Haier SERVICE MANUAL

Order No.AC1205S001V0

Wall mounted Type

ON/OFF EK-Series

Model No. HSU09XHK
HSU12XHK

(EK3)

(EK1)

HSU09/12XHK

indoor unit and remote controller

HSU09/12XHK

⚠WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death

Haier Group

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1. Introduction

1.1 Safety Cautions

Be sure to read the following safety cautions before conducting repair work.

The caution items are classified into “Warning” and “Caution”. The “Warning” items are especially important since they can lead to death or serious injury if they are not followed closely. The “Caution” items can also lead to serious accidents under some conditions if they are not followed. Therefore, be sure to observe all the safety caution items described below.

About the pictograms

△ This symbol indicates an item for which caution must be exercised.
The pictogram shows the item to which attention must be paid.

○ This symbol indicates a prohibited action.
The prohibited item or action is shown inside or near the symbol.

● This symbol indicates an action that must be taken, or an instruction.
The instruction is shown inside or near the symbol.

After the repair work is complete, be sure to conduct a test operation to ensure that the equipment operates normally, and explain the cautions for operating the product to the customer.

1.1.1 Caution in Repair

Warning	
Be sure to disconnect the power cable plug from the plug socket before disassembling the equipment for a repair. Working on the equipment that is connected to a power supply can cause an electrical shook. If it is necessary to supply power to the equipment to conduct the repair or inspecting the circuits, do not touch any electrically charged sections of the equipment.	
If the refrigerant gas discharges during the repair work, do not touch the discharging refrigerant gas.The refrigerant gas can cause frostbite.	
When disconnecting the suction or discharge pipe of the compressor at the welded section, release the refrigerant gas completely at a well-ventilated place first. If there is a gas remaining inside the compressor, the refrigerant gas or refrigerating machine oil discharges when the pipe is disconnected, and it can cause injury.	
If the refrigerant gas leaks during the repair work, ventilate the area. The refrigerant gas can generate toxic gases when it contacts flames.	
The step-up capacitor supplies high-voltage electricity to the electrical components of the outdoor unit. Be sure to discharge the capacitor completely before conducting repair work.A charged capacitor can cause an electrical shock.	
Do not start or stop the air conditioner operation by plugging or unplugging the power cable plug. Plugging or unplugging the power cable plug to operate the equipment can cause an electrical shock or fire.	

Warning	
Do not repair the electrical components with wet hands. Working on the equipment with wet hands can cause an electrical shock.	
Do not clean the air conditioner by splashing water. Washing the unit with water can cause an electrical shock.	
Be sure to provide the grounding when repairing the equipment in a humid or wet place, to avoid electrical shocks.	
Be sure to turn off the power switch and unplug the power cable when cleaning the equipment. The internal fan rotates at a high speed, and cause injury.	
Do not tilt the unit when removing it. The water inside the unit can spill and wet the furniture and floor.	
Be sure to check that the refrigerating cycle section has cooled down sufficiently before conducting repair work. Working on the unit when the refrigerating cycle section is hot can cause burns.	
Use the welder in a well-ventilated place. Using the welder in an enclosed room can cause oxygen deficiency.	

1.1.2 Cautions Regarding Products after Repair

Warning	
Be sure to use parts listed in the service parts list of the applicable model and appropriate tools to conduct repair work. Never attempt to modify the equipment. The use of inappropriate parts or tools can cause an electrical shock, excessive heat generation or fire.	
When relocating the equipment, make sure that the new installation site has sufficient strength to withstand the weight of the equipment. If the installation site does not have sufficient strength and if the installation work is not conducted securely, the equipment can fall and cause injury.	
Be sure to install the product correctly by using the provided standard installation frame. Incorrect use of the installation frame and improper installation can cause the equipment to fall, resulting in injury.	For integral units only
Be sure to install the product securely in the installation frame mounted on a window frame. If the unit is not securely mounted, it can fall and cause injury.	For integral units only

Warning	
Be sure to use an exclusive power circuit for the equipment, and follow the technical standards related to the electrical equipment, the internal wiring regulations and the instruction manual for installation when conducting electrical work. Insufficient power circuit capacity and improper electrical work can cause an electrical shock or fire.	
Be sure to use the specified cable to connect between the indoor and outdoor units. Make the connections securely and route the cable properly so that there is no force pulling the cable at the connection terminals. Improper connections can cause excessive heat generation or fire.	
When connecting the cable between the indoor and outdoor units, make sure that the terminal cover does not lift off or dismount because of the cable. If the cover is not mounted properly, the terminal connection section can cause an electrical shock, excessive heat generation or fire.	
Do not damage or modify the power cable. Damaged or modified power cable can cause an electrical shock or fire. Placing heavy items on the power cable, and heating or pulling the power cable can damage the cable.	
Do not mix air or gas other than the specified refrigerant (R-410A / R22) in the refrigerant system. If air enters the refrigerating system, an excessively high pressure results, causing equipment damage and injury.	
If the refrigerant gas leaks, be sure to locate the leak and repair it before charging the refrigerant. After charging refrigerant, make sure that there is no refrigerant leak. If the leak cannot be located and the repair work must be stopped, be sure to perform pump-down and close the service valve, to prevent the refrigerant gas from leaking into the room. The refrigerant gas itself is harmless, but it can generate toxic gases when it contacts flames, such as fan and other heaters, stoves and ranges.	
When replacing the coin battery in the remote controller, be sure to disposed of the old battery to prevent children from swallowing it. If a child swallows the coin battery, see a doctor immediately.	

