operates the high pressure switch (opens at 4.15MPa/closes at 3.15MPa), the compressor stops.
 - Under any of the following conditions, E40 is displayed and it enters the anomalous stop mode.
 - a) When it occurs 5 times within 60 minutes that pressure rises and the compressor is stopped by 63H1.
 - b) When 63H1 has been in the open state for 60 minutes continuously, including the stop of compressor.

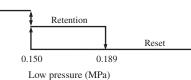
(e) Low pressure control

2)

1) Protective control

If the value detected by the low pressure sensor (LPT) exceeds the setting value, the compressor speed (frequency) is controlled to restrain the drop of pressure.

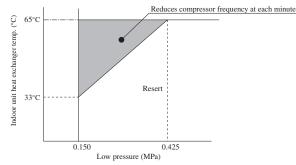
Reduces compressor frequency at every 30 seconds.



- 2) Anomalous stop control
 - a) When a value detected by the low pressure sensor (LPT) satisfies any of the following conditions, the compressor stops to run for its protection.
 - ① When the low pressure drops to 0.079MPa or under for 15 seconds continuously.
 - ② At 10 minutes after the start of compressor, the suction overheat becomes 30°C and the low pressure becomes 0.15MPa or under for 60 seconds continuously.
 - b) E49 is displayed under any of the following conditions and it enters the anomalous stop mode.
 - ① When the low pressure drops 3 times within 60 minutes and the compressor stops under any of the above conditions.
 - When a value detected with the low pressure sensor becomes 0.079MPa or under for 5 minutes, including the stop of compressor.
 - c) However, when the control condition a). ① is established during the compressor protection start III, E49 is displayed at initial stop and it enters the anomalous stop mode.

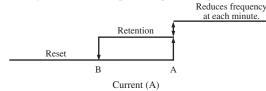
(f) Compressor pressure ratio protection control

- 1) During heating operation, if the indoor unit heat exchanger temperature (Thi-R) and the outdoor unit heat exchanger temperature (Tho-R) exceed the setting values at 10 minutes after the start of compressor, the compressor speed (frequency) is controlled to protect the compressor.
- 2) This control is not performed during the outdoor fan ON and for 10 minutes from the start of outdoor unit fan.
- 3) This control is not performed during defrosting operation and at 10 minutes after the reset of defrosting operation.
- 4) When there are 3 indoor unit heat exchanger temperatures (Thi-R), the highest temperature is detected.

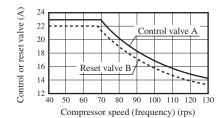


(g) Over-current protection current safe controls I, II

Detecting the outdoor unit inverter input (primary) current and the output (secondary) current, if the current values exceed setting values, the compressor speed (frequency) is controlled to protect the inverter.



(Fig. C) The control value "A" and the reset value vary depending on the compressor speed.



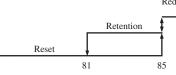
Model		Coo	ling	Heating		
		Control Reset value A value B		Control value A	Reset value B	
	71	15.0	14.0	16.0	15.0	
Primary current	100	13.5 (23.0)	12.5 (22.0)	13.5 (23.0)	12.5 (22.0)	
side	125, 140	11.0 (23.0)	10.0 (22.0)	11.0 (25.0)	10.0 (24.0)	
~	71	13.0	12.0	13.0	12.0	
Secandary	100	11.5 (Fig.C)	10.5 (Fig.C)	11.5 (Fig.C)	10.5 (Fig.C)	
side	125, 140	11.5 (Fig.C)	10.5 (Fig.C)	11.5 (Fig.C)	10.5 (Fig.C)	

Note (1) Value in () are for the single phase models.

(h) Power transistor temperature protection

1) Protective control

If the power transistor temperature (detected with TIP) exceeds the setting value, the compressor speed (frequency) is controlled to suppress the rise of power transistor temperature. Reduces compressor frequency



Power transistor temp. (°C)

(i) Anomalous power transistor current

- 1) Prevents over-current on the inverter. If the current value in the power transistor exceeds the setting value, the compressor stops.
- 2) If the current value in the power transistor exceeds the specified value and the compressor stops 4 times within 30 minutes, E42 is displayed on the remote controller and it enters the anomalous stop mode.

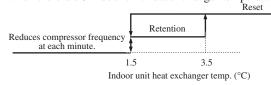
(j) Anomalous inverter PCB

If the power transistor detects any anomaly for 15 minutes, including the stop of compressor, E51 is displayed on the remote controller and it enters the anomalous stop mode.

(k) Anti-frost control by the compressor frequency control

- 1) If the indoor unit heat exchanger temperature (detected with Thi-R) exceeds the setting value at 4 minutes after the start of compressor, the compressor speed (frequency) is controlled to initiate the anti-frost control of indoor unit heat exchanger.
- 2) When there are 3 indoor unit heat exchanger temperatures (ThI-R), the lowest temperature is detected.

at each minute



3) Regarding the anti-frost control by the operation stop, refer to the operation control function by the indoor unit controller and the cooling, dehumidifying frost prevention of page 10.

(I) Dewing prevention control

- [Control condition] During cooling and dehumidifying operation, if all the following conditions are established, the compressor speed (frequency) is reduced to prevent dewing and water splash.
 - ① Cooling electronic expansion valve aperture (EEVC) is 500 pulses.
 - ^② Suction overheat is 10°C or higher.
 - ③Compressor speed (frequency) is **A** rps or higher.

[Control contents] ① When the suction overheat is 10°C or higher, the compressor speed (frequency) is reduced at each 1 minute.

(2) Compressor speed (frequency) does not rise till the cooling	Model	A rps
expansion valve becomes 460 pulses.	71	42
(3) This control takes A rps as its lower limit so that compressor	100~140	60

speed is not controlled when it is less than **A** rps.

(m) Refrigerant quantity shortage protection

Under the compressor protection start III control during cooling and dehumidifying operations, the following control is performed by detecting the indoor unit heat exchanger temperature (ThI-R) and the indoor unit return air temperature (ThI-A).

[Control condition] When the state that the indoor unit heat exchanger temperature (ThI-R) does not become lower than the indoor unit return air temperature (ThI-A) by 4°C or more continues for 1 minute.

[Control contents] It judges that the flowing of refrigerant in to the indoor unit is insufficient so that the compressor is stopped and E57 is displayed on the remote controller.

(n) Broken wire detection on temperature thermistor and low pressure sensor

- Outdoor unit heat exchanger thermistor, outdoor air thermistor and low pressure sensor
 If the following is detected for 5 second continuously within 2 minutes to 2 minutes and 20 seconds after the
 compressor ON, the compressor stops. After a delay of 3 minutes, it restarts but, if the same is detected repeatedly 3
 times within 40 minutes, the compressor stops with the anomalous stop.
 Note (1) During defrosting and for 3 minutes after the end of defrosting, it is not detected.
 - Outdoor unit heat exchanger thermistor: -50°C or lower
 - Outdoor air temperature thermistor: -45 or lower
 - Low pressure sensor: 0V or under or 4.0V or over
- 2) Discharge pipe temperature thermistor, suction pipe temperature thermistor

If the following is detected for 5 second continuously within 10 minutes to 10 minutes and 20 seconds after the compressor ON, the compressor stops. After a delay of 3 minutes, it restarts but, if the same is detected repeatedly 3 times within 40 minutes, the compressor stops with the anomalous stop.

- Note (1) During defrosting and for 3 minutes after the end of defrosting, it is not detected.
- Discharge pipe temperature thermistor: -10°C or lower
- Suction pipe temperature thermistor: -50 or lower

(o) Open phase protection (3-phase models only)

When 0V is detected on any of L1, L2 or L3 phase for 5 seconds continuously after the power ON, it judges the state of open phase on the power supply and activates the anomalous stop (E34) 1 second later.

(p) Fan motor error

- 1) If the fan speed of 100rpm or under is detected for 30 second continuously under the outdoor unit fan control (with the operation command of fan tap at ① speed or higher), the compressor stops.
- 2) When the fan motor speed drops to 100rpm or under 5 times within 60 minutes and the compressor stops, it enters the anomalous stop mode with E48 displayed on the remote controller.

(q) Anomalous stop by the compressor start stop

- 1) When it fails to shift to the compressor DC motor's rotor position defection operation at 5 seconds after establishing the compressor start condition, the compressor stops temporarily and restarts 3 minutes later.
- 2) If it fails to shift to the position detection operation again at second time, it judges the anomalous compressor start and stops the compressor by the anomalous stop (E59).

(7) Silent mode

- (a) As "Silent mode start" signal is received from the remote controller, it operates by dropping the outdoor unit fan tap and the compressor speed (frequency).
- (b) For details, refer to items (1) and (4) above.

(8) Test run

(a) It is possible to operate from the outdoor unit using the dip switch on the outdoor unit control PCB.

GW2 2	ON	SW3-4	OFF	Cooling test run
SW3-3 (SW5-3)	UN	(SW5-4)	ON	Heating test run
(3 1 3-3)	OFF	N	Iormal and end	of test run

Make sure to turn SW3-3 (SW5-3) to OFF after the end of operation. Note (1) Value in () are for the model 71.

(b) Test run control

- 1) Operation is performed at the maximum compressor speed (frequency), which is determined for each model.
- 2) Each protective control and error detection control are effective.
- If SW3-4 (SW5-4) is switched during test run, the compressor is stoped for once by the stop control and the cooling/ heating operation is switched.

Note (1) Value in () are for the model 71.

4) Setting and display of remote controller during test run

Item	Contents of remote controller setting/display
Cooling test run	Setting temperature of cooling is 5°C.
Heating test run	Setting temperature of heating (preparation) is 30°C.

(9) Pump-down control

1)

Turning ON the pump-down switch SW1 (SW9) for 2 seconds during the operation stop or anomalous stop (excluding the thermostat OFF), the pump-down operation is performed. (This is invalid when the indoor unit is operating. This is effective even when the indoor unit is stopped by the anomalous stop or the power supply is turned OFF.)

Note (1) Value in () are for the model 71.

(a) Control contents

- 1) Close the operation value at the liquid side. (It is left open at the gas side.)
- 2) Compressor is started with the target speed (frequency) at 71:62, 100:55, 125 140:45 rps in the cooling mode.
- 3) Red and green lamps (LED) flash continuously on the outdoor unit control PCB.
- Each of protection and error detection controls, excluding the low pressure control, anti-frost control and dewing prevention control, is effective.
- 5) Outdoor unit fan is controlled as usual.
- 6) Electronic expansion valve is fully opened.

(b) Control ending conditions

Stop control is initiated depending on any of the following conditions.

- Low pressure of 0.087MPa or lower is detected for 5 seconds continuously.
 - a) Red LED: Light, Green LED: Flashing, Remote controller: Displays stop.
- b) It is possible to restart when the low pressure is 0.087MPa or higher.
- c) Electronic expansion valve (cooling/heating) is kept fully open.
- 2) Stop by the error detection control
 - a) Red LED: Flashing, Green LED: Flashing
 - b) Restart is prohibited. To return to normal operation, reset the power supply.
 - c) Electronic expansion valve (cooling/heating) is left fully open.
- 3) When the cumulative operation time of compressor under the pump-down control becomes 5 minutes.
 - a) Red LED: OFF, Green LED: Flashing, Remote controller: Stop
 - b) It is possible to pump-down again.
 - c) Electronic expansion valve (cooling/heating) is left fully open.
 - Note (1) After the stop of compressor, close the operation valve at the gas side.
- Caution: Since pressing the pump-down switch cancels communications with the indoor unit, the indoor unit and the remote controller display "Transmission error E5". This is normal.

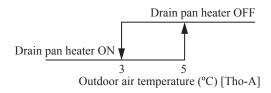
(j) Drain pan ON/OFF output control (optional) (Models $100 \sim 140$ only)

1) Drain pan heater ON conditions

- When all of following conditions are met, the drain pan heater is turned ON.
- Outdoor air temperature (detected with Tho-A) is 3°C or lower.
- $\boldsymbol{\cdot}$ In the heating mode
- When the compressor is turned ON

2) Drain pan heater OFF conditions

- When either one of following conditions is met, the drain pan heater is turned OFF.
- Outdoor air temperature (detected with Tho-A) is 5°C or higher.
- · When the compressor stop has been detected for 30 minutes continuously
- In the cooling or dehumidifying mode



2. MAINTENANCE DATA

2.1 Diagnosing of microcomputer circuit

(1) Selfdiagnosis function

(a) Check Indicator Table

Whether a failure exists or not on the indoor unit and outdoor unit can be know by the contents of remote controller error code, indoor/outdoor unit green LED (power pilot lamp and microcomputer normality pilot lamp) or red LED (check pilot lamp).

(i) Indoor unit

Remote co	ontroller	Indoor co	ontrol PCB	Outdoor co	ontrol PCB	Location of			Reference			
Error code	Red LED	Red LED	Green LED (1)	Red LED	Green LED (1)	trouble	Description of trouble	Repair method	page			
		Stays OFF	Keeps flashing	Stays OFF	Keeps flashing	_	Normal operation	_	_			
No-indication	Stays OFF	Stays OFF	Stays OFF	2 times flash	Stays OFF	Indoor unit power supply	Power OFF, broken wire/blown fuse, broken transformer wire	Repair	62			
		*		Keeps	0. OTT	Keeps	Remote controller wires	Poor connection, breakage of remote controller wire * For wire breaking at power ON, the LED is OFF.	Repair	(2)		
		3 times flash	flashing	Stays OFF	flashing	Remote controller	Defective remote controller PCB	Replacement of remote controller	63			
(B) WAIT INSPEC		Stays OFF	Keeps flashing	2 times flash	Keeps flashing	Indoor-outdoor units connection wire	Poor connection, breakage of indoor-outdoor units connection wire	Repair	$64\sim 68$			
						Remote controller	Improper setting of master and slave by remote controller Poor connection of remote controller signal wire (White)					
F I		Stays OFF	* Keeps	Stays OFF	Keeps	Remote controller wires (Noise)	For wire breaking at power ON, the LED is OFF Intrusion of noise in remote controller wire	Repair	70			
<u> </u>		50035 011	flashing	54435 011	flashing	Remote controller indoor control PCB	*• Defective remote controller or indoor control PCB (defective communication circuit)?	Replacement of remote controller or PCB	70			
		2 times flash	Keeps flashing	2 times flash	Keeps flashing	Indoor-outdoor units connection wire	Poor connection of wire between indoor-outdoor units during operation (disconnection, loose connection) Anomalous communication between indoor-outdoor units by noise, etc.	Repair				
F۶		2 times	Keeps		Keeps	(Noise)	CPU-runaway on outdoor control PCB	Power reset or Repair				
		flash	flashing	Stays OFF	flashing	Outdoor control PCB	*• Occurrence of defective outdoor control PCB on the way of power supply (defective com- munication circuit)?	Replacement of PCB	71			
		2 times flash	Keeps flashing	Stays OFF	Stays OFF	Outdoor control PCB	Defective outdoor control PCB on the way of power supply	Replacement				
		nasn	nasning			Fuse	Blown fuse					
25		1 time flash	Keeps	Stays OFF	Keeps	Indoor heat exchanger tempera- ture thermistor	 Defective indoor heat exchanger temperature thermistor (defective element, bro- ken wire, short-circuit) Poor contact of temperature thermistor connector 	Replacement, repair of temperature thermistor	72			
		1 time nasii	flashing	Stays OFF	flashing	Indoor control PCB	*• Defective indoor control PCB (Defective temperature thermistor input circuit)?	Replacement of PCB	12			
F 7		1 time fleet	Keeps	Stars OFF	Keeps	Indoor return air temperature therm- istor	Defective indoor return air temperature thermistor (defective element, broken wire, short-circuit) Poor contact of temperature thermistor connector	Replacement, repair of temperature thermistor	72			
<u> </u>		1 time flash	flashing	Stays OFF	flashing	Indoor control PCB	*• Defective indoor control PCB (Defective temperature thermistor input circuit)?	Replacement of PCB	73			
	Keeps flashing					Installation or oper- ating condition	Heating over-load (Anomalously high indoor heat exchanger temperature)	Repair				
E8		1 time flash	1 time flash	1 time flash	1 time flash	Keeps flashing	Stays OFF	Keeps flashing	Indoor heat exchanger tempera- ture thermistor	Defective indoor heat exchanger temperature thermistor (short-circuit)	Replacement of temperature therm- istor	74
						Indoor control PCB	*• Defective indoor control PCB (Defective temperature thermistor input circuit)?	Replacement of PCB				
						Drain trouble	Defective drain pump (DM), broken drain pump wire, disconnected connector	Replacement, repair of DM				
E9		1 time flash	Keeps	Stays OFF	Keeps	Float switch	Anomalous float switch operation (malfunction)	Repair	75			
			flashing		flashing	Indoor control PCB	*• Defective indoor control PCB (Defective float switch input circuit) *• Defective indoor control PCB (Defective DM drive output circuit)?	Replacement of PCB				
						Option	Defective optional parts (At optional anomalous input setting)	Repair				
<u>E ID</u>		Stays OFF	Keeps flashing	Stays OFF	Keeps flashing	Number of con- nected indoor units	When multi-unit control by remote controller is performed, the number of units is over	Repair	76			
ЕІЧ		3 times flash	Keeps flashing	Stays OFF	Keeps flashing	Indoor unit No. set- ting	•No master is assigned to slaves.	Repair	77			
						Remote controller wires	Anomalous remote controller wire connection, broken wire between master and slave units	D 1				
E 16		Stays OFF	Keeps flashing	Stays OFF	Keeps flashing	Fan motor Indoor control PCB	Defective fan motor Offective indoor control PCB	Replacement, repair Replacement	78			
E 19		1 time flash	Keeps flashing	Stays OFF	Keeps flashing	Indoor control PCB	Improper operation mode setting	Repair	79			
E28		Stays OFF	Keeps flashing	Stays OFF	Keeps flashing	Remote controller temperature therm- istor	Broken wire of remote controller temperature thermistor	Repair	80			

Note (1) Normal indicator lamp (Indoor, outdoor units: Green) extinguishes (or lights continuously) only when CPU is anomalous. It keeps flashing in any trouble other than anomalous CPU.

(2) * mark in the Description of trouble means that, in ordinary diagnosis, it cannot identify the cause definitely, and, if the trouble is repaired by replacing the part, it is judged consequently that the replaced part was defective.

(ii) Outdoor unit

Remote co	ontroller	Indoor co	Indoor control PCB		ontrol PCB	Outdoor inventer PCB				Defe
Error code	Red LED	Red LED	Green LED (1)	Red LED	Green LED (1)	Yellow LED	Location of trouble	Description of trouble	Repair method	Reference page
ЕЗЧ		a	Keeps		Keeps		Power supply wires	Outdoor unit power supply L3-phase interruption, defective noise filter (3-phase model only)	Repair	
רכם		Stays OFF	flashing	1 time flash	flashing		Outdoor control PCB	*• Defective outdoor control PCB (Defective power supply input circuit)? (3-phase model only)	Replacement of PCB	81
							Installation or operating condition	Higher outdoor heat exchanger temperature	Repair	
E35		Stays OFF	Keeps flashing	1 time flash	Keeps flashing		Outdoor heat exchanger temperature thermistor	Defective outdoor heat exchanger temperature thermistor	Replacement of temperature thermistor	82
							Outdoor control PCB	*• Defective outdoor control PCB (Defective temperature thermistor input circuit)?	Replacement of PCB	
							Installation or operating condition	Higher discharge temperature	Repair	
E36		Stays OFF	Keeps flashing	1 time flash	Keeps flashing		Discharge pipe temperature thermistor	Defective discharge pipe temperature thermistor	Replacement, repair of temperature thermistor	83
						Keeps flashing	Outdoor control PCB	*• Defective outdoor control PCB (Defective temperature thermistor input circuit)?	Replacement of PCB	
E37		Stays OFF	Keeps	1 time flash	Keeps	masning	Outdoor heat exchanger temperature thermistor	Defective outdoor heat exchanger temperature thermistor, broken wire or poor connector connection	Replacement, repair of temperature thermistor	84
ינם		51ays 011	flashing	1 unic nasi	flashing		Outdoor control PCB	*• Defective outdoor control PCB (Defective temperature thermistor input circuit)?	Replacement of PCB	04
E 38		Stays OFF	Keeps	1 time flash	Keeps		Outdoor air temperature thermistor	Defective Outdoor air temperature thermistor, broken wire or poor connector connection	Replacement, repair of temperature thermistor	85
		Stays OF 1	flashing	1 unic nasi	flashing		Outdoor control PCB	*• Defective outdoor control PCB (Defective temperature thermistor input circuit)?	Replacement of PCB	85
E39		Stays OFF	Keeps	1 time flash	Keeps		Discharge pipe temperature thermistor	Defective discharge pipe temperature thermistor, broken wire or poor connector connection	Replacement, repair of temperature thermistor	86
		Stays OFF	flashing	1 time flash	flashing		Outdoor control PCB	*• Defective outdoor control PCB (Defective temperature thermistor input circuit)?	Replacement of PCB	80
ЕЧО		Stays OFF	Keeps	1 time flash	Keeps		Installation or operating condition	• Rising high pressure (Operation of 63H1) • Service valve closing operation	Repair	87
			flashing		flashing		Outdoor control PCB	*• Defective outdoor control PCB (Defective 63H input circuit)?	Replacement of PCB	
E4 I	Keeps	Stays OFF	Keeps flashing	1 time flash	Keeps flashing	2 times flash or 6 times flash	Inverter PCB or radiator fin	Power transistor overheat (Single phase modelonly)	Replacement of PCB or Repair	88
ЕЧ2	flashing	Stays OFF	Keeps	1 time flash	Keeps	1 time flash	Outdoor control PCB compressor	Current cut (Anomalous compressor over-current)	Replacement of PCB	89 • 90
		51435011	flashing	T unic nasi	flashing	5 times flash	Installation or operating condition	Service valve closing operation	Repair	0, 10
ЕЧБ		Stays OFF	Keeps flashing	1 time flash	Keeps flashing	Keeps	Outdoor control PCB	Anomalous outdoor control PCB communication	Service valve opening check	. 91
						flashing	Inverter PCB	Anomalous inverter PCB communication	Replacement of PCB	
ЕЧЛ		Stays OFF	Keeps flashing	1 time flash	Keeps flashing	7 times flash	Inverter PCB activefilter	Defective outdoor inverter PCB (Model FDC 71) Defective active filter of control.	Replacement	92
ЕЧВ		Stays OFF	Keeps flashing	1 time flash	Keeps flashing		Outdoor fan motor	Anomalous outdoor fan motor	Replacement, repair	93
0			masning		masning	V	Outdoor control PCB Installation or operating	Defective outdoor control PCB (Defective motor input circuit)? Low pressure error Service valve closing operation	Replacement of PCB Repair	
ЕЧЭ		Stays OFF	Keeps	1 time flash	Keeps	Keeps flashing	condition Low pressure sensor	Anomalous low pressure, broken wire of low pressure sensor or poor	Replacement, repair of	94,95
ברם		Stays OFF	flashing	1 une nasn	flashing		Outdoor control PCB	connector connection *• Defective outdoor control PCB (Defective sensor input circuit)?	sensor Replacement of control	94,93
E5 I		Stays OFF	Keeps flashing	1 time flash	Keeps flashing	2 times flash or	Inverter PCB	Anomalous inverter PCB	PCB Replacement of PCB	96
						6 times flash	Suction pipe	Defective suction pipe temperature thermistor, broken wire or poor connector	Replacement, repair of	
E53		Stays OFF	Keeps flashing	1 time flash	Keeps flashing		temperature thermistor Outdoor control PCB	connection *• Defective outdoor PCB (Defective thermistor input circuit)?	temperature thermistor Replacement of control	97
			Keens		Keens	Keeps	Low pressure sensor	Defective low pressure sensor	PCB Replacement of sensor	
ESЧ		Stays OFF	Keeps flashing	1 time flash	Keeps flashing	flashing	Outdoor control PCB	Defective outdoor control PCB (Defective sensor input circuit)?	Replacement of control PCB	98
E57		Stays OFF	Keeps	1 time flash	Keeps		Operation status	Shortage in refrigerant quantity	Repair	99
			flashing		flashing	Stays OFF or	Installation status	Service valve closing operation	Service valve opening check	
E59		Stays OFF	Keeps flashing	5 times flash	Keeps flashing	4 times flash	Compressor inverter PCB	Anomalous compressor startup	Replacement	100

Note (1) * mark in the Description of trouble means that, in ordinary diagnosis, it cannot identify the cause definitely, and, if the trouble is repaired by replacing the part, it is judged consequently that the replaced part was defective.

(iii) Optional controller in-use

		Indoor unit control PCB		Outdoor unit control PCB		Description of travials	Repair method
Error code	Red LED	Red LED	Green LED	Red LED	Green LED	Description of trouble	
E 75	Keeps flashing	Stays OFF	Keeps flashing	Stays OFF	Keeps flashing	Communication error (Defective communication circuit on the main unit of SC-SL2N-E or SC-SL3N-E) ete.	Replacement

(iv) Display sequence of error codes or inspection indicator lamps

Occurrence of one kind of error

Displays are shown respectively according to errors.

Occurrence of plural kinds of error								
Section	Category of display							
Error code on remote controller	• Displays the error of higher priority (When plural errors are persisting)							
Red LED on indoor control PCB	E 1>E5>·····>E 10>E32>·····E59							
Red LED on outdoor control PCB	• Displays the present errors. (When a new error has occurred after the former error was reset.)							

Error detecting timing

Section	Error description	Error code	Error detecting timing
	Drain trouble (Float switch activated)	69	Whenever float switch is activated after 30 second had past since power ON.
	Communication error at initial operation	"''BWAIT''	No communication between indoor and outdoor units is established at initial operation.
	Remote controller communication circuit error	ΕI	Communication between indoor unit and remote controller is interrupted for mote than 2 minutes continuously after initial communication was established.
	Communication error during operation	65	Communication between indoor and outdoor units is interrupted for mote than 2 minutes continuously after initial communication was established.
Indoor	Excessive number of connected indoor units by controlling with one remote controller	E 10	Whenever excessively connected indoor units is detected after power ON.
	Return air temperature thermistor anomaly	67	-50 (-45)°C or lower is detected for 5 (15) seconds continuously within 60 minutes after initial detection of this anomalous temperature.
	Indoor heat exchanger temperature thermistor anomaly	66	-50 (-28)°C or lower is detected for 5 (15) seconds continuously within 60 minutes after initial detection of this anomalous temperature. Or 70°C or higher is detected for 5 seconds continuously.
	Outdoor air temperature thermistor anomaly	E 38	-45°C or lower is detected for 5 seconds continuously 3 times within 40 minutes after initial detection of this anomalous temperature. Or -45°C or higher is detected for 5 seconds continuously within 20 seconds after compressor ON.
	Outdoor heat exchanger temperature thermistor anomaly	637	-50°C or lower is detected for 5 seconds continuously 3 times within 40 minutes after initial detection of this anomalous temperature. Or -50°C or lower is detected for 5 seconds continuously within 20 seconds after compressor ON.
Outdoor	Discharge pipe temperature thermistor anomaly	639	-10°C or lower is detected for 5 seconds continuously 3 times within 40 minutes after initial detection of this anomalous temperature.
	Suction pipe temperature thermistor anomaly	653	-50°C or lower is detected for 5 seconds continuously 3 times within 40 minutes after initial detection of this anomalous temperature.
	Low pressure sensor anomaly	654	0V or lower or 3.49V or higher is detected for 5 seconds continuously 3 times within 40 minutes after initial detection of this anomalous pressure.
	Underneath temperature thermistor anomaly	855	-50°C or lower is detected for 5 seconds continuously 3 times within 40 minutes after initial detection of this anomalous temperature.

Note (1) Value in () are for the models SRK50, 60.

Error log and reset

Error indicator	Memorized error log	Reset		
Remote controller display	• Higher priority error is memorized.	• Stop the unit by pressing the ON/OFF		
Red LED on indoor control PCB	• Not memorized.	switch of remote controller.If the unit has recovered from anomaly, it can be operated.		
Red LED on outdoor control PCB	• Memorizes a mode of higher priority.			

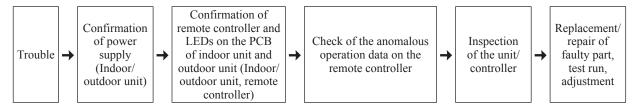
Resetting the error log

- Resetting the memorized error log in the remote controller
- Holding down "CHECK" button, press "TIMER" button to reset the error log memorized in the remote controller.
- Resetting the memorized error log
- The remote controller transmits error log erase command to the indoor unit when "VENTI" button is pressed while holding down "CHECK" button.

Receiving the command, the indoor unit erase the log and answer the status of no error.

(2) Troubleshooting procedure

When any trouble has occurred, inspect as follows. Details of respective inspection method will be described on later pages.



(3) Troubleshooting at the indoor unit

With the troubleshooting, find out any defective part by checking the voltage (AC, DC), resistance, etc. at respective connectors at around the indoor PCB, according to the inspection display or operation status of unit (the compressor does not run, fan does not run, the 4-way valve does not switch, etc.), and replace or repair in the unit of following part.

(a) Replacement part related to indoor PCB's

Control PCB, power supply PCB, temperature thermistor (return air, indoor heat exchanger), remote controller switch, limit switch, transformer and fuse

Note (1) With regard to parts of high voltage circuits and refrigeration cycle, judge it according to ordinary inspection methods.

(b) Instruction of how to replace indoor control PCB

SAFETY PRECAUTIONS
 Read the "SAFETY PRECAUTIONS" carefully first of all and then strictly follow it during the replacement in order to protect yourself.
The precautionary items mentioned below are distinguished into two levels, WARNING and CAUTION.
Both mentions the important items to protect your health and safety so strictly follow them by any means.
WARNING Wrong installation would cause serious consequences such as injuries or death.
CAUTION Wrong installation might cause serious consequences depending on circumstances.
After completing the replacement, do commissioning to confirm there are no anomaly.
M WARNING
Replacement should be performed by the specialist.
If you replace the PCB by yourself, it may lead to serious trouble such as electric shock or fire.
 Replace the PCB correctly according to these instructions.
Improper replacement may cause electric shock or fire.
 Shut off the power before electrical wiring work.
Replacement during the applying the current would cause the electric shock, unit failure or improper running.
It would cause the damage of connected equipment such as fan motor,etc.
• Fasten the wiring to the terminal securely, and hold the cable securely so as not to apply unexpected stress on the terminal.
Loose connections or hold could result in abnormal heat generation or fire.
Check the connection of wiring to PCB correctly before turning on the power, after replacement.
Defectiveness of replacement may cause electric shock or fire.
In connecting connector onto the PCB, connect not to deform the PCB. It may cause breakage or malfunction.
Insert connecter securely, and hook stopper. It may cause fire or improper running.
Bundle the cables together so as not to be pinched or be tensioned. It may cause malfunction or electric shock for disconnection or deformation.

◆ Model: FDT, FDTC series

Control PCB

Replace and set up the PCB according to this instruction.

1 Set to an appropriate address and function using switch on PCB.

Select	Select the same setting with the removed PCB.									
	item switch Content of control									
	Address	SW2	Plural indoor units control by 1 remote controller							
	Master /Slave		Master	Slave1	Slave2	Slave3				
	setting Test run	SW5-1	—	—	0	0				
		SW5-2	—	0	-	0				
		SW7-1	—	Normal						
	restruit	3007-1	0	Operation check/drain motor test run						

from the unit. -1 -2

0 0

_

0

O:ON -:OFF

Set to an appropriate capacity using the model selector switch (SW6).

Select the	e same	e capa	city wi	ith the	PC	B remove	d
SW6	-1	-2	-3	-4		SW6	7
40V	0	0	_	_		100V	Τ
50V	0	-	0	-		125V	Ι
60V	0	0	0	-		140V	Ι
71V	0	-	_	0			Т

IT.		SW6				
-3	-4	ON				1
-	0		П		Π	
0	0					
0	0	1	2	3	4	
		Exam	ple s	settin	g fro	50V

③ Replace the PCB

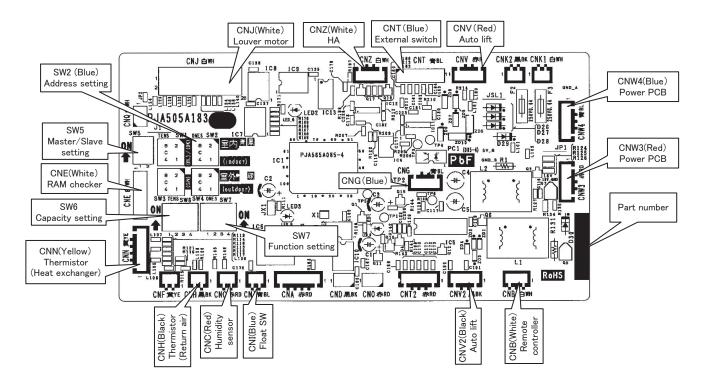
1. Fix the PCB so as not to pitch the cords.

2. Connect connectors to the PCB. Connect a cable connector with the PCB connector of the same color.

3.Do not pass CPU surrounding about wirings.

④ Control PCB

Parts mounting are different by the kind of PCB.



PSB012D931F

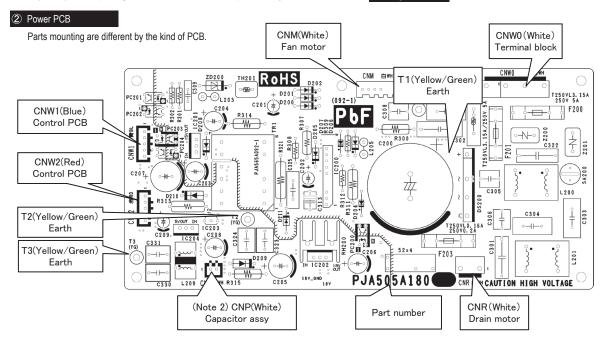
• Power PCB

This PCB is a general PCB. Replace the PCB according to this instruction.

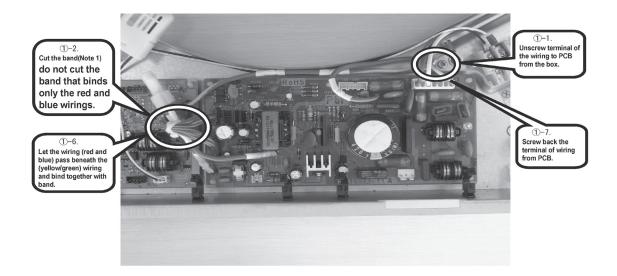
PSB012D953A

① Replace the PCB (refer to right dwg.)

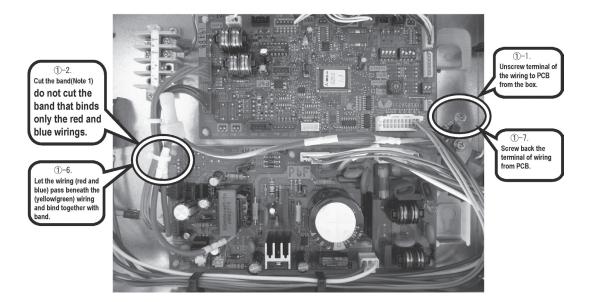
- 1. Unscrew terminal of the wiring(yellow/green) soldered to PCB from the box.
- 2. Cut the band that binds the wiring (red and blue) from connector CNW1 and CNW2, and the wiring (yellow/green) from PCB (T2/T3). (Note 1) (However, do not cut the band that binds only the red and blue wirings.)
- 3. Replace the PCB only after all the wirings connected to the connector are removed.
- 4. Fix the board such that it will not pinch any of the wires.
- 5. Reconnect the wirings to the PCB. Wiring connector color should match with the color of connector of the PCB. (Note 2)
- 6. Let the wiring (red and blue) pass beneath the (yellow/green) wiring and bind together with band.
- 7. Screw back the terminal of wiring (yellow/green) from PCB(T1, T2/T3), that was removed in 1.
- In that case, do not place the crimping part of the wiring under the PCB. (Note 1): It might not be applicable on some models.
- (Note 2): After replacing PCB, connection between capacitor assy and connector CNP is no longer needed.







for FDTC



Model: FDUM, FDU, FDEN series

① Set to an appropriate address and function using switch on PCB

1. There is a unit having plural applicable PCB depending on a model.

2. Set the function setting corresponding the spare PCB and the applicable model.

item	switch	Content of control					
Address	SW2	Plural indoor units control by 1 remote controller					
Master /Slave		Master Slave1 Slave2 Slave3					
setting	SW5-1	—	—	0	0		
setting	SW5-2	- 0 - 0					
Test run	SW7-1	—		Normal			
restruit	3007-1	0	Operation c	heck/drain me	otor test run		
		0:	ON -: OFF				

-2 -3

-1 0 0

_ _ 0 0

0 _

(2) Set to an appropriate capacity using the model selector switch(SW6).

Select the same capacity with the PCB removed from the unit

SW6	-1	-2	-3	-4	SW6
40V	0	0	-		100V
50V	0	—	0	-	125V
60V	0	0	0	-	140V
71V	0	—	_	0	

٨		SW6	_		-	_
-4		ON				
0			П			
0						
0			2	Ļ	4	
		I	2	3	4	
	l	Examp	ole s	ettin	g for	50V

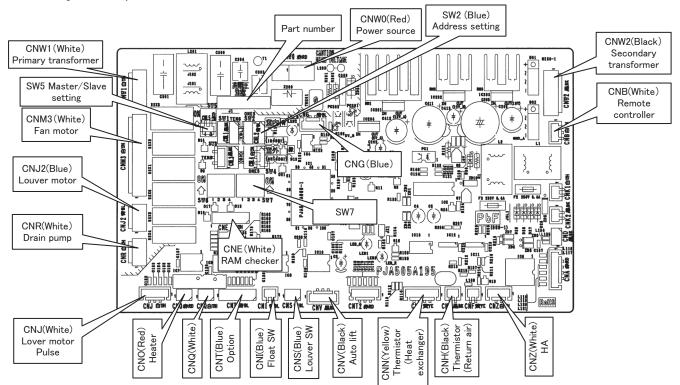
③ Replace the PCB

1. Fix the PCB so as not to pitch the cords.

2. Connect connectors to the PCB. Connect a cable connector with the PCB connector of the same color. 3.Do not pass CPU surrounding about wirings.

④ Control PCB

Parts mounting are different by the kind of PCB.



PSB012D933D

•DIP switch setting list

Switches	Descriptio	Description		efault setting	Remarks
SW2	Address No. setting at plural indoor u	inits control by 1 R/C	0		0-F
SW5-1	Master/Slove acting	g Master*/Slave			See table 2
SW5-2	Master/Slave setting	Master /Slave	OFF		See table 2
SW6-1					
SW6-2	Model selection			J-1	See table 1
SW6-3	Model selection		As per n	nodel	See table 1
SW6-4					
SW7-1	Test run, Drain motor	Normal*/Test run	OFF	Normal	
SW7-2	Reserved	-	OFF		keep OFF
SW7-3	Powerful mode	Valid*/Invalid(FDU only)	ON	Valid	
SW7-4	Reserved		OFF		keep OFF
JSL1	Superlink terminal spare	Normal*/switch to spare	With		

* Default setting

Table 1: Indoor unit model selection with SW6-1-SW6-4

ruble 1. muoor unit mou	i selectic	iii wittii 5				0: OI	FF 1:ON
	40V	50V	60V	71V	100V	125V	140V
SW6-1	1	1	1	1	1	0	1
SW6-2	1	0	1	0	1	0	0
SW6-3	0	1	1	0	0	1	1
SW6-4	0	0	0	1	1	1	1

Table 2: Indoor unit Master/Slave setting with SW5-1,SW5-2

	0: OFI	- 1:ON
	SW5-1	SW5-2
Master	0	0
Slave1	0	1
Slave2	1	0
Slave3	1	1

(4) Troubleshooting at the outdoor unit

When troubleshooting the outdoor unit, firstly assess the overview of malfunction and try to presume the cause and the faulty part by checking the error cord dispalyed on the remote controller and flashing pattern of indicator lamps (Red LED and Green LED), and then proceed further inspection and remedy it.

Self-diagnosis system by microcomputor on indoor and outdoor PCB can assist to find the cause of malfunction smoothly by making a diagnosis of not only the anomaly of microcomutor, but also the anomaly in power supply system, installation space, overload resulting from improper charging amount of refrigerant and etc.

Unless the power is reset, the error log is saved in memory and the inspection indicator lamps on outdoor PCB keep flashing after automatical recovering from malfunction.

After automatical recovering from malfunction, if any another error mode which has a higher priority than the previous error saved in memory occurs, it is overwritten in memory and is displayed.

[Reset of power supply]

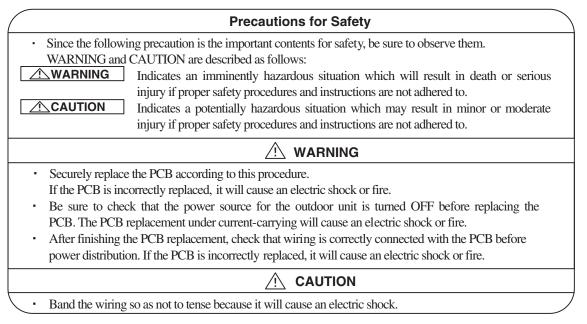
Be sure to avoid electrical shock, when replacing or checking the outdoor control PCB, because some voltage is still retained in the electrolytic capacitor on the PCB even after shutting down the power supply to the outdoor unit.

Be sure to start repairing work, after confirming that the Green LED on the PCB has been extiguished for more than 10 seconds after more than 3 minutes had been passed since power shut down, and reconfirming that voltage has been discharged sufficiently by measuring the voltage (DC) between both terminals of electrolytic capacitor (C58) (Measurment of voltage may be disturbed by the moisture-proof coating. In such case, remove the coating and measure it by taking care of avoiding electrical shock)

(a) Module of part to be replaced for outdoor unit controller

Outdoor control PCB, Inverter PCB, Temperature thermistor (of outdoor heat exchanger, discharge pipe, outdoor air, IPM and suction pipe), Fuses (for power supply and control PCB), Noise filter, Capacitor, Reactor and Transformer

(b) Replacement procedure of outdoor control PCB

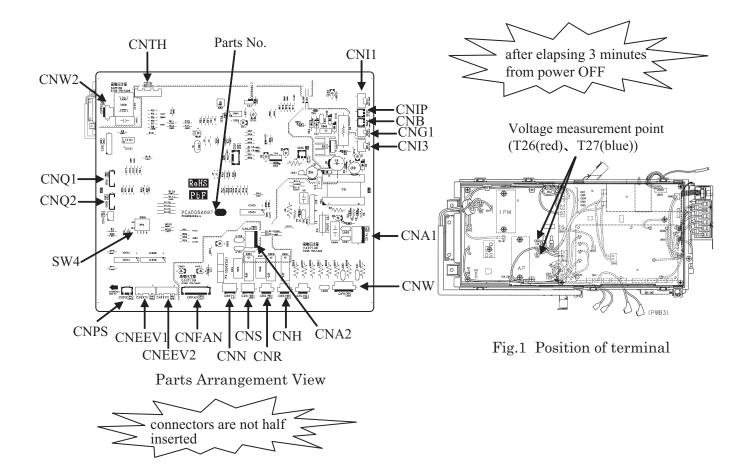


1) Model FDC71VNX

PCA012D021C

a) Replace the PCB after elapsing 3 minutes from power OFF.
 (Be sure to measure voltage (DC) between T26 and T27 on inverter PCB, and check that the voltage is discharged sufficiently(10V or less).(Refer to Fig.1))

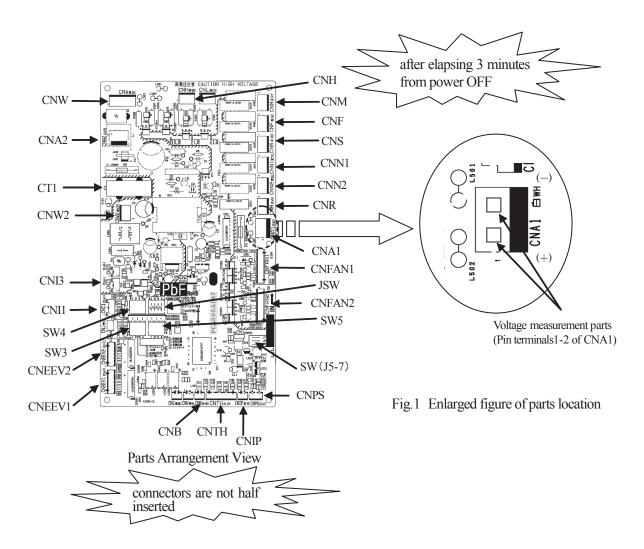
- b) Disconnect the connectors from the control PCB.
- c) Match the switches setting (SW4) with the former PCB.
- d) Connect the connectors to the control PCB.(Confirm the connectors are not half inserted.)



2) Model FDC100VNX, 125VNX, 140VNX FDC100VSX, 125VSX, 140VSX

PCA012D024F

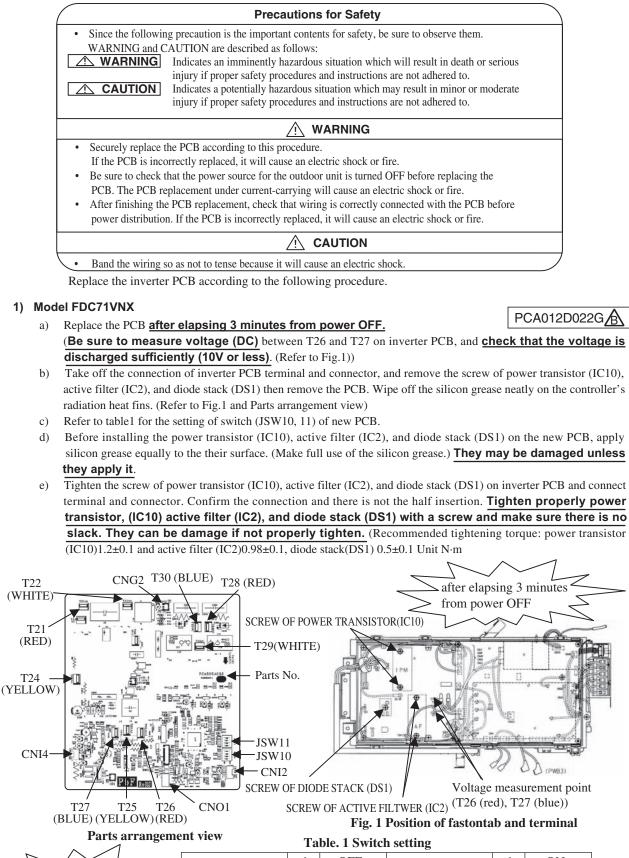
- a) Replace the PCB after elapsing 3 minutes from power OFF.
- b) Measurement was done on both ends of connector(CNA1) during measurement, the voltage(DC) might charged the electrolytic capacitor, be sure that the voltage is discharged sufficiently. (Refer to Fig.1)
- c) Disconnect the connectors from the control PCB.
- d) Disconnect the white or blue wiring passing through CT1 on the PCB before replacing the PCB.
- e) Match the setting switches (SW3-5, JSW, SW(J5-7)) with the former PCB.
- f) Tighten up a screw after passing white or blue wiring through CT1 of the changed.
- g) Please connect the connectors with the same place. (Confirm the connectors are not half inserted.)



(c) Outdoor inverter PCB replacement procedure

T22

T24

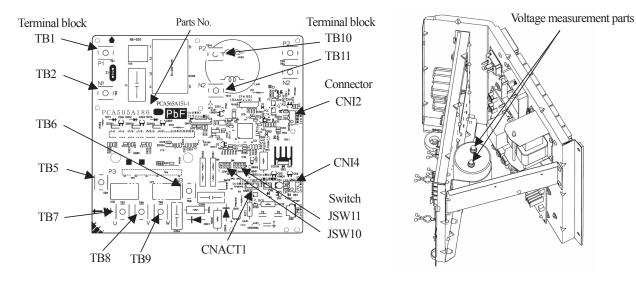


		-1	OFF		-1	ON
Connectors are	JSW10	-2	OFF	JSW11	-2	ON
not half inserted	JS W 10	-3	OFF	JSW11	-3	ON
		-4	OFF		-4	ON

Model FDC100VNX, 125VNX, 140VNX 2)

PCA012D025D

- a) Replace the PCB after elapsing 3 minutes from power OFF. (Be sure to measure voltage (DC) on both capacitor terminals located in controller back, and check that the voltage is discharged sufficiently.(Refer to Fig.1))
- Take off the connection of inverter PCB terminal block connector and remove the screw of power transistor then b) remove the PCB. Wipe off the silicon grease neatly on the controller's radiation heat fins.
- Match the setting switches (JSW10,11) of new PCB with the former PCB. c)
- d) Before installing the power transistor on the new PCB, Apply uniformly a bundled of silicon grease first on the surface of power transistor. Make sure it is applied to prevent damage on power transistor.
- Tighten the screw of power transistor on inverter PCB and connect the terminal block.Confirm the connection e) and don't use soldering in the connection. Tighten properly the power transistor with a screw and make sure there is no slack.Power transistor can be damage if not properly tighten.(Recommended power transistor tightening torque:0.98~1.47N·m)



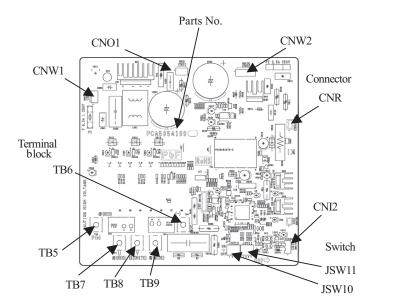
Parts arrangement view

Fig.1 Position of capacitor

	Tal	ble. 1 Switch	setting		
	-1	OFF		-1	OFF
JSW10	-2	OFF	JSW11	-2	OFF
JSW10	-3	OFF	J5 W 11	-3	ON
	-4	OFF		-4	ON

PCA012D025F

- a) Replace the PCB <u>after elapsing 3 minutes from power OFF</u>.
 (Be sure to measure voltage (DC) on both capacitor terminals located in controller back, and <u>check that the</u> voltage is discharged sufficiently.(Refer to Fig.1))
- b) Take off the connection of inverter PCB terminal block connector and remove the screw of power transistor then remove the PCB. Wipe off the silicon grease neatly on the controller's radiation heat fins.
- c) Match the setting switches (JSW10,11) of new PCB with the former PCB.
- d) Before installing the power transistor on the new PCB, Apply uniformly a bundled of silicon grease first on the surface of power transistor. Make sure it is applied to prevent damage on power transistor.
- e) Tighten the screw of power transistor on inverter PCB and connect the terminal block.Confirm the connection and don't use soldering in the connection.Tighten properly the power transistor with a screw and make sure there is no slack.Power transistor can be damage if not properly tighten.(Recommended power transistor tightening torque:0.98~1.47N·m)





Voltage measurement parts

Fig.1 Position of capacitor

	1 40	ic. I Switch set	tting		
	-1	OFF		-1	ON
LCW10	-2	OFF	IOW/11	-2	OFF
JSW10	-3	OFF	JSW11	-3	ON
	-4	OFF		-4	ON

Table. 1 Switch setting

*

•DIP switch setting list (Outdoor unit)

(1) Control PCB

Μ	lodel	FDC	2711	/NX	

Switches	D	escription	Γ	Default setting	Remarks
SW3-1	Defrost condition	Normal*/Cold region	OFF	Normal	
SW3-2	Snow protection control	Normal*/Snow protection	OFF	Normal	
SW3-3	Model selection	Cooling only/Heat pump*	OFF	Heat pump	Keep OFF
SW3-4	Defrost prohibition time	ON: 37min*/OFF: 45min	ON	37min.	
SW4-1	Model selection	Domestic/Overseas*	ON	Overseas	Keep ON
SW4-2	Model selection	3-phase/Single phase*	ON	Single phase	Keep ON
SW4-3	Reserved		OFF		Keep OFF
SW4-4	Spare		OFF		Keep OFF
SW5-1	Model selection	Capacity	OFF		Keep OFF
SW5-2	Model selection	Capacity	OFF		Keep OFF
SW5-3	Test run SW	Normal*/Test run	OFF	Normal	
SW5-4	Test run mode	Cooling*/Heating	OFF	Cooling	
SW7-1	Spare		OFF		
SW7-2	Antifrost control	Valid*/Invalid	OFF	Valid	
SW7-3	Spare		OFF		Keep OFF
SW8-1	Reserved		OFF		Keep OFF
SW8-2	Spare		OFF		Keep OFF
SW8-3	Spare		OFF		Keep OFF
SW9	Pump down operation	Normal*/Pump down	OFF	Normal	

Models FDC100,125,140VNX,100,125,140VSX

Default setting

Switches	Des	cription	D	efault setting	Remarks
SW1	Pump down operation	Normal*/Pump down	OFF	Normal	
JSW1-1					
JSW1-2	Model selection		1	madal	Cas table 1
JSW1-3	Widdel selection		As per	model	See table 1
JSW1-4	1				
SW3-1	Defrost condition	Normal*/Cold region	OFF	Normal	
SW3-2	Snow protection control	Normal*/Snow protection	OFF	Normal	
SW3-3	Test run SW	Normal*/Test run	OFF	Normal	
SW3-4	Test run mode	Cooling*/Heating	OFF	Cooling	
SW4-1	Model selection	Domestic/Overseas*	ON	Overseas	See table 1
SW4-2	Model selection	3-phase/Single phase	As per	model	See table 1
SW4-3	Reserved		OFF		Keep OFF
SW4-4	Reserved		OFF		Keep OFF
SW5-1	Reserved		OFF		Keep OFF
SW5-2	Reserved		OFF		Keep OFF
SW5-3	Reserved		OFF		Keep OFF
SW5-4	Reserved		OFF		Keep OFF
J5	Antifrost control	Valid*/Invalid	With	Valid	
J7	Outdoor fan control when ducting	Normal*/Hi tap	With	Normal	

* Default setting Table 1: Outdoor unit model selection with JSW1-1-JSW1-4 and SW4-1-SW4-2

					0: OF	F 1:ON
	100VNX	100VSX	125VNX	125VSX	140VNX	140VSX
JSW1-1	0	0	1	1	0	0
JSW1-2	0	0	0	0	1	1
JSW1-3	0	0	0	0	0	0
JSW1-4	0	0	0	0	0	0
SW4-1	1	1	1	1	1	1
SW4-2*	1	0	1	0	1	0
			* 3-j	phase: OF	F/Single p	phase: ON

(2) Inverter PCB

()			
Considerate an	71VNX	100, 125, 140VNX	100, 125, 140VSX
Switches	Single phase models	Single phase models	3-phase models
JSW10-1	OFF	OFF	OFF
JSW10-2	OFF	OFF	OFF
JSW10-3	OFF	OFF	OFF
JSW10-4	OFF *	OFF *	OFF *
JSW11-1	ON	OFF	ON
JSW11-2	ON	OFF	OFF
JSW11-3	ON	ON	ON
JSW11-4	ON	ON	ON

* When checking inverter PCB of FDC71~140 models with inverter checker, turn JSW10-4 ON. (Regarding the checking method of inverter PCB with inverter checker, refer to page 50 for details)

- Check of anomalous operation data with the remote (5) controller
- Operation data can be checked with remote control unit operation.
- ① Press the CHECK button.
 - **•**" The display change " OPER DATA
- 2 Press the O (SET) button while "OPER DATA **T** " is displayed.
- 3 When only one indoor unit is connected to remote controller, "DATALOADING" is displayed (blinking indication during data loading).
 - Next, operation data of the indoor unit will be displayed. Skip to step ⑦.
- ④ When plural indoor units is connected, the smallest address number of indoor unit among all connected indoor unit is displayed. [Example]:

i " " ⓑ\$ SELECT I/U " (blinking 1 seconds) → " I/U000 blinking.

- ⑤ Select the indoor unit number you would like to have data displayed with the \blacktriangle button.
- 6 Determine the indoor unit number with the O (SET) button.

(The indoor unit number changes from blinking indication to continuous indication)

" [/[]000 " (The address of selected indoor unit is blinking for 2 seconds.)

L

"DATA LOADING" (A blinking indication appears while data loaded.) Next, the operation data of the indoor unit is indicated.

O Upon operation of the \blacktriangle V button, the current operation data is displayed in order from data number 01.

The items displayed are in the above table.

*Depending on models, the items that do not have corresponding data are not displayed.

- (8) To display the data of a different indoor unit, press the AIR CON NO. button, which allows you to go back to the indoor unit selection screen.
- Pressing the OON/OFF button will stop displaying data.

Pressing the (RESET) button during remote control unit operation will undo your last operation and allow you to go back to the previous screen.

OIf two (2) remote controllers are connected to one (1) inside unit, only the master controller is available for trial operation and confirmation of operation data. (The slave remote controller is not available.)

Details of Compressor protection status No. 33

No.	Contents of display	In case of FDC100-140 refer to
"0"	Normal	
"1"	Discharge pipe temperature protection control	P.25, (6).(a).1)
"2"	Discharge pipe temperature anomaly	P.25, (6).(a).2)
"3"	Current safe control of inverter primary current	P.27, (6).(g)
"4"	High pressure protection control	P.25, (6).(b).1), P.26, (6).(c).1)
"5"	High pressure anomaly	P.25, (6).(b).2)
"6"	Low pressure protection control	P.26, (6).(e).1)
"7"	Low pressure anomaly	P.26, (6).(e).2)
"8"	Anti-frost prevention control	P.27, (6).(k)
"9"	Current cut	P.27, (6).(g)
"10"	Power transistor protection control	P.27, (6).(h)
"11"	Power transistor anomaly (Overheat)	P.27, (6).(i)
"12"	Compression ratio control	P.26, (6).(f)
"13"	Spare	
"14"	Dewing prevention control	P.28, (6).(1)
"15"	Current safe control of inverter secondary current	P.27, (6).(g)
"16"	Stop by compressor rotor lock	
"17"	Stop by compressor startup failure	P.28, (6).(q)

Number		Data Item
01	жж ж	(Operation Mode)
02	SET TEMPోం	(Set Temperature)
03	RETURN AIRర	(Return Air Temperature)
04	🗏 SENSOR``c	(Remote Controller Thermistor Tempeature)
05	THI-R1c	(Indoor Heat Exchanger Thermistor / U Bend)
06	THI-R2c	(Indoor Heat Exchanger Thermistor /Capillary)
07	THI-R3c	(Indoor Heat Exchanger Thermistor /Gas Header)
08	I/U FANSPEED	(Indoor Unit Fan Speed)
09	DEMANDHz	(Frequency Requirements)
10	ANSWERHz	(Response Frequency)
11	I/U EEVP	(Pulse of Indoor Unit Expansion Value)
12	TOTAL I/U RUN	_H (Total Running Hours of The Indoor Unit)
21	OUTDOORඊ	(Outdoor Air Temperature)
22	THO-R1ර්	(Outdoor Heat Exchanger Thermistor)
23	ТНО-R2°с	(Outdoor Heat Exchanger Thermistor)
24	COMPHz	(Compressor Frequency)
25	HPMPa	(High Pressure)
26	LPMPa	(Low Pressure)
27	TdC	(Discharge Pipe Temperature)
28	COMP BOTTOM°	(Comp Bottom Temperature)
29	CTAMP	(Current)
30	TARGET SH°c	(Target Super Heat)
31	SH°	(Super Heat)
32	TDSH°ර	(Discharge Pipe Super Heat)
33	PROTECTION No	(Protection State No. of The Compressor)
34	0/UFANSPEED	(Outdoor Unit Fan Speed)
35	63H1	(63H1 On/Off)
36	DEFROST	(Defrost Control On/Off)
37	TOTAL COMP RUN_	H (Total Running Hours of The Compressor)
38	0/UEEV1P	(Pulse of The Outdoor Unit Expansion Valve EEVC)
39	0/UEEV2P	(Pulse of The Outdoor Unit Expansion Valve EEVH)

Note(1) Operation data display on the remote controller.

