

Cassette type Fan Coil Service Manual

Models:

FCB-051BCN2A



FCB-085BCN2A



FCB-136BCN2A

FCB-170BCN2A



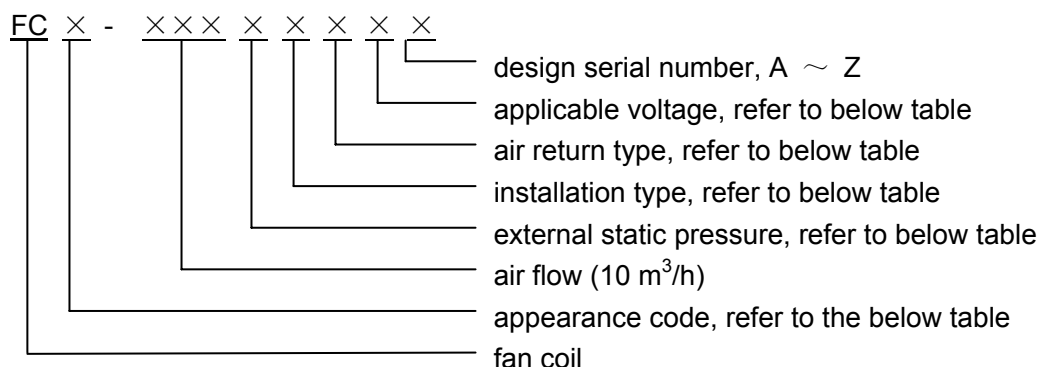
● Features

- Four-way cassette type, temperature can be adjusted quickly and equally
- Compact design and space saving
- Powerful circular air flow, temperature can be adjusted quickly
- Auto-restart function
- Security and reliability, long life
- High efficiency , sufficient energy
- Large air volume and low noise level

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1. Nomenclature



item	code	Definition
Fan coil	FC	Fan coil
Appearance code	B	Cassette type
	C	Convertible type
	D	Duct type
	E	Ceiling concealed horizontal type
	F	Ceiling concealed vertical type
External static pressure	A	0 Pa
	B	0 Pa or 30 Pa
	C	50 Pa
	D	60 Pa
	E	80 Pa
	F	100Pa
Installation type	S	Shown
	C	Conceal
	X	Others
Air return type	B	Back type
	D	Down type
	N	Without air return box
Applicable voltage	1	(100 ~ 115)V,(50/60)Hz
	3	(115 ~ 220)V,(50/60)Hz
	2	(220 ~ 240)V,50 Hz
	4	(220 ~ 240)V,60 Hz
	6	220 V, (50/60)Hz
	8	240 V, 50 Hz
	N	(380 ~ 400)V,50 Hz
	I	(380 ~ 400)V,60 Hz
	9	(100 ~ 220)V,(50/60)Hz
	M	415V,50 Hz
	L	(380 ~ 400)V,60 Hz
I	(380 ~ 400)V,(50/60)Hz	

2. Important cautions

2.1 Fan coil unit is the terminal device of the chiller system. It is professional very much and with perfect technology and requirement, so the installation, debugging, operation and management will be performed by the specified engineer.

2.2 The unit is applicable widely. But please do not use it at the wet place, or on the outside, dirty, or corrosive environment, and at the explosive place.

2.3 Applicable condition

Power source: 1PH, 220V~, 50Hz.

Max. operation pressure \leq 1.6MPa.

3. Features

3.1 Four-way cassette type, temperature can be adjusted quickly and equally

3.2 Compact design and space saving

3.3 Powerful circular air flow, quickly adjust the temperature

3.4 Auto-restart function

All indoor units have auto-restart function. When the power supply cut off suddenly, the unit will automatically recover the previous running mode once the power supply is on.

3.5 Security and reliability, long life

Each set of fan coil evaporator will be tested leakage by pressure; water inlet/outlet connection pipe adopts brass forging structure, reliable and durable; motor is equipped with the rolling bearing, no need to add the oil, the life can be up to 60,000 hours; the motor long axis is stainless after the special treatment.

3.6 High efficiency, sufficient energy

The seamless pipe is cross the slit fin aluminum foil, then be enlarged by the mechanical device to make the copper pipe and the aluminum foil together, which will get the higher efficiency and sufficient heating/cooling capacity.

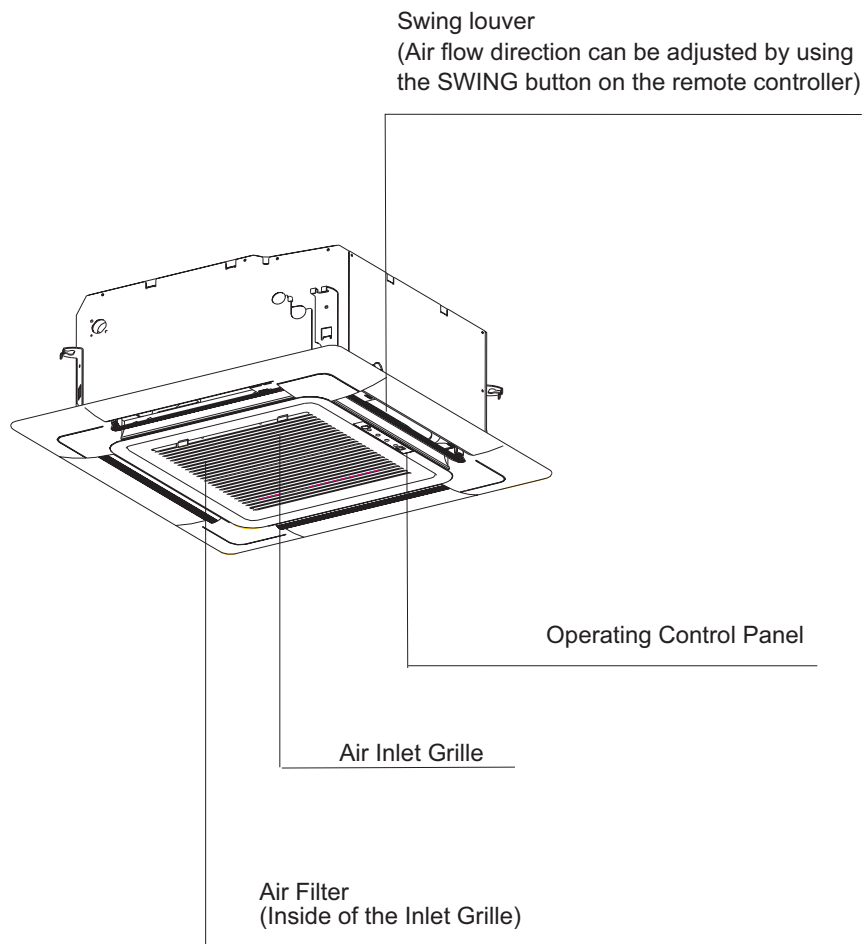
3.7 Large air volume and low noise level

The unit adopts the locked type scroll case, convenient to be taken down; multiple-blade fan. There will be multiple combinations by the fan and the motor to meet the different requirements.

4. Specifications

Item		Model		FCB-051BCN2A	FCB-085BCN2A	FCB-136BCN2A	FCB-170BCN2A
air flow	m3/h	H	high	550	900	1360	1650
		M	med	450	720	1120	1400
		L	low	350	560	880	1100
cooling capacity		W	high	3040	4820	7750	9100
		W	med	2621	4193	6742	8437
		W	low	2215	3519	5657	7110
heating capacity		W	high	4750	7940	11200	13500
		W	med	3990	6353	9520	11070
		W	low	3420	5465	7730	8988
power input	W	H	high	38	69	118	132
noise level	dB(A)	H	high	36	41	45	48
		M	med	29	34	38	40
		L	low	22	25	28	29
water flow	L/min		8.7	14.5	23	26	
water pressure drop	kPa		16	25	37	39	
indoor unit net weight	kg		18	23.1	33.5	33.5	
indoor unit gross weight	kg		22.2	30.8	39	39	
water inlet/outlet connection pipe	mm		19.05	19.05	19.05	19.05	
condensate water pipe (inner)	mm		26	26	26	26	
condensate water pipe (external)	mm		32	32	32	32	
indoor unit external dimension	mm		570*570*260	840*840*240	840*840*290		
indoor unit package dimension	mm		718*680*380	910*910*313	955*910*365		
panel net weight	kg		2.8	6	6	6	
panel gross weight	kg		4.8	9	9	9	
panel external dimension	mm		700*700*60	950*950*80			
panel package dimension	mm		740*750*115	970*970*100			
1. Cooling conditions: DB temperature =27℃ WB Temperature =19.5℃ water IN=7℃ water IN/OUT Diff=5℃							
2. Heating conditions: DB: Temperature=21℃ water IN=60℃							
3. The data is subject to change without notice in order to update the design							

5.Parts name



6. Installation instructions

6.1 Acceptance Inspection

Each fan coil unit is packaged in corrugated cartons to avoid damages during transportation, handling and site placement.

To make sure no damages occurred due to transportation, please follow below steps to check upon receiving the equipment:

1. Before acceptance, please check if each unit shows any abnormal facts, if carton edges and corners are in good conditions and if there're obvious carton damages;
2. For any obvious carton damages, please immediately unpack to inspect the unit. If the unit is indeed damaged, please indicate on the receipt and refuse to accept. Please also check the accessories;
3. Check hidden damages of the unit;
4. If any hidden damage is found, do not move the unit on the site. The receiver has the obligation to prove such damage does not occurred after delivery. Meanwhile, please stop unloading and take photos for reference;
5. If damages are found, please notify the carrier, and request the carrier and the receiver to conduct a joint inspection;
6. Do not repair it yourself before inspection and confirmation by the carrier representative has been made;

After confirmation of damages, please contact relative persons for replacement.