Caution	
Installation of a leakage breaker is necessary in some cases depending on the conditions of the installation site, to prevent electrical shocks.	
Do not install the equipment in a place where there is a possibility of combustible gas leaks. If a combustible gas leaks and remains around the unit, it can cause a fire.	
Be sure to install the packing and seal on the installation frame properly. If the packing and seal are not installed properly, water can enter the room and wet the furniture and floor.	For integral units only

1.1.3 Inspection after Repair

Warning	
Check to make sure that the power cable plug is not dirty or loose, then insert the plug into a power outlet all the way. If the plug has dust or loose connection, it can cause an electrical shock or fire.	
If the power cable and lead wires have scratches or deteriorated, be sure to replace them. Damaged cable and wires can cause an electrical shock, excessive heat generation or fire.	

Warning	
Do not use a joined power cable or extension cable, or share the same power outlet with other electrical appliances, since it can cause an electrical shock, excessive heat generation or fire.	

Caution	
Check to see if the parts and wires are mounted and connected properly, and if the connections at the soldered or crimped terminals are secure. Improper installation and connections can cause excessive heat generation, fire or an electrical shock.	
If the installation platform or frame has corroded, replace it. Corroded installation platform or frame can cause the unit to fall, resulting in injury.	
Check the grounding, and repair it if the equipment is not properly grounded. Improper grounding can cause an electrical shock.	
Be sure to measure the insulation resistance after the repair, and make sure that the resistance is 1 M ohm or higher. Faulty insulation can cause an electrical shock.	
Be sure to check the drainage of the indoor unit after the repair. Faulty drainage can cause the water to enter the room and wet the furniture and floor.	

1.1.4 Using Icons

Icons are used to attract the attention of the reader to specific information. The meaning of each icon is described in the table below:

1.1.5 Using Icons List

Icon	Type of Information	Description
 Note:	Note	A “note” provides information that is not indispensable, but may nevertheless be valuable to the reader, such as tips and tricks.
 Caution	Caution	A “caution” is used when there is danger that the reader, through incorrect manipulation, may damage equipment, loose data, get an unexpected result or has to restart (part of) a procedure.
 Warning	Warning	A “warning” is used when there is danger of personal injury.
	Reference	A “reference” guides the reader to other places in this binder or in this manual, where he/she will find additional information on a specific topic.

2. List of Functions

Category	Functions	HSU09XHK	HSU12XHK
Healthy negative ion	make your room full of an abundance natural negative ions.	Y	Y
Child lock	Avoid the child's wrong operation on the remote controller	Y	Y
Dry function	Make dehumiditying in the room when the unit is working in the "DRY" mode.	N	N
24Hour timer	Use the timer function to set on,or off,or from on to off,or from off to on	Y	Y
Auto restart	automatic return to previous operation conditions after asundden power blackout	Y	Y
Easy clean design	The panel is easy to wash and the airflow vents can be detached easily	Y	Y
Intelligent air	With twin-blade technology ,the airflow can be adjusted not to blow directly	N	N
Anti-mold filter	Catches most small particles and remove unpleasant odors effectively.	N	N
Sleep mode	The setting temprature and the indoor noise can be adjusted to a more comfortable level when you set the "sleep mode"during night sleep	Y	Y
4 Fan setting	Slect the fan speed LO,MED,HI,AUTO	Y	Y
Auto mode	Acoording to the fixed temperature,the unit will adjust the operation mode automatically.	Y	Y
Power mode	Quick cooling or heating	Y	Y
Soft mode	lower noise operation condition	N	N
Negative ion filter	Generate negative ions by the filter.	N	N
Constant temperature dehumidification	Make dehumidifying in the room while keeping the constant temperature inside	N	N

Note: Y: Holding Functions

N : No Functions

3 Specifications

Model			HSU09XHK		HSU12XHK	
			Cooling	Heating	Cooling	Heating
Capacity Rated(Min.~Max.)		KW	2.64	2.78	3.51	3.51
		Btu/h	9000	9500	12000	12000
		kal/h	2267	2393	3023	3023
Moisture Removal		L/h	1.5		1.7	
Running Current(Rated）		A	7.1	7.5	9.5	9.7
Power Consumption Rated (Min.~Max.)		W	800	850	1080	1100
Power Factor		%	98	99	99	99
COP Rated		W/W	3.3	3.3	3.3	3.2
Piping Connections	Liquid	inches	φ 1/4		φ 1/4	
	Gas	inches	φ 3/8		φ 3/8	
	Drain	inches	φ 5/8		φ 5/8	
Heat Insulation			Both Liquid and Gas Pipes		Both Liquid and Gas Pipes	
Refrigerant Circuit						
Max. interunit Piping Length		feet	49 1/5		49 1/5	
Max. interunit Height Difference		feet	32 4/5		32 4/5	
Chargeless		feet	23		23	
Amount of Additional Charge of Refrigerant		OZ/Inches	0.018		0.018	
Indoor Unit						
Front Panel Color			White		White	
Air Flow Rate	m³/min(cfm)	H	8.3/9.1		9.2/10.0	
		M	7.0/7.8		8.0/8.8	
		L	6.4/7.2		6.8/7.7	
		SL	-		-	
Fan	Type		Cross Flow Fan		Cross Flow Fan	
	Motor Output	W	20		20	
	Speed	Steps	4 Step,Silent,Auto		4 Step,Silent,Auto	
Air Direction Control			Right,Left,Horizontal,Downward		Right,Left,Horizontal,Downward	
Air Filter			Removable/Washable/Mildew Proof		Removable/Washable/Mildew Proof	
Running Current(Rated)		A	0.15	0.15	0.15	0.15
Power Consumption (Rated)		W	18		18	18
Power Factor		%	98	99	99	99
Temperature Control			Microcomputer Control		Microcomputer Control	
Dimensions(HxWxD)		inches	10 3/7 x 31 2/7 x 7 1/3		10 3/7 x 37 x 7 1/3	
Packaged Dimensions(HxWxD)		inches	14 1/6 x 34 2/7 x 12		14 1/6 x 40 x 12	
Weight		lbs	19.4		23.2	
Cross Weight		lbs	24.9		27.6	
Operation Sound	H/M/L	dBA	42/37/35		43/39/35	
Sound Power	H	dBA	52		53	

