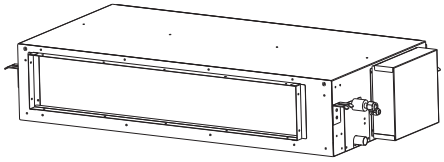
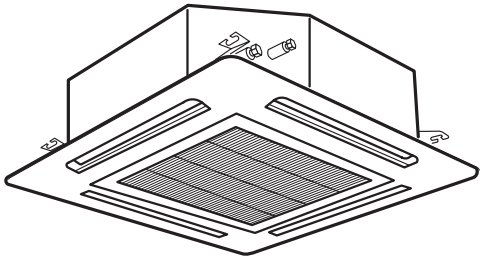
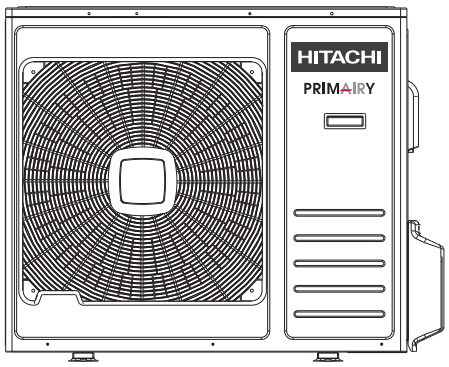
HITACHI

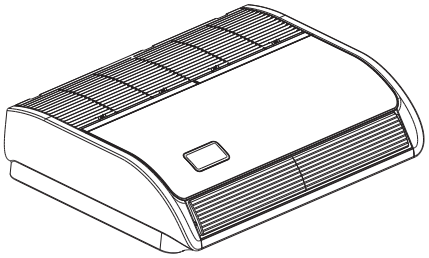
SERVICE MANUAL

HITACHI SPLIT AIR CONDITIONERS









HPS2017004HA

Models

< **Indoor Units** >

Ducted

Heat pump type	Cooling only type
RPIL-1.0UNE1NH	RPIL-1.0TNE1NH
RPIL-1.5UNE1NH	RPIL-1.5TNE1NH
RPIL-2.0UNE1NH	RPIL-2.0TNE1NH
RPIM-3.0UNE1NH	RPIM-3.0TNE1NH
RPIH-4.0UNE1NH	RPIH-4.0TNE1NH
RPIH-5.0UNE1NH	RPIH-5.0TNE1NH
RPIH-6.0UNE1NH	RPIH-6.0TNE1NH
RPIH-6.5UNE1NH	RPIH-6.5TNE1NH

Cassette

Heat pump type	Cooling only type
RCI-1.5UNE1NH	RCI-1.5TNE1NH
RCI-2.0UNE1NH	RCI-2.0TNE1NH
RCI-3.0UNE1NH	RCI-3.0TNE1NH
RCI-4.0UNE1NH	RCI-4.0TNE1NH
RCI-5.0UNE1NH	RCI-5.0TNE1NH
RCI-6.0UNE1NH	RCI-6.0TNE1NH
RCI-6.5UNE1NH	RCI-6.5TNE1NH

Floor ceiling

Heat pump type	Cooling only type
RCI-1.5UNE1NH	RCI-1.5TNE1NH
RCI-2.0UNE1NH	RCI-2.0TNE1NH
RCI-3.0UNE1NH	RCI-3.0TNE1NH
RCI-4.0UNE1NH	RCI-4.0TNE1NH
RCI-5.0UNE1NH	RCI-5.0TNE1NH
RCI-6.0UNE1NH	RCI-6.0TNE1NH
RCI-6.5UNE1NH	RCI-6.5TNE1NH

< **Outdoor Units** >

Heat pump type	Cooling type
RAS-1.0UNESNH1	RAS-1.0TNESNH1
RAS-1.5UNESNH1	RAS-1.5TNESNH1
RAS-2.0UNESNH1	RAS-2.0TNESNH1
RAS-3.0UNESNH1	RAS-3.0TNESNH1
RAS-4.0UNESNH1	RAS-4.0TNESNH1
RAS-5.0UNESMH1	RAS-5.0TNESMH1
RAS-6.0UNESMH1	RAS-6.0TNESMH1
RAS-6.5UNESMH1	RAS-6.5TNESMH1

●NOTE:
Heating and electric heating function are not available for cooling only models.

DC-Inverter Air Conditioner Service Manual

Table of Contents

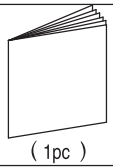
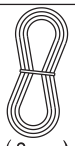
1. OPTION LIST

1. Wired Rmote Controller(Model：HCWA21NEWH)

1.1 Wired remote controller installation

Checking accessories

Check the following accessories are included with the unit before installation：

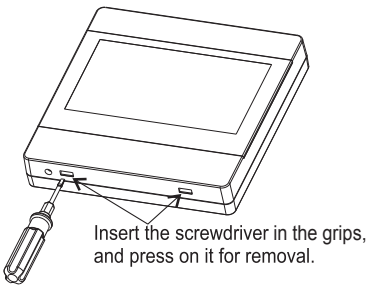
Manual	Quality certification	Screw	Controlling cable	Connecting terminal
				
(1pc)	(1pc)	(2 pcs)	(2 pcs)	(1pc)

How to install

1. Selecting the Installation Location.

Please select the installation location according to **safety precautions** .

2. Removing the upper cover of the wired controller.



Note:
Control board of the remote controller is placed on upper cover.
Please protect it from being scratched during removal and installation!

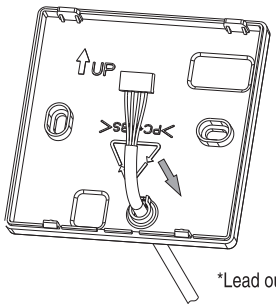
3. Remove the insulating strip of the battery .

Otherwise the wire remote controller cannot work normally after installation!

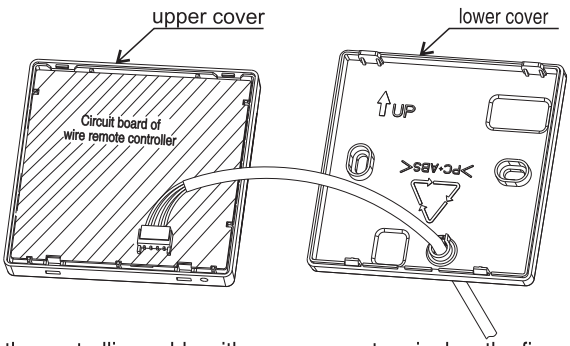
4. Wiring .

① **Leading out wire**

Pull one of the attached controlling cable out of the lower cover from the rear round hole .



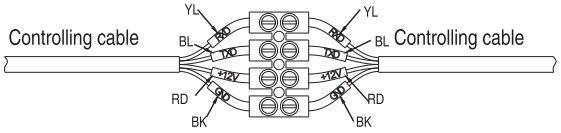
②Wiring.



A. Connect the controlling cable with upper cover terminal as the figure above.

1. OPTION LIST

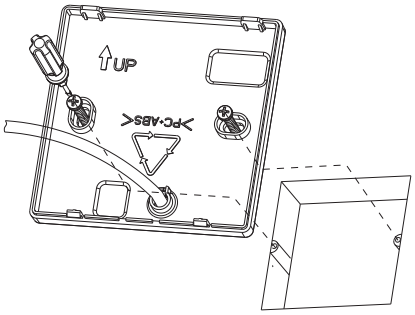
B. Connect the other attached controlling cable with indoor unit control board.
C. Connect the 2 controlling cables with attached connecting terminal as the figure below:



Firmly fasten the connection cord after connection.

5.Securing the lower cover.

Please secure the lower cover with the attached screws (2 pcs) on the wall or embedded box.

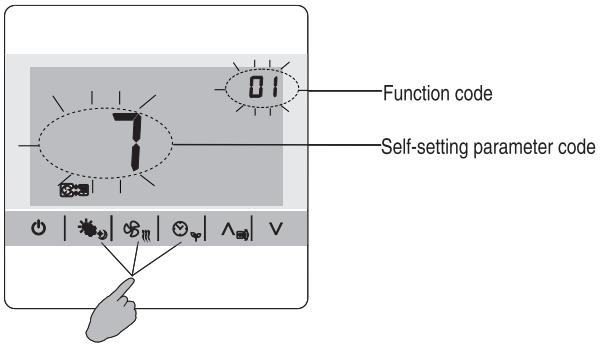


Custom parameters

The internal parameters of the wire remote controller can be set with the actual usage conditions.
The catalogue of Custom-setting parameters is shown as follows:

Custom-setting parameter code	Implication of code display	Description	Remarks
3	boot	When "boot" blinks, press "⏻" to restore to factory default and quit parameter set.	
6	Temperature display setting	0-Display the set temperature; 1-Display the indoor environment temperature	The factory setting defaults to 0
7	Temperature measurement unit display setting	0-Display in Celsius 1-Display in Fahrenheit degree	
8	Cooling only setting	0-Heat pump type air conditioner; 1-Cooling only air conditioner	
10	Temperature limits revision setting	0-Not permitted ; 1-Permitted	
11	Environment temperature revision setting	0-Not permitted ; 1-Permitted	

The method of setting the custom parameters:



1 Hold down "⏻", "☀" and "⏲" buttons at the same time for 5s, to access the parameter custom-setting mode, and the screen will display the self-setting parameter code and icon.
2 Press the "☀" button to select the custom-setting parameter code, and function code will also be displayed on the LCD.
3 Press the "∨" (up) button or "∧" (minus) button to select the function code,and press "ON/OFF" button to confirm the setting.

Note:
It will directly exit custom settings mode without saving setting if there is no operation within 30s.

1. OPTION LIST

Parameter setting

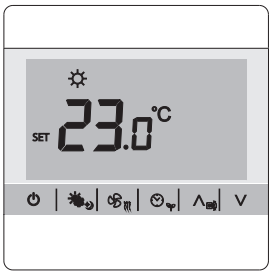
The wire remote controller room temperature display and limit set temperature can be revised if need.

Before setting, please to check if these parameters are enabled to be revised, for details, see **Self-setting parameters.**

1. Temperature limit setting

Default temperature set point range is (16-30)℃. You can change the range when needed. For example, in cooling mode, temperature adjustment range could be changed to (23-30)℃; in heating mode, it could be changed to (16-23)℃. The temperature limit is only effective for the cooling and heating modes.

Temp. limit setting(cooling mode)



Temp. limit setting(heating mode)

Setting method:

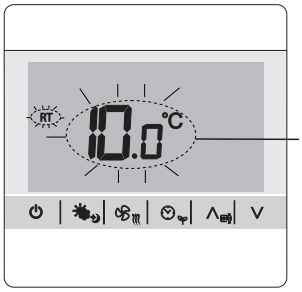
1 Press down the " " and " " button at the same time for 5s to enter parameter setting mode.
2 Press " " or " " until set temp. icon " " cooling mode icon " " and temp. all values will be flicking at the display, press press " " to enter cooling temp. limit setting mode.
3 Press the " " or " " button to adjust the lowest cooling temperature value .
4 Press the " " button to confirm the setting and enter heating temp. limit setting mode, temp. icon " " heating mode icon " " and temp. all values will be flicking at the display, press.
5 Press the " " or " " button to adjust the highest heating temp. value .
6 Press the " " button to confirm the setting, save the setting and exit.

How to quit:

Press the " " button to exit without settings.

2. Room temperature correction

Setting of room temperature correction is for particular cases (e.g. remote located at an area with different temperature than the room): wired remote controller is set to display room temperature, but the room temperature detected is different from the actual room temperature, so setting correction is necessary.



Room temperature correction value

Room temperature correction

Setting method:

1 Press down the " " and " " button at the same time for 5s to enter parameter setting mode.
2 Press " " or " " until room temperature icon " " and temp. value start flicking on the screen, and press " " to enter room temp. correction mode.
3 Press the " " or " " button to adjust the room temperature value within an offset of ±10℃ of the current temperature.
4 press the " " button to confirm the setting, save the setting and exit.

1. OPTION LIST

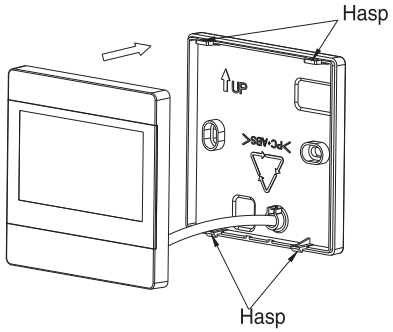
How to cancel:

Press the " ⏻ " button to exit without saving all values will be flicking at the display, press.

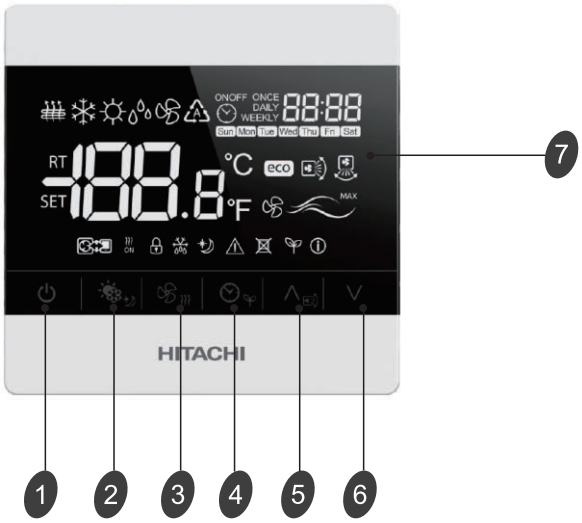
Upper cover assembly

Align the upper cover with the hasp of lower cover of the remote controller, and then press the upper cover onto the lower cover.

After installation, tear off protective sticker attached on the screen of wired controller.



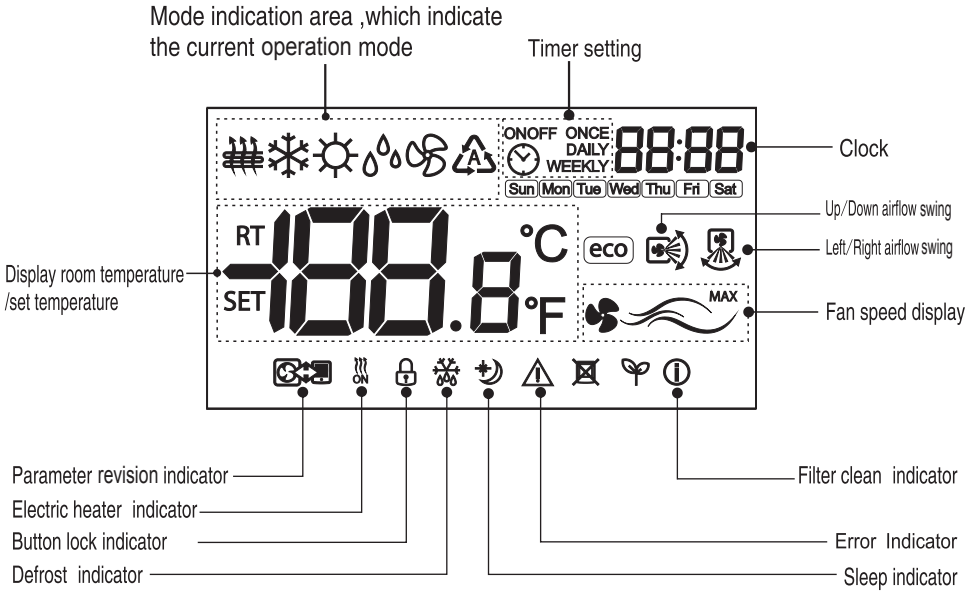
1.2Wired Remote Controller Introduction



1. ON/OFF BUTTON
   The appliance will be started or stopped when pressing this button.
2. MODE BUTTON
   Press this button to select the operation mode.
3. FAN BUTTON
   Used to select fan speed in sequence high- auto-low-medium-high.
4. TIMER/CLOCK BUTTON
   Used to set the current time or set timer on/off.
5. UP SETTING BUTTON
   Used to raise the setting values or to set the airflow direction.
6. DOWN SETTING BUTTON
   Used to lower the setting value.
7. LIQUID CRYSTAL DISPLAY(LCD) SCREEN

1. OPTION LIST

LCD screen



Operation mode

- Cooling mode
- Heating mode
- Dry mode
- Fan mode
- Auto mode

Fan speed setting

- (flickering) Auto fan speed
- Ultrahigh fan speed
- High fan speed
- Medium fan speed
- Low fan speed
- Ultralow fan speed

Timer setting

- ON — Timer ON
- OFF — Timer OFF
- ONCE — Timer setting valid only once
- DAILY — Timer setting valid only for one day
- WEEKLY — Timer setting set for a week

Temperature display

Room temperature

RT 26.0 °C

Set temperature

SET 26.0 °C

°F Fahrenheit Temperature

NOTE

1.Heating and electric heating function are not available for single cooling only models.

2.Air direction,Filter Clean,Floor Heat,Filter Clean,Electric Heating etc. are only available for specific models, for details please refer to the operation manual.

3.Custom-setting parameters b must be configured by installer or autorized person.

Basic operation

1.Turning ON/OFF

Press the ⏻ button , the appliance will be started or stopped.

2.Mode setting

Press "❄" button to select mode operation .