6.2 Installation Precautions

To ensure good installation and operation, do check the following items before installation of the unit:

- Adequate space shall be provided for installation and maintenance of the unit. Please refer to *Unit Overall Dimensions and Weight*. Removable ceiling panels or accesses shall be provided for daily maintenance;
- Determine locations of pipelines and electric wires before installation;
- Make sure hanging structure adequate for support the unit weight;
- All units shall be leveled to ensure smooth water drain and proper operation;
- The unit connecting air duct shall be within the external static pressure scope;
- Thermal insulation of chilled water valves and pipelines shall be made by the installer.

Note:

- Untreated water may cause unit dirty, corrosion and deterioration. System testing and maintenance shall be guided by water treatment experts. Haier shall not be held liable for any losses due to poor water quality.
- Due to limitation of support weight and dimensions, this job shall be collaborated by two installers to ensure safety.
- During off period in winter, water inside the unit shall be drained away to avoid pipe cracks because of the ice

6.3 Installation Procedure

CAUTIONS:

To ensure proper installation, read "Cautions" carefully before working. After installation, start the unit correctly and show customers how to operate and maintain the unit.

Meanings of Warning and Cautions:

Warning! Serious injury or even death might happen, if it is not observed.

Caution! Injury to people or damages to machine might happen, if it is not observed.

WARNING

- Installation shall be done by professional people, don't install unit by yourself. Incorrect installation will cause water leakage, electric shock or fire.
- Install unit according to the Manual. Incorrect installation will cause water leakage, electric shock or fire accident.
- Be sure to use specified accessories and parts. Otherwise, water leakage, electric shock, fire accident or unit falling down may happen.
- Unit should be placed on a place strong enough to hold the unit. Or, unit will fall down causing injuries.
- When install the unit, take in consideration of storms, typhoon, earthquake. Incorrect installation may cause unit to fall down.
- All electric work shall be done by experienced people and abide by relative regulations and this Manual.
- Use exclusive wire for the unit. Incorrect installation or undersized electric wire may cause electric shock or fire accident.
- All the wires and circuit shall be safe. Use exclusive wire firmly fixed. Be sure that external force will not affect terminal block and electric wire. Poor contact and installation may cause fire accident. In case refrigerant leakage occurred during unit installation, keep a good ventilation in the room.
- Poisonous gas will occur when meet with fire.
- Check the unit after installation. Be sure there is no leakage. Refrigerant will induce poisonous gas when meet heat source as heater, oven, etc.
- Shut off power supply before touching terminal block.

CAUTION!

- Unit shall be grounded. But grounding shall not be connected to gas pipe water pipe, telephone line. Poor grounding will cause electric shock.
- Be sure to install a leakage breaker to avoid electric shock.
- Arrange water drainage according to this Manual. Cover pipe with insulation materials in case dew may occur. Unproper installation of water drainage will cause water leakage and wet your furniture.
- Don't install unit in following places:
 - (a) Oil mist or oil gas exists, such as kitchen, or, plastic parts may get aged, or water leakage.
 - (b) Where there is corrosive gas. Copper tube and welded part may be damaged due to corrosion, causing leakage.
 - (c) Where there is strong radiation. This will affect unit's control system, causing malfunction of the unit
 - (d) Where flammable gas, dirt, and volatile matter (thinner, gasoline) exist, These matter might cause fire accident.
- Refer to paper pattern when installing unit.



Earthing

Cautions for the installation personnel

- Don't fail to show customers how to operate unit.

BEFORE INSTALLATION <Don't discard any accessories until comp>

- Determine the way to carry unit to installation place.
- Don't remove packing until unit reaches installation place.
- If unpacking is unavoidable, protect unit properly.

SELECTION OF INSTALLATION PLACE

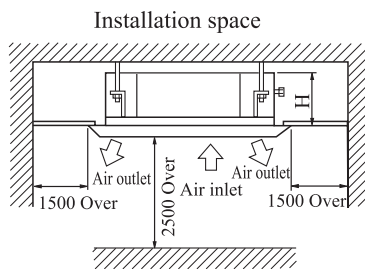
(1) Installation place shall meet the following and agreed by customers:

- Place where proper air flow can be ensured.
- No block to air flow.
- Water drainage is smooth.
- Place strong enough to support unit weight.
- Place where inclination is not evident on ceiling.
- Enough space for maintenance.
- Indoor unit piping length is within limit. (Refer to Installation Manual for outdoor unit.)
- Indoor unit, power cable, inter unit cable are at least 1 m away from T.V. radop. This is helpful to avoid picture disturbance and noise. (Even if 1 m is kept, noise can still appear if radio wave is strong) do not set television, equipment, artwork, piano and wireless device etc. or other valuables under the indoor unit, to prevent condensing water drain to these goods and cause damage

(2) Ceiling height

Indoor unit can be installed on ceiling of 3m in height. (Refer to Field setting and Installation Manual of ornament panel.)

(3) Install suspending bolt. Check if the installation place is strong enough to hold weight. Take necessary measures in case it is not safe. (Distance between holes are marked on paper pattern. Refer to paper pattern for place need be reinforced)

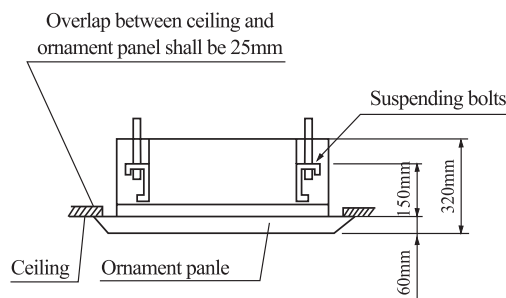
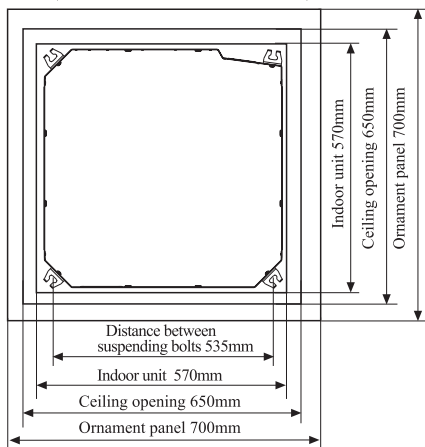


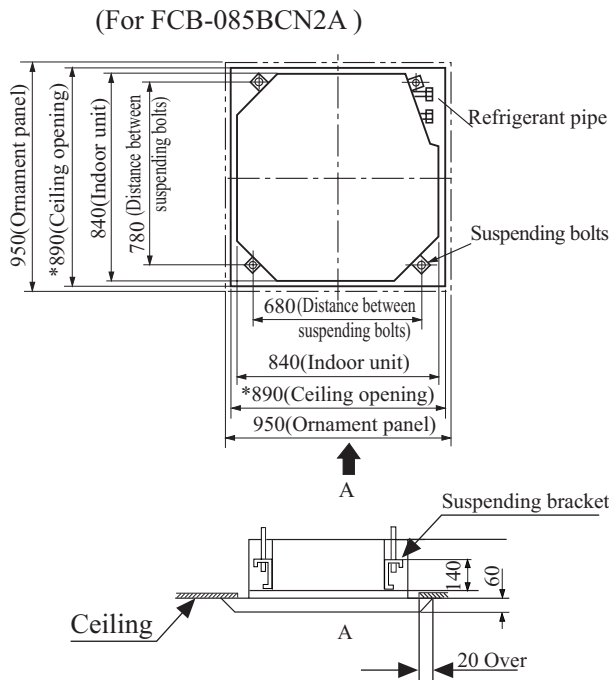
Model	H
FCB-051BCN2A	280
FCB-085BCN2A	260
FCB-136BCN2A FCB-170BCN2A	310

PREPARATION FOR THE INSTALLATION

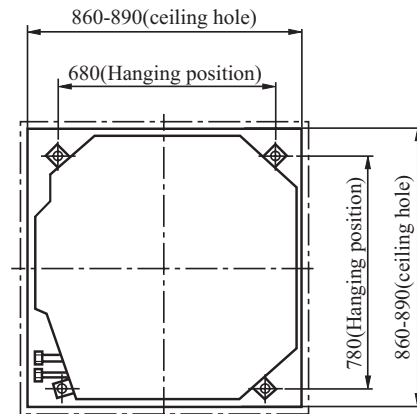
(1) Position of ceiling opening between unit and suspending bolt.

(For FCB-051BCN2A)





(For FCB-136BCN2A FCB-170BCN2A)



Note:
Dimension of ceiling opening marked with * can be as large as 910mm, but the matching part of ceiling with ornament panel shall be over 20mm.

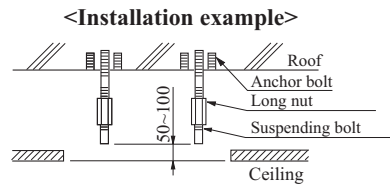
(2) Cut an opening in ceiling for installation if necessary. (when ceiling already exists.)

- Refer to paper pattern for dimension of ceiling hole.
- Connect all pipings (refrigerant, water drainage), wirings (inter unit cable) to indoor unit, before installation.
- Cut a hole in ceiling, may be a frame should be used to ensure a smooth surface and to prevent vibration. Contact your real estate dealer

(3) Install a suspending bolt.

(Use a M10 bolt)

To support the unit weight, anchor bolt shall be used in the case of already exists ceiling. For new ceiling, use built-in type bolt or parts prepared in the field. Before going on installing adjust space between ceiling.



Note: All the above mentioned parts shall be prepared in field.

INSTALLATION OF INDOOR UNIT

In the case of new ceiling

(1) Install unit temporarily

- Put suspending bracket on the suspending bolt. Be sure to use nut and washer at both ends of the bracket.

(2) As for the dimensions of ceiling hole, see paper pattern.