Outdoor Unit			HSU09XHK		HSU12XHK	
Casing Color			White		White	
Compressor	Type		Rotary Compressor		Rotary Compressor	
	Modle		44A231B		44A281B	
	Motor Output	W	920		1125	
Refrigerant oil	Model		NMOC Ze-Gles RB68EP		NMOC Ze-Gles RB68EP	
	Charge	pints	0.48		0.48	
Refrigerant	Model		R410a		R410a	
	Charge	lbs	2.07		2.92	
Air Flow Rate(H/L)	m³/min		26.7	27.5	33.3	34.1
	cfm		942.5	970.8	1175.5	1203.7
Fan	Type		Axial fiow fan		Axial fiow fan	
	Motor Output	W	28		28	
Running Current(Rated)		A	7.1	7.5	9.5	9.7
Power Consumption(Rated)		W	800	850	1080	1100
Power Factor		%	98	99	99	99
Starting current		A	20		26	
Dimensions(HxWxD)		inches	24 1/4 x 30 5/7 x 9 2/3		25 1/4 x 30 5/7 x 9 2/3	
Packaged Dimensions(HxWxD)		inches	24 1/6 x 36 3/5 x 13 2/5		28 1/9 x 36 3/5 x 13 2/5	
Weight		pints	69.4		78.3	
Gross Weight		pints	74.5		83.3	
Operation Sound	H/L	dBA	52	52	52	52
Sound Power	H	dBA	62	62	62	62

Note:The dada are based on the conditions shown in the table below.

Cooling	Heating	Piping Length
Indoor:80.6 °FDB/66.2 °F WB Outdoor:95 °FDB/75.2 °F WB	Indoor:68 °F DB Outdoor:44.6°FDB/42.8 °F WB	16 2/5 feet

Outdoor:35℃DB/24℃WB

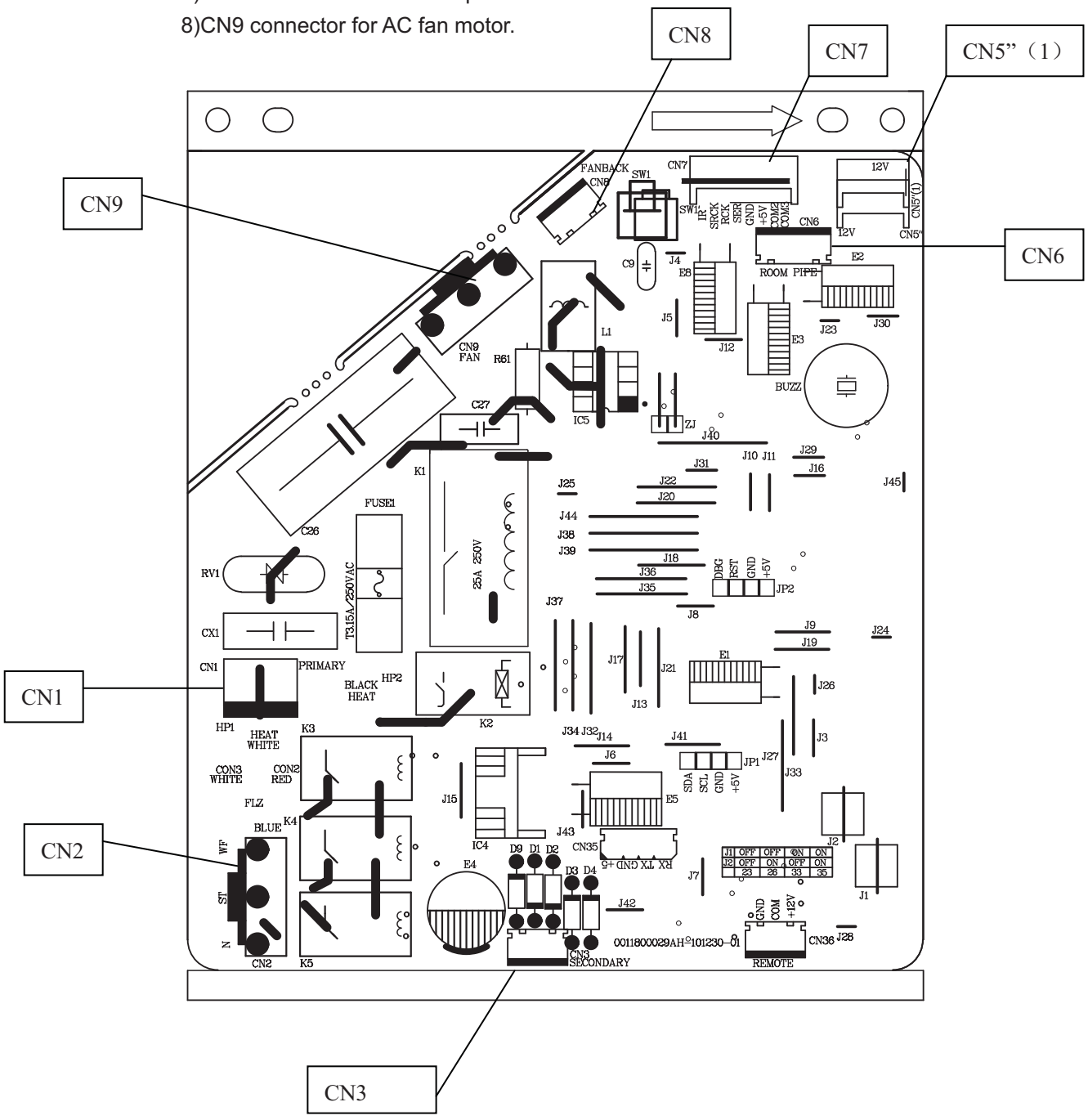
Conversion Formulae
kal/h=kWx860 Btu/h=kWx3414 cfm=m³/minx35.5