•Data is dispalyed until canceling the protection control. •In case of multiple protections controlled, only the younger No. is displayed

Note(2) Common item.

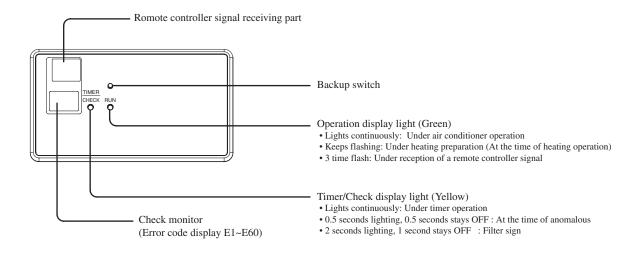
1 In heating mode. During protection control by the command signal for reducing compressor frequency from indoor unit, No. "4" is displayed.

② In cooling and dehumidifying mode.

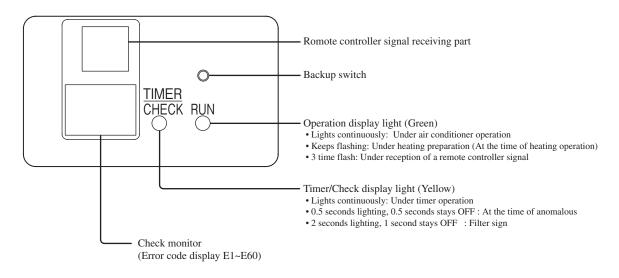
During protection control by the command signal for reducing compressor frequency from indoor unit, No. "8" is displayed.

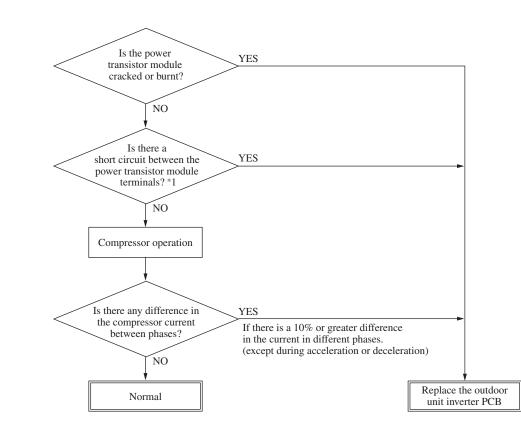
(6) Inspection display of wireless specification model (FDEN, FDT)

- (a) Display
 - 1) FDEN Series



2) FDT (Wireless kit)





(7) Power transistor module (including the driver PCB) inspection procedure

*1 Power transistor module terminal short circuit check procedure

Disconnect the compressor wiring, then conduct a short circuit check.

P-U, P-V, P-W

N-U, N-V, N-W

Check between the P-N terminals.

Bring the tester probes in contact with the following

places on each te rminal.

- P: Power transistor P terminal,
- N: Power transistor N terminal,
- U: End of red harness to compressor

V: End of white harness to compressor

W: End of black or blue harness to compressor

Check for a power transistor short circuit.

- When you do not have a diagnostic checker for judging if the inverter is defective, measure between the terminals of the power transistor parts, judge whether the power transistor is defective or not.
- Disconnect the compressor, then measure with the controller incorporated.

Tes	ster	Normal values (Ω)				
Terminal (+)	Terminal (-)	Model 71	Model 100~140			
Р	N	0~	Approx. 1 M			
N	Р	(Numerical value rises.)	Approx. 300~400			
Р	U	Several M				
Р	V	(Numerical	0			
Р	W	value rises.)	<u> </u>			
N	U					
N	V	Approx. 650 k	Approx. 1.2 M			
N	W					
U	Р	Approx. 670 k				
V	Р	Approx. 4.4 M	Approx. 1.3 M			
W	Р	Approx. 4.4 M				
U	N	Approx. 650 k				
V	N	Approx. 4.8 M	0			
W	Ν	Approx. 4.9 M				

If the measured values range from $0\,{\sim}\,$ several kW, there is a possibility that the elements are damaged, so replace the power transistor parts.

(8) Inverter checker for diagnosis of inverter output

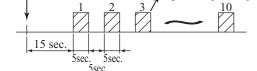
Checking method

- (a) Setup procedure of checker.
 - 1) Power OFF (Turn off the breaker).
 - 2) Remove the terminal cover of compressor and disconnect the wires (U, V, W) from compressor.
 - 3) Connect the wires U (Red), V (White) and W (Black) of checker to the terminal of disconnected wires (U, V, W) from compressor respectively.
- (b) Operation for judgment.
- 1) Power ON after JSW10-4 on outdoor inverter PCB was turned ON.
- 2) After 15 seconds since power has turned ON
- LED start ON/OFF for 5 seconds cyclically and it repeats 10 times.
- 3) Check ON/OFF status of 6 LED's on the checker.
- 4) Judge the PCB by ON/OFF status of 6 LED's on the checker.

ON/OFF status of LED	If all of LED are ON/OFF according to following pattern	If all of LED stay OFF or some of LED are ON/OFF
Inverter PCB	Normal	Anomalous

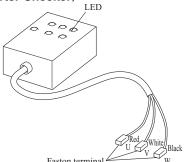
Power ON or start check operation During this period, ON/OFF status of LED is

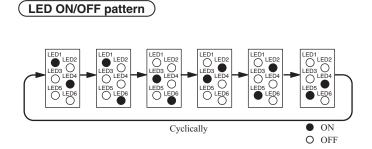
repeated cyclically according to following pattern



e) Be sure to turn off JSW10-4 on outdoor inverter PCB, after finishing the check operation.

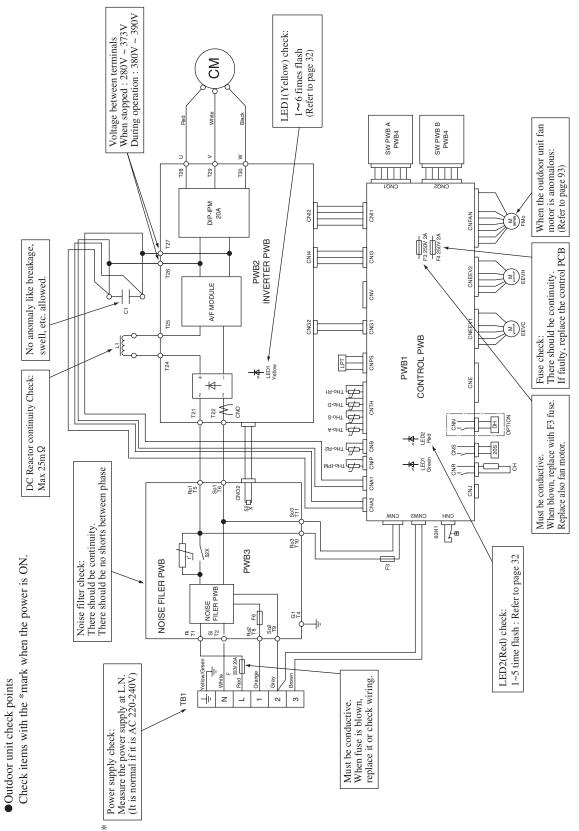
(Inverter Checker)

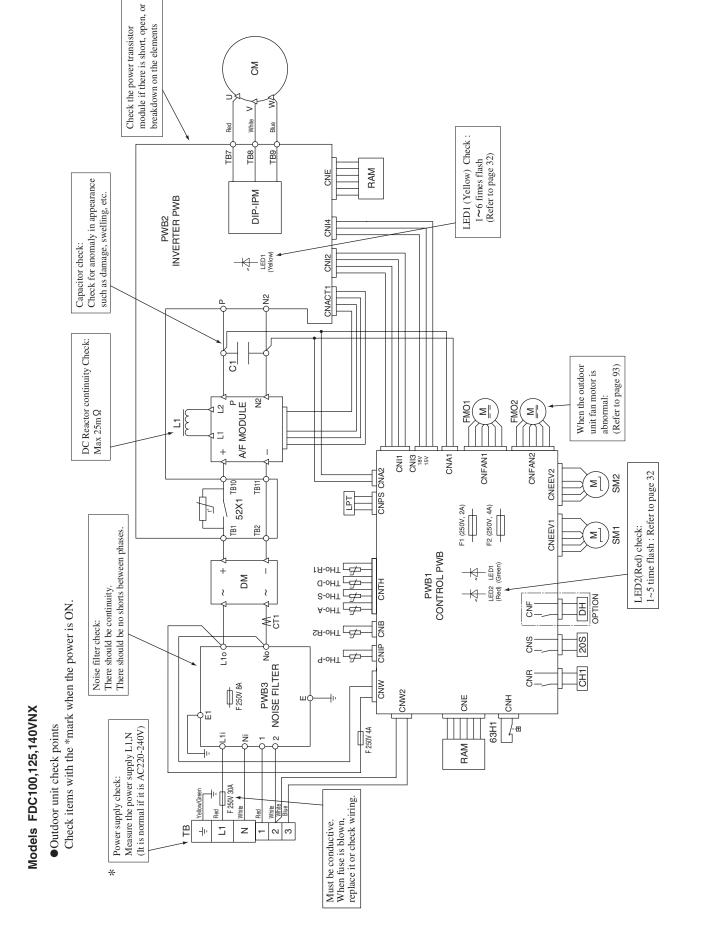




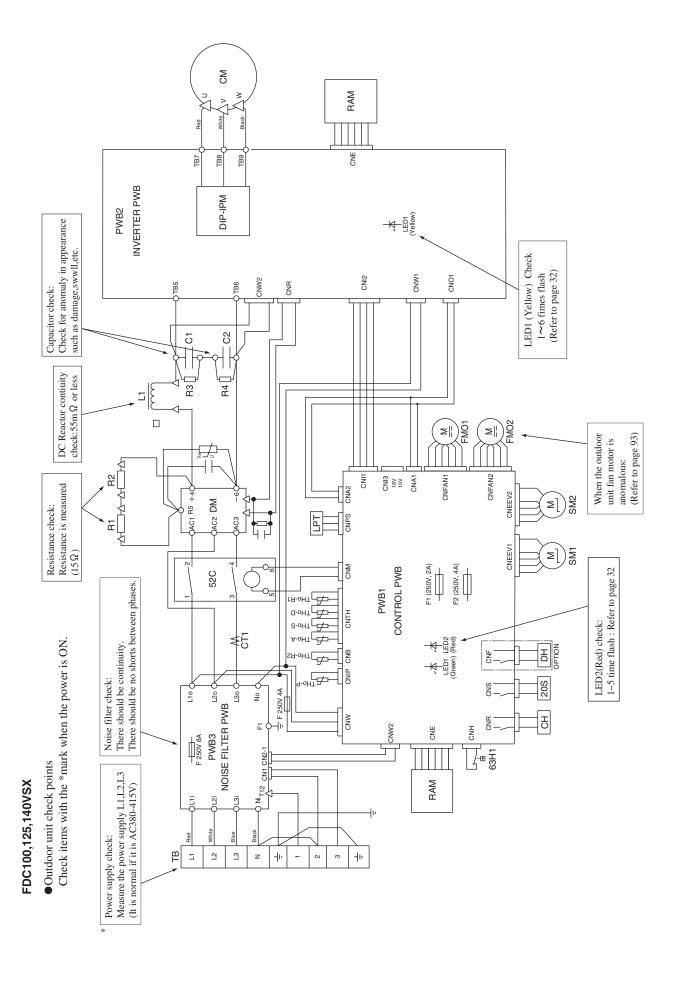
Faston terminal *w* Connect to the terminal of the wires which are disconnected from compressor.

(9) Outdoor unit controller failure diagnosis circuit diagram





'10 • PAC-SM-137

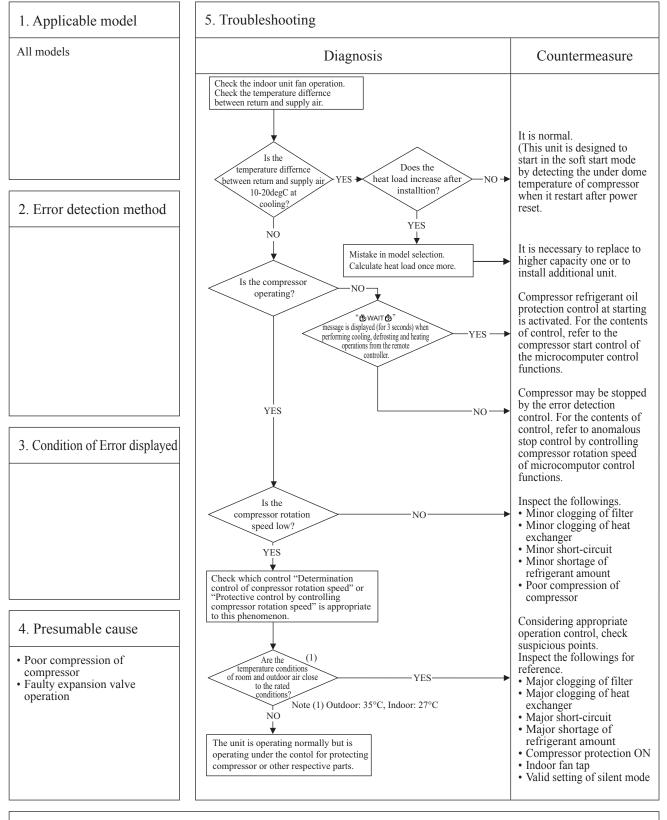


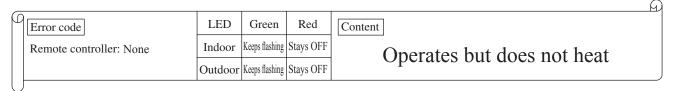
2.2 Troubleshooting flow (1) List of troubles

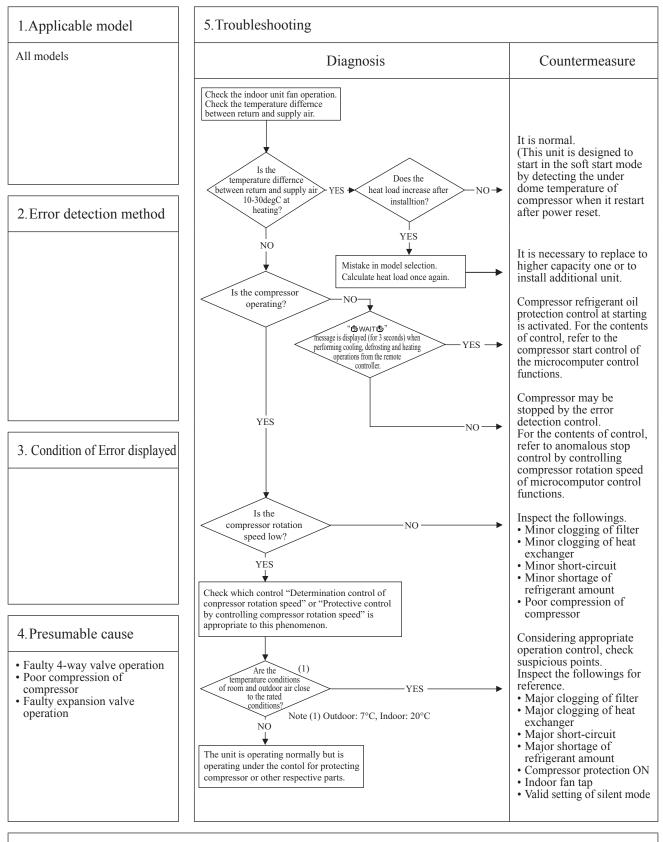
No.	Remote controller display	Description of trouble	Reference page
1	None	Operates but does not cool.	55
2	None	Operates but does not heat.	56
3	None	Earth leakage breaker activated	57
4	None	Excessive noise/vibration (1/3)	58
5	None	Excessive noise/vibration (2/3)	59
6	None	Excessive noise/vibration (3/3)	60
7	None	Louver motor failure (FDT, FDTC and FDEN series)	61
8	None	Power supply system error (Power supply to indoor control PCB)	62
9	None	Power supply system error (Power supply to remote controller)	63
10	INSPECT I/U	INSPECT I/U (When 1 or 2 remote controllers are connected)	64
11	INSPECT I/U	INSPECT I/U (Connection of 3 units or more remote controllers)	65
12	し し WAIT し し	Communication error at initial operation	66~68
13	None	No display	69
14	E1	Remote controller communication circuit error	70
15	E5	Communication error during operation	71
16	E6	Indoor heat exchanger temperature thermistor anomaly	72
17	E7	Return air temperature thermistor anomaly	73
18	E8	Heating overload operation	74
19	Е9	Drain trouble (FDT, FDTC, FDU and FDUM series)	75
20	E10	Excessive number of connected indoor units (more than 17 units) by controlling with one remote controller	76
21	E14	Communication error between master and slave indoor units	77
22	E16	Indoor fan motor anomaly (In case of FDTC, FDT and SRK series)	78
23	E19	Indoor unit operation check, drain motor check setting error	79
24	E28	Remote controller temperature thermistor anomaly	80
25	-	-	-
26	E35	Cooling overload operation	82
27	E36	Discharge pipe temperature error	83
28	E37	Outdoor heat exchanger temperature thermistor anomaly	84
29	E38	Outdoor air temperature thermistor anomaly	85
30	E39	Discharge pipe temperature thermistor anomaly	86
31	E40	High pressure error (63H1 activated)	87
32	E41	Power transistor overheat (Model FDC71-140 only)	88
33	E42	Current cut	89, 90
34	E45	Communication error between inverter PCB and outdoor control PCB (Model FDC71-250)	91
35	E47	Inverter PCB A/F module anomaly (Model FDC 71 only)	92
36	E48	Outdoor fan motor anomaly	93
37	E49	Low pressure error or low pressure sensor anomaly	94, 95
38	E51	Inverter anomaly (Model FDC71-140 only)	96
39	E53	Suction pipe temperature thermistor anomaly	97
40	E54	Low pressure sensor anomaly	98
41	E57	Insufficient refrigerant amount or detection of service valve closure	99
42	E59	Compressor startup failure (Model FDC71-140 and 200,250)	100, 100-1

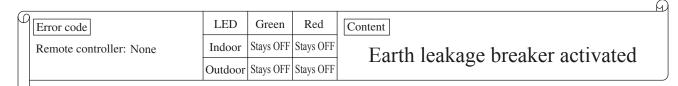
(2) Troubleshooting

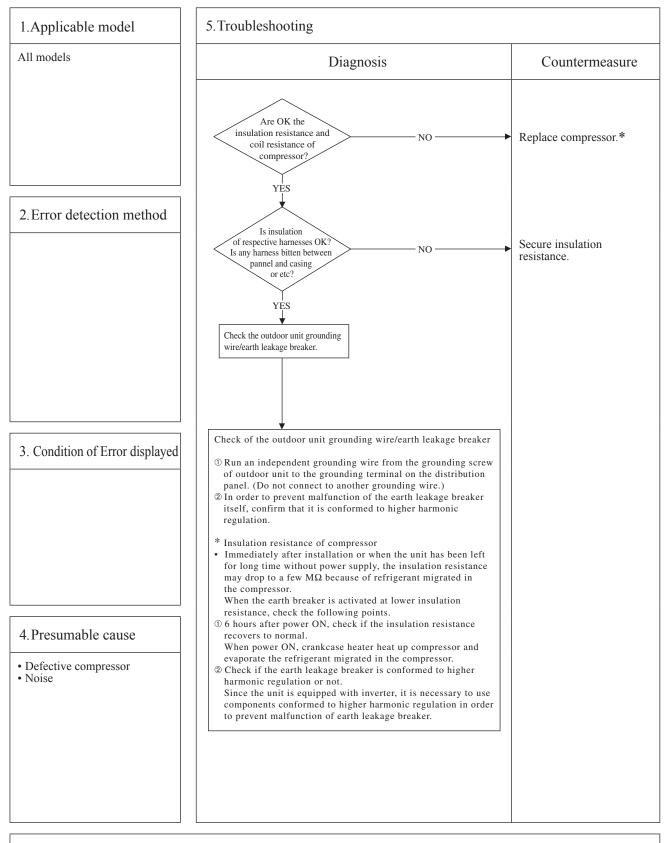
_					G
ſ	Error code	LED	Green	Red	Content
	Remote controller: None	Indoor	Keeps flashing	Stays OFF	Operates but does not cool
		Outdoor	Keeps flashing	Stays OFF	Operates but does not coor
L)				



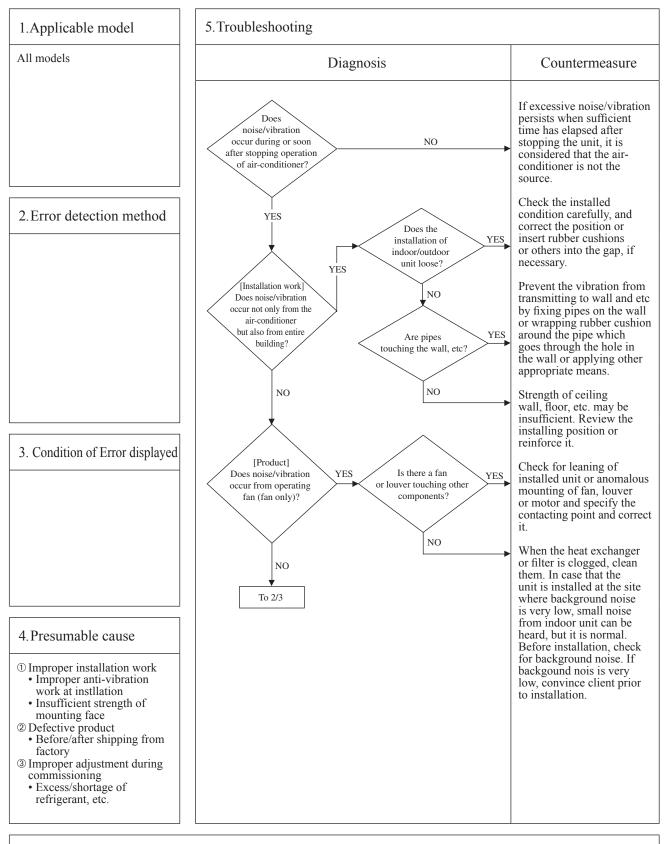




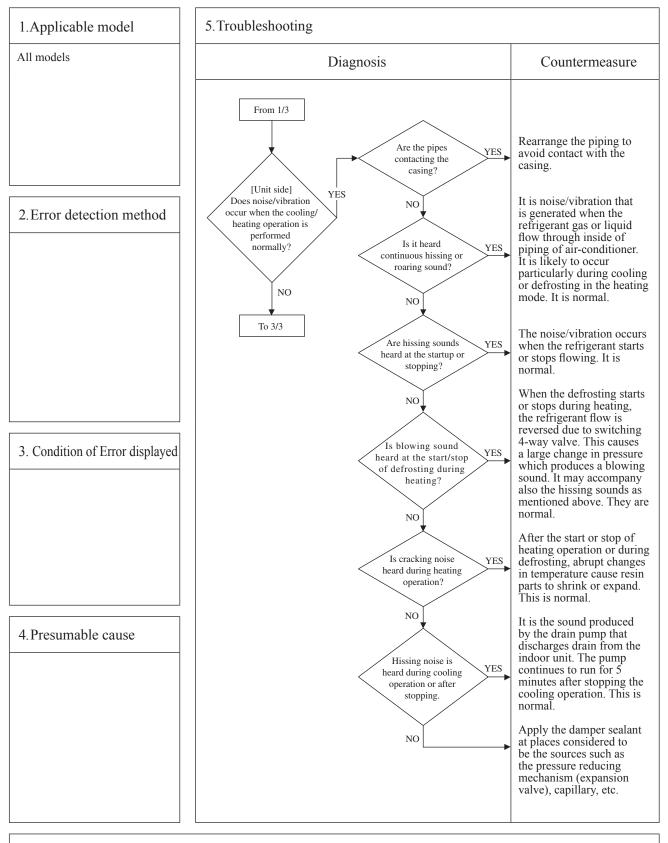




ſ	Error code	LED	Green	Red	Content	μ
	Remote controller: None	Indoor	-	-	Excessive noise/vibration (1/3)	
		Outdoor	-	-	Excessive noise/violation (1/5)	J
L						-

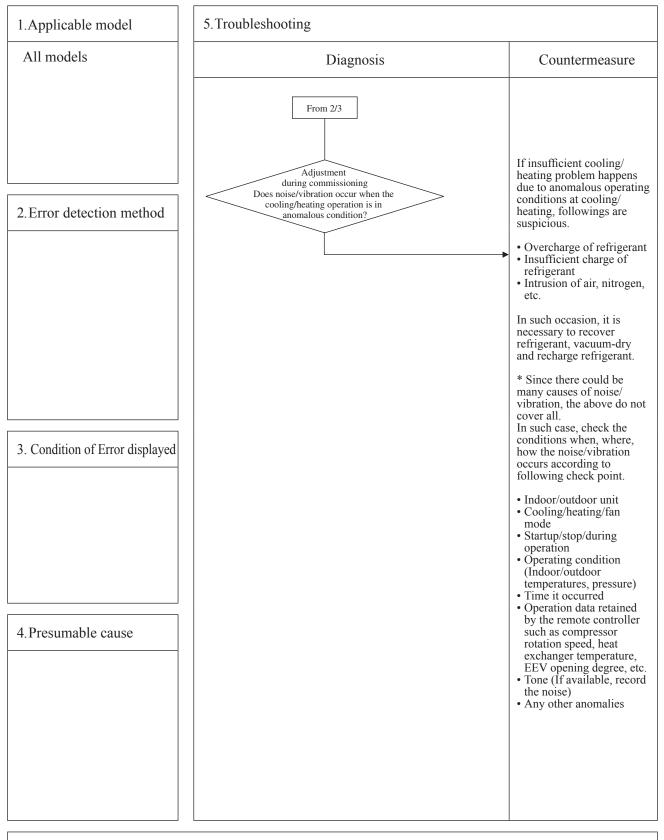


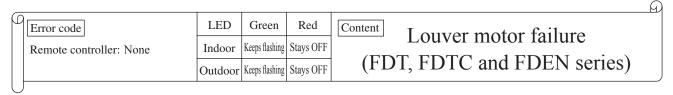
						Ð
μ	Error code	LED	Green	Red	Content	
	Remote controller: None	Indoor	_	-	Excessive noise/vibration (2/3)	
		Outdoor	_	_	Excessive noise/vioration (2/5)	J
L)					

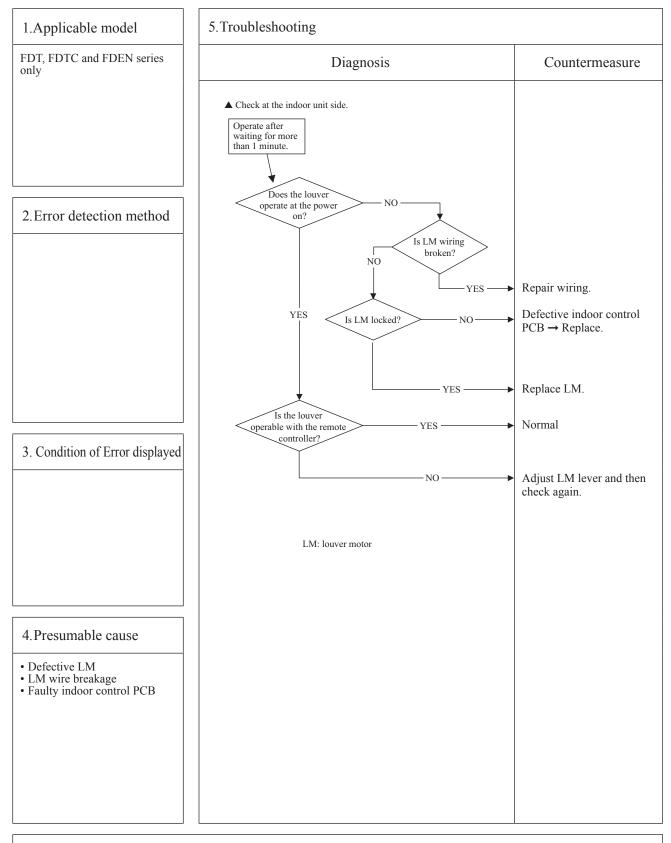


G

β	Error code	LED	Green	Red	Content
	Remote controller: None	Indoor	-	-	Excessive noise/vibration (3/3)
		Outdoor	-	-	Excessive noise/vioration (5/5)
L	<u></u>				

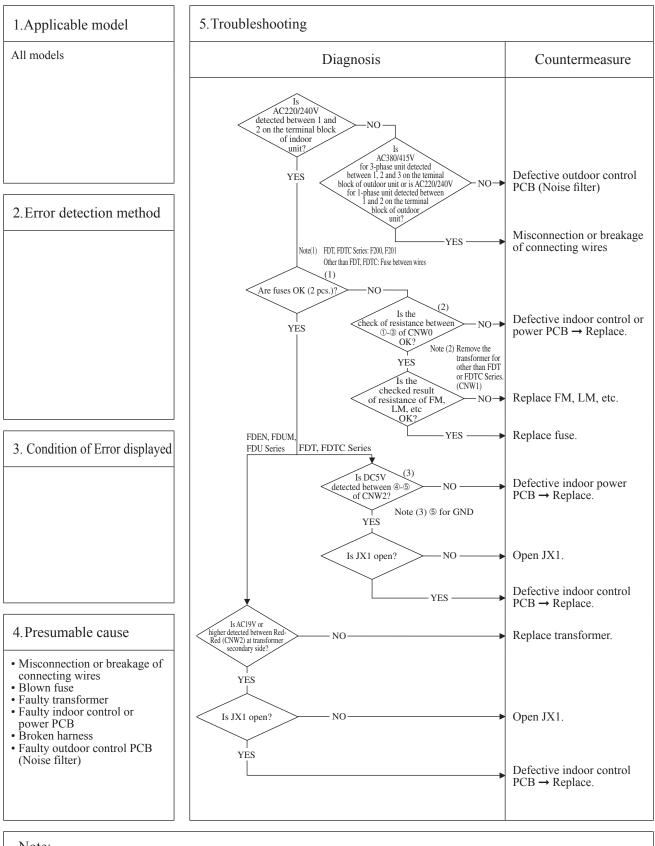




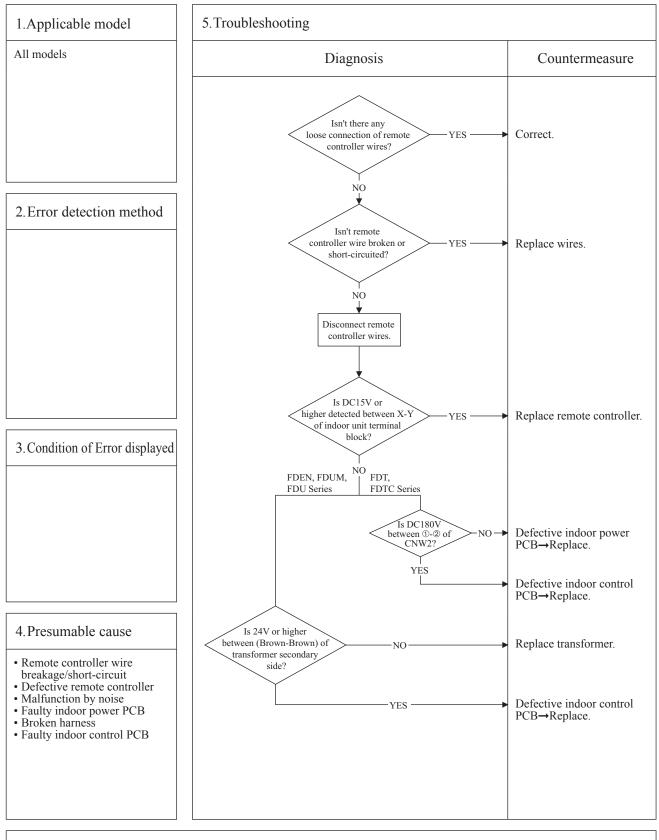


M

P	Error code	LED	Green	Red	Content Power supply system error
	Remote controller: None	Indoor	Stays OFF	Stays OFF	(Dower supply to indeer control DCD)
		Outdoor	Stays OFF	2 times flash	(Power supply to indoor control PCB)
U					

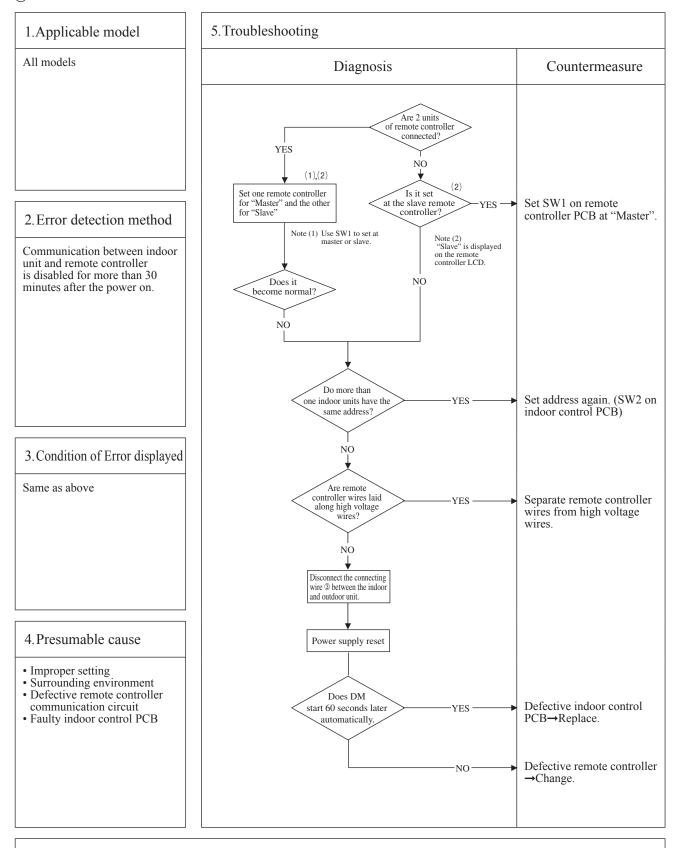


					G
ſ	Error code	LED	Green	Red	Content Dowor supply system orror
	Remote controller: None	Indoor	Keeps flashing	Stays OFF	(Power supply to remote controller)
		Outdoor	Keeps flashing	2 times flash	(I ower suppry to remote controller)



G

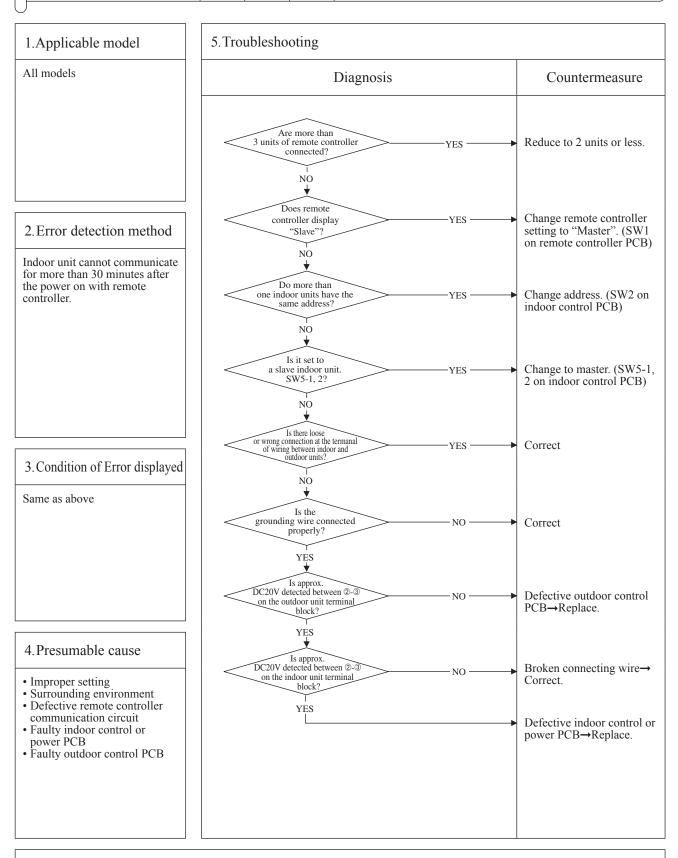
ſ	Error code	LED	Green	Red	Content
	Remote controller: INSPECT I/U	Indoor	Keeps flashing	Stays OFF	
		Outdoor	Keeps flashing	2 times flash	(When 1 or 2 remote controllers are connected)
L					



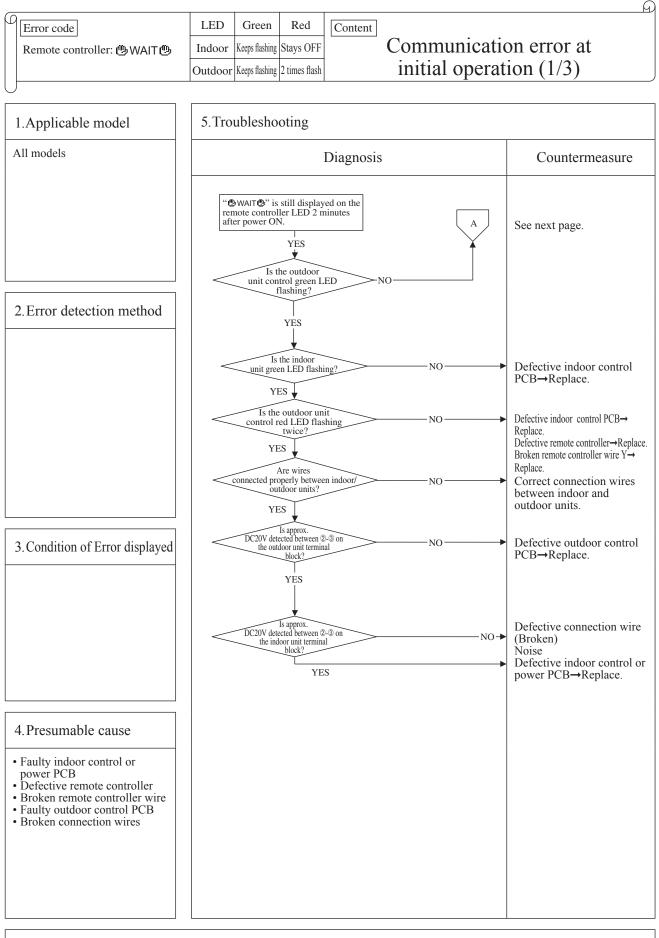
Note: If any error is detected 30 minutes after displaying "OWAITO" on the remote controller, the display changes to "INSPECT I/U".

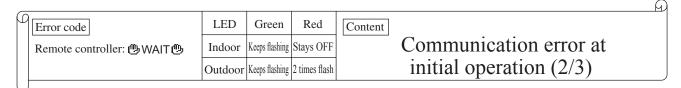
M

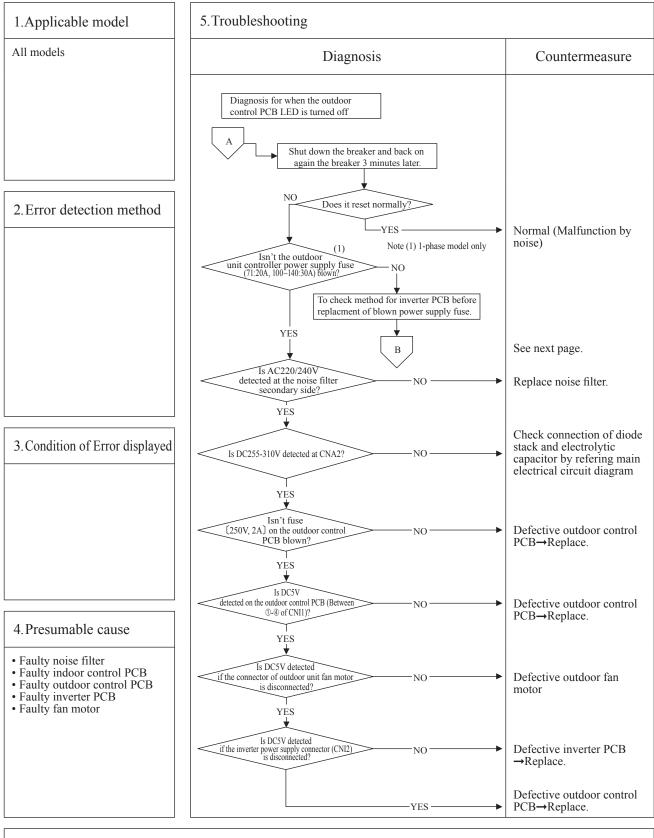
β	Error code	LED	Green	Red	Content
	Remote controller: INSPECT I/U	Indoor	Keeps flashing	Stays OFF	INSPECT I/U
		Outdoor	Keeps flashing	2 times flash	(Connection of 3 units or more remote controller)



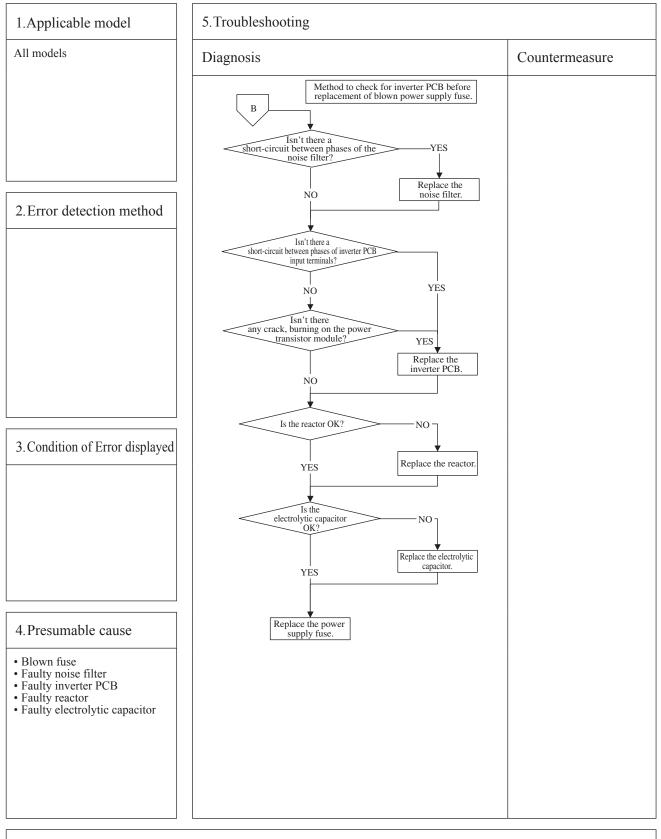
Note: If any error is detected 30 minutes after displaying ""WAIT"" on the remote controller, the display changes to "INSPECT I/U".

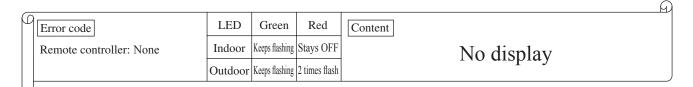


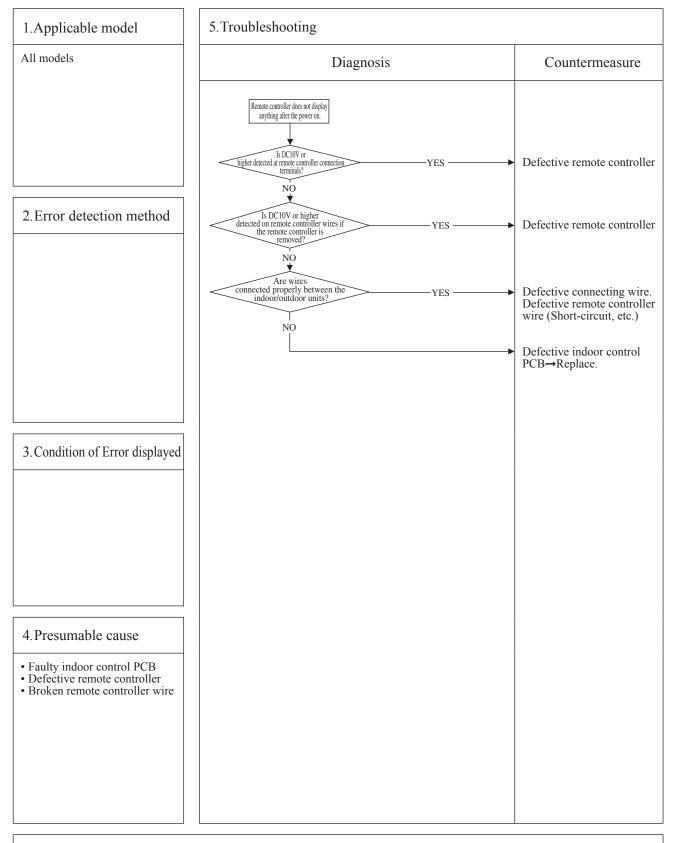


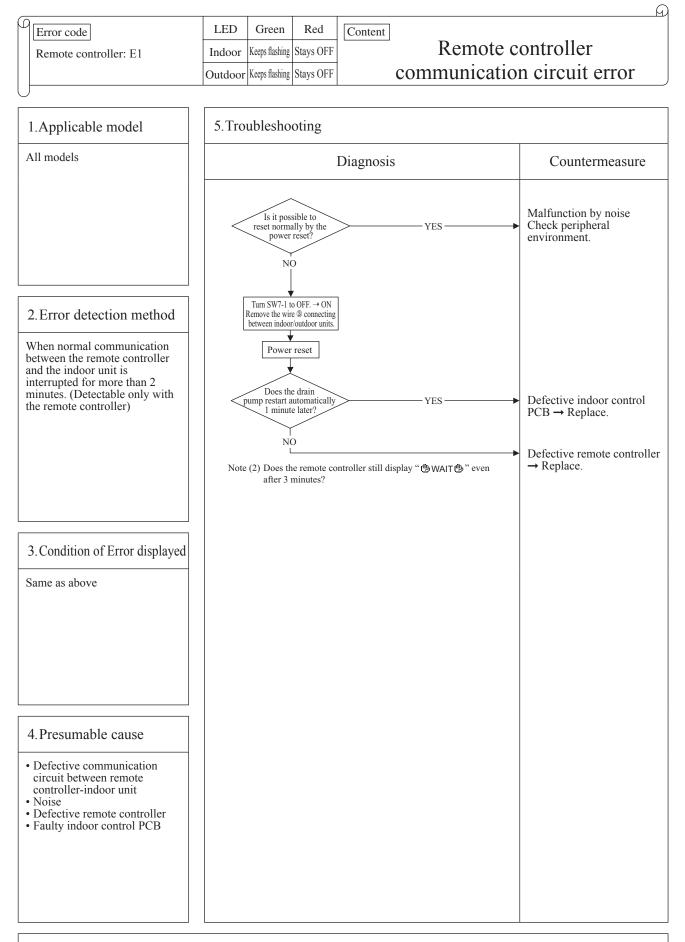


							Ð
ſ	Error code	LED	Green	Red	Content		
	Remote controller: (BWAIT (B	Indoor	Keeps flashing	Stays OFF		Communication error at	
		Outdoor	Keeps flashing	2 times flash		initial operation $(3/3)$	
L							

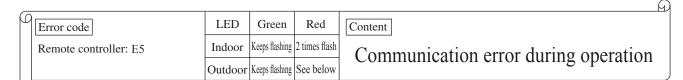


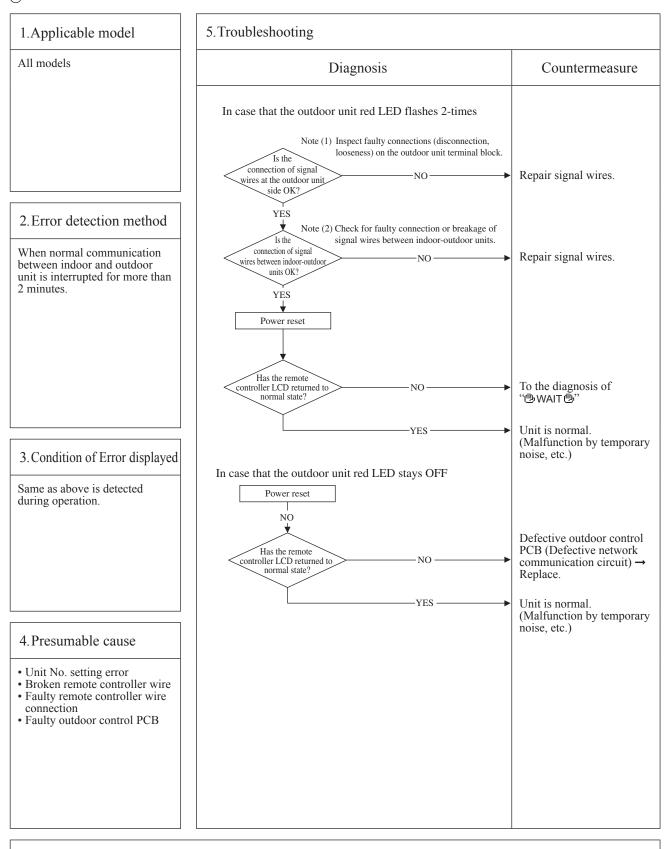




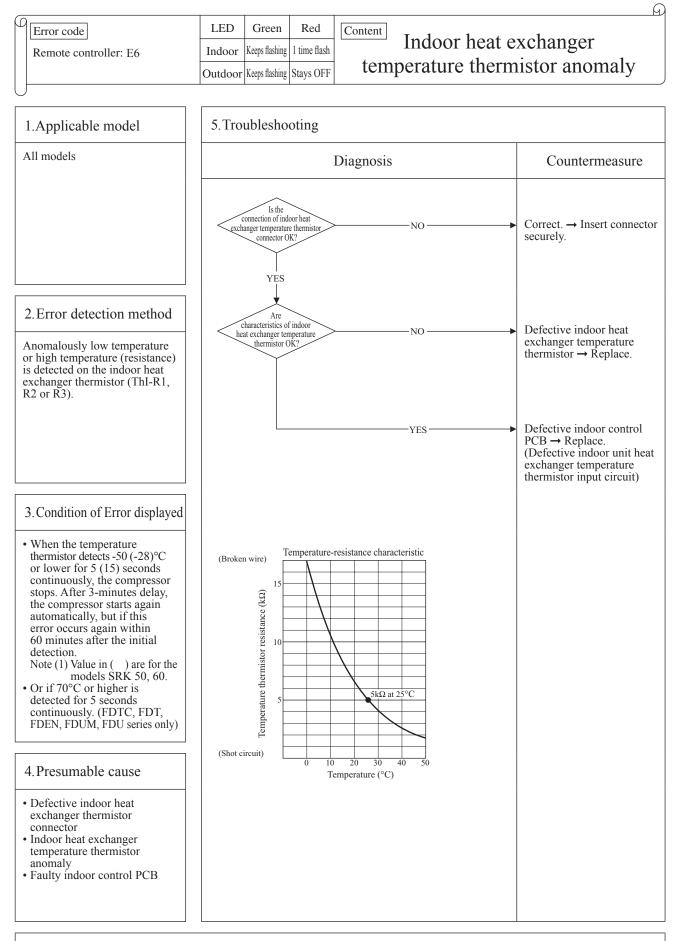


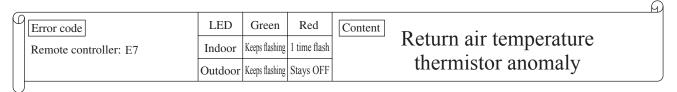
Note: If the indoor unit cannot communicate normally with the remote controller for 180 seconds, the indoor unit PCB starts to reset automatically.

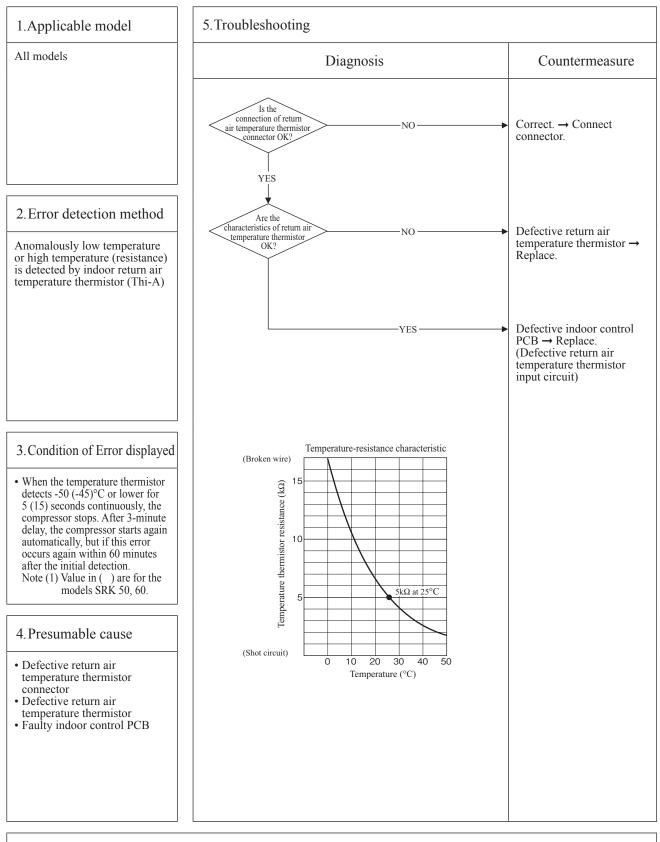


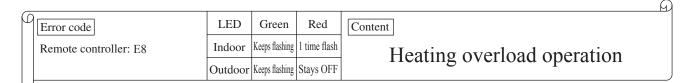


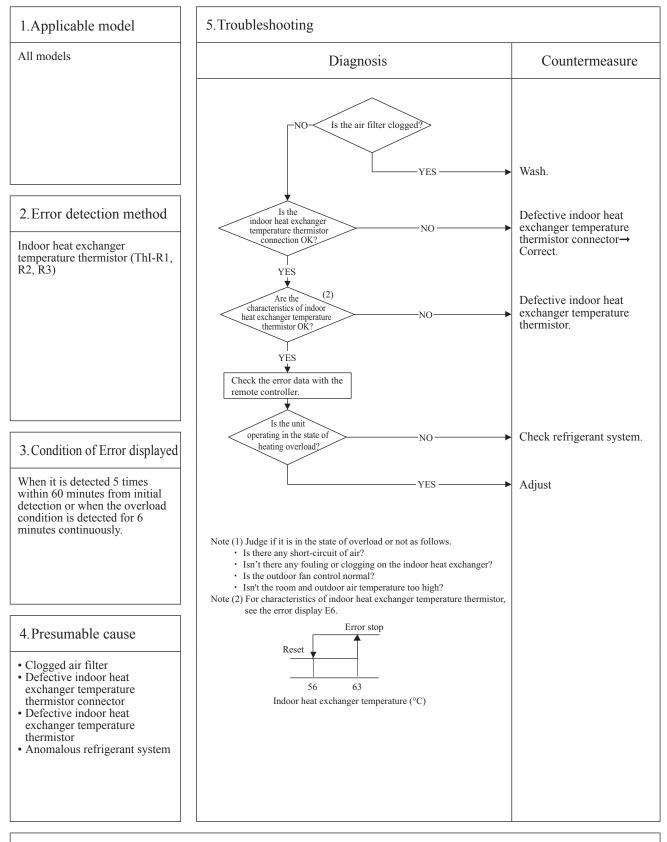
Note: Pressing the pump-down switch cancels communications between indoor and outdoor unit so that "communication error-E5" is displayed on indoor unit and remote controller, but it is normal.





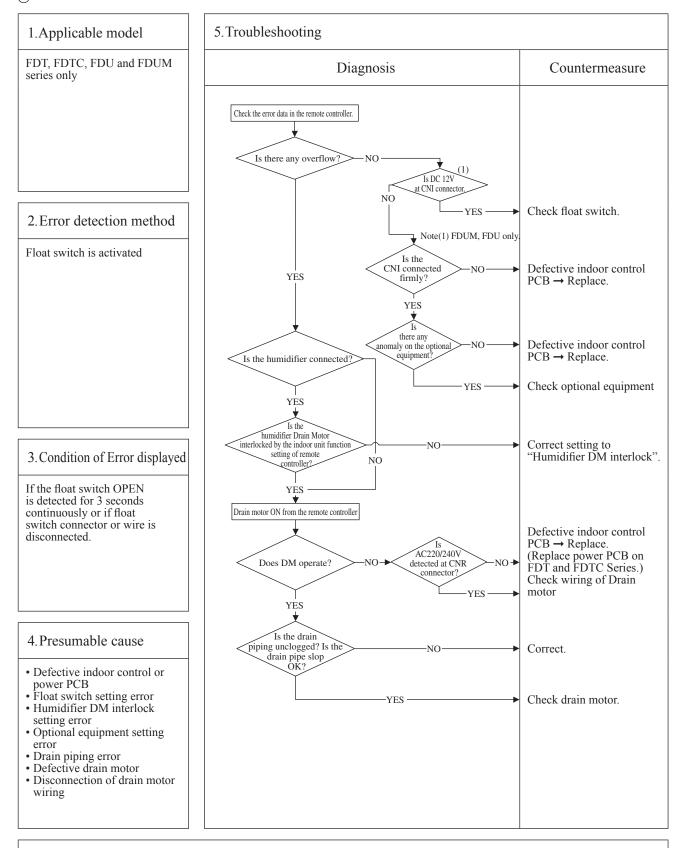






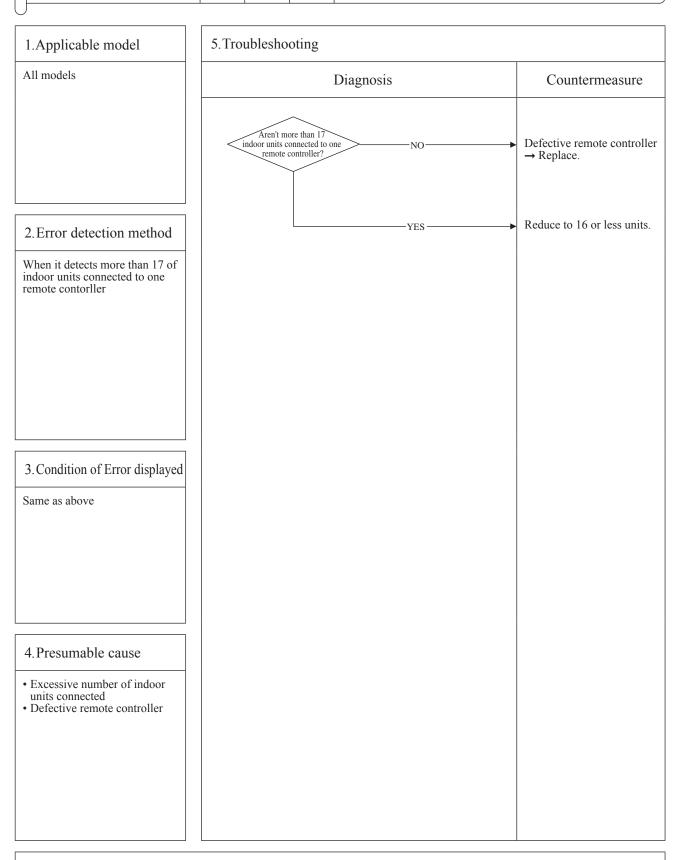
Note: During heating operation; After starting compressor, compressor rotation speed is decreased by detecting indoor heat exchanger temperature (Thi-R) in order to control high pressure.