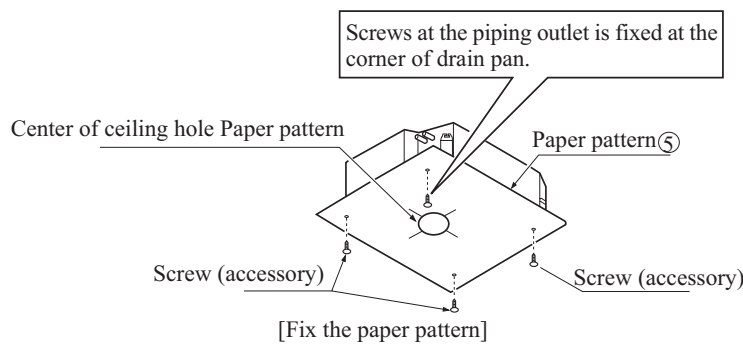
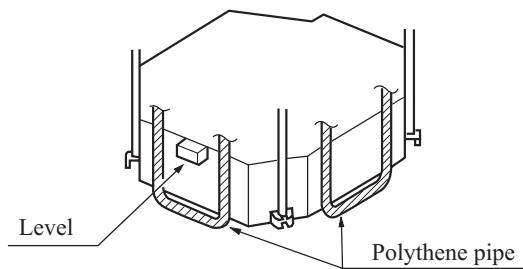
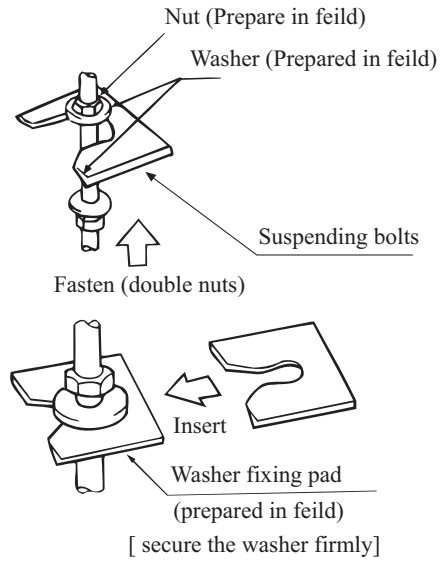
- Center of the hole is marked on the paper pattern.
- Center of the unit is marked on the card in the unit and on the paper pattern.
- Mount paper pattern onto unit using screws. Fix the corner of the drain pan at piping outlet.

< After installation on the ceiling >

- (3) Adjust unit to its right position.
- (4) Check unit's horizontal level.
 - Water pump and float switch is installed inside indoor unit, check four corners of the unit for its level using horizontal compartor or PVC tube with water. (If unit is tilting against the direction of water drainage, problem may occur on float switch, causing water leakage.)
- (5) Tighten the nut above the washer.
- (6) Remove the paper pattern.

In the case of ceiling already exists

- (1) Install unit temporarily
 - Put suspending bracket on the suspending bolt. Be sure to use nut and washer at both ends of the bracket. Fix the bracket firmly.
- (2) Adjust the height and position of the unit.
- (3) Proceed with (4) and (5) of "In the case of new ceiling".



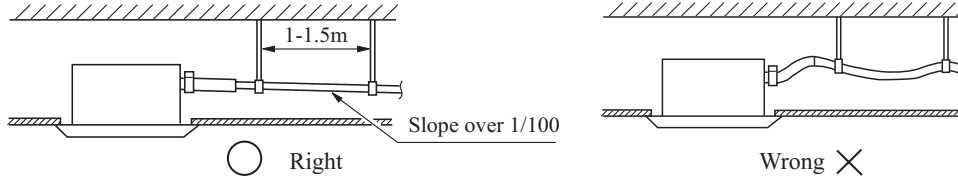
5.Chilled water pipe installation

Connect the chilled water pipe, to coil pipe by using 3/4" outer groove connector. distinguish the inlet/outlet water according to the sign on the unit. heat preservation must be used for the chilled water pipe, and pay attention to the end side management of insulate material.

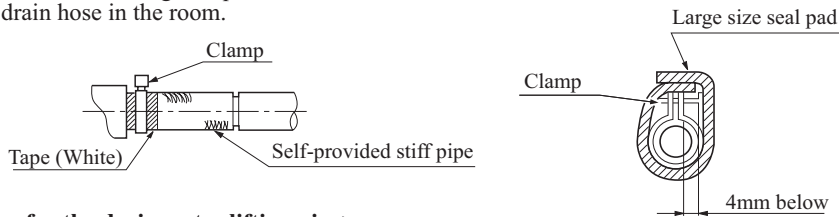
INSTALLATION OF WATER DRAINAGE PIPE

(1) Install water drainage pipe

- Pipe dia. shall be equal or larger than that of unit piping. (pipe of polyethylent; size: 25mm; O.D:32mm)
- Drain pipe should be short, with a downward slope at least 1/100 to prevent air bag from happening.
- If downward slope can't be made, take other measures to lift it up.
- Keep a distance of 1-1.5m between suspending brackets, to make water hose straight.

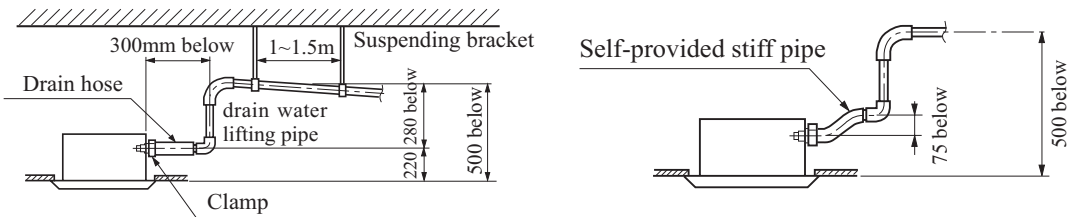


- Use the self-provided stiff pipe and clamp with unit. Insert water pipe into water plug until it reaches the white tape. Tighten the clamp.
- Wind the drain hose using seal pad for installation. Insulate drain hose in the room.



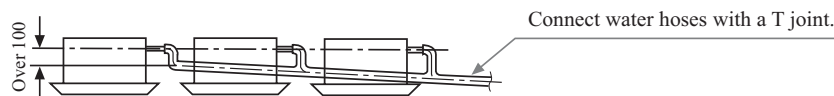
<Cautions for the drain water lifting pipe>

- Installation height shall be less than 280mm.
- There should be a right angle with unit, 300mm from unit.



(Note)

- The slope of water drain hose shall be within 75mm, don't apply too much force on it.
- If several water hoses join together, do as per following procedures.



Specifications of the selected drainage hoses shall meet the requirements for the unit running.

(2) Check if water drainage is smooth after installation.

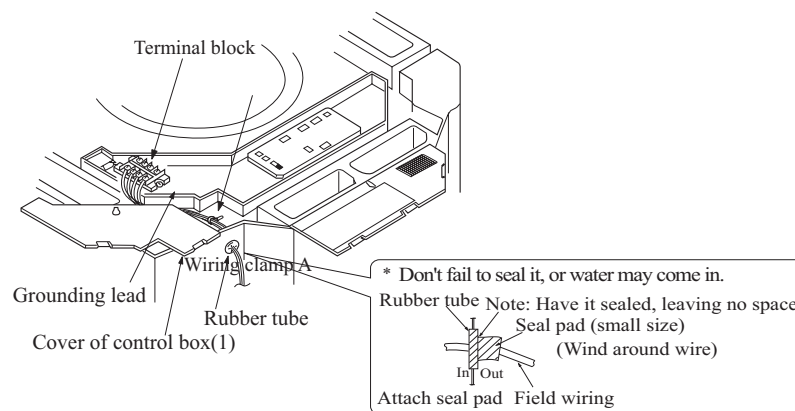
Charge, through air outlet or inspecting hole, 1200cc water to see water-drainage.

AFTER WIRING Check water drainage in cooling operation

WIRING

- All supplied parts, materials and wiring operation must in appliance with local code and regulations.
- Use copper wire only.
- When make wiring, please refer to wiring diagram also.
- All wiring work must be done by qualified electricians.
- A circuit breaker must be installed, which can cut power supply to all system.

- Connecting of unit
 Remove cover of control box (1) , drag wires into rubber tube , then, after proper wiring with other wires, tighten clamp A. Connect wires of correct pole to the terminal block inside.
- Wind seal around wires. (Be sure to do that, or, dew may occur).
- Upon connecting, replace control box cover (1) .

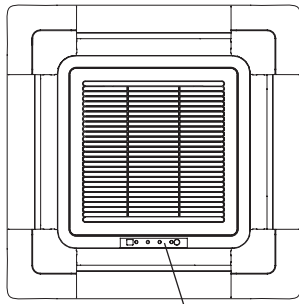


INSTALLATION OF ORNAMENT PANEL

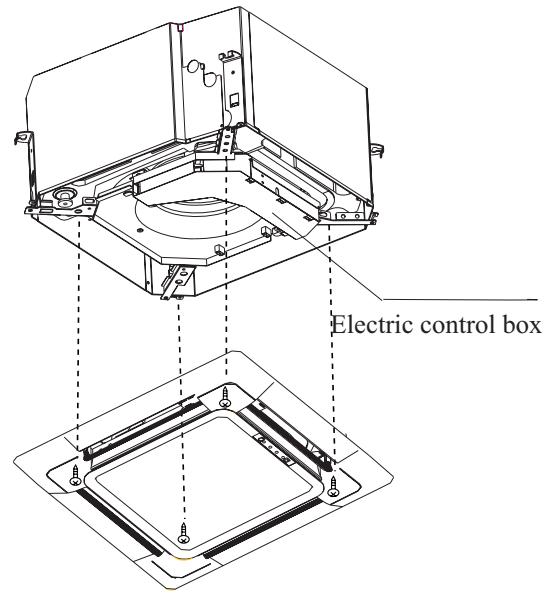
(For FCB-051BCN2A)

- Check whether indoor unit is horizontal with leveler or polythene pipe filled with water , and check that the dimension of the ceiling opening is correct. Take off the lever gauge before install the ornament panel.
- Fasten the screws to make the height difference between the two sides of indoor unit less than 5mm.
- First fix it with screws temporarily.
- Fasten the two temporally fixing screws and other two, and tighten the four screws.