Each time MODE button is pressed , the operation mode will change in the following sequence:

Note: **AUTO mode is invalid for models without AUTO mode when setting.**
HEATING mode is invalid for cooling only types or heating-forbidden air conditioners.

1. OPTION LIST

3. Temperature setting

Press the " ∧ " or " ∨ " button to enter the temperature setting state.
Each time " ∧ " button is pressed , temperature setting increases by 1℃;
Each time " ∨ " button is pressed , temperature setting decreases by 1℃.

Temperature setting range	
COOLING, HEATING ,DRY,AUTO	16℃~30℃
FAN ONLY	Unavailable for setting

NOTE: **1. Heating mode is invalid for cooling-only air conditioners.**
2. The default setting range depends on the indoor unit.
3. Setting range can be changed by professional staff and for detailed operations, please contact with the installation service/after-sales service center.
4. When the set temperature reaches the upper or lower limits, setting temperature will not increase or decrease.

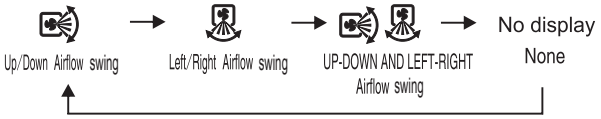
4. Fan speed setting

During the appliance in working mode, press the " " button to adjust the fan speed.
The fan speed will change in the following sequence:

NOTE: **AUTO fan speed is invalid for "FAN" mode.**
AUTO fan speed is the default setting under the DRY mode, unabling adjusting.

5.Airflow swing setting

Hold down " " and " ∧ " buttons for 5s simultaneously to adjust the airflow direction.
The airflow direction setting will change in the following sequence by default:



Note: **This function is only applicable to the air conditioning units with the swing function.**

Function set

Super mode

The maximum cooling/heating capacity can be activated at the super mode.

How to activate:

Press " " and " ∧ "buttons for 5s simultaneously with the working unit to activate the super mode, and the indoor unit will run at the ultrahigh fan speed ,and display with icon .
If you operate the Super mode under COOLING, DRY and FAN ONLY modes, the machine will automatically go into forced cooling mode with lowest setting temperature, or go into forced heating mode with highest setting temperature under the heating mode.

How to cancel:

Press " ⏻ "/" "/" " button to exit immediately.

Note:
For the indoor units without ultrahigh fan speed function, it will be adjusted to run at high fan speed, with high fan speed mode icon displayed.

Silent mode

The silent mode running mode reduces the noise by changing the fan speed of indoor unit so as to keep quiet during operation at night.

How to activate:

In the COOLING/HEATING mode during appliance operation, hold down " "and " ∨ " buttons for 5s simultaneously to activate silent mode, the indoor unit will run at the ultralow fan speed, and display with the icon .

How to cancel:

Press " ⏻ "/" "/" "button to exit.

Note: **For the indoor units without ultralow fan speed function, it will be adjusted to run at low fan speed, with low fan speed mode icon displayed.**

1. OPTION LIST

Sleep

With the sleep function the air conditioner will run in the mode of comfortable sleep to improve comfort.

How to activate:
Press "" button for 5s when the appliance is on to set the sleep function.The icon will be displayed on the LCD,indicating that sleep mode is activated.
How to cancel:
Press "" button for 5s again to cancel sleep function.The icon will disappear from LCD, indicating that sleep mode has been cancelled.

Button lock

After the wire remote controller setting is completed, you lock buttons to avoid children or others wrong operation . users setting overwrite. All operations are disabled after button lock function has been set.

How to activate :
Hold down " " and" " buttons for 5s simultaneously to activate button lock function, icon will be displayed on the LCD.
How to cancel:
Hold down " " and" " button for 5s simultaneously again to unlock , and icon will disappear from the LCD.

Filter clean reset

(available for models equipped with filter clean prompt function; need operate by professional staff)

When is displayed on LCD,indicates that the filter needs to be cleaned.

Please contact with professional staff to perform filter cleaning.
After cleaning,hold down " " and " "button for 5s to reset warning prompt.

Note: **FILTER CLEAN screen prompt is only available for some models . Details please refer to indoor unit manuals.**
Be sure to stop the operation and turn off the power supply before performing any cleaning.

Clock set

When the clock value is not consistent with the actual time, the clock shall be set.
Setting method:
Hold down " " button repetitively until icon blinks to enter clock set mode. Set the clock in the following sequence:

1 Press " / " button to select the desired Minute, press " " button to set next item.
2 Set HOUR/WEEKDAY by the same method as set MINUTE.
3 Press " " button or wait for 30s without operation to confirm.

1. OPTION LIST

Single Timer ON/OFF

How to activate

1 During OFF conditon, repetitively press " ⏲ " button until icon ONCE appear, "ON"and clock set are flickering , press " ⏲ " button to enter timer on setting.

2 Press " ∧ / ∨ " button to adjust the timer hour.
Each time "∨" button is pressed, timer setting increases by 1h.
Each time"∧" button is pressed, timer setting decreases by 1h.
It can be set from 0h to 23h, and timer setting resolution is 1 hour.
Press " ⏲ " button when reaches the desired value.

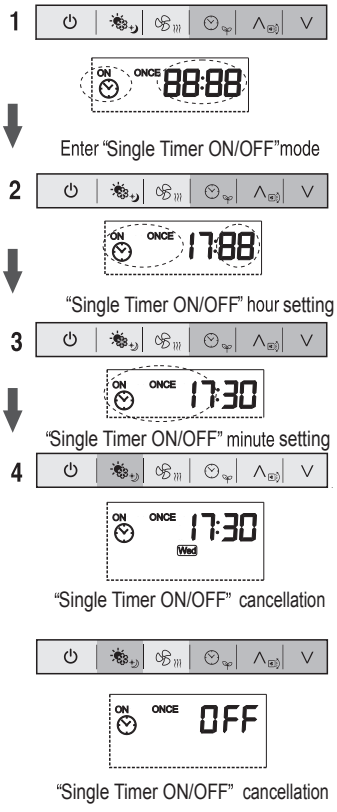
3 Set timer on minute with the same procedure.
It can be set from 00 to 59 with 1 minute resolution.

4 Press " ☀ " button to confirm Single Timer ON/OFF setting.
The display will returns to previous screen and icon " ⏲ ONCE "
will appear on the upper right corner of the screen.

How to cancel:

If you need cancel "TIMER ON", press " ⏲ "
button to active the timer on setting, Press "∧ / ∨ "
button to adjust time hour until icon OFF appears, press
" ☀ " button to confirm cancellation and exit.

You can set Single Timer ON/OFF by the same method when the appliance is ON.



Note:

Holding down the " ∧/ ∨ " button causes the value to increase continuously and rapidly .

Daily ON/OFF Timer

Operation:

Press " ⏲ " button to active TIMER set, and press " ∧ / ∨ "
until icon DAILY display on LCD, "TIMER OFF"and clock set flickering.
Press " ⏲ " button to enter timer OFF hour set.
Set step is the same with Single Timer ON/OFF set.

Note: **The Single, Daily and Weekly timer functions can not be set at the same time, if need TIMER ON/OFF work in the future time, please use WEEKLY TIMER function.**

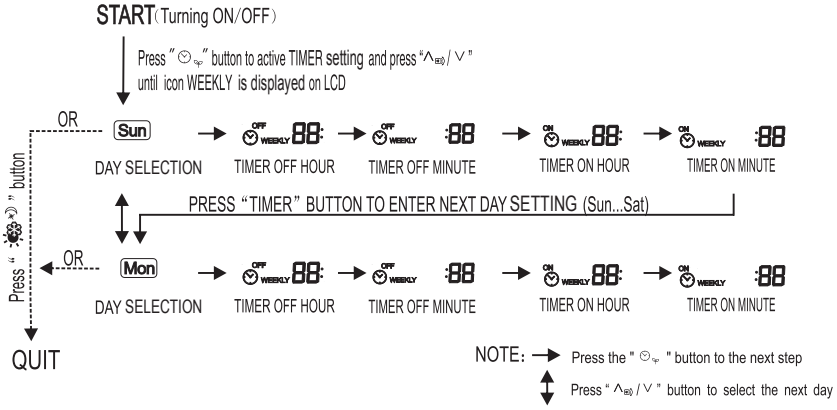
1. OPTION LIST

Weekly Timer

Weekly timer can be used to set on/off time respectively for seven days a week. Air conditioner can be on/off in preset time every day, without manual control.The air conditioner can be set on/off automatically before you wake up in the morning, back home from work or during sleep at night.

Note: **Please set the clock correctly before weekly timer set.**

Operation Procedure



Weekly Timer Set Procedure

Operation:

1 Press "⏲" button to active TIMER setting, and press ∧ / ∨ until icon WEEKLY is displayed on LCD, "TIMER OFF",weekday and clock set are flickering.

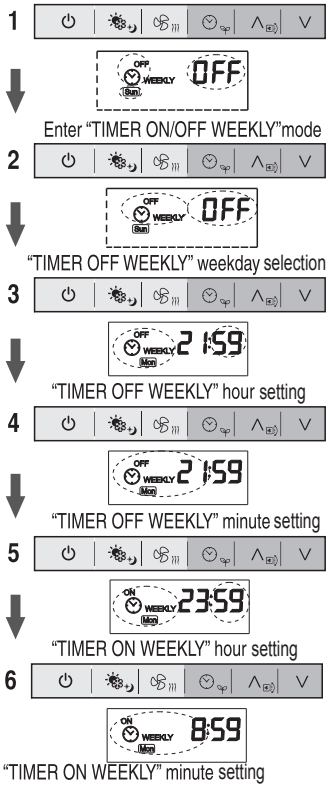
2 Press "⏲" button to enter day of week selection.
Press "∧/∨" button to select weekday, display from Sunday to Saturday.

3 Press "⏲" button to enter TIMER OFF hour setting.
Press "∧ / ∨" button to select desired timer of hour setting, it can be selected from 00-23, or OFF if need to cancel TIMER OFF function.

4 Press "⏲" button to enter TIMER OFF minute setting.
Press "∧ / ∨" button to select desired timer of minute setting, it can be selected from 00-59,

5 Press "⏲" button to enter TIMER ON hour setting.
TIMER ON setting is done with the same procedure as of TIMER OFF.

6 Press "⏲" button to enter Next day setting. you can set 7 day timer on/off time as you need to.
Confirm or quit WEEKLY TIMER setting by pressing "⚙" button , the week timer set screen will be displayed .



1. OPTION LIST

2. Wireless Rmote Controller (Model： HCRA31NEWH)

Remote controller

The remote controller transmits signals to the system.

1 MODE
Press this button to select the operation mode.

3 POWERFUL
Used to start or stop the fast cooling/heating. (Fast cooling operates at high fan speed with 16℃ set temp. automatically; Fast heating operates at auto fan speed with 30℃ set temp. automatically).

5 AUTO
Used to enter fuzzy logic operation directly.

7 TIMER
Used to set or cancel the timer operation.

9 SLEEP
Used to set or cancel Sleep Mode operation.

11 RESET
Back to the factory defaults.

2 TEMP.
Used to adjust the room temperature and the timer.

4 ON/OFF
The appliance will be started when it is energized or will be stopped when it is in operation, if you press this button.

6 FAN
Used to select fan speed in sequence auto, quiet low, low, medium and high.

8 UP/DOWN
Used to stop or start horizontal adjustment louver swinging and set the desired up/ down airflow direction.

10 LEFT/RIGHT
Used to stop or start vertical adjustment louver swinging and set the desired left/right airflow direction.

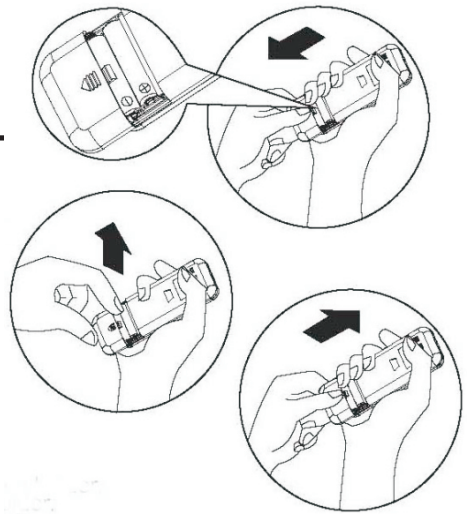
Indication symbols on LCD:

COOL	Cooling indicator	AUTO	Auto fan speed	RUNNING	Run indicator		Signal transmit
DRY	Dry indicator	HI	High fan speed	OFF	OFF indicator		Battery indicator
FAN	Fan only indicator	ME	Medium fan speed	SLEEP	Sleep indicator		Timer ON indicator
HEAT	Heating indicator	LO	Low fan speed	SET TEMP.	Display set temp.indicator		Timer OFF indicator
AUTO	Auto indicator	QLO	Quiet fan speed	FAN SPEED	Fan speed indicator		Button locked indicator
						88.	Timer ON/OFF set hour
						88.	Display set temperature

Note: ***①Each mode and relevant function will be further specified in following pages.***
②Heating and electric heating function are not available in single cooling only models.
③Pictures in the manual are for reference only, specifications are subject to the physical product.

1. OPTION LIST

Remote controller



◆ *How to Insert the Batteries*

Remove the battery cover according to the arrow direction.

Insert new batteries making sure that the (+) and (-) of battery are matched correctly.

Reattach the cover by sliding it back into position.

Note:

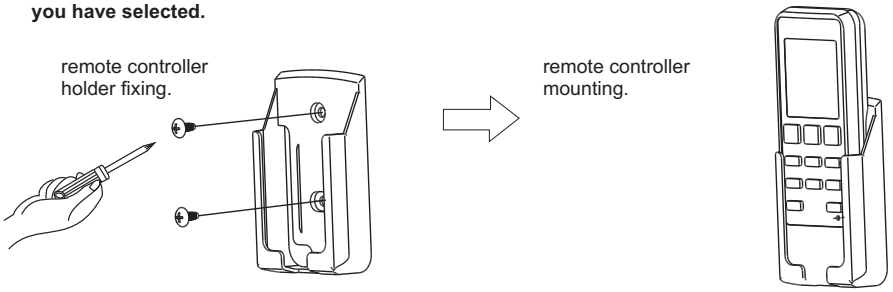
- ***Use 2 LR03 AAA(1.5volt) batteries. Do not use rechargeable batteries. Replace batteries with new ones of the same type when the display becomes dim.***

◆ Storage and Tips for Using the Remote Controller

The remote controller may be stored mounted on a wall with a holder.

Note: The remote controller holder is an optional part.

Note: The shape may differ from that of the remote controller holder you have selected.



◆ *How to Use*

To operate the room air conditioner, aim the remote controller to the signal receptor.
The remote controller will operate the air conditioner at a distance of up to 8m when pointing at signal receptor of indoor unit.

⚠ CAUTION

- If the batteries are not in use for a prolonged period of time, remove the batteries from the battery compartment to avoid the trouble.
- The battery can be used for about 6 months. If the Remote Control is not operated even when placing it near the receiver, replace 2 batteries with the new ones.
- Please do not use manganese battery because it may cause mal-function.
- Avoid extremely hot or cold locations such as placing it near or over a radiator, or in direct sunlight.
- Also avoid placing under fluorescent light.
- Do not let children play with the Remote Controller.
- To avoid interference, the indoor unit and the Remote Control unit should be at least 1m away from a TV set or a radio. In case more than two air conditioners are installed in the same room, it may interrupt individual operation.

1. OPTION LIST

Operation modes

◆ Selecting mode

Press MODE button once by once

Result : The operation modes changed in sequence:

Heating mode is NOT available for cooling only air conditioner.

◆ FAN mode

Press FAN button once by once

Result : The fan speed is changed in sequence:

At "FAN" mode, only "Auto" is not available.
At "DRY" mode, Fan speed is set at "AUTO" automatically, "FAN" button is ineffective in this case.

◆ Setting temperature

Press ∧ button

Result : Raise temperature setting by 1℃.

Press ∨ button

Result : Lower temperature setting by 1℃.

Range of available set temperature	
*HEATING, COOLING, DRY	16℃~30℃
FAN	unable to set

***Note: Heating mode is NOT available for cooling only models.**

◆ Turning on or off

Press ON/OFF button can change the unit operating status.

AUTO , POWERFUL , TIMER and SLEEP operation modes will be specified in the following pages.

- ***Changing modes during operation, sometimes the unit does not response at once. Wait 3 minutes.***
- ***During heating operation, air flow is not discharged at the beginning. After 2—5 minutes, the air flow will be discharged until temperature of indoor heat exchanger rises.***
- ***Wait 3 minutes before restarting the appliance.***

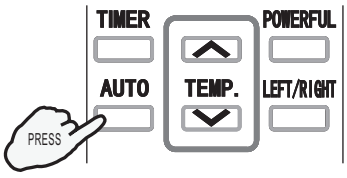
AUTO mode

◆ *How to set AUTO mode?*

Press the **AUTO** button.

Result : Enters **AUTO** mode (fuzzy logic operation).

Mode and fan speed are automatically set based on the actual room temperature.



Press MODE button cancel AUTO mode.
Note: Temperature, airflow and direction are controlled automatically in AUTO mode.