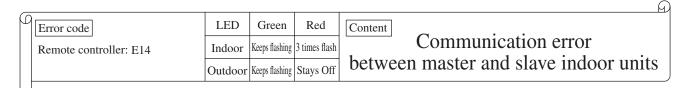


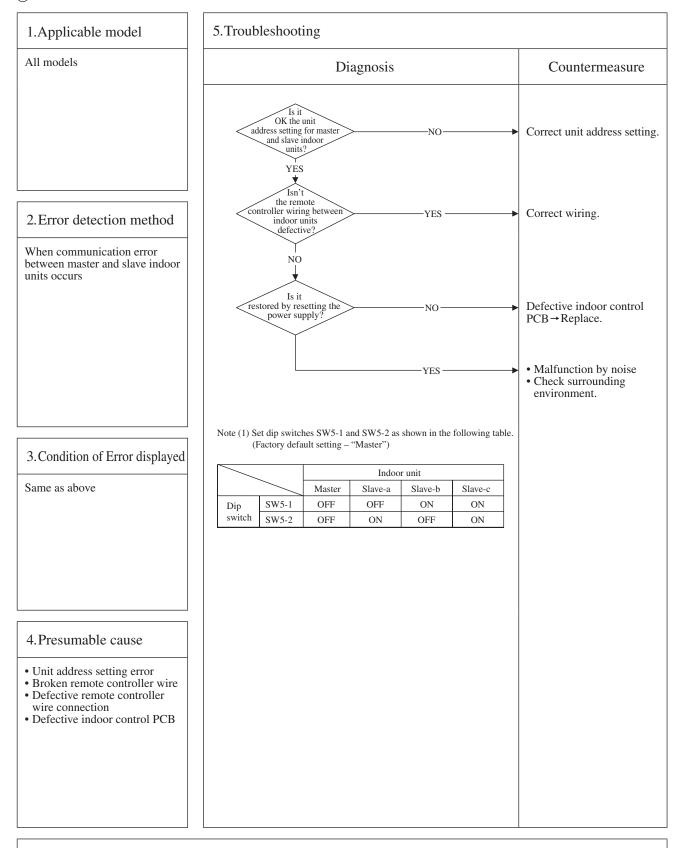


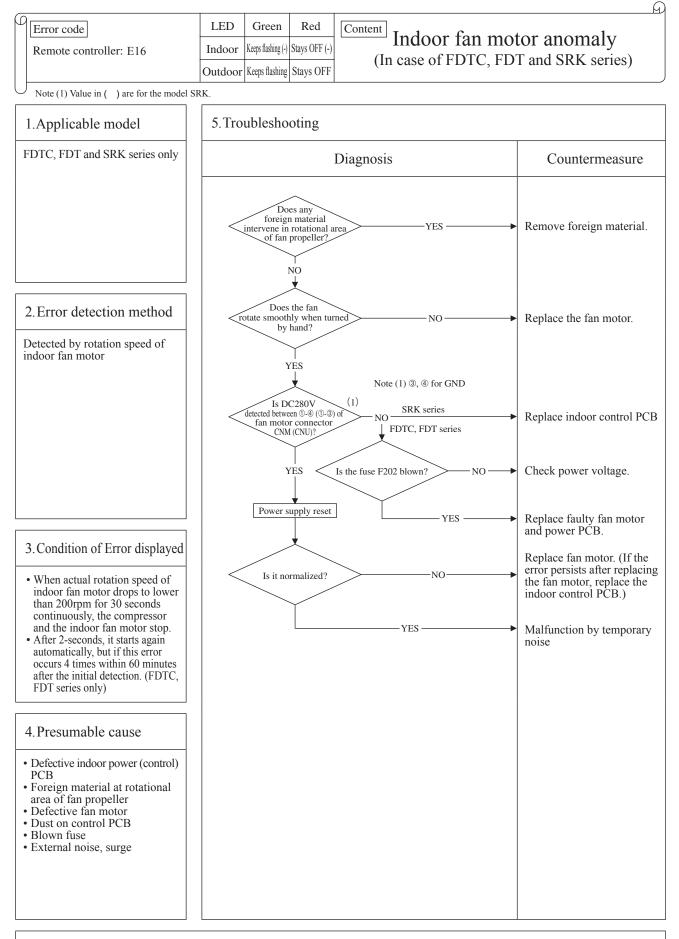
Note: When this error occurred at power ON, disconnection of wire or connector of the float switch is suspected. Check and correct it (or replace it, if necessary).

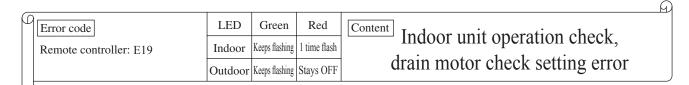
					9
-	Error code	LED	Green	Red	Content Excessive number of connected
	Remote controller: E10	Indoor	Keeps flashing	Stays OFF	
		Outdoor	Keeps flashing	Stays OFF	by controlling with one remoto controller

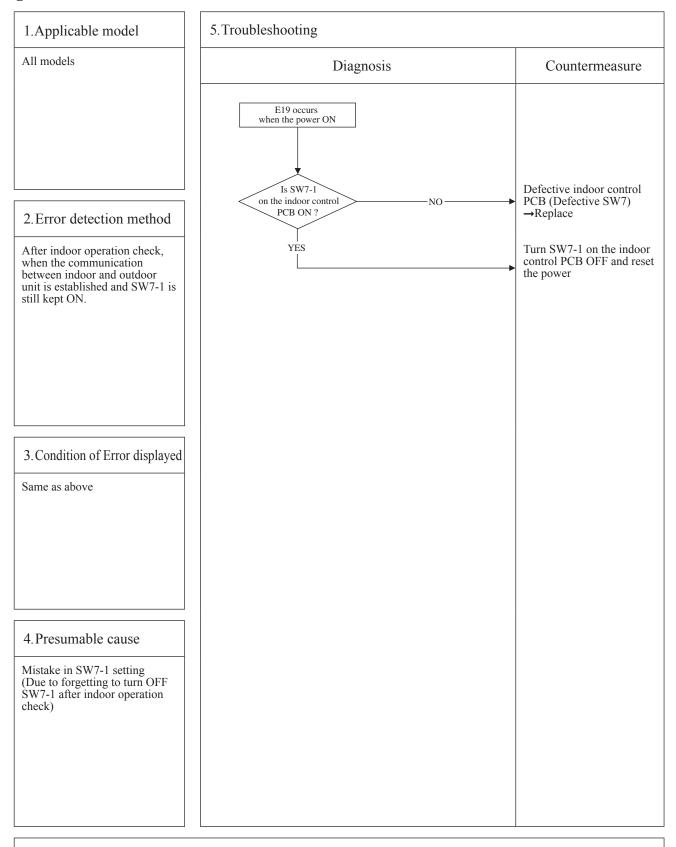


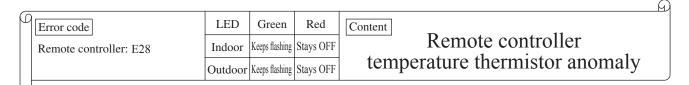


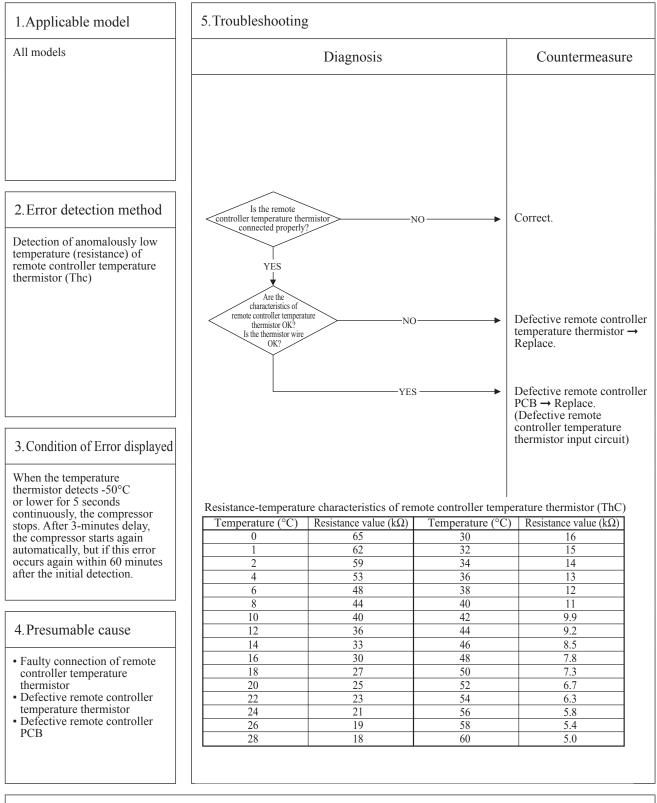






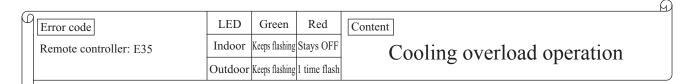


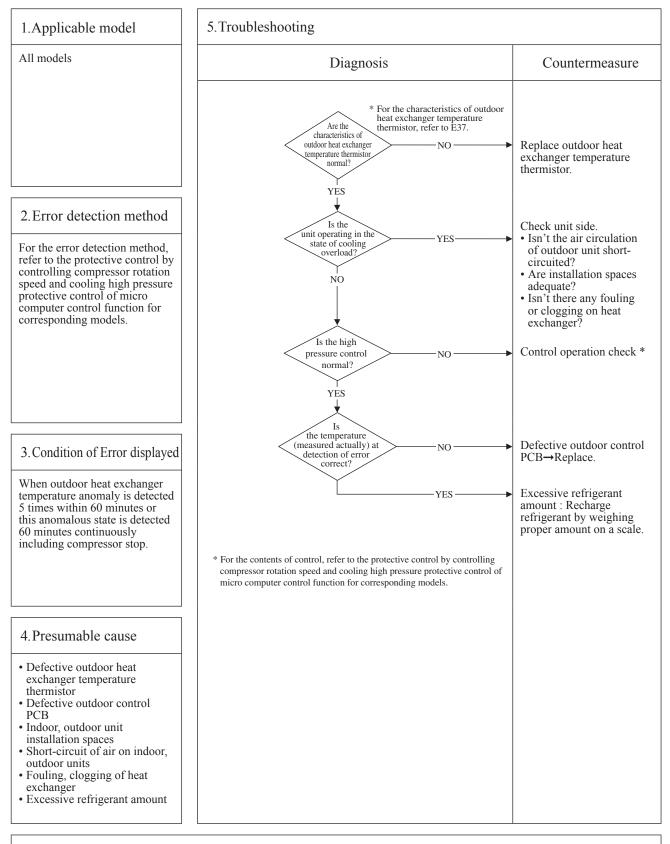


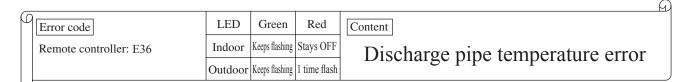


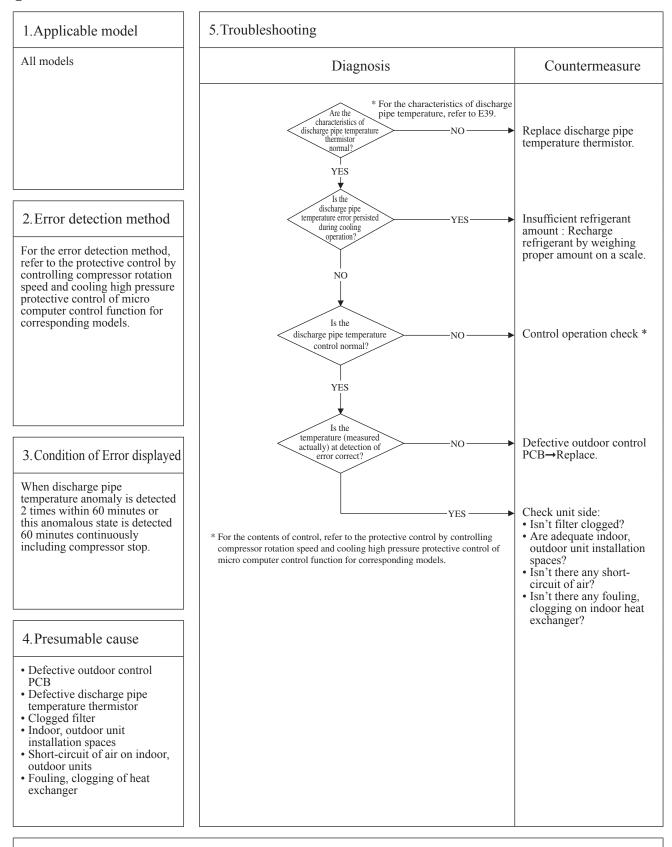
Note: After 10 seconds has passed since remote controller thermistor was switched from valid to invalid, E28 will not be displayed even if the thermistor harness is disconnected. At same time the thermistor, which is effective, is switched from remote controller thermistor to indoor return air temperature thermistor. Even though the remote controller thermistor is set to be Effective, the return air temperature displayed on remote controller for checking still shows the value detected by indoor return air temperature thermistor, not by remote controller temperature thermistor.

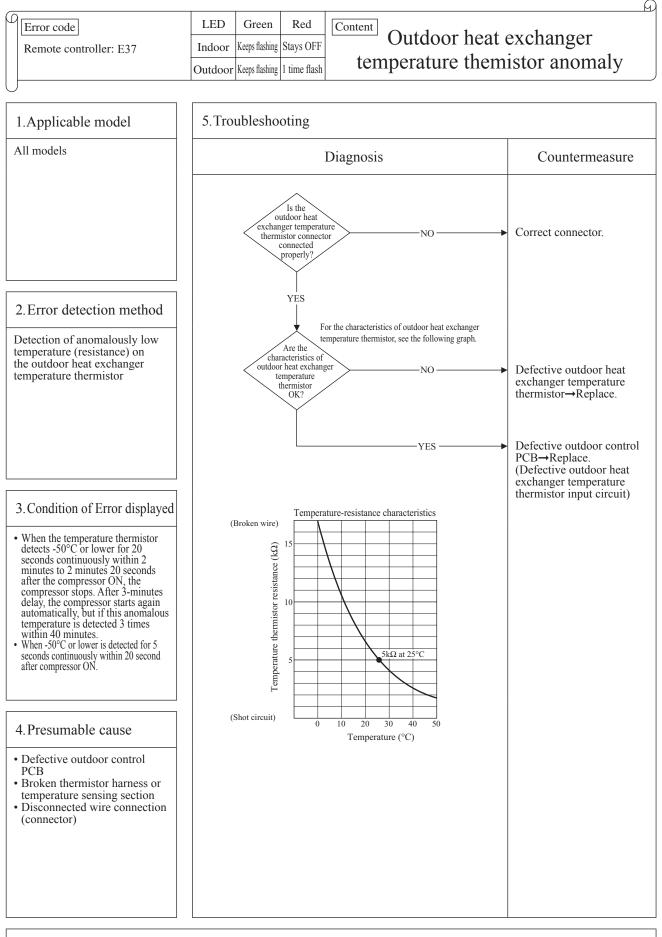
Delete

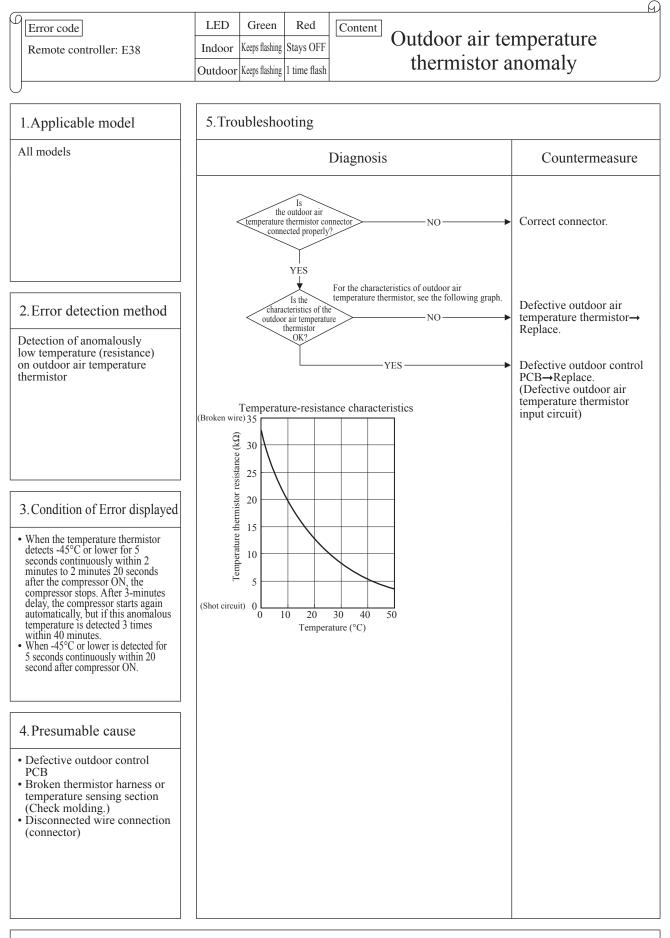


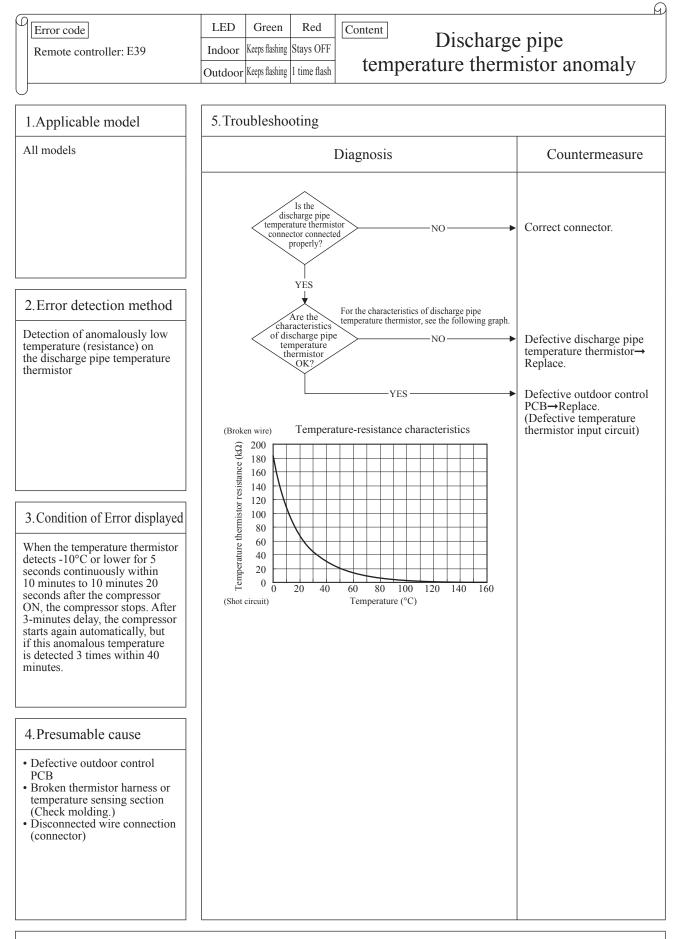




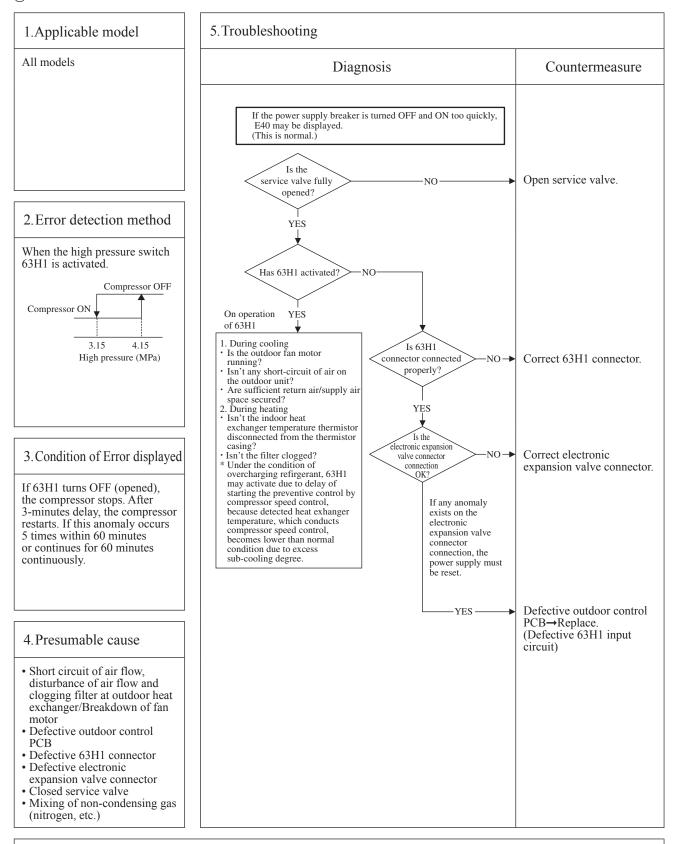




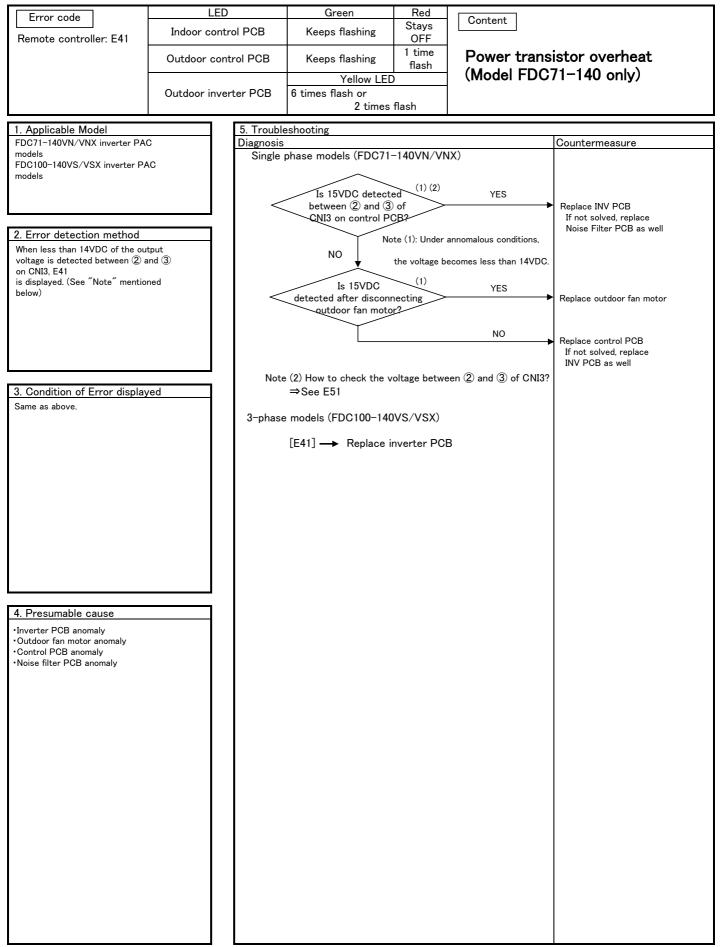




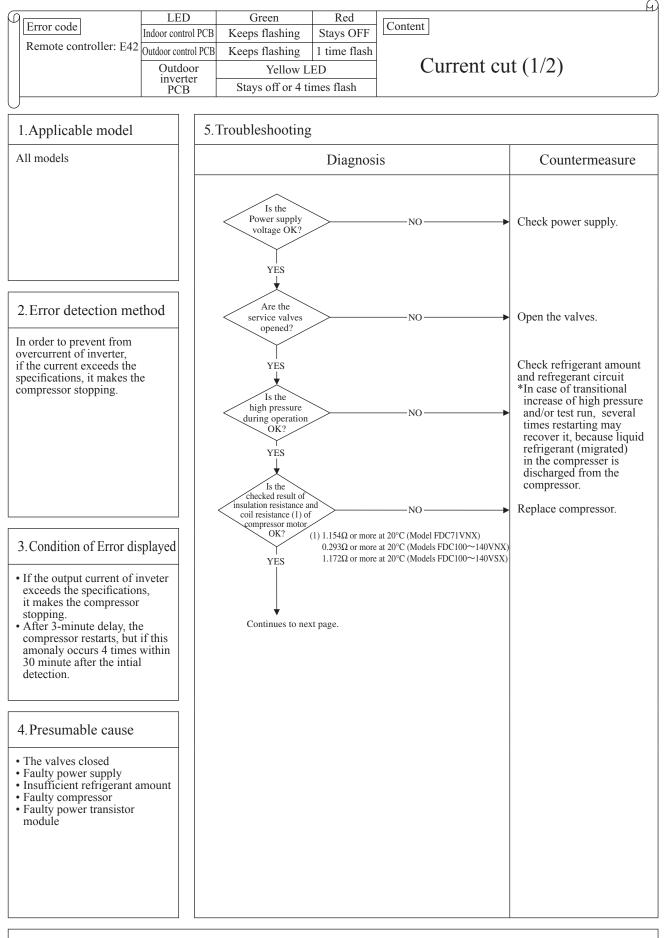


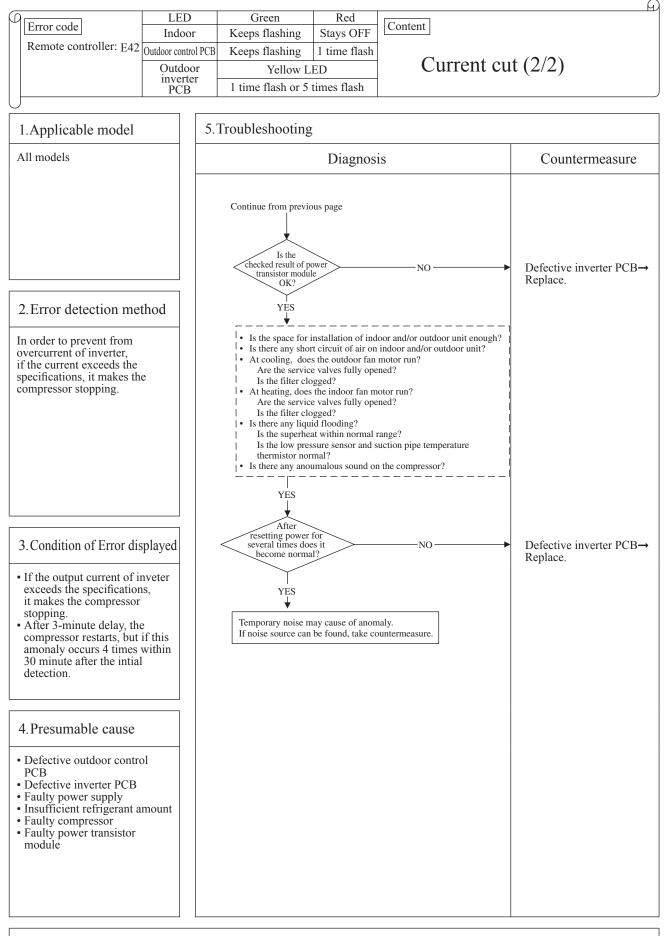


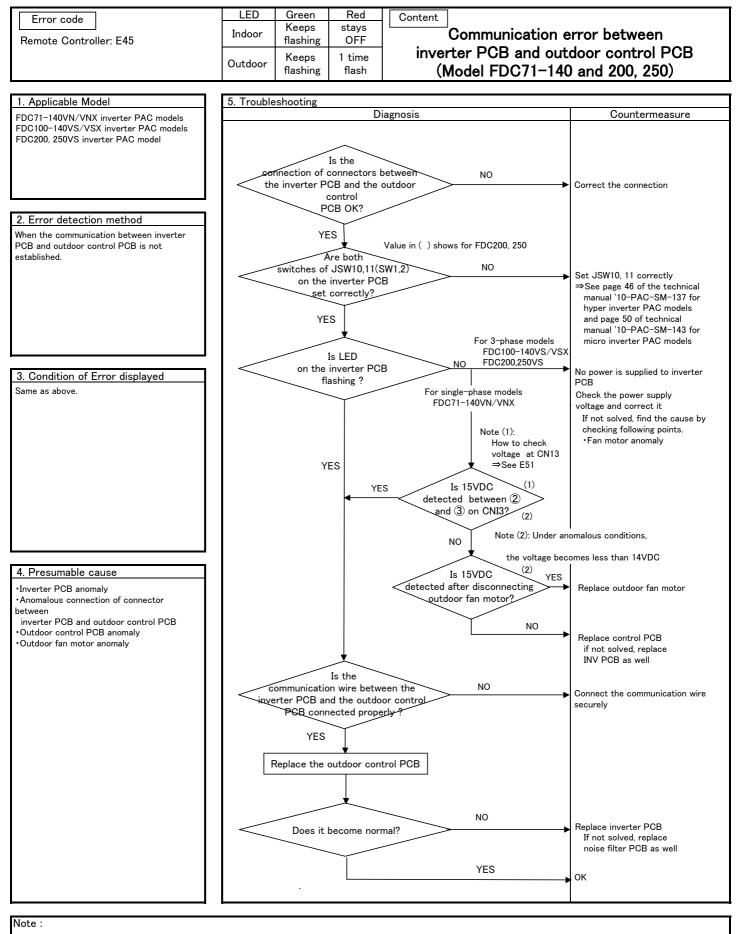
Note: In the protective control range for compressor startup (initial startup after power ON), even if 63H1 is activated only once (63H1turns OFF), immediately the error is displayed.

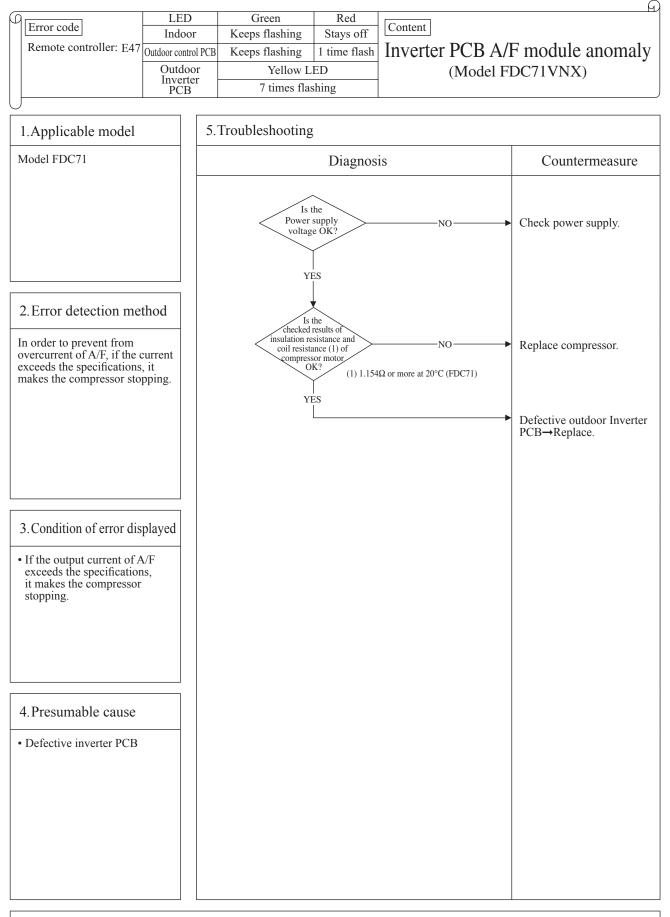


Note: The "Single phase models" of inverter PAC have no function to output the signal for the power transistor overheat. However since the power source for the power transistor and the outdoor fan motor is in the same line, when the anomaly of the outdoor fan motor occurs, E41 is displayed.

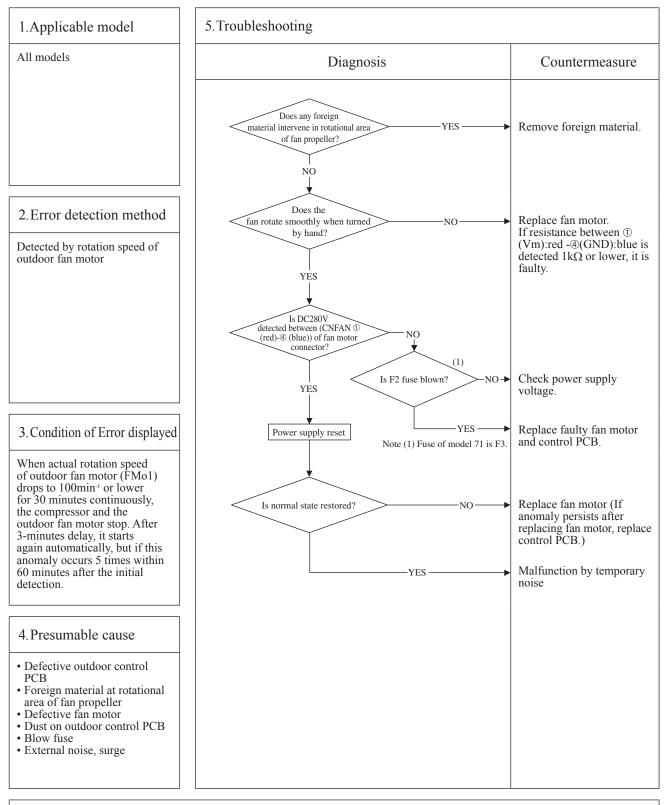




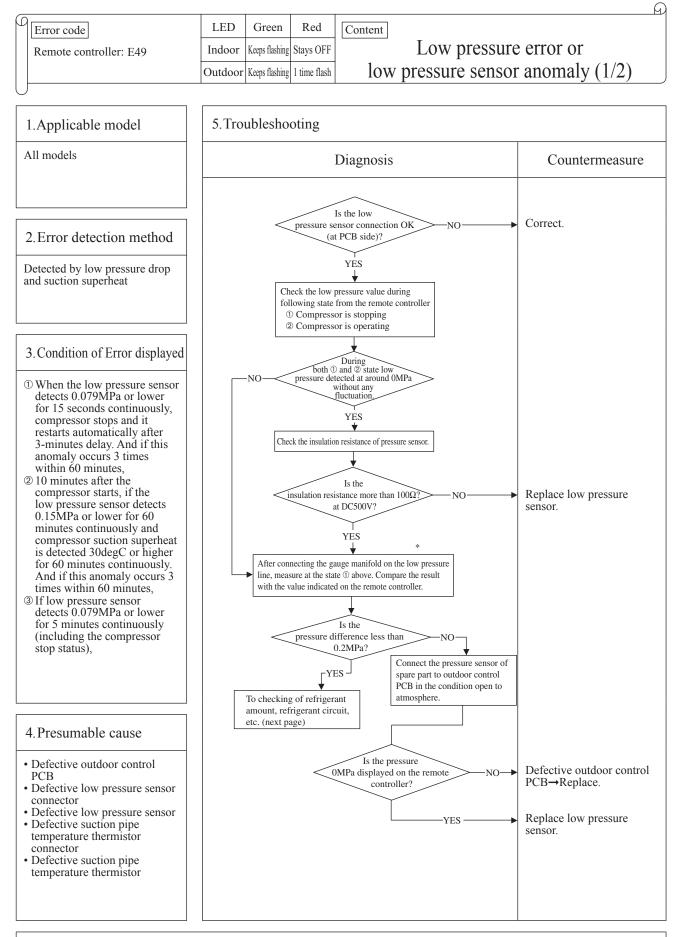




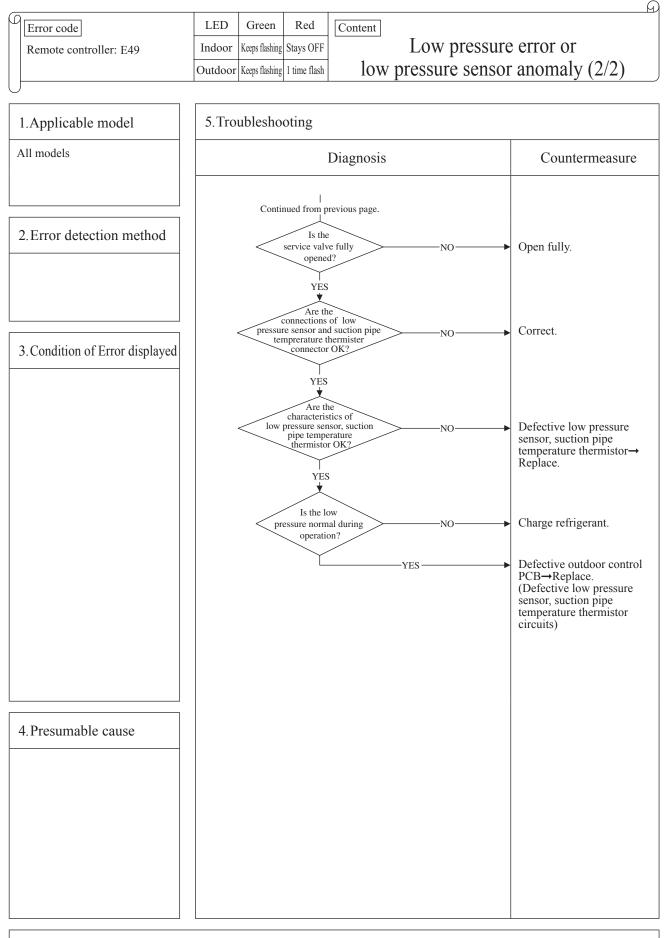


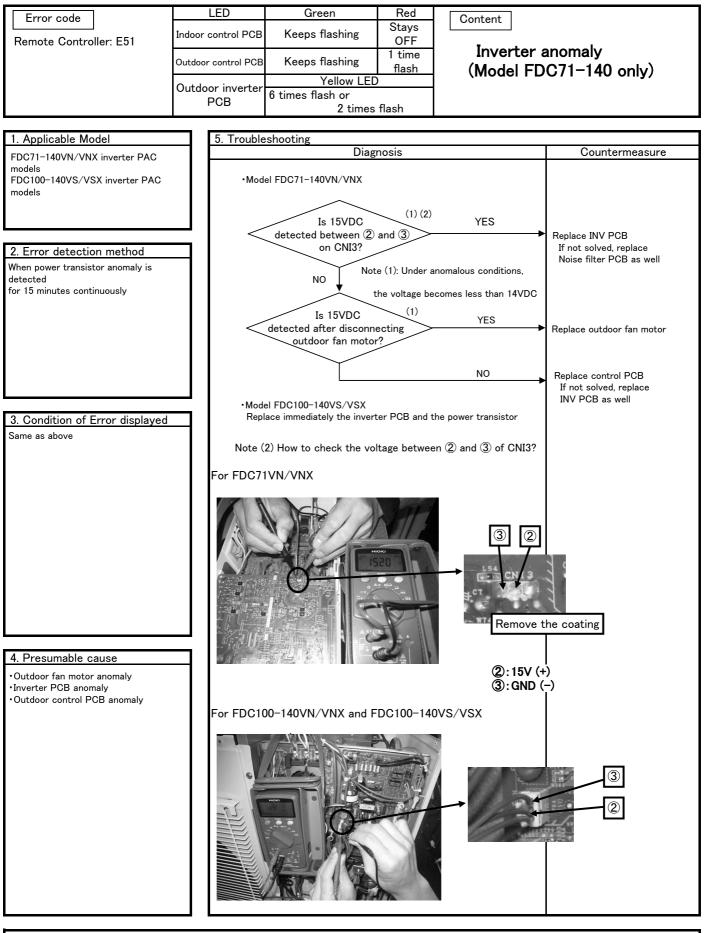


Note: When E48 error occurs, in almost cases F2 fuse (4A) [Model 71:F3 fuse (2A)]on the outdoor control PCB is blown. There are a lot of cases that fuse is blown and E48 occurs due to defective fan motor. And even though only the outdoor control PCB (or fuse) is replaced,, another trouble (*1) could occur. Therefore when fuse is blown, check whether the fan motor is OK or not. After confirming the fan motor normal, check by power ON. (Don't power ON without confirming the fan motor normal.) *1 The error which does not seem to relate E48 may occur like as "WWAIT", Stay OFF of LED on outdoor control PCB, inverter communication error (E45) and etc.



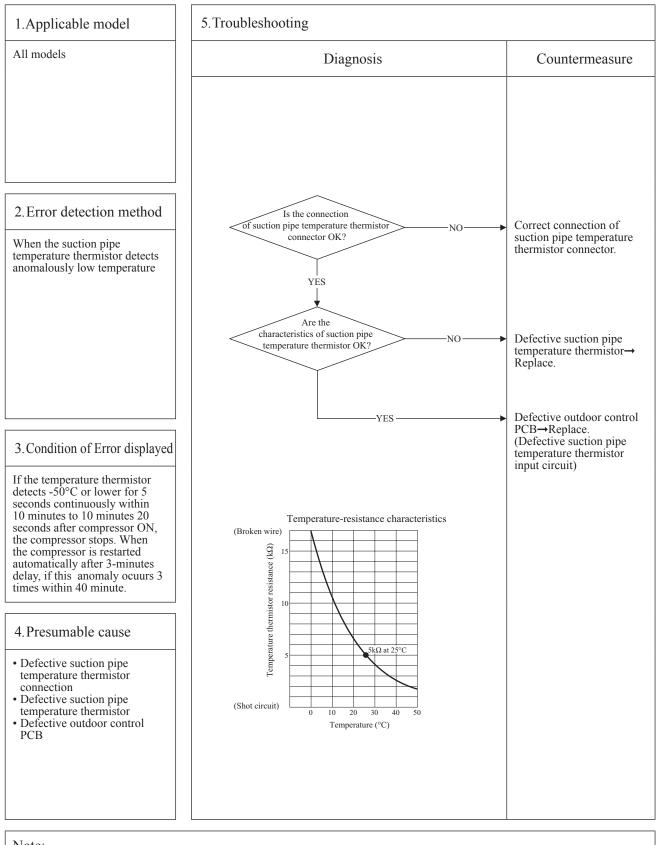
Note: * Connect the gauge manifold to the service valve check joint during cooling, or connect it to the check joint at internal piping of outdoor unit during heating.

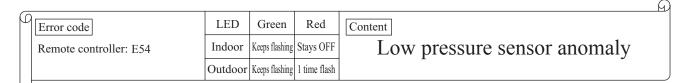


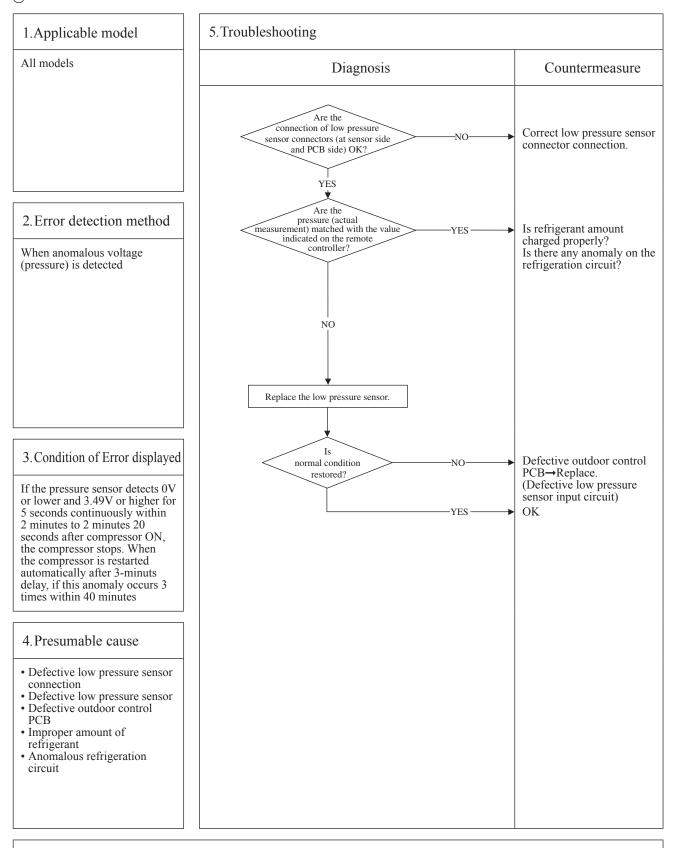


G

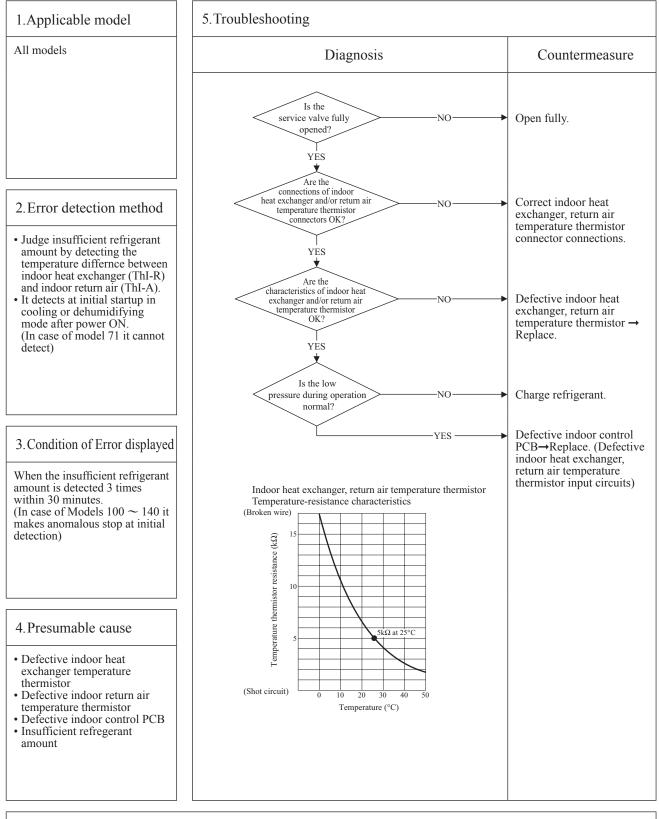
ſ	Error code	LED	Green	Red	Content	
	Remote controller: E53	Indoor	Keeps flashing	Stays OFF	Suction pipe temperature	
		Outdoor	Keeps flashing	1 time flash	thermistor anomaly	J
U						-



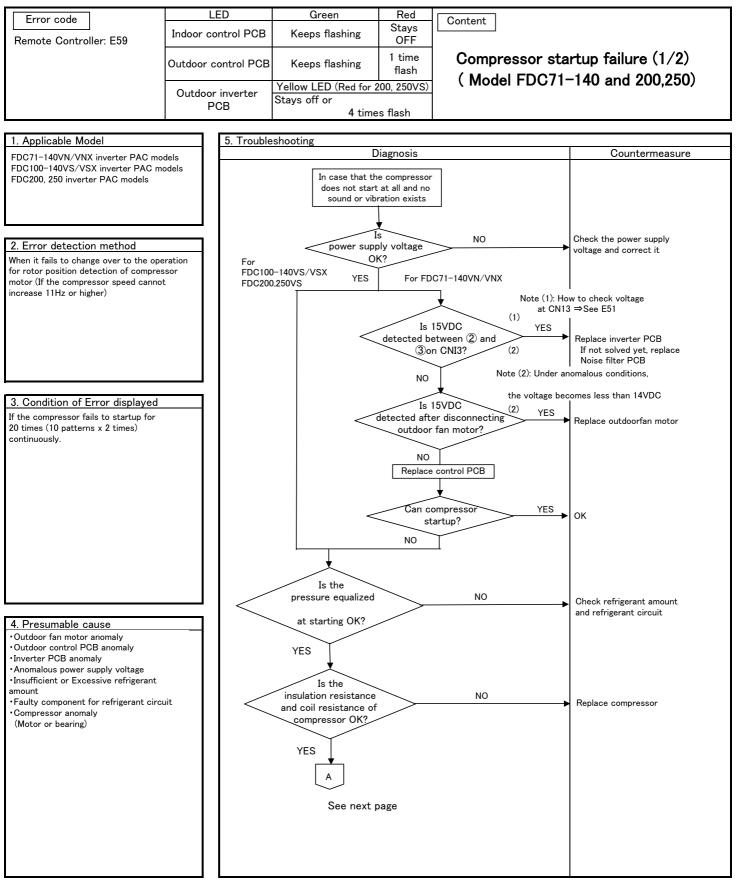






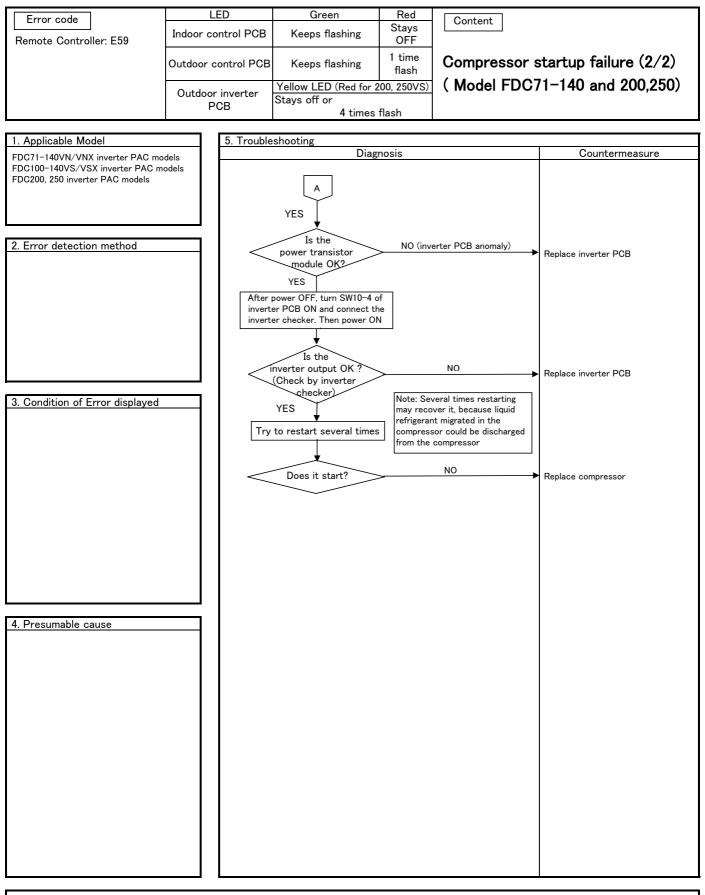


Note: Insufficient refrigerant amount preventive control makes compressor stopped, if it judges insufficient refrigerant amount by detecting the temperature difference between indoor heat exchanger (ThI-R) and return air temperature (ThI-A) for 1 minute after compressor ON in cooling or dehumidifying mode and for 9 minutes after compressor ON in heating mode. [in cooling mode: (ThI-A)-(ThI-R)>4degC, in heating mode: (ThI-R)-(ThI-A)-(ThI-A)-4degC]



Note : Insulation resistance

- •The unit is left for long period without power supply or soon after installation, insulation resistance may decrease to several $M\Omega$ or lower due to the liquid refrigerant migrated in the refrigerant oil in compressor. If the electric leakage breaker is activated due to low insulation resistance, check followings.
 - 1 Check whether the insulation resistance can recover or not, after 6 hours has passed since power ON.
 - (By energize the crankcase heater, liquid refrigerant migrated in the refrigerant oil in compressor can be evaporated) ② Check whether the electric leakage breaker conforms to high-harmonic specifications
 - (As INV PAC units has inverter, in order to prevent from improper operation, be sure to use the breaker of high-harmonic type)



3. ELECTRICAL WIRING

(1) Indoor units

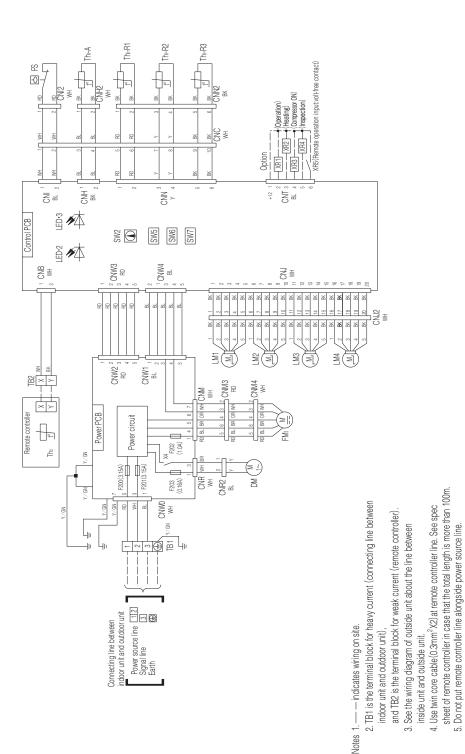
(a) Ceiling cassette-4 way compact type (FDTC)

Models FDTC40VD, 50VD, 60VD

arks	Color	Black	Blue	Brown	Orange	Red	White	Yellow	Yellow/Green
Color Marks	Mark	BK	ВГ	BR	Ю	ВD	ΜM	>	Y∕GN

Terminal block (Power source)	(mark)	Terminal block(Signal line) (mark)	Thermistor (Remote controller)	Thermistor (Return air)	3. Thermistor (Heat exchanger)	Relay for DM	Closed-end connector
TB1		TB2	Thc	Thi-A	Thi-R1,2,3	Х4	mark

<u> </u>						_
Indication lamp (Red-Inspection)	Louver motor	Remote controller communication	address	Plural units Master / Slave setting	Model capacity setting	Operation check, Drain motor test run
LED-3	LM1~4	SW2		SW5	SW6	SW7-1
Connector	Drain motor	Fuse	Fan motor	Float switch	Indication lamp	(Green-Normal operation)
CNB~Z	DM	F200~203	FM -	FS	LED-2	



PJA003Z340



Yellow/Green

Y∕GN

Red White Yellow

Color

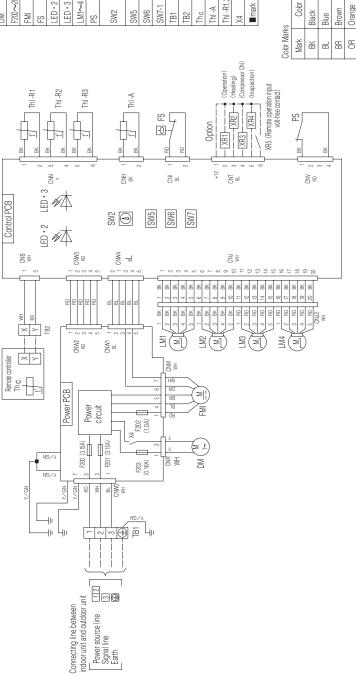
Mark Mark

'10 • PAC-SM-137

CNB~Z	Connector
DM	Drain motor
F200~203	Fuse
FMI	Fan motor
FS	Float switch
LED • 2	Indication lamp (Green-Normal operation)
LED • 3	Indication lamp (Red-Inspection)
LM1~4	Louver motor
PS	Panel switch
SW2	Remote controller communication address
SW5	Plural units Master / Slave setting
SW6	Model capacity setting
SW7-1	Operation check, Drain motor test run
TB1	Terminal block (Power source) (Dmark)
TB2	Terminal block (Signal line) (Dmark)
Thc	Thermistor (Remote controller)
ThI -A	Thermistor [Return air)
ThI -R1,2,3	Thermistor [Heat exchanger)
X4	Relay for DM
mark	Closed-end connector

Models FDT40VD, 50VD, 60VD, 71VD, 100VD, 125VD, 140VD

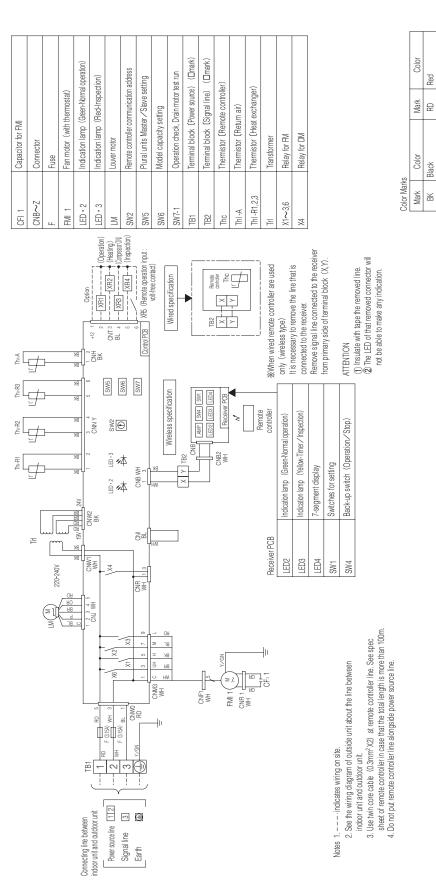
(b) Ceiling cassette-4 way type (FDT)



Notes 1. - - - - Indicates wiring on site.
 See the wiring diagram of outside unit about the line between inside unit and outside unit.
 Use twin noce cable (0. Alm? X2) at remote controller line. See spec she diremote controller in case that the total length is more than 100m.
 Do not put remote controller line abongside power source line.

PJF000Z190

(c) Ceiling suspended type (FDEN) Models FDEN40VD, 50VD



'10 • PAC-SM-137

Yellow / Green

Y∕GN

Brown Orange

н

Pink

۵.