- Connect the wires of synchro-motor.
- Connect the wire of signal.
- If no response of remote controller, check whether the wiring is correct, restart remote controller 10 seconds after shut off power supply.



Remote receiver



Electric control box

<Limits of panel board installation>

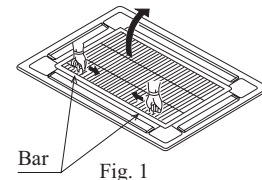
- Install the panel board in the direction shown in the figure.
- The incorrect direction will result in water leakage, meanwhile swing and signal receiving are displayed that cannot be connected.

INSTALLATION OF ORNAMENT PANEL

(For FCB-085BCN2A FCB-136BCN2A FCB-170BCN2A)

Handling of ornament panel

- Ornament panel shall not be placed face down or against wall, neither on an uneven object.
- Don't bend carelessly the swing flap, or, problem may occur.



Bar Fig. 1

(1) Remove air inlet grill from ornament panel

A. Push in the bar on inlet grill and lift it up. (Refer to Fig. 1)

B. Lift it up for about 45 degree and remove it from ornament. Tear off adhesive tape fixing air filter on the back of the air inlet grill. (Refer to Fig. 2)

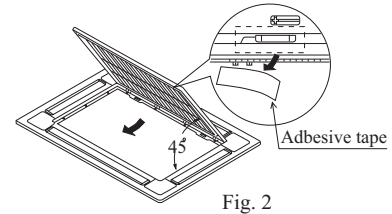


Fig. 2

(2) Remove cover plate at corner

Tear off the adhesive tape, and slide it off. (Refer to Fig. 3)

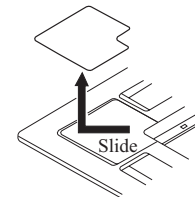


Fig. 3

(3) Install ornament panel on indoor unit.

A. As shown in Fig.4,match the position of swing flap motor with that of the indoor unit piping hole , so that ornament panel can be placed on to indoor unit.

B. Installation of ornament panel

- a.Place the holding ring on swing flap motor side temporarily on hooks of the indoor unit. (2 pcs)
- b.Put the other two holding rings on the hooks at both side of the indoor unit. (Care should be taken not to push wiring of swing flap motor into seals).
- c.Screw in all 4 screws under holding ring for about 15mm. (Panel will rise).
- d.Adjust the ornament panel as per Fig.4 to cover opening on the ceiling.
- e.Tighten screws to reduce the thickness of seals between ornament and indoor unit to 5-8mm.

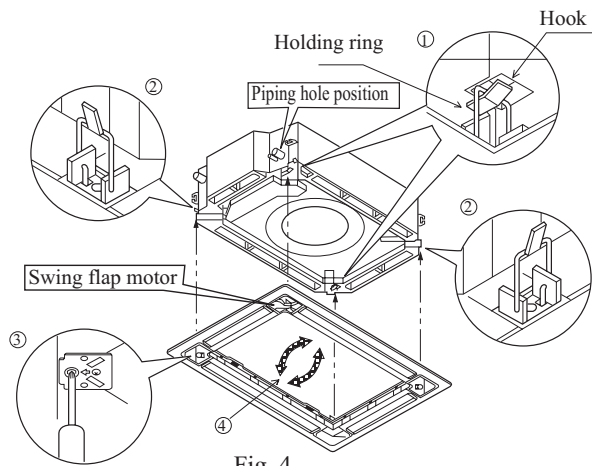
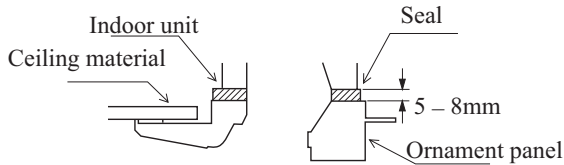


Fig. 4



Caution

If screws are not tighten tight, problems in Fig. 5 might occur.
Tighten screws properly.

If there are still space after tightening of screws, please readjust the height of indoor unit.
(Refer to Fig. 6)

If indoor unit is at horizontal level and water drainage is smooth, then, indoor unit height can be adjusted through holes at corners of ornament panel.

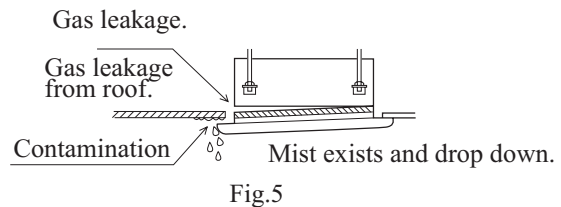


Fig.5

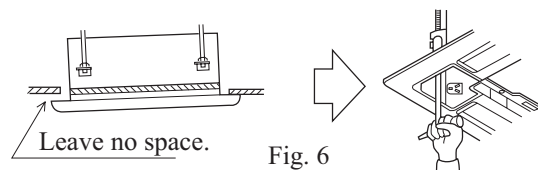


Fig. 6

(4) Wiring of ornament panel

f.Connect the wiring of swing flap moter on the ornament panel(Refer to Fig.7)

g.Connect the wiring of remote receiver port on the ornament panel.

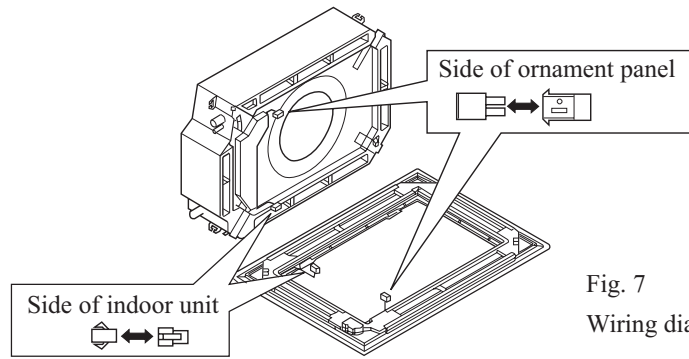


Fig. 7
Wiring diagram

(4) Installation of inlet grill and cover plate

(1) Installation of inlet grill

Install in reversed order of "Prepare ornament panel".

Inlet grill can be adjusted into four directions by turning inlet grill. Inlet grill position can be adjusted as per customers request.

When installing inlet grill, take care not to twist wiring of swing flap motor.

(2) Install cover plate on the corner

- ① As shown in Fig. 8 tie the cover plate onto the bolt on ornament plate.
- ② Install cover plate onto ornament plate.
(Refer to Fig. 9)

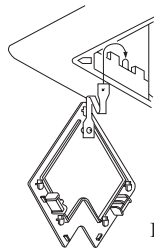
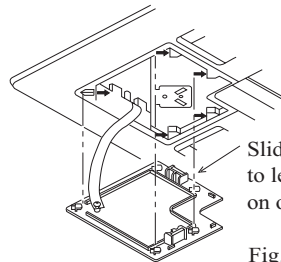


Fig.8



Slide all five hold rings to let them drop in holes on ornament plate,

Fig.9

7. Installation Inspection & Startup

Installation Inspection

After installation, the installers shall re-inspect and confirm the following items have been made.

Note:

To avoid human injury, before starting up the unit, the power supply shall be disconnected.

1. The unit has been firmly connected with the hanging rods and slabs;
2. Air pipes have been completely connected and firmly installed;
3. Water pipe connection has been completed without leakage;
4. Drain pipe connection has been completed without leakage;
5. Electric control wires have been completely connected without poor contact and missing;
6. This manual has been carefully read through. Operators are generally familiar with the unit and can operate it.

Startup

The fan coil unit can be controlled with the motor speed switch or the controller.

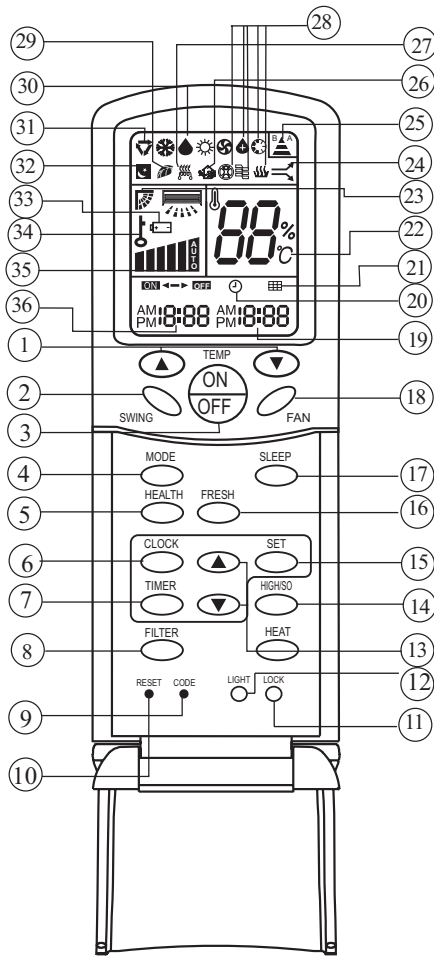
The controller consists of a motor speed switch, an ON/OFF switch and a thermostat. The thermostat controls on/off of the chilled water valve and is normally provided with a temperature setting dial.

The speed switch is marked with OFF / HIGH / MID / LOW. It controls the motor speed and thus the air flow.

Air Discharge

For first water filling, the fan coil pipeline may retain some air, which will be finally concentrate on top of the coil. A manual discharge valve is provided at the water outlet joint of the coil. When abnormal noise is heard due to residual air in the coil, turn the discharge valve knob to release the air. If the knob is too tight, you may use a pair of pinchers to turn it anticlockwise until water flows out of the valve steadily, and then tighten the knob again.