1. OPTION LIST

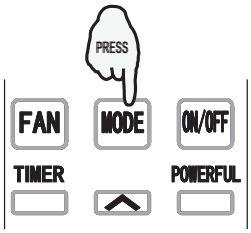
◆ ***What you can do in AUTO mode?***

Your feeling	Button	Adjust
Uncomfortable because of unsuitable air flow volume.	FAN	Indoor fan speed alternates among Auto, Low, Medium and High each time this button is pressed.
Uncomfortable because of unsuitable flow direction.	LEFT/RIGHT UP/DOWN	Press it once, the horizontal adjustment louver(vertical adjustment louver) swings to change vertical airflow direction(horizontal airflow direction). Press it again, swings stops.

◆ ***How to cancel the AUTO mode?***

Press the MODE button.

Result : The AUTO mode will be cancelled.



POWERFUL mode

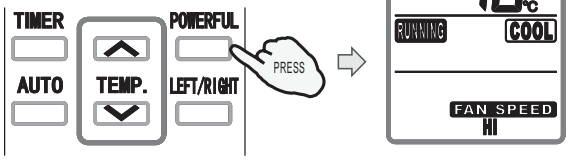
POWERFUL mode is used to start or stop fast cooling or heating only when the unit is on.

In **POWERFUL** mode, you can set temperature, airflow direction or timer.

◆ ***How to set POWERFUL mode?***

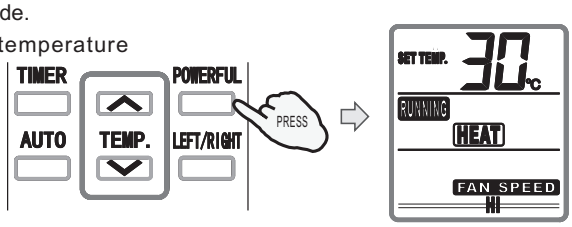
Press **POWERFUL** button at the cool, dry and fan mode.

Result : At high fan speed, the set temperature automatically to 16℃.



Press **POWERFUL** button at the heat mode.

Result : At high fan speed, the set temperature automatically to 30℃.



◆ ***How to cancel POWERFUL mode?***

Press POWERFUL, MODE, FAN, ON/OFF button.

Result : The display return to the original mode.
Escape from POWERFUL mode.

Note:
POWERFUL button is not available in AUTO mode.

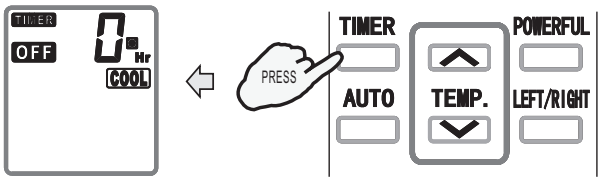
Timer mode

It is convenient to set the timer on with **TIMER** button when you go out in the morning to achieve a comfortable room temperature at the time you get home. You can also set timer off at night to enjoy a good sleep.

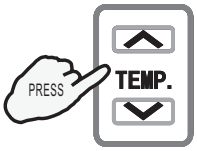
1. OPTION LIST

◆ ***How to set TIMER ON ?***

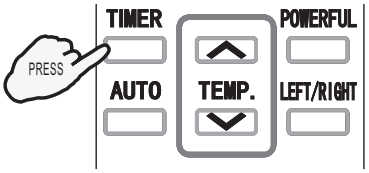
1. Press **TIMER** button when the unit is off.
   Result : TIMER and Hr flash on the LCD.



2. Press the ∧ or ∨ button.
   Result : Once to increase or decrease the time setting by 1 hour.



3. When your desired time displayed on LCD, press the TIMER button and confirm it.
   Result : TIMER and Hr stop flashing.

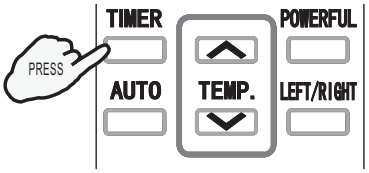


◆ ***How to cancel TIMER ON ?***

Press the **TIMER** button.

Result : The indicator disappears, the timer on mode has been canceled.

Note: It is similar to set TIMER OFF , you can make the appliance switch off automatically at your desired time.



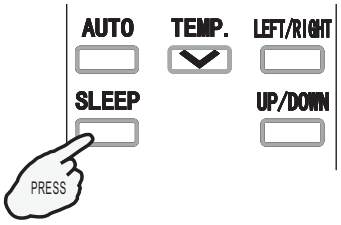
SLEEP mode

SLEEP mode can be set in **COOLING, HEATING** or **DRYING** mode.
This function gives you a more comfortable environment for sleep.

- The appliance will stop operation automatically after operating for 8 hours.
- Fan speed is automatically set at low speed.

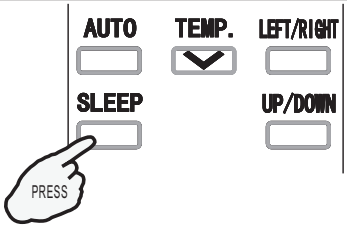
◆ ***How to set SLEEP mode ?***

Each time **SLEEP** button is pressed.
Result : SLEEP function will be started.



◆ ***How to cancel SLEEP mode ?***

Press AUTO, MODE, SLEEP, ON/OFF or FAN button.
Result : Escape from SLEEP mode.



1. OPTION LIST

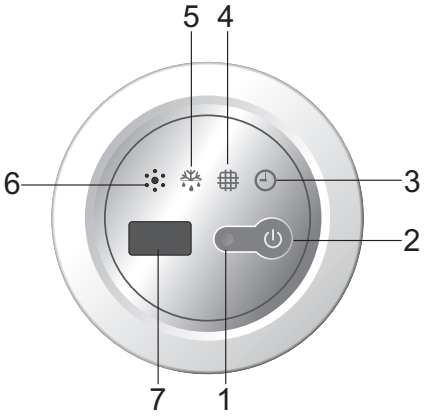
3. IR Receiver (Model : HRBA31NEGH)

❶ Important Notice

Please carefully read the Installation Manual supplied with the signal receiver, and perform installation in accordance with these instructions properly.

❷ Parts Introduction

Install the receiver onto the wall or ceiling near the indoor unit. Connect it with the indoor unit by the connect wire.It should be used with the wireless remote controller.
The wireless remote controller can send commands to the wireless receiver .Name of part is shown as follows:



1 Run indicator (Red)
It lights on during operation. It lights off during SLEEP mode.
2 Emergency switch
The filter clean indicator when the switch is pressed. The unit will stop operation if pressing the button, if pressing for more than 5s, the unit will operate in cooling mode.
3 Timer indicator (Green)
It lights on when timer is in use. It lights off when timer finishes.
4 Filter clean (Yellow)
It lights on when the filter should be cleaned.
5 Defrost indicator (Green)
It lights on during defrosting. It lights off when defrosting is finished.
6 Buzzer
It rings when the signal from remote controller is received.
7 Infrared receiver
Receives signal from the remote controller.

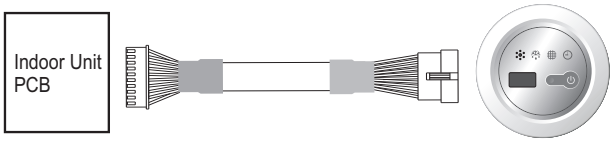
❸ How to Install

1. Selecting the installation location.

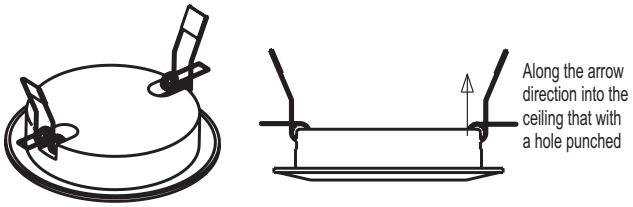
Please install it in the ceiling and close to the electronic control box of indoor unit.

2. Installation.

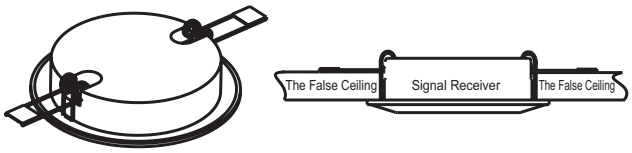
●Cut out a hole at the suitable place of the false ceiling with a diameter of 95mm.
●Place the connecting wire on the false ceiling.
●Incert the connecting wire into the indoor unit .
Connect the wires with the indoor PCB.
●Connect the other terminal with the receiver, details please see the indoor unit wiring diagram.
●Adjust the spring of the receiver and install the receiver into the hole that have punched . After installation, the appearance as showed in the figure below.
●Avoid installing it close to the fluorescent lamp.



The connection of the connecting wire



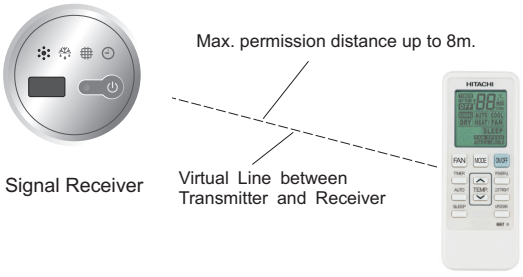
The Installation of the Receiver



After the Installation is completed

❹ Operation

Sending Commands from Controller
The operation commands are sent by pressing the required operation switch by aiming the transmitter of the controller at the receiver of the indoor unit.
When the commands are sent correctly, the buzzer on the wireless receiver goes off once. In case that the buzzer does not go off although the commands are sent, the commands are not received by the indoor unit. In such a case, sent the commands again.
Sometimes the buzzer does not be heard in case of the noise.
In some special cases, the indoor unit does not response to the commands of the wireless remote controller. The buzzer beeps 3 times.



Wireless Remote Controller

☑ • ***The figures in this manual are based on the external view of a standard model. Consequently, the shape may differ from that of the air conditioner you have selected.***
* ***It can be set or canceled by professional after-sale staff.***

2. TROUBLESHOOTING

2.Troubleshooting

2.1Trouble guide

When the air conditioner failure occurs, the fault code will displays on control board , wire remote controller or display panel.

How to check fault codes

Indoor Unit

(1)Fault codes indicated by wired remote controller (see figure below)

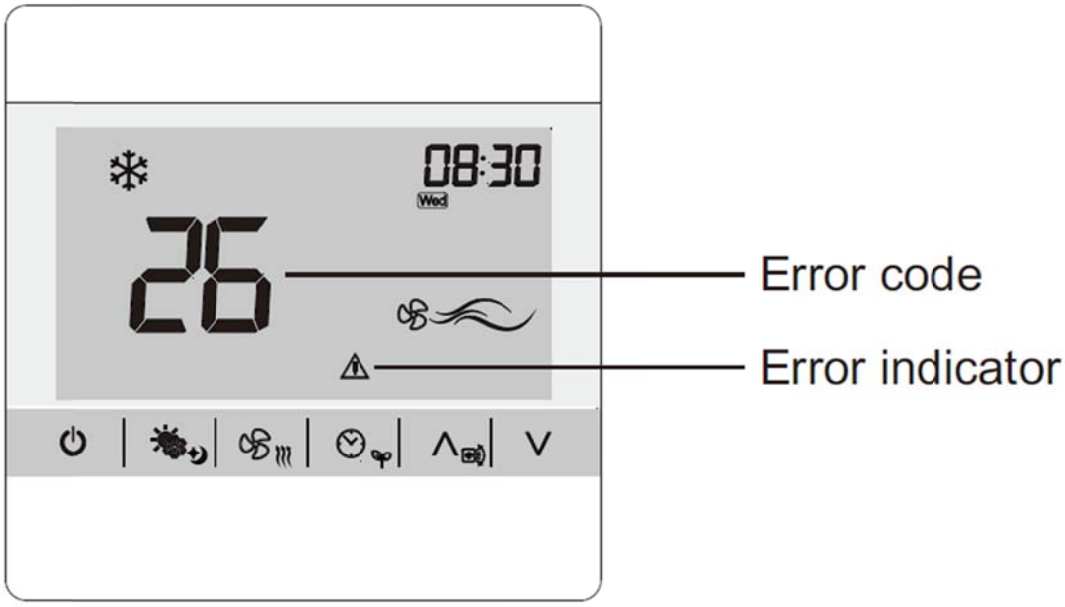


FIG.1 FAULT CODE DISPLAY ON WIRE REMOT CONTROLLER

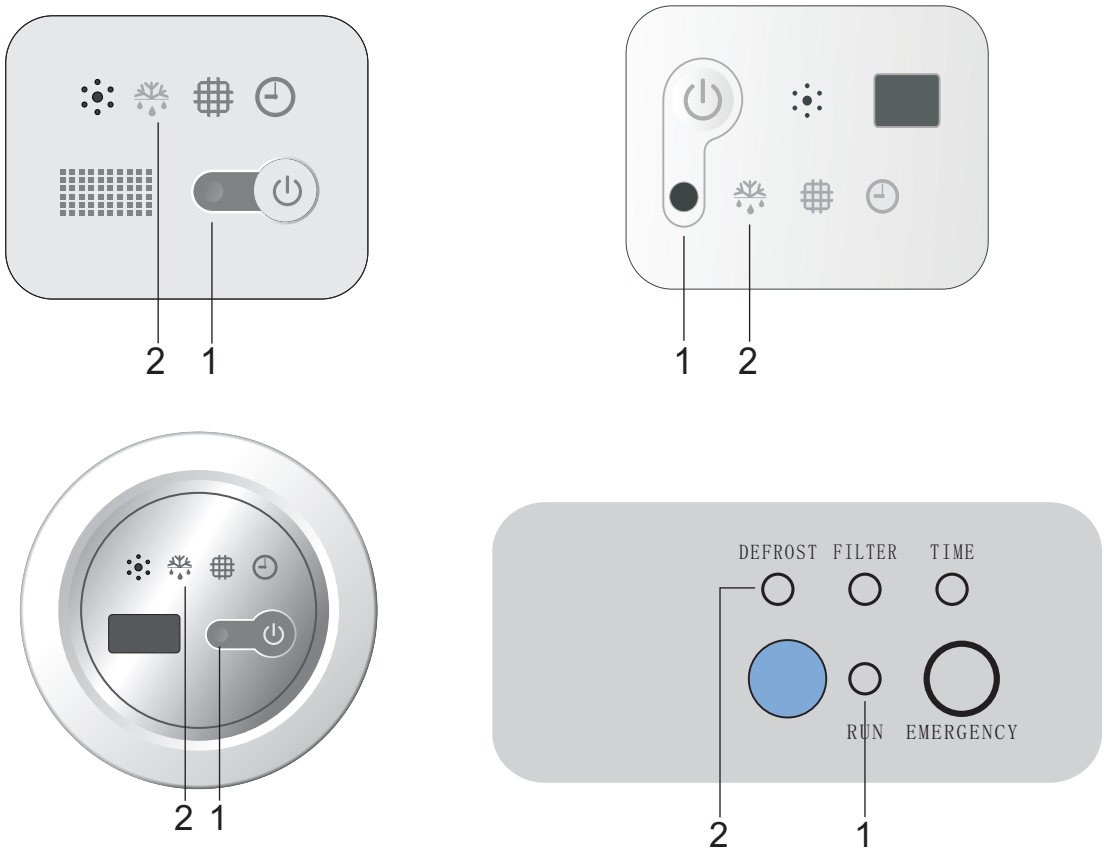
(2)Fault codes indicated by LED lamps on display panel

Lamp RUN(LED2 ,red) and Lamp DEFROST（LED5 ,green）flashing，Lamp RUN display fault code ten digit number, lamp DEFROST display fault code single digit number (as shown fig. below).

For example，fault code 36: led RUN& defrost flash 3 times at the same time, and led DEFROST continue flash 3 times,reports No. 36 fault.

2. TROUBLESHOOTING

Display panel



1 Run indicator (Red)
Indicates the fault code ten digital number.
2 Defrost indicator (Green)
Indicates the fault code singal digital number.

LED FALSH CONTROL：flash 300mS(T1)，off 300mS(T2)，after 2000mS(T3)fault code repeat displays. (as shown below)

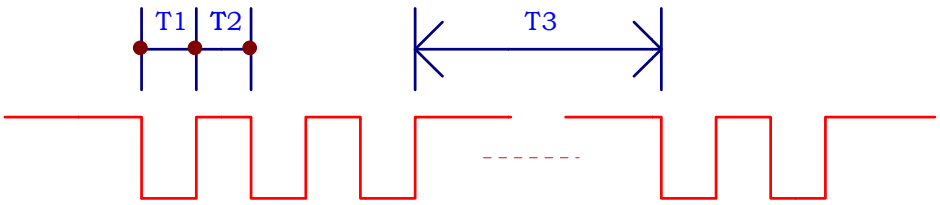


Fig.2 LED ALSH CONTROL

2. TROUBLESHOOTING

Outdoor Unit

DC-Inverter split airconditoner 1.0/1.5/2.0/3.0Hp(Main control board upside-down)

Fault code displays by LED lamps on outdoor main control board.

There are 3 LED laamps on control board, LEED1,LED2 aand LED3.

LED1 indicate fault code ten digit number, LED2 indicate fault code single digit number and LED3 indicate outdoor drive control fault .

When LED3 is off, LED1 and LED 2 indicate main control failure code.