4.Printed Circuit Board Connector Wiring Diagram

4.1 Indoor unit

Connectors Indoor PCB

1)CN1connector for transformer.
2)CN2 connector for power line.
3)CN3 connector for transformer.
4)CN5”（1）connector for up and down step motor.
5)CN6 connector for ambient temp. sensor and piping temp.sensor.
6)CN7 connector for receiver display.
7)CN8 connector for AC fan speed.
8)CN9 connector for AC fan motor.



5. Functions and Control

5.1 main functions and control specifications

Including brief introduction to air conditioners of series models and electric control function.

5.1.1 Automatic running mode

(1) Single cold automatic run mode:

After entering into this mode, the main control “MCU” determines the corresponding work pattern according to the indoor temperature so as to maintain the preset temperature (the preset temperature is 78°F). When the indoor temperature is below 78°F, outlet air from compressor is off, the automatic wind from fan motor is low, and wind can be set to high, medium or low by hand. When the indoor temperature is or above 78°F, the unit enters the cooling mode and conducts the cooling programme (the preset temperature is 78°F), outlet air from compressor is on and indoor fan motor run in fixed wind speed.

(2) Automatic running mode

When the running mode is turned to automation after starting the system, the system will first determine the running mode according to the current room temperature and then will run according to the determined mode. Tr in the following selection conditions means room temperature, Ts means setting temperature, Tp means temperature of indoor coil pipe

a. Tr≥74°F running cooling mode

b. Tr<74°F running heating mode

After turning to the automation mode, the running mode can be switched between cooling mode, fan mode and heating mode according to the change of the indoor ambient temperature. But the automatic conversion between cooling mode and heating mode must be conducted after 15 minutes.

5.1.2 Indoor temperature control

Temperature control range : 60°F ---86°F

Temperature control precision: ±2°F

Compressor can’t be controlled by temperature sensor within 2 minutes after it starts

5.1.2.1 Cooling mode:

When Tr> Ts, outdoor fan motor and compressor on, and indoor fan motor run at fixed wind speed. When Tr < Ts, outdoor fan motor and compressor off, and when Tr > Ts, outdoor fan motor and compressor are working again .If Tr=Ts, the indoor fan motor , outdoor fan motor and the compressor’s state will not change.

5.1.2.2 Heating mode:

When Tr ≤ Ts, compressor, four-ways valve and outdoor fan motor is on, indoor fan motor runs as in cold blast avoidance mode, and 7°F of compensation is added after compressor is started.

When Tr>Ts+9°F, compressor is off, and the indoor fan motor runs as in cold blast avoidance mode.

When Tr<Ts+9°F, compressor, four-ways valve and outdoor fan motor is on, and the indoor fan motor runs as in anti-cold .

5.1.3 Cooling run mode:

temperature control range : 60°F ---86°F

temperature control precision: ±2°F

compressor can’t be controlled by temperature sensor within 2 minutes after it starts.

control character: when Tr ≥ Ts, outlet air from compressor is on and indoor fan motor run at fixed wind

speed. When Tr< Ts, outlet air from compressor is off , and when Tr > Ts, outlet air from compressor is on.

wind speed control: (the temperature difference is 2°F)

auto: When Tr≥Ts+9°F, the wind speed is high;

When Ts+1°F ≤Tr Ts+5°F, the wind speed is medium.

When Tr Ts+1°F, the wind speed is low.

When temperature sensor is off, the fan motor runs at low speed.

when the wind speed changes from low to high, there is no delay, and when it changes from high to low, there is a 3-minutes delay before conversion.

Manual operation:When unit is on the wind speed can be set to high, medium, low or automatic as required (execute instruction 2 seconds later after receiving remote signal)

Compressor control: The compressor can't be controlled by temperature sensor within 2 minutes after start up and can be only restarted at least 3 minutes later after shutdown. There is no 3-minute protection with power on for the first time (over 3 minutes with power off). The compressor must stands by for 3 minutes before it is restarted after shut down.

There is no 2-minute limit when changing the temperature setting or shutting down the machine through the remote controller, and the machine can be shut down immediately.

Avoiding electrical shock: outlet air is available 2 seconds later after startup.

High temperature expiration protection:

(1)High temperature expiration prevention:When the temp.of coil pipe is above 161°F,compressor and outlet air stop running 10 seconds later, and inlet air runs as the temp. sensor is off. When compressor stands by for 3 minutes and the temp. of coil pipe is below 149°F, the unit can be started again.

Protection of frost is available (disable in test run or heating mode): In order to prevent the indoor heat exchanger from freezing (in cooling or dehumidifying mode), the compressor will be shut off when the temperature of the indoor coil pipe is or below 30°F and the compressor runs for over 5 minutes. When the temperature of the indoor coil pipe ascends to over 44°F, the compressor is restarted (must meet a 3-minutes delay)

Timer on, Timer off and sleep control are available.