8.Controller (YR-H71)



1.TEMP Setting Button

(Used to set temperature. Setting ranges: 16°C to 30°C)

In Up/Down function, for controlling up and down filter.

2.SWING Button

If you press this button once, auto swing will be activated.

If you press this button again, the louver will fix in the present position.

3.Power ON/OFF Button

Used for unit start and stop

After power on, the LCD of remote controller will display the previous operation state (except for TIMER,SLEEP and SWING state).

4.Operation MODE

Used to select operation mode.

Every time you press MODE button, operation mode changes according to following sequence:



5.HEALTH Button

Used to set health mode, if the unit has the negative ion function and oxygen bar function.

6.CLOCK Button

Used to set correct time.

7.CLOCK Button

Used to select TIMER ON, TIMER OFF.

(Note: if time of TIMER ON is the same as TIMER OFF,TIMER ON/OFF cannot be set)

8. FILTER Button

Used to set up/down function of filter.

9. CODE Button

Used to select code A or B, for the units except that we recommend especially, the code is A.

10.RESET Button

Press this button by using a sharp article to resume the correct operation of the remote controller in case of need, i.e. for example in case of malfunctions due to electromagnetic noise.

11.LOCK Button

Used to lock operation button and LCD display contents: by pressing this button, other buttons comes out of function and lock state display appears; if you press it again, lock state will be no more active and lock state display will disappear.

12.LIGHT Button

Used to light the control panel (only for cabinet unit)

13.Up and down Button

Used to set TIMER and CLOCK up or down.

14.HIGH/SO Button

Used to select HIGH or SOFT operation.

15.SET Button

Used to confirm TIMER and CLOCK settings.

16.FRESH Button

Used to set fresh mode, the unit will draw in fresh air.

17.SLEEP Button

(The clock must be corrected before setting sleep function) Used to set sleep mode.

NOTE: The following functions for these products are not available : function of No. (5)(8)(14)

18.FAN Button

Used to select fan speed:LOW,MID,HIGH,AUTO.

19.TIMER OFF Display

20.CLOCK Display

21.FILTER Display

22.TEMPERATURE Display

23.AUTO SWING Display

24.HIGH/SO Display

25.SIGNAL SENDING Display

26.FRESH AIR Display

27.ELECTRICAL HEATING Display

28.Some other buttons

All these functions are not available now.

29.HEALTH Display

Displays when healthy run function is set.

30.DEHUMIDIFICATION Display

31.Operation MODE Display

AUTO RUN	COOL RUN	DRY RUN	HEAT RUN	FAN RUN

32.SLEEP State Display

33.BATTERY Energy Display

Notify the user when it is time to change the batteries.

34.LOCK State Display

35.FAN SPEED Display

LO	
MID	
HI	
AUTO	

36.TIMER ON Display

Remote Controller' Operation

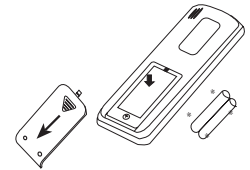
- When in use, direct signal transmission head to the receiver placed on the indoor unit

- The distance between the remote controller and the receiver should be max 7m and there should be no obstacle between them.
- Do not throw the remote controller; prevent it from being damaged.
- When operating the remote controller in an area where electronically controlled lights are installed or wireless handsets are used, please move closer to the indoor unit as the function of the remote controller might be affected by signals emitted by the above mentioned equipments.

Battery loading

Battery loading

Batteries are fitted as follows:



Remove the battery compartment lid Slightly press and disengage the battery compartment lid marked with "▽" and then hold the remote controller by the upper section and then remove the battery compartment lid by pressing in the direction of the arrow as shown in the figure above.

Loading the battery

Ensure that batteries are correctly placed in the compartment as required for positive and negative terminals.

Replacing the battery compartment lid

The battery compartment lid is reinstalled in the reverse sequence.

Display review

Press the button to see if batteries are properly fitted.

If no display appears, refit the batteries.

Confirmation indicator

If no indication is displayed after press ON/OFF button, reload the batteries.

Caution:

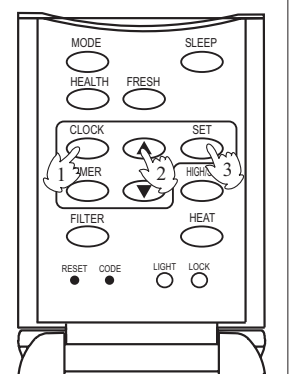
If the remote controller does not operate as designed after fitting new batteries of the same type, press the Reset button (marked ↓) with a pointed article.

Clock Set

When unit is started for the first time and after replacing batteries in remote controller, clock should be adjusted as follows:

- 1.Press CLOCK button, clock indication of " AM " or " PM " flashes.
- 2.Press ▲ or ▼ to set correct time. Each press will increase or decrease 1 min. If the button is kept pressed, time will increase or decrease quickly.
- 3.After time setting is confirmed, press "SET" : AM or PM stop flashing, while clock starts working.

Note:AM means morning and PM means afternoon.

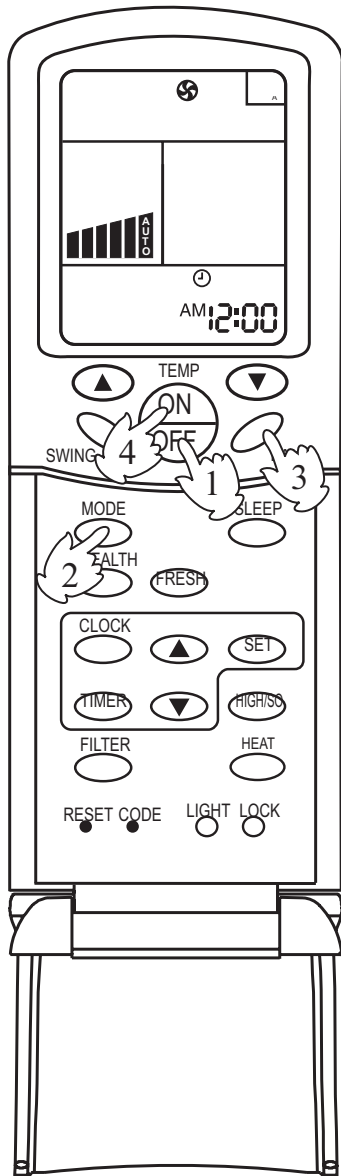


Note:

It is recommended that the batteries be removed from the compartment if the remote controller is not used for an extended period.

The remote controller is programmed for automatic test of operation mode after the batteries are replaced. When the test is conducted, all icons will appear on the screen and then disappear if the batteries are properly fitted.

Fan Operation



(1).Unit start

Press ON/OFF button to start your air conditioner. Previous operation status appears on LCD (except for TIMER, SLEEP, and SWING setting).

(2).Select operating mode

Press MODE button. At each press, operation mode changes as follows:



Then **select FAN**

(3) . Adjust fan speed

Press FAN button. At each press, fan speed changes as follows:



Air conditioner will run at the selected fan speed. When in AUTO mode, unit will adjust fan speed according to room temperature automatically.

(4). Unit stop

Press ON/OFF button to stop unit.

About FAN mode

When the air conditioner runs in FAN mode, it is not possible to select AUTO FAN or to set temperature.

AUTO, COOL , HEAT and DRY Operation

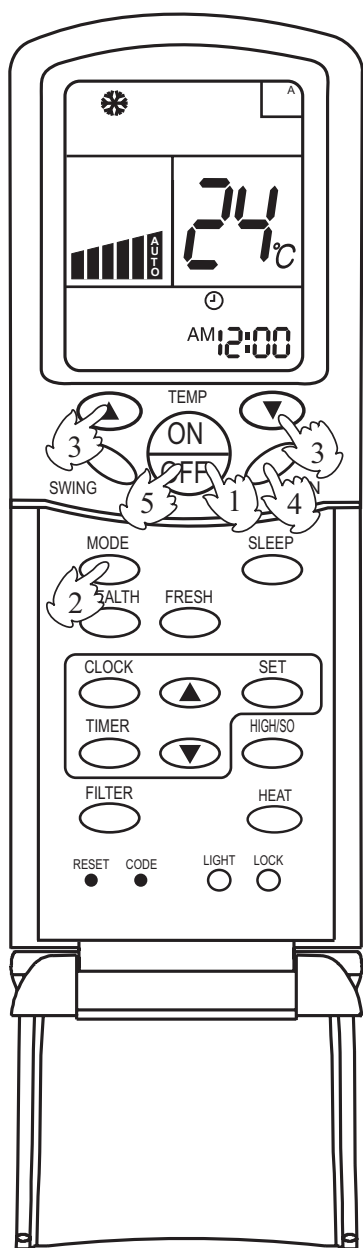
(1). Unit start

Press ON/OFF button,unit starts. Previous operation status appears on LCD (except for TIMER,SLEEP and SWING setting)

(2).Select operation mode

Press MODE button. At each press, operation mode changes as follows:





Then or or or

(3).Temperature setting

Press TEMP button.

- ▲ Every time the button is pressed, temp. setting increases 1°C; if the button is kept pressed, temp. setting will increase quickly.
- ▼ Every time the button is pressed, temp. setting decreases 1°C, if the button is kept pressed, temp. setting will decrease quickly.

Set proper temperature

(4).Adjust FAN button

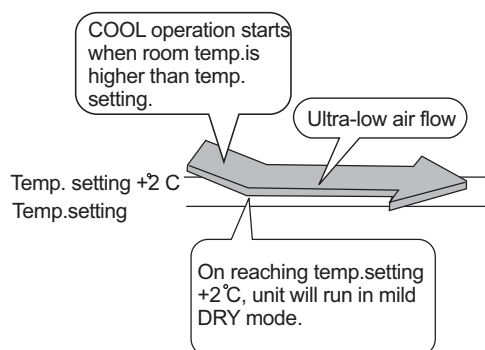
Press FAN button. At each press, fan speed changes as follows:



Air conditioner will run at the selected fan speed.