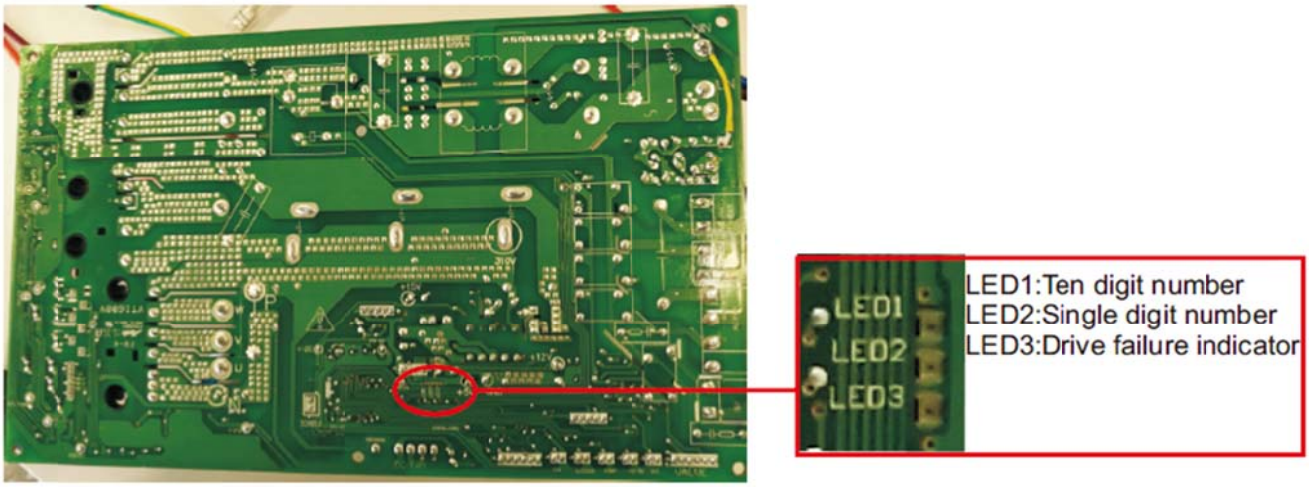
When LED3 is on, LED1 and LED 2 indicate drive control failure code.

When LED3 is flickering and LED1,LED 2 are all off, indicate compressor is preheating .

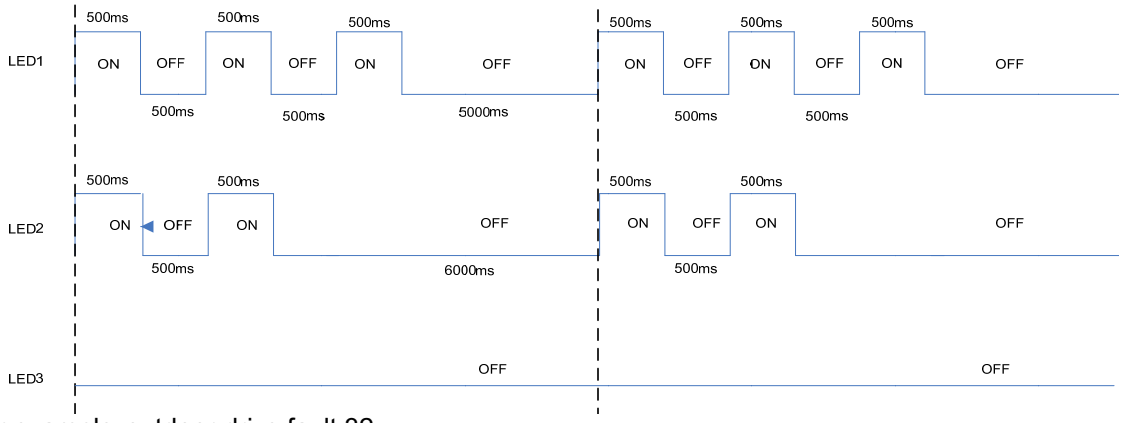
Failures display with 5s interval .It means LED will off 5s to report next failure code .

System protect codes display method is the same with main control failure code .

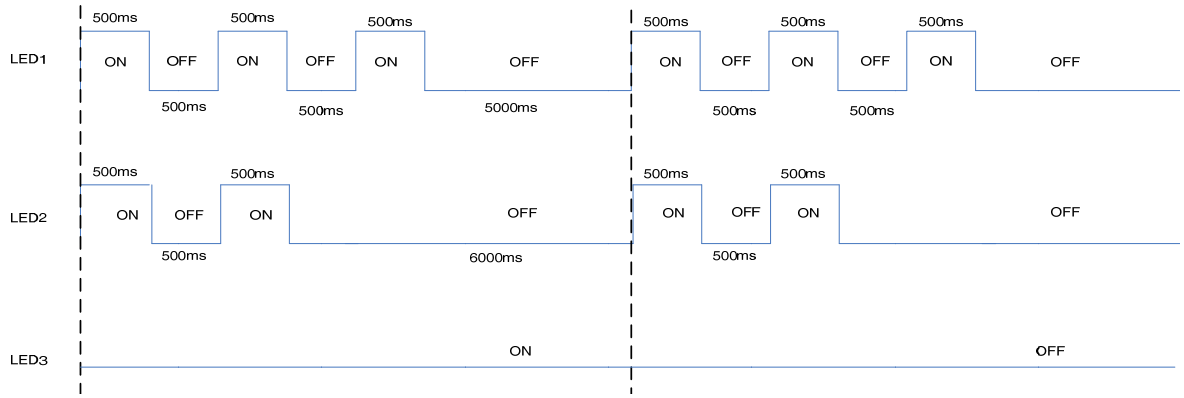
LED lamps will off when there is no failure ,protect or preheating.



For example, outdoor main control fault 32:

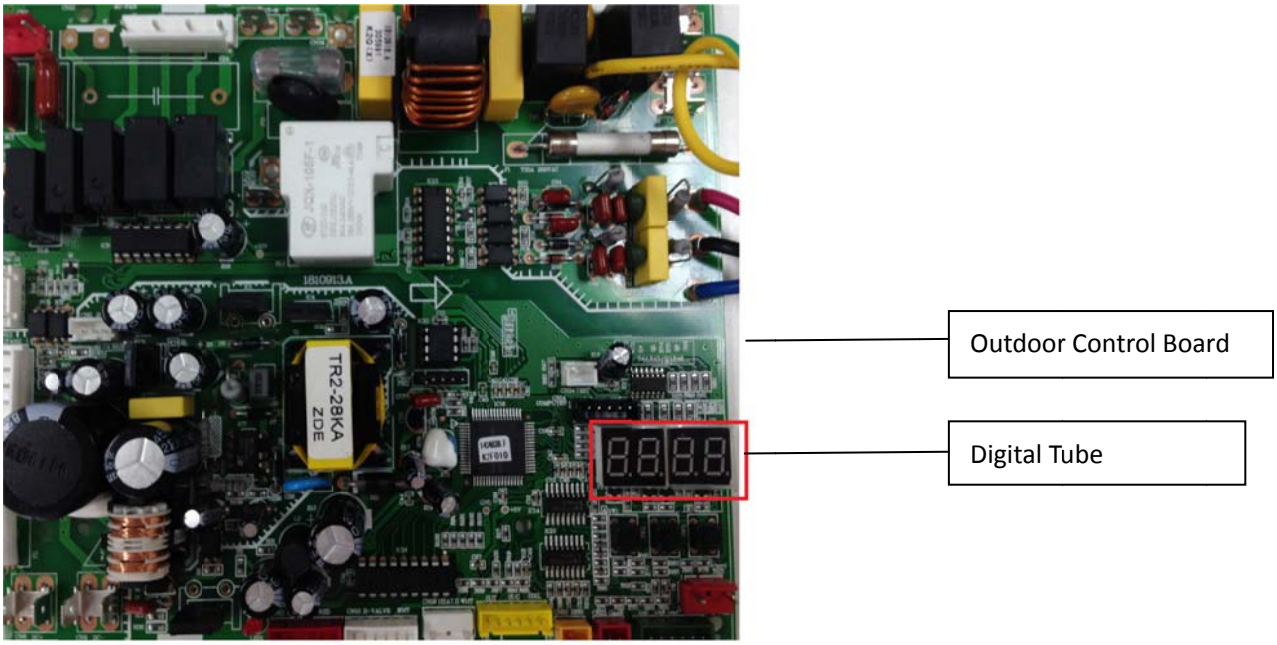


For example, outdoor drive fault 32:

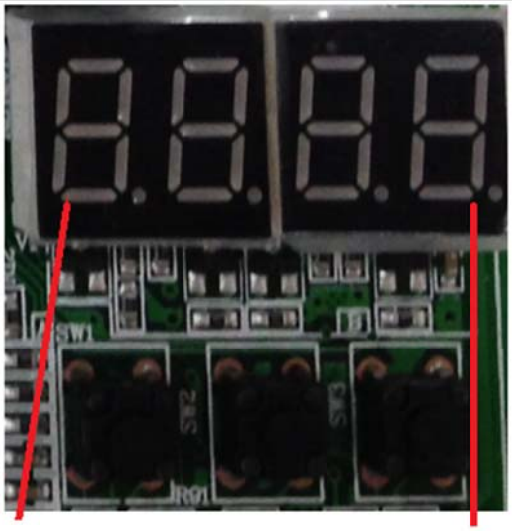


（2）INVERTER SPLIT AIR CONDITIONER(4.0/5.0/6.0/6.5HP)：

Fault code will display on digital tube board.



2. TROUBLESHOOTING



E shows failure occur

Display ERROR Code

2. TROUBLESHOOTING

2.2 Fault codes

The following is the fault code table of outdoor.

Sheet 1 Outdoor Fault code

Fault code	Fault Description	Possible Reason of Abnormality	How to Deal With	Remarks
1	Outdoor ambient temperature sensor fault	1.The outdoor ambient temperature sensor connect loose; 2.The outdoor ambient temperature sensor is failure; 3.The sampling circuit is failure	1.Reconnect the outdoor ambient temperature sensor; 2.Replace the outdoor ambient temperature sensor omponents; 3.Replace the outdoor control board components.	
2	Outdoor coil temperature sensor fault	1.The outdoor coil temperature sensor connect loose; 2.The outdoor coil temperature sensor is failure; 3.The sampling circuit is failure	1.Reconnect the outdoor coil temperature sensor; 2.Replace the outdoor coil temperature sensor components; 3.Replace the outdoor control board components.	
3	The unit over-current turn off fault	1.Control board current sampling circuit is failure; 2.The current is over high because of the supply voltage is too low; 3.The compressor is blocked; 4. Overload in cooling mode; 5.Overload in heating mode.	1. Replace the electrical control board components; 2. Normally protection; 3. Replace the compressor; 4. Please see the Note 3; 5. Please see the Note 4.	
4	EEprom Data error	1.EE components is failure; 2.EE components control circuit failure; 3.EE components insert incorrect	1.Replace the EE components; 2.Replace the outdoor control board components; 3.Reassembly the EE components.	
5	Cooling freezing protection(the indoor coil temperature is too low) or heating overload(indoor coil temperature is too high)	1.The indoor unit can not blow air normally; 2.The room temperature is too low in cooling mode or the room temperature is too high in heating; 3.The filter is dirty; 4.The duct resistance is too high to result in low air flow; 5.The setting fan speed is too low; 6. The indoor unit is not standard installed, air inlet is too near with air outlet .	1.Check the indoor fan, indoor fan motor and evaporator whether normally; 2. Normally protection; 3.Clean the filter; 4.Check the volume control valve,duct length etc; 5.Set the speed with high speed; 6.Reinstall the indoor unit refer to the user manual to change the distance between the indoor unit and the wall or ceiling.	

2. TROUBLESHOOTING

Fault code	Fault Description	Possible Reason of Abnormality	How to Deal With	Remarks
7	The communication fault between the indoor unit and outdoor unit	1.The connection cable connect wrong between the indoor unit and outdoor unit; 2.The communication cable connect loose; 3.The communication cable is fault; 4.The indoor control board is fault; 5.The outdoor control board is fault; 6.Communication circuit fuse open; 7.The specification of communication cable is incorrect.	1.Reconnect the connection cable refer to the wiring diagram; 2.Reconnect the communication cable; 3.Replace the communication cable; 4.Replace the indoor control board; 5.Replace the outdoor control board; 6.Check the communication circuit, adjust the DIP switch and the short-circuit fuse. 7.Choose suitable communication cable refer to the user manual	
12	voltage absent phase	1.Three-phase power is abnormal; 2.The outdoor wiring connect wrong; 3.The outdoor control board is failure.	1. Normally protection 2. Check the wiring connection refer to the wiring diagram; 3. Replace the outdoor control board	Application of three-phase power supply models
13	Compressor overheat protector device	1.The wiring of the overload protector connect loose. 2. The overload protector is failure . 3. The refrigerant is not enough; 4. The installation pipe is too long than normal, but not add the enough refrigerant; 5. The expansion valve is failure; 6. The outdoor control board is failure	1. Reconnect the wiring of the overload protector; 2. Replace the overload protector; 3. Check the welding point of the unit to confirm whether it is leakage, and then recharge the refrigerant; 4. Add the refrigerant; 5. Replace expansion valve; 6. Replace the outdoor control board.	
14	the high pressure switch operate or the unit turn off for high pressure protection	1.The wiring of the high pressure protector connect loose; 2.The high pressure protector is failure; 3.The outdoor control board is abnormal; 4. Overload in cooling; 5. Overload in heating.	1.Reconnect the wiring the high pressure protector; 2. Replace the high pressure protector; 3. Replace the outdoor control board; 4. Please refer to the Note 3; 5. Please refer to the Note 4.	Applied to models with high pressure switch or pressure sensor
15	the low pressure switch protection or the unit turn off for low pressure protection	1.The wiring of the low pressure switch connect loose ; 2.The low pressure switch is failure; 3.The refrigerant is not enough; 4.The expansion valve failure in heating mode; 5.The outdoor control board is abnormal.	1. Reconnect the wiring of the low pressure switch; 2. Replace the low pressure switch; 3.Check the welding point to confirm whether the unit is leakage, and then add some refrigerant; 4. Replace the expansion valve; 5. Replace the outdoor control board.	Applied to models with low pressure switch or pressure sensor
16	overload protection in cooling mode	System overload	Please refer to the Note 3.	
17	Discharge temperature sensor fault	1.The wiring of the discharge temperature sensor connect loose; 2.The discharge temperature sensor is failure; 3.The sampling circuit is abnormal.	1.Reconnect the wiring of the discharge temperature sensor; 2.Replace the discharge temperature sensor; 3.Replace the outdoor control board.	

2. TROUBLESHOOTING

Fault code	Fault Description	Possible Reason of Abnormality	How to Deal With	Remarks
18	AC voltage is abnormal	1.The AC voltage>275V or <160V. 2.The AC voltage of sampling circuit on the driver board is abnormally	1. Normally protection, please check the supply power; 2. Replace the driver board.	
19	Suction temperature sensor fault	1.The wiring of the suction temperature sensor connect loose; 2. The suction temperature sensor is failure; 3. The sampling circuit is abnormally.	1.Reconnect the wiring of the suction temperature sensor; 2.Replace the suction temperature sensor; 3.Replace the outdoor control board.	
22	The defrosting sensor fault	1.The wiring of the defrosting sensor connect loose; 2.The defrosting sensor is failure; 3.The sampling circuit is abnormally	1. Reconnect the wiring of the defrosting sensor; 2. Replace the defrosting sensor; 3. Replace the outdoor control board.	
45	IPM fault	There are many reasons for this failure, If you need further analysis, fault code of the driver board is needed by watching the driver board fault led. Analysis can be further to know why and how to operate. Specific see table 5, table 6.	See attached "analysis of the driving board fault".	
46	IPM and control board communication fault	1.The cable between the control board and the driver board connect loose; 2.The cable between the control board and the driver board is failure; 3.The driver board is failure 4.The control board is failure	1.Reconnect the cable between the control board and the driver board; 2.Replace the communication cable between the control board and the driver board; 3.Replace the driver board; 4.Replace the control board.	
47	Discharge temperature too high fault	1. The refrigerant of the unit is not enough; 2.The refrigerant of the unit is not enough due to add the length of the installation pipe 3.Throttling service is failure; 4.The outdoor ambient temperature is too high.	1.Check the welding point to confirm whether the unit has exist leakage point, and then add some refrigerant. 2.Add some refrigerant refer to the installation user manual; 3.Replace the throttling service(such as capillary, expansion valve) 4. Normally protection.	
48	the outdoor DC fan motor fault (upper fan motor)	1.The wiring of the up DC fan motor connect loose; 2. The cord of the up DC fan motor is failure; 3.The up DC fan motor is failure; 4.The drive circuit of the up DC fan motor is failure; 5. The outdoor fan has been blocked.	1.Reconnect the wiring of the up DC fan motor; 2.Replace the up DC fan motor; 3. Replace the up DC fan motor; 4.Replace the driver board of the fan motor; 5. Check the outdoor fan and ensure the outdoor fan can run normally.	
49	the outdoor DC fan motor fault (down fan motor)	1.The wiring of the down DC fan motor connect loose; 2.The cord of the down DC fan motor is failure; 3. The down DC fan motor is failure; 4. The drive circuit of the down DC fan motor is failure; 5. The outdoor fan has been blocked.	1. Reconnect the wiring of the down DC fan motor; 2. Replace the down DC fan motor; 3.Replace the down DC fan motor; 4.Replace the driver board of the fan motor; 5. Check the outdoor fan and ensure the outdoor fan can run normally.	
91	The unit turn off due to the IPM board over heating fault	1.The outdoor ambient is too high; 2. The speed of the out fan motor is too low if the fan motor is AC fan motor; 3.The outdoor unit has been installed without standard; 4.The supply power is too low.	1. Normally protection; 2. Check the fan capacitor, and replace the fan capacitor if it is failure; 3. Reinstalled the outdoor unit refer to the installation user manual; 4.Normally protection.	