5.1.4 Dehumidifying mode:

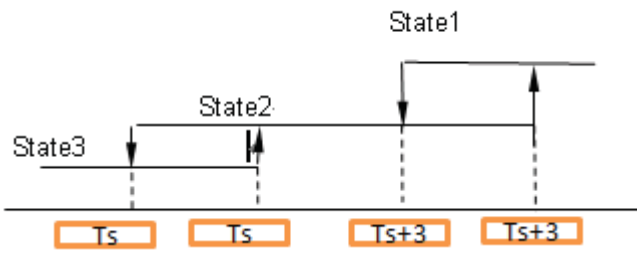
Temperature control range : 60°F ---86°F

Control character:

When Tr (indoor temperature) > Ts (temperature setting) +3°F, compressor and outdoor fan motor run continuosly with indoor fan motor runnig in accordance with the wind speed setting(State 1).

When Ts ≤ Tr ≤ Ts +3°F, outlet air from compressor is on for 10 minutes and off for 6 minutes, the indoor fan motor is off in 3 minutes after shut down of compressor and gives breeze in other time(State 2).

When Tr < Ts, outlet air from compressor is unavailable, and the indoor fan motor enter breeze mode 3 minutes later after after shut down of compressor(State 3).



When all the ranges alternate, there is ±2°F difference.

5.1.5 Heating mode:

*Temperature control range : 60°F ---86°F

*Temperature control precision: 2°F

*Control Character:

When Tr ≤ Ts, compressor, four-ways valve and outdoor fan motor is on, indoor fan motor runs as in anti-cold , and 7°F of compensation is added after compressor is started.

When Tr>Ts+9°F, compressor is off, and the indoor fan motor runs as in warm blast mode.

When Tr<Ts+9°F, compressor, four-ways valve and outdoor fan motor is on, and the indoor fan motor runs as in anti-cold .

*Control of indoor fan motor:

Manual operation: The wind speed can be set to high, medium, low or automatic as required.

Automatic operation: When Tr < Ts, the wind speed is high;

When Ts ≤ Tr≤ Ts+3°F, the wind speed is medium.

When Ts+3°F ≤ Tr, the wind speed is low.

*Control of air door: setting the position of air door as required.

*Compressor control: The compressor can't be controlled by temperature sensor in 2 minutes after start up and also can't be started again at least 3 minutes later after shut down. There are 3-minute protection with power on for the first time (over 3 minutes with power off). The compressor must be started again 3 minutes later after shut down.

*Avoiding electrical shock: outlet air is available 2 seconds later after start up.

*Timer on, Timer off and sleep control are available.

*Control of 4-way valve: When the unit is started for the first time, the 4-way valve starts runnig 10 seconds earlier than compressor does. After compressor stops runnig, the 4-way valve continues running for 2 minutes and then stops. If changing the unit from heating to cooling, the 4-way valve is shut off 2 minutes later and compressor is started 3 minutes later.

5.1.5.1 Cold draft prevetion:

5.1.5.1.1 Compressor is interrupted during the defrosting operation and continues to run after defrosting is completed. When the indoor exchanging temperature is below 73°F, the indoor fan motor is off. When the indoor exchanging temperature is above 73°F, the indoor fan motor is running at weak speed.

5.1.5.1.2 If the temperature of coil pipe can't be above 100°F 4 minutes later after start up, fan motor is running at the preset wind speed.

5.1.5.1.3 If the temperature of coil pipe is above 100°F 4 minutes later after start up, fan motor is running at the preset wind speed.

5.1.5.1.4 If coil pipe descends to the temp. lower than 100°F from 100°F. fan motor is running at the preset wind speed.

*Warm blast: If the temperature sensor is off. Compressor stops runnig. If the temperature of coil pipe is above 73°F, fan motor enter breeze mode; and if the temperature of coil pipe is below 68°F, fan motor stops running.

5.1.5.2 High temperature protection and high temperature expiration protection:

5.1.5.2.1 High temperature prevention: When the temp. of coil pipe is above 132°F, the outdoor fan motor stops.When the temp descends to 125°F, the outdoor fan motor is restarted ,fan should keep stopping more than 45 seconds.

5.1.5.2.2 High temperature expiration prevention:When the temp.of coil pipe is above 143°F,compressor and outlet air stop running 10 seconds later, and inlet air runs as the temp. sensor is off. When compressor stands by for 3 minute and the temp. of coil pipe is below 122°F, the unit can be started again.

*Current protection and current expiration protection: (Not detecting within 60 seconds after start up)

*Overcooling protection：One and half a minutes later after compressor starts, if the temperature of coil pipe is below 2°F, compressor and air outlet stop, and air inlet runs according to the temp. setting. Compressor can be restarted 3 minutes later.

5.1.5.3 Defrosting:

5.1.5.3.1 Entry conditions of defrosting:

The entry conditions of defrosting is classified into two types: intelligented defrosting and sensor defrosting. Through selecting and judging, the models without outdoor sensor defrosts according to intelligented defrosting, and others with ensor defrosts according to sensor defrosting.

Intelligented defrosting:

5.1.5.3.1.1 Indoor unit enter overload protection and air outlet stops when air outlet has been restarted and runs over 10 minutes, and compressor runs over 45 minutes in total and over 20 minutes continuously, and the temp. of indoor coil pipe is below 100°F.

5.1.5.3.1.2 Compressor runs 20minutes continuously, and the temp. of indoor coil pipe decreases 2°F per 6 minutes and this operation repeats 3 times, and the temp. of coil pipe is below 100°F, and 5 minutes later after compressor is restarted.

5.1.5.3.1.3 When compressor runs over 3 hours in total and over 20 minutes continuously and after the temp. of indoor coil pipe is below 100°F, the system enters defrosting mode.

5.1.5.3.1.4 The difference between the temp. of indoor coil pipe and the indoot temp. is below 60°F and lasts 5 minutes, compressor runs over 45 minutes in total and over 20 minutes continuously after the temp. of indoor coil pipe is below 100°F, the system enters defrosting mode.