(5). Unit stop

Press ON/OFF button,unit stops.



In ATUO mode, the temperature setting is not displayed on LCD. In this mode, during running air conditioner will select COOL, HEAT or FAN mode automatically according to the room temperature.

In DRY mode, when room temperature becomes 2°C higher than temperature setting, unit will run intermittently at LOW speed regardless of FAN setting. When room temperature is lower than temperature setting, unit will only run FAN operation.

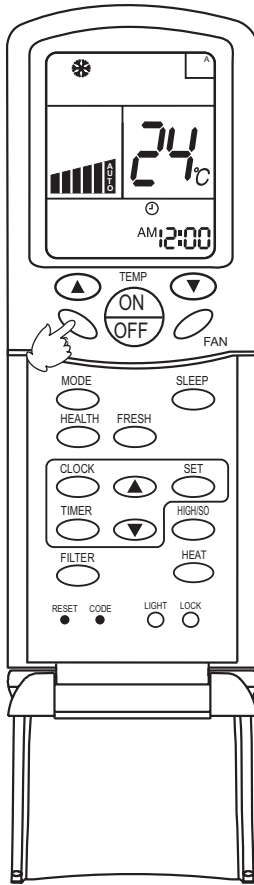
In HEAT mode,warm air will blow out after a short period of time due to cold-draft prevention function.

Adjusting air flow direction

AUTO SWING

Press SWING button.Up and down airflow varies upwards and downwards. Left and right airflow varies left and right sides. When the automatic swing louver moves to the proper angle, press SWING button can fix the airflow direction.

- Always use SWING button on the remote controller to adjust flaps. Adjusting them by hand may result in air conditioner's abnormally running.



- In COOL or DRY mode, do not leave the louver in downward position for a long time, as the water vapor close to the grille may condense and water may drop from the air conditioner.
- Please carefully set temperature when children, old or weak people use the air conditioner.
- In case of great humidity, If the vertical flaps are completely turned towards left or right, the louver will drop water.
- Never adjust the louver directly by hand, as this could make it work abnormally. If the louver work abnormally, stop unit, restart and adjust the louver by remote controller.

After unit stops:

Displays on the LCD disappear.
 All indicators on the indoor unit go out.
 Swing louver automatically close the air outlet.

Hints:

As in COOL mode air flows downwards, adjusting airflow horizontally will be much more helpful for a better air circulation. As in HEAT mode air flows upwards, adjusting airflow downward will be much more helpful for a better air circulation. Be careful not to catch a cold when cold air blows downward directly.

Sleep Function

Before going to bed you can press down the SLEEP button and the air conditioner will run so as to make you sleep more comfortably. Before using this function, the clock must be set.

Use of SLEEP function

After the unit's start, set running mode and then press SLEEP button once to make the air conditioner have the previous-set sleep time (first power-on is "1h"). The sleep symbol will appear.

▲/▼: Press time button, you can choose the time in 1~8 hours. Each time the button is pressed, the time increases/decreases 1 hour: "xh" and "OFF" indications appear on the display.

Operation Mode

(1).In COOL, DRY mode

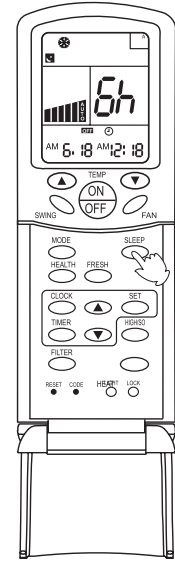
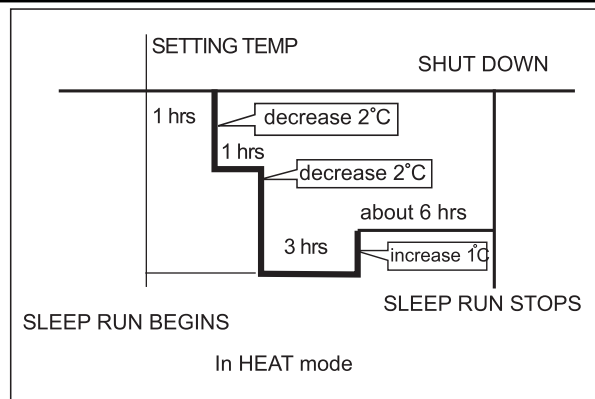
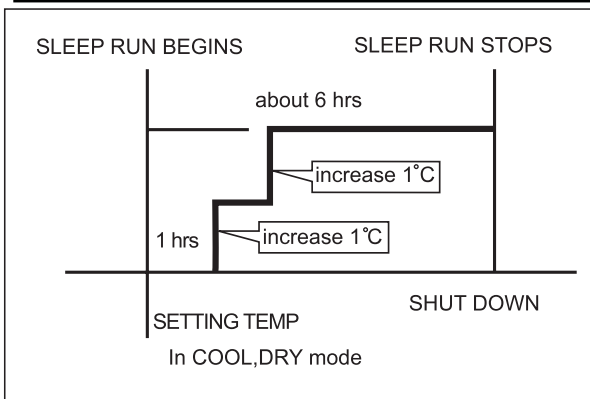
One hour after sleeping operation start, the temperature is 1°C higher than the setting one. After another hour, temperature rises 1°C: sleep run continuously for another 6 hours and then stops. The actual temperature is higher than the setting one which is to prevent from being too cold to your sleep.

(2).In HEAT mode

One hour after sleeping operation start, the temperature is 2°C lower than the setting one. After another hour, temperature decreases by 2°C more. Temperature will automatically rise by 1°C after another 3 hours' continuous operation. The actual temperature is lower than the setting one which is to prevent from being too hot to your sleep.

(3).In AUTO mode.

The air conditioner will run in corresponding sleep operation according to the automatically selected operation mode.



Notes:

- After setting SLEEP function, it is not possible to set clock.
- If set-sleep time does not reach 8 hours, unit will automatically stop operation after set time is reached.
- Set "TIMER ON" or "TIMER OFF" in COOL,DRY mode function first, then set SLEEP. After set SLEEP function, the TIMER function cannot be set.

Timer ON/OFF Function

Set clock correctly before starting TIMER operation

(1).Unit start

After unit start, select your desired operation mode (operation mode will be displayed on LCD)

(2).TIMER mode selection

Press TIMER button on the remote controller to change TIMER mode. Every time the button is pressed, display of TIMER mode changes as follows:



Then select TIMER mode as needed (TIMER ON or TIMER OFF).

Now **ON** or **OFF** will flash.

(3).TIMER setting (press time adjust buttons)

▲ Every time the button is pressed, time increases 10 minuts. If the button is kept pressed, time changes quickly.

▼ Every time the button is pressed, time decreases 10 minuts. If the button is kept pressed, time changes quickly. It can be adjusted within 24 hours at will.

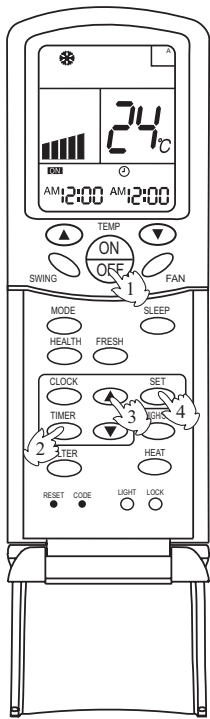
(4).Confirm setting

After setting correct time, press SET button to confirm time. Now **ON** or **OFF** stop flashing.

Time displayed: unit starts or stops at X hour X min (TIMER ON or TIMER OFF)

(5).Cancel TIMER mode

Just press TIMER button several times until TIMER mode disappears.



Hints:

After replacing batteries or if a power failure occurs, TIMER setting must be reset. Remote controller has memory function. When you use TIMER mode next time, just press SET button after mode selection if timer setting is the same as the previous one.

Note:

After setting TIMER function, the remote controller displays TIMER time. If you want to see clock time, just press CLOCK button once: clock time will be displayed (if you press the button again continuously, you can adjust clock). 5 seconds later, the display will show TIMER time again.

Timer ON-OFF Function

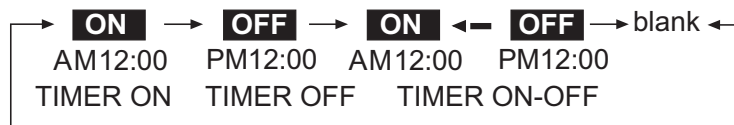
Set clock correctly before starting TIMER operation

(1).Unit start

After unit start, select your desired operation mode (operation mode will be displayed on LCD)

(2).TIMER mode selection

Press TIMER button on the remote controller to change TIMER mode. Every time the button is pressed, display of TIMER mode changes as follows:



Then select TIMER ON-OFF mode. **ON** will flash.

(3).Time setting for TIMER ON

Press time button ▲

- ▲ Every time the button is pressed, time increases 10 minuts. If the button is kept pressed, time will changes quickly.
- ▼ Every time the button is pressed, time decreases 10 minuts. If the button is kept pressed ,time will changes quickly. It can be adjusted within 24 hours at will. AM refers to morning and PM refers to afternoon.

(4).Timer confirming for TIMER ON

After setting correct time, press TIMER button to confirm time. Now **ON** stops to flash, while **OFF** starts flashing. Time displayed : unit starts at X hour X min.

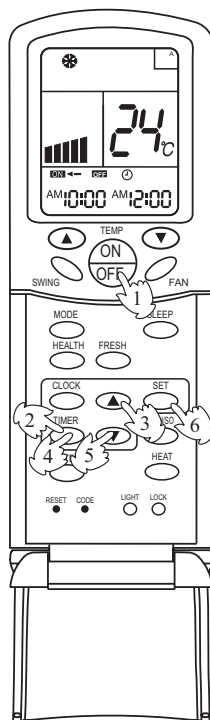
(5).Timer setting for TIMER OFF

Press time buttons ▲ and follow the same procedures in " Time setting for TIMER ON"

(6).Time confirming for TIMER OFF

After time setting, press SET button to confirm time. **OFF** stops to flash.