2. TROUBLESHOOTING

Fault code	Fault Description	Possible Reason of Abnormality	How to Deal With	Remarks
96	the refrigerant of the unit is not enough fault	The refrigerant of the unit is not enough	Discharge the refrigerant and charge the refrigerant refer to the rating label	
97	4-way valve commutation failure fault	1.The wiring of the 4-way valve coil connect loose; 2.The 4-way valve coil is failure; 3.The 4-way valve is failure; 4.The driver board of the 4-way valve is failure	1. Reconnect the wiring of the 4-way valve; 2. Replace the 4-way valve coil; 3. Replace the 4-way valve; 4.Replace the driver board of the 4-way valve.	

2. TROUBLESHOOTING

The following is the fault code table of indoor.

Sheet 2 Indoor fault code

Fault code	Fault Description	Possible Reason of Abnormality	How to Deal With	Remarks
51	Drainage protection	1. The water level of the drain pan exceed safe level; 2. The cable of the water level switch connect loose; 3.The water level switch is failure; 4. The control board is failure.	1.1 Check whether there are something to block the drain hose or the height of the drain hose is too high; 1.2 Check the water pump and replace the water pump if the water pump is failure; 2. Reconnect the cable of the water level switch refer to the wiring diagram; 3. Replace the water level switch; 4. Replace the control board.	
64	Communication between Indoor & Outdoor unit Fault	1. The connection cable between the indoor unit and the outdoor unit connect wrong; 2.The communication cable connect loose; 3.The communication cable between the indoor unit and the outdoor unit is failure or the cable between the indoor control board to terminal is failure or the cable between the outdoor control board to the terminal is failure; 4. The indoor control board is failure; 5. The outdoor control board is failure.	1. Reconnect the connection cable refer to the indoor and outdoor wiring diagram; 2. Reconnect the communication cable refer to the indoor and outdoor wiring diagram; 3. Replace the communication cable refer to the indoor and outdoor wiring diagram; 4. Replace the indoor control board; 5. Replace the outdoor control board.	
72	Indoor fan motor fault	1. The cable of the indoor fan motor connect loose; 2. The cable of the indoor fan motor is failure; 3.The indoor fan motor is failure; 4. The indoor control board is failure.	1. Reconnect the cable of the fan motor; 2. Replace the cable of the fan motor; 3. Replace the fan motor; 4. Replace the indoor control board; 5. Check the indoor fan and ensure the indoor fan can run normally.	
73	Indoor EEPROM Data 1 fault	1.Indoor EE components is failure; 2.The control circuit of the EE components is failure; 3.The EE components has been inserted with opposite direction.	1. Replace the EE components; 2. Replace the indoor control board; 3. Reassembly the EE components of the indoor control board.	
74	Indoor EEPROM Data 2 error	EE in MCU is failure,the unit can run ,but the function user has set is ineffective.	Replace EE data in MCU.	
81	Indoor ambient Temperature Sensor Fault	1. The cable of the room temperature sensor connect loose; 2. The room temperature sensor is failure; 3. The sampling circuit is abnormally.	1.Reconnect the cable of the room temperature sensor; 2. Replace the room temperature sensor; 3. Replace the indoor control board.	

2. TROUBLESHOOTING

Fault code	Fault Description	Possible Reason of Abnormality	How to Deal With	Remarks
83	Evaporator Middle Temperature Sensor Fault	1.The cable of the coil temperature sensor of the evaporator is failure; 2. The coil temperature sensor of the evaporator is failure; 3. The sampling circuit is abnormally	1. Reconnect the cable of the coil temperature sensor of the evaporator; 2. Replace the coil temperature sensor of the evaporator; 3. Replace the indoor control board.	
FE (254)	Communication between main control board &Wiring remote controller Fault (display on wiring remote controller)	1. The wiring between the wiring controller to the indoor control board connect loose; 2. The sequence of the wiring between the wiring controller to the indoor control board is wrong; 3. The wiring between the wiring controller to the indoor control board is failure; 4.The wiring controller is failure; 5. The indoor control board is abnormally	1.Reconnect the wiring between the wiring controller to the indoor control board; 2.Replace the wiring between the wiring controller to the indoor control board; 3.Replace the wiring between the wiring controller to the indoor control board; 4. Replace the wiring controller; 5. Replace the indoor control board	
ER	Communication between main control board &display board Fault (displays on display board)	1.The wiring between the display board to the indoor control board connect loose; 2.The sequence of the wiring between the display board to the indoor control board is wrong; 3.The wiring between the display board to the indoor control board is failure; 4. The display board is failure; 5. The indoor control board is failure.	1. Reconnect the between the display board to the indoor control board; 2. Replace the wiring between the display board to the indoor control board; 3. Replace the wiring between the display board to the indoor control board; 4. Replace the display board; 5. Replace the indoor control board.	

NOTE 1:

If the indoor unit can not turn on or the indoor unit turn off itself after 30s, at the same time the unit do not display the fault code, please check the fire and the socket of the control board.

Note 2:

If the indoor unit display the 75,76,77,78 fault code after you turn on the unit, please check the TEST seat of the indoor control board or the TEST detection circuit whether exists short circuit.

2. TROUBLESHOOTING

Note 3:Overload in cooling mode

Sheet 3 Overload in cooling mode

overload in cooling mode		
sr.	The root cause	Corrective measure
1	The refrigerant is excessive	Discharge the refrigerant, and recharge the refrigerant refer to the rating label
2	The outdoor ambient temperature is too high	Please use within allowable temperature range
3	The air outlet and air inlet of the outdoor unit is short-circuit	Adjust the installation of the outdoor unit refer to the user manual
4	The outdoor heat exchanger is dirty, such as condenser	Clean the heat exchanger of the outdoor unit, such as condenser
5	The speed of the outdoor fan motor is too low	Check the outdoor fan motor and fan capacitor
6	The outdoor fan is broken or the outdoor fan is blocked	Check the outdoor fan
7	The air inlet and outlet has been blocked	Remove the blocked thing
8	The expansion valve or the capillary is failure	Replace the expansion valve or the capillary

Note 4:Over load in heating mode

Sheet 4 Overload in heating mode

Overload in heating mode		
sr.	The root cause	Corrective measure
1	The refrigerant is excessive	Discharge the refrigerant, and recharge the refrigerant refer to the rating label
2	The indoor ambient temperature is too high	Please use within allowable temperature range
3	The air outlet and air inlet of the indoor unit is short-circuit	Adjust the installation of the indoor unit refer to the user manual
4	The indoor filter is dirty	Clean the indoor filter
5	The speed of the indoor fan motor is too low	Check the indoor fan motor and fan capacitor
6	The indoor fan is broken or the outdoor fan is blocked	Check the indoor fan
7	The air inlet and outlet has been blocked	Remove the blocked thing
8	The expansion valve or the capillary is failure	Replace the expansion valve or the capillary

2. TROUBLESHOOTING

Sheet 5 Drive Fault code(1.0/1.5/2.0/3.0HP)

Fault code	Fault Description	Possible Reason of Abnormality	How to Deal With
1	Inverter DC voltage overload fault	1.Power supply input too high or too low; 2.Driver board fault.	1.Check power supply 2.Change driver board.
2	Inverter DC low voltage fault		
3	Inverter AC current overload fault		
4	Out-of-step detection	1.Compressor phase lost ; 2.Bad driver board components ; 3.The compressor insulation fault	1.Check compressor wire connect ; 2.Change driver board ; 3.Change compressor.
5	Loss phase detection fault (speed pulsation)		
6	Loss phase detection fault (current imbalance)		
7	Inverter IPM fault (edge)	1.System overload or current overload; 2.Driver board fault. 3.Compressor oil shortage, serious wear of crankshaft ; 4.The compressor insulation fault	1.Check the system . 2.Change driver board; 3.Change the compressor; 4.Change the compressor.
8	Inverter IPM fault (level)		
9	PFC_IPM IPM fault (edge)		
10	PFC_IPM IPM fault (level)		
11	PFC power detection of failure	1.The power supply is not stable ; 2.The instantaneous power failure ; 3.Driver board failure.	1.Check the power supply. 2.Not abnormal. 3.Change the driver board.
12	PFC overload current detection of failure.	1.System overload, current too high; 2.Driver board failure ; 3.PFC failure ;	1.Check the system; 2.Change the driver board; 3.Change the PFC.
13	DC voltage detected abnormal .	1.Input voltage is too high or too low; 2.Driver board failure ;	1.Check the power supply. 2.Change the driver board;
14	PFC LOW voltage detected failure.		
15	AD offset abnormal detected failure.	Driver board failure.	Change the driver board.
16	Inverter PWM logic set fault.		
17	Inverter PWM initialization failure		
18	PFC_PWM logic set fault.		
19	PFC_PWM initialization fault.		
20	Temperature abnormal.		
21	Shunt resistance unbalance adjustment fault		
22	Communication failure.	1.Communication wire connect not well. 2.Driver board failure. 3.Control board failure.	1.Check the wiring. 2.Change the driver board. 3.Change the control board.
23	Motor parameters setting of failure	Initialization abnormal.	Reset the power supply.
25	EE data abnormal	Driver board EEPROM abnormal	1.Change EEPROM ; 2.Change driver board.
26	DC voltage mutation error	1.Power input changes suddenly 2.Driver board failure	1.Check power supply , to provide stable power supply ; 2. Change driver board.
27	D axis current control error	1.System overload , phase current is too high; 2.Driver board failure	1.Check system if normally. 2.Check stop valve if is open; 3. Change driver board.
28	q axis current control error	1.System overload , phase current is too high ; 2.Driver board failure	1.Check system if normally. 2.Check stop valve if is open; 3. Change driver board.
29	Saturation error of d axis current control integral	1. System overload suddenly; 2. Compressor parameter not suitable; 3. Driver board failure	1.Check system if normally. 2.Check stop valve if is open; 3. Change driver board.
30	Saturation error of q axis current control integral	1. System overload suddenly; 2. Compressor parameter not suitable; 3. Driver board failure	1.Check system if normally. 2.Check stop valve if is open; 3. Change driver board.

2. TROUBLESHOOTING

Sheet 6 Drive Fault code (4.0/5.0/6.0/6.5HP)

Fault code	Fault Description	Possible Reason of Abnormality	How to Deal With
1	Q axis current detection, step out of failure	1. compressor wire connect not well; 2. Bad driver board components; 3. Compressor start load is too large; 4.Compressor demagnetization; 5.Compressor oil shortage, serious wear of crankshaft.; 6.The compressor insulation fault	1. Check compressor wire; 2. Change driver board ; 3.Turn on the machine after pressure balance again; 4. Change Compressor; 5. Change the Compressor; 6. Change the Compressor.
2	Phase current detection, out of step	1.Compressor voltage default phase; 2.Bad driver board components; 3.The compressor insulation fault	1.Check compressor wire connection; 2.Change the driver board; 3.Change the Compressor.
3	Initialization, phase current imbalance	Bad driver board components.	Change driver board .
4	Speed estimation, step out of failure	1.Bad driver board components; 2.Compressor shaft clamping; 3.The compressor insulation fault.	1.Change driver board ; 2.Change the Compressor ; 3.Change the Compressor .
5	IPM FO output fault	1.System overload or current overload. 2.Driver board fault; 3. Compressor oil shortage,serious wear of crankshaft; 4.The compressor insulation fault.	1.Check the air-conditioner system; 2.Change the driver board; 3.Change the Compressor; 4. Change the Compressor.
6	Communication between driver board and control board fault	1.Communication wire connect not well; 2.Driver board fault; 3.Control board fault;	1.Check compressor wire connect. 2.Change the driver board; 3.Change the control board ;
7	AC voltage,overload voltage	1.Supply voltage input too high or too low; 2.Driver board fault;	1.Check power supply; 2.Change the driver board;
8	DC voltage,overload voltage	1.Supply voltage input too high ; 2.Driver board fault;	1.Check power supply; 2.Change the driver board;
9	AC voltage imbalance	Driver board fault;	Change the driver board;
10	The PFC current detection circuit fault before compressor is ON	Bad driver board components;	Change the driver board
11	AC voltage supply in outrange	1.Power supply abnormal, power frequency out of range; 2.Driver board fault;	1.Check the system; 2.Change the driver board;
12	Products of single-phase PFC over-current, FO output low level	1.System overload, current too large; 2.Driver board fault; 3.PFC fault.	1.Check the system; 2.Change the driver board; 3.Change PFC.
	Inverter over current (3-phase power supply air conditioners)	1.System overload, current too large; 2.Driver board fault; 3.Compressor oil shortage, serious wear of crankshaft; 4.The compressor insulation fault.	1.Check the system; 2.Change the driver board; 3.Change the Compressor; 4.Change the Compressor.
13	Inverter over current	1.System overload, current too large; 2.Driver board fault; 3.Compressor oil shortage,serious wear of crankshaft; 4.The compressor insulation fault.	1.Check the system; 2.Change the driver board; 3.Change the Compressor; 4.Change the Compressor.
14	PFC over current(single-phase air-conditioner)	1.System overload, current too large; 2.Driver board fault; 3.PFC fault.	1.Check the system; 2.Change the driver board; 3.Change PFC.
	Phase imbalance or phase lacks or the instantaneous power failure (only for 3-phase power supply air conditioners)	1.3-Phase voltage imbalance; 2.The 3-phase power supply phase lost; 3.Power supply wiring wrong; 4.Driver board fault.	1,Check the power supply; 2.Check the power supply; 3.Check the power supply wiring connect; 4.Change the driver board.
15	The instantaneous power failure detection	1.The power supply is not stable ; 2.The instantaneous power failure ; 3.Driver board fault;	1.Check the power supply. 2.Not fault. 3.Change the driver board;

2. TROUBLESHOOTING

Fault code	Fault Description	Possible Reason of Abnormality	How to Deal With
16	Low DC voltage 200V	1.Voltage input too low ; 2.Driver board fault.	1.Check the power supply. 2.Change the driver board.
18	Driver board read EE data error	1.EEPROM has no data or data error; 2.EEPROM circuit fault.	1,Change EEPROM component; 2,Change the driver board.
19	PFC chip receive data fault	Abnormal communication loop	Change the drive board.
20	PFC soft start abnormal	Abnormal PFC drive loop	Change the drive board.
21	The compressor drive chip could not receive data from PFC chip.	Communication loop fault.	Change the drive board.

3. Checking components

3.1 Check refrigerant system

TEST SYSTEM FLOW

Conditions: ① Compressor is running.

② The air condition should be installed in good ventilation.

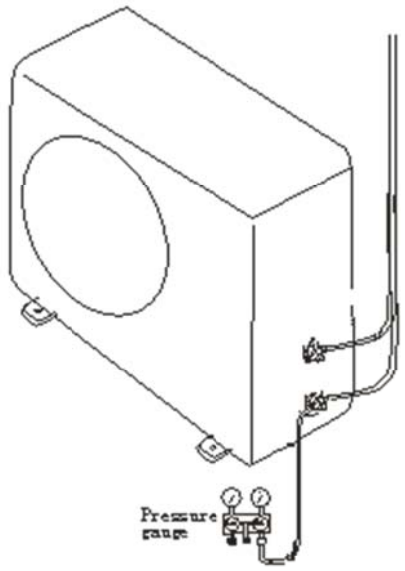
Tool: Pressure Gauge

Technique: ① see ② feel ③ test

SEE ----- Tube defrost.

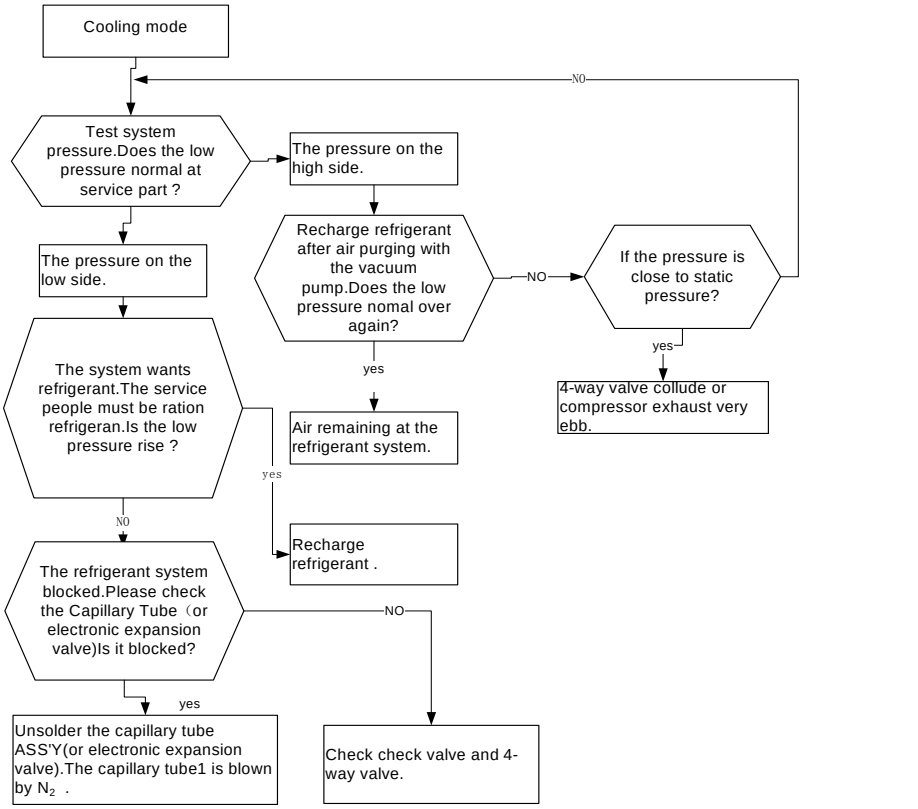
FEEL ----- The difference between tube's temperature.