Yellow

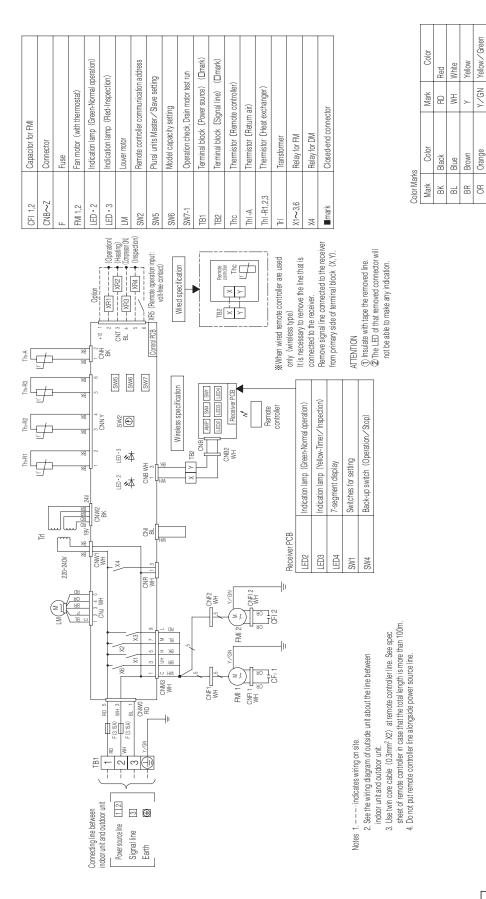
White

¥

Blue

щ

PFA003Z819A



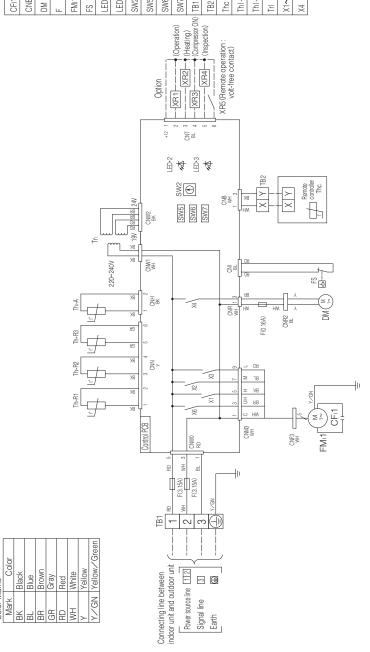
Models FDEN60VD, 71VD, 100VD, 125VD, 140VD

Fir

۵.

(d) Duct connected-Low/Middle static pressure type (FDUM) Models FDUM50VD, 60VD, 71VD

CFI1	Capacitor for FMI
SNB∼Z	Connector
MC	Drain motor
	Fuse
-Mi1	Fan motor(with thermostat)
-S	Float switch
ED-2	Indication lamp (Green-Normal operation)
ED-3	Indication lamp (Red-Inspection)
SW2	Remote controller communication address
SW5	Plural units Master Slave setting
SW6	Model capacity setting
SW7-1	Operation check, Drain motor test run
B1	Terminal block(Power source) (mark)
rb2	Terminal block(Signal line) (Dmark)
hc	Thermistor (Remote controller)
ThI-A	Thermistor (Return air)
fhl-R1,2,3	Thermistor (Heat exchanger)
[ri]	Transformer
<1∼3,6	Relay for FM
(4	Relay for DM

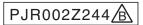


Color

Color Marks

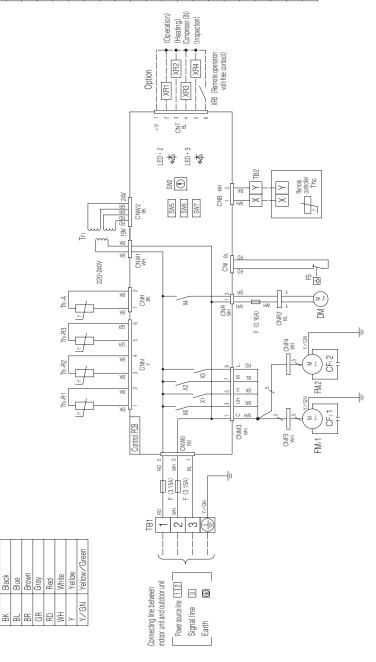
Black Blue

3. Use whin core catelie (0.3mm² x(2) at remote controller line. See spec sheat of remote controller in case that the total langth is more than 100m. 4. Do not put remote controller line aborgside power source line. See the wiring diagram of outside unit about the line between inside unit and outside unit. Notes 1. —— indicates wiring on site.



Models FDUM100VD, 125VD, 140VD

CF11,2	Capacitor for FMI
CNB~Z	Connector
DM	Drain motor
F	Fuse
FMI 1,2	Fan motor (with thermostat)
FS	Float switch
LED • 2	Indication lamp (Green-Normal operation)
LED • 3	Indication lamp (Red-Inspection)
SW2	Remote controller communication address
SW5	Plural units Master ∕ Slave setting
SW6	Model capacity setting
SW7-1	Operation check, Drain motor test run
TB1	Terminal block (Power source) (Dmark)
TB2	Terminal block (Signal line) (Dmark)
Thc	Thermistor (Remote controller)
ThI -A	Thermistor (Return air)
Thl -R1,2,3	Thermistor (Heat exchanger)
Tri	Transformer
X1~3,6	Relay for FM
X4	Relay for DM
mark	Closed-end connector



Color

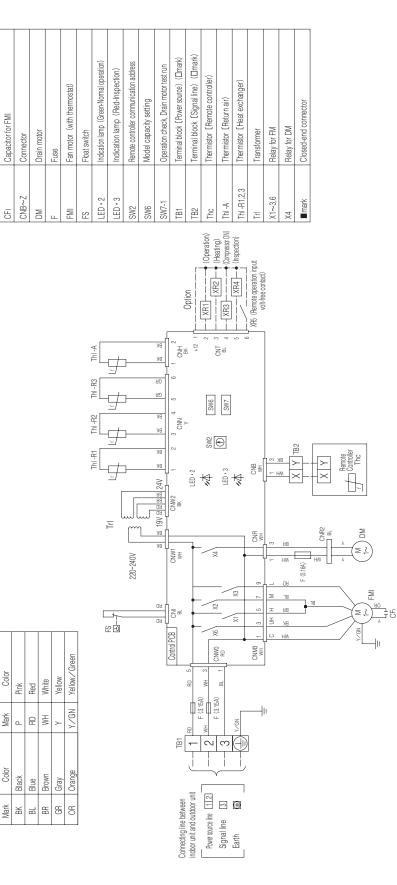
Mark

Color Marks

Notes 1. - - - indicates wiring on site.
 See the wiring diagram of outside unit about the line between niside unit and outside unit.
 Betwin noc cable (0, 3m² × 2) at remote controller line. See spec sheed or itemote controller in case that the total length is more than 100m.
 Do not put remote controller in case that the total length.

PJR002Z245

(e) Duct connected-High static pressure type (FDU) Model FDU71VD

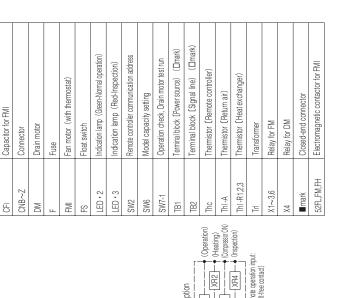


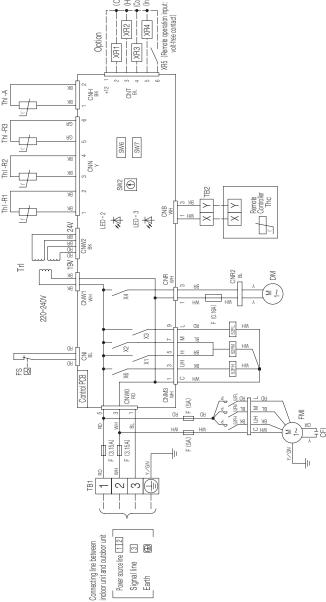
---- indicates wiring on site.
 See the wiring diagram of outside unit about the line between inside unit and outside unit.
 Use twin core cable (0.3mm²X2) at remote controller line. See spec sheet of remote controller in case that the total length is more than 100m.
 Do not put remote controller line alongside power source line.

PJD001Z304

Color Marks

Models FDU100VD, 125VD, 140VD





Color Marks	S			
Mark	Color	Mark	Color	
BK	Black	Ь	Pink	
BL	Blue	RD	Red	
BR	Brown	HM	White	
GR	Gray	Y	Yellow	
OR	Orange	NÐ∕A	Yellow/Green	



PJD001Z217

(f) Wall mounted type (SRK) Models SRK50ZIX-S, 60ZIX-S

	Description	Connector	Fan motor	Flap motor	Louver motor	Inlet motor	Room temp. sensor	Heat exch. sensor	Humidity sensor	Limit switch	Diode stack	Fuse	Terminal block	Varistor	Color Marks Mark Color BL Blue RD Red WH White Y Yellow/Green	
-	Item	CNE-CNY	FM	SM1,2	LM _{1,2}	M	Th1	Th2 _{1,2}	Th3	S	DS	ш	⊢	Va	Z	
								\sim BOARD $\int \frac{5}{5} \left(\frac{M}{M} \right) $ SM ¹							CVF CVF CVF CVV S_S/I CVVV S_S/I CVVV S_S/I CVVV S_S/I CVVVV S_S/I CVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVV	EXCHANGER

RWA000Z215

(2) Outdoor units Model FDC71VNX

POWER SOURCE 1~220-240V 50Hz/1~220V 60Hz

Description	Compressor motor	Fan motor	Crankcase heater	Drain pan heater	Auxilliary relay (for CH)	Auxilliary relay (for 20S)	Auxilliary relay (for DH)	Solenoid valve for 4 way valve	Expansion valve for cooling	Expansion valve for heating	High pressure switch	Thermistor (Outdoor air temp.)	Thermistor	Unscriatige pipe terrip.	Thermistor (Heat exchanger temp.)	Thermistor	(Suction pipe temp.)	Thermistor (IPM)	Low pressure sensor	Intelligent power module	Terminal block	Fuse	Connector	Pump down switch	Local setting switch	Indication lamp (GREEN)	Indication lamp (RED)	Reactor
Item	CM	FM01	CH	DH	52X1	52X3	52X4	20S	SM1	SM2	63H1	Tho-A	Tho-D		Tho-R1,R2	Tho-S		Tho-IPM	LPT	IPM	TB	F,F3	CnA∼Z	SW9	SW3,5	LED1	LED2	L1

Color

Yellow/Green

Gray

Pink

Yellow

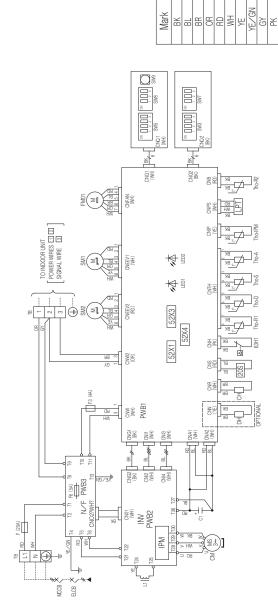
White

Red

Orange

Brown

Blue Blue





	Earth wire size (mm)	φ1.6mm
	indoor-outdoor wire size x number (mm)	φ 1.6mm x 3
	Power cable length (m)	21
ecting wires	Power cable size (mm ²)	3.5
Power cable, indoor-outdoor connecting wires	MAX over current (A)	17
Power ca	Model	71

The specifications shown in the above table are for units without heaters. For units with heaters, refer
 to the installation instructions or the construction instructions of the indoor unit.

Switchgear of Circuit breaker capacity which is calculated from MAX. over current should be chosen along the regulations in each country.

The cable specifications are based on the assumption that a metal or plastic conduit is used with no more than three cables contained in a conduit and a voltage drop is 2%. For an installation falling outside of these conditions, please follow the internal cabling regulations. Adapt it to the regulation

in effect in each country.

Refer to installation manual or technical manual about usage of local setting switch. Don't operate SW3-3,SW5-1,SW5,SW7,SW8

PCA001Z605

Method d triel operation 1. Trial operation can be performed by using SMS-3. 2. Cooling tai operation the performed operation when SWS-4.s. CM 3.8 sue to turn CFF SMS-3 after the trial operation is interact.

						1	e temp.)		(pe temp.)	emp.)	he								
Description Connector Carakcase heater Drain pan heater Compressor motor Current sensor Dode module	Fuse Fan motor Intelligent power module Reactor	Indication lamp (GREEN) Indication lamp (RED)	Expansion valve for cooling	Expansion valve for heating Pump down switch	Local setting switch	Terminal block	Thermistor (Discharge pipe temp.)	Thermistor (IPM)	Thermistor (Heat exchanger pipe temp.	Thermistor (Suction pipe temp.)	Solenoid valve for 4 way valve	Auxiliary relay (for DH)	Auxilliary relay (for 20S)	High pressure switch					
Item CnA~Z CH CH DH CM CT DM	F FM01 IPM L	LED1 LED2	SM1	SM2 SW1	SW3,5	THA	THo-D	THo-P	THo-R1,2	THo-S	20S 52Y1	52X2	52X3	63H1	becomes shorter	vitch should be ide temperature	t .	e outdoor unit y 10 minutes, o 3°C or lower and	hen the unit is used witch to ON.
Mark Color BK Black BL Blue BR Brown GN Green Prev	OR Orange RD Red WH White	Y Y/GN Yellow/Green												nent OFF)	The defrosting operation interval becomes shorter	by turning ON this switch. This switch should be turned ON in the area where outside temperature	becomes below the freezing point.	When this switch is turned ON, the outdoor unit fan will run for 30 seconds in every 10 minutes, when outdoor temperature falls to 3°C or lower and	the compressor is not running when the unit is used in a very snowy country, set this switch to ON.
	HMON IMON	HW ~	(HW) (HW)		OF 1 2 3 4 SW1	010	CNPS CNB		1	}	TH0-H2			Local setting switch SW3 (Set up at shipment OFF)		Defrost control change		Snow guard fan control	
		HW F			F 1 2 3 4 SMR	040	dino	9 1 18	[Þ] f			Local setti		SW3-1		SW3-2	
		00 00 00 00	(H)	∘ ≁			CNTH		- -	户 户	THo-S THo-A								
POMER WITE		HM +- × ~~ 18 ~+ 18 ~+	(HW)		IED1		CNH CNH	98 98 98 98 98) 	03H1 THoAT THO		Earth wire size	(mm)		φ1.6			Earth wire size
		<u>тв</u>		CC	_	20/20	CNR CNS	88]		indoor-outdoor	wire size x number		φ1.6mm x 3			indoor-outdoor wire size v numher
E (69)			H CMI BKI	/ B- (MH)		B COVE	B CVM	HM		Ξ	Optional		Power cable length	(E)	25	50	2	-	Power cable length
	÷ ()		CNI2 CNI2	CN44					_			acting wires	Power cable size	(mm ²)		5.5		ype indoor unit.	Power cable size
POWER SOLRGE 1~220-24/V 50Hz 1~223/V 80Hz TB TB TB TB TB TB TB TB TB TB	₩₩° ₹.	S O BT	INVERTER	Mai					الر	_		Power cable, indoor-outdoor connecting wires	MAX over current	(A)	24	8	07	************************************	MAX over current
000RCE 1~220- TB F 1 						4	Ng	··- I				Power cal	Model		100	125	140	%At the c	Model
POWERS	**																		

Models FDC100VNX, 125VNX, 140VNX

			52X3	Auxilliary rela
Local setti	Local setting switch SW3 (Set up at shipment OFF)	int OFF)	63H1	High pressure
SW3-1	Defrost control change	The defrosting operation interval becomes shorter by turning ON this switch. This switch should be turned ON in the area where outside temperature becomes below the freezing point.	mes shorter should be emperature	
SW3-2	Snow guard fan control	When this switch is turned ON, the outdoor unit far will run for 30 seconds in every 10 minutes, when outdoor temperature fails of 20 or lower and the compressor is not running when the unit is used in a very snowy country, set this switch to ON.	idoor unit minutes, or lower and the unit is used to ON.	
SW3-3,4	Trial operation	Method of trial operation (That operation can be performed by using SW3-3,4. (Compressor will be in the operation when SW3-3 is ON. (Conjoing trial operation will be performed when SW3-4 is OFF, and heating trial operation when SW3-4 is OF, (Conjoing trial operation when SW3-4 is OF) (Conjoing trial operation when SW3-4 is OF)	using SW3-3,4. when SW3-3 is med when SW3 13-4 is ON. trial operation	ON. 4 is OFF,

	Earth wire size (mm)		φ1.6		Earth wire size (mm)
	indoor-outdoor wire size x number		φ1.6mm x 3		indoor-outdoor wire size x number
	Power cable length (m)	25	23		Power cable length (m)
	Power cable size (mm ²)		ູ ນິ	ype indoor unit.	Power cable size (mm ²)
MILLION COLLECTING MILES	over current (A)	24	26	on with the duct type indoor unit.	over current (A)

indoor-outdoor wire size x number		φ1.6mm x 3	
Power cable length (m)	24	31	30
Power cable size (mm ²)	5.5	c	0
MAX over current (A)	25	29	30
Model	100	125	140

φ1.6

The specifications shown in the above table are for units without heaters. For units with heaters, refer
to the installation instructions or the construction instructions of the indoor unit.
 Switchgaar of Circuit breaker capacity which is calculated from MAX over current should be chosen
along the regulations; are above county.
 The cable specifications are based on the assumption that a metal or plastic conduit is used with no
more than three coubles contained in a conduit and a voitage dorp is 2%. For an installation falling
more than three condised in the internal cabling regulations; here conduits in each county.

PCA001Z570

Image: state of the state o	WER SOUF	POWER SOURCE 3N~380-415V 50Hz								Item		Description	
Image: Control of the second secon		E D		LIN BD						CH	Crankcase heat	1	
Image: Contract of the second of the seco		10 mm			W			r-F		CM	Compressor mo	or	
metric metric metric metric metric metric metric metric metric </td <td></td> <td></td> <td>NOISEI</td> <td>FLTER No OFF</td> <td>[CT]</td> <td></td> <td>-0</td> <td>2</td> <td></td> <td>CnA∼Z</td> <td>Connector</td> <td></td> <td></td>			NOISEI	FLTER No OFF	[CT]		-0	2		CnA∼Z	Connector		
Metricity Metricity Metricity Model Metricity<			EN1 PM	/B3				4		CT	Current sensor		
m m				-			- GR		INVERTER	DH	Drain pan heate		
Image: Control of the control of th		×	T12	GN		L	401		1	DM	Diode module		
Image: Section of the sectin of the section of the				ŀ		-0	SH C	Md		ш	Fuse		
m m		*					*	, P		FMo1,2	Fan motor		
Image: Section of the section of th				E (40)						PM	Intelligent power	module	
Image: Simple service s		14							= [Reactor		
Image: Section of the section of th		N···· •							Mdl	LED1	Indication lamp	(GREEN)	
Image: Control of the control of th		•		DAT RAFT ANT					M Br N	LED2	Indication lamp	(RED)	
					52C [PT			Ļ	W	LPT	Low pressure se	nsor	
monstrain			K K H		X					SM1	Expansion valve	for cooling	
¹ (1) ¹ (1)					81 8					SM2	Expansion valve	for heating	
Image: Control of the control of t	н		38							SW1	Pump down swit	h	
Control				CONTROL					_	SW3,5	Local setting sw	itch	
Image: Control of the state		1. J		PWB1		CN1 B.	1111		CN2	TB	Terminal block		
model model <td< td=""><td></td><td>티</td><td>HM</td><td></td><td></td><td>(HM)</td><td></td><td></td><td></td><td>THo-A</td><td>Thermistor (Ou</td><td>door air temp.)</td><td></td></td<>		티	HM			(HM)				THo-A	Thermistor (Ou	door air temp.)	
Image Image Image Image		\Box	CMF (BK)			CNM1 RD				THo-D	Thermistor (Dis	charger pipe temp	0)
The state The state Image in the size Image in the size Image in the size Image in the			808		SWS	(MH) H				THo-R1,2	Thermistor (Heat	exchanger pipe temp	p.)
Owner model Theorem		5	CNH (BR)			CNA2				THo-S	Thermistor (Suc	tion pipe temp.)	
Ball Bill 205 Part Intervie size 205 Prime 201 Prim 201 </td <td></td> <td>P</td> <td>ONR (WH)</td> <td></td> <td></td> <td></td> <td>_</td> <td></td> <td></td> <td>THo-P</td> <td>Thermistor (IPM)</td> <td>~</td> <td></td>		P	ONR (WH)				_			THo-P	Thermistor (IPM)	~	
Biole(IDE) SC m Earth wire size m Earth wire size m fmm) ber (mm) ber		63H1	87 87 88	12346 1234	14567 145	9 -1				20S	Solenoid valve fe	r 4 way vahe	
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r Earth wire size ^{off} (rrm)	0	able, indoor-outdoor conne	acting wires							52X6	Auxilliary relay (for 52C)	
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Ser (mm) 3 \$ 1.6 8 \$ 1.6 9 0.00000000000000000000000000000000000		MAX over current	Power cable size	Power cable length	indoor-outdoor	Earth wire size	1		the compressor is not running when the unit is use	q		D Red	
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φ 1.6 SW33.4 Trial operation	1	16		26					Memod ot trial operation (MTrial operation can be performed by using SW3-3	4	~		>
Wesser Inter operation (Cooling trial operation will be performed when SW3-4 is OFF, and hearing trial operation when SW3-4 is OFF, Cooling trial operation when we have a concinent in the concinent operation when the concinent is the concinent operation.	1	18	3.5	23	φ1.6mm x.3	¢16			Compressor will be in the operation when SW3-3 is ON		~		Yellow/Green
	1	19		21					③ Cooling trial operation will be performed when SW3-4 is and beating trial operation when SW3-4 is ON	OFF,		R Gray	
	1 3							-	The sure to turn OFF SW3-3 after the trial operation is finished	shed.		-	

Models FDC100VSX, 125VSX, 140VSX

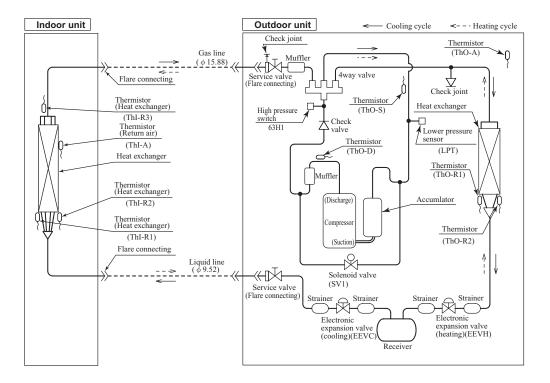
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The specifications shown in the above table are for units without heaters. For units with heaters, reler
to the instructions or the construction instructions of the ndoor unit.
 Switchgaer of Circuit breaker capacity which is calculated from MAX, over current should be chosen
along the regulations in each country.
 The cable specifications are based on the assumption that a metal or plastic conduit is used with no
more than there cables contined in a conduct and a votage drop is 2%. For an installation failing
most defined on the assumption that a metal or plastic conduit is used with no
more than there cables contined in a conduct and a votage drop is 2%. For an installation failing
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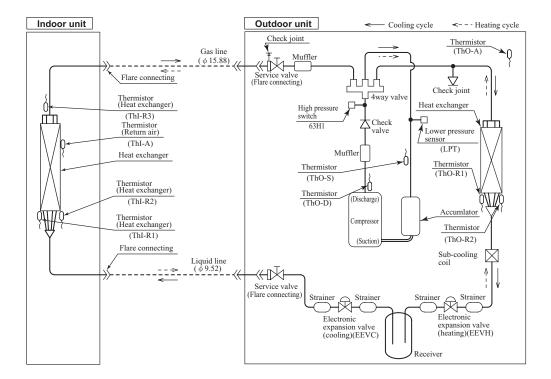
4. PIPING SYSTEM

(1) Single type

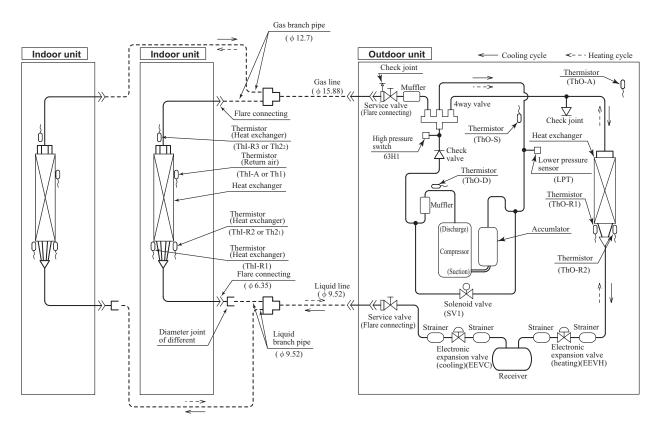
Model 71



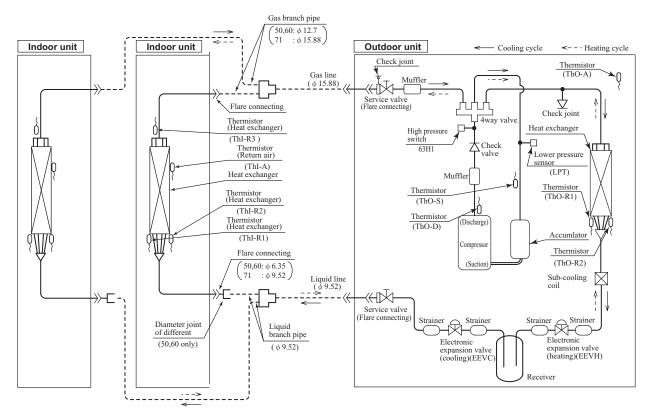
Models 100,125,140



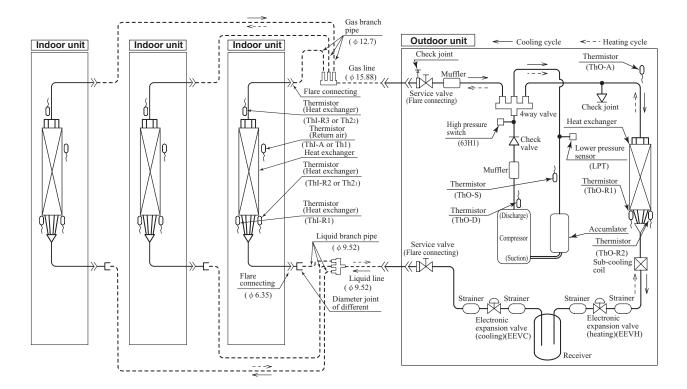
(2) Twin type Model 71



Models 100,125,140



(3) Triple type Model 140



Preset point of the protective devices

Parts name	Mark	Equipped unit	71,100,125, 140 model
Thermistor (for protection overloading in heating)	Thi-R	Indoor unit	OFF 63(62)℃ ON 56(48.5)℃
Thermistor (for frost prevention)	(Th2)		OFF 1.0(2.5)℃ ON 10(8)℃
Thermistor (for protection high pressure in cooling.)	Tho-R	Outdoor unit	OFF 51℃ ON 65℃
Thermistor (for detecting discharge pipe temp.)	Tho-D	Outdoor unit	OFF 115℃ ON 85℃
High pressure switch (for protection)	63H1	Outdoor unit	OFF 4.15MPa ON 3.15MPa
Low pressure sensor (for protection)	LPT	Outdoor unit	OFF 0.227MPa ON 0.079MPa

Note(1) Values in ($\$) show in the case of model SRK .

5 APPLICATION DATA

5.1 Installation of indoor unit

(1) Ceiling cassette-4way compact type (FDTC)

This manual is for the installation of an indoor unit.

For electrical wiring work (Indoor), refer to the electrical wiring work installation manual. For remote controller installation, refer to the installation manual attached to a remote controller. For wireless kit installation, refer to the installation manual attached to a wireless kit. For electrical wiring work (Outdoor) and refrigerant pipe work installation for outdoor unit, refer to the installation manual attached to an outdoor unit. This unit must always be used with the panel.

ot always be deed with the parton.

SAFETY PRECAUTIONS

- Read the "SAFETY PRECAUTIONS" carefully first of all and then strictly follow it during the installation work in order to protect yourself.
- The precationary items mentioned below are distinguished into two levels, <u>AWARNING</u> and <u>ACAUTION</u>.
 <u>(AWARNING</u>) Wrong installation would cause serious consequences such as injuries or death.
 <u>(ACAUTION</u>): Wrong installation might cause serious consequences depending on circumstances.
- Both mentions the important items to protect your health and safety so strictly follow them by any means.
 The meanings of "Marks" used here are as shown as follows:

 \Box Never do it under any circumstances.
- Compete on unique any uncanagement any uncanagement any uncanagement and uncanagement any uncanagement and uncanagement an

Dinstallation should be performed by the specialist. If you install the unit by yourself, it may lead to serious trouble such as water leakage, electric shock, fire, and injury due to overturn of the unit.	e
Install the system correctly according to these installation manuals.	
Improper installation may cause explosion, injury, water leakage, electric shock, and fire.	U
When installing in small rooms, take prevention measures not to exceed the density limit of refrigerant in the event of leakage, referred by the formula (accordance with ISO5149).	
If the density of refrigerant exceeds the limit, please consult the dealer and install the ventilation system, otherwise lack of oxygen can occur, which can cause serious accidents.	e
Duse the genuine accessories and the specified parts for installation.	a
If parts unspecified by our company are used it could cause water leakage, electric shock, fire, and injury due to overtum of the unit.	
Ventilate the working area well in case the refrigerant leaks during installation.	
If the refrigerant contacts the fire, toxic gas is produced.	
Install the unit in a location that can hold heavy weight.	
Improper installation may cause the unit to fall leading to accidents.	e
Dinstall the unit properly in order to be able to withstand strong winds such as typhoons, and earthquakes. Improper installation may cause the unit to fall leading to accidents.	ſ
Do not mix air in to the cooling cycle on installation or removal of the air conditioner.	$\overline{\boldsymbol{\kappa}}$
If air is mixed in, the pressure in the cooling cycle will rise abnormally and may cause explosion and injuries.	0
Be sure to have the electrical wiring work done by qualified electrical installer, and use exclusive circuit.	
Power source with insufficient capacity and improper work can cause electric shock and fire.	e
Duse specified wire for electrical wiring, fasten the wiring to the terminal securely, and hold the cable securely in order not to apply unexpected stress on the terminal.	C
Loose connections or hold could result in abnormal heat generation or fire.	_
Arrange the electrical wires in the control box properly to prevent them from rising. Fit the lid of the services panel property.	C
Improper fitting may cause abnormal heat and fire.	_
Check for refrigerant gas leakage after installation is completed.	
If the refrigerant gas leaks into the house and comes in contact with a fan heater, a stove, or an oven, toxic gas is produced.	U
Duse the specified pipe, flare nut, and tools for R410A. Using existing parts (R22) could cause the unit failure and serious accident due to explosion of the cooling cycle.	e
Trighten the flare nut according to the specified method by with torque wrench. If the flare nut were tightened with excess torque, it could cause burst and refrigerant leakage after a long period.	e
Do not put the drainage pipe directly into drainage channels where poisonous gases such as sulfide gas can occur. Poisonous gases will flow into the room through drainage pipe and seriously affect the user's health and safety. This can also cause the corrosion of the indoor unit and a resultant unit failure or refrigerant leak.	0
Donnect the pipes for refrigeration circuit securely in installation work before compressor is operated. If the compressor is operated when the service valve is open without connecting the pipe, it could cause explosion and injuries due to abnormal high pressure in the system.	l
Stop the compressor before removing the pipe after shutting the service valve on pump down work.	_
If the pipe is removed when the compressor is in operation with the service valve open, air would be mixed in the refrigeration circuit and it could cause explosion and injuries due to abnormal high pressure in the cooling cycle.	e
Only use prescribed optional parts. The installation must be carried out by the qualified installer. If you install the system by yourself, it can cause serious trouble such as water leaks, electric shocks, fire.	ſ
Do not repair by yourself. And consult with the dealer about repair.	7
Improper repair may cause water leakage, electric shock or fire.	0
Consult the dealer or a specialist about removal of the air conditioner.	
Improper installation may cause water leakage, electric shock or fire.	
Turn off the power source during servicing or inspection work.	
	e
If the power is supplied during servicing or inspection work, it could cause electric shock and injury by the operating fan.	
If the power is supplied during servicing or inspection work, it could cause electric shock and injury by the operating tan. Do not run the unit when the panel or protection guard are taken off. Touching the rotating equipment, hot surface, or high voltage section could cause an injury to be caught in the machine, to get burned, or electric shock.	0
Do not run the unit when the panel or protection guard are taken off. Touching the rotating equipment, hot surface, or high voltage section could cause an injury to be caught in the machine, to get	6

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$\left(\right)$	▲ CAUTION	
•	Perform earth wiring surely. Do not connect the earth wiring to the gas pipe, water pipe, lightning rod and telephone earth wiring. Improper earth could cause unit failure and electric shock due to a short circuit.	•
•	Earth leakage breaker must be installed. If the earth leakage breaker is not installed.	0
	Use the circuit breaker of correct capacity. Circuit breaker should be the one that disconnect all poles under over current.	0
•	Using the incorrect one could cause the system failure and fire. Do not use any materials other than a fuse of correct capacity where a fuse should be used.	
	Connecting the circuit by wire or copper wire could cause unit failure and fire. Do not install the indoor unit near the location where there is possibility of flammable gas leakages.	
•	If the gas leaks and gathers around the unit, it could cause fire. Do not install and use the unit where corrosive gas (such as sulfurous acid gas etc.) or flammable gas (such	
	as thinner, petroleum etc.) may be generated or accumulated, or volatile flammable substances are handled It could cause the corrosion of heat exchanger, breakage of plastic parts etc. And inflammable gas could cause fire.	\odot
	Secure a space for installation, inspection and maintenance specified in the manual. Insufficient space can result in accident such as personal injury due to falling from the installation place.	Ð
	Do not use the indoor unit at the place where water splashes such as laundry. Indoor unit is not waterproof. It could cause electric shock and fire.	\bigcirc
	Do not use the indoor unit for a special purpose such as food storage, cooling for precision instrument, preservation of animals, plants, and a work of art.	\bigcirc
	It could cause the damage of the items. Do not install nor use the system near equipments which generate electromagnetic wave or high harmonics.	
	Equipments like inverter equipment, private power generator, high-frequency medical equipment, or telecommunication equipment might influence the air conditioner and cause a malfunction and breakdown. Or the air conditioner might influence medical equipments or telecommunication equipments, and obstruct their medical activity or cause jamming.	\odot
	Do not install the remote controller at the direct sunlight. It could cause breakdown or deformation of the remote controller.	\bigcirc
	Do not install the indoor unit at the place listed below.	$\overline{}$
	Places where fammable gas could leak. Places where cosmetics or special sprays an Places where the substances which affect the air conditioner are generated Such as suffixe gas, acid, dkail or annousi, atmospheres. Places where the system is affected by Places where the system is affected by Since sprays and dkail or annousi, atmospheres. Places where the system is affected by since a from a chinney. Places where the system is affected by since a from a chinney. Multice over 1000m	°O
•	To not install the indoor unit in the locations listed below (Be sure to install the indoor unit according to the installation manual for each model because each indoor unit has each limitation) - Locations where vibration can be amplified due to instificient strength of structure. - Locations where vibration can be amplified due to insufficient strength of structure. - Locations where vibration can be amplified due to insufficient strength of structure. - Locations where vibration can be amplified due to insufficient strength of structure. - Locations where vibration can be amplified due to insufficient strength of structure. - Locations where vibration can be amplified due to insufficient strength of structure. - Locations where an equipment affected by high harmonics is placed. (TV set or radio receiver is placed within 5m) - Locations where an equipment affected by high harmonics is placed. (TV set or radio receiver is placed within 5m) - Locations where drainage cannot run off safely.	\odot
	Do not put any valuables which will break down by getting wet under the air conditioner. Condensation could drop when the relative humility is higher than 80% or drain pipe is clogged, and it damages user's belongings.	\bigcirc
	Do not use the base frame for the outdoor unit which is corroded or damaged after a long period of use. It could cause the unit falling down and injury.	\bigcirc
•	Pay attention not to damage the drain pan by weld sputter when brazing work is done near the unit. If sputter entered into the unit during brazing work, it could cause damage (plinhde) of drain pan and leakage of water. To avoid damaging, keep the indoor unit packed or cover the indoor unit.	0
	Install the drain pipe to drain the water surely according to the installation manual. Improper connection of the drain pipe may cause dropping water into room and damaging user's belongings.	0
	Do not share the drain pipe for indoor unit and GHP (Gas Heat Pump system) outdoor unit. Toxic exhaust gas would flow into room and it might cause serious damage (some poisoning or deficiency of oxygen) to user's health and safety.	\Box
•	Be sure to perform air tightness test by pressurizing with nitrogen gas after completed refrigerant piping work If the density of refrigerant exceeds the limit in the event of refrigerant leakage in the small room, lack of oxygen can occur, which can cause serious accidents.	0
•	For drain pipe installation, be sure to make descending slope of greater than 1/100, not to make traps, and not to make air-bleeding.	0
	Check if the drainage is correctly done during commissioning and ensure the space for inspection and maintenance. Ensure the insulation on the pipes for refrigeration circuit so as not to condense water.	
	Incomplete insulation could cause condensation and it would wet ceiling, floor, and any other valuables. Do not install the outdoor unit where is likely to be a nest for insects and small animals.	•
	Insects and small animals could come into the electronic components and cause breakdown and fire. Instruct the user to keep the surroundings clean.	\bigcirc
	Pay extra attention, carrying the unit by hand. Carry the unit with 2 people if it is heavier than 20kg. Do not use the plastic straps but the grabbing place, moving the unit by hand. Use protective gloves in order to avoid injury by the aluminum fin.	0
•	Make sure to dispose of the packaging material. Leaving the materials may cause injury as metals like nail and woods are used in the package.	0
•	Do not operate the system without the air filter. It may cause the breakdown of the system due to clogging of the heat exchanger.	\bigcirc
•	Do not touch any button with wet hands. It could cause electric shock.	\bigcirc
•	Do not touch the refrigerant piping with bare hands when in operation.	Ň
	The pipe during operation would become very hot or cold according to the operating condition, and it could cause a burn or frostbile. Do not clean up the air conditioner with water.	X
	It could cause electric shock. Do not turn off the power source immediately after stopping the operation.	渕
	Be sure to wait for more than 5 minutes. Otherwise it could cause water leakage or breakdown. Do not control the operation with the circuit breaker.	\leq
	It could cause fire or water leakage. In addition, the fan may start operation unexpectedly and it may cause injury.	\bigcirc

① Before installation

Install correctly according to the installation manual.

Confirm the following points:
 O Unit type/Power supply specification O Pipes/Wires/Small parts O Accessory items

Accessory itme

Accessor	y itme							
For unit hanging For refrigerant pipe		hanging For refrigerant pipe For draom pipe						
Flat washer (M10)	Level gauge (Insulation)	Pipe cover(big)	Pipe cover (small)	Strap	Pipe cover(big)	Pipe cover(small)	Drain hose	Hose clamp
0		\bigcirc	Ð	F	\bigcirc	Ø	۹ The second se	(\mathfrak{G})
8	4	1	1	4	1	1	1	1
	in hoisting in the	For heat insulation of gas pipe		For pipe cover	insulation	For heat insulation of drain socket		For drain hose mounting

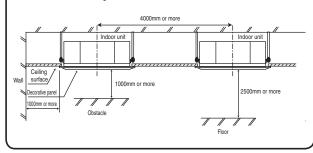
② Selection of installation location for the indoor unit

① Select the suitable areas to install the unit under approval of the user

- Areas where the indoor unit can deliver hot and cold wind sufficiently. Suggest to the user to use a circulator if the ceiling height is over 3m to avoid warm air being accumulated on the ceiling.
- Areas where there is enough space to install and service.
- Areas where it can be drained properly. Areas where drain pipe descending slope can be taken. Areas where there is no obstruction of airflow on both air return grille and air supply port.
- Areas where fire alarm will not be accidentally activated by the air conditioner
- Areas where the supply air does not short-circuit.
- Areas where it is not influenced by draft air.
- Areas not exposed to direct sunlight.
- Areas where dew point is lower than around 28°C and relative humidity is lower than 80%. This indoor unit is tested under the condition of JIS (Japan Industrial Standard) high humidity condition and confirmed there is no problem. However, there is some risk of condensation drop if the air conditioner is operated under the severer condition than mentioned above If there is a possibility to use it under such a condition, attach additional insulation of 10 to
- 20mm thick for entire surface of indoor unit, refrigeration pipe and drain pipe.
- Areas where TV and radio stays away more than 1m. (It could cause jamming and noise.) Areas where any items which will be damaged by getting wet are not placed such as food, table wares, server, or medical equipment under the unit.
- Areas where there is no influence by the heat which cookware generates.
- Areas where not exposed to oil mist, powder and/or steam directly such as above fryer Areas where lighting device such as fluorescent light or incandescent light doesn't affect the operation.
- (A beam from lighting device sometimes affects the infrared receiver for the wireless remote controller and the air conditioner might not work properly.)
- ② Check if the place where the air conditioner is installed can hold the weight of the unit. If it is not able to hold, reinforce the structure with boards and beams strong enough to hold it. If the strength is not enough, it could cause injury due to unit falling.
- ③ If there are 2 units of wireless type, keep them away for more than 5m to avoid malfunction due to cross communication.
- When plural indoor units are installed nearby, keep them away for more than 4m.

Space for installation and service

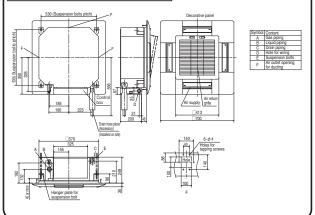
- · When it is not possible to keep enough space between indoor unit and wall or between indoor units, close the air supply port where it is not possible to keep space and confirm there is no short circuit of airflow
- Install the indoor unit at a height of more than 2.5m above the floor.



3 Preparation before installation

- If suspension bolt becomes longer, do reinforcement of earthquake resistant. O For grid ceiling
- When suspension bolt length is over 500mm, or the gap between the ceiling and roof is over 700mm, apply earthquake resistant brace to the bolt O In case the unit is hanged directly from the slab and is installed on the ceiling plane which has
- enough strength. When suspension bolt length is over 1000mm, apply the earthquake resistant brace to the bolt.
- Prepare four (4) sets of suspension bolt, nut and spring washer (M10 or M8) on site.

Ceiling opening, Suspension bolts pitch, Pipe position



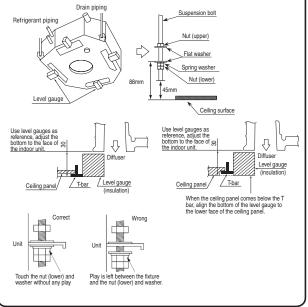
④ Installation of indoor unit

Work procedure

- This units is designed for 2 x 2 grid ceiling.
- If necessary, please detach the T bar temporarily before you install it. If it is installed on a ceiling other than 2 x 2 grid ceiling, provide an inspection port on the control box side
- Arrange the suspension bolt at the right position (530mm×530mm). Make sure to use four suspension bolts and fix them so as to be able to hold 500N load.
- Ensure that the lower end of the suspension bolt should be 45mm above the ceiling plane. Temporarily put the four lower nuts 88mm above the ceiling plane and the upper nuts on distant place from the lower nuts in order not to obstruct hanging the indoor unit or adjust the indoor unit position, and then hang the indoor unit.



5. Adjust the indoor unit position after hanging it by inserting the level gauge attached on the package into the air supply port and checking if the gap between the ceiling plane and the indoor unit is appropriate. In order to adjust the indoor unit position, adjust the lower nuts while the upper nuts are put on distant place. Confirm there is no backlash between the hanger plate for suspension bolt and the lower nut and washer



④ Installation of indoor unit (continued)

- 6. Make sure to install the indoor unit horizontally. Confirm the
- levelness of the indoor unit with a level gauge or transparent hose filled with water. Keep the height difference at both ends of the indoor unit within 3mm
- Tighten four upper nuts and fix the unit after height and levelness adjustment.
- Caution
- Do not adjust the height by adjusting upper nuts. It will cause unexpected stress on the indoor unit and it will lead to deformation of the unit, failure of attaching a panel, and generating noise from the fan
- Make sure to install the indoor unit horizontally and set the gap between the unit underside and the ceiling plane properly. Improper installation may cause air leakage, dew condensation, water
- leakage and noise Even after decorative panel attached, still the unit height can be adjusted finely. Refer to the
- installation manual for decorative panel for details. Make sure there is no gap between decoration panel and ceiling surface, and between decoration panel and the indoor unit. The gap may cause air leakage, dew condensation and water leakage.
- In case decorative panel is not installed at the same time, or ceiling material is installed after the unit installed, but the cardboard template for installation attached on the package (packing material of cardboard box) on the bottom of the unit in order to avoid dust coming into the indoor unit.

5 Refrigerant pipe

Caution

- Use the new refrigerant pipe.
 When re-using the existing pipe system for R22 or R407C, pay attention to the following items. Change the flare nuts with the attached ones (JIS category 2), and reprocess the flare parts.
- Do not use thin-walled pipes. Use phosphorus deoxidized copper alloy seamless pipe (C1220T specified in JIS H3300) for
- refrigeration pipe installation. In addition, make sure there is no damage both inside and outside of the pipe, and no harmful substances such as sulfur, oxide, dust or a contaminant stuck on the pipes
- Do not use any refrigerant other than R410A. Using other refrigerant except R410A (R22 etc.) may degrade inside refrigeration oil. And air getting •
- into refrigeration circuit may cause over-pressure and resultant it may result in bursting, etc.
- Store the copper pipes indoors and seal the both end of them until they are brazening, due to avoid any dust, dirt or water getting into pipe. Otherwise it will cause degradation of refrigeration oil and compressor breakdown, etc
- Use special tools for R410 refrigerant.

Work procedure

- 1. Remove the flare nut and blind flanges on the pipe of the indoor unit.
- ※ Make sure to lossen the flare nut with holding the nut on pipe side with a spanner and giving torque to the nut with another spanner in order to avoid unexpected stress to the copper pipe, and then remove then
- (Gas may come out at this time, but it is not abnormal.)
- Pay attention whether the flare nut pops out. (as the indoor unit is sometimes pressured.) Make a flare on liquid pipe and gas pipe, and connect the refrigeration pipes on the indoor unit. % Bend the pipe with as big radius as possible and do not bend the pipe repeatedly. In addition, do 2.
- not twist and crush the pipes.
- Do a flare connection as follows: Make sure to loosen the flare nut with holding the nut on pipe side with a spanner and giving torque to the nut with another spanner in order to avoid unexpected stress to the copper pipe, and then remove them. When fastening the flare nut, align the refrigeration pipe with the center of flare nut, screw the
- nut for 3-4 times by hand and then tighten it by spanner with the specified torque mentioned in the table below. Make sure to hold the pipe on the indoor unit securely by a spanner when tightening the nut in order to avoid unexpected stress on the copper pipe.
- Cover the flare connection part of the indoor unit with attached insulation material after a gas leakage inspection, and tighten both ends with attached straps. 3.
- Make sure to insulate both gas pipes and liquid pipes completely
- ※ Incomplete insulation may cause dev condensation or water dropping Refrigerant is charged in the outdoor unit.

As for the additional refrigerant charge for the indoor unit and piping, refer to the installation manual attached to the outdoor unit.

			Strap (Accessory) Pipe cover (Accessory)
_ [Pipe diameter	Tightening torque N·m	
[φ 6.35	14 to 18	
Ī	φ 9.52	34 to 42] <u>~~~~~~~~~~~~~~~~~~~~~~~~~</u>
[φ 12.7	49 to 61	I STATES AND A STATES I
[φ 15.88	68 to 82	
[φ 19.05	100 to 120	The thickness of insulation should be 20mm or more.

6 Drain pipe

Caution

- Install the drain pipe according to the installation manual in order to drain properly
- Imperfection in draining may cause flood indoors and wetting the household goods etc. • Do not put the drain pipe directly into the ditch where toxic gas such as sulfur, the other harmful and inflammable gas is generated. Toxic gas would flow into the room and it would cause serious
- damage to user's health and safety (some poisoning or deficiency of oxygen). In addition, it may cause corrosion of heat exchanger and bad smell. Connect the pipe securely to avoid water leakage from the joint.
 Insulate the pipe properly to avoid condensation drop.
- Check if the water can flow out properly from both the drain outlet on the indoor unit and the end of the drain pipe after installation.
- Make sure to make descending slope of greater than 1/100 and do not make up-down bend and/or trap in the midway. In addition, do not put air vent on the drain pipe. Check if water is drained out properly from the pipe during commissioning. Also, keep sufficient space for inspection and maintenance

6 Drain pipe (continued)

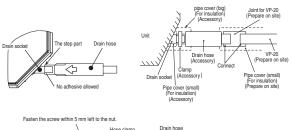
Work procedure

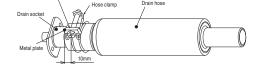
Indoor unit

1. Make sure to insert the drain hose (the end mode of soft PVC) to the end of the step part of drain socket.

Attach the hose clamp to the drain hose around 10mm from the end, and fasten the screw within 5mm left to the nut.

Do not apply adhesives on this end.

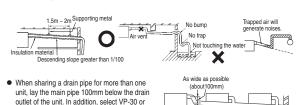




- Prepare a joint for connecting VP-20 pipe, adhere and connect the joint to the drain hose (the end made of rigid PVC), and adhere and connect VP-20 pipe (prepare on site). % As for drain pipe, apply VP-20 made of rigid PVC which is on the market.
- Make sure that the adhesive will not get into the supplied drain hose.
- It may cause the flexible part broken after the adhesive is dried up and gets rigid. Do not bend or make an excess offset on the drain hose as shown in the picture. Bend or excess offset will cause drain leakage



- Make sure to make descending slope of greater than 1/100 and do not make up-down bend and/or trap in the midway
- Pay attention not to give stress on the pipe on the indoor unit side, and support and fix the pipe as close place to the unit as possible when connecting the drain pipe
- Do not set up air vent.



bigger size for main drain pipe.

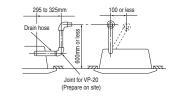
VP-30 or bigger Descending stop greater than 1/100 4. Insulate the drain pipe. · Be sure to insulate the drain socket and rigid PVC pipe installed indoors otherwise it may cause

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dew condensation and water leakage. X After drainage test implementation, cover the drain socket part with pipe cover (small size), then use the pipe cover (big size) to cover the pipe cover (small size), clamps and part of the drain hose, and fix and wrap it with tapes to wrap and make joint part gapless.

Drain up

The position for drain pipe outlet can be raised up to 600mm above the ceiling. Use elbows for installation to avoid obstacles inside ceiling. If the horizontal drain pipe is too long before vertical pipe, the backflow of water will increase when the unit is stopped, and it may cause overflow of water from the drain pan on the indoor unit. In order to avoid overflow, keep the horizontal pipe length and offset of the pipe within the limit shown in the figure below.



6 Drain pipe (continued)

Drain test

- After installation of drain pipe, make sure that drain system work in good condition and no water leakage from joint and drain pan. Check if the motor sound of drain pump is normal or not.
- Do drain test even if installation of heating season.
- For new building cases, make sure to complete the test before hanging the ceiling.
- 1. Pour water of about 1000cc into the drain pan in the indoor unit by pump so as not to get the electrical component wet.
- Make sure that water is drained out properly and there is no water leakage from any joints of the drain pipe at the test. Confirm that the water is properly drained out while the drain motor is operating. At the drain socket (transparent), it is possible to
- check if the water is drained out properly. Unplug the drain plug on the indoor unit to remove remaining water on the drain pan after the test, and re-plug it. And insulate the drain 3 pipe properly finally.

Drain pump operation

O In case electrical wiring work finished

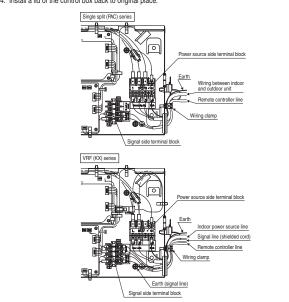
- Drain pump can be operated by remote controller (wired). For the operation method, refer to [Operation for drain pump] in the installation manual for wiring work.

Drain plug

O In case electrical wiring work not finished Drain pump will run continuously when the dip switch"SW7-1" on the indoor unit PCB is turned ON, the Connector CNB is disconnected, and then the power supply (220-240VAC on the terminal block $[\, \textcircled{0}\,$ and $\textcircled{0}\,]$ or [$\textcircled{0}\,$ and $\textcircled{N}\,]$) is turned ON. Make sure to turn OFF "SW7-1" and reconnect the Connector CNB after the test

⑦ Wiring-out position and wiring connection

- Electrical installation work must be performed according to the installation manual by an electrical installation service provider qualified by a power provider of the country, and be executed according to the technical standards and other regulations applicable to electrical installation in the country. Be sure to use an exclusive circuit.
- · Use specified cord, fasten the wiring to the terminal securely, and hold the cord securely in order not to apply unexpected stress on the terminal.
- Do not put both power source line and signal line on the same route. It may cause
- miscommunication and malfunction. Be sure to do D type earth work.
- For the details of electrical wiring work, see attached instruction manual for electrical wiring work.
- 1. Remove a lid of the control box (1 screws).
- 2. Hold each wiring inside the unit and fasten them to terminal block securely.
- 3. Fix the wiring with clamp.
- 4. Install a lid of the control box back to original place.



(8) Panel installation

- · After wiring work finished, install the panel on the indoor unit.
- Refer to attached panel installation manual for details. (see next page)

Accessory items

1	Hook	79	1 piece	For fixing temporarily
2	Chain	recorder	2 pieces	
3	Bolt	() I have	4 pieces	For installing the panel
4	Screw	() I	1 piece	For attaching a hook
5	Screw	(Jun	2 pieces	For attaching a chain

Attach the panel on the indoor unit after electrical wiring work.

Refer to attached manual for panel installation for details. (See next page)

(9) Check list after installation

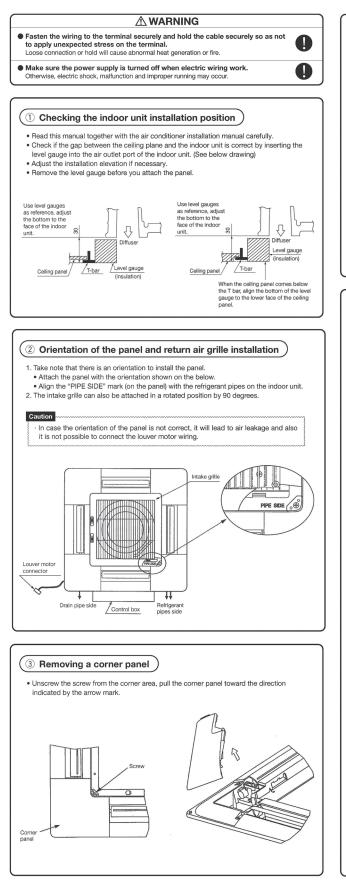
Check the following items after all installation work completed.

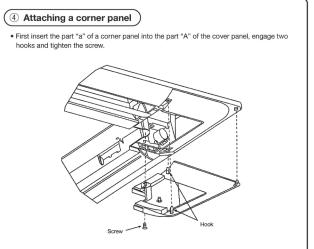
Check if	Expected trouble	Check
The indoor and outdoor units are fixed securely?	Falling, vibration, noise	
Inspection for leakage is done?	Insufficient capacity	
Insulation work is properly done?	Water leakage	
Water is drained properly?	Water leakage	
Supply voltage is same as mentioned in the model name plate?	PCB burnt out, not working at all	
There is mis-wiring or mis-connection of piping?	PCB burnt out, not working at all	
Earth wiring is connected properly?	Electric shock	
Cable size comply with specified size?	PCB burnt out, not working at all	
Any obstacle blocks airflow on air inlet and outlet?	Insufficient capacity	

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PANEL INSTALLATION MANUAL

Please read this manual together with the indoor unit's installation manual





5 Panel installation

• Install the panel on the unit after completing the electrical wiring.

Accessories

1	Hook	79	1 piece	For fixing temporarily
2	Chain	vacanaan	2 pieces	
3	Screw	Dama	4 pieces	For hoisting the panel
4	Screw	() jun	1 piece	For attaching a hook
5	Screw	6 pm	2 pieces	For attaching a chain

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[Figure 1]

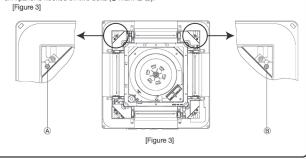
[Figure 2]

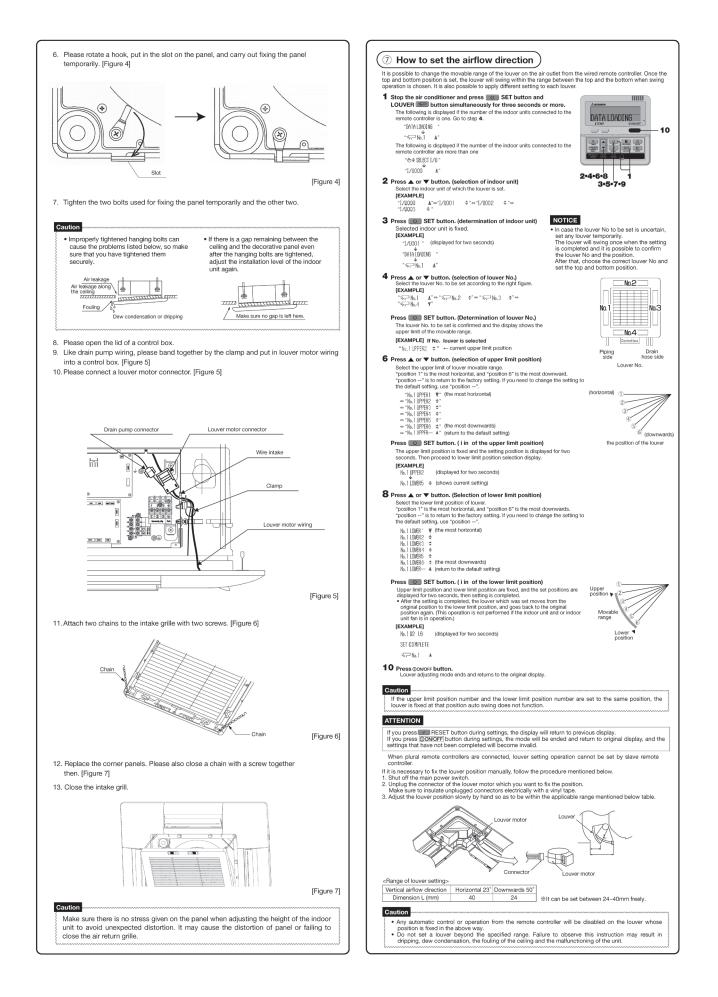
Scre

 Screw in two bolts out of the four supplied with the panel by about slightly less than 5mm.
 (
 mark (A) (B) [Figure 1]

- Attach the hook supplied with the panel to the main body with the hook fixing screw (1 screw). [Figure 2]
- 3. Open the intake grille.
- 4. Please remove the screw of a corner panel and remove a corner panel. (four places)

5. A panel is hooked on two bolts (
 mark (
 B).





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(2) Ceiling cassette-4way type (FDT)

This manual is for the installation of an indoor unit. For electrical wiring work (Indoor), refer to the electrical wiring work installation manual. For remote controller installation, refer to the installation manual attached to a remote controller. For wireless kit installation, refer to the installation manual attached to a wireless kit. For electrical wiring work (Outdoor) and refrigerant pipe work installation for outdoor unit, refer to the installation manual attached to an outdoor unit. This unit must always be used with the panel.