Time displayed: unit starts at X hour X min.



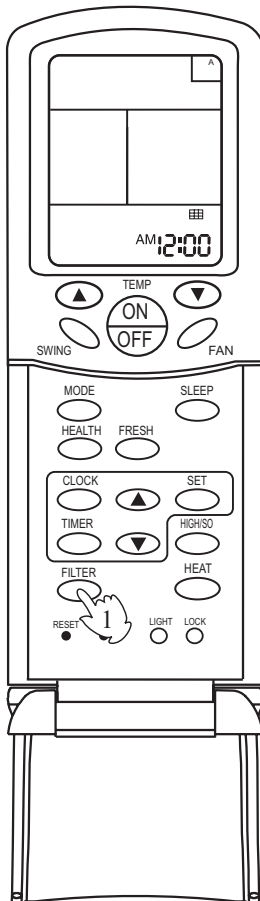
(7).Canel TIMER mode

Just press TIMER button several times until TIMER mode disappears. According to the time setting sequence of TIMER ON and TIMER OFF, either start-stops or stops-start can be realized.

If the time setting of TIMER ON is the same as TIMER OFF, TIMER ON-OFF function cannot be set.

Filter Up/Down

(Only for 600*600 panel of single unit)



After the air conditioner has operated for a certain period, dust has accumulated on the filter, and the filter up/down function can be used to clean it.

(1).Whether unit starts or stops, continuously press FILTER button for 3 seconds, and enter the filter up/down waiting status (when unit stops, the yellow TIMER indicator flashes, and filter and clock indication are displayed on the remote controller. Only the FILTER button, the temperature buttons " " " and time buttons are active).

(2).Press temperature ▼ " button or time ▼ " button in filter up/down waiting status: the up/down mechanism makes the filter moving downward and does not stop until it has reached the maximum limit.

(3).Press temperature ▲ " button or time ▲ " button in filter up/down waiting status: the up/down mechanism makes the filter to moving upward till near the surface board and then automatically adjusts it to reset (when adjusting to reset, it will not be controlled by the remote controller till the adjustment is finished).

(4).During moving downward, press temperature ▲ "button or time▲ " button: moving stops.

(5).During moving downward, press temperature▼ "button or time▼ " button: moving stops.

(6).Continuously press FILTER button 3 seconds again to cancel the filter up/down waiting mode (unit stops, the yellow timer indicator stops flashing, the filter goes back to the original position, the remote controller goes back to off status and only clock is displayed).

Note:

If the filter does not thoroughly go back to the original position, only needs to operate several times repeatedly.

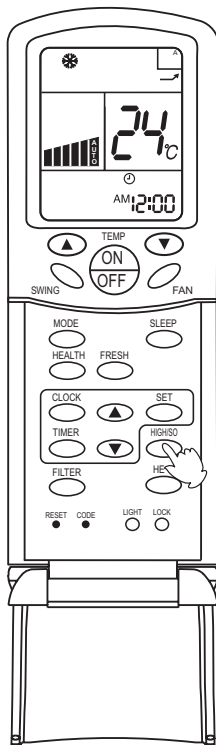
" High mode " Operation

Outline of operation in "High Mode"

This function is suitable when the set temperature must be reached in the shortest delay. The button "HIGH/SO", referred to this function, is effective in Cooling/Heating mode (not in Auto/Dry/Fan modes).


NOTICE:

- When the air conditioner is operating in " High Mode " , unevenness of room air temperature may occur due to the intensive operation in a short time.
- Anyway, operation in "High Mode", does not last for more than 15 minutes, then regular operation is automatically restored.



ON


Press the HIGH/SO button once

The indication  appears on the display of the remote controller and operation in "High Mode" starts.

The AUTO fan speed is automatically set and the corresponding indication is also displayed.

OFF

Press the HIGH/SO button twice

If the button is pressed once, the indication  is displayed on the remote controller. If you press the button once again, the indication disappears, regular operation is restored and fan speed goes back to the mode set before "High Mode" operation.


" Soft mode " Operation

Outline of operation in "Soft Mode"

Operation in "Soft Mode", more silent, is suitable when noises should be reduced, e.g.. for reading or sleeping. The button "HIGH/SO", referred to this operation, is effective in Cooling/Heating mode (not in Auto/Dry/Fan modes).


ON

Press the HIGH/SO button twice

The indication  appears on the display of the remote controller and operation in "Soft Mode" starts. The AUTO fan speed is automatically set and the corresponding indication is also displayed.

OFF

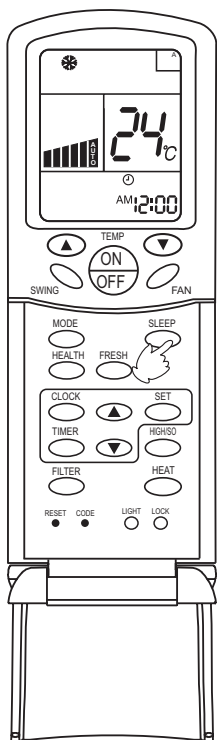
Press the HIGH/SO button twice

If the button is pressed once, the indication  is disappears from the remote controller's display. If you press the button once again, regular operation is restored and fan speed goes back to the mode set before "Soft Mode" operation.

NOTICE:

- When the air conditioner is operating in " High Mode " , unevenness of room air temperature may occur due to the intensive operation in a short time.
- Anyway, operation in "High Mode", does not last for more than 15 minutes, then regular operation is automatically restored.

Auto restart function setting



After the power failure compensation is set, if power failure suddenly occurs while the air conditioner is working, it will resume the previous working state when the power is supplied again.

Setting Method: When the remote controller is on (excluding timer mode and fan mode), press the "Sleep" button on the remote controller 10 times within 5 seconds, and after the buzzer rings 4 times, the air conditioner will enter the state of auto restart.

Cancel Method: Press the "Sleeping" button on the remote controller 10 times within 5 seconds, and after the buzzer rings 2 times, the auto restart mode will be cancelled.

Notes: When a power failure suddenly occurs during the air conditioner is working after the power failure compensation is set, if the air conditioner will not be used for a long time, please cut off the power supply to prevent its operation from being resumed after the power is supplied again, or press the "Switch On/Off" button after the power comes again.

If the unit has not the "sleep" button or function, please realize the function by pressing "swing" with the same method.

9. Brief Introduction of Electric control functions

9.1 Control system features

Can be controlled with outdoor unit simultaneously (The relative outdoor unit must have this function too)

9.2 Signal LED functions:

LED of infrared remote control type includes: RUN, TIMER, COMP, PUMP. RUN LED also can be used as Failure LED. When the system startup, RUN LED is on, and if the system stops running, RUN LED will be off. If the TIMER or SLEEP function has been set, TIMER LED will be on, or it will be off. When the compressor starts to run after being electrified, COMP LED will be on, or it will be off. When the water pump starts to run after being electrified, PUMP LED will be on, or it will be off. If the system failure occurs, the LED will flash regularly, please refer to the Trouble diagnose according to the flash times.

9.3 Control features

(1) AUTO Function:

In AUTO mode, system can feel the temperature automatically, and change the running mode automatically according to the user's comfort. Then adjust the room temperature, the user can always stay in a comfortable environment.

(2) Auto Restart Function

If the power supply cut off suddenly or the other reasons cause the system stop, the unit will automatically recover the previous running mode once the power supply is on.

To set the AUTO restart function: press the SLEEP button 10 times within 5 seconds continuously, system enters AUTO Restart state. To cancel this function: when the unit in this mode, press the SLEEP button 10 times within 5 seconds continuously, then the auto restart function is cancelled.

(3) TIMER Function

System running time can be set by the detector and the timer, this intelligentized function would make the user more comfortable.

(4) AUTO check function

Unit can check the failure automatically, and show the failure by failure code or flashing LED, easy to analyze and resolve the problem.

(5) Anti-cold air in heating mode

In heating mode, according to the coil temperature, unit can estimate the temperature of outlet air flow automatically to avoid the cold air blowing out, the user would feel more comfortable.

9.4 System protection

Communication failure

Indoor PCB will not be controlled by the operation panel compulsorily, and the PCB will not alarm because of the communication failure with the operation panel.

When the operation panel can not communicate with the indoor PCB normally, the operation panel will alarm.

Indoor PCB can be controlled by remote controller or wired controller; also it has hold-on function.