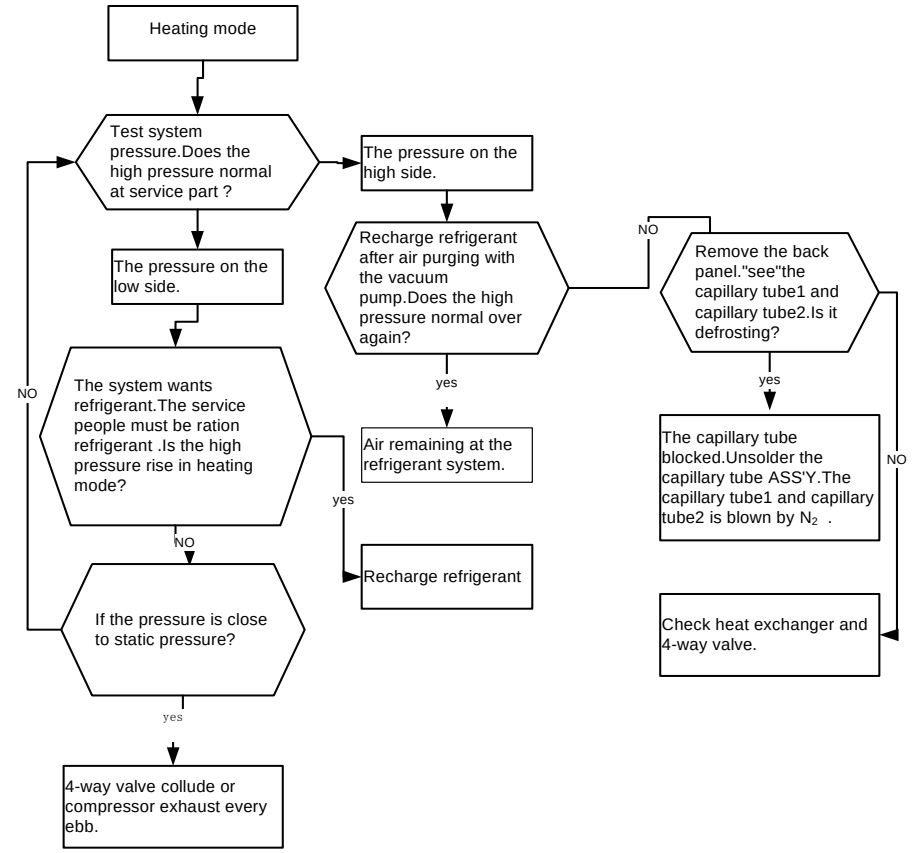
TEST ----- Test pressure.



3. CHECKING COMPONENTS

Test system flow





3.CHECKING COMPONENTS

3.2 Check parts unit

1. INDOOOR FAN MOTOR

Ducted

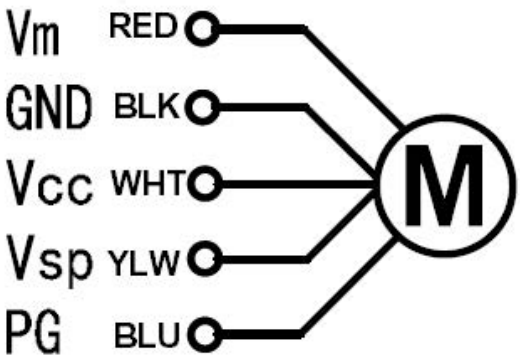
1.0/1.5/3.0/4.0/5.0/6.0/6.5HP--DC motor

2.0HP--- AC motor

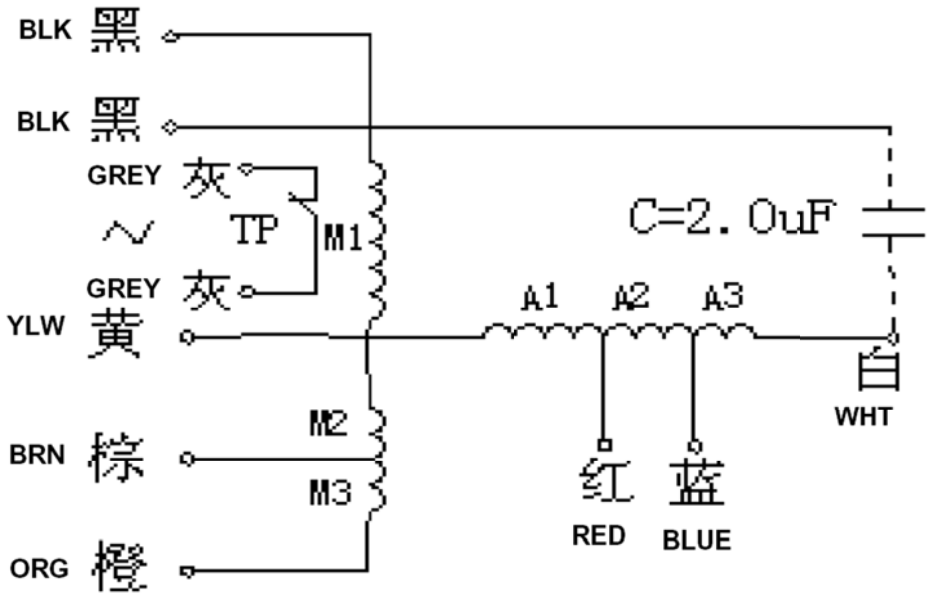
1.0/1.5HP Motor model：SIC-68CVL-F140-1

3.0HPMotor model：SIC-70CW-F195-1

4.0/5.06.0/6.5HP Motor model：SIC-101CW-F1250-4



2.0HP Motor model：YSK110-40-4-A



3.CHECKING COMPONENTS

BLACK-YELLOW:146±15% Ω

YELLOW-BROWN:33±15% Ω

BROWN-ORANGE: 43±15% Ω

YELLOW-RED: 63±15% Ω

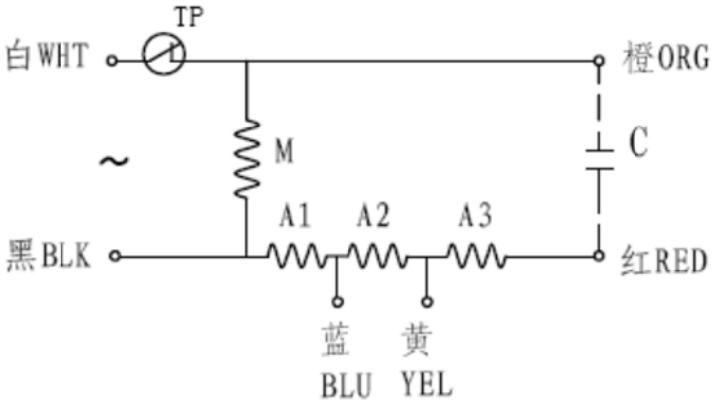
RED-BLUE: 63±15% Ω

BLUE-WHITE: 119±15% Ω

Cassette

1.5HP-DC MOTOR

2.0HP-AC MOTOR MODEL:YDK95-28-4-B



25℃

M 240[Ω] ±15%

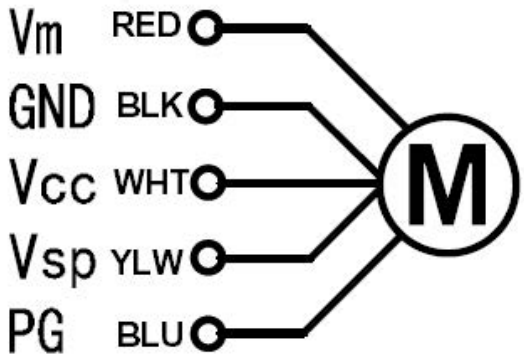
A1 60 [Ω] ±15% ; A2 33[Ω] ±15% ;

A3 143[Ω] ±15% ;

3.0/4.0HP DC-MOTOR MODEL:EHDS50AQH

5.0/6.0/6.5HP DC-MOTOR MODEL: SIC-72FW-D8124-2B

3.CHECKING COMPONENTS



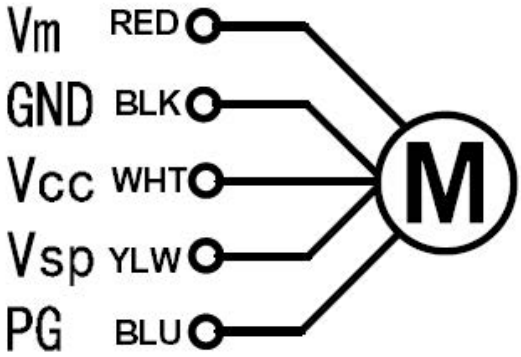
Floor ceiling

2.0HP DC MOTOR MODEL: SIC-52FV-F130-3

3.0HP DC MOTOR MODEL: SIC-70CW-F1100-**6**

4.0HP DC MOTOR MODEL: SIC-70CW-F1140-**3**

5.0/6.0/6.5HP DC MOTOR MODEL: SIC-101C**W**-F1181-2



Test in resistance.

TOOL: Multimeter.

Test the resistance of the main winding. The indoor fan motor is fault if the resistance of main winding 0(short circuit)or （open circuit）.

Test in voltage

3.CHECKING COMPONENTS

TOOL: Multimeter.

Insert screwdriver into to rotate indoor fan motor slowly for 1 revolution or over, and measure voltage "YELLOW" and "GND" on motor. The voltage repeat 0V DC and 5V DC.

Notes:

Please don't hold motor by lead wires.

Please don't plug IN/OUT the motor connecter while power ON.

Please don't drop hurl or dump motor against hard material. Malfunction may not be observed at early stage after such shock. But it may be found later, this type of mishandling void our warranty.

3.CHECKING COMPONENTS

2. OUTDOOR FAN MOTOR

DC MOTOR

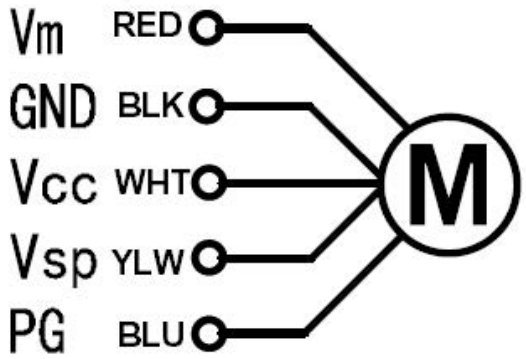
1.0/1.5HP--MOTOR MODEL: SIC-52FV-F130-3

2.0/3.0HP--MOTOR MODEL: SIC-61FV-F161-1

4.0HP—MOTOR MODEL:SIC-71FW-D8121-1

5.0HP—MOTOR MODEL:SIC-81FW-F1138-1

6.0/6.5HP:MOTOR MODEL:SIC-71FW-D8121-1+ SIC-71FW-D8121-2

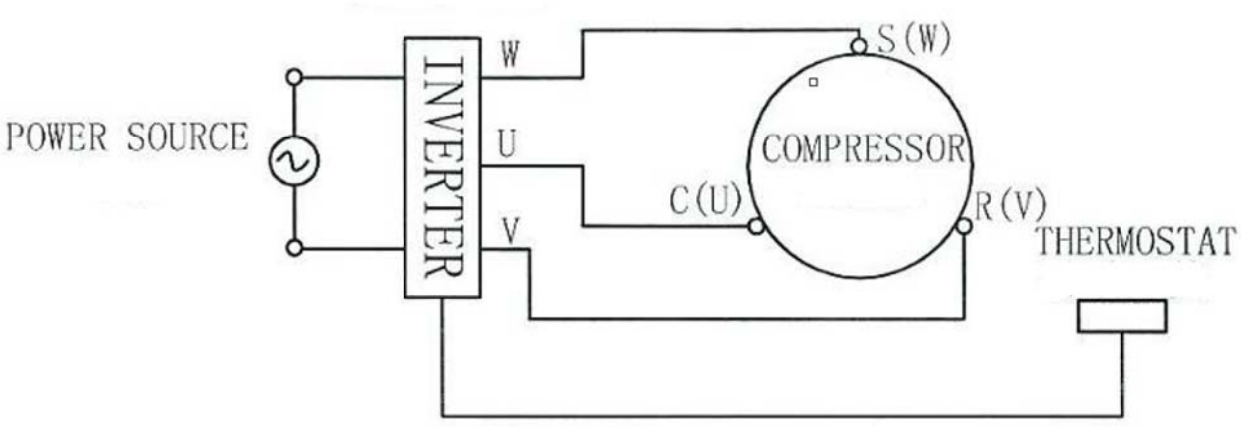


3. COMPRESSOR

COMPRESSOR EXAMINE AND REPAIR

1.0HP: ASD088SKNA8JT

1.5HP: ASN108D43UFZA



2.0HP: ATM150D23UFZ

3.0HP:ATF235D43UMT

4.0/5.0HP: ATF310D43UMT

6.0/6.5HP:ATH356SDPC9FL

3.CHECKING COMPONENTS

Test in resistance.

TOOL: Multimeter.

Test the resistance of the winding. The compressor is fault if the resistance of winding 0(short circuit)or （open circuit）

Familiar error:

1）Compressor motor lock.

2）Discharge pressure value approaches static pressure value .

3）Compressor motor winding abnormality.

Notes：

1）Don’t put a compressor on its side or turn over.

2) Please assembly the compressor in your air conditioner rapidly after removing the plugs. Don’t place the comp. In air for along time.

3）Avoiding compressor running in reverse caused by connecting electrical wire incorrectly.

4）Warning! In case AC voltage is impressed to compressor, the compressor performance will below because of its rotor magnetic force decreasing.

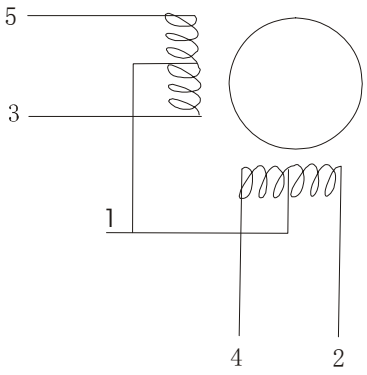
4. INDUCTANCE

Familiar error:

1）Sound abnormality

2）Insulation resistance disqualification.

5. STEP MOTOR



3.CHECKING COMPONENTS

Test in resistance.

TOOL: Multimeter.

Test the resistance of winding. The stepper motor is fault if the resistance of winding 0(short circuit)or （open circuit）.

6. FUSE

Checking continuity of fuse on PCB ASS'Y.

Remove the PCB ASS'Y from the electrical component box. Then pull out the fuse from the PCB ASS'Y (Fig.1)

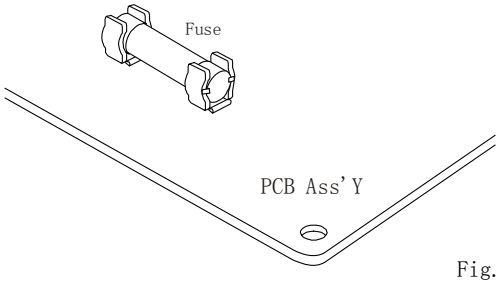


Fig. 1

Check for continuity by a multimeter as shown in Fig.2.

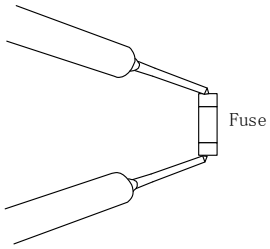


Fig. 2

7.CAPACITOR

Remove the lead wires from the capacitor terminals, and then place a probe on the capacitor terminals as shown in Fig.3.

Observe the deflection of the pointer, setting the resistance measuring range of the multimeter to the maximum value.

* The capacitor is "good" if the pointer bounces to a great extent and then gradually returns to its original position.

* The range of deflection and deflection time differ according to the capacity of the capacitor.