SAFETY PRECAUTIONS

- Read the "SAFETY PRECAUTIONS" carefully first of all and then strictly follow it during the installation work in order to protect yourself.
- The precautionary items mentioned below are distinguished into two levels, <u>AWARNING</u> and <u>ACAUTION</u>.
 <u>AWARNING</u>: Wrong installation would cause serious consequences such as injuries or death. <u>ACAUTION</u>: Wrong installation might cause serious consequences depending on circumstances. Both mentions the important items to protect your health and safety so strictly follow them by any means.
- customers about "SAFEITY PRECAUTIONS", correct operation method and maintenance method (air filter cleaning, operation method and temperature setting method) with user's manual of this unit. Ask your customers to keep this installation manual together with the user's manual. Also, ask them to hand over the user's manual to the new user when the owner is changed.

MARNING

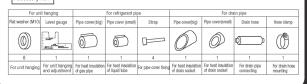
Installation should be performed by the specialist.	
If you install the unit by yourself, it may lead to serious trouble such as water leakage, electric shock, fire, and injury due to overturn	O
of the unit.	_
Install the system correctly according to these installation manuals.	
Improper installation may cause explosion, injury, water leakage, electric shock, and fire.	•
Check the density referred by the fournula (accordance with IS05149).	Ø
If the density exceeds the limit density, please consult the dealer and installate the ventilation system.	0
Use the genuine accessories and the specified parts for installation.	Ø
If parts unspecified by our company are used it could cause water leakage, electric shock, fire, and injury due to overturn of the unit.	U
Ventilate the working area well in case the refrigerant leaks during installation.	0
If the refrigerant contacts the fire, toxic gas is produced.	
Install the unit in a location that can hold heavy weight.	Ø
Improper installation may cause the unit to fall leading to accidents.	
Install the unit properly in order to be able to withstand strong winds such as typhoons, and earthquakes. Improper installation may cause the unit to fall leading to accidents.	Ø
Do not mix air in to the cooling cycle on installation or removal of the air conditioner.	$\overline{\frown}$
If air is mixed in, the pressure in the cooling cycle will rise abnormally and may cause explosion and injuries.	\bigcirc
Be sure to have the electrical wiring work done by gualified electrical installer, and use exclusive circuit.	
Power source with insufficient capacity and improper work can cause electric shock and fire.	0
Use specified wire for electrical wiring, fasten the wiring to the terminal securely, and hold the cable securely in	
order not to apply unexpected stress on the terminal.	Q
Loose connections or hold could result in abnormal heat generation or fire.	
Arrange the electrical wires in the control box properly to prevent them from rising. Fit the lid of the services panel property.	Ø
Improper fitting may cause abnormal heat and fire.	U
Check for refrigerant gas leakage after installation is completed.	
If the refrigerant gas leaks into the house and comes in contact with a fan heater, a stove, or an oven, toxic gas is produced.	O
OUse the specified pipe, flare nut, and tools for R410A.	
Using existing parts (R22) could cause the unit failure and serious accident due to explosion of the cooling cycle.	O
Tighten the flare nut according to the specified method by with torque wrench.	-
If the flare nut were tightened with excess torque, it could cause burst and refrigerant leakage after a long period.	Ø
Do not put the drainage pipe directly into drainage channels where poisonous gases such as sulfide gas can occur.	\sim
Poisonous gases will flow into the room through drainage pipe and seriously affect the user's health and safety. This can also cause the corrosion of the indoor unit and a resultant unit failure or refrigerant leak.	\mathcal{O}
Connect the pipes for refrigeration circuit securely in installation work before compressor is operated.	_
If the compressor is operated when the service valve is open without connecting the pipe, it could cause explosion and injuries due to abnormal high pressure in the system.	0
Stop the compressor before removing the pipe after shutting the service valve on pump down work.	
If the pipe is removed when the compressor is in operation with the service valve open, air would be mixed in the refrigeration circuit (and it could cause explosion and injuries due to abnormal high pressure in the cooling cycle.	Ð
Only use prescribed optional parts. The installation must be carried out by the qualified installer.	-
If you install the system by yourself, it can cause serious trouble such as water leaks, electric shocks, fire.	Ø
 Do not repair by yourself. And consult with the dealer about repair. 	$\overline{}$
Improper repair may cause water leakage, electric shock or fire.	\bigcirc
Consult the dealer or a specialist about removal of the air conditioner.	$\tilde{}$
Improper installation may cause water leakage, electric shock or fire.	U
Turn off the power source during servicing or inspection work.	-
If the power is supplied during servicing or inspection work, it could cause electric shock and injury by the operating fan.	Ø
• Do not run the unit when the panel or protection guard are taken off.	
	\bigcirc
Touching the rotating equipment, hot surface, or high voltage section could cause an injury to be caught in the machine, to get (burned, or electric shock.	\sim
Touching the rotating equipment, hot surface, or high voltage section could cause an injury to be caught in the machine, to get	

CAUTION		
Perform earth wiring surely.		
Do not connect the earth wiring to the gas pipe, water pipe, lightning rod and telephone	earth wiring. Improper earth could	
cause unit failure and electric shock due to a short circuit. Earth leakage breaker must be installed.		
If the earth leakage breaker is not installed, it can cause electric shocks.		U
Use the circuit breaker of correct capacity. Circuit breaker should be the poles under over current. Using the incorrect one could cause the system failure and fire.	one that disconnect all	0
• Do not use any materials other than a fuse of correct capacity where a f	use should be used.	$\overline{\frown}$
Connecting the circuit by wire or copper wire could cause unit failure and fire.	of flommable and lookages	\leq
Do not install the indoor unit near the location where there is possibility If the gas leaks and gathers around the unit, it could cause fire.	or nammable gas leakages.	\bigcirc
Do not install and use the unit where corrosive gas (such as sulfurous acid ga as thinner, petroleum etc.) may be generated or accumulated, or volatile flamm It could cause the corrosion of heat exchanger, breakage of plastic parts etc. And inflat	nable substances are handled.	\bigcirc
 Secure a space for installation, inspection and maintenance specified in 	-	
Insufficient space can result in accident such as personal injury due to falling from the		
Do not use the indoor unit at the place where water splashes such as law indoor unit is not waterproof. It could cause electric shock and fire.	indry.	\bigcirc
• Do not use the indoor unit for a special purpose such as food storage, co	oling for precision	$\frac{\circ}{\circ}$
instrument, preservation of animals, plants, and a work of art. It could cause the damage of the items. Do not install nor use the system near equipments which generate electromage	untin wave as high harmonian	\bigcirc
Equipments like inverter equipment, private power generator, high-frequency medical equipment might influence the air conditioner and cause a malfunction and breakdow influence medical equipments or telecommunication equipments, and obstruct their m	equipment, or telecommunication n. Or the air conditioner might	\bigcirc
Do not install the remote controller at the direct sunlight. It could cause breakdown or deformation of the remote controller.		\bigcirc
Do not install the indoor unit at the place listed below.		-
Places where carbon fiber, metal powder or any powder is floated. Flace where the substances which affect the air conditioner are generated such as sulfide gas, chloride gas, acid, alkali or ammonic atmospheres. Heavy snow	d area such as beach. area re the system is affected by	\bigcirc
Places where machinery which generates high harmonics is used. Altitude over		
 Locations where wination can be amplified due to insufficient strength of structure. Locations where the infrared receiver is exposed to the direct sunlight or the strong infrared specification unit Locations where an equipment affected by high harmonics is placed. (TV set or radic Locations where drainage cannot run off sately. It can affect performance or function and etc 	receiver is placed within 5m)	<u> </u>
 Do not put any valuables which will break down by getting wet under the Condensation could drop when the relative humidity is higher than 80% or drain pipe is cloqged 		\bigcirc
 Do not use the base frame for the outdoor unit which is corroded or damag 		$\check{\frown}$
It could cause the unit falling down and injury.		\odot
Pay attention not to damage the drain pan by weld sputter when brazing If sputter entered into the unit during brazing work, it could cause damage (pinhole) of To avoid damaging, keep the indoor unit packed or cover the indoor unit.		0
 Install the drain pipe to drain the water surely according to the installation 		0
Improper connection of the drain pipe may cause dropping water into room and dama; Do not share the drain pipe for indoor unit and GHP (Gas Heat Pump syst) Toxic exhaust gas would flow into room and it might cause serious damage (some point the pipe of the pipe of th	em) outdoor unit.	\bigcirc
 user's health and safety. Be sure to perform air tightness test by pressurizing with nitrogen gas after com 	pleted refrigerant piping work.	
If the density of refrigerant exceeds the limit in the event of refrigerant leakage in the occur, which can cause serious accidents.	mall room, lack of oxygen can	0
For drain pipe installation, be sure to make descending slope of greater th and not to make air-bleeding. Check if the drainage is correctly done during commissioning and ensure the space for		0
• Ensure the insulation on the pipes for refrigeration circuit so as not to co		0
Incomplete insulation could cause condensation and it would wet ceiling, floor, and any Do not install the outdoor unit where is likely to be a nest for insects and		-
Insects and small animals could come into the electronic components and cause break keep the surroundings clean.		\bigcirc
Pay extra attention, carrying the unit by hand. Carry the unit with 2 people if it is heavier than 20kg. Do not use the plastic straps but th by hand. Use protective gloves in order to avoid injury by the aluminum fin.	e grabbing place, moving the unit	0
 Make sure to dispose of the packaging material. Leaving the materials may cause injury as metals like nail and woods are used in the line of the packaging material. 	backage.	0
Leaving the materials may cause injury as metals like nail and woods are used in the		
 Do not operate the system without the air filter. It may cause the breakdown of the system due to clogging of the heat exchanger. 		\bigcirc
 Do not operate the system without the air filter. It may cause the breakdown of the system due to clogging of the heat exchanger. Do not touch any button with wet hands. 		$\underline{\bigcirc}$
 Do not operate the system without the air filter. It may cause the breakdown of the system due to clogging of the heat exchanger. Do not touch any button with wet hands. It could cause electric shock. 		\bigcirc
 Do not operate the system without the air filter. It may cause the breakdown of the system due to clogging of the heat exchanger. Do not touch any button with wet hands. 	ind it could cause a burn or frostbite.	\bigcirc \bigcirc \bigcirc
Do not operate the system without the air filter. It may cause the breakdown of the system due to clogging of the heat exchanger. Do not touch any button with wet hands. It could cause electric shock. Do not touch the refrigerant piping with bare hands when in operation. The pipe during operation would become very hot or cold according to the operating condition, a Do not clean up the air conditioner with water. It could cause electric shock.	nd it could cause a burn or frostbile.	\otimes
 Do not operate the system without the air filter. It may cause the breakdown of the system due to clogging of the heat exchanger. Do not touch any button with wet hands. It could cause electric shock. Do not touch the refrigerant piping with bare hands when in operation. The pipe during operation would become very hot or cold according to the operating condition; Do not clean up the air conditioner with water. 		00000

1Before installation

- Install correctly according to the installation manual
- Confirm the following points:

OUnit type/Power supply specification OPipes/Wires/Small parts OAccessory items Accessory item



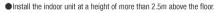
②Selection of installation location for the indoor unit

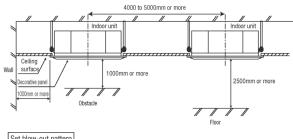
① Select the suitable areas to install the unit under approval of the user.

- · Areas where the indoor unit can deliver hot and cold wind sufficiently. Suggest to the user to use a circulator if the ceiling height is over 3m to avoid warm air being accumulated on the ceiling.
- · Areas where there is enough space to install and service.
- · Areas where it can be drained properly. Areas where drain pipe descending slope can be taken.
- · Areas where there is no obstruction of airflow on both air return grille and air supply port.
- · Areas where fire alarm will not be accidentally activated by the air conditioner.
- · Areas where the supply air does not short-circuit.
- · Areas where it is not influenced by draft air.
- · Areas not exposed to direct sunlight.
- Areas where dew point is lower than around 28°C and relative humidity is lower than 80%.
 This indoor unit is tested under the condition of JIS (Japan Industrial Standard) high humidity condition and confirmed there is no problem. However, there is some risk of condensation drop if the air conditioner is operated under the severer condition than mentioned above.
- If there is a possibility to use it under such a condition, attach additional insulation of 10 to 20mm thick for entire surface of indoor unit, refrigeration pipe and drain pipe.
- Areas where TV and radio stays away more than 1m. (It could cause jamming and noise.) · Areas where any items which will be damaged by getting wet are not placed such as food, table wares, server, or medical equipment under the unit.
- · Areas where there is no influence by the heat which cookware generates
- · Areas where not exposed to oil mist, powder and/or steam directly such as above fryer.
- · Areas where lighting device such as fluorescent light or incandescent light doesn't affect the operation. (A beam from lighting device sometimes affects the infrared receiver for the wireless remote
- controller and the air conditioner might not work properly.)
- 2 Check if the place where the air conditioner is installed can hold the weight of the unit. If it is not able to hold, reinforce the structure with boards and beams strong enough to hold it. If the strength is not enough, it could cause injury due to unit falling.
- ③If there are 2 units of wireless type, keep them away for more than 6m to avoid malfunction due to cross communication
- (4) When plural indoor units are installed nearby, keep them away for more than 4 to 5m.

Space for installation and service

When it is not possible to keep enough space between indoor unit and wall or between indoor units, close the air supply port where it is not possible to keep space and confirm there is no short circuit of airflow





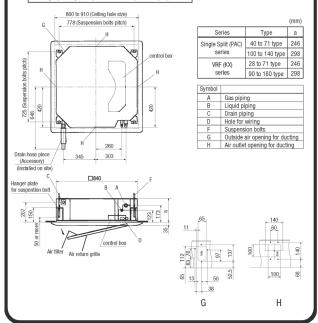
Set blow-out pattern

- Select the most proper number of blow-out air supply port direction from 4 way, 3 way or 2 way according to the shape of the room and installation position. (1 way is not available.)
- If it is necessary to change the number of air supply port, prepare the covering materials. (sold as accessory)
- Instruct the user not to use low fan speed when 2way or 3way air supply is used. Do not use 2way air supply port under high temperature and humidity environment.
- (Otherwise it could cause condensation and leakage of water.) It is possible to set the airflow direction port by port independently. Refer to the user's manual
- for details.

③Preparation before installation

- If suspension bolt becomes longer, do reinforcement of earthquake resistant OFor arid ceilina
- When suspension bolt length is over 500mm, or the gap between the ceiling and roof is over 700mm, apply earthquake resistant brace to the bolt.
- OIn case the unit is hanged directly from the slab and is installed on the ceiling plane which has enough strength.
- When suspension bolt length is over 1000mm, apply the earthquake resistant brace to the bolt. Prepare four (4) sets of suspension bolt, nut and spring washer (M10 or M8) on site.

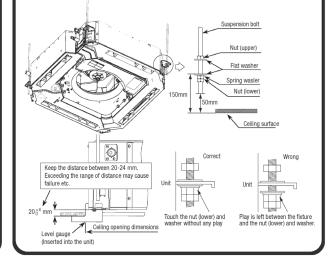
Ceiling opening, Suspension bolts pitch, Pipe position



(4)Installation of indoor unit

Work procedure

- 1. Prepare a ceiling hole with the size of from 860mm \times 860mm to 910mm \times 910mm referring to the template attached in the package
- Arrange the suspension bolt at the right position (725mm×778mm)
- Make sure to use four suspension bolts and fix them so as to be able to hold 500N load. Ensure that the lower end of the suspension bolt should be 50mm above the ceiling 3 4. plane. Temporarily put the four lower nuts 150mm above the ceiling plane and the upper nuts on distant place from the lower nuts in order not to obstruct hanging the indoor unit or adjust the indoor unit position, and then hang the indoor unit.
- Adjust the indoor unit position after hanging it by inserting the level gauge attached on the package into the air supply port and checking if the gap between the ceiling plane and the indoor unit is appropriate. In order to adjust the indoor unit position, adjust the lower nuts while the upper nuts are put on distant place. Confirm there is no backlash between the hanger plate for suspension bolt and the lower nut and washer.



(4)Installation of indoor unit (continued)

6. Make sure to install the indoor unit horizontally. Confirm the

- levelness of the indoor unit with a level gauge or transparent hose filled with water. Keep the height difference at both ends of the indoor unit within 3mm.
- 7. Tighten four upper nuts and fix the unit after height and levelness adjustment.

Caution

- Do not adjust the height by adjusting upper nuts. It will cause unexpected stress on the indoor unit and it will lead to deformation of the unit, failure of attaching a panel, and generating noise from the fan.
- Make sure to install the indoor unit horizontally and set the gap between the unit underside and the ceiling plane properly. Improper installation may cause air leakage, dew condensation, water leakage and noise.
- Even after decorative panel attached, still the unit height can be adjusted finely. Refer to the installation manual for decorative panel for details.
- Make sure there is no gap between decoration panel and ceiling surface, and between decoration panel and the indoor unit. The gap may cause air leakage, dew condensation and water leakage.
- In case decorative panel is not installed at the same time, or ceiling material is installed after the unit installed, put the cardboard template for installation attached on the package (packing material of cardboard box) on the bottom of the unit in order to avoid dust coming into the indoor unit.

5Refrigerant pipe

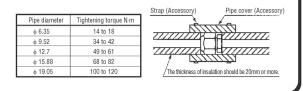
Caution

- OUse the new refrigerant pipe.
- When re-using the existing pipe system for R22 or R407C, pay attention to the following items Change the flare nuts with the attached ones (JIS category 2), and reprocess the flare parts. Do not use thin-walled pipes.
- Use phosphorus deoxidized copper alloy seamless pipe (C1220T specified in JIS H3300) for refrigeration pipe installation.
- In addition, make sure there is no damage both inside and outside of the pipe, and no harmful substances such as sulfur, oxide, dust or a contaminant stuck on the pipes. • Do not use any refrigerant other than R410A.
- Using other refrigerant except R410A (R22 etc.) may degrade inside refrigeration oil. And air getting into refrigeration circuit may cause over-pressure and resultant it may result in bursting, etc.
- Store the copper pipes indoors and seal the both end of them until they are brazed in order to avoid any dust, dirt or water getting into pipe. Otherwise it will cause degradation of refrigeration oil and compressor breakdown, etc.
- •Use special tools for R410 refrigerant.

Work procedure

- 1. Remove the flare nut and blind flanges on the pipe of the indoor unit.
 - 3 Make sure to loosen the flare nut with holding the nut on pipe side with a spanner and giving torque to the nut with another spanner in order to avoid unexpected stress to the copper pipe, and then remove them.
 - (Gas may come out at this time, but it is not abnormal.)
 - Pay attention whether the flare nut pops out. (as the indoor unit is sometimes pressured.)
- Make a flare on liquid pipe and gas pipe, and connect the refrigeration pipes on the indoor unit.
 We and the pipe with as big radius as possible and do not bend the pipe repeatedly. In addition, do not twist and crush the pipes.
 - ∞ Do a flare connection as follows:
 - Make sure to loosen the flare nut with holding the nut on pipe side with a spanner and giving torque to the nut with another spanner in order to avoid unexpected stress to the copper pipe, and then remove them.
 - When fastening the flare nut, align the refrigeration pipe with the center of flare nut, screw the nut for 3-4 times by hand and then tighten it by spanner with the specified torque mentioned in the table below. Make sure to hold the pipe on the indoor unit securely by a spanner when tightening the nut in order to avoid unexpected stress on the copper pipe.
- 3. Cover the flare connection part of the indoor unit with attached insulation material after a gas leakage inspection, and tighten both ends with attached straps.
- Make sure to insulate both gas pipes and liquid pipes completely.
 ※ Incomplete insulation may cause dew condensation or water dropping.
 4. Refrigerant is charged in the outdoor unit.

As for the additional refrigerant charge for the indoor unit and piping, refer to the installation manual attached to the outdoor unit.



6Drain pipe

Caution

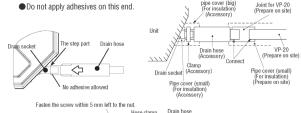
Indoor unit

hose

- Install the drain pipe according to the installation manual in order to drain properly.
- Imperfection in draining may cause flood indoors and wetting the household goods, etc. Do not put the drain pipe directly into the ditch where toxic gas such as sulfur, the other harmful and inflammable gas is generated. Toxic gas would flow into the room and it would cause serious damage to user's health and safety (some poisoning or deficiency of oxygen). In addition, it may
- cause corrosion of heat exchanger and bad smell.
 Connect the pipe securely to avoid water leakage from the joint.
- Insulate the pipe properly to avoid condensation drop.
- Check if the water can flow out properly from both the drain outlet on the indoor unit and the end
 of the drain pipe after installation.
- Make sure to make descending slope of greater than 1/100 and do not make up-down bend and/or trap in the midway. In addition, do not put air vent on the drain pipe. Check if water is drained out properly from the pipe during commissioning. Also, keep sufficient space for inspection and maintenance.

Work procedure

- Make sure to insert the drain hose (the end mode of soft PVC) to the end of the step part of drain socket.
- Attach the hose clamp to the drain hose around 10mm from the end, and fasten the screw within 5mm left to the nut.

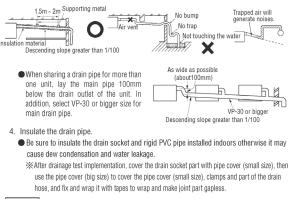


Metal plate

- Prepare a joint for connecting VP-20 pipe, adhere and connect the joint to the drain hose (the end made of rigid PVC), and adhere and connect VP-20 pipe (prepare on site).
 ※As for drain pipe, apply VP-20 made of rigid PVC which is on the market.
 - Make sure that the adhesive will not get into the supplied drain hose It may cause the flexible part broken after the adhesive is dried up and gets rigid.
 - The flexible drain hose is intended to absorb a small difference at installation of the unit or drain pipes. Intentional bending, expanding may cause the flexible hose broken and water leakage.

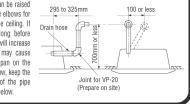


- Make sure to make descending slope of greater than 1/100 and do not make up-down bend and/or trap in the midway.
- Pay attention not to give stress on the pipe on the indoor unit side, and support and fix the pipe as close place to the unit as possible when connecting the drain pipe.
 Do nt set up air vent.
- •Do ni set up air vent.



Drain up

The position for drain pipe outlet can be raised up to 700mm above the ceiling. Use elbows for installation to avoid obstacles inside ceiling. If the horizontal drain pipe is too long before vertical pipe, the backflow of water will increase when the unit is stopped, and it may cause overflow of water from the drain pan on the indoor unit. In order to avoid overflow, keep the horizontal pipe length and offset of the pipe within the limit shown in the figure below.



6 Drain pipe (continued)

Drain test

- After installation of drain pipe, make sure that drain system work in good condition and no water leakage from joint and drain pan. Check if the motor sound of drain pump is normal or not
- Do drain test even if installation of heating season. For new building cases, make sure to complete the test
- before hanging the ceiling. Pour water of about 1000cc into the drain pan in the Checking window for drainin indoor unit by pump so as not to get the electrical
- component wet. 2. Make sure that water is drained out properly and there is no water leakage from any joints of the drain pipe at the test. Confirm that the water is properly drained out while the
 - drain motor is operating. At the drain socket (transparent), it is possible to check if the water is Drain plug
- Unplug the drain plug on the indoor unit to remove remain ing water on the drain pan after the test, and re-plug it. And insulate the drain pipe properly finally.

Drain pump operation

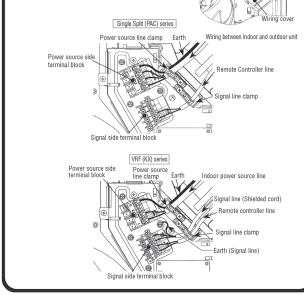
drained out properly.

OIn case electrical wiring work finished

- Drain pump can be operated by remote controller (wired).
- For the operation method, refer to Operation for drain pump in the installation manual for wiring work.
- OIn case electrical wiring work not finished
- Drain pump will run continuously when the dip switch "SW7-1" on the indoor unit PCB is turned ON, the Connector CNB is disconnected, and then the power supply (230VAC on the terminal block 1 and 2) is turned ON. Make sure to turn OFF "SW7-1" and reconnect the Connector CNB after the test.

Wiring-out position and wiring connection

- Electrical installation work must be performed according to the installation manual by an electrical installation service provider qualified by a power provider of the country, and be executed according to the technical standards and other regulations applicable to electrical installation in the country.
- Be sure to use an exclusive circuit.
- Use specified cord, fasten the wiring to the terminal securely, and hold the cord securely in order not to apply unexpected stress on the terminal. Do not put both power source line and signal line on the same route. It may cause miscom-
- munication and malfunction.
- Be sure to do D type earth work
- For the details of electrical wiring work, see attached instruction manual for electrical wiring work.
- 1. Remove a lid of the control box (3 screws) and the wiring cover (2 screws).
- 2. Hold each wiring inside the unit and fasten
- them to terminal block securely.
- 3. Fix the wiring with clamps.
- 4. Install the removed parts back to original place



®Panel installation

- Attach the panel on the indoor unit after electrical wiring work.
- Refer to attached manual for panel installation for details. (See next page)

9Check list after installation

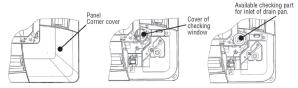
Check the following items after all installation work completed

Check if;	Expected trouble	Check
The indoor and outdoor units are fixed securely?	Falling, vibration, noise	
Inspection for leakage is done?	Insufficient capacity	
Insulation work is properly done?	Water leakage	
Water is drained properly?	Water leakage	
Supply voltage is same as mentioned in the model name plate?	PCB burnt out, not working at all	
There is mis-wiring or mis-connection of piping?	PCB burnt out, not working at all	
Earth wiring is connected properly?	Electric shock	
Cable size comply with specified size?	PCB burnt out, not working at all	
Any obstacle blocks airflow on air inlet and outlet?	Insufficient capacity	

(1)How to check the dirt of drain pan (Maintenance)

The method of checking the dirt of drain pan

- It is possible to check the dirt for inlet of drain pan without detaching the panel.
- (Inspection is not possible when the high efficient filter and option spacer is installed.)
- Open the air return grille and remove the panel corner cover on drain pan side.
- Remove the cover of inspection window. (1screw)
- З Check the drain pan from the inspection window.
 - If the drain pan is very dirty, remove the drain pan and clean it.
- After checking of the dirty of drain pan, restore the cover of the inspection window securely. Improper restoration of the cover may cause dew condensation and water leakage



Attention for removing drain pan

The fixing components have been attached the with drain pan. Pay attention to these components during installation and removing. Take off the hanging hook after removing four screws. During the installation of drain pan, fix the drain pan firmly by using four screws after hanging it up with the fixing hook

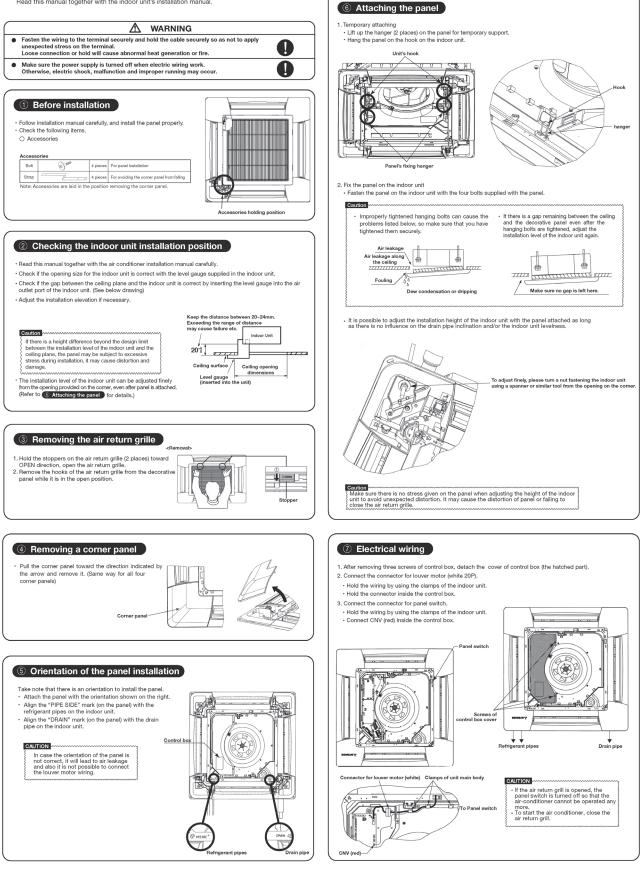


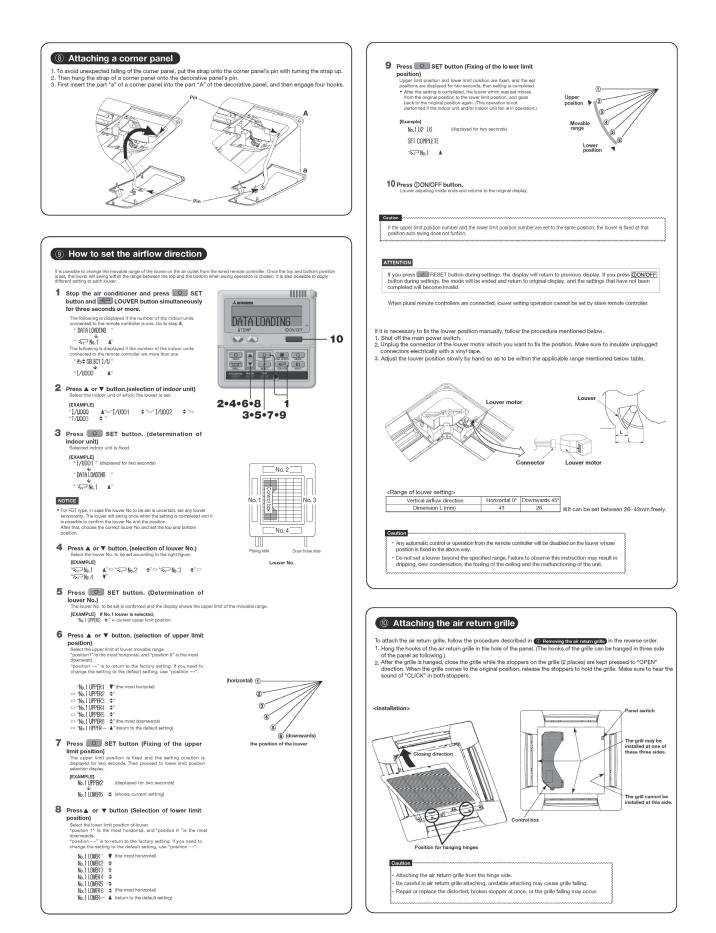
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PANEL INSTALLATION MANUAL

Read this manual together with the indoor unit's installation manual.





PFA012D621

(3) Ceiling suspended type (FDEN)

This manual is for the installation of an indoor unit. For electrical wiring work (Indoor), refer to the electrical wiring work installation manual. For remote controller installation, refer to the installation manual attached to a remote controller. For wireless kit installation, refer to the installation manual attached to a wireless kit. For electrical wiring work (Outdoor) and refrigerant pipe work installation for outdoor unit, refer to the installation manual attached to an outdoor unit.

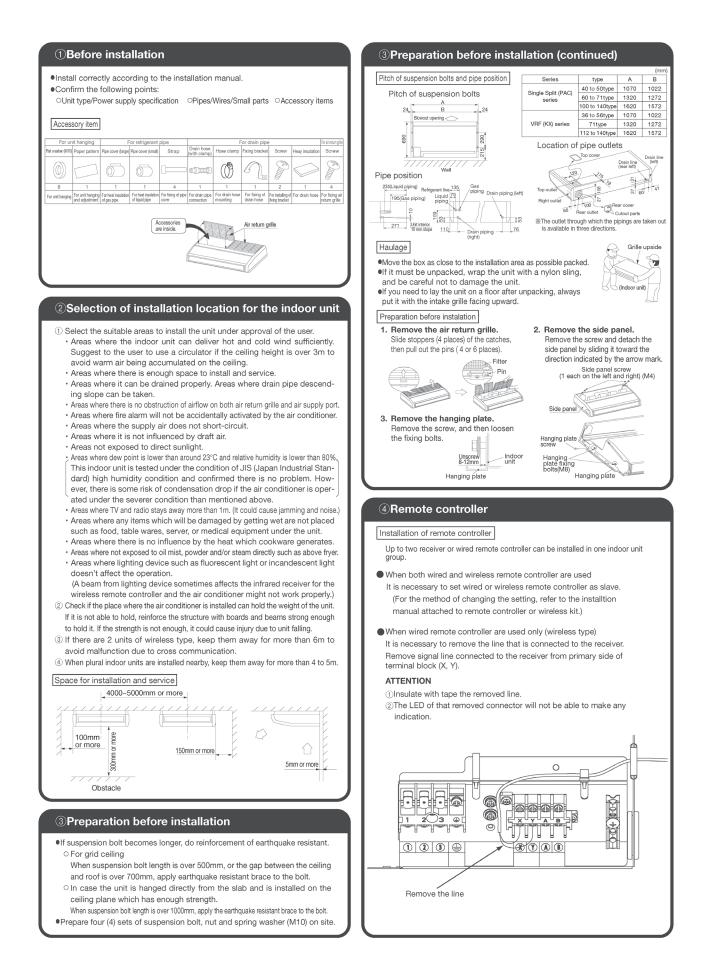
SAFETY PRECAUTIONS

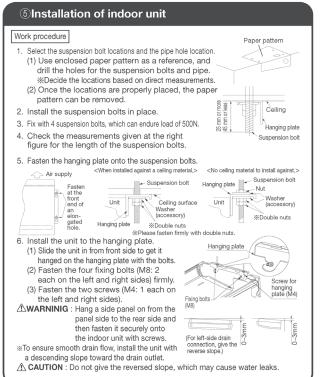
- Read the "SAFETY PRECAUTIONS" carefully first of all and then strictly follow it during the installation work
- in order to protect yourself. The precautionary items mentioned below are distinguished into two levels, <u>AWARNING</u> and <u>ACAUTION</u>. AWARNING: Wrong installation would cause serious consequences such as injuries or death.
- Both mentions the important items to protect your health and safety so strictly follow them by any means. The meanings of "Marks" used here are as shown as follows:
- After completing the installation, do commissioning to confirm there are no abnormalities, and explain to the customers about "SAFETY PRECAUTIONS", correct operation method and maintenance method (air filter cleaning, operation method and temperature setting method) with user's manual of this unit. Ask your customers to keep this installation manual together with the user's manual. Also, ask them to hand over the user's manual to the new user when the owner is changed.

MARNING

Installation should be performed by the specialist.	0
If you install the unit by yourself, it may lead to serious trouble such as water leakage, electric shock, fire, and injury due to overturn of the unit.	_
Install the system correctly according to these installation manuals.	-
Improper installation may cause explosion, injury, water leakage, electric shock, and fire.	U
When installing in small rooms, take prevention measures not to exceed the density limit of refrigerant in the	
event of leakage, referred by the formula (accordance with ISO5149).	
If the density of refrigerant exceeds the limit, please consult the dealer and install the ventilation system, otherwise lack of	U
oxygen can occur, which can cause serious accidents.	
Ouse the genuine accessories and the specified parts for installation.	-
If parts unspecified by our company are used it could cause water leakage, electric shock, fire, and injury due to overturn of the unit.	U
•Ventilate the working area well in case the refrigerant leaks during installation.	
If the refrigerant contacts the fire, toxic gas is produced.	0
Install the unit in a location that can hold heavy weight.	-
Improper installation may cause the unit to fall leading to accidents.	0
	-
Install the unit properly in order to be able to withstand strong winds such as typhoons, and earthquakes. Improper installation may cause the unit to fall leading to accidents.	0
Do not mix air in to the cooling cycle on installation or removal of the air conditioner.	5
If air is mixed in, the pressure in the cooling cycle will rise abnormally and may cause explosion and injuries.	S
Be sure to have the electrical wiring work done by qualified electrical installer, and use exclusive circuit.	-
Power source with insufficient capacity and improper work can cause electric shock and fire.	J
Ouse specified wire for electrical wiring, fasten the wiring to the terminal securely, and hold the cable securely in	-
order not to apply unexpected stress on the terminal.	
Loose connections or hold could result in abnormal heat generation or fire.	-
Arrange the electrical wires in the control box properly to prevent them from rising. Fit the lid of the services panel property.	A
Improper fitting may cause abnormal heat and fire.	U
Check for refrigerant gas leakage after installation is completed.	
If the refrigerant gas leaks into the house and comes in contact with a fan heater, a stove, or an oven, toxic gas is produced.	Ð
OUse the specified pipe, flare nut, and tools for R410A.	
Using existing parts (R22) could cause the unit failure and serious accident due to explosion of the cooling cycle.	Ð
• Tighten the flare nut according to the specified method by with torgue wrench.	
If the flare nut were tightened with excess torque, it could cause burst and refrigerant leakage after a long period.	Ð
Do not put the drainage pipe directly into drainage channels where poisonous gases such as sulfide gas can occur.	-
Poisonous gases will flow into the room through drainage pipe and seriously affect the user's health and safety. This can also	5
cause the corrosion of the indoor unit and a resultant unit failure or refrigerant leak.	S
Connect the pipes for refrigeration circuit securely in installation work before compressor is operated.	
If the compressor is operated when the service valve is open without connecting the pipe, it could cause explosion and injuries due	0
to abnormal high pressure in the system.	U
Stop the compressor before removing the pipe after shutting the service valve on pump down work.	-
If the pipe is removed when the compressor is in operation with the service valve open, air would be mixed in the refrigeration circuit	
and it could cause explosion and injuries due to abnormal high pressure in the cooling cycle.	-
Only use prescribed optional parts. The installation must be carried out by the qualified installer.	
If you install the system by yourself, it can cause serious trouble such as water leaks, electric shocks, fire.	U
OD not repair by yourself. And consult with the dealer about repair.	\sim
Improper repair may cause water leakage, electric shock or fire.	\bigcirc
Consult the dealer or a specialist about removal of the air conditioner.	-
Improper installation may cause water leakage, electric shock or fire.	Ð
	-
• Turn off the power source during servicing or inspection work.	0
If the power is supplied during servicing or inspection work, it could cause electric shock and injury by the operating fan.	-
• Do not run the unit when the panel or protection guard are taken off.	\sim
Touching the rotating equipment, hot surface, or high voltage section could cause an injury to be caught in the machine, to get burned, or electric shock.	\odot
	-
Shut off the power before electrical wiring work. It could cause electric shock, unit failure and improper running.	(H)

	▲ CAUTION	
•	Perform earth wiring surely.	
	Do not connect the earth wiring to the gas pipe, water pipe, lightning rod and telephone earth wiring. Improper earth could cause unit failure and electric shock due to a short circuit.	A
Earth leakage breaker must be installed. If the earth leakage breaker is not installed, it can cause electric shocks.		
•	Use the circuit breaker of correct capacity. Circuit breaker should be the one that disconnect all poles under over current.	0
•	Using the incorrect one could cause the system failure and fire. Do not use any materials other than a fuse of correct capacity where a fuse should be used.	$\overline{\bigcirc}$
	Connecting the circuit by wire or copper wire could cause unit failure and fire. Do not install the indoor unit near the location where there is possibility of flammable gas leakages.	$\underline{\otimes}$
Ĭ	If the gas leaks and gathers around the unit, it could cause fire.	\bigcirc
•	Do not install and use the unit where corrosive gas (such as sulfurous acid gas etc.) or flammable gas (such as thinner, petroleum etc.) may be generated or accumulated, or volatile flammable substances are handled. It could cause the corrosion of heat exchange, breakage of plastic parts etc. And inflammable gas could cause fire.	\bigcirc
•	Secure a space for installation, inspection and maintenance specified in the manual. Insufficient space can result in accident such as personal injury due to falling from the installation place.	0
•	Do not use the indoor unit at the place where water splashes such as laundry.	$\overline{\frown}$
	Indoor unit is not waterproof. It could cause electric shock and fire. Do not use the indoor unit for a special purpose such as food storage, cooling for precision	\bigcirc
	instrument, preservation of animals, plants, and a work of art.	\bigcirc
•	Do not install nor use the system near equipments which generate electromagnetic wave or high harmonics.	~
	Equipments like inverter equipment, private power generator, high-frequency medical equipment, or telecommunication equipment might influence the air conditioner and cause a matfunction and breakdown. Or their air conditioner might influence medical equipments or telecommunication equipments, and obstruct their medical activity or cause jamming.	\bigcirc
•	Do not install the remote controller at the direct sunlight. It could cause breakdown or deformation of the remote controller.	\bigcirc
	Do not install the indoor unit at the place listed below.	
	 Places where flammable gas could leak. Places where carbon fiber, metal powder or any powder is floated. Places where cosmetics or special sprays are frequently used. 	\bigcirc
	Place where the substances which affect the air conditioner are generated such as sulfide gas, chloride gas, acid, alkali or ammonic atmospheres. Highly salted area such as beach. Heavy snow area	0
	Places exposed to oil mist or steam directly. Places where the system is affected by	
	On vehicles and ships Places where machinery which generates high harmonics is used. Altitude over 1000m	
•	Do not install the indoor unit in the locations listed below (Be sure to install the indoor unit	
	according to the installation manual for each model because each indoor unit has each limitation)	
	 Locations with any obstacles which can prevent inlet and outlet air of the unit Locations where vibration can be amplified due to insufficient strength of structure. 	\sim
	Locations where the infrared receiver is exposed to the direct sunlight or the strong light beam. (in case of the	\bigcirc
	infrared specification unit) Locations where an equipment affected by high harmonics is placed. (TV set or radio receiver is placed within 5m) 	-
	Locations where drainage cannot run off safely.	
	It can affect performance or function and etc	_
•	Do not put any valuables which will break down by getting wet under the air conditioner. Condensation could drop when the relative humidity is higher than 80% or drain pipe is clogged, and it damages user's belongings.	()
•	Do not use the base frame for the outdoor unit which is corroded or damaged after a long period of use.	$\tilde{\frown}$
	It could cause the unit falling down and injury.	$\underline{\bigcirc}$
•	Pay attention not to damage the drain pan by weld sputter when brazing work is done near the unit.	•
	If sputter entered into the unit during brazing work, it could cause damage (pinhole) of drain pan and leakage of water. To avoid damaging, keep the indoor unit packed or cover the indoor unit.	U
•	Install the drain pipe to drain the water surely according to the installation manual.	•
_	Improper connection of the drain pipe may cause dropping water into room and damaging user's belongings.	U
•	Do not share the drain pipe for indoor unit and GHP (Gas Heat Pump system) outdoor unit. Toxic exhaust gas would flow into room and it might cause serious damage (some poisoning or deficiency of oxygen) to	\sim
	user's health and safety.	\odot
	Be sure to perform air tightness test by pressurizing with nitrogen gas after completed refrigerant piping work.	
	If the density of refrigerant exceeds the limit in the event of refrigerant leakage in the small room, lack of oxygen can occur, which can cause serious accidents.	U
	For drain pipe installation, be sure to make descending slope of greater than 1/100, not to make traps,	
	and not to make air-bleeding.	Ð
	Check if the drainage is correctly done during commissioning and ensure the space for inspection and maintenance. Ensure the insulation on the pipes for refrigeration circuit so as not to condense water.	
•	Incomplete insulation could cause condensation and it would wet ceiling, floor, and any other valuables.	Ð
•	Do not install the outdoor unit where is likely to be a nest for insects and small animals.	
	Insects and small animals could come into the electronic components and cause breakdown and fire. Instruct the user to keep the surroundings clean.	\bigcirc
•	Pay extra attention, carrying the unit by hand.	
	Carry the unit with 2 people if it is heavier than 20kg. Do not use the plastic straps but the grabbing place, moving the unit by hand. Use protective gloves in order to avoid injury by the aluminum fin.	Ð
•	Make sure to dispose of the packaging material.	
•	Leaving the materials may cause injury as metals like nail and woods are used in the package. Do not operate the system without the air filter.	
	It may cause the breakdown of the system due to clogging of the heat exchanger.	$\underline{\bigcirc}$
•	Do not touch any button with wet hands.	$\overline{\bigcirc}$
•	It could cause electric shock. Do not touch the refrigerant piping with bare hands when in operation.	Ř
	The pipe during operation would become very hot or cold according to the operating condition, and it could cause a burn or frostbite.	\heartsuit
Ő	Do not clean up the air conditioner with water.	\bigcirc
	It could cause electric shock.	∇
•	It could cause electric shock. Do not turn off the power source immediately after stopping the operation.	8
		$\underline{\bigotimes}$





6 Refrigerant pipe

Caution

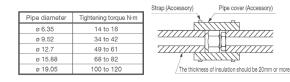
- Use the new refrigerant pipe.
- When re-using the existing pipe system for R22 or R407C, pay attention to the following items Change the flare nuts with the attached ones (JIS category 2), and reprocess the flare parts. Do not use thin-walled pipes.
- Use phosphorus deoxidized copper alloy seamless pipe (C1220T specified in JIS H3300) for refrigeration pipe installation In addition, make sure there is no damage both inside and outside of the pipe, and no harmful substances such as sulfur, oxide, dust or a contaminant stuck on the pipes.
- •Do not use any refrigerant other than R410A. Using other refrigerant except R410A (R22 etc.) may degrade inside refrigeration oil. And air getting
- into refrigeration circuit may cause over-pressure and resultant it may result in bursting, etc. Store the copper pipes indoors and seal the both end of them until they are brazed in order to avoid any dust, dirt or water getting into pipe. Otherwise it will cause degradation of refrigeration oil and compressor breakdown, etc. •Use special tools for R410 refrigerant.

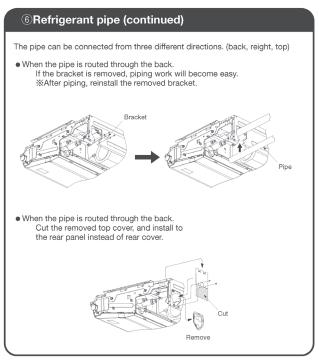
Work procedure

- Remove the flare nut and blind flanges on the pipe of the indoor unit.
- Whate sure to loosen the flare nut with holing the nut on pipe side with a spanner and giving torque to the nut with another spanner in order to avoid unexpected stress to the copper pipe, and then remove them. (Gas may come out at this time, but it is not abnormal.) • Pay attention whether the flare nut pops out. (as the indoor unit is sometimes pressured.)
- Make a flare on liquid pipe and gas pipe, and connect the refrigeration pipes on the indoor unit. — ※Bend the pipe with as big radius as possible and do not bend the pipe repeatedly.
 In addition, do not twist and crush the pipes. %Do a flare connection as follows:

 - Make sure to loosen the flare nut with holding the nut on pipe side with a spanner and giving torque to the nut with another spanner in order to avoid unexpected stress to the copper pipe, and then remove them. •When fastening the flare nut, align the refrigeration pipe with the center of flare nut, screw
- the nut for 3-4 times by hand and then tighten it by spanner with the specified torque mentioned in the table below. Make sure to hold the pipe on the indoor unit securely by a spanner when tightening the nut in order to avoid unexpected stress on the copper pipe. 3. Cover the flare connection part of the indoor unit with attached insulation material
- after a gas leakage inspection, and tighten both ends with attached straps. •Make sure to insulate both gas pipes and liquid pipes completely.
- %Incomplete insulation may cause dew condensation or water dropping 4. Refrigerant is charged in the outdoor unit.

As for the additional refrigerant charge for the indoor unit and piping, refer to the installation manual attached to the outdoor unit





ODrain pipe

The drain pipes may face out towards the back to the left, or to the right side Caution

- Install the drain pipe according to the installation manual in order to drain properly. Imperfection in draining may cause flood indoors and wetting the household goods, etc. •
- Do not put the drain pipe directly into the ditch where toxic gas such as sulfur, the other harmful and inflammable gas is generated. Toxic gas would flow into the room and it would cause serious damage to user's health and safety (some poisoning or deficiency of oxygen). In addition, it may cause corrosion of heat exchanger and bad smell.

- Connect the pipe securely to avoid water leakage from the joint.
 Insulate the pipe properly to avoid condensation drop.
 Check if the water can flow out properly from both the drain outlet on the indoor unit and the end of the drain pipe after installation.
 Make sure to make descending slope of greater than 1/100 and do not make up-down bend and/or trap in the midway. In addition, do not put air vent on the drain pipe. Check if water is drained out properly from the drain charaction and maintenance. from the pipe during commissioning. Also, keep sufficient space for inspection and maintenance.

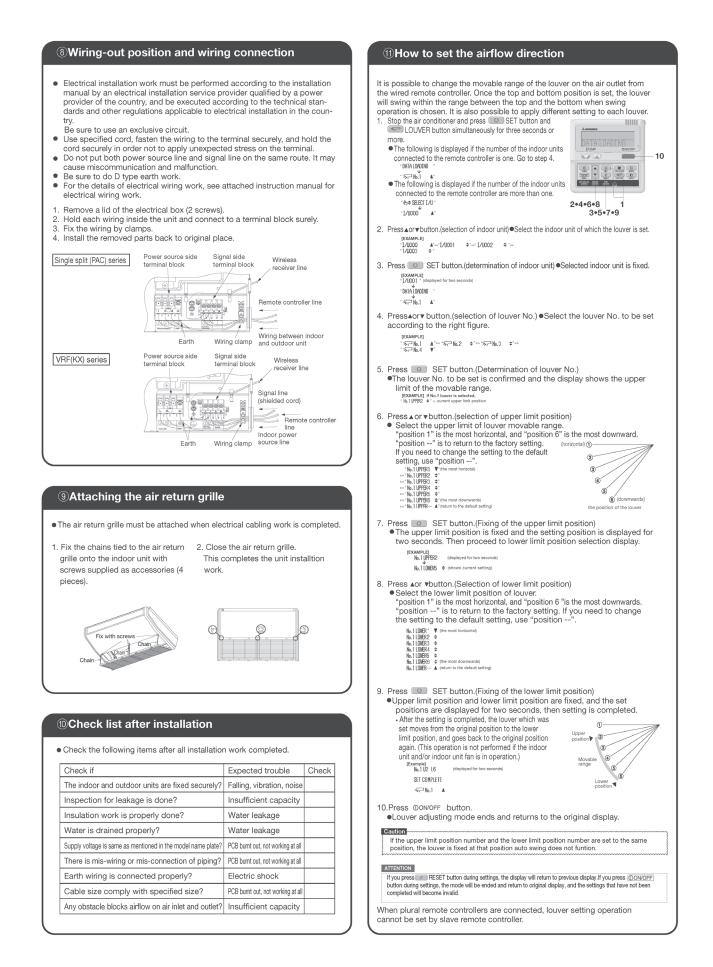
Work procedure

- 1. Insert drain hose completely to the base, and tighten the drain hose clamp securely. (adhesive must not be used.) % When plumbing on the left side, move the rubber plug and the cylindrical insulating materials by the pipe connecting hole on the left side of the unit to the right side. \triangle Beware of a possible outflow of water that may occur upon removal of a drain plug.
- 2. Fix the drain hose at the lowest point with a hose clamp supplied as an accessory. % Give a drain hose a gradient of 10mm as illustrated in the right drawing by laying it without leaving a slack.
 - Take head of electrical cables so that they may not run beneath the drain hose.
- A drain hose must be clamped down with a hose clamp
- There is a possibility that drain water overflows. Connect VP-20(prepare on site) to drain hose. (adhesive must not be used.) 3
- X Use commercially available rigid PVC general pipe VP-20 for drain pipe. Do not to make the up-down bending and trap in the mid-way while assum-
- ing that the drain pipes is downhill. (more than 1/100) Never set up air vent.

 Insulate the drain pipe.
 Insulate the drain hose clamp with the heat insulation supplied as accessories. When the unit is installed in a humid place, consider precautions against dew condensation such as heat insulation for the drain pipe.

Drain test

- After installation of drain pipe, make sure that drain system work in good
- condition and no water leakage from joint and drain pan. Do drain test even if installation of heating season.



PJR012D319 🛕

(4) Duct connected-Low / Middle static pressure type (FDUM)

This manual is for the installation of an indoor unit.

For electrical wiring work (Indoor), refer to the electrical wiring work installation manual. For remote controller installation, refer to the installation manual attached to a remote controller. For wireless kit installation, refer to the installation manual attached to a wireless kit. For electrical wiring work (Outdoor) and refrigerant pipe work installation for outdoor unit, refer to the installation manual attached to an outdoor unit.

SAFETY PRECAUTIONS

- Read the "SAFETY PRECAUTIONS" carefully first of all and then strictly follow it during the installation work in order to protect yourself. • The precautionary items mentioned below are distinguished into two levels, <u>(AWARNING</u> and <u>(ACAUTION</u>). AWARNING: Wrong installation would cause serious consequences such as injuries or death. ACAUTION : Wrong installation might cause serious consequences depending on circumstances.
- Both mentions the important items to protect your health and safety so strictly follow them by any means.
- The meanings of "Marks" used here are as shown on the right:

 Newer do it under any circumstances.
 Alter completing the installation, do commissioning to confirm there are no abnormalities, and explain to the customers about "SAFETY PRECAUTIONS", correct operation method and maintenance method (air filter

 cleaning, operation method and temperature setting method) with user's manual of this unit. Ask your customers to keep this installation manual together with the user's manual. Also, ask them to hand over the user's manual to the new user when the owner is changed.