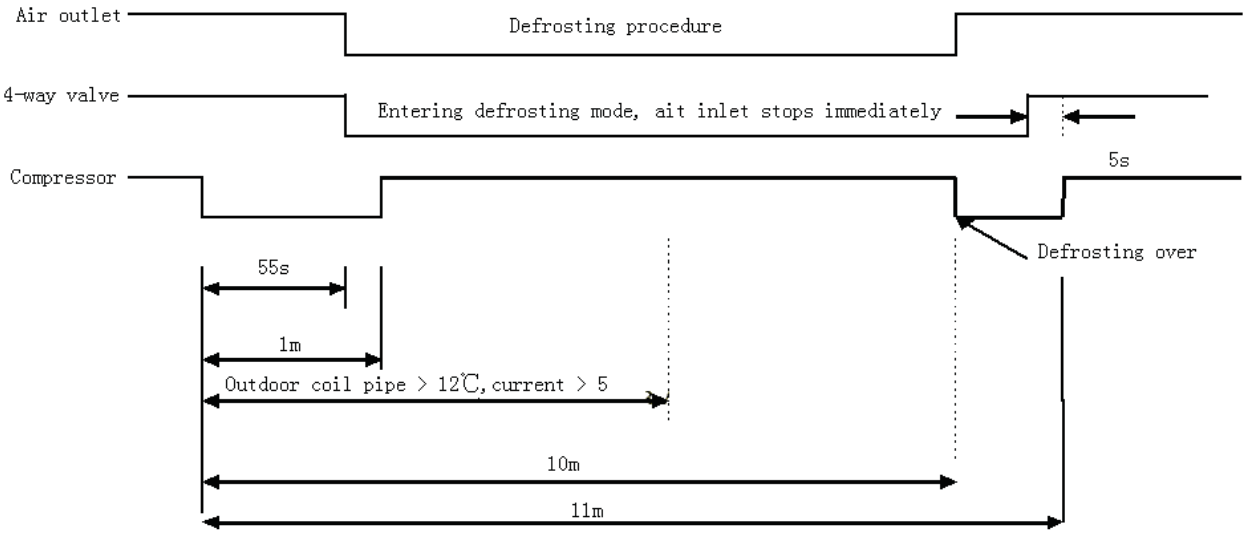
5.1.5.3.2 Exit conditions of defrosting:

Defrosting time is higher than 12 minutes (compressor is on).

5.1.5.3.2.1 During the defrosting, if current peak value is cut off, the unit quit the defrosting mode. But the protection of expiration of current peak value is unavailable with 60 senconds after compressor is started.

5.1.5.3.2.2 During the defrosting and 2 minutes After quiting the defrosting mode, abnormality of temp. sensor isn't detected.

5.1.5.3.2.3 After quiting the defrosting mode, the fan motor enter cooling prevention mode.



5.1.5 Timer function:

You can set 24-hour timer on or timer off as required, and the minum time unit is 1 minute. After setting,

the indicator of indoor unit is on , and it is off when timer setting is completed. There are several timer mode as follows.

5.1.5.1 Timer on: The LED of “timer on” lights up, and unit behaves with halt status. Timer on is completed, and then unit starts running with the LED of “timer on” off. The unit starts with the the last setting receiving timer signals, and sleep setting is not allowed.

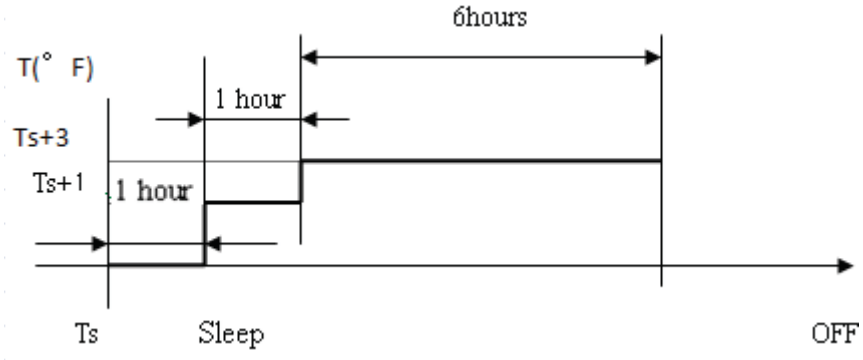
5.1.5.2 Timer off: Unit starts, timer indicator lights up; When reaching time setting, the indicator goes out, unit enters shut down mode, and sleep function can be set. If timer off and sleep are set synchronously, the one which time is short run first. Executing shutdown instruction clear timer and sleep function.

5.1.5.3 Timer on and timer off can be set synchronously.

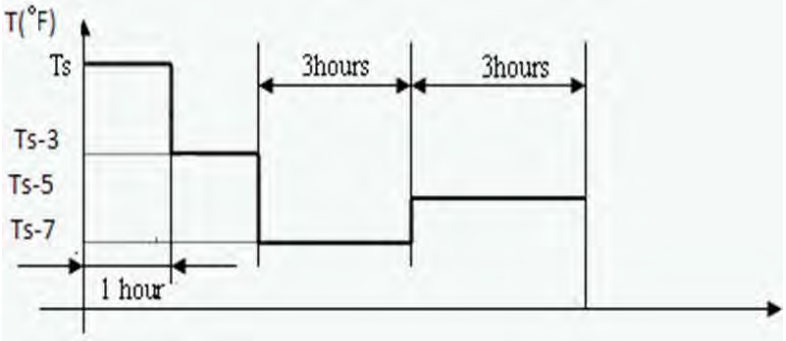
5.1.6 Sleep function:

the timer indicator lights up.