3.CHECKING COMPONENTS

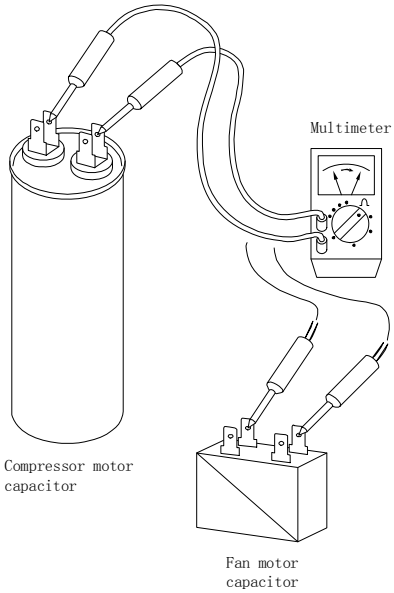
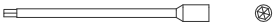


Fig.3

4. DISASSEMBLY AND ASSEMBLY FOR COMPRESSOR AND MOTOR

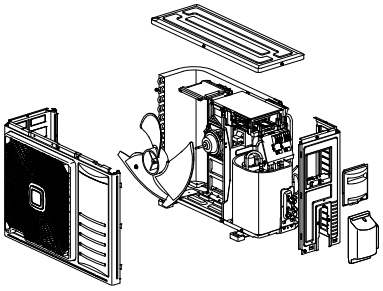
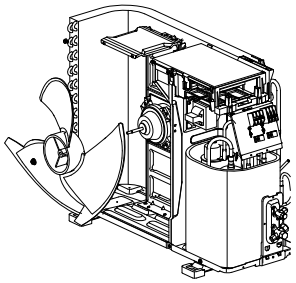
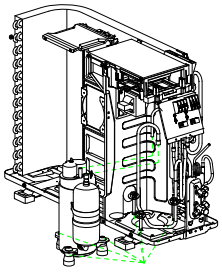
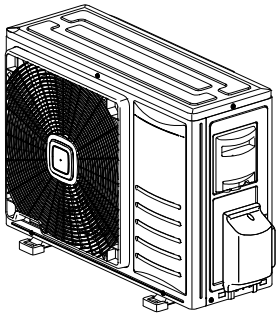
The special tools for compressor & motor disassembly and assembly：

	Tool
1	Hexagon Screwdriver 
2	Hexagon Socket 

Outdoor unit

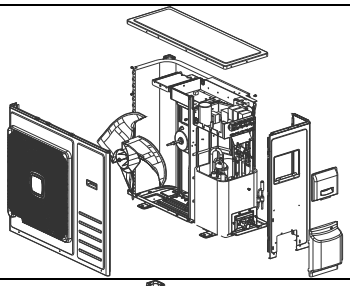
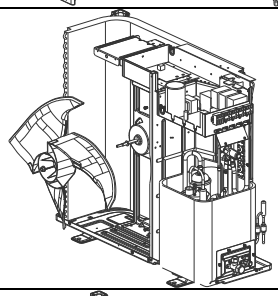
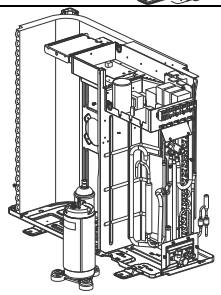
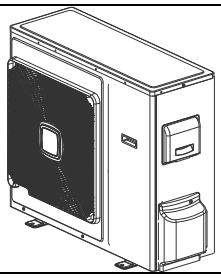
Outdoor unit

1.0/1.5/2.0/3.0HP

Important: Before disassembly and assembly, make sure that the power to the system has been disconnected and verified as voltage free.		
Step	Illustration	Handling Instruction
1.Remove external casing		1.Remove the top cover, handle and valve cover; 2.Remove the outer case and right side plate.
2.Remove motor		1.Remove the blade nut and then remove the blade; 2.Remove the motor from motor supporter
3.Remove compressor		1.Reclaim the refrigerant from the entire system. 2.Unsolder the 4-way valve piping assy from compressor; 3.Remove the compressor mounting bolts by using hexagon socket; 4.Carefully remove the compressor from chassis.
4.Assemble unit		Assemble the unit in the reverse order of disassembly.

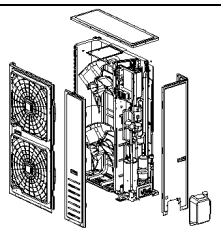
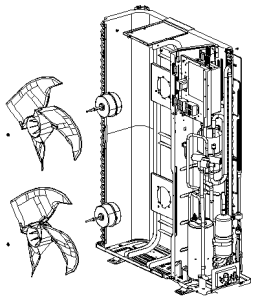
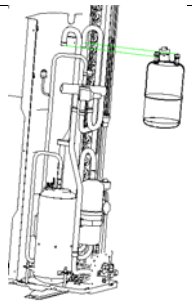
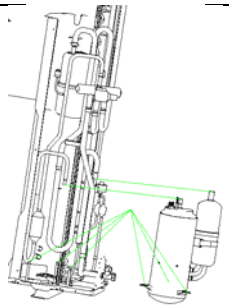
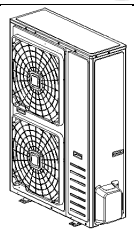
4. DISASSEMBLY AND ASSEMBLY FOR COMPRESSOR AND MOTOR

4.0HP

Important: Before disassembly and assembly, make sure that the power to the system has been disconnected and verified as voltage free.		
Step	Illustration	Handling Instruction
1.Remove external casing		1.Remove the top cover, handle and valve cover; 2.Remove the outer case and right side plate.
2.Remove motor		1.Remove the blade nut and then remove the blade; 2.Remove the motor from motor supporter
3.Remove compressor		1.Reclaim the refrigerant from the entire system. 2.Unsolder the 4-way valve piping assy from compressor; 3.Remove the compressor mounting bolts by using hexagon socket; 4.Carefully remove the compressor from chassis.
4.Assemble unit		Assemble the unit in the reverse order of disassembly.

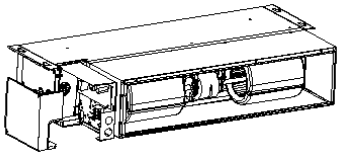
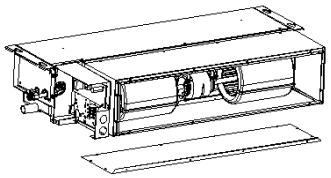
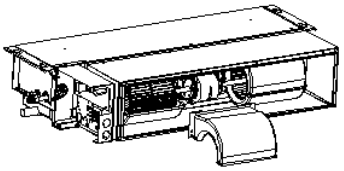
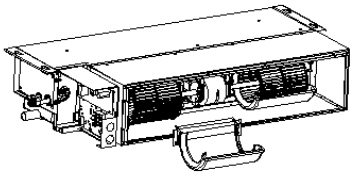
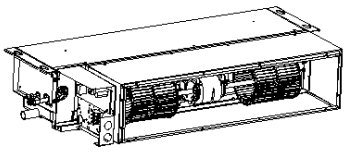
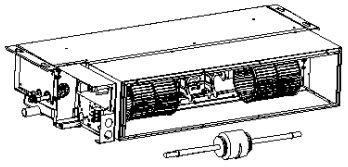
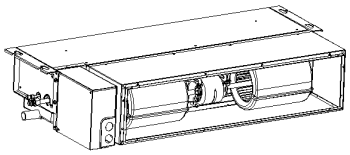
4. DISASSEMBLY AND ASSEMBLY FOR COMPRESSOR AND MOTOR

6.0/6.5HP

Important: Before disassembly and assembly, make sure that the power to the system has been disconnected and verified as voltage free.		
Step	Illustration	Handling Instruction
1.Remove external casing		1.Remove the top cover, handle and valve cover; 2.Remove the outer case and right side plate.
2.Remove motor		1.Remove the blade nut and then remove the blade; 2.Remove the motor from motor supporter
3. Remove gas liquid separator		1.Reclaimthe refrigerant from the entire system. 2.Unsolder the 4-way valve piping assy from gas liquid separator; 3.Remove the gas liquid separator.
4.Remove compressor		1.Reclaim the refrigerant From the entire system. 2.Unsolder the 4-way valve piping assy from compressor. 3.Remove the compressor mounting bolts by using hexagon socket. 4.Carefully remove the compressor from chassis.
5.Assemble unit		Assemble the unit in the reverse order of disassembly.

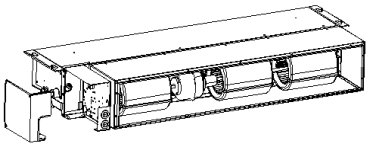
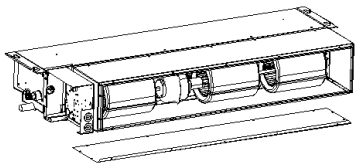
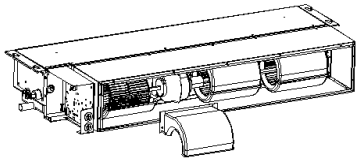
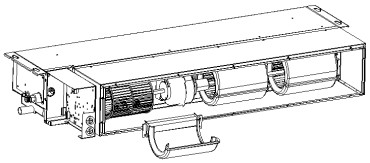
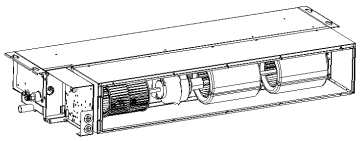
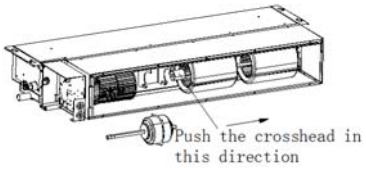
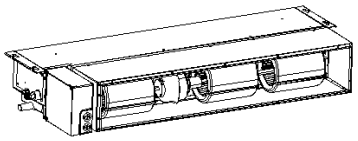
4. DISASSEMBLY AND ASSEMBLY FOR COMPRESSOR AND MOTOR

Indoor unit
Ducted（1.0/1.5HP）

Removal and Assembly of Fan Motor		
Important: Before removing the fan, make sure power to the system is disconnected.		
Step	Illustration	Handling Instruction
1. Unplug the motor cables		Use screwdriver to remove the electric box cover and unplug the motor cables in electric box.
2. Remove the base board		Loose and take out the screws fixing the base board, then remove the base board.
3. Remove the screws on fan sub-assembly.		Remove the screws on fan sub-assembly.
4. Removing the fan cage enclosure		Rotate the fan cage housing toward supply opening and remove.
5. Loosen the fan and motor.		Loosen the screws holding the fan cage to the motor shaft by using hexagon screwdriver. Remove outer housing holding motor in place.
6. Replace the motor		Remove the motor from the support bracket. Then remove the fan cages from the motor shafts. Remove the motor from the air inlet and replace with new motor. Be sure to tighten the cages onto the motor shafts.
7. Reassembly of the unit		Reassemble the unit in the reverse order of disassembly and test operation.

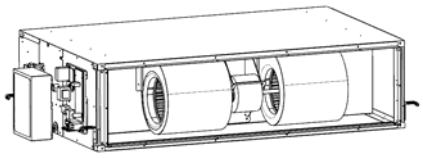
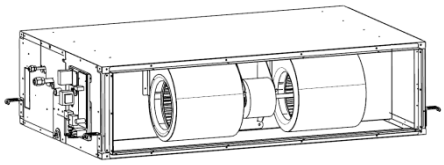
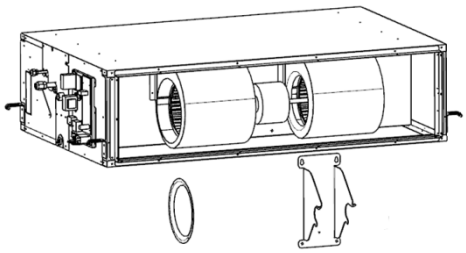
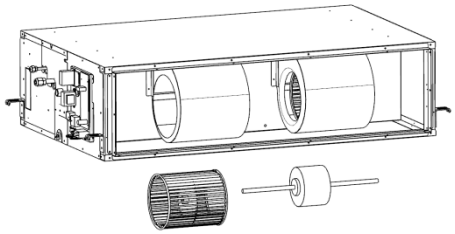
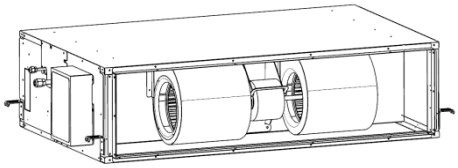
4. DISASSEMBLY AND ASSEMBLY FOR COMPRESSOR AND MOTOR

2.0HP

Removal and Assembly of Fan Motor		
Important: Before removing the fan, make sure power to the system is disconnected.		
Step	Illustration	Handling Instruction
1. Unplug the motor cables		Use screwdriver to remove the electric box cover and unplug the motor cables in electric box.
2. Remove the base board		Loose and take out the screws fixing the base board, then remove the base board.
3. Remove the screws on fan sub-assembly.		Remove the screws on fan sub-assembly.
4. Removing the fan cage enclosure		Rotate the fan cage housing toward supply opening and remove.
5. Loosen the fan and motor		Loosen the screws holding the fan cage to the motor shaft by using hexagon screwdriver. Remove outer housing holding motor in place.
6. Replace the motor		Remove the motor from the support bracket. Then remove the fan cages and crosshead from the motor shafts. Remove the motor from the air inlet and replace with new motor. Be sure to tighten the cages onto the motor shafts.
7. Reassembly of the unit		Reassemble the unit in the reverse order of disassembly and test operation.

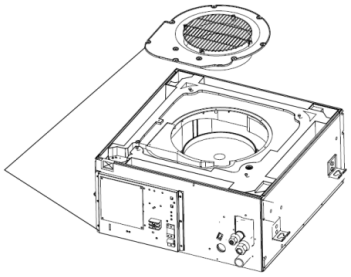
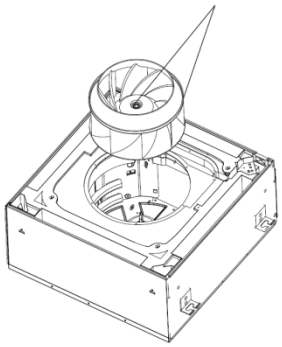
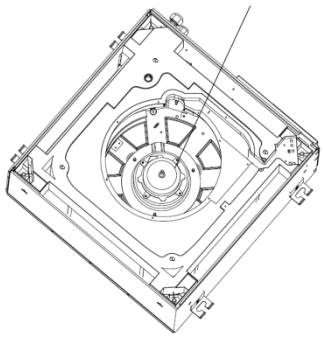
4. DISASSEMBLY AND ASSEMBLY FOR COMPRESSOR AND MOTOR

4.0/5.0/6.0/6.5HP

Removal and Assembly of Fan Motor		
Important: Before removing the fan, make sure power to the system is disconnected.		
Step	Illustration	Handling Instruction
1. Unplug the motor cables		Use screwdriver to remove the electric box cover and unplug the motor cables in electric box.
2. Loosen the fan and motor.		Use a offset spanner to loosen the screws holding the fan cage to the motor shaft. Remove outer housing holding motor in place.
3. Remove the diversion circle and support bracket.		Use screwdriver to remove the diversion circle and support bracket.
4. Replace the motor		Remove the fan cage from the motor shaft. Remove the motor from the air inlet and replace with new motor. Be sure to tighten the cages onto the motor shafts.
5. Reassembly of the unit		Reassemble the unit in the reverse order of disassembly and test operation.

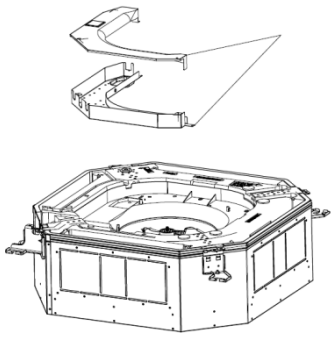
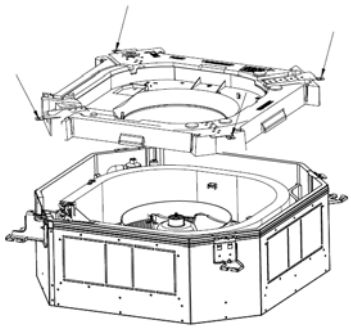
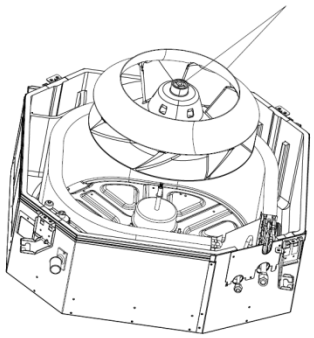
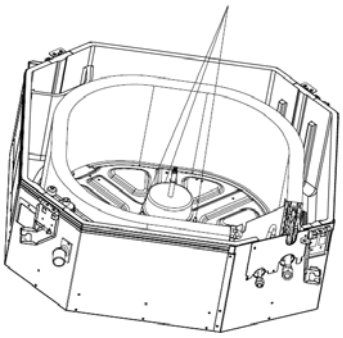
4. DISASSEMBLY AND ASSEMBLY FOR COMPRESSOR AND MOTOR

Cassette type
1.5/2.0HP

Step	Illustration	Handling Instruction
1. Loosen the screws holding the electric box cover and remove the plate.		Use screwdriver to loosen the electric box and the plate.
2. Loosen the bolts holding the fan blades in place and Remove the fan blade.		Use a wrench or socket to carefully remove the fan blade bolts.
3. Loosen the screws holding the motor in place and Remove the motor and replace it.		Use screwdriver to loosen the screws holding the motor.