Installation should be performed by the specialist. If you install the unit by yourself, it may lead to serious trouble such as water leakage, electric shock, fire, and injury due to overturn	
if you instail the unit, by yoursell, it may lead to serious buddle such as water leakage, electric shock, the, and hijury due to overtunn of the unit.	
Install the system correctly according to these installation manuals. Improper installation may cause explosion, injury, water leakage, electric shock, and fire.	0
•Check the density refered by the fournula (accordance with IS05149).	-
If the density exceeds the limit density, please consult the dealer and installate the ventilation system.	Ð
Use the genuine accessories and the specified parts for installation.	0
If parts unspecified by our company are used it could cause water leakage, electric shock, fire, and injury due to overturn of the unit.	•
Ventilate the working area well in case the refrigerant leaks during installation. If the refrigerant contacts the fire, toxic gas is produced.	Ð
Install the unit in a location that can hold heavy weight.	
Improper installation may cause the unit to fall leading to accidents.	Ð
Install the unit properly in order to be able to withstand strong winds such as typhoons, and earthquakes.	
Improper installation may cause the unit to fall leading to accidents.	U
Do not mix air in to the cooling cycle on installation or removal of the air conditioner.	
If air is mixed in, the pressure in the cooling cycle will rise abnormally and may cause explosion and injuries.	\odot
Be sure to have the electrical wiring work done by qualified electrical installer, and use exclusive circuit.	
Power source with insufficient capacity and improper work can cause electric shock and fire.	
Use specified wire for electrical wiring, fasten the wiring to the terminal securely, and hold the cable securely in order not to apply unexpected stress on the terminal.	0
Loose connections or hold could result in abnormal heat generation or fire.	
Arrange the electrical wires in the control box properly to prevent them from rising. Fit the lid of the services panel property.	A
Improper fitting may cause abnormal heat and fire.	U
Check for refrigerant gas leakage after installation is completed.	_
If the refrigerant gas leaks into the house and comes in contact with a fan heater, a stove, or an oven, toxic gas is produced.	Ð
Use the specified pipe, flare nut, and tools for R410A.	
Using existing parts (R22) could cause the unit failure and serious accident due to explosion of the cooling cycle.	Ð
Tighten the flare nut according to the specified method by with torque wrench. If the flare nut were tightened with excess torque, it could cause burst and refrigerant leakage after a long period.	0
	-
Do not put the drainage pipe directly into drainage channels where poisonous gases such as sulfide gas can occur.	\bigcirc
Poisonous gases will flow into the room through drainage pipe and seriously affect the user's health and safety. This can also cause the corrosion of the indoor unit and a resultant unit failure or refrigerant leak.	0
Connect the pipes for refrigeration circuit securely in installation work before compressor is operated.	
If the compressor is operated when the service valve is open without connecting the pipe, it could cause explosion and injuries due to abnormal high pressure in the system.	Ð
Stop the compressor before removing the pipe after shutting the service valve on pump down work.	
If the pipe is removed when the compressor is in operation with the service valve open, air would be mixed in the refrigeration circuit and it could cause explosion and injuries due to abnormal high pressure in the cooling cycle.	O
Only use prescribed optional parts. The installation must be carried out by the qualified installer.	
f you install the system by yourself, it can cause serious trouble such as water leaks, electric shocks, fire.	Ø
n you malan me ayatem by youraen, it can cause senous mound such as water reaks, electric shocks, ine.	-
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$\left(\right)$	▲ CAUTION	
•	Perform earth wiring surely. Do not commest the earth wiring to the gas pipe, water pipe, lightning rod and telephone earth wiring. Improper earth could	•
•	cause unit failure and electric shock due to a short circuit. Earth leakage breaker must be installed. If the earth leake preaker is not installed, it cause electric shocks.	0
•	Use the circuit breaker of correct capacity. Circuit breaker should be the one that disconnect all poles under over current.	0
	Using the incorrect one could cause the system failure and fire. Do not use any materials other than a fuse of correct capacity where a fuse should be used. Connecting the circuit by wire or oper wire could cause unit failure and fire.	$\overline{\bigcirc}$
•	Contending the check of while of copper whe could cause thin rainer and the: Do not install the indoor unit near the location where there is possibility of flammable gas leakages. If the cas leaks and adhers around the unit, it could cause fire.	$\overline{\Diamond}$
	Do not install and use the unit where corrosive gas (such as sulfurous acid gas etc.) or flammable gas (such as thinner, petroleum etc.) may be generated or accumulated, or volatile flammable substances are handled. It could cause the corrosion of heat exchanger, breakage of plastic parts etc. And inflammable gas could cause fire.	
•	Secure a space for installation, inspection and maintenance specified in the manual. Insufficient space can result in accident such as personal injury due to talling from the installation place.	0
•	Insumcement space can result in account source as personal might vide to raining from the installation place. Do not use the indoor unit at the place where water splashes such as laundry. Indoor unit is not waterproof. It could cause electric shock and fire.	$\overline{\Diamond}$
•	Do not use the indoor unit for a special purpose such as food storage, cooling for precision instrument, preservation of animals, plants, and a work of art.	$\overline{\bigcirc}$
	It could cause the damage of the items.	\square
	Do not install nor use the system near equipments which generate electromagnetic wave or high harmonics. Equipments like inverter equipment, private power generator, high-frequency medical equipment, or telecommunication equipment might influence the air conditioner and cause a malfunction and breakdown. Or the air conditioner might influence medical equipments or telecommunication equipments, and obstruct their medical activity or cause jamming.	\bigcirc
	Do not install the remote controller at the direct sunlight. It could cause breakdown or deformation of the remote controller.	\bigcirc
•	Do not install the indoor unit at the place listed below. Places where flammable gas could leak. Places where carbon fiber, metal powder or any powder is floated. Places where carbon fiber, metal powder or any powder is floated. Places where carbon fiber, metal powder or any powder is floated. Places where carbon fiber, metal powder or any powder is floated. Places where carbon fiber, metal powder or any powder is floated. Places where carbon fiber, metal powder or any powder is floated. Places where carbon fiber, metal powder or any powder is floated. Places where carbon fiber, metal powder or any powder is floated. Places where carbon fiber, metal powder or any powder is floated. Places where carbon fiber, metal powder or any powder is floated. Places where carbon fiber, metal powder or any powder is floated. Places where carbon fiber, metal powder or any powder is floated. Places where carbon fiber, metal powder or any powder is floated. Places where carbon fiber, metal powder or any powder is floated. Places where carbon fiber, metal powder or any powder is floated. Places where carbon fiber, metal powder or any powder is floated. Places where carbon fiber, metal powder or any powder is floated. Places where carbon fiber, metal powder or any powder is floated. Places where carbon fiber, metal powder or any powder is floated. Places where carbon fiber, metal powder or any powder is floated. Places where carbon fiber, metal powder or any powder is floated. Places where carbon fiber, metal powder or any powder is floated. Places where carbon fiber, metal powder or any powder is floated.<	\odot
	Places exposed to oil mist or steam directly. On vehicles and ships Places where the system is affected by smoke from a chimney. Places where machinery which generates high harmonics is used. Altitude over 1000m	
	Do not install the indoor unit in the locations listed below (Be sure to install the indoor unit according to the installation manual for each model because each indoor unit has each limitation) - Locations where vibration can be amplified due to insufficient strength of structure. - Locations where vibration can be amplified due to insufficient strength of structure. - Locations where the infrared receiver is exposed to the direct sunlight or the strong light beam. (in case of the infrared specification unit) - Locations where an equipment affected by high harmonics is placed. (TV set or radio receiver is placed within 5m) - Locations where drainage cannot run off safely.	\bigcirc
•	It can affect performance or function and etc Do not put any valuables which will break down by getting wet under the air conditioner.	$\overline{\bigcirc}$
•	Condensation could drop when the relative humidity is higher than 80% or drain pipe is clogged, and it damages user's belongings. Do not use the base frame for the outdoor unit which is corroded or damaged after a long period of use. It could cause the unit falling down and injury.	$\overline{\Diamond}$
	Pay attention not to damage the drain pan by weld sputter when brazing work is done near the unit. If sputter entered into the unit during brazing work, it could cause damage (pinhole) of drain pan and leakage of water. To avoid damaging, keep the indoor unit packed or cover the indoor unit.	Ū
	Install the drain pipe to drain the water surely according to the installation manual.	0
•	Improper connection of the drain pipe may cause dropping water into room and damaging user's belongings. Do not share the drain pipe for indoor unit and GHP (Gas Heat Pump system) outdoor unit. Toxic exhaust gas would flow into room and it might cause serious damage (some poisoning or deficiency of oxygen) to user's heath and safety.	
	Be sure to perform air tightness test by pressurizing with nitrogen gas after completed refrigerant piping work. If the density of refrigerant exceeds the limit in the event of refrigerant leakage in the small room, lack of oxygen can occur, which can cause serious accidents.	0
	For drain pipe installation, be sure to make descending slope of greater than 1/100, not to make traps, and not to make air-bleeding. Check if the drainage is correctly done during commissioning and ensure the space for inspection and maintenance.	0
	Ensure the insulation on the pipes for refrigeration circuit so as not to condense water. Incomplete insulation could cause condensation and it would wet ceiling, floor, and any other valuables.	0
•	Do not install the outdoor unit where is likely to be a nest for insects and small animals. Insects and small animals could come into the electronic components and cause breakdown and fire. Instruct the user to keep the surroundings clean.	\bigcirc
	Pay extra attention, carrying the unit by hand. Carry the unit with 2 people if it is heavier than 20kg. Do not use the plastic straps but the grabbing place, moving the unit by hand. Use protective gloves in order to avoid injury by the aluminum fin.	0
•	Make sure to dispose of the packaging material. Leaving the materials may cause injury as metals like nail and woods are used in the package.	0
•	Do not operate the system without the air filter. It may cause the breakdown of the system due to clogging of the heat exchanger.	\bigcirc
•	Do not touch any button with wet hands. It could cause electric shock.	\bigcirc
	Do not touch the refrigerant piping with bare hands when in operation. The pipe during operation would become very hot or cold according to the operating condition, and it could cause a burn or frostbite.	\bigcirc
	Do not clean up the air conditioner with water. It could cause electric shock.	\bigcirc
•	Do not turn off the power source immediately after stopping the operation. Be sure to wait for more than 5 minutes. Otherwise it could cause water leakage or breakdown.	\bigcirc
	Do not control the operation with the circuit breaker. It could cause fire or water leakage. In addition, the fan may start operation unexpectedly and it may cause injury.	\bigcirc

③Preparation before installation (continued)

480 46

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. 460

510 480

465

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405

155

Vinvl hose

460

Drain pipe connection VP20(PVC pipe)

Drain pipe

10

connection VP20(PVC pipe)

Hole for electrical wiring

(For natural drainage) drain pipe connection VP 20 (PVC pipe)

If the measurements between

the unit and the ceiling hole do

not match upon installation, it

may be adjusted with the long

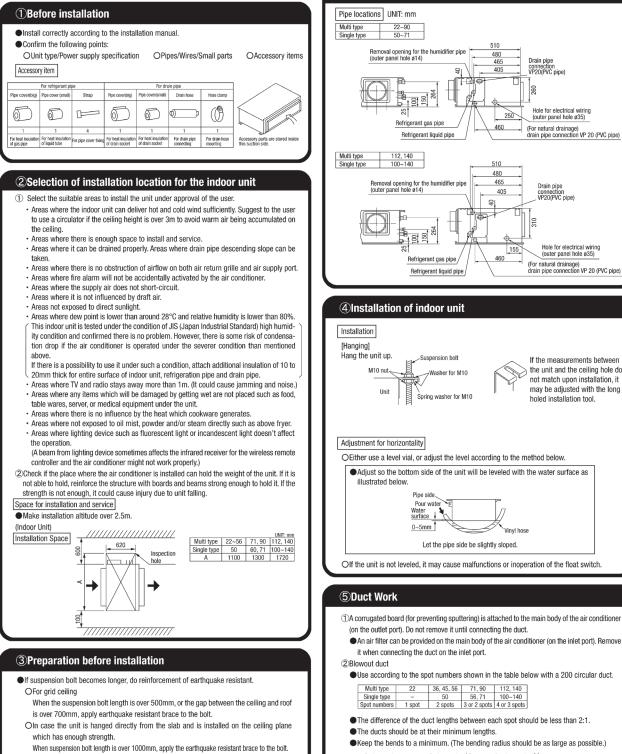
holed installation tool.

(outer panel hole ø35)

Hole for electrical wiring (outer panel hole ø35)

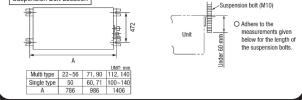
(For natural drainage) drain pipe connection VP_20 (PVC pipe)

09



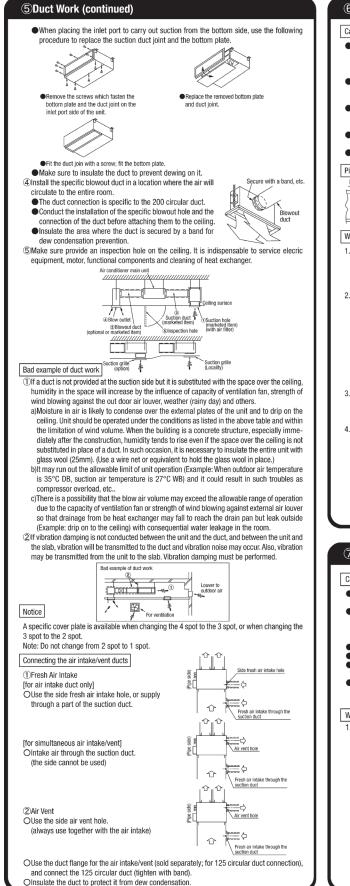
OThis model is middle static ducted type air conditioning unit. Therefore, do not use this model for direct blow type air conditioning unit.

Prepare four (4) sets of suspension bolt, nut and spring washer (M10) on site Suspension Bolt Location



Bad example Good example Bad example β (• Tie and secure the connection to the duct flange of the main unit/blowout hole with a band. Then, apply insulation materials to the secured part for dew condensation prevention. Ouse of the sound and heat insulated flexible duct is recommended for condensation preven-

- tion and soundproofing. (sold separately; 1m, 2m, 4m available) Conduct the duct work before ceiling attachment.
- ③Inlet port
- When shipped the inlet port lies on the back.
- •When connecting the duct to the inlet port, remove the air filter if it is fitted to the inlet port.



6Refrigerant pipe

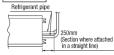
Caution

Use the new refrigerant pipe.

- When re-using the existing pipe system for R22 or R407C, pay attention to the following items Change the flare nuts with the attached ones (JIS category 2), and reprocess the flare parts. Do not use thin-walled pipes.
- Use phosphorus deoxidized copper alloy seamless pipe (C1220T specified in JIS H3300) for refrigeration pipe installation. In addition, make sure there is no damage both inside and outside of the pipe, and no harmful substances such as sulfur, oxide, dust or a contaminant stuck on the pipes.
- Do not use any refrigerant other than R410A. Using other refrigerant except R410A (R22 etc.) may degrade inside refrigeration oil. And air getting into refrigeration circuit may cause over-pressure and resultant it may result in bursting, etc.
- Store the copper pipes indoors and seal the both end of them until they are brazed in order to avoid any dust, dirt or water getting into pipe. Otherwise it will cause degradation of refrigeration oil and compressor breakdown, etc.

Use special tools for R410 refrigerant.

Piping work



When conducting piping work, make sure to allow the pipes to be aligned in a straight line for at least 250 mm, as shown in the left illustration. (This is necessary for the drain pump to function)

- Work procedure

 - Remove the flare nut and blind flanges on the pipe of the indoor unit. % Make sure to loosen the flare nut with holding the nut on pipe side with a spanner and giving torque to the nut with another spanner in order to avoid unexpected stress to the copper pipe, and then remove them. Pay attention whether the flare nut pops out. (as the indoor unit is sometimes pressured.)
- Make a flare on liquid pipe and gas pipe, and connect the refrigeration pipes on the indoor unit. %Bend the pipe with as big radius as possible and do not bend the pipe repeatedly. In addition, 2 do not twist and crush the pipes.
 - *Do a flare connection as follows
 - Make sure to loosen the flare nut with holding the nut on pipe side with a spanner and giving torque to the nut with another spanner in order to avoid unexpected stress to the copper pipe, and then remove them.
- When fastening the flare nut, align the refrigeration pipe with the center of flare nut, screw the nut for 3-4 times by hand and then tighten it by spanner with the specified torque mentioned in the table below. Make sure to hold the pipe on the indoor unit securely by a spanner when tightening the nut in order to avoid unexpected stress on the copper pipe.
- Cover the flare connection part of the indoor unit with attached insulation material after a gas leakage inspection, and tighten both ends with attached straps.
- •Make sure to insulate both gas pipes and liquid pipes completely. %Incomplete insulation may cause dew condensation or water dropping.
- Refrigerant is charged in the outdoor unit.
- As for the additional errigerant charge for the indoor unit and piping, refer to the installation manual attached to the outdoor unit.

Pipe diameter	Tightening torque N·m	Strap (Accessory) Pipe cover (Accessory)
φ 6.35	14 to 18	and the second sec
φ 9.52	34 to 42	
φ 12.7	49 to 61	77777777
φ 15.88	68 to 82	
φ 19.05	100 to 120	The thickness of insulation should be 20mm or more

⑦Drain pipe

Caution

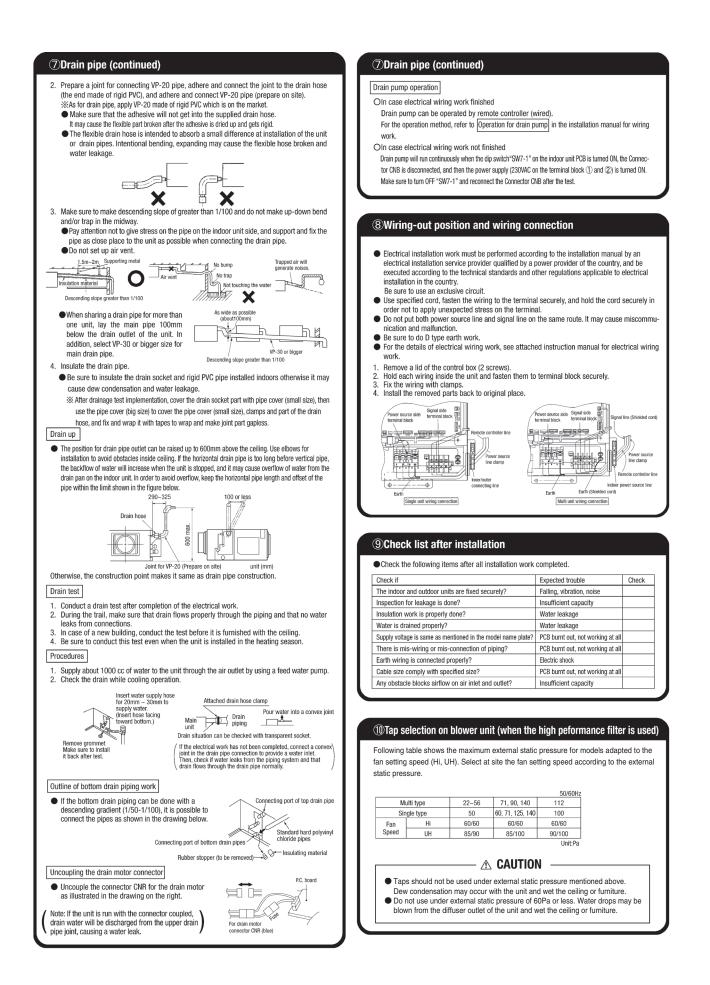
- Install the drain pipe according to the installation manual in order to drain properly
- Imperfection in draining may cause flood indoors and wetting the household goods, etc. Do not put the drain pipe directly into the ditch where toxic gas such as sulfur, the other harmful and
- inflammable gas is generated. Toxic gas would flow into the room and it would cause serious damage to user's health and safety (some poisoning or deficiency of oxygen). In addition, it may cause corrosion of heat exchanger and bad smell.
- Connect the pipe securely to avoid water leakage from the joint.
- Insulate the pipe properly to avoid condensation drop. Check if the water can flow out properly from both the drain outlet on the indoor unit and the end
- of the drain pipe after installation. Make sure to make descending slope of greater than 1/100 and do not make up-down bend and/or trap in the midway. In addition, do not put air vent on the drain pipe. Check if water is drained out properly from the pipe during commissioning. Also, keep sufficient space for inspection and maintenance

Work procedure

- 1. Make sure to insert the drain hose (the end mode of soft PVC) to the end of the step part of drain socket.

Attach the hose clamp to the drain hose around 10mm from the end, and fasten the screw within 5mm left to the nut. Do not apply adhesives on this end.

- Do not use acetone-based adhesives to connect to the drain socket.
- Pipe cover (big) (For insulation) (Accessory) Stage difflernce part VP20 joint (Prepare on site) Drain socket Unit Drain hose Adhesi Drain socket / Clamp (Accessory) Unit Drain hose <u>l</u>i, VP20 (Prepare on site) Fasten the screw within 5 mm left to the nut. Pipe cover (small) (For insulation) (Prepare on site) Hose clamp Drain hose Pipe cover (small) (For insulation) (Accessory) Drain socket ħ Metal plate



PJD012D052 🛦

(5) Duct connected-High static pressure type (FDU)

This manual is for the installation of an indoor unit.

For electrical wiring work (Indoor), refer to the electrical wiring work installation manual. For remote controller installation, refer to the installation manual attached to a remote controller. For wireless kit installation, refer to the installation manual attached to a wireless kit. For electrical wiring work (Outdoor) and refrigerant pipe work installation for outdoor unit, refer to the installation manual attached to an outdoor unit.

SAFETY PRECAUTIONS

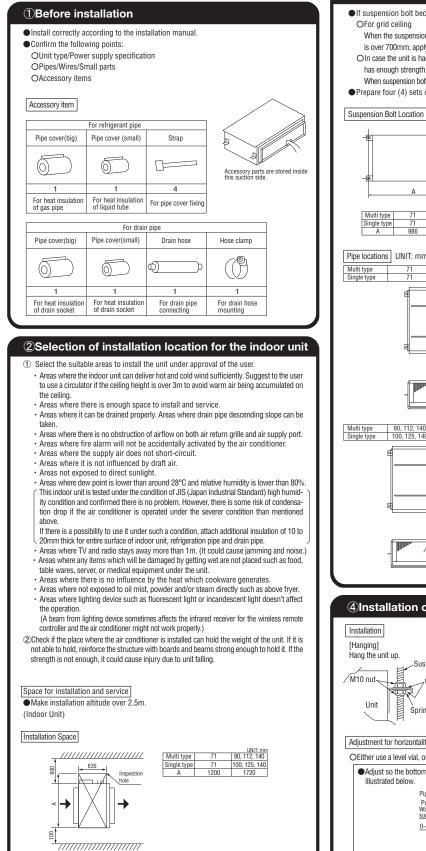
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- The meanings of "Marks" used here are as shown on the right:
 Newer oir under any circumstances.
 Atter completing the installation, do commissioning to confirm there are no abnormalities, and explain to the customers about "SAFETY PRECAUTIONS", correct operation method and maintenance method (air filter cleaning, operation method and temperature setting method) with user's manual of this unit.
- Ask your customers to keep this installation manual together with the user's manual. Also, ask them to hand over the user's manual to the new user when the owner is changed.

MARNING

Installation should be performed by the specialist. If you install the unit by yourself, it may lead to serious trouble such as water leakage, electric shock, fire, and injury due to overturn	(
of the unit.	-
Install the system correctly according to these installation manuals.	
Improper installation may cause explosion, injury, water leakage, electric shock, and fire.	U
Check the density refered by the fournula (accordance with ISO5149).	-
If the density exceeds the limit density, please consult the dealer and installate the ventilation system.	Ŀ
Use the genuine accessories and the specified parts for installation.	9
If parts unspecified by our company are used it could cause water leakage, electric shock, fire, and injury due to overturn of the unit.	U
Ventilate the working area well in case the refrigerant leaks during installation.	6
If the refrigerant contacts the fire, toxic gas is produced.	
Install the unit in a location that can hold heavy weight.	
Improper installation may cause the unit to fall leading to accidents.	C.
Install the unit properly in order to be able to withstand strong winds such as typhoons, and earthquakes.	
Improper installation may cause the unit to fall leading to accidents.	e
Do not mix air in to the cooling cycle on installation or removal of the air conditioner.	5
If air is mixed in, the pressure in the cooling cycle will rise abnormally and may cause explosion and injuries.	0
Be sure to have the electrical wiring work done by qualified electrical installer, and use exclusive circuit.	
Power source with insufficient capacity and improper work can cause electric shock and fire.	
Use specified wire for electrical wiring, fasten the wiring to the terminal securely, and hold the cable securely in order not to apply unexpected stress on the terminal.	C
Loose connections or hold could result in abnormal heat generation or fire.	-
Arrange the electrical wires in the control box properly to prevent them from rising. Fit the lid of the services	
panel property. Improper fitting may cause abnormal heat and fire.	e
Check for refrigerant gas leakage after installation is completed.	
If the refrigerant gas leaks into the house and comes in contact with a fan heater, a stove, or an oven, toxic gas is produced.	e
Use the specified pipe, flare nut, and tools for R410A.	
Using existing parts (R22) could cause the unit failure and serious accident due to explosion of the cooling cycle.	e
Tighten the flare nut according to the specified method by with torque wrench.	
If the flare nut were tightened with excess torque, it could cause burst and refrigerant leakage after a long period.	e
Do not put the drainage pipe directly into drainage channels where poisonous gases such as sulfide gas can	_
occur.	3
Poisonous gases will flow into the room through drainage pipe and seriously affect the user's health and safety. This can also cause the corrosion of the indoor unit and a resultant unit failure or refrigerant leak.	\sim
Connect the pipes for refrigeration circuit securely in installation work before compressor is operated.	
If the compressor is operated when the service valve is open without connecting the pipe, it could cause explosion and injuries due	
to abnormal high pressure in the system.	
Stop the compressor before removing the pipe after shutting the service valve on pump down work.	r
If the pipe is removed when the compressor is in operation with the service valve open, air would be mixed in the refrigeration circuit	
and it could cause explosion and injuries due to abnormal high pressure in the cooling cycle.	-
lace Only use prescribed optional parts. The installation must be carried out by the qualified installer.	
If you install the system by yourself, it can cause serious trouble such as water leaks, electric shocks, fire.	
Do not repair by yourself. And consult with the dealer about repair.	5
Improper repair may cause water leakage, electric shock or fire.	0
lacksquare Consult the dealer or a specialist about removal of the air conditioner.	
Improper installation may cause water leakage, electric shock or fire.	
Turn off the power source during servicing or inspection work.	C
If the power is supplied during servicing or inspection work, it could cause electric shock and injury by the operating fan.	
lacksquare Do not run the unit when the panel or protection guard are taken off.	
Touching the rotating equipment, hot surface, or high voltage section could cause an injury to be caught in the machine, to get	0
burned, or electric shock.	
Shut off the power before electrical wiring work.	
It could cause electric shock, unit failure and improper running.	

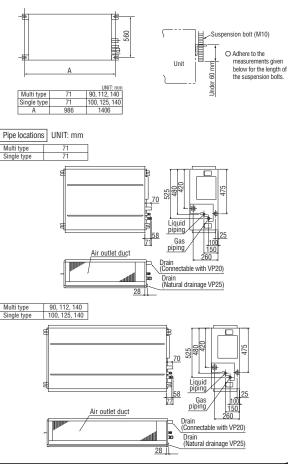
CAUTION Perform earth wiring surely.	
• Fertorin early withing surely.	
Do not connect the earth wiring to the gas pipe, water pipe, lightning rod and telephone earth wiring. Improper earth cou cause unit failure and electric shock due to a short circuit.	M 🕒
Earth leakage breaker must be installed.	
If the earth leakage breaker is not installed, it can cause electric shocks.	U
 Use the circuit breaker of correct capacity. Circuit breaker should be the one that disconnect all poles under over current. Using the incorrect one could cause the system failure and fire. 	•
• Do not use any materials other than a fuse of correct capacity where a fuse should be used.	$\overline{\bigcirc}$
Connecting the circuit by wire or copper wire could cause unit failure and fire. Do not install the indoor unit near the location where there is possibility of flammable gas leakage	
If the gas leaks and gathers around the unit, it could cause fire. Do not install and use the unit where corrosive gas (such as sulfurous acid gas etc.) or flammable gas (su	
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Secure a space for installation, inspection and maintenance specified in the manual. Insufficient space can result in accident such as personal injury due to falling from the installation place.	
• Do not use the indoor unit at the place where water splashes such as laundry.	$\overline{\diamond}$
Indoor unit is not waterproof. It could cause electric shock and fire. Do not use the indoor unit for a special purpose such as food storage, cooling for precision	
instrument, preservation of animals, plants, and a work of art. It could cause the damage of the items.	\bigcirc
Do not install nor use the system near equipments which generate electromagnetic wave or high harmonics Equipments like inverter equipment, private power generator, high-frequency medical equipment, or telecommunicati equipment injth influence the air conditioner and cause a malfunction and breakdown. Or the air conditioner might influence medical equipments or telecommunication equipments, and obstruct their medical activity or cause jammin	
Do not install the remote controller at the direct sunlight. It could cause breakdown or deformation of the remote controller.	\bigcirc
Do not install the indoor unit at the place listed below.	
Places where flammable gas could leak. Places where carbon fiber, metal powder or any powder is floated. Such as sulfice gas, chioride gas, acid, alkall or ammonic atmospheres. Places exposed to oll mist or steam directly. Such as a shins Such as a shins	
Places where machinery which generates high harmonics is used. Altitude over 1000m Do not install the indoor unit in the locations listed below (Be sure to install the indoor unit	
according to the installation manual for each model because each indoor unit has each limitation) - Locations with any obstacles which can prevent inlet and outlet air of the unit - Locations where whiration can be amplified due to insufficient strength of structure Locations where the infrared receiver is exposed to the direct sunlight or the strong light beam. (in case of the - Infrared specification unit) - Locations where an equipment affected by high harmonics is placed. (IV set or radio receiver is placed within 5m) - Locations where diange cannot run off safely.	\bigcirc
• Do not put any valuables which will break down by getting wet under the air conditioner.	$\overline{\frown}$
Condensation could drop when the relative humidity is higher than 80% or drain pipe is clogged, and it damages user's belongings	-
Do not use the base frame for the outdoor unit which is corroded or damaged after a long period of us It could cause the unit falling down and injury.	$[\bigcirc]$
 Pay attention not to damage the drain pan by weld sputter when brazing work is done near the unit if sputter entered into the unit during brazing work, it could cause damage (pinhole) of drain pan and teakage of wate 	
To avoid damaging, keep the indoor unit packed or cover the indoor unit. Install the drain pipe to drain the water surely according to the installation manual.	
Improper connection of the drain pipe may cause dropping water into room and damaging user's belongings.	0
 Do not share the drain pipe for indoor unit and GHP (Gas Heat Pump system) outdoor unit. Toxic exhaust gas would flow into room and it might cause serious damage (some poisoning or deficiency of oxygen) user's health and safety. 	
 Be sure to perform air tightness test by pressurizing with nitrogen gas after completed refrigerant piping woil If the density of refrigerant exceeds the limit in the event of refrigerant leakage in the small room, lack of oxygen can occur, which can cause serious accidents. 	
 For drain pipe installation, be sure to make descending slope of greater than 1/100, not to make trap and not to make air-bleeding. 	^{5,}
and in the on larke an "uncerning. Check if the drainage is correctly done during commissioning and ensure the space for inspection and maintenance. Ensure the insulation on the pipes for refrigeration circuit so as not to condense water.	U
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OThis model is middle static ducted type air conditioning unit. Therefore, do not use this model for direct blow type air conditioning unit.

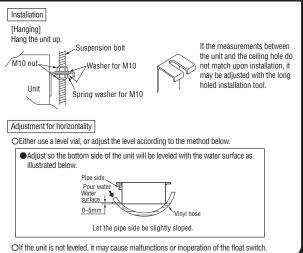


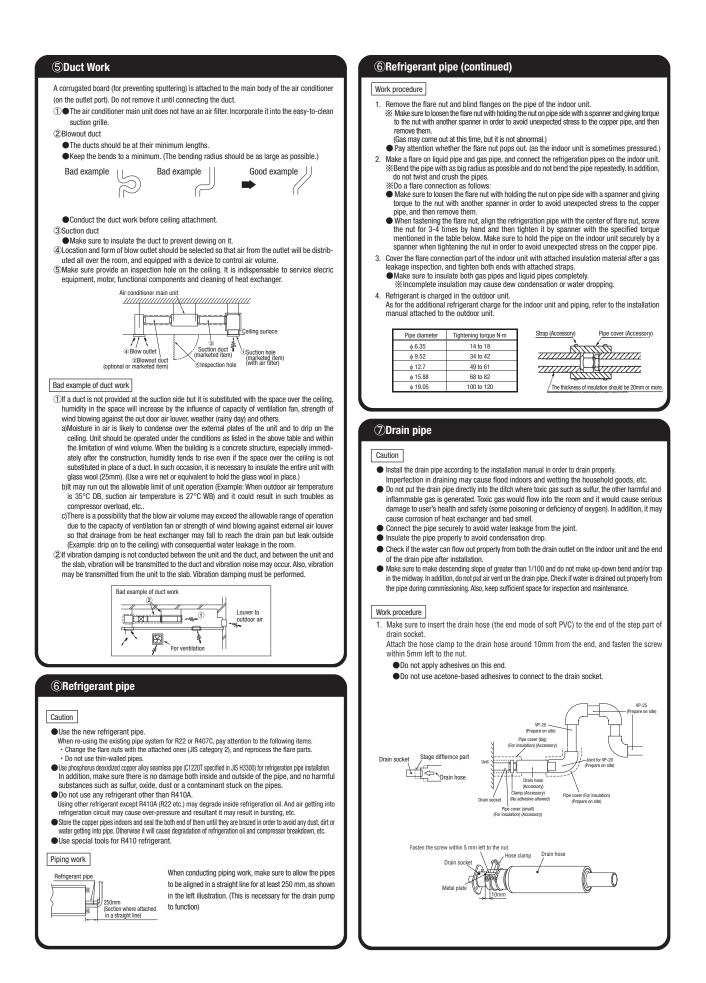
③Preparation before installation

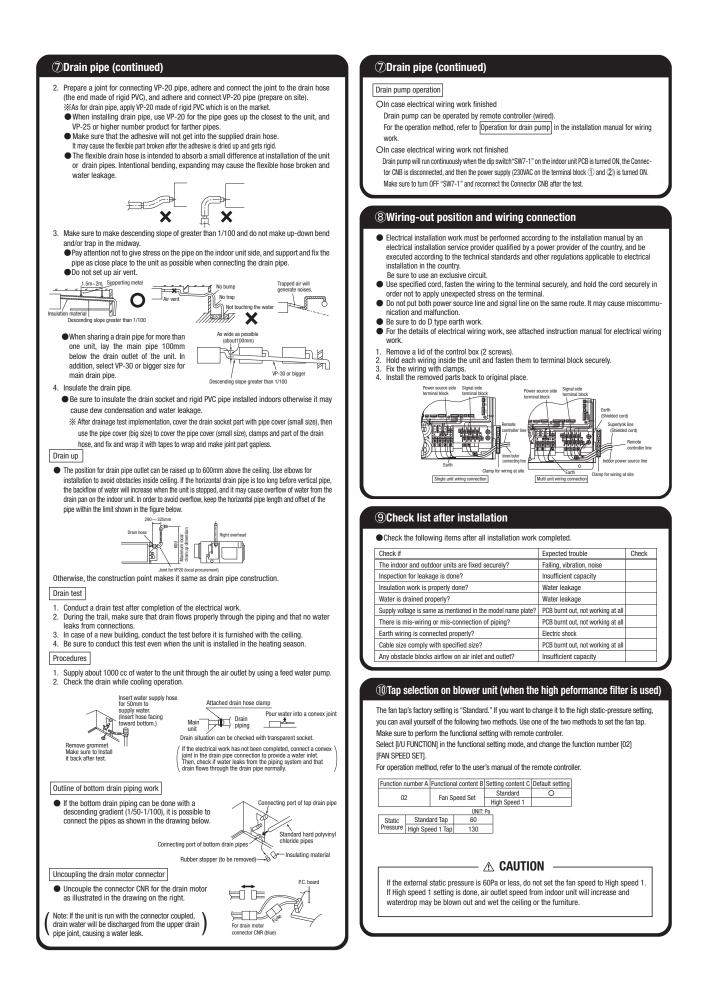
- If suspension bolt becomes longer, do reinforcement of earthquake resistant. OFor grid ceiling
 - When the suspension bolt length is over 500mm, or the gap between the ceiling and roof is over 700mm, apply earthquake resistant brace to the bolt.
 - OIn case the unit is hanged directly from the slab and is installed on the ceiling plane which has enough strength.
- When suspension bolt length is over 1000mm, apply the earthquake resistant brace to the bolt. Prepare four (4) sets of suspension bolt, nut and spring washer (M10) on site.



(4)Installation of indoor unit







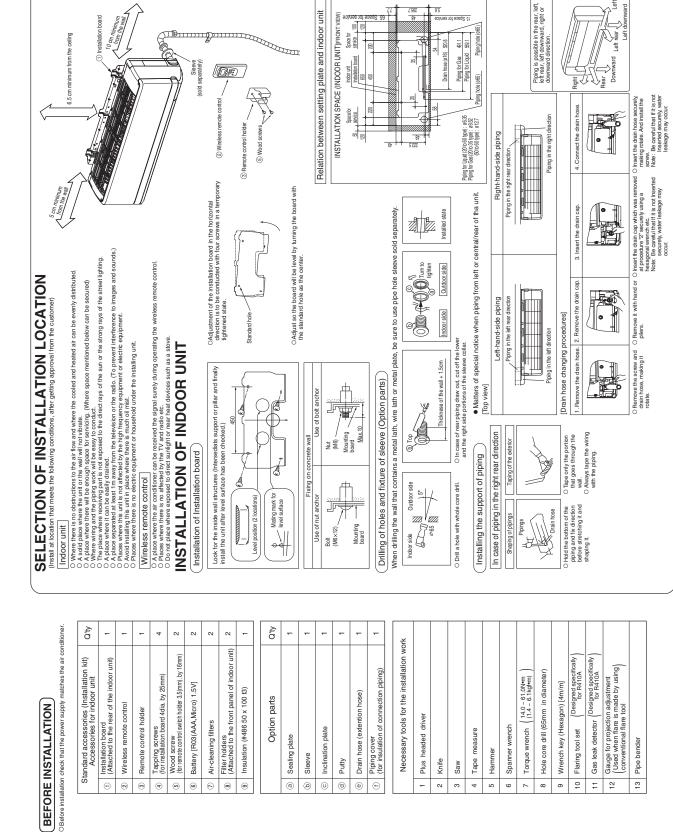
Wall mounted type (SRK) (9)

This instruction manual illustrates the method of installing an indoor unit. For electrican wirring work, plases see instructions set out on the backside. For outdoor unit installation and refrigerant piping, plases refer to the installation manual that comes with your outdoor unit. A wired remote control unit is supplied sparately as an optional part. RKY012A007

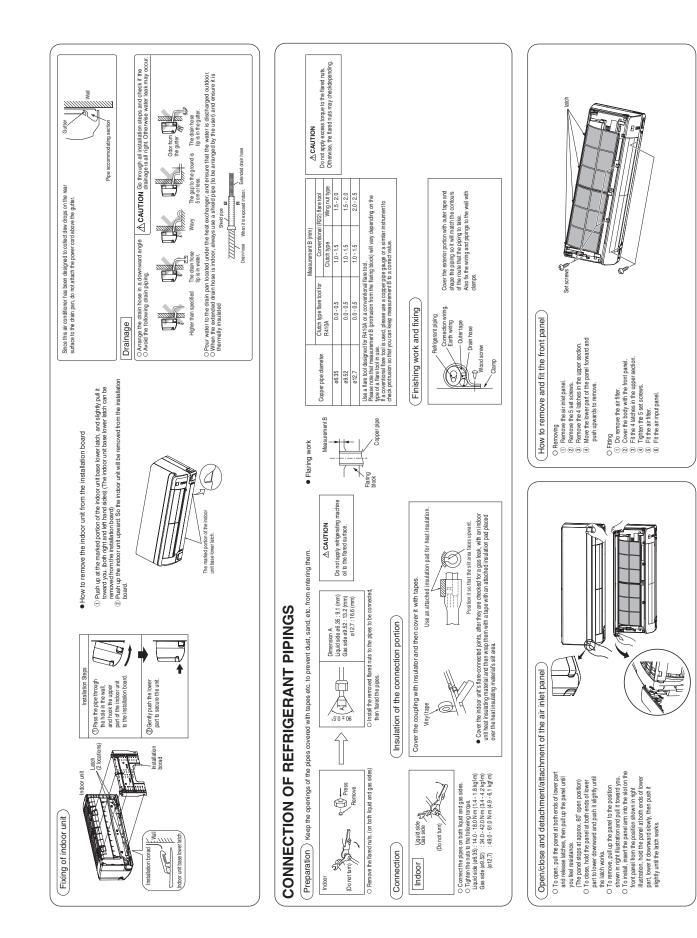
Please read these "Safety Precaritors" first then accurately execute the installation work.
 The maining qualified precaritors in respect to themseves by using suitable protective obthing, grows, etc., and then perform the installation works.
 Theory the precarding the precaritors in respect to themseves by using suitable protective obthing, grows, etc., and then perform the installation works.
 Theory the precarding the precaritors in respect to themseves by using suitable protective obthing, grows, etc., and then perform the installation works.
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 Please pay attention on to fail down the tools, etc., when installing the unit at the high position.

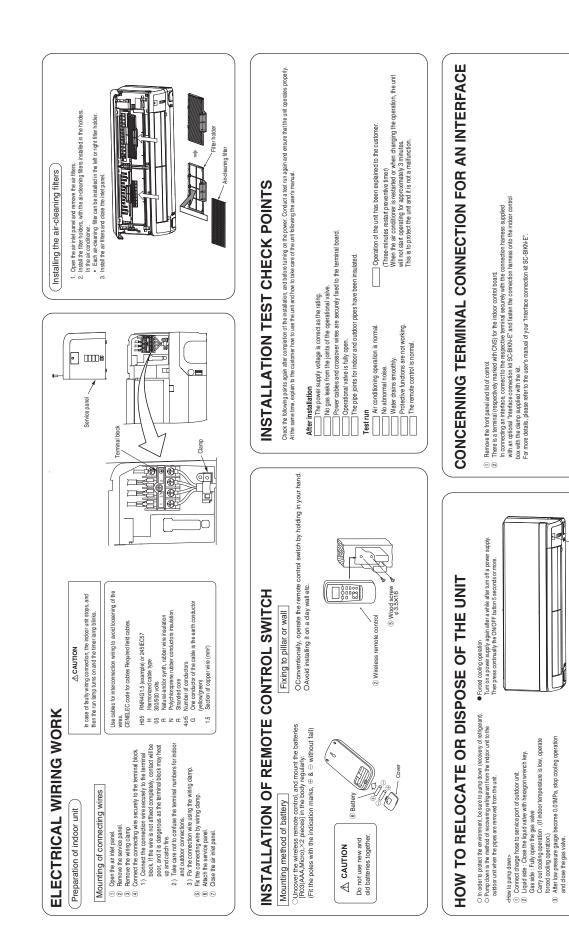
SAFETY PRECAUTIONS

 Affer col If unusui 	• Affection performance in the operation and the operation hase. Please explain operating methods as well as mandenance methods to the user (customer) of this equipment, based on the user's manual. Moreover, ask the customer to keep this sheet together with the user's manual of this equipment, based on the user's manual. Moreover, ask the customer to keep this sheet together with the user's manual of this equipment, based on the user's manual of the user's manual of the user's manual. Moreover, ask the customer to keep this sheet together with the user's manual of the user's manual of the user's manual of the user's manual.	methods to the	user (customer) of this equipment, based on the user's manual. Moreover, ask the customer to keep this sheet together with the user's manual.
	▲ WARNING		▲ CAUTION
•	 To disconnect the appliance from the mains supply this appliance must be connected to the mains by means of a circuit breaker or a switch (use a recognized fb), with a contact separation of at least 3mm. The appliance shall be national inaccontaction with a populations. The appliance shall be national inaccontaction with a populations. This system should be applied to packes as the file contected to the mains by means of a circuit breaker or a switch (use a suste exploring maturation). This system should be applied to packes as the file context apply contorming to the file Co0884 + standard must be used. This system should be applied to packes as the file context of the application to inferior environment such as angineering shop could a supplied to context installation and the activation set be used. Execute the installation continue the installation manual. Again, impoper installations can result in water leakage, electric stocks and files. For installation, continue the installation set as sufficiently support heavy weight. When strength is insufficient, jinuy can result from a failing of the installation continue that a context installation manual. Again, impoper installations can be the cause of water leakage, electric stocks and files. For installation, continue the installation site and that only eclusive use or citic applied and integers. For electrical work, please see that a licerscient set and that only eclusive use or citic applied and the set of the set of the installation context on the set of the cause of electric shocks and files. For electrical work, please see that a licerscient set of the only eclusive use or citic applied and files. For electrical work, please see that a licerscient set of the only eclusive use or citic applied and the electric set of the only eclusive use or citic applied and the set of the monly eclustic set of the only	•	Please avoid ristalling this mut in the locations where oil splashes and moisture are aburdant (e.g., kitchers, machanical workdopp) or where the outside at sheap and the please part in the locations wint cause correstor and beer performance of the heat exchange and transae manages avoid installing this unit time locations wint crustes correstor and beer performance of the heat exchange and dranse for plastic part in the locations wint crustes correstor and beer performance of the heat exchange and dranse for plastic part in the locations wint crustes or correstor to the heat exchange and dranse of plastic parts and through a unit mut brack and so the plastic parts and through and the exchange and dranse of plastic parts and through and the exchange and dranse of plastic parts and through and the plant exchange and dranse of the plant and so the plant part and the plant exchange and dranse of plant parts and the plant exchange and dranse of the plant and so the plant point and the plant exchange. The plant are avoid in the plant plant the plant plant plant and the plant exchange and the plant exchange. The plant are avoid in the plant exchange and the plant exchange and the plant exchange and the plant exchange. The plant pla
	Interentigerant circuit and this may cause explosion and injurises of the advect point induces the advect point induces and the solution and induces and such advectant interentigerant circuit secure) in finite encloaderant points acress open induces and the advectant interentiation work technic compressions in operation with the compression is operated. • Explore the point is above the art exclusion in stallation work technological to point any cause frost the advectant points and the art exclusion in stallation work technological the point is advected when the service value is goard to compression is operated. • Tophen the flare null is above the art exclusion in stallation work technological the point is any cause frost the art by course when your whom connecting the point in any cause frost the advectant by the service when it points and the art exclusion in advance and points advectant the compression is operated. • Tophen the flare null is above the service when see the null optical advectant advectant and the service when the larmmaha technological on both plug and socket nor locae connection of the socket before plugging of the power plug. Then, the power plug must be freeted ight, the provider and pass table when the provider and the socket if it is bote. • Accumulation of dast, doging on the socket or plug or the socket may cause electric shock and fire. Replace the socket if it is bote. • Accumulation of dast, doging on the socket or plug or the socket may cause electric shock and fire. Replace the socket if it is bote. • Accumulation of dast, doging on the socket or plug or the socket may cause electric shock and fire. Replace the socket if it is bote. • Accumulation of dast, doging	\oslash	 Do not install the unit where there is a concern about leakage of combustble gas. The rare even of leakage solucing around the unit could result in an oubreak of fire. Do not locar the suction or aluminim to nite outdor unit. This may suction or aluminim from the outdor unit. Do not ristal the outdoor unit where is key to be a nest for small animals. Son all animals may come hold the electrocomponent and may suare brow. Do not ristal the outdoor unit where is the place where the an airflow talls on the gates through the place where the name flow talls on the gates through the place where the name through the electrocomponent of the cuttor of the place where the name flow talls on the gates three electrocomponents the place where the name flow talls on the cuttor of the place where the name flow talls on the gates three electrocomponents the name to the cuttor of the place where the name flow talls on the gates three electrocomponents the number of the cuttor of the place where the name of the cuttor of the name target the name of the name target. Do not place three target the place where the name of the cuttor of the notifice of the name target. Do not place three target the place where the name of the name of the cuttor of the name of the name of the name of the cuttor of the name of t
\oslash	 Such as brazing work and then vertitation of the room. This may cause generate the low gas cue to bouch the flarmmable materials. Do not put the datin pipe directly into the disth where boxic gas such as suffur is generated. Do not put the datin pipe directly into the disth where boxic gas such as suffur is generated. Do not put then implement approximaterial. Form polystyres. But and vnyi back tets, of the indoor and/or outdoor units after complete the installation work, and then implement approximaterial. Form polystyres. But and vnyi back tets, of the indoor and/or outdoor units after complete the installation work, and then implement approximaterial. Form polystyres. But and vnyi back tets, of the indoor and/or outdoor units after complete the installation work, and then intigentiator such as a two and visit outdoor units after complete the installation work. and then intigentiat reasonable more such as a such inviting. Do not processing soliter the power cond. Or such more a solution power plug. Do not bunding, winding or processing for the power cond. Or, on not electing neutation and over-current ats. Do not bunding, winding or processing for the power cond. Or, on not electing installation and over-current ats. Do not bunding the oriestion solutions of the power cond. Or, on not electing prostallation and over-current ats. Do not bunding the oriestion solutions of the power cond. Or do not electing prostallation and over-current ats. Do not bunding the oriestion solutions of the power cond. Or do not electing prostallation and over-current ats. Do not bunding the oriestion for the power cond. Or do not electing prostallation and over-current ats. Do not verifier and the oriestion prover plug due to tread it in this may current atter attere atter atter atter atter atter atter atter attere atter att	Call Contraction C	 Symptos what appear trequently in the taxt have the following meaning structures what appear instructions with the symptomic structure is a provide proper earthing and previous previous and the symptomic structures with a contact symptomic structure and the like. Structure applied to place as households, residences and the like. The equipment shall be installed in accontaction withing regulations. The equipment shall be installed in accontaction within a possibility of the mains supply must be made via a double pole isolating switch with a contact gap of at least 3mm in each pole. Unter the under or units possibility of the mains upper vertimed or deling displaced and all from its original installation position, the outdoor unit should be vertimed.
	Execute proper grounding. Do not connect the ground wire to a gas pipe, water pipe, lightning rod or a telephone ground wire, improper placement of ground wires can result in electric shock.		



Left





Unit ON/OFF button

PJA012D729A

5.2 Instullation of wired remote controller

Read together with indoor unit's installation manual

			∆WARNING	
terminal.	-	-	and hold the cable securely so as not to apply unexpected stress o mal heat generation or fire.	n the
-			vhen electric wiring work. improper running may occur.	0
DO NOT	install the re	emote controller at the	e following places in order to avoid malfunction.	
(1) Places exposed to direct sunlight(4) Hot surface or cold surface enough to generate condensation(2) Places near heat devices(5) Places exposed to oil mist or steam directly(3) High humidity places(6) Uneven surface				
DO NOT	leave the re	mote controller withou	ut the upper case.	
In case t	ne upper cad		ed, protect the remote controller with a packaging box or bag in	\bigcirc
Acces	sories	Remote controlle	er, wood screw (ø3.5×16) 2 pieces	
Prepa	e on site	Remote controlle	er cord (2 cores) the insulated thickness in 1mm or more.	
			embedding cord] Erectrical box, M4 screw (2 pieces) exposing cord] Cord clamp (if needed)	

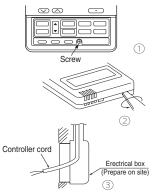
Installation procedure

Open the cover of remote controller , and remove the screw under the buttons without fail.

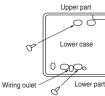
② Remove the upper case of remote controller. Insert a flat-blade screwdriver into the dented part of the upper part of the remote controller, and wrench slightly.

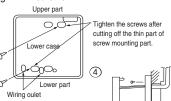
[In case of embedding cord]

③ Embed the erectrical box and remote controller cord beforehand.



Prepare two M4 screws (recommended length is 12-16mm) on site, and install the lower case to erectrical box. Choose either of the following two positions in fixing it with screws.

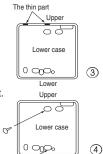




- S Connect the remote controller cord to the terminal block. Connect the terminal of remote controller (X,Y) with the terminal of indoor unit (X,Y). (X and Y are no polarity)
- Install the upper case as before so as not to catch up the remote controller cord, and tighten with the screws.

[In case of exposing cord]

- ③ You can pull out the remote controller cord from left upper part or center upper part. Cut off the upper thin part of remote controller lower case with a nipper or knife, and grind burrs with a file etc.
- ④ Install the lower case to the flat wall with attached two wooden screws.



Lower

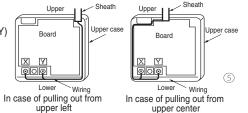
(4)

M4 screw × 2 (Prepare on site)

 Connect the remote controller cord to the terminal block.
 Connect the terminal of remote controller (X,Y)

with the terminal of indoor unit (X,Y). (X and Y are no polarity)

Wiring route is as shown in the right diagram depending on the pulling out direction.



The wiring inside the remote controller case should be within 0.3mm² (recommended) to 0.5mm². The sheath should be peeled off inside the remote controller case. The peeling-off length of each wire is as below.

Pulling out from upper left	Pulling out from upper center	
X wiring : 215mm	X wiring : 170mm	The peeling-off length
Y wiring : 195mm	Y wiring : 190mm	of sheath

- Install the upper case as before so as not to catch up the remote controller cord, and tighten with the screws.
- In case of exposing cord, fix the cord on the wall with cord clamp so as not to slack.

Installation and wiring of remote controller

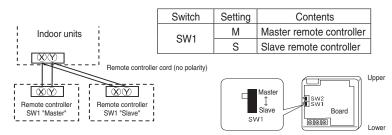
- ① Wiring of remote controller should use 0.3mm² × 2 core wires or cables. (on-site configuration)
- 2 Maximum prolongation of remote controller wiring is 600 m.
- If the prolongation is over 100m, change to the size below.

But, wiring in the remote controller case should be under 0.5mm². Change the wire size outside of the case according to wire connecting. Waterproof treatment is necessary at the wire connecting section. Be careful about contact failure.

100 - 200m.....0.5mm² × 2 cores Under 300m.....0.75mm² × 2 cores

Master/ slave setting when more than one remote controllers are used

A maximum of two remote controllers can be connected to one indoor unit (or one group of indoor units.)



Set SW1 to "Slave" for the slave remote controller. It was factory set to "Master" for shipment. Note: The setting "Remote controller thermistor enabled" is only selectable with the master remote

controller in the position where you want to check room temperature.

The air conditioner operation follows the last operation of the remote controller regardless of the master/ slave setting of it.

The indication when power source is supplied

When power source is turned on, the following is displayed on the remote controller until the communication between the remote controller and indoor unit settled.

Master remote controller : " @WAIT @	Μ"
Slave remote controller : " @WAIT@	S"

At the same time, a mark or a number will be displayed for two seconds first. This is the software's administration number of the remote controller, not an error cord.

Πь RE * The left mark is only an example. Other marks may ®₩AIT® Μ appear

When remote controller cannot communicate with the indoor unit for half an hour, the below indication will appear.

Check wiring of the indoor unit and the outdoor unit etc.



The range of temperature setting

When shipped, the range of set temperature differs depending on the operation mode as below.

Heating : 16~30°C (55~86°F)

Except heating (cooling, fan, dry, automatic) : 18~30°C (62~86°F)

Oupper limit and lower limit of set temperature can be changed with remote controller.

Upper limit setting: valid during heating operation. Possible to set in the range of 20 to 30°C (68 to 86°F). Lower limit setting: valid except heating (automatic, cooling, fan, dry) Possible to set in the range of 18 to 26°C (62 to 79°F).

When you set upper and lower limit by this function, control as below.

1. When (2) TEMP RANGE SET, remote controller function of function setting mode is "INDN CHANGE" (factory setting), [If upper limit value is set]

During heating, you cannot set the value exceeding the upper limit.

[If lower limit value is set]

During operation mode except heating, you cannot set the value below the lower limit.

2. When (2) TEMP RANGE SET, remote controller function of function setting mode is "NO INDN CHANGE" [If upper limit value is set]

During heating, even if the value exceeding the upper limit is set, upper limit value will be sent to the indoor unit. But, the indication is the same as the temperature set.

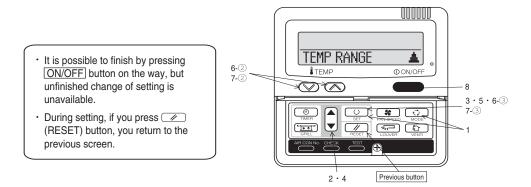
[If lower limit value is set]

During except heating, even if the value lower than the lower limit is set, lower limit value will be sent to the indoor unit. But, the indication is the same as the temperature set.

How to set upper and lower limit value

1. Stop the air-conditioner, and press <u>(SET)</u> and <u>(MODE)</u> button at the same time for over three seconds.

- The indication changes to "FUNCTION SET ▼".
- 2. Press 🔽 button once, and change to the "TEMP RANGE 🔺 " indication.
- 3. Press () (SET) button, and enter the temperature range setting mode.
- 4. Select "UPPER LIMIT ▼" or "LOWER LIMIT ▲" by using ▲ ▼ button.
- 5. Press O(SET) button to fix.
- When "UPPER LIMIT ▼ " is selected (valid during heating)
- ① Indication: " $⊕ \lor \land$ SET UP" → "UPPER 30°C \lor "
 - ② Select the upper limit value with temperature setting button [√] [∧]. Indication example: "UPPER 26°C ∨ ∧" (blinking)
 - ③ Press <u>(SET)</u> button to fix. Indication example: "UPPER 26°C" (Displayed for two seconds) After the fixed upper limit value displayed for two seconds, the indication will return to "UPPER LIMIT V".
- 7. When "LOWER LIMIT **A**" is selected (valid during cooling, dry, fan, automatic)
 - ① Indication: " $\bigcirc \lor \land \mathsf{SET} \mathsf{UP}" \to \mathsf{"LOWER} \ \mathsf{18}^\circ\mathsf{C} \land \mathsf{"}$
 - ② Select the lower limit value with temperature setting button ∑ △. Indication example: "LOWER 24°C ∨ ∧" (blinking)
 - ③ Press <u>(SET)</u> button to fix. Indication for example: "LOWER 24°C" (Displayed for two seconds) After the fixed lower limit value displayed for two seconds, the indication will return to "LOWER LIMIT **"**.
- 8. Press ON/OFF button to finish.



The functional setting

The initial function setting for typical using is performed automatically by the indoor unit connected, when remote controller and indoor unit are connected. As long as they are used in a typical manner, there will be no need to change the initial settings. If you would like to change the initial setting marked "\]", set your desired setting as for the selected item.

The procedure of functional setting is shown as the following diagram.

[Flow of function setting]

Start : Stop air-conditioner and press "O" (SET) and """ (MODE) buttons at the same time for over three seconds. Finalize : Press "O" (SET) button. Reset : Press "O" (RESET) button. Select : Press I T button. End : Press I T button. It is possible to finish above setting on the way, and infinished dapane d setting is unavailable

and unfinished change of setting is unavailable. " ()": Initial settings " * ": Automatic criterion

Consult the technical data etc. for each control details

Record and keep the setting

Stop air-conditioner and press . (SET) + . (MODE) buttons at the same time for over three seconds.

FUNCTION SET V

01 GRILLE ↑↓ SET	setting		_
	↑↓ INVALID	0	
	50Hz ZONE ONLY		When you use at 50Hz area
	60Hz ZONE ONLY		When you use at 60Hz area
02 AUTO RUN SET			4
	AUTO RUN ON AUTO RUN OFF	× ×	Automatical operation is impossible
03 🖾 TEMP SW			Automatical operation is impossible
	500 VALID	0	
	600 INVALID		Temperature setting button is not working
04 🖙 MODE SW			
	Correction VALID	$+\circ$	
05 O ON/OFF SW	குளு INVALID		Mode button is not working
05 1 0 UNZ UFF 3W	കര VALID		
	SO INVALID	$+ \checkmark$	On/Off button is not working
06 🖾 FAN SPEED SW		_	
	8년 VALID	×	
	കള്ള INVALID	*	Fan speed button is not working
07 🖾 LOUVER SW			
	ලක VALID	*	
	8년 INVALID	*	Louver button is not working
08 💿 TIMER SW	LALED VALUE		4
	கு VALID கு ல INVALID	+	Timer button is not working
09 SENSOR SET			
	SENSOR OFF		Remote thermistor is not working.
	SENSOR ON	Ť	Remote thermistor is working.
	SENSOR +3.0%		Remote thermistor is working, and to be set for producing +3.0°C increase in temperative
	SENSOR +2.0°C		Remote thermistor is working, and to be set for producing +2.0°C increase in temperative
	SENSOR +1.0°C	+	Remote thermistor is working, and to be set for producing +1.0°C increase in temperative
	SENSOR - 1.0°C	+	Remote thermistor is working, and to be set for producing -1.0°C increase in tempera
	ESENSOR -2.0%	+	Remote thermistor is working, and to be set for producing -2.0°C increase in tempera Remote thermistor is working, and to be set for producing -3.0°C increase in tempera
10 AUTO RESTART	E BENOUN - 5.00		Tremete aremiteter is working, and to be set for producing -5.0 C fillease in tempere
re moro neomini	INVALID		
	VALID	Ť	
11 VENT LINK SET			1
	NO VENT	0	
			In case of Single split series, by connecting ventilation device to CNT of
	VENT LINK		indoor printed circuit board (in case of VRF series, by connecting it to CN indoor printed circuit board), the operation of ventilation device is linked
			operation of indoor unit.
		1	In case of Single split series, by connecting ventilation device to CNT of the indoor p
	NO VENT LINK		circuit board (in case of VRF series, by connecting it to CND of the indoor printed cir
			board), you can operate /stop the ventilation device independently by () (VEN
12 TEMP RANGE SET			
	INDN CHANGE	0	If you change the range of set temperature, the indication of set temperature
	NO INDN CHANGE	+	will vary following the control.
			If you change the range of set temperature, the indication of set tempera
13 I/U FAN			will not vary following the control, and keep the set temperature.
	HI-MID-LO	*	Airflow of fan becomes the three speed of &
	HI-LO	*	Airflow of fan becomes the two speed of and and and a
	HI-MID	<u> </u>	Airflow of fan becomes the two speed of &
	1 FAN SPEED	*	Airflow of fan is fixed at one speed.
14 - 카르 POSITION			If you change the remote controller function "14 = - POSITION ",
14 ->r 10011100	7		you must change the indoor function "04 $\leq -$ POSITION" accordingly.
	4POSITION STOP	10	You can select the louver stop position in the four.
	FREE STOP		The louver can stop at any position.
15 MODEL TYPE			
	HEAT PUMP	*	4
	COOLING ONLY	*	4
			1
16 EXTERNAL CONTROL SET	1	_	If you input signal into CNIT of the independent of signal to and for the
16 External control set	INDIVIDUAL	0	
16 EXTERNAL CONTROL SET		0	indoor unit will be operated independently according to the input from e
16 EXTERNAL CONTROL SET	INDIVIDUAL FOR ALL UNITS	0	indoor unit will be operated independently according to the input from e If you input into CNT of the indoor printed circuit board from external, all units
	FOR ALL UNITS	0	indoor unit will be operated independently according to the input from e If you input into CNT of the indoor printed circuit board from external, all units
	FOR ALL UNITS	0	indoor unit will be operated independently according to the input from e If you input into CNT of the indoor printed circuit board from external, all units connect to the same remote controller are operated according to the input from
	FOR ALL UNITS		indoor unit will be operated independently according to the input from e If you input into CNT of the indoor printed circuit board from external, all units connect to the same remote controller are operated according to the input from In normal working indication, indoor unit temperature is indicated instead
17 ROOM TEMP INDICATION SET	FOR ALL UNITS		indoor unit will be operated independently according to the input from e If you input into CNT of the indoor printed circuit board from external, all units connect to the same remote controller are operated according to the input fron
16 EXTERNAL CONTROL SET 17 ROOM TEMP INDICATION SET 18 XXC®>INDICATION	FOR ALL UNITS		If you input signal into CNT of the indoor printed circuit board from extended or unit will be operated independently according to the input from extended to the input from external, all units connect to the same remote controller are operated according to the input from the indoor printed circuit board from external, all units of the input from the indoor printed circuit board from external, all units of the input from the indoor printed circuit board from external, all units of the input from the indoor printed circuit board from external, all units of the input from the indoor printed circuit board from external working indication, indoor unit temperature is indicated instead of (Only the master remote controller can be indicated.)
17 ROOM TEMP INDICATION SET	FOR ALL UNITS INDICATION OFF INDICATION ON INDICATION ON		indoor unit will be operated independently according to the input from e If you input into CNT of the indoor printed circuit board from external, all units connect to the same remote controller are operated according to the input fron In normal working indication, indoor unit temperature is indicated instead (Only the master remote controller can be indicated.)
17 ROOM TEMP INDICATION SET	FOR ALL UNITS		indoor unit will be operated independently according to the input from e If you input into CNT of the indoor printed circuit board from external, all units connect to the same remote controller are operated according to the input fror In normal working indication, indoor unit temperature is indicated instead
17 ROOM TEMP INDICATION SET	FOR ALL UNITS INDICATION OFF INDICATION ON INDICATION ON		indoor unit will be operated independently according to the input from e If you input into CNT of the indoor printed circuit board from external, all units connect to the same remote controller are operated according to the input fror In normal working indication, indoor unit temperature is indicated instead (Only the master remote controller can be indicated.)