5.1.6.1 In cooling/defrosting mode, the temp. setting increases 1°F one hour later after start up. After another hour the temp. setting increase by more 1°F and then run continuously for another 6 hours and then close.



5.1.6.2 In heating mode, the temp. setting decrease 3°F one hour after start up. After another hour the temp. setting decrease by more 3°F. After 3 hours the temp. setting rise by 1°F and then run continuously for another 3 hours and then close.



5.1.6.3 If the wind speed is set to high before going to bed, the wind speed become medium after start up; If the wind speed is set to medium before going to bed, the wind speed become low after start up; If the wind speed is set to low before going to bed, the wind speed keep unchanged.

5.1.7 Emergency switch imput:

5.1.7.1 Press the switch of emergency operation, then buzzer rings once and unit enters the automatic operation mode. (emergency operation)

5.1.7.2 If the switch is kept pressed for 5 seconds, buzzer ring two times and unit enter enter test run mode.

5.1.7.3 Press the switch again, and then closes.

5.1.7.4 Enter emergency operation from timer mode, then timer is cancelled.

5.1.8 Test run:

5.1.8.1 The temperature sensor of inlet air doesn't work, and compressor starts (but subject to the limit of -minute delay excluding the first time), and high wind, cooling, and air door is open.The indoor fan motor runs, running indicator lights up, compressor relay and the one of outdoor fan motor is closed

5.1.8.2 During test run:

The prevention of freezing of evaporator doesn't work.

Current cross control doesn't work.

The control of current cross peak expiration doesn't work.

Temperature control doesn't work.

Temperature expiration control doesn't work.

5.1.9 memory function：

The memory function of power down is available, and the auto recovery function of power on is optional. (In auto, heating, cooling, or defrosting status, press the " EXTRA FUNCTION " button to enter additional options， when cycle dispay to , will flash，and then press CONFIRM CANCEL，quickly press EXTRA FUNCTION，and then press CONFIRM CANCEL，rapidly 10 times within 6 seconds, and the auto recovery function of power on can be set on/off. If the buzzer rings 4 times, the the auto recovery function of power on is available; If the buzzer rings 2 times, the the auto recovery function of power on is unavailable.)

If there is no EEPROM, the unit is taken off the 'off' function of the memory function of power down. But the memory function of power down can also be set on/off, and the data is the default value of chip.

5.1.10 Alarm from indoor fan motor:

2 minutes later after the indoor fan motor is charged, and the impulse from fan motor is not detected, hen send alarm signals.

5.2 Value of Thermistor

5.2.1 Indoor unit

Room sensor

R25℃=23KΩ±3.5%

B25℃/50℃=4200K±3%

Temp.(℃)	Max.(KΩ)	Normal(KΩ)	Min.(KΩ)	Tolerance(℃)	
-30	568.8372	501.0746	440.8435	-1.97	1.75
-29	530.9600	468.6491	413.1441	-1.95	1.74
-28	495.8488	438.5314	387.3645	-1.93	1.72
-27	463.2850	410.5433	363.3602	-1.91	1.71
-26	433.0683	384.5212	340.9980	-1.90	1.70
-25	405.0156	360.3153	320.1558	-1.88	1.69
-24	378.9588	337.7879	300.7211	-1.86	1.67
-23	354.7440	316.8126	282.5905	-1.84	1.66
-22	332.2300	297.2732	265.6686	-1.82	1.64
-21	311.2873	279.0627	249.8676	-1.80	1.63
-20	291.7969	262.0831	235.1067	-1.78	1.62
-19	273.6494	246.2437	221.3111	-1.76	1.60
-18	256.7445	231.4612	208.4122	-1.74	1.59
-17	240.9897	217.6590	196.3462	-1.72	1.57
-16	226.3000	204.7662	185.0545	-1.70	1.56
-15	212.5973	192.7176	174.4829	-1.68	1.54
-14	199.8093	181.4531	164.5813	-1.66	1.53
-13	187.8698	170.9169	155.3033	-1.64	1.51
-12	176.7176	161.0578	146.6059	-1.62	1.49
-11	166.2961	151.8284	138.4495	-1.60	1.48
-10	156.5532	143.1847	130.7973	-1.58	1.46
-9	147.4409	135.0863	123.6153	-1.56	1.44
-8	138.9148	127.4956	116.8717	-1.53	1.43
-7	130.9337	120.3778	110.5374	-1.51	1.41
-6	123.4597	113.7009	104.5852	-1.49	1.39
-5	116.4577	107.4349	98.9897	-1.47	1.38
-4	109.8953	101.5523	93.7278	-1.45	1.36
-3	103.7422	96.0274	88.7774	-1.43	1.34
-2	97.9708	90.8365	84.1185	-1.40	1.32
-1	92.5551	85.9574	79.7322	-1.38	1.30
0	87.4712	81.3697	75.6011	-1.36	1.29
1	82.6970	77.0544	71.7088	-1.34	1.27
2	78.2118	72.9937	68.0402	-1.31	1.25
3	73.9966	69.1712	64.5813	-1.29	1.23
4	70.0335	65.5716	61.3188	-1.27	1.21
5	66.3062	62.1807	58.2405	-1.24	1.19