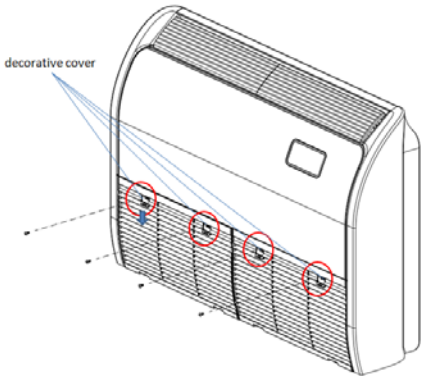
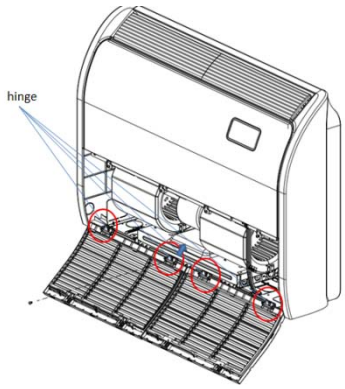
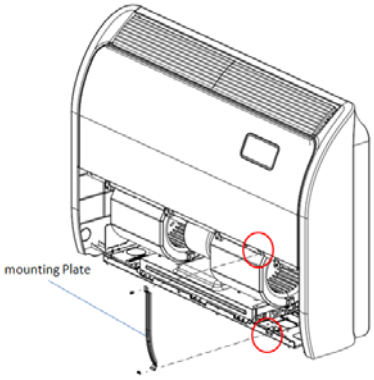
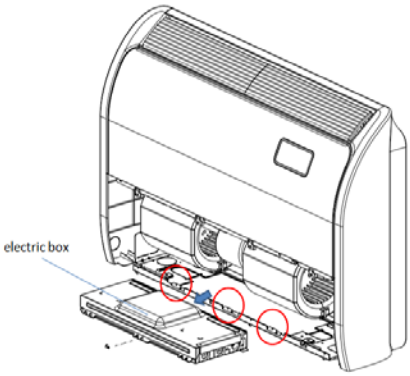
4. DISASSEMBLY AND ASSEMBLY FOR COMPRESSOR AND MOTOR

3.0/4.0/5.0/6.0/6.5HP

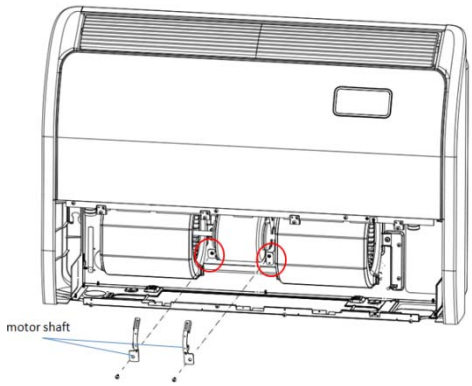
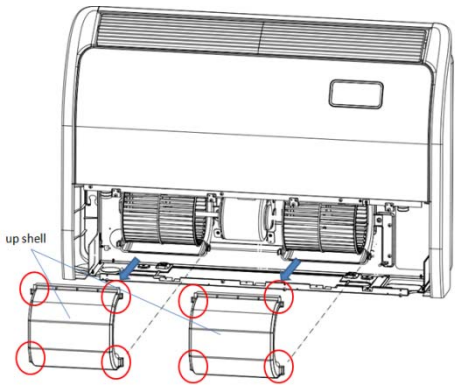
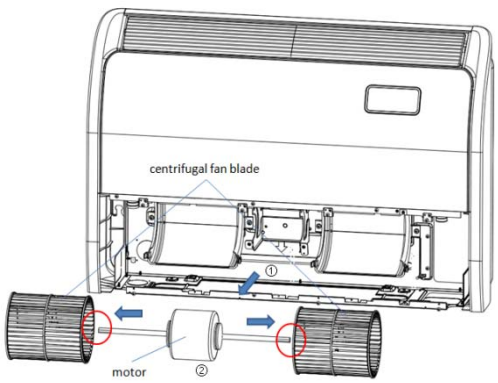
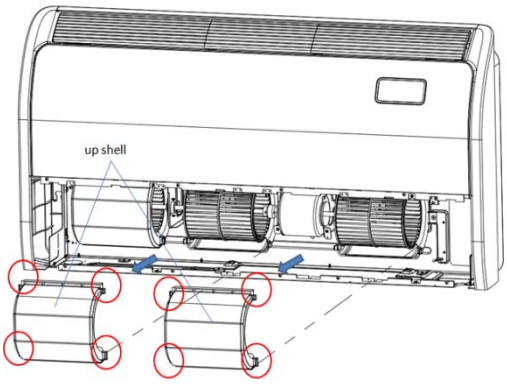
Step	Illustration	Handling Instruction
1.Loosen the screws holding the electric box cover and electric box.		Use screwdriver to loosen the Electric box.
2. Loosen the screws holding condensate pan and Remove the condensate pan.		Use screwdriver to loosen the screws holding the drain pan in place.
3. Loosen the bolts holding the fan blades in place and Remove the fan blade.		Use a wrench or socket to carefully remove the fan blade bolts.
4. Loosen the screws holding the motor in place and Remove the motor and replace it.		Use screwdriver to loosen the screws holding the motor.

4. DISASSEMBLY AND ASSEMBLY FOR COMPRESSOR AND MOTOR

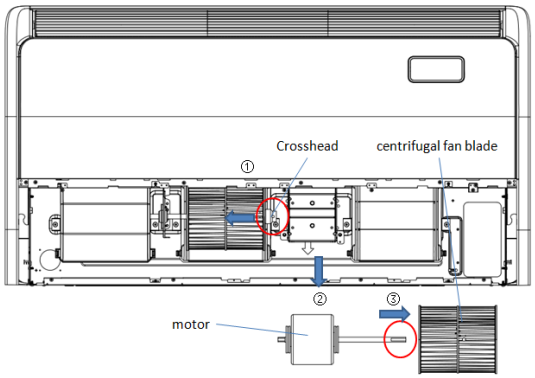
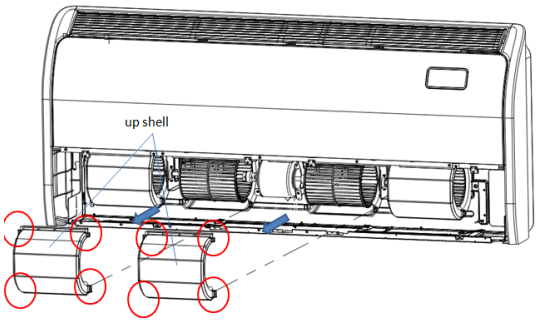
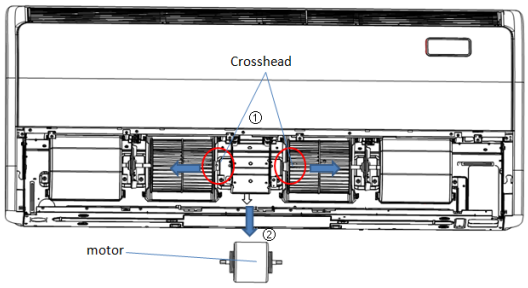
Floor ceiling

<table>
<tr><td colspan="3">Removal of the motor</td></tr>
<tr><td>Step</td><td>Illustration</td><td>Handling Instruction</td></tr>
<tr><td rowspan="2">Disassembly of the down front panel assembly</td><td> 
</td><td>Slide open the 4 decorative covers, loose and take out the 4 screws, then open the down front panel assembly.</td></tr>
<tr><td> 
</td><td>Loose and take out the 4 screws fixing the hinge, then remove the down front panel assembly.</td></tr>
<tr><td>Disassembly of the mounting Plate</td><td> 
</td><td>Loose and take out the 2 screws fixing the mounting Plate, then remove it.</td></tr>
<tr><td>Disassembly of the electric box</td><td> 
</td><td>Loose and take out the 3 screws fixing the electric box, then take it.</td></tr>
</table>

4. DISASSEMBLY AND ASSEMBLY FOR COMPRESSOR AND MOTOR

Removal of the motor		
Step	Illustration	Handling Instruction
Disassembly of the motor shaft		Remove the 2 screws fixing the motor shaft and fan blade by allen screwdriver.
Disassembly of the motor (2.0/3.0HP)	 	Remove the fasteners between the up shell and the below shell; Take out of the motor and centrifugal fan blade; Remove the 2 screws fixing the centrifugal fan blade and get the motor.
Disassembly of (4.0HP)		Remove the fasteners between the up shell and the below shell on both sides of the motor; Remove the 2 screws fixing the Crosshead and take it away from the motor; Take out of the motor and centrifugal fan blade; Remove the 2 screws fixing the centrifugal fan blade and get the

4. DISASSEMBLY AND ASSEMBLY FOR COMPRESSOR AND MOTOR

<table>
<tr><td colspan="3">Removal of the motor</td></tr>
<tr><td>Step</td><td>Illustration</td><td>Handling Instruction</td></tr>
<tr><td></td><td> 
</td><td>motor.</td></tr>
<tr><td rowspan="2">Disassembly of the motor (5.0/6.0/6.5HP)</td><td> 
</td><td rowspan="2">Remove the fasteners between the up shell and the below shell on both sides of the motor;
Remove the 2 screws fixing the Crosshead and take it away from the motor;
Take out of the motor.</td></tr>
<tr><td> 
</td></tr>
</table>

5.Control logic description

5.1 Fan Only Mode

(1) Outdoor fan and compressor stop.

(2) Temperature setting function is disabled, and no setting temperature is displayed.

(3) Indoor fan can be set to high/medium/low, but can not be set to auto.

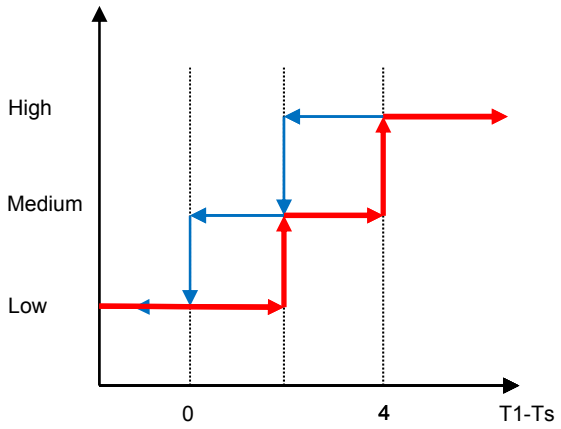
5.2 Cooling Mode

Indoor fan running rules:

In cooling mode, indoor fan runs all the time and the speed can be selected as high, (medium), low and auto.

The auto fan:

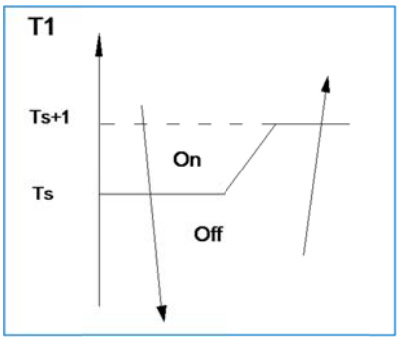
T1 is indoor room temperature. Ts is setting temperature.



Compressor and outdoor fan running rules:

Once the compressor starts up, it will follow the below rules:

When indoor room temp.T1 is lower than Ts, the compressor and outdoor fan will shut off. When T1 is higher than Ts+1, the compressor and outdoor fan will start up.



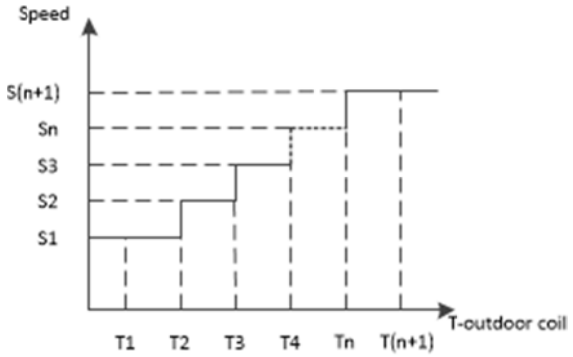
Outdoor fan running rules:

Once the outdoor fan start up, it will follow the below rules:

Single outdoor fan: First, it will run in an invariable speed for a short time; Then it will regulate the speed by the outdoor-coil temperature.

Double outdoor fan: If it has two outdoor fans, the upper fan regulates the speed by the rules, and the downer fan speed lower than the upper fan speed for

30rpm~60rpm.



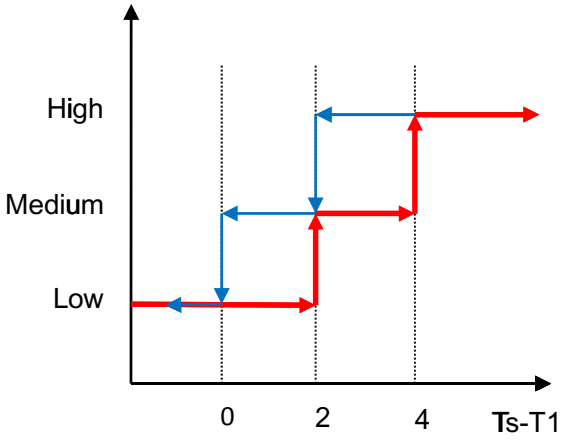
5.3 Heating Mode

Indoor fan running rules:

In several minutes after the heating mode is started, the fan of the indoor unit will not run until the heat exchanger of the indoor unit reaches a high enough temperature. That is because cold air prevention system is operating. After several minutes, the speed can be selected as high, (medium), low and auto.

The auto fan:

T1 is indoor room temperature. Ts is setting temperature.

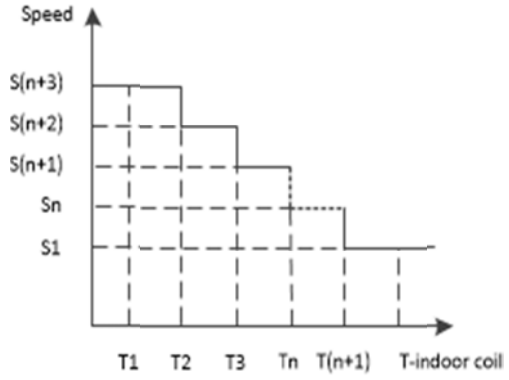


Outdoor fan running rules:

Once the outdoor fan start up, it will follow the below rules:

Single outdoor fan: First, it will run in an invariable speed for a short time; Then it will regulate the speed by the indoor-coil temperature.

Double outdoor fan: If it has two outdoor fans, the upper fan regulates the speed by the rules, and the downer fan speed lower than the upper fan speed for 30rpm~60rpm.



5.4 Auto Mode

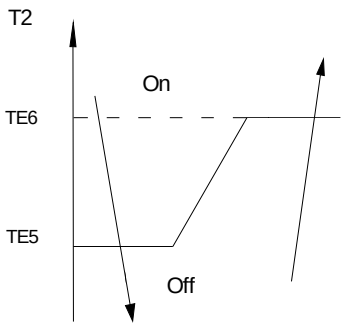
This mode can be chosen with remote controller and the setting temperature can be changed between 16~30℃.
In auto mode, the machine will choose cooling, heating or fan-only mode according to ΔT (ΔT =T1-Ts).

ΔT=T1-Ts	Running mode
ΔT > 3℃	Cooling
-3℃ ΔT 3℃	Fan-only
ΔT ＜ -3℃	Heating

Indoor fan will run at auto fan of the relevant mode. The louver operates same as in relevant mode. If the compressor keep stopping for 10 minutes or the setting temperature is modified, the machine will choose mode according to ΔT again.

5.5 Evaporator Low-temperature Protection

DC-Inverter
AC will enter T2 protection if any of the following condition is satisfied.
Condition:

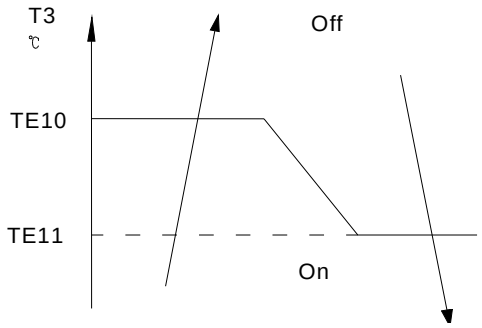


Cooling mode: When the indoor coil temp. T2 keeps lower than TE5 for 120 seconds, the compressor and outdoor fan will shut off. When T2 is higher than TE6, the compressor and outdoor fan will restart up.

5.6 Condenser High-temperature Protection

DC-Inverter outdoor unit

AC will enter T3 protection if any of the following conditions is satisfied.



Condition1:

Cooling mode: When the outdoor coil temp. T3 keeps higher than T2 for 10 seconds, the compressor and outdoor fan will shut off. When T3 is lower than T1, the compressor and outdoor fan will restart up.

Condition2:

Heating mode: When the indoor coil temp. T3 keeps higher than T2 for 10 seconds, the compressor and outdoor fan will shut off. When T3 is lower than T1, the compressor and outdoor fan will restart up.

Correct Disposal of this product

This marking indicates that this product should not be disposed with other household wastes throughout the EU. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased. They can take this product for environmental safe recycling.

Specifications in this document are subject to change without notice, in order that Hitachi-Johnson Controls Air Conditioning, Inc. may bring the latest innovations to their customers.

Hitachi-Johnson Controls Air Conditioning, Inc.