10. Maintenance

To avoid human injury ,befor maintenance please make sure that the power supply is off,
To maintence the product, please carry out the following items termly:

Parts	Works	Suggestion frequency
Air filter	1.Clean with vacuum cleaner or flap slightly, then wash it in the warm water (40°C) with some cleanser.	Twice per year and the more if necessary
Panel	1. Clean off the dirt on the panel or wipe it on a piece of wet cloth with suds 2. Do not use petrol. Alcohol and other chemicals	Once per month and the more if necessary
Drain pan	Clean and check the jam situation	Each quarter before the unit startup
Indoor coil	Check the working situation,blow dirt away the fin	Each quarter before the unit startup

Cautions:

- 1.All the inspect and maitence work should be done by the person who have the relative competency.
- 2.Untreated water may cause unit dirty, corrosion and poor capacity, System testing and maintenance shall be guided by water treatment experts. Haier shall not be held liable for any losses due to poor water quality.
3. Due to limitation of weight and dimensions of the holder, this job shall be collaborated by two installers to ensure safety.
4. During off period in winter, water inside the unit shall be drained away to avoid pipe cracks because of the ice

Trouble diagnose

No.	failure indication	Description	Possible causes	Remedy
1	Running lamp flashes 10 times	Drain system failure, normal water level can not be detected by indoor electrical control system	So much water in the drain pan and can not be discharged by the pump normally	Clean off the jam in the pipe , the drain pan is too near to the water pump
			Water pump is damaged	change the pump
			Drain pan is too dirty to detect the water level signal normally	Clean the drain pan
			float switch is disabled	change the float switch
			Water pump circuit of indoor PCB is broken, flow switch detect circuit of indoor PCB is broken,	Change indoor PCB
2	running lamp flashes once	indoor temp. sensor short-circuit or open-circuit	check if the sensor is connected correctly or damaged	Correct the sensor or change the sensor
3	running lamp flashes twice	indoor coil temp. sensor short-circuit or open-circuit	check if the sensor is connected correctly or damaged	Correct the sensor or change the sensor

Parameter of easy damaged parts

- Parameter of on-off protector on the indoor PCB:T6.3A/250VAC
- Resistance of indoor ambient temp. sensor: $R_{25^{\circ}\text{C}}=23\text{K}$
- Resistance of indoor coil temp. sensor: $R_{25^{\circ}\text{C}}=10\text{K}$

Dip-switch selection of FCB-051BCN2A

BM1 is used for selecting unit. the two bit-switches are all setted at OFF when out of factory

BM2(1) is used for selecting temp. compensation:

1 OFF (without temp. compensation function) 1 ON (temp.compensation is 4 °C)

Functions for BM2(3) and BM2(4) are as following:

BM2(3) ON/OFF : Cooling only/Heat pump

BM3、BM4 : used for selecting net address. the two dip-switches are all setted at OFF when out of factory.

Dip-switch selection of FCB-085/136/170BCN2A

BM(4) ON: With temp. compensation function

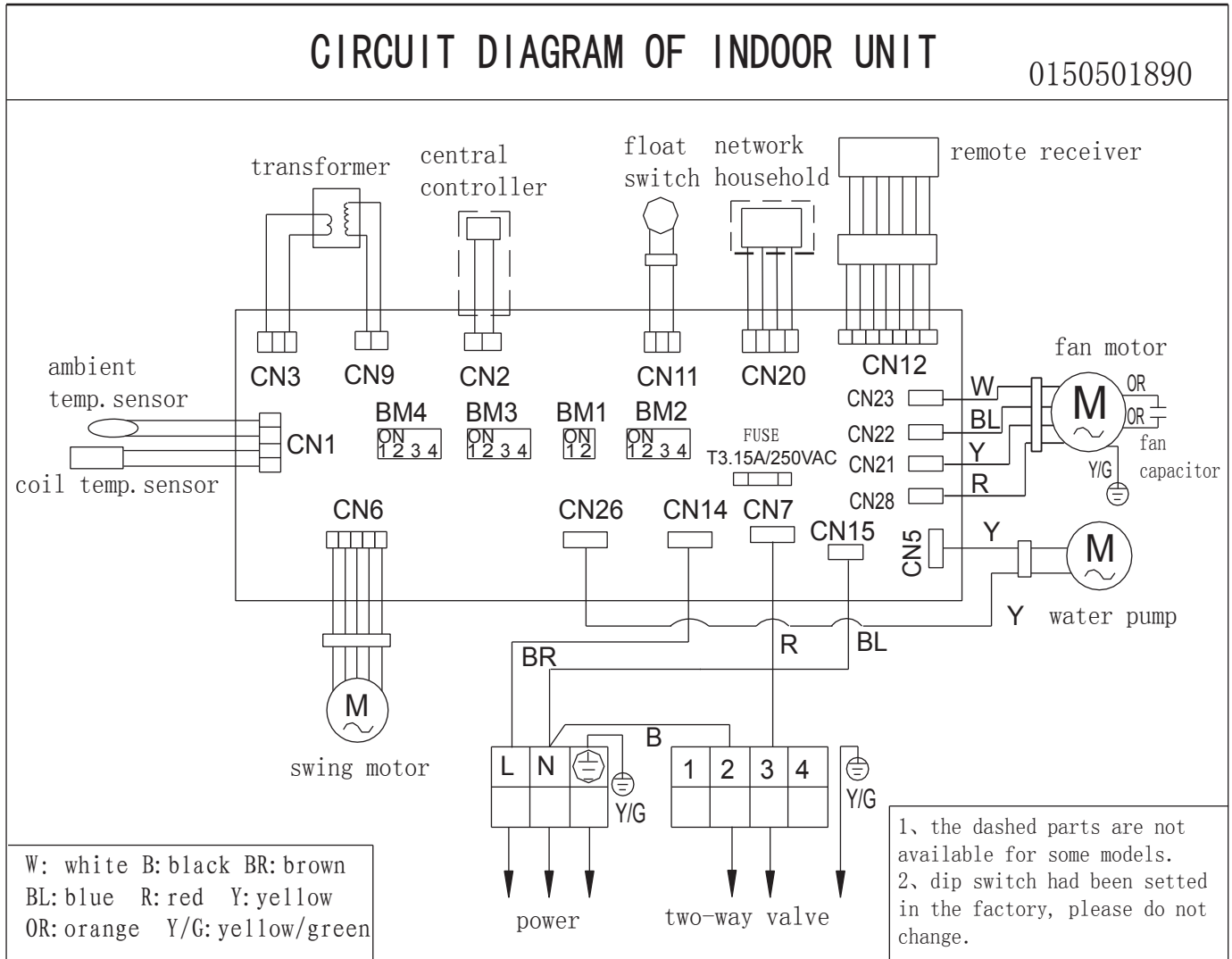
BM(4) OFF:Without temp.compensation function

BM(3) ON :With wired controll funciton

BM(3) OFF:Without wired controll funciton

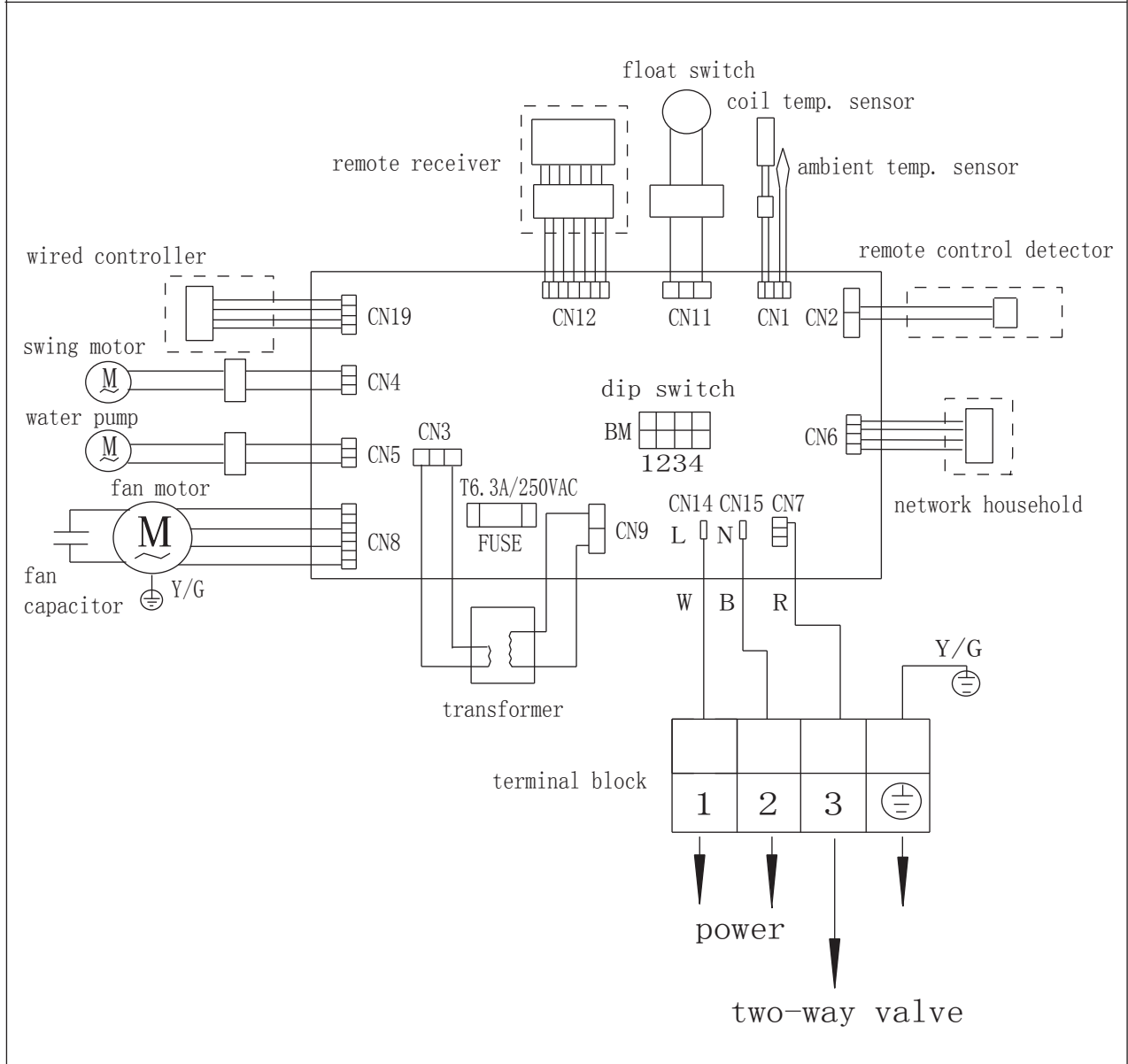
If PCB failure occurs, please check if the dip-switch is correct firstly. the dip-switch is set well when out of factory, please do not change.

11.Wiring diagram



CIRCUIT DIAGRAM OF INDOOR UNIT

0150501891



W: white
B: black
R: red

- note:1.remote detector is optional part, which is used to realize central control
2.dip switch had been setted in the factory, please do not change
3.choose one control mode between wired and remote control, match it according to the different models
4.the dashed parts are not available for some models