ON/OFF button (finished)

Note 1: The initial setting marked "%" is decided by connected indoor and outdoor unit, and is automatically defined as following table.

Function No.	Item	Default	Model				
Remote controller	AUTO RUN SET	AUTO RUN ON	"Auto-RUN" mode selectable indoor unit.				
function02		AUTO RUN OFF	Indoor unit without "Auto-RUN" mode				
Remote controller	ISSIFAN SPEED SW	ருண VALID	Indoor unit with two or three step of air flow setting				
function06		் 📧 INVALID	Indoor unit with only one of air flow setting				
Remote controller	🖅 LOUVER SW	ලා VALID	Indoor unit with automatically swing louver				
function07		అల్లా INVALID	Indoor unit without automatically swing louver				
Remote controller	I/U FAN	HI-MID-LO	Indoor unit with three step of air flow setting				
function13		HI-LO	Indoor unit with two step of air flow setting				
		HI-MID					
		1 Fan Speed	Indoor unit with only one of air flow setting				
Remote controller	MODEL TYPE	Heat Pump	Heat pump unit				
function15		COOLING ONLY	Exclusive cooling unit				

Note 3: As for plural indoor unit, set indoor functions to each master and slave indoor unit. But only master indoor unit is received the setting change of indoor unit function "05 EXTERNAL INPUT" and "06 PERMISSION / PROHIBISHION".

Indoor unit function) I/U FUNCTION A plural indo	No. are indicated only wh or units are connected	CII		Note2: Fan			oor unit air flow se	tting	
	Function			Far	n tap	800% - 00% - 10% - 10%			Sati - Sati
1/0000 ▲	02 FAN SPEED SET	setting		FAN	STANDARD	UH - Hi - Me - Lo	Hi - Me - Lo	Hi - Lo	Hi - Me
I/U001 ¢ I/U002 ¢		STANDARD HIGH SPEED 1	× ×	SPEED	HIGH				
170002 ♥ 1/U003 ♥		HIGH SPEED 2		SET	SPEED1, 2	UH - UH - Hi - Me	UH - Hi - Me	UH - Me	UH - Hi
I/U004 ≑	03 FILTER SIGN SET	-		Initial function		some indoor unit is "HIGH	SPEED".		
ļ L]		INDICATION OFF TYPE 1		The filter sign i	s indicated a	fter running for 180 hours.			
To get other indeer unit press		TYPE 2		The filter sign i	s indicated a	fter running for 600 hours.			
To set other indoor unit, press AIRCON NO.] button, which		TYPE 3				fter running for 1000 hours			
allows you to go back to the indoc	nr.	TYPE 4		compulsion after		fter running for 1000 hours	, then the indoor un	t will be stopp	bed by
unit selection screen	04 🖘 POSITION		I			nction "04 🖘 POSITION	",		
(for example: I/U 000 ▲).		4POSITION STOP				e controller function "14 3	POSITION " accor	dingly.	
		FREE STOP	-	r ou can select The louver can		top position in the four.			
	05 EXTERNAL INPUT				otop at any	poolion			
		LEVEL INPUT PULSE INPUT							
	06 OPERATION PERMISSION/PROHIBITION	TODOL THE OT	_						
		INVALID	\square						
	07 EMERGENCY STOP	VALID		-ermission/pro	nibition conti	rol of operation will be valid	1.		
		INVALID							
		VALID				ed to stop all indoor units			
			ľ	When stop sigr	nal is inputed	from remote on-off termin	al "CNT-6", all indoc	r units are sto	opped imme
		OFFSET +3.0%				3.0°C increase in temperat			
	08 🔅 SP OFFSET	OFFSET +2.0% OFFSET +1.0%				2.0°C increase in temperat 1.0°C increase in temperat			
		NO OFFSET			producing +	1.0 O Increase in temperat	ure during nearing.		
		OFFSET +2.0で OFFSET +1.5で				°C increase in return air ter °C increase in return air ter			
	09 RETURN AIR TEMP	OFFSET +1.0°c				C increase in return air ter			
		NO OFFSET	-						
		OFFSET - 1.0で OFFSET - 1.5で				C increase in return air ten C increase in return air ten			
		OFFSET -2.0%				C increase in return air ten			
	10 X FAN CONTROL	LOW FAN SPEED		Mhon hooting i	-	OFF for around in law are	- -		
						OFF, fan speed is low spe OFF, fan speed is set spe			
		SET FAN SPEED		-					
		INTERMITTENCE FAN OFF				OFF, fan speed is operate OFF, the fan is stopped.	ed intermittently.		
		THE OT		When the remo	ote thermistor	r is working, "FAN OFF" is			
			1	Do not set "FA	N OFF" wher	n the indoor unit's thermiste	or is working.		
	11 FROST PREVENTION TEMP			Change of indo	or heat exch	anger temperature to star	frost prevention cor	trol.	
		TEMP HIGH		g					
		TEMP LOW	0						
	12 FROST PREVENTION CONTROL			Norking only w	ith the Single	o split sories			
		FAN CONTROL ON				the indoor fan tap is raised	l.		
		FAN CONTROL OFF				-			
	13 DRAIN PUMP LINK	恭 〇		Drain pump is i	run durina co	oling and dry			
		攀合AND※		Drain pump is i	run during co	oling, dry and heating.			
		恭心AND淡AND戰 恭心AND戰				ooling, dry, heating and fan			
	14 《 FAN REMAINING			Prain pump IS I	ran autitiy CO	ooling, dry and fan.			
		NO REMAINING				cooling thermostat is OFF,			
		0.5 HOUR 1 HOUR				cooling thermostat is OFF,			
		6 HOUR				cooling thermostat is OFF, cooling thermostat is OFF,			
	15 🔅 FAN REMAINING								
		NO REMAINING 0.5 HOUR	-	After heating is	stopped or h	heating thermostat is OFF,	the fan does not pe	rform extra o	peration.
		2 HOUR	 /	After heating is	stopped of t	neating thermostat is OFF, neating thermostat is OFF,	the fan perform extra the fan perform extra	a operation fo	n nan an no Ir two hours
		6 HOUR				heating thermostat is OFF,			
	16 × FAN INTERMITTENCE	NO REMAINING							
				During heating	is stopped o	r heating thermostat is OF	F, the fan perform in	termittent op	eration for fiv
		20minOFF sminON	v	with low fan sp	eed after twe	enty minutes' OFF.			
		sminOFF sminON				r heating thermostat is OF minutes' OFF.	⊢, the tan perform in	termittent op	eration for fiv
	17 PRESSURE CONTROL	L	<u> </u>	and tow tail sp	550 alter 1196				
		STANDARD	<u>×</u>						
		TYPE1	- × (Jonnected "OA	A Processing	" type indoor unit, and is a	utomatically defined.		

		Operation measure
1. 2. 3.	buttons at the same time for over three seconds, and the "FUNCTION SET ▼ " will be displayed. <u>FUNCTION SET</u> ▼ Press ○ (SET) button. Make sure which do you want to set, " FUNCTION ▼ " (remote controller function) or "I/U FUNCTION ▲ " (indoor unit function). Press ▲ or ▼ button. Selecct " FUNCTION ▼ " (remote controller function) or "I/U	Operation message Function description: (B), setting description: (C) Setting description: (C) Setting description: (C) Setting description: (C) Setting button (C) Setting (C) Setting button (C) Setting
_	FUNCTION ▲" (indoor unit function).	6 — ⑧ Indoor unit selection button Previous screen button
5.	Press O (SET) button.	
6.	【On the occasion of remote controller function selection 】 ① "DATA LOADING" (Indication with blinking) ↓ Display is changed to "01 GRILLE ↑↓SET".	【On the occasion of indoor unit function selection】 ① "DATA LOADING" (Blinking for 2 to 23 seconds to read the data) ↓ Indication is changed to "02 FAN SPEED SET".
	Press or button. "No. and function" are indicated by turns on the remote controller function table, then you can select from them. (For example) Image:	Go to ②. [Note] (1) If plural indoor units are connected to a remote controller, the indication is "I/U 000" (blinking) ← The lowest number of the indoor unit connected is indicated.
	③ Press ○ (SET) button. The current setting of selected function is indicated. (for example) "AUTO RUN ON" ← If "02 AUTO RUN SET" is selected	 I/U000 ▲ (2) Press ▲ or ▼ button. Select the number of the indoor unit you are to set If you select "ALL UNIT ▼", you can set the same setting with all unites. (3) Press ○ (SET) button.
	Press or v button. Select the setting.	 Press ▲ or ▼ button. "No. and function" are indicated by turns on the indoor unit function table, then you can select from them. (For example) FAN SPEED SET < Function No. FAN SPEED SET < Function Press ○ (SET) button. The current setting of selected function is indicated.
	Press (SET) "SET COMPLETE" will be indicated, and the setting will be completed. Then after "No. and function" indication returns, Set as the same procedure if you want to set continuously ,and if to finish, go to 7.	 (For example) "STANDARD" ← If "02 FAN SPEED SET" is selected. STANDARD <
7.	Press ON/OFF button. Setting is finished.	completed. Then after "No. and function" indication returns, set as the same procedure if you want to set continuously , and if to finish, go to 7. <u>B2</u> <u>SET COMPLETE</u> When plural indoor units are connected to a remote controller, press the <u>AIRCON NO.</u> button, which allows you to go back to
	 unavailable. During setting, if you press () (RESET) but Setting is memorized in the controller and it is satisfied. 	
	[How to check the current setting] When you select from "No. and funcion" and press set button setting. (But, if you select "ALL UNIT ▼ ", the setting of the lowest num	by the previous operation, the "Setting" displayed first is the current mber indoor unit is displayed.)

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PSB012D909G

Inverter driven single split PAC

71V

Designed for R410A refrigerant

(1) Model FDC71VNX

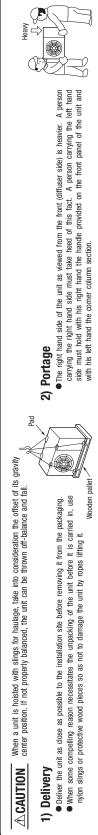
OThis installation manual deals with outdoor units and general installation specifications only. For indoor units, refer to the respective installation manuals supplied with the units.
OWhen install the unit, be sure to check whether the selection of installation place, power supply specifications, usage limitation (piping length, height differences between indoor and outdoor units, power supply voltage and etc.) and installation spaces

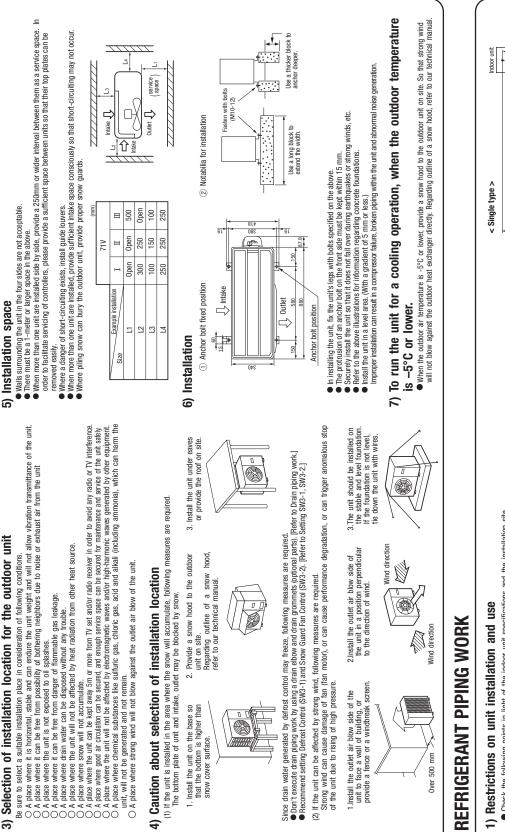
	SAFETY PRECAUTIONS			Check before installation work
ĕ ●	•We recommend you to read this "SAFETY PRECAUTIONS" carefully before the installation work in order to gain full advantage of the functions of the unit and to avoid malfunction due to mishandling.	the funct	ons of the unit and to avoid malfunction due to	Model name and power source
€ ⊑	ons described below are divided into $\boxed{\triangle \text{WARNING}}$ and $\boxed{\triangle \text{CAUTION}}$ of erroneous handling are listed in the $\boxed{\triangle \text{WARNING}}$ and the matters with	serious or damag	The matters with possibilities leading to serious consequences such as death or serious personal possibilities leading to personal injury or damage of the unit due to erroneous handling including	 Reingerant piping lengur Piping, wiring and miscellaneous small parts
d ₽	probability leading to serious consequences in some cases are listed in <u>(A) GAUTIUN</u> . Inese are very important presentions • The meaning of "Marks" used here are as shown below.	is tor sa	. These are very important precautions for safety. Be sure to observe all of them without fail.	 Indoor unit installation manual
	Never do it under any circumstance.			
¥ 5 8	Description to confirm no anomaly on the equipment by commissioning after completed installation and explain the operating methods as well as the maintenance methods of this equipment to the user according to the owner's manual. Description manual together with owner's manual at a place where any user can read at any time. Moreover if necessary, ask to hand them to a new user	ods as wé sk to han	I as the maintenance methods of this equipment I them to a new user	
		MARNING		
			Do not perform brazing work in the airtight room	
	ir you usaan ire systeri ug you asir, iting tause serious toune soori as water reats, etecutu shoots, inte anu personar injuly as a resur ur a systeri mafunction.	•	It call cause lack of usygen. Use the prescribed pipes flare nuts and tools for R410A.	ti non i den en a de ser esta de ser esta de ser esta esta esta de ser esta de ser esta de ser esta de ser est
	 Install the system in rull accordance when the instruction manual. Incorrect installation may cause bursts, personal injury, water leaks, electric shocks and fire. 		using existing parts (for K-2 or K40/L) can cause the unit railure and serious accidents oue to burst of the reingerant circuit. Traffem the flate nut by using double spanners and forcure wrench according to prescribed method. Be sure not to	and serious accidents due to burst of the remgerant circuit. wrench according to prescribed method. Be sure not to
	• Use the original accessories and the specified components for installation. • It and so the instruct precision by use are used, it may cause fail of the unit, water leaks, electric shocks, fire, refrigerant leak, substandard performance, control failure and personal injury.		tighten the flare nut too much. The flare connection of damage on the flare part by tightening with excess torque can cause burst or refrigerant leaks which may result in flare of oxygent.	with excess torque can cause burst or refrigerant leaks which
	• When installing in small rooms, take prevention measures not to exceed the density limit of refrigerant in the event of leakage accordance	•	Do not open the service valves for liquid line and gas line until completed refrigerant piping work, air tightness test	ntil completed refrigerant piping work, air tightness test
	with bound as the spent about prevention measures. If the density of refrigerant exceeds the limit in the event of leakage, lack of oxygen can occur, which can cause serious accidents.		If the eventuation. If the commercial operated in state of opening service valves before completed connection of refigerant piping work, you may incur throst bitle or injury from an abrupt refigerant outflow and air can be sucked into refrigerant circuit, which can cause	before completed connection of refrigerant piping work, you nd air can be sucked into refrigerant circuit, which can cause
	 Ventilate the working area well in the event of refrigerant leakage during installation. If the refrigerant comes into contact with naked fiames, poisonous gas is produced. 		burst of personal injury que to anoniatously ingin pressure in the reingerant. Only use prescribed optional parts. The installation must be carried out by the qualified installer.	arrigerant arried out by the qualified installer.
	After completed installation, check that no refrigerant leaks from the system. If refrigerant leaks into the room and comes into contact with an oven or other hot surface, poisonous gas is produced.	•	If you install the system by yourself, it can cause serious trouble such as water leaks, electric shocks, fire Do not perform any change of protective device itself or its setup condition	eaks, electric shocks, fire.
	• Hang up the unit at the specified points with ropes which can support the weight in lifting for portage. And to avoid joiting out of alignment, be sure to hang up the unit at 4-point support.	- v	The forced operation by short-circuiting protective device of pressure switch and temperature controller or the use of specified component can cause fire or burst.	sssure switch and temperature controller or the use of non
	An improper manner of portage such as 3-point support can cause death or serious personal injury due to failing of the unit Install the unit in a location with road summert. 	•	Be sure to switch off the power supply in the event of installation, inspection or servicing. If the power supply is not shut off, there is a risk of electric shocks, unit failure or personal injury due to the unexpected start of fan.	tion, inspection or servicing. unit failure or personal injury due to the unexpected start of fan.
	to fall and cause material dama	•	 Consult the dealer or an expert regarding removal of the unit Incorrect installation can cause water leaks, electric shocks or fire 	
	 cristere ure unit is source when it issumed, so user it can writistative ear orqueaces and source writistative can easily an use. Unsuitable installation locations can cause the unit to fail and cause material damage and personal injury. 	•	Stop the compressor before closing valve and disconnecting refrigerant pipes in case of pump down operation.	efrigerant pipes in case of pump down operation.
	 The electrical installation must be carried out by the qualified electrician in accordance with "the norm for electrical work" and "national wing genutator," and the system must be connected on the dedicated circult. Power supply with insufficient capacity and income function norm by improper work can cause electric shocks and fire. 		It esconnecting territogrant pipes in state of opening service valves before compressor stopping, you may incur frost bite of injust from an abupt refrigerant outflow and air can be sucked, which can cause burst or personal injury due to anomalously high pressure in the refrigerant circuit?	ves before compressor stopping, you may incur frost bite or which can cause burst or personal injury due to anomalously
	 Be sure to shurt off the power before starting electrical work. Falure to shurt off the power can cause electric shocks, unit falure or incorrect function of equipment. 		Ensure that no air enters in the refrigerant circuit when the unit is installed and removed. The reflexs in the refrigerant circuit, the pressure in the refrigerant circuit becomes too high, which can cause burst and personal initive.	nit is installed and removed. erant circuit becomes too high, which can cause burst and
	Be sure to use the cables conformed to safety standard and cable ampacity for power distribution work. Unconformable cables can cause electric leak, anomalous heat production or file.		reconcernance). Durbling the unit with removed panels or protections Durbling relations and with surfaces or bink without and scan cause nervonal jointor due to extramment hum or electric	can cause narconal injury due to entranment hum or electric
	 Use the prescribed cables for electrical connection, tighten the cables securely in terminal block and relieve the cables correctly to prevent overloading the perminal blocks. 	·	רטטרוווויט וטגמווויט פיק מואדווטוויט, ווטג שמו מכיכש טו וווטוו אטוגמשט אמוג shocks.	כמון כמוסס לקוסטיויו יוזיין אייל אי איווייגן איייי אייייי
	Loose connections or cable mountings can cause anomalous heat production or fire.	•	Be sure to fix up the service panels. Incorrect fixing can cause electric shocks or fire due to intrusion of dust or water	f dust or water.
	Arrange the wiring in the control box so that it cannot be pushed up further into the box. Install the service panel correctly. Incorrect installation may result in overheating and fire.	•	 Do not perform any repairs or modifications by yourself. Consult the dealer if the unit requires repair. If your repair or modify the unit if rean cause water leaks electric shocks or fire. 	ult the dealer if the unit requires repair. hocks or fire

Do not perform any repairs or modifications by yourself. Consult the dealer if the unit requires repair. If you repair or modify the unit, it can cause water leaks, electric shocks or fire.

Notabilia as a unit designed for R410A		Dedicated R410A tools
On not use any reprinerant other than R410A R410A will rise to messure about 16 times higher than that of a conventional refrigerant	a)	Gauge manifold
A childrer containing real to the subject of the boo.	(q	Charge hose
• A unit designed for F410A has adopted a different size indoor unit operation valve charge port and a different size check joint provided in the unit to prevent the charging of a wrong refrigerant by	c)	c) Electronic scale for refrigerant charging
mistake. The processed dimension of the flared part of a refrigerant pipe and a flare nut's parallel side measurement have also been altered to raise strength against pressure. Accordingly, you are	(p	d) Torque wrench
required to arrange dedicated R410A tools listed in the table on the right before installing or servicing this unit.	e)	Flare tool
Do hord use a charge cylinder. The use of a charge cylinder will cause the refrigerant composition to change, which results in performance degradation.	f)	Protrusion control copper pipe gauge
In index provide the second se Second second sec	g)	 Vacuum pump adapter
	(h	h) Gas leak detector

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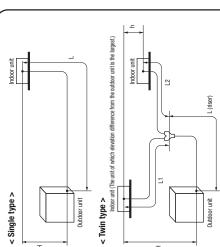
C

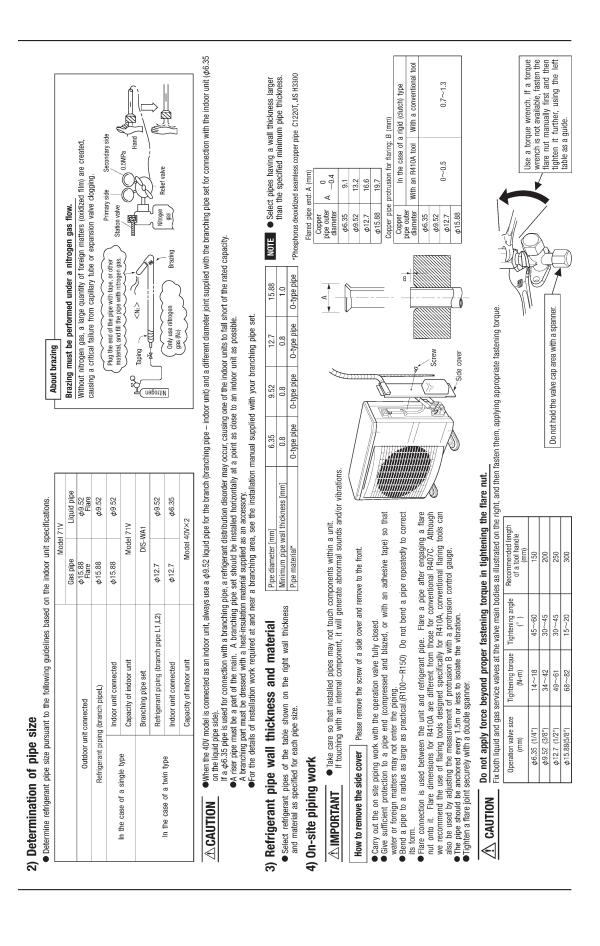
Check the following points in light of the indoor unit specifications and the installation site.

Observe the following restrictions on unit installation and use. Improper installation can result in a compressor failure or performance degradation.

	dui otto ac	Dimensional	Marks appearing in the drawing on the right	e drawing on the right
	RESUICIOUS	restrictions	Single type	Twin type
One-way pipe length of refrigerant piping	Modol 74V	EOm ou looo	L	L1+L1+L2
Main pipe length		DUIL OF LESS	L	-
One-way pipe length afte	One-way pipe length after the first branching point	20m or less	I	L1, L2
Difference of pipe length a	Difference of pipe length after the first branching point	10m or less	I	L1-L2
Elevation difference between	When the outdoor unit is positioned higher,	30m or less	н	н
indoor and outdoor units	When the outdoor unit is positioned lower,	15m or less	н	т
Elevation difference between indoor units	ween indoor units	0.5m or less	Ι	٩









Outdoor unit ① Although outdoor and indoor units themselves have been tested for air tightness at the factory, check the connecting pipes after the installation work for air tightness from the operation valve's check joint equipped on the outdoor unit side. While conducting a test, keep the operation valve shut all the time. a) Raise the pressure to 0.5 MPa, and then stop. Leave it for five minutes to see if the pressure drops.

Indoor unit

operation valve Check joint Gas side

۲

esol)

b) Then raise the pressure to 1.5 MPa, and stop. Leave it for five more minutes to see if the pressure drops. c) Then raise the pressure to the specified level (4.15 MPa), and record the ambient temperature and the pressure.

also fall approximately 0.01 MPa. The pressure, if changed, should be compensated for. e) If a pressure drop is observed in checking e) and a) – d), a leak exists somewhere. Find a leak by applying bubble test liquid to welded parts and flare joints and repair it. After repair, d) If no pressure drop is observed with an installation pressurized to the specified level and left for about one day, it is acceptable. When the ambient Temperature fall 1°C, the pressure

Do not use a medium other than nitrogen gas under any ② In conducting an air-tightness test, use nitrogen gas and pressurize the system with nitrogen gas from the gas side. conduct an air-tightness test again.

circumstances.

Pay attention to the following points in addition to the

Airtighteness test completed

6) Evacuation

		•	above for the R410A and compatible machines.
ļ		Would be house	
			To arrange of the set of the arrange of the second of the
When the system has remaining molisture Run t	tun the vacuum pump for at least one hour after the vacuum gauge shows -101kPa or lower. (-755mmHg or lower)	→	Up prevent a uniterent on montenently, assign dedicated
inside or a leaky noint the vacuum dauge		Vacuuming completed	tools, etc. to each retrigerant type. Under no circumstances
_	Confirm that the vacuum gauge indicator does not rise even if the system is left for one hour or more.	 →	must a gauge manifold and a charge hose in particular be
-		Mental and an office of the second	l charad with other refrigerant types (822 BAD7C atc.)
theck the system for a leaky point and		vacuum gauge cneck	Silada will dure temperate types (122, 114010, etc.).
then draw air to create a vacuum again.			OUse a counterflow prevention adapter to prevent vacuum
		Fill refrigerant	pump oil from entering the refrigerant system.

7) Additional refrigerant charge

(1) Calculate a required refrigerant charge volume from the following table.

Installation's pipe length (m) covered without additional refrigerant charge	30	
Refrigerant volume charged for shipment at the factory (kg)	2.95	
Additional charge volume (kg) per meter of refrigerant piping (liquid pipe ¢6.35)	0.06	
Pipe length for standard refrigerant charge volume (m)	20	
Standard refrigerant charge volume (kg)	2.35	
	Model 71V	

This unit contains factory charged refrigerant covering 30m of refrigerant piping and additional refrigerant charge on the installation site is not required for an installation with up to 30m refrigerant piping. When refrigerant piping exceeds 30m, additionally charge an amount calculated from the pipe length and the above table for the portion in excess of 30m.
 When refrigerant piping is shorter than 3m, reduce refrigerant by 1kg from the factory charged volume and adjust to 1.95kg.

• If an existing pipe system is used, a required refrigerant charge volume will vary depending on the liquid pipe size. For further information, please see "6. UTILIZATION OF EXISTING PIPING. Formula to calculate the volume of additional refrigerant required

Additional charge volume (kg) = { Main pipe length (m) – Length covered without additional charge 30 (m) } x 0.06 (kg/m) + Total length of branch pipes (m) x 0.06 (kg/m)

*When an additional charge volume calculation result is negative, it is not necessary to charge refrigerant additionally

For an installation measuring 3m or longer, but not more than 20m, in pipe length, please charge the standard refrigerant charge volume, when you recharge refrigerant after servicing etc. When refrigerant piping is shorter than 3m, recharge 1.95kg of refrigerant.
 Ex.) For a 10m installation, charge 2.35 kg of refrigerant.

For a 25m installation, charge "2.35 + (25-20) x 0.06 = 2.65 kg."

(2) Charging refrigerant

• Since R410A refrigerant must be charged in the liquid phase, you should charge it, keeping the container cylinder upside down or using a refrigerant cylinder equipped with a siphon tube.
• Charge refrigerant always from the liquid side service port with the operation valve shut. When you find it difficult to charge a regrieved amount, fully open the outdoor unit valves on tobh liquid and gas sides and charge refrigerant from the gas (suctions) side service port, which the coording not a the state so that refrigerant may be discharged from the olidoid phase all the time. When the cylinder valve is the notified phase all the time. When the cylinder valve is the fully open the outdoor unit valves on the regird amount is the liquid phase all the time. When the cylinder valve is the difficult of the control of the difficult charge conting the outling phase all the time. When the cylinder valve is the refrigerant may be discharged from the cylinder in the liquid phase all the time. When the cylinder valve is the refrigerant may be discharged from the cylinder in the liquid phase all the time. When the cylinder valve is the refrigerant may be discharged from the cylinder in the liquid phase.

Running the unit with an insufficient quantity of refrigerant for a long time can cause a compressor failure. In charging refrigerant, always charge a calculated volume by using a scale to measure the charge volume.
When refrigerant is charged with the unit being run, complete a charge operation within 30 minutes. Runni

NOTE Put down the refrigerant volume calculated from the pipe length onto the caution label attrached on the back side of the service panel.

8) Heating and condensation prevention

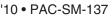
(1) Dress refrigerant pipes (both gas and liquid pipes) for heat insulation and prevention of dew condensation.

- Improper heat insulation/anti-dew dressing can result in a water leak or dripping causing damage to household effects, etc.

- All gas pipes must be securely heat insulated in order to prevent damage from dripping water that comes from the condensation formed on them during a cooling operation or personal (2) Use a heat insulating material that can withstand 120°C or a higher temperature. Poor heat insulating capacity can cause heat insulation problems or cable deterioration. injury from burns because their surface can reach quite a high temperature due to discharged gas flowing inside during a heating operation.

Give heat insulation to both gas and liquid side pipes. Bundle a heat insulating material and a pipe tightly together so that no gaps may be left between them and wrap them together Wrap indoor units' flare joints with heat insulating parts (pipe cover) for heat insulation (both gas and liquid pipes). with a connecting cable by a dressing tape.

Although it is verified in a test that this air conditioning unit shows satisfactory performance under JIS condensation test conditions, both gas and liquid pipes need to be dressed with 20 mm or thicker heat insulation materials above the ceiling where relative humidity exceeds 70%.



xterior tape Gas piping

Wires for connecting indoor and outdoor units

Liquid piping

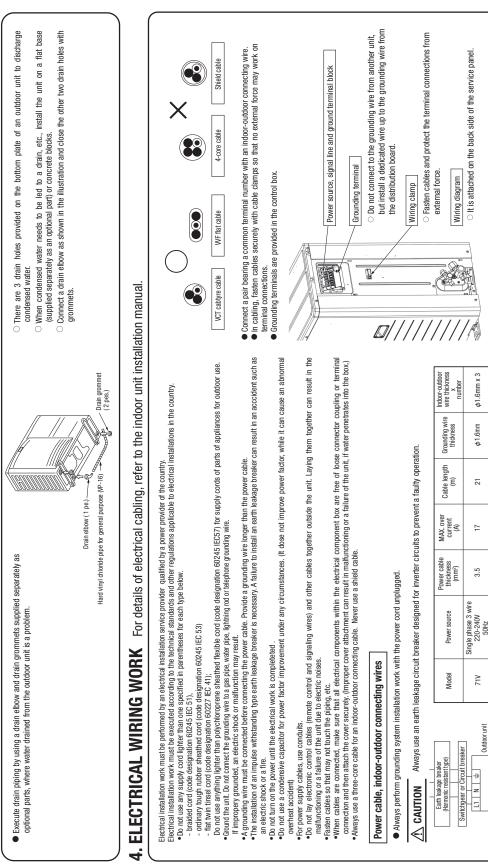
nsulation

Pipe cover (accessory)

Band (accessory

11111





Switchgear or Circuit breaker capacity which is calculated from MAX, over current should be chosen along the regulations in each country. The cable specifications are based on the assumption that a metal or plastic conduit is used with no more than three cables contained in a conduit and a votage drop is 2%. For an installation falling outside of these conditions, follow the internal cabling regulations. Adapt it to the regulation in effect in each country. Country.

The specifications shown in the above table are for units without heaters. For units with heaters, refer to the installation instructions or the construction

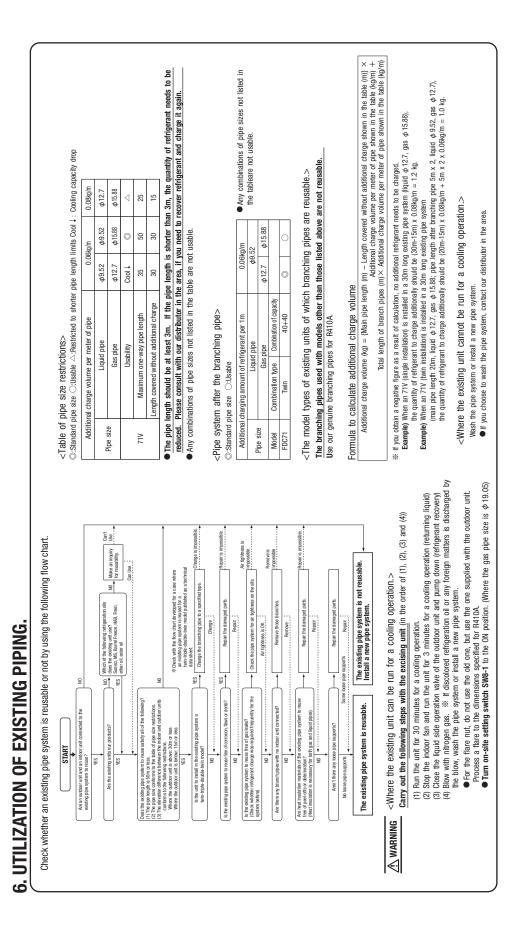
instructions of the indoor unit.

Indoor unit

1 2N 3 ± 1 2N 3 ± Remote controller

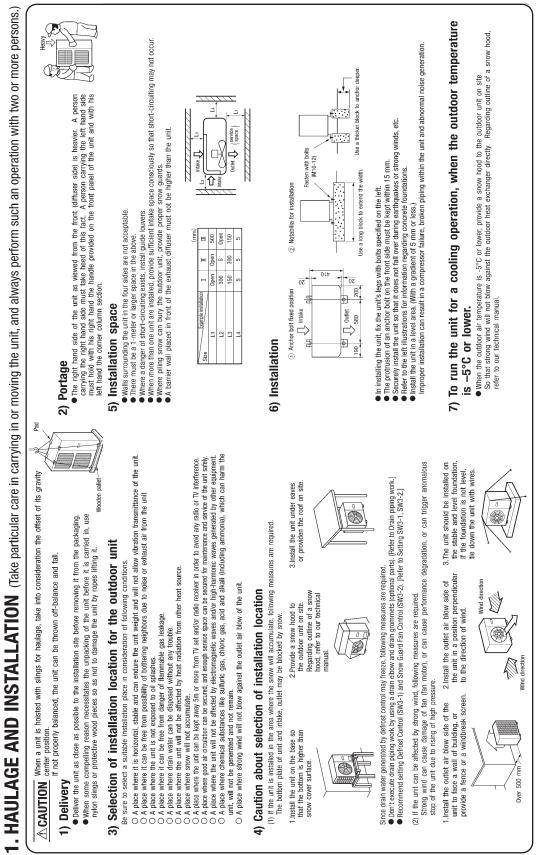
X Y Z

<u>A</u> WARNING <u>A</u> CAUTION	Before condution power Turn on powe Hurn on powe Always give a Always give a Place utmost c When you ope Vou cannot c The 4-way wa When power s	Before conduct a test run, do not fail to make si liurn on power 6 hours prior to a test run to ene in case of the first operation after turning on powe Amays give a 3-mitue or longer interval before Amays give a 3-mito or site setting, be over a canot check discharge persure from the liq meta-vary valve (205) is energized during a heat when power supply is out off to reset the unit, give	Before conduct a test run, do not fail to make sure that the operation valves are closed. I turn on power 6 hours prior to a test run to emergize the crank case heater. Always year a simulte or longer interval before you start the unit does not move for 30 minutes, it is not a breakdown. Always year a simulte or longer interval before you start the unit again whenever it is stopped. Always year a simulte or longer interval before you start the unit again whenever it is stopped. Take utmost care not to incur an electric shock or burns. Do not leave the unit with the service panel open. When you operate switches for on-site setting, be careful not to touch a live part. When you operate switches for on-site meting operation. When you operate switches for on-site setting, be careful not to touch a live part. When you operate switches for on-site meting operation. When you operate switches for on-site meting operation.	the operation valves of the operation valves or a crank case heads of the unit does not the the unit again we parts and high-te. Do not leave the to not to touch a live on to touch a live of tion.	es are closed. et. move for 30 minutes, moverer it is stopped merature parts, with nit with the service f part. out.	Before conduct a test run, do not fail to make sure that the operation valves are closed. Turn on power 6 hours prior to a test run to energize the crank case heater. To case of the first operation after turning on power, even if the unit does not move for 30 minutes, it is not a breakdown. Always grue a 3-minute on longer interval before yue parts and high-temperature parts which are guite dangerous. Take utmost care not to incur an electric shock or burns. Do not leave the unit with the service panel open. When you operate switches for on-site setting, be careful not to touch a live part. The valve careful careful and operation valve charge port. The 4-way valve CBOS is energized during a leang operation valve charge port. The 4-way valve CBOS is energized during a leang operation valve bore you turn on power again after power is cut off.	A failure to obs	A failure to observe these instructions can result in a compressor breakdown.	
About i About i An insulation resistance, f (1) Check when	II TINS procedure IS NOT OUS About insulation resistance and the may drop to severa the insulation resistance value may drop to severa Statsance, please otheok the insulation resistance value	ure is not observed Sistance / drop to several M of ving: resistance value is r	r in turning on power agar hms immediately after install restored about 6 hours after r	1, E-5 (CONTINUTING attion or when the un	cauton error) may occu it is left for a long time v aind on nower will energ	r. vithout power, because refriger ize the compressor and heat it	ant is gathered in the compre to evanorate refinerant nath	In this procedure is not outserved in turning on power again, E-5. (Communication error) may occur. About insulation resistance and the procedure is not outserved in the antification or when the unit is left for a long time without power, because refrigerant is gathered in the compressor. When the earth-leakage breaker is actuated due to low insulation resistance preserved more value and obtained is hours of hours of the nower will energine the compresson and heat if the examples refrigerant restricterant retrieverant	
(1) Orlect when (2) Check whet This unit is (ther the earth-leakage equipped with an inver-	breaker is a harmoni ter and therefore, the	ic resistant type.	type earth-leakage t	ining on power will energy	(1) Anech whether a funitual invariant value a review about o hours are power is funite. Turing or power will after a funitual invariant to evaporate reingrading quinter current. (2) Check whether the earth-leakage breaker is a harmonic resistant type. (2) Check whether the earth-leakage breaker is a harmonic resistant type earth-leakage breaker is necessary to prevent a false actuation.		decu III.I.	
1) Test run method	n method			SW-3-3	SW-3-4		Items to checkbefore a test run	ast run • When you leave the outdoor unit with power supplied to it, be sure to close the panel.	
(1) A test rui	Please remove a side cover.	ver. from an outdoor	unit by using	NO	OFF Cooling ON Heating	Cooling during a test run Heating during a test run	Item No.used in the Item installation manual	Check term Check term Check term Check term Check	ð
SW5-4 an (2) Switching ((3) The unit wi	W12-4 and SW12-4 for on-site setting. (2) Switching SW13-3 to ON will start the compressor. (3) The unit will start a cooling operation, when SW5-4 is OFF, or a heat (A) Darbot SW12-3 to OUE-3 to OEE when a heat will be common	s setting. art the compressor. tration, when SW5-4.	4 is OFF, or a heating opera	OFF OFF		Normal or After the test operation	2 Plumbing		
× In case of 5°C or low	in case of the first operation after turning on the power supply, we study of the turning on the power supply, we study of the cooling mode after	after turning on the co	3. In case of the first operation after turning on the power supply, when the unit runs in the cooling mode at outside temperature 5°C or lower, it automatically changes into the cooling mode for 10 minutes.	hen the unit runs in the cooling mode at ou it runs in the heating mode for 10 minutes.	oling mode at outside for 10 minutes.	temperature		Is the and the revealence of caling the revealer are completed to the revealer of the revealer of the and the and the revealer of the revealer	
2) Checki Please rei	2) Checking the state of the unit in operation Please remove a service panel.	of the unit i	in operation				4 Electric wiring	Atten't incoor-outdoor signal wires commedate bir einelle control wines? Do indoor-outdoor contexing calles control elakement les anne hermieul imutenes? Arre eithe VICT calaryre calles con Herl cables used for indoor-outdoor connecting cables? Does grounding stadisy free Ditype grounding Aprell grounding Aprelle gro	
Use check j four-wav val	Use check joints provided on the piping before and after the four-way valve installed inside the outdoor unit for checking	he piping before a the outdoor unit	and after the for checking		Check joint of the pipe	Charge port of the gas operation valve		Is the unit grounded with a dedicated grounding wire not connected to another unit's grounding wire? Are cables free does scrowed anti-connection not scrow another winks wire and a scrow and a scrow and a scrow a A not active and a non-within cable actives as which converting not active and a scrow and a scrow and active a	
discharge pre As indicated	discharge pressure and suction pressure. As indicated in the table shown on the right, pressure detected	ressure. In the right, pressur	re detected	Cooling operation	Discharge pressure (High pressure)	Suction pressure (Low pressure)	- Indoor unit	more concrete rates where the concrete more concrete and the concrete and one provide and the concrete and indication or the concrete and the concrete and indication or the concrete and the concrete and the concrete and indication or the concrete and the concre	
at each poin heating oper:	at each point will vary depending on whether a cooling or heating operation has been selected.	l on whether a cooli ted.	ing or	Heating operation	Suction pressure (Low pressure)	Discharge pressure (High pressure)	Test run procedure	Always carry out a test run and check the following in order as listed.	
3) Setting	3) Setting SW3-1, SW3-2.	13-2.					Turn ① Open the gas side operation valve fully	The contents of operation Check Check	ŏ
Please re. (1) Defrost c	Please remove a service panel. (1) Defrost control switching (SW3-1)	; panel. \\3-1)					Open the liquid side operation w Octose the panel. Where a remote control unit is used to	Down he drupt side operation whe fully. Clear the parent more comression and is used for writ skills on the indialition site, bliow tetractions for unit status on the indialition site with a remote control unit.	
•When the Set this	his switch is turned switch to ON, whe	ON, the unit will r in installed in a rei	-When this switch is turned ON, the unit will run in the defrost mode more frequently. Set this switch to ON, when installed in a region where outdoor temperature falls below zero during the season the unit is run for	nore frequently. erature falls belov	v zero during the se	ason the unit is run for a	SW5-3 / SW5-4 OFF. the unit will start a coolin SW5-3 / SW5-4 ON: the unit will start a heating When the unit starts operation, press the wind	t. utton provided on the	
neating (2) Snow gu •When th	nearing operation. (2) Snow guard fan control (SW3-2) •When this switch is turned on, the outdoor unit fan will run	3-2) on, the outdoor u	for	econds in every 1	0 minutes, when out	30 seconds in every 10 minutes, when outdoor temperature falls to	O Detection of the provided the provided of the provi	Place your hand before the follow unit's different of enclose whether old foremt white come out in a cooling freating) operation. Make sure that it not LED is not binking. When you complete the test can, please turn or SNS-3 to 1 second and be sure to and a last ron.	
·When th	3 C or lower and the compressor is not running. When the unit is used in a very snowy country, set this switch	very snowy countr	Ing. ry, set this switch to ON.				(0) Where options are used, check their operation Switches for on-site setting	heir operation according to the respective instruction manuals. Stille settling	7
4) Failure	Failure diagnosis in a test run	n a test rur	E						
Error indicated on the remote control unit		Printed circuit board LED(The cycles of 5 seconds) Red LED Green LED	Failure event	ent		Action		Power source, signal line and ground terminal block	
E34	Blinking once	Blinking continuously			Check power cables	Check power cables for loose contact or disconnection	All set to OFF for shipment	hipment Switches for on-site setting	stting
E40 E49	Blinking once Blinking once	Blinking continuously Blinking continuously	ostri acuation or operation with operation valves shut (occurs mainly during a heating operation) Low pressure error or operation with operation valves shut	operation) operation) with operation valves shut		 Check whether the operation valves are open. If an error has been canceled when 3 minutes have elapsed since a compressor stopy you can restart the unit by effecting Check Reset from the memde control unit. 	d since heck		
 If an error 	r code other than the	ose listed above is		ing diagram of the	outdoor unit and the	indoor unit.]		
5) The stat The following	5) The state of the electronic expansion valve. The following table illustrates the steady states of the electronic exact	tronic expairs steady states of t	The state of the electronic expansion valve.	alve.					
	When	When power is turned on	When the unit comes to a normal stop	s to a normal stop	, , ,	- st			
Valve for a cooling operation Valve for a heating operation		Complete shurt position Full open position	Complete shut position Full open position	Full open position Complete shut position	The second secon	tion Full open position filon Full open position			
6) Heed the		1 the first op		ning on the (rcuit	-]		ment
This outdoor	unit may start in the om lowering on the f	e standby mode (w. first operation after	alting for a compressor s turning on the circuit brea	tartup), which can ker. If that is the c	continue up to 30 m ase, do not suspect a	This outdoor unit may start in the standby mode (waiting for a compressor startup), which can continue up to 30 minutes, to prevent the oil level in the compressor from lowering on the first operation after turning the recontributed is the case, do not suspect a unit failure.		※1 Do not operate SW3-3, SW5-1, SW5-2, SW8.※2 Refer to TECHNICAL MANUAL about SW9. (Pump down SW)	



ons only. For indoor units, refer to the respective installation manuals ower supply specifications, usage limitation (piping length, height installation spaces UTIONS n work in order to gain full advantage of the functions of the unit and to The matters with possibilities leading to serious consequences such as ING and the matters with possibilities leading to personal injury or on serieutences in some cases are listed in <u>A. CAUTION</u> . These are presented in the serieuted on the serieute consequences with possibilities leading to personal injury or presented in the matters with possibilities leading to personal injury or presented in <u>A. CAUTION</u> . These are presented in the matter is not be cases are listed in <u>A. CAUTION</u> .	IS 100VN~140VN,100VS~140VS 100VNX~140VNX,100VSX~140VSX Designed for R410A refrigerant Check before installation work [Accessory]
rs to nals	[Accessory]
	[Access
1	
very immedant preventione for estaty Be euro to observe all of them withhout fail	Edging 1 piece knock-out hole protection
sure to observe an of unein without fail. Nown below.	Model name and power source Befriderant initial length
Never do it under any circumstance. Use Aways do it according to the instruction For 3 phase power source outdoor unit.EN61000-3-2 is not applicable if consent by the utility company or nontification to the utility company is given before usage. Indo 3 phase power source unit, both indoor and outdoor, is suitable for installation in a commercial and light industrial environment. If installed as a house-hold	•••
appliance it could cause electromagnetic interference. • 5 and 6 H units of single phase power source are equipment complying with IEC 61000-3-12. • 6 such to comfirm no anomaly on the equipment by commissioning after completed installation and explain the operating methods as well as the maintenance methods of this equipment to the user according to the owner's manual.	
MARNING A WARNING	
 Installation must be carried out by the qualified installer. In some perform brazing work in the airtight room for the properties of the properties	iork in the airtight room tenso nuts and table for \$1400
In the system in full accordance with the instruction manual. Install the system in full accordance with the instruction manual. Install the system in full accordance with the instruction manual. Incorrect installation may cause bursts, personal nighty, water leaks, electric shocks and fite. The hear in the instruction may cause bursts, personal nighty, water leaks, electric shocks and fite.	use use presentate pupes, net runs and work on rentor. Using existing parts (FRZ: or R407C) can cause the unit failure and serious accidents due to burst of the refrigerant circuit. Trinhen the fave runt bu using indust examines and formus wearch according to reserviced method Re sure or to b
eaks, electric shocks, fire, refrigerant leak, substandard	against the fare and the much. Lighten the fare and the much. Loose the connection of damage on the fare part by tightening with excess torque can cause burst or refrigerant leaks which may result in lack of oxygen.
ention measures not to exceed the density limit of refrigerant in the event of leakage fit the density of refrigerant exceeds the limit in the event of leakage, lack of oxygen can occur, which	• Do not open the service valves for liquid line and gas line until completed refrigerant piping work, air tightness test and evacuation. If the compressor is operated in state of opening service valves before completed connection of refrigerant piping work, you must incur freet him or initiar from a phont particulation and sir reach be refred into refrigerant front which can cause
well in the event of refrigerant leakage during installation.	to anomalously it of secure actions and an out of concernent in regional when a concernent of the action of the the anomalously it of the pressure action of the refrigerant and parts. The installation much be carried out by the qualified installer.
poisonous gas is produced.	aks, electric shocks, fire.
Hang up the unit at the specified points with ropes which can support the weight in lifting for portage. And to avoid joilting out of alignment, The forced operation by short-circuiting profection by short-circuiting profection by the number of	The forced operation by short-structing protective device of pressure switch and temperature controller or the use of non specified component can cause fire or burst. Do not to suite A fit the nonservention is not not device of pressure sources or suited of the nonservention of
	If the power supply is not stored users, in the contract of the power of power supply of the unexpected start of fan. The power supply is not shuft of there is a risk of electric shocks, unit failure or personal injury due to the unexpected start of fan. Constitt the feater is an expertention removal of the unit.
	tuse water leaks, electric shocks or fire. Tre closing valve and disconnecting refrigerant pipes in case of pump down operation.
e norm for electrical work" and "national hocks and fire.	It disconnecting refrigerant pipes in state of opening service valves before compressor stopping, you may incur frest bite or injury from an abrupt refrigerant outflow and air can be sucked, which can cause burst or personal injury due to anomalously high pressure in the refrigerant courts.
\oslash	 Ensure that no air enters in the refrigerant circuit when the unit is installed and removed. If air enters in the refrigerant circuit, the pressure in the refrigerant circuit becomes too high, which can cause burst and presented intervention.
)	De ond runtury. De ond runt he unit with removed panels or protections Tourbithim materians maintenents have surfaces or bitch withsteam parts can cause personal initiary due to entremnent hum or electric
Ouse the prescribed cables for electrical connection, tighten the cables securely in terminal block and relieve the cables correctly to prevent Exposite a secure to fix up the service panels. Inservice panels.	ter partets.
o the box. Install the service panel correctly.	Incorrect fixing can cause electric shocks of fire due to intrusion of dust or water. Do not perform any repairs or modifications by yoursel. Consult the dealer if the unit requires repair. If your paysitor modifications have a more surveive backs electric shocks or fina

\vdash	Carry on the electrical work for mound lead with care	CAUTION Dr not use the base frame for unitwork unit which is convoled or damaned due in inon navices of mension	r fi meration	
	can your be resourcian on the youru isaw wit care to not connect the ground lead to the game met with the infiniting conductor or leleptone line's ground lead, incorrect grounding can cause unit faults such as electric shocks due to short-circulting. Never connect the grounding wire to a gas pipe because if gas leaks it could cause explosion or ignition.	 Do not invise use rates in which we have a set order of a manager use to one personal injury. Do not install the unit in the locations listed below. 	u operatori.	
•	Use the circuit breaker for all pole with corrrect capacity. Using the incorrect circuit breaker, it can cause the unit malfunction and file.	 Locations where carbon fiber, metal powder or any powder is floating. Locations where any substances that can affect the unit such as sulphide gas, chloride gas, acid and alkaline can occur. 	id alkaline can occur.	
ē	I install isolator or disconnect switch on the power supply wiring in accordance with the local codes and regulations. The isolator should be locked in accordanced with EN60204-1.	 Vehicles and ships Locations where cosmetic or special sprays are often used. 		
•	Take stare when carrying the unit by hand. The unit weights more than 20kg, it must be carried by the or more persons. Do not carry by the plastic straps, always use the carry handle when carrying the unit by mand. Use gover nonimize the sky on dust by the aluminum firs.	 Locations wind the exploration of nin six and search as contrast and machine part. Locations windre any machines which generate high frequency frammations are used. Locations with heavy approximate the associated part of the machine part of the manual interaction with heavy and investigated to an each forwards benefitive and non-manual in a manual increasion. 	the manual	
•	Dispose of any packing materials correctly. Any remaining packing materials can cause personal injury as it contains nells and wood. And to avoid danger of sufficcation, be sure to keep the plastic material away from children and to dispatch and the contains nells and wood. And to avoid danger of sufficcation, be sure to keep the plastic	 Locations where the unit's period in measure and private data many out your room invariance in the Locations where the unit's exposed to chimnely smoke. Locations with an introduction than 1000m high) Locations with annuclic antroshere in 1000m high) 		
•	Dray attention not to damage the drain pan by weld spatter when welding work is done near the indoor unit. I weld spatter entered into the indoor unit during welding work it can case pin-hole in dain par and result in water isakage. To prevent such damage, keep the indoor unit in its packing or cover it.	 Locations where heat radiation from other heat source can affect the unit Locations without good air circulation. 		
	Be sure to insulate the refrigerant pipes so as not to condense the ambient air moisture on them. Insufficient insulation can cause condensation, which can lead to moisture damage on the ceiling, floor, furnitue and any other valuables.	 Locations with any obstacles which can prevent inlet and outlet air of the unit Locations where short fortuit of air cocur (in reac or in multiple units installation) 		
ē	Be sure to perform air tightness test by pressurizing with nitrogen gas after completed refrigerant piping work. If the density of refrigerant exceeds the limit in the event of refrigerant leakage in the small room, lack of oxygen can cost, which can cause serious accidents.	 Locatoris where storing an otwors against ure an outlier or outlock unit. It can cause remarkable decrease in performance, corresion and damage of components, malfunction and fire. 	and fire.	
•	 Perform installation work properly according to this installation manual. Improper installation can cause adnormal vibrations or increased noise generation. 	On not install the outdoor unit in the locations listed below. • Locations there discharged hot air or operating sound of the outdoor unit can bother neighborhood. • Locations when a whet discharged hot air or operating sound of the outdoor unit can bother neighborhood.	a defende and non-on-bar de altante ades	
•	 Earth leakage breaker must be installed If the earth leakage breaker is not installed, it can cause fire or electic shocks. 	 Locations where voluce an or ne volucion mu curve varies y cur and indicate the plants, ine voluce and value value of the plant text. Locations where volucion can be amplified and transmitted due to insufficient strength of structure. Locations where volucion can be amplified and transmitted due to insufficient strength of structure. Locations where volucion can be amplified and transmitted due to insufficient strength of structure. 	i allect adversely to the plant etc. on the wall or at the place near bed room)	
•	Do not use any materials other than a fuse with the correct rating in the location where tuses are to be used. Connecting the circuit with copper while or other metal thread can cause unit failure and fire.	 Locations where an equipment affected by high harmonics is placed. (TV set or radio receiver is placed within 5m) Locations where drainage cannot run off safely. 	ced within 5m)	
	Do not install the unit near the location where leakage of combustible gases can occur. If leaked passes accumulate anound the unit in fan can se file.	It can affect surrounding environment and cause a claim On ont use the unit fire senecial numbress such as storichin foods, conlinin precision instruments and preservation of animals, plants or art.	nd preservation of animals, plants or art.	
•	Do not install the unit where corrosive gas (such as sulfurous acid gas etc.) or combustible gas (such as thinner and petroleum gases) can	It can cause the damage of the items.		
පිට	accumulate or collect, or where volatile combustible substances are handled. Corrosive gas can cause corrosion of heat exchanger, breakage of plastic parts and etc. And combustible gas can cause fire.	 Do not touch any buttons with wet hands It can cause electric shocks 		
o Si≊∣	Secure a space for installation, inspection and maintenance specified in the manual. Insufficient space can result in accient such as personal injury due to falling from the installation place.	Do not touch any refigerant pipes with your hands when the system is in operation. During operation the refigerant pipes become externely hot or externely ould depending the operating condition, and it can cause burn injury or frost hijury.	ig condition, and it can cause burn injury or frost injury.	
	When the outdoor units installed on a roof or a high place, provide permanent ladders and handralis around the outdoor unit. It safety facilities are not provided, if can cause personal injury due to failing from the installation place.	 Do not clean up the unit with water It can cause electric shocks 		
а ш е •	Do not install not use the system close to the equipment that generates electromagnetic helds or fingh the quancity farmonics. Equipments to us inverters, standy generators, medical high frequency equipments and telecommication equipments and fact the system, and cause medinicipies and previews. The system can also suffer indicate electrometration equipments and obstruct its function of cause and indications and uncommended and observed and telecommunication equipments and cause and	Do not operate the outdoor unit with any article placed on it. You may incur properly damage or personal injure from a fall of the article.		
ĕ≞ ●	Do not install the outdoor unit in a location where insects and small antimals can inhabit. Insects and small animals can enter the electric parts and cause damage or fire. Instruct the user to keep the surroundings dean.	 Do not step onto the outdoor unit. You may incur injury from a drop or fall. 		
tab	Notabilia as a unit designed for R410A		Dedicated R410A tools	
o not cylir unit e pr dicat	Do not use any refrigerant other than R410A. R410A will rise to pressure about 1.6 times higher than that of a conventional refrigerant. A rollinder containing R410A has a pink indication mark on the top. A unit designed for R410A has a point and the term of the top. The processed dimension of the flated part of a refrigerant pipe and a flare nut's parallel side measurement have also been altered to raise strength against pressure. Accordingly, you are required to arrange dedicated R410A tools listed in the table on the right before installing or servicing this unit.	a) b) b) b) c) c) c) c) c) c) c) c) c) c	Gauge manifold Charge hose Electronic scale for refrigerant charging Torque wrench Flare tool	
cha ind	Do not use a charge primet: The use of a charge synder will cause the reingerant composition to change, which results in performance degradation the charging refrigerant, always take it out from a cylinder in the liquid phase. All indoor units must be models designed exclusively for R410A. Check connectable indoor unit models in a catalog, etc. (A wrong indoor unit, if conne All indoor units must be models designed exclusively for R410A. Check connectable indoor unit models in a catalog, etc. (A wrong indoor unit, if conner all indoor units must be models designed exclusively for R410A.	cted into the system, will impair proper system operation)	Vacuum pump adapter Gas leak detector	



1) Restrictions on unit installation and use

Check the following points in light of the indoor unit specifications and the installation site.
 Observe the following restrictions on unit installation and use. Improper installation can result in a compressor failure or performance degradation.

						Siliwan on ill Bin moden evinui	
		One-way pipe length difference from the first branching point to the indoor unit	from the first branching pc	int to the indoor ur.	hit	< 3m	≧ 3m
Uescriptions	Model	Model for outdoor units	Dimensional limitations	Single type	Twin type	Triple type A	Triple type B
	100VN,125VN,100VS,125VS	00VS,125VS	- 50-			Т	1
way pipe length of	140VN,140VS		muc =			L+L1+L2+L3	L+La+L1+L2+L3
refrigerant piping	100VNX,125VN)	00VMX,125VNX,100VSX,125VSX		_	L+L1+L2	I	1
	140VMX,140VSX		11001 /I			L+L1+L2+L3	L+La+L1+L2+L3
	100VN,125VN,100VS,125VS	00VS,125VS	1			I	1
	140VN,140VS		muc 📶			-	
Main pipe length	100VNX,125VN)	00VMX,125VNX,100VSX,125VSX	- 100-	I	_	-	1
	140/NX,140//SX		11001 /1			L	L
One-way pipe length between the first branching point from to the second branching point	140VN,140VS, 140VNX,140VSX		UI VI	I	I	I	la
One-way pipe length after the first	100VM,125VN,100VS,125VS,	0VS,125VS,	-02 \		:	Т	1
ching point	100/MX,125/NX,	100WIX,125WIX,100VSX,125VSX	LINS (II	I	1,12	11, 12, 13	EI (1)
One-way pipe length after the first branching point and second branching point	140VN,140VS,140VNX,140VSX	40VNX,140VSX	≦ 27m	I	-	I	La+L2, La+L3 (1)
way nine length difference	Twin type		≦ 10m			-	
from the first branching point to	Trials from	140VN,140VS,	≦ 3m	I	1 11-12	11-12 , 12-13 , 13-11	I
ndoor unit	adfa adm	140/NX,140/SX	≦ 10m			T	L-(La+L2), L1-(La+L3) (I)
One-way pipe length difference from the second branching point to the indoor unit	140VN,140VS, 140VNX,140VSX	J	m 10m	I	I	I	17–13
Elevation difference between	When the outdo.	When the outdoor unit is positioned higher,	≦ 30m	:	:	=	:
ndoor and outdoor units	When the outdo.	When the outdoor unit is positioned lower,	i≤ 15m	F	E	E	E
Elevation difference between indoor units			≦ 0.5m	I	4	h1, h2, h3	h1, h2, h3

utilized, different one-way pipe length restrictions should apply depending on its pipe size. For more information, see "6. UTILIZATION OF EXISTING PIPER", With the triple pipe connection, the way of use is different when the difference of one-way pipe length after the first branching point is 3m to 10m. For details, refer to the above table and right figure.

Note (1) install the indoor units so that L + L1 becomes the longest one-way pipe. Keep the pipe length difference between L1 and (La + L2) or (La + L3) within 10m.

2) Determination of pipe size

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		Model 100V	100V	Mode	Model 125V	Mode	Model 140V
		Gas pipe	Liquid pipe	Gas pipe	Liquid pipe	Gas pipe	Liquid pipe
		¢15.88	¢9.52	¢15.88	φ9.52	¢15.88	φ9.52
00t	Outdoor unit connected	Flare	Flare	Flare	Flare	Flare	Flare
Retrigen	Refrigerant piping (branch pipeL)	¢15.88	¢9.52	¢15.88	φ9.52	¢15.88	\$9.52
	Indoor unit connected	¢15.88	¢9.52	¢15.88	¢9.52	¢15.88	<i>\$</i> 9.52
In the case of a single type	Capacity of indoor unit	Mode	Model 100V	Mod	Model 125V	Mode	Wodel 140V
	Branching pipe set	DIS-WA1	VA1	SIG	DIS-WA1	SIC	DIS-WA1
	Refrigerant piping (branch pipe L1,L2)	¢12.7	¢9.52	φ12.7	φ9.52	φ15.88	φ9.52
In the case of a twin type	Indoor unit connected	φ12.7	¢6.35	φ12.7	¢6.35	¢15.88	φ9.52
	Capacity of indoor unit	Model	Model 50V×2	Model	Model 60V×2	Madel 71V×2	71V×2
	Branching pipe set					DIS-	DIS-TA1
	Refrigerant piping (branch pipe L1,L2,L3)					¢12.7	φ9.52
In the case of a triple type A	Indoor unit connected	I		I		φ12.7	¢6.35
	Capacity of indoor unit	-				Model 50%3	50/6/3
	Branching pipe set					DIS-WA1	WA1
	Refrigerant piping (branch pipe La)					φ15.88	φ9.52
	Refrigerant piping (branch pipe L1)					Ø12.7	Φ9.52
In the case of a triple type B	Indoor unit connected		1	1	1	DIS-	DIS-WA1
	Refrigerant piping (branch pipe L2,L3)					¢12.7	¢9.52
	Indeer unit connected					φ12.7	φ6.35
	Capacity of indoor unit					Model	Model 50V×3

indoor unit) and a different diameter joint supplied with the branching pipe set for connection with the indoor unit (46.35 on the liquid pipe side). If a d6.35 pipe is used for connection with a branching pipe, a refrigerant distribution disorder may occur, causing one of the indoor units to fall short of the rated capacity.

• A riser proper must be a part of the main. A branching pipe set should be installed horizontally at a point as close to an indoor unit as possible. A branching part must be dressed with a heat-insulation material supplied as an accessory. • For the details of installation work required at and near a branching area, see the installation manual supplied with your branching pipe set.

About brazing

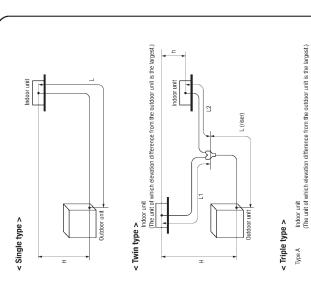
Brazing must be performed under a nitrogen gas flow. Without nitrogen gas, a large quantity of foreign matters (oxidized film) are created, causing a critical failure from capillary tube or expansion valve clogging.

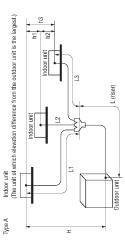


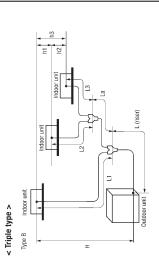
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Relief valve

Nitrogen







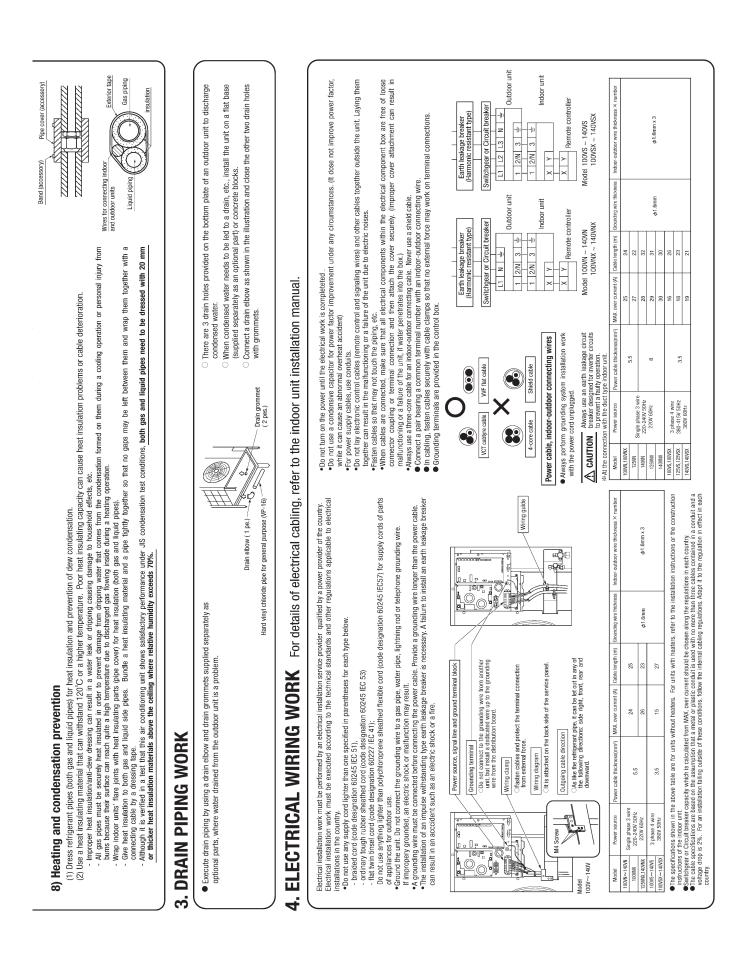
Secondary side

Primary side Station valve

Hand \

0.5MPa

Er channel formerten For the connection For channel formerten For channel formerten For channel formerten For channel formerten For channel formerten Cooper pipe portusion for failing. B (m) • for the connection • output a connection • of 5 38 • 0-0.5 • 0.7-11 • of 12 • 0.05 • 0.05	piper may and yound control or concorrents whith a unit. If nucling with a internal sounds sounds and or windshos. The serves is and yound the serves pair and yound the direction of the serves pair and yound the serves and yound the serves and yound the serv	reter connection infinit connect
Image: constraint of the constraint	a proper fastening torque in tightening torque in tightening bordue in tightening angle faconmerced leng (0.000) Operation values size in the number of the state in the number of the specified level and left for about on edg. It is acceptable. When the ambient tennerature fail the result of the number of the specified level and left for about on edg. It is acceptable. When the ambient tennerature fail the result of the number of the specified level and left for about on edg. It is acceptable. When the ambient tennerature fail the result of the number of the specified level and left for about on edg. It is acceptable. When the ambient tennerature fail the result of the number of the specified level and left for about on edg. It is acceptable. When the ambient tennerature fail the result of the specified level and left for about on edg. It is acceptable. When the ambient tennerature fail the result of the specified level and left for about on the specified level and the pressure.	the cap area with a spanner. ench is not available, d then tighten it e. Outdoor unit opteakion valve
Benefor at rightness at the factory, check the connecting pipes after the instalation work for air rightness from the operation work for air rightness that at the matures to set if the more and the press.	then tested for air tightness the factory, check the connecting pipes after the installation work for air tightness from the operation valve shut all the time. The tight mean task to see if the pressure drops. The tight mean task to see if the pressure drops. MPD, and record the ambient temperature and the pressure. The pressure the system with introgen gas from the gas side. Do not use a medium other than introgen gas under any circ and pressures the system with introgen gas from the gas side. Do not use a medium other than introgen gas under any circ three and pressures the system with introgen gas from the gas side. Do not use a medium other than introgen gas under any circ and pressures the system with introgen gas from the gas side. Do not use a medium other than introgen gas under any circ and pressures the system with introgen gas from the gas side. Do not use a medium other than introgen gas under any circ and pressures the system with introgen gas from the gas side. Do not use a medium other than introgen gas under any circ and pressure the system with introgen gas from the gas side. The system is the vacuum gauge shows the full for one hour or more. The full for one hour or more. Annum gauge field. It for one hour or more. It full for one hour or more. The following table. The following table.	Outdoor unit Cas side operation valve
Antiginenses isst completed to the sum and influence of the vacuum purp for at least one hour after the vacuum gauge shows influence of the vacuum purp for at least one hour after the vacuum gauge shows influence of the vacuum purp for at least one hour after the vacuum gauge shows influence of the vacuum purp for at least one hour after the vacuum gauge shows influence of the vacuum purp for at least one hour after the vacuum gauge shows influence of the vacuum gauge indicator does not rise even it the system is vacuum gauge check. Pay attention to the following points in addition to the vacuum gauge indicator does not rise even it the system is vacuum gauge check. Pay attention to the following points in addition to the vacuum gauge indicator does not rise even it the system is relative who the relation of the metal after at a different of the machines in relation of the vacuum gauge indicator does not rise even it the system. Under the relation of the metal after at a different of the relation of the metal after at a different of the proper in the relation of different of the relation of the standard relation of the metal at the factory following the prover-tange. Aution of the relation of the relation of the prover-tange of the prov	Antighteness test completed aum 101kPa or lower. (-755mmHg or lower) and Confirm that the vacuum gauge shows Vacuuming begins and Left for one hour or more. The form the following table. Antighteness test completed Vacuuming begins Vacuuming vacuum Vacuuming vacuum Vacuum Vacuum Vacuuming vacuum Vacuum	Close
State Final the reacumment of the state one hour after the vacuum gauge shows) Teacuming begins Pay attention to the following in addition to the state of with other redinances must a gauge annoted attent of it mentanting, assign dedicated tools. and Entition one hour or more.	ture from the vacuum pump for at least one hour after the vacuum gauge shows vacuuming begins un -101kPa or lower. (-755mmHg or lower) vacuum gauge shows -101kPa or lower. (-755mmHg or lower) and Confirm that the vacuum gauge indicator does not rise even if the system is vacuum gauge theole alm. Vacuum gauge theole indicator does not rise even if the system is vacuum gauge theole interference. (-1000 the form the following table. (-1000 the form the following table. (-1000 the form the following table.	
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and charge volume (kg) Retrigerant volume (kg) transfer for shipment pipe) for fraged for shipment pipe Branch pipe 3 the factory (kg) 3.8 0.06 4.5 3.8 1.5 1.1 the frager and piping.		-
0.06	Upberse Item Bandard refragerant Mem Standard refragerant Pipe length for thange wolume (kg) Additional change wolume (kg) Additional change wolume (kg) rearge wolume (kg) standard refragerant pipe length for thange wolume (kg) refragerant polo refragerant polo down down standard refragerant pipe length for thange wolume (kg) refragerant polo down down standard refragerant pipe length for thange wolume (kg) refragerant polo down down standard refragerant pipe meter of refragerant polo refragerant polo down down down down refragerant polo refragerant polo down down down refragerant polo refragerant polo refragerant polo down down refragerant polo refragerant charge refragerant polo refragerant polo	Refrigerant volume charged for shipment at the factory (kg)
 A standard refrigerant charge volume means a refrigerant charge volume for an installation with 0m long refrigerant piping. This unit coatiant Standard commerciant charge on the more tradge on the installation site is not required for an installation with up to 30m refrigerant piping. When refrigerant piping exceeses 30m, additionally charge an anount calculated from the pipe length and the above table for the portion in excess of 30m. When refrigerant piping is shorter than 3m, reduce refrigerant by 1kg from the factory charged volume and adjust to 28kg. When refrigerant piping is shorter than 3m, reduce refrigerant by 1kg from the factory charged volume and adjust to 28kg. If an existing pipe system is used, a required errigerant targer volume will vary depending on the liquid pipe size. For further information, see "6. UTILIZATION OF EXISTING PIPING." Formula to calculate the volume of additional refrigerant required Formula to calculate the volume of additional refrigerant additoral charge 30 (m) × 0.06 (kg/m) + Total length of branch pipes (m) × 0.06 (kg/m) + Total length of branch pipes (m) × 0.06 (kg/m) + Total length of branch pipes (m) × 0.06 (kg/m) + Total length of branch pipes (m) × 0.06 (kg/m) + Total length of branch pipes (m) × 0.06 (kg/m) + Total length of branch pipes (m) × 0.06 (kg/m) + Total length of branch pipes (m) × 0.06 (kg/m) + Total length of branch pipes (m) × 0.06 (kg/m) + Total length of branch pipes (m) × 0.06 (kg/m) + Total length of branch pipes (m) × 0.06 (kg/m) + Total length of branch pipes (m) × 0.06 (kg/m) + Total length of branch pipes (m) × 0.06 (kg/m) + Total length of branch pipes (m) × 0.06 (kg/m) + Total length of branch pipes (m) × 0.06 (kg/m) + Total length of branch pipes (m) × 0.06 (kg/m) + Total length of branch pipes (m) × 0.06 (kg/m) + Total length of branch pipes (m) × 0.06 (kg/m) + Total length of branch pipes (m) × 0.06 (kg/m) + Total length of branch pipes (m) × 0.06 (kg/m) + Total	2.7 0 0.06 -0.0 30 1000-140K 2.0 0 0.06 2.7 3 1000-440K 2.7 0 0.06 0.06	4.5
Additional charge volume (kg) = { Main pipe length (m) - Length covered without additional charge 30 (m) } x 0.06 (kg/m) + Total length of branch pipes (m) x 0.06 (kg/m) it is not necessary to charge relificant additionally.	for an installation with 0m long refrigerant piping. piping and additional refrigerant charge on the installation site is n ulated from the pipe herght and the above table for the portion in the factory charged volume and adjust to 2.8kg. Ail vary depending on the liquid pipe size. For further information,	frigerant piping.
		esult is negative, nally:
• To charge refrigerant again, recover refrigerant from the system first and then charge the volume calculated from the above table (Standard refrigerant charge volume + branch pipes charge volume)	• Controls refrigerant again, recover refrigerant from the system first and then charge the volume calculated from the above table (Standard refrigerant charge volume)	- (main
 To charge refrigerant from the system first and then charge the volume calculated from the above table (Standard refrigerant charge volume + branch pipes charge volume) Charging refrigerant stands present and then charge it, keeping the container cylinder upside down or using a refrigerant cylinder equipped with a sphon tube. Charging refrigerant answars from the liquid phase, you should charge it, keeping the container cylinder upside down or using a refrigerant cylinder equipped with a sphon tube. Charge refrigerant answars from the liquid and service port with the operation valve shut. When you find it fiftualit to charge a required amount, fully operation that and gas sides and charge refrigerant from the gas 	 It is not necessary to charge reingerant from the system first and then charge the volume calculated from the above table (Standard refigerant charge volume + branch pipes charge volume). Charging refigerant again, recover refigerant from the system first and then charge the volume calculated from the above table (Standard refigerant charge volume + branch pipes charge volume). Charging refigerant must be charged in the liquid phase, you should charge it, keeping the container cylinder upside down or using a refigerant calcuped with a siphon tube. Charge refigerant always from the liquid side service port with the operation valve shut. When you find it difficult to charge a required amount, fully open the outdoor unit valves on both liquid and gas sides and 	riarly. oth liquid and gas sides and charge refrigerant



Check

supplied to it,

igroups: interaction in the interaction in pressure in pressure in pressure in to 3°C or to 3°C or to 3°C or pressure pressure) in the interaction in the interaction in the interaction in the interaction in the interaction in the interaction interact	
Ing, be careful not to touch a live part, rendom value charge port. I'more minutes before you turn on power again after power is cut veration. W-3-4 for on-site W-3-4 for on-site W-3-2 SW-3-7 W-3-1 SW-3-7 W-3-1 SW-3-7 W-4 for on-site W-3-4 for on-site W-3-4 for on-site W-3-4 for on-site W-3-2 SW-3-4 W-3-4 for on-site W-3-4 for on-site W-3-5 for on-site W-	Item No.used in the instant of the instant of installation manual in the instant of installation manual instant of the insta
eredition. The more minutes before you turn on power again after power is cut regain, "Communication error between outdoor and indoor unit" W3-4 for on-site <u>SW-3-3 SW-3-4</u> cooling during a test run when SW3-4 is ON. <u>OrF or Next John of the pipe of the association alwa</u> attalled inside the <u>Oroning Discritange ressure</u> to the test operation alwa fill vary <u>Heating Discritange ressure</u> <u>Discritange pressure</u> (II vary) <u>Heating Suction pressure</u> <u>Discritange pressure</u> fill vary <u>Heating Suction pressure</u> <u>Discritange pressure</u> and in every 10 minutes, when outdoor temperature fails to 3°C or the never 10 minutes, when outdoor temperature fails to 3°C or the analysis are operation alwas and the area operation alwas are operation and the sum the second the operation of the pressure <u>Discritange pressure</u> the area operation alwas and <u>the and the an</u>	Mit Proceed. week it bacacit under a nitrogen ges flow? Refrigerant Refrigerant Refrigerant Refrigerant Are near and process tests and socurant calculation and the adding and gas system? Are an optimized and gas and proceed for both liquid and gas system? Are an optimized and gas and proceed for toth liquid and gas system? Are an optimized and gas and proceed for toth liquid and gas system? Are an optimized and gas system? Are an optimized for a social material station and total construction such a such optimized for a service proceed for toth trades and the optimized for the service and the optimized for the proceed for toth trades and toth and a service and the optimized for the proceed for toth trades and the optimized for the proceed for toth trades and toth and the optimized for the proceed for toth trades and the optimized for the proceed for toth trades and the optimized for the optimized for the proceed for toth trades and the optimized for the optimol to optimized for the optimized for the optimol toptim
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E49 Blinking once Blinking continuously Low pressure error or operation with operation values sturt since a compressor stop, you can restart the unit by income and income and income and income and a control unit.	are open. Inindis large elassed
	nt the unit by control unit.
If an error code other than those listed above is indicated, refer to the wiring diagram of the outdoor unit and the indoor unit.	mit.
5) The state of the electronic expansion valve.	
The following table illustrates the steady states of the electronic expansion valve.	
When newaries thread and When the unit corrises to a normal stop When the unit corrises to an abnormal stop	
when power is unlied on During a cooling operation During a heating operation During a cooling operation Duri	
Complete shut position Complete shut position Full open position	
Valve tor a heating operation Full open position	

Check

Ab and in the shear on a state of an above a state of the	a fallantina flatt abaat	
Check whether an existing pipe system is reusable or not by using the following flow	le tollowing tiow chart.	<1 able of pipe size restrictions>
ſ		\bigcirc statistical type size \bigcirc to some \frown . Not usable \triangle :Restricted to shorter pipe length limits \times :Not usable
Are an outdoor unit and an indoor unit connected to the existing pipe system to reuse?		Additional charging amount of refrigerant per 1m 0.06kg/m 0.08kg/m 0.08kg/m 0.008kg/m
		Dime size degree degree <thdegree< th=""> <thdegree< th=""> <thdegree<< td=""></thdegree<<></thdegree<></thdegree<>
And this original units are set of the		Gas pipe φ15.88 φ19.05 φ15.88 φ19.05 φ15.88 φ19.05 φ15.88 φ15.
	Suniso, MS, Barrel Freeze, HAB, Freol, Make an inquiry USE	Usability Usabil
•	ether oil, ester oil	100VS Maximum one-way pipe engine 30 30 15 15 Leroth owered without additional channe 30 30 15 15 Leroth owered without additional channe 30 30 15 15 15 States 20 20 20 20 20 20 20 20 20 20 20 20 20
*•	- ANA UNA	
Does the existing pipe system to reuse satisfy all of the following? (1) The pipe length is 50m or less.		125WN Maximum one-wary pipe length 50 50 25 25 125WXX Maximum one-wary pipe length 20 100 100 50 50
(2) The pipe size conforms to the table of pipe size restrictions. (3) The elevation difference between the indoor and outdoor units NO		Length covered without additional charge 30 30 15 15
conforms to the following restrictions.		Usability
where the outdoor unit is above: sum or less Where the outdoor unit is below: 15m or less	** Check with the flow chart developed for a case where an existing pipe system is reused for a	1400M 1400VS Maximum one-way pipe length 50 25 25 1400VX 1400VS 1400VS Maximum one-way pipe length 20 100 100 50
	twin-triple-double-twin model published as a technical data sheet	
Is the unit to install in the existing pipe system a VES		<pipe after="" branching="" pipe="" system="" the=""></pipe>
	Change	After 1st branch %4 After
*		Adomona charging amount on reingerant per 1 m 0.06kg/m 0.06kg/m 0.06kg/m 0.06kg/m 0.06kg/m
Is the existing pipe system to reuse free of corrosion, flaws or dents?	Repair the damaged parts.	and pipe \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$
ON	Repair	Combination type Combination of capacity
Is the existing pipe system to reuse free of gas leaks?	Air tightness is impossible.	09+09
(bleav wreater remigerant cuarge was required irequering to) the system before)	IL UUIUUESS OIL UIE SIEC	1Win 71+71 × 0 0
N N	Air tightness is OK Remove is	Triple B 50+50+50 X
Are there any branch pipes with no indoor unit connected?	Remove those branches.	%1 Because of its insufficient pressure resistance, turn the dip switch SWE-1 provided on the outdoor unit board to the ON position for \u03c8 19.05 \u2228 11.0
- ON	Remove	(in the case of a twin-triple-double-twin model, this also applies to the case where ϕ 19.05 × 11.0 is used in a pipe system after the first branching point.)
Are heat insulation materials of the eviction nine evictam to	- Donoir is increasible	However, you need not turn the dip switch SWS-1 to the UN position, if 1/2H pipes or pipes having 1.2 or thicker walls are used.
revenue incontration intercention on the control operation to returse free of pre-logic or determination? (Heat insulation is necessary for both data and liquid pipes)	Repair the damaged parts.	%2 When the main pipe length exceeds 40m, a significant capacity drop may be experienced due to pressure loss in the liquid pipe system. Use \$\phi\$12.7 for the liquid main.
→ 0N	Repair	33 Keep the total pipe length, not one-way pipe length, below the specified maximum pipe length.
		※4 Piping size after branch should be equal or smaller than main pipe size. ※5 Review ever home for home to indeer wat chould be 14.05 0 0 minute 14.437 0 mot
00TS?	r the dam	xs r Pupel sate num ten kurkun ten nukuun ten sate. Zukuutu te gazis (kutuu) ye prizi (sase) ● Numo nefatomet kimise is dedere tena 2m. radinas referencet te tu fare federa carecad automot
No loose pipe supports	06 supports Repair	● Wrieri reingerani, piprig is storet urain sur, reucce reingerant uy ing inclini accury charger volunite. ● Auv comhinistrions of nine strae not listert in the table or mazicat with X in the table are not usable
The existing pipe system is reusable.	The existing pipe system is not reusable.	The model types of existing units of which branching pices are reusable.
	Install a new pipe system.	Models later than Type 8
$\frac{1}{\sqrt{N}}$ WARNING <where a="" be="" can="" cooling="" existing="" for="" operation.="" run="" the="" unit=""></where>	in for a cooling operation.>	● E F D C * * * 8 □ □
	sing unit (in the order of (1), (2), (3) and (4))	
(1) Run the unit for 30 minutes for a cooling operation.	g operation.	The branching pipes used with models other than those listed above are not reusable because of their insufficient
(2) Stop the indoor fan and run the unit for 3 minutes for (2) Close the lineid side exercises when of the sufficient in	3 minutes for a cooling operation (returning liquid)	oressure resistance. Please use our genuine oranomier of the point of the total. ● * * * * or number concentring hereonomier is an algebrainmaric latter
(4) Blow with nitrogen gas. % If discolore	Ē	• • • • • • • • • • • • • • • • • • •
wash the pipe system or install a new pipe system. For the flare nut, do not use the old one, but use the process a flare to the dimensions enacritical for RA110.	wash the pipe system or install a new pipe system. For the flare nut, do not use the old one, but use the one supplied with the outdoor unit. Process a flare the dimensions conclicat for 2A10.0	Additional charge volume (kg) = {Main pipe length (m) - Length covered without additional charge shown in the table (m); × Additional charge volume per meter of pipe shown in the table (kc/m) +
Turn on-site setting switch SW5-1	• Turn on-site setting switch SW5-1 to the ON position. (Where the gas pipe size is ϕ 19.05)	Total length of branch pipes $(m) \times$ Additional charge volume per meter of pipe shown in the table (kg/m)
Where the existing unit cannot be run for a cooling operation.> Wash the pipe system or install a new pipe system.	run for a cooling operation.>	% If you obtain a negative figure as a result of calculation, no additional refrigerant needs to be charged. Example) When an 140V (single installation) is installed in a 20m iong existing pipe system (liquid \$412.7, gas \$419.05).
	sandaad a diateibutan in dha anaa	The minimum of the set of the second to show a second by a second the second se

5.4 Electric wiring work installation

Electrical wiring work must be performed by an electrician qualified by a local power provider according to the electrical installation technical standards and interior wiring regulations applicable to the installation site.

Security instructions

Read the "SAFETY PRECAUTIONS" carefully first of all and then strictly follow it during the installation work in order to protect yourself. ● The precautionary items mentioned below are distinguished into two levels, ▲WARNING and ACAUTION . AWARNING : Wrong installation would cause serious consequences such as injuries or death. ACAUTION : Wrong installation might cause serious consequences depending on circumstances. Both mentions the important items to protect your health and safety so strictly follow them by any means. The meanings of "Marks" used here are as shown on the right: Never do it under any circumstances. Accord with following items. Otherwise, there will be the risks of electric shock and fire caused by overheating or short circuit. **WARNING** Be sure to have the electrical wiring work done by qualified electrical installer, and use exclusive circuit. Power source with insufficient capacity and improper work can cause electric shock and fire Use specified wire for electrical wiring, fasten the wiring to the terminal securely. and hold the cable securely in order not to apply unexpected stress on the terminal. Loose connections or hold could result in abnormal heat generation or fire Arrange the electrical wires in the control box properly to prevent them from rising. Fit the lid of the services panel property. Improper fitting may cause abnormal heat and fire Ouse the genuine optional parts. And installation should be performed by a specialist. If you install the unit by yourself, it could cause water leakage, electric shock and fire • Do not repair by yourself. And consult with the dealer about repair. \bigcirc Improper repair may cause water leakage, electric shock or fire. Consult the dealer or a specialist about removal of the air conditioner. O Improper installation may cause water leakage, electric shock or fire. Turn off the power source during servicing or inspection work. If the power is supplied during servicing or inspection work, it could cause electric 0 shock and injury by the operating fan Shut off the power before electrical wiring work. O It could cause electric shock, unit failure and improper running. **CAUTION** Perform earth wiring surely. Do not connect the earth wiring to the gas pipe, water pipe, lightning rod and telephone earth wiring. Improper earth could cause unit failure and electric shock due to a short circuit Earth leakage breaker must be installed. O If the earth leakage breaker is not installed, it can cause electric shocks. Make sure to install earth leakage breaker on power source line. (countermeasure thing to high harmonics.) O Absence of breaker could cause electric shock • Use the circuit breaker of correct capacity. Circuit breaker should be the one D that disconnect all poles under over current. Using the incorrect one could cause the system failure and fire Do not use any materials other than a fuse of correct capacity where a fuse should be used. \sim Connecting the circuit by wire or copper wire could cause unit failure and fire Use power source line of correct capacity. Using incorrect capacity one could cause electric leak, abnormal heat generation and fire. Do not mingle solid cord and stranded cord on power source and signal side terminal block. In addition, do not mingle difference capacity solid or stranded cord. Inappropriate cord setting could cause loosing screw on terminal block, bad electrical contact, smoke and fire. • Do not turn off the power source immediately after stopping the operation. Be sure to wait for more than 5 minutes. Otherwise it could cause water leakage or (breakdown. • Do not control the operation with the circuit breaker. \bigcirc It could cause fire or water leakage. In addition, the fan may start operation unexpectedly and it may cause injury.

PSB012D966

- Use three-core cable as wiring between indoor and outdoor unit. As for detail, refer to "INSTAL-LATION MANUAL" of outdoor Unit.
- Set earth of D-type.

①Electrical Wiring Connection

- •Keep "remote controller line" and "power source line" away from each other on constructing of unit outside.
- •Run the lines (power source, remote controller and "between indoor and outdoor unit") upper ceiling through iron pipe or other tube protection to avoid the damage by mouse and so on.
- Do not add cord in the middle of line route (of power source, remote controller and "between indoor and outdoor unit") on outside of unit. If connecting point is flooded, it could cause problem as for electric or communication. (In the case that it is necessary to set connecting point on the way, perform thorough waterproof measurement.)
- Do not connect the power source line [220V/240V/380V/415V] to signal side terminal block. Otherwise, it could cause failure.
- Screw the line to terminal block without any looseness, certainly.
- Do not turn on the switch of power source, before all of line work is done.
- Connection of the line ("Between indoor and outdoor unit", Earth and Remote controller)
- ①Remove lid of control box before connect the above lines, and connect the lines to terminal block according to number pointed on label of terminal block.
- In addition, pay enough attention to confirm the number to lines, because there is electrical polarity except earth line. Furthermore, connect earth line to earth position of terminal block of power source.
- ②Install earth leakage breaker on power source line. In addition, select the type of breaker for inverter circuit as earth leakage breaker.
- (3)If the function of selected earth leakage breaker is only for earth-fault protection, hand switch (switch itself and type "B" fuse) or circuit breaker is required in series with the earth leakage breaker.
- ④Install isolator or disconnect switch on the power supply wiring in accordance with the local codes and regulations.

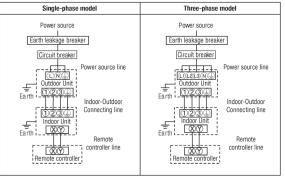
The isolator should be set in the box with key to prevent touching by another person when servicing.

Cable connection for single unit installation

①As for connecting method of power source, select from following connecting patterns. In principle, do not directly connect power souce line to inside unit.

As for exceptional connecting method of power souce, discuss with the power provider of the country with referring to technical documents, and follow its instruction.

OFor cable size and circuit breaker selection, refer to the outdoor unit installation manual

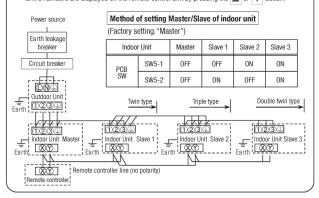


Cable connection for a V multi configuration installation

O Connect the same pairs number of terminal block "O, 2, and 3)" and "O and O" between master and slave indoor units.

(2)Do the same address setting of all inside units belong to same refrigerant system by rotary switch SW2 on indoor unit's PCB (Printed circuit board).

③Set slave indoor unit as "slave 1" through "slave 3" by address switch SW5-1, 5-2 on PCB.
 ④When the AR CON NO. button on the remote control unit is pressed after turning on the power, an indoor unit's address number will be displayed. Do not fail to confirm that the connected indoor unit's numbers are displayed on the remote control unit by pressing the or version the factor.



② Remote Control, Wiring and functions

D0 N0T install it on the following places 1 Places exposed to direct sunlight 2 Places near heat devices (3)High humidity places (4)Hot surface or cold surface enough to generate condensation ⑤Places exposed to oil mist or steam directly. (6)Uneven surface

Installation and wiring of remote controller

①Install remote controller referring to the attached installation manual. ②Wiring of remote controller should use 0.3mm² ×2 core wires or cables.

The insulation thickness is 1mm or more. (on-site configuration)

- ③Maximum prolongation of remote control wiring is 600 m.
- If the prolongation is over 100m, change to the size below. But wiring in the remote controller case should be under 0.5mm². Change the wire size

but, winnig in the remote controller case chedia be under clothin change the wire cize
outside of the case according to wire connecting. Waterproof treatment is necessary at the
wire connecting section. Be careful about contact failure.
100 - 200m 0.5mm ² x 2 cores

100 - 200111	0.511111- X Z COLES
Under 300m	0.75 mm ² \times 2 cores
Under 400m	1.25mm ² × 2 cores
Under 600m	2.0 mm ² \times 2 cores

Avoid using multi-core cables to prevent malfunction.

(5)Keep remote controller line away from earth (frame or any metal of building)

6 Make sure to connect remote controller line to the remote controller and terminal block of indoor unit. (No polarity)

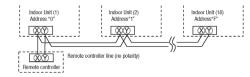
Control plural indoor units by a single remote controller.

①A remote controller can control plural indoor units (Up to 16).

In above setting, all plural indoor units will operate under same mode and temperature setting. (2)Connect all indoor units with 2 core remote controller line.

③Set unique remote control communication address from "0" to "F" to each inside unit by the rotary switch SW2 on the indoor unit's PCB.

After a unit is energized, it is possible to display an indoor unit address by pressing AIR CON NO. button on the remote control unit. Press the 🔺 or 🔻 button to make sure that all indoor units connected are displayed in order.



Confirming method of indoor units

When indoor unit address number is displayed on remote controller, pushing the one (MODE) button to make the indoor unit with that number blow air (Display example:" I/U001 ≌") Push the (MODE) button again to stop the operation. However, this operation is invalid on the air-conditioning running

Master/ slave setting when more than one remote control unit are used

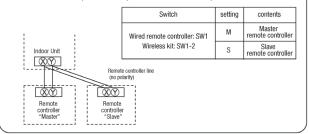
A maximum of two remote control units can be connected to one indoor unit (or one group of indoor units.)

The air conditioner operation follows the last operation of the remote controller regardless of the master/slave setting of it.

Acceptable combination is "two (2) wired remote controllers", "one (1) wired remote controller and one (1) wireless kit" or "two (2) wireless kits"

Set SW1 (wired remote controller) or SW1-2 (wireless kit) to "Slave" for the slave remote control unit. It was factory set to "Master" for shipment.

Note: The setting "Remote control unit sensor enabled" is only selectable with the master remote control unit in the position where you want to check room temperature.



③Trial operation

The method of trial cooling operation

Operate the remote control unit as follows.

- 1. Starting a cooling test run.
- ①Start the system by pressing the **OON/OFF** button.
- ②Select " & (Cool)" with the (MODE) button
- ③Press the TEST button for 3 seconds or longer. The screen display will switch to: " ☎ TEST RUN ▼ "
- ④When the O (SET) button is pressed while " # TEST RUN ▼ " is indicated, a cooling test run will start.
- The screen display will switch to " TEST RUN ". 2. Ending a cooling test run
- Pressing the OON/OFF button, the C (TEMP) button or (MODE) button will end a cooling test run. (Cooling test run will end after 30 minutes pass.)

Numbe

03

04 SENSOR 3

07

09

10 ANSHER

11 I/U EEV

12

21 22

23

24

25

26

27

28

29

30

31

32

33

34

37

35

36 DEFROST

39 0/11 FEV2

Depending on out

01 🕺

SET TEMP 02

THI-R1 THI-R2 THI-R3 05 06

I/U FANSPEED DEMAND Hz

TOTAL I/U RUN

MPa MPa

CT____AMP TARGET SH____

OUTDOOR THO-R1 THO-R2

COMP

Hz Hz

RETURN AIR

Data Item

(Operation Mode

(Set Temperature)

Return Air Temperature)

(Indoor Unit Heat Exchanger Therm

(Frequency Requirements)

(Pulse of Indoor Unit Expa

tdoor Air Temperature)

Discharge Pipe Temperature)

(Response Frequency)

(High Pressure)

(Low Pressure)

C (Target Super Heat)

(Defrost Control On/Off

or unit model, there are data not show

 DEFINICISITY
 Control of DVD/IN

 TOTAL COMP RUN
 H (Total Running Hours of The Compressor)

 O/U EEV |
 P (Pulse of The Outdoor Unit Expansion Value EEVC)

 O/U EEV2
 P (Pulse of The Outdoor Unit Expansion Value EEVC)

 SH___C
 (Super Heat)

 TDSH___C
 (Discharge Pipe Super Heat)

 PROTECTION No.__(Protection State No. of The Compre (Super Heat)

0/UFANSPEED (Outdoor Unit Fan Speed) 63H1 (63H1 0n/Off)

COMP BOTTOM : (Comp Bottom Temperature)

. (Curn

(Indoor Unit Fan Spi

(Remote Controller Thermistor Temperature

(Indoor Unit Heat Exchanger Thermistor / U Ben

(Indoor Unit Heat Exchanger Thermistor /Gas Heade

H (Total Running Hours of The Indoor Unit

(Outdoor Unit Heat Exchanger Thermisto

(Outdoor Unit Heat Exchanger Thermisto

sor Frequency)

" 🏶 TEST RUN, " shown on the screen will go off.

Checking operation data

Operation data can be checked with remote

- control unit operation. 1. Press the CHECK button.
- The display change " OPER DATA T
- 2. Press the O (SET) button while **NPER DATA** ▼ " is displayed.
- 3. When only one indoor unit is connected to remote controller. " DATA LOADING" is displayed (blinking indication during data loading).

Next, operation data of the indoor unit will be displayed. Skip to step 7.

- 4. When plural indoor units is connected. the smallest address number of indoor unit among all connected indoor unit is displayed. [Example]
- "⊕ \Rightarrow SELECT I/U" (blinking 1 seconds)→
- ▲ " blinking. "I/U000 5. Select the indoor unit number you would like to have data displayed with the
- ▲ ▼ button. 6. Determine the indoor unit number with the
- (SET) button. (The indoor unit number changes from blinking indication to continuous indication) " I/U000 " (The address of selected
- indoor unit is blinking for 2 seconds.)

DATA LOADING " (A blinking indication appears while data loaded.)

Next, the operation data of the indoor unit is indicated.

7. Upon operation of the $\left| {\bf L} \right|$ button, the current operation data is displayed in order from data number 01.

The items displayed are in the above table.

- *Depending on models, the items that do not have corresponding data are not displayed.
- 8. To display the data of a different indoor unit, press the AIR CON NO. button, which allows you to go back to the indoor unit selection screen.
- 9. Pressing the OON/OFF button will stop displaying data. Pressing the (RESET) button during remote control unit operation will undo your last operation and allow you to go back to the previous screen.
- Olf two (2) remote controllers are connected to one (1) inside unit. only the master controller is available for trial operation and confirmation of operation data. (The slave remote controller is not available.)

Trail operation of drain pump

Drain pump operation from remote control unit is possible. Operate a remote control unit by following the steps described below

1. To start a forced drain pump operation.

- ①Press the TEST button for three seconds or longer.
- The display will change " 🏶 TEST RUN 🛛 🔻

②Press the 👿 button once and cause " DRAIN PUMP * " to be displayed.

(3) When the (SET) button is pressed, a drain pump operation will start.

Display: " 🖧 🖸 TO STOP

2. To cancel a drain pump operation.

()If either (SET) or OON/OFF button is pressed, a forced drain pump operation will stop. The air conditioning system will become OFF.

@If two (2) remote controllers are connected to one (1) inside unit, only the master controller is available for trial operation and confirmation of operation data. (The slave remote controller is not available.)

@Function Setting by Remote Controller						
The functional setting						
The initial function setting for typical using is performed automatically for a remote control unit and an indoor unit by the door unit connected, when						
remote controller and inside unit are connected.						
As long as they are used in a typical manner, there wiil be no need to change the initial settings. If you would like to change the initial setting marked " 🔿 ", set your desired setting as for the selected item.						
The procedure of functional setting is shown as the following diagram.						
As for detail of setting, refer to the installation manual of remote controller.						
[Flow of function setting] Start : While indoor unit do not operate, press " o " (SET) and " o " (MODE) button for 3 seconds at the same time.						
Galt - Press 🐨 🐨 (SET) button.						
Reset : Press " [] (RESET) button.						
Select : Press Down of the second sec						
It is possible to finish above setting on the way, and unfinished change of setting is unavailable.						
" ()" : Initial settings " X" : Automatic criterion						
As for detail, refer to the installation manual of remote controller.						
During air-conditioner stopping push Record and save the						
© (SET) + ∞ (MODE) button simultaneously for 3 seconds Consult the technical data etc for each control details						
REMEDIX Remote controller function) Function						
01 BRILLE PLACET Setting						
1 ↓ IMMLID ○ 50Hz ZOKE ONLY When you use at 50Hz area						
CONE ZONE CONLY When you use at 60Hz area						
NJTO RJN ON 🛛 💥						
ALTO RIN OFF X Automatic operation is impossible						
04 (E2) MOC SV						
● E型 WALID ○ ● 上記 WALID ■ Mode button is not working						
05 © DIV/DEF SM □ ○						
© 0 IWHLID 0n/0ff button is not working						
og 医FAN SPEED W 上口 ※						
低国 INMID ※ Fan speed button is not working						
あ に 図 IIV研 U						
6@\%LD ○ 6@\%LD Timer button is not working						
Og ESSBOR SET						
ESCHICAR OFF O Remote thermistor is not working. ESCHICAR ON Remote thermistor is working.						
Image: Station relation Remote thermistor is working, and to be set for producing +3.0°C increase in temperature. Image: Station relation relatinde relation relation relation relatinde relation rel						
ESBOR +1.0c Remote thermistor is working, and to be set for producing +1.0°C increase in temperature.						
Image: Start Start Remote thermistor is working, and to be set for producing -1.0°C increase in temperature. Image: Start Remote thermistor is working, and to be set for producing -2.0°C increase in temperature.						
Image: The second sec						
INVALID O VALID						
11 VB/TLINK SET						
NO YENT Connect the Single split series and the VRF series to the indoor board CNT and indoor board CND respectively. If a						
Mathematical ventilation device is connected, been geared with the motion of indoor device, the ventilation device is operated/stopped. ND VENT LINK By connecting the ventilation device with the Single split series device to indoor board CNT, the VRF series device to						
NU YOH LINK CND, you can operate/stop the ventilation device independently by the handling of ventilation button.						
INDUCHAGE If you change the range of set temperature, the indication of set temperature will vary following the control. Instructure If you change the range of set temperature, the indication of set temperature will not vary following the control.						
NU JNUM Linkind: keep the set temperature.						
13 1/U FM HI-HID-LD X Airflow of fan becomes the three speed of 3/41 - 3/40 - 3/40						
HI-L0 🔆 Airflow of fan becomes the two speed of at at - At at 0.						
HI-HED Airflow of fan becomes the two speed of #aut - #aut). THN SPED X Airflow of fan is fixed at one speed.						
14 5→PRSITION If you want to change the remote control function "14 s→PRSITION",						
You must change the indoor function "04 கு.–PRSTITIN" accordingly.						
4POSITION STOP O FREE STOP The louver stop position in the four. The louver can stop at any position.						
15 MODEL TYPE						
COULTE ONLY X						
In you input into the indoor printed circuit board CNT from outside, the indoor device will be operated independently						
FIR ALL UNITS If you input from outside.						
network work following the input from outside.						
INDICATION ON In normal working indication, indoor unit temperature is indicated instead of airflow. (Only the master remote control can be indicated.) (Only the master remote control can be indicated.)						
18 # SMONONTION ON O						
INDICATION OFF Heating preparation indication should not be indicated.						
19 t₂/F_SET to Temperature indication is by degree C						
Temperature indication is by degree F						
OW/OFF button (finished)						

Note 1: The initial setting marked " 💥 " is decided by connected indoor and outdoor unit, and is automatically

			defined as	s following tab	le.						
			Function No.	ltem	Default		Model				
			Function 02 of remote controller	AUTO RUN SET	AUTO RUN ON		N" mode selectable in				
					AUTO RUN OFF	Indoor unit without "Auto-RUN" mode					
			Function 06 of remote controller	ISSEFAN SPEED	SW 65 VALID		Indoor unit with two or three step of air flow setting				
			Function 07 of		していていていていていていた。 していていていていていていていていていていています。 していていていていていていていていていていていていていています。 していていていていていていていていていていていていていていています。 していていていていていていていていていていていていていていています。 していていていていていていていていていていていていていていています。 していていていていていていていていていていていていていていていです。 していていていていていていていていていていていていていです。 していていていていていていていていていていです。 していていていていていていていていていていていていです。 していていていていていていていていていていていていていていです。 していていていていていていていていていていていです。 していていていていていていていていていていていていていていていていていていてい	Indoor unit with only one of air flow setting Indoor unit with automatically swing louver					
			remote controller	🖾 LOUVER S	W SEZ INVALID	Indoor unit with automatically swing louver			r		
					HI-MID-LO	Indoor unit with three step of air flow setting					
			Function 13 of	I/U FAN	HI-LO	Indoor unit with two step of air flow setting					
			remote controller		HI-MID		Indoor unit with only one of air flow setting				
					1 FAN SPEED						
			Function 15 of remote controller	MODEL TYPE	HEAT PUMP COOLING ONLY	Heat pump unite Exclusive cooling unite					
			Terriote controller	CUULING UNLT EXClusive cooling unite							
			Note 2. Fan settin	Note 2: Fan setting of "HIGH SPEED"							
				Indoor unit air flow setting							
			Fan ta	ар				1 80			
				STANDARD	UH - Hi - Me -		Hi - Me - Lo	Hi - Lo	Hi-Me		
				IGH SPEED1, 2	UH - UH - Hi -		UH - Hi - Me	UH - Me	UH - Hi		
					indoor unit is "HIG						
			initial function se	ung of some	induoti unit is mie	IN OFEED					
Indoor unit function) I/U FUNCTION A Indoor No (Note3)	Only when plural indoor units are connected unit function) ///URINCTION // Indoor No. selection (Note3) Function			Note 3: As for plural indoor unit, set indoor functions to each master and slave indoor unit. But only master indoor unit is received the setting change of indoor unit function "05 EXTERNAL INPUT" and "06 PERMISSION / PROHIBISHION".							
1/U001 ¢ 1/U002 ¢ 1/U003 ¢	02 FAN SPEED SET	STANDARD O	ote2)								
If to change re-set with other indoor unit, push <u>AIRCON NO.</u> button, and indoor selection indication		TYPE 1 O Th TYPE 2 Th Th TYPE 3 Th Th	filter sign is indicated after running for 180 hours. filter sign is indicated after running for 600 hours. filter sign is indicated after running for 1000 hours. filter sign is indicated after running for 1000 hours, then it will be stopped by compulsion after 24 hours.								
(for example: I/U 000) is set back.	04 = POSITION	TH 4POSITION STOP O Se	to change the indoor fund ne remote control function elect the louver stop positi ne louver can stop at any								
	OG (DENTUMEN SSOV FROM TOM	LEVEL INPUT O PULSE INPUT									
		VALID M	ake permission/prohibitic	on control of fun	ction be in effect.						
	07 EMERGENCY STOP	VALID	ith the VRF series, it is used to stop all indoor units connected with the same outdoor unit immediately. hen stop signal is inputed from remote on-off terminal "CNT-6", all indoor units are stopped immediately.								
	08 🔅 SP OFFSET	0FFSET +3.0% To 0FFSET +2.0% To	b be reset for producing +3.0°C increase in temperature during heating. b be reset for producing +2.0°C increase in temperature during heating. b be reset for producing +1.0°C increase in temperature during heating.								
		OFFSET +1.5% To	be reset producing +2.0°C increase in return air temperature of indoor unit. be reset producing +1.5°C increase in return air temperature of indoor unit.								
	O9 (RETURN AIR TEMP)		be reset producing -1.0 be reset producing -1.5	e reset producing +1.0°C increase in return air temperature of indoor unit. e reset producing -1.0°C increase in return air temperature of indoor unit. e reset producing -1.5°C increase in return air temperature of indoor unit. e reset producing -2.0°C increase in return air temperature of indoor unit.							
	10 🔆 FAN CONTROL	SET FAN SPEED	hen heating thermostat is off, to be operated with low air flow. hen heating thermostat is off, to be operated with set air flow.								
		FAN OFF W	en heating thermostati soff, to be operated intermittently. en heating thermostat is off, the fan stops. en the remote thermistor is working. "FAN OFF" is set automatically. not set when the indoor unit's thermistor is working.								
	11 [FROST PREVENTION TEMP]	TEMP HIGH TEMP LOW O	hange of indoor heat excl		ure to start frost prever	ntion control.					
	12 ROST FREVENTION CONTROL 13 DRAIN PUMPLINK		orking only with the single split series. control frost prevention, the indoor fan tap is raised.								

Drain pump is on during cooling and dry. Drain pump is on during cooling, dry and heating. Drain pump is on during cooling, dry, heating and fan. Drain pump is on during cooling, dry and fan.

After cooling is stopped or cooling thermostat is off, the fan does not perform extra operation. After cooling is stopped or cooling thermostat is off, the fan perform extra operation for half an hour. After cooling is stopped or cooling thermostat is off, the fan perform extra operation for an hour. After cooling is stopped or cooling thermostat is off, the fan perform extra operation for sin hours.

After heating is stopped or heating thermostat is off, the fan does not perform extra operation. After heating is stopped or heating thermostat is off, the fan perform extra operation for half an hour. After heating is stopped or heating thermostat is off, the fan perform extra operation for two hours. After heating is stopped or heating thermostat is off, the fan perform extra operation for six hours.

During heating is stopped or heating thermostat is off, the fan perform intermittent operation for five minutes after twenty minutes' off with low airflow. During heating is stopped or heating thermostat is off, the fan perform intermittent operation for five minutes after five minutes' off with low airflow.

defined as following table

15 渁 FAN REMAINING

16 | * FAN INTERMITTENCE

 \$\$0
 ○

 \$\$0 AND※

 \$\$0 AND※AND≋

 \$\$0 AND ≈

ND REMAINING O 0.5 HOUR 1 HOUR 6 HOUR

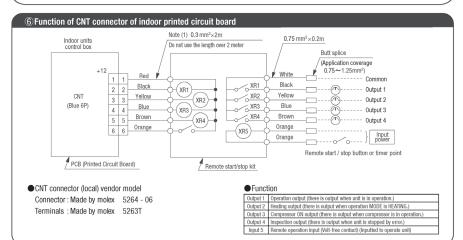
0

NO REMAINING 0.5 HOUR 2 HOUR 6 HOUR

NO REMAINING

20ninOFF 5ninON 5minOFF 5minON

5 Control mode switching • The control content of indoor units can be switched in following way. (_____ is the default setting) Control Content Switch No. SW2 Indoor unit address (0-Fh) SW5-1 Master/Slave Switching (plural /Slave unit Setting) SW5-2 SW6-1~4 Model capacity setting Operation check, Drain motor test run ΟN SW7 - 10FF Normal operation



⑦Troubleshooting																
The operation data is saved when the situation of abnormal operation																
happen, and the data can be confirmed by remote controller.																
[Operating procedure]																
1. Press the CHECK button.	Error	Code of indoor	unit													
	EITOI		umi													
The display change " OPER DATA ▼ "	Display on	LED on indoo	r circuit board													
2. Once, press the button, and the display change	remote controller	lote		Content												
"ERROR DATA ".		Off	Continuous blinking	Normal												
Press the o (SET) button and abnormal operation data mode is started.	Off	Off	Off	Fault on power, indoor power off or lack phase												
		Off	Continuous blinking	Fault on the transmission between												
 When only one indoor unit is connected to remote controller, following is disclosed. 	E1		Not sure	indoor circuit board and remote control Indoor computer abnormal												
is displayed.	E5	Not sure Not sure Blinking twice Continuous blinkir		Fault on outdoor-indoor transmission												
(1)The case that there is history of abnormal operation.	E6	Blinking once	Continuous blinking	Indoor heat exchange sensor interrupted or												
\rightarrow Error code and " DATA LOADING " is displayed.	53	-		short-circuit Indoor air inhaling sensor broken or												
[Example]: [E8] (ERROR CODE)	E7	Blinking once	Continuous blinking	short-circuit												
"DATA LOADING" is displayed (blinking indication during data loading).	E8	Blinking once	Continuous blinking	The temperature of heat exchange abnormal												
Next, the abnormal operation data of the indoor unit will be displayed.	E9	Blinking once	Continuous blinking	Float SW actions (only with FS)												
Skip to step 8.	E10	Off	Continuous blinking	Excess number of remote controller connections												
②The case that there is not history of abnormal operation. → " NO ERROR " is displayed for 3 seconds and this mode is closed.	E14	Blinking for three times	Continuous blinking	The communication fault for master/slave indoor units												
→ NU ENNUR is displayed for 3 seconds and this mode is closed. 5. When plural indoor units is connected, following is displayed.	E16	Blinking once	Continuous blinking	Fan motor abnormal												
	E19	Blinking once	Continuous blinking	Configuration fault on running checking model												
(1)The case that there is history of abnormal operation.	E28	Off	Continuous blinking	Remote controller sensor interrupted												
→ Error code and the smallest address number of indoor unit	Over E30	Off	Continuous blinking	Outdoor unit checking (outdoor circuit board												
among all connected indoor unit is displayed.	OVEI LOO	011	Continuous binning	LED checking)												
[Example]: [E8] (ERROR CODE)																
" I/U000 ▲ " blinking																
②The case that there is not history of abnormal operation.																
\rightarrow Only address number is displayed.																
6. Select the indoor unit number you would like to have data displayed wi	th the 🔺	 button. 														
7. Determine the indoor unit number with the O (SET) button.																
[Example]: [E8] (ERROR CODE)																
" I/U000 🔺 " (The address of selected indoor unit is blinking	for 2 sec	onds.)														
Ļ																
[E8] "DATA LOADING" (A blinking indication appears while data loaded	.)															
Next, the abnormal operation data is indicated.	Next, the abnormal operation data is indicated.															
If the indoor unit doing normal operation is selected, NO ERROR " is displayed for 3 seconds and address of indoor unit is displayed.																
8. By the 🔺 🔻 button, the abnormal operation data is displayed.	8. By the 🔺 🔍 button, the abnormal operation data is displayed.															
Displayed data item is based on (3) <u>Irial operation</u> . *Depending on models, the items that do not have corresponding data are not displayed. 9. To display the data of a different indoor unit, press the AIR CON No. button, which allows you to go back to the indoor unit slection screen.																
									10.Pressing the OON/OFF button will stop displaying data.							
									Pressing the Main (RESET) button during remote control unit operation will undo your last operation and allow you to go back to the previous screen.							
ØIf two (2) remote controllers are connected to one (1) indoor unit, only for a second sec	(a) If two (2) remote controllers are connected to one (1) indoor unit, only the master controller is available for trial operation and confirmation of operation															
data. (The slave remote controller is not available.)																

HYPER INVERTER PACKAGED AIR-CONDITIONERS



Air-Conditioning & Refrigeration Systems Headquarters 16-5, 2-chome, Kounan, Minato-ku, Tokyo, 108-8215, Japan Fax : (03) 6716-5926

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