6	62.7992	58.9853	55.3351	-1.22	1.17
7	59.4984	55.9729	52.5917	-1.20	1.15
8	56.3905	53.1320	50.0006	-1.17	1.13
9	53.4631	50.4521	47.5523	-1.15	1.11
10	50.7048	47.9230	45.2384	-1.13	1.09
11	48.1049	45.5355	43.0505	-1.10	1.07
12	45.6534	43.2808	40.9813	-1.08	1.04
13	43.3410	41.1509	39.0236	-1.05	1.02
14	41.1592	39.1381	37.1708	-1.03	1.00
15	39.0998	37.2355	35.4167	-1.00	0.98
16	37.1553	35.4363	33.7555	-0.98	0.96
17	35.3186	33.7344	32.1818	-0.95	0.94
18	33.5833	32.1240	30.6905	-0.93	0.91
19	31.9432	30.5997	29.2769	-0.90	0.89
20	30.3925	29.1565	27.9365	-0.88	0.87
21	28.9259	27.7895	26.6651	-0.85	0.84
22	27.5383	26.4944	25.4589	-0.83	0.82
23	26.2252	25.2670	24.3140	-0.80	0.80
24	24.9822	24.1034	23.2271	-0.78	0.77
25	23.8050	23.0000	22.1950	-0.78	0.77
26	22.7500	21.9499	21.1520	-0.78	0.78
27	21.7477	20.9536	20.1638	-0.82	0.81
28	20.7951	20.0081	19.2272	-0.86	0.85
29	19.8895	19.1104	18.3394	-0.89	0.88
30	19.0285	18.2581	17.4974	-0.93	0.92
31	18.2094	17.4484	16.6988	-0.97	0.95
32	17.4302	16.6792	15.9410	-1.00	0.99
33	16.6885	15.9480	15.2217	-1.04	1.02
34	15.9825	15.2530	14.5389	-1.08	1.06
35	15.3103	14.5920	13.8903	-1.12	1.09
36	14.6700	13.9632	13.2743	-1.16	1.13
37	14.0599	13.3650	12.6889	-1.20	1.16
38	13.4786	12.7957	12.1325	-1.23	1.20
39	12.9244	12.2537	11.6035	-1.27	1.24
40	12.3960	11.7375	11.1004	-1.31	1.27
41	11.8921	11.2459	10.6218	-1.35	1.31
42	11.4113	10.7775	10.1665	-1.39	1.34
43	10.9526	10.3311	9.7330	-1.43	1.38
44	10.5147	9.9056	9.3204	-1.48	1.42
45	10.0967	9.4999	8.9275	-1.52	1.45
46	9.6976	9.1130	8.5532	-1.56	1.49
47	9.3163	8.7439	8.1965	-1.60	1.53
48	8.9521	8.3916	7.8566	-1.64	1.57
49	8.6040	8.0554	7.5327	-1.68	1.60

50	8.2713	7.7345	7.2237	-1.73	1.64
51	7.9531	7.4280	6.9291	-1.77	1.68
52	7.6489	7.1353	6.6480	-1.81	1.72
53	7.3580	6.8556	6.3797	-1.85	1.76
54	7.0796	6.5884	6.1237	-1.90	1.79
55	6.8131	6.3329	5.8793	-1.94	1.83
56	6.5581	6.0887	5.6459	-1.99	1.87
57	6.3140	5.8552	5.4230	-2.03	1.91
58	6.0802	5.6318	5.2100	-2.07	1.95
59	5.8563	5.4181	5.0065	-2.12	1.99
60	5.6417	5.2136	4.8120	-2.16	2.03
61	5.4361	5.0178	4.6260	-2.21	2.07
62	5.2391	4.8304	4.4481	-2.25	2.11
63	5.0502	4.6510	4.2780	-2.30	2.15
64	4.8691	4.4791	4.1153	-2.35	2.19
65	4.6954	4.3145	3.9596	-2.39	2.23
66	4.5287	4.1567	3.8105	-2.44	2.27
67	4.3689	4.0055	3.6678	-2.49	2.31
68	4.2154	3.8605	3.5312	-2.53	2.35
69	4.0682	3.7216	3.4004	-2.58	2.39
70	3.9268	3.5883	3.2750	-2.63	2.43
71	3.7910	3.4605	3.1549	-2.68	2.48
72	3.6606	3.3378	3.0398	-2.73	2.52
73	3.5353	3.2201	2.9294	-2.77	2.56
74	3.4150	3.1072	2.8237	-2.82	2.60
75	3.2993	2.9987	2.7222	-2.87	2.64
76	3.1881	2.8946	2.6249	-2.92	2.68
77	3.0812	2.7946	2.5316	-2.97	2.73
78	2.9785	2.6986	2.4420	-3.02	2.77
79	2.8796	2.6063	2.3560	-3.07	2.81
80	2.7845	2.5176	2.2735	-3.12	2.86
81	2.6931	2.4324	2.1943	-3.17	2.90
82	2.6050	2.3505	2.1182	-3.22	2.94
83	2.5203	2.2717	2.0451	-3.28	2.99
84	2.4388	2.1960	1.9749	-3.33	3.03
85	2.3602	2.1231	1.9075	-3.38	3.07
86	2.2846	2.0530	1.8426	-3.43	3.12
87	2.2118	1.9856	1.7803	-3.48	3.16
88	2.1416	1.9207	1.7204	-3.54	3.20
89	2.0740	1.8582	1.6628	-3.59	3.25
90	2.0089	1.7981	1.6074	-3.64	3.29
91	1.9461	1.7402	1.5541	-3.70	3.34
92	1.8856	1.6844	1.5028	-3.75	3.38
93	1.8272	1.6307	1.4535	-3.80	3.43

94	1.7709	1.5789	1.4060	-3.86	3.47
95	1.7166	1.5291	1.3603	-3.91	3.52
96	1.6643	1.4810	1.3163	-3.97	3.56
97	1.6138	1.4347	1.2739	-4.02	3.61
98	1.5650	1.3900	1.2331	-4.08	3.66
99	1.5180	1.3470	1.1937	-4.13	3.70
100	1.4726	1.3054	1.1559	-4.19	3.75
101	1.4287	1.2654	1.1194	-4.24	3.80
102	1.3864	1.2268	1.0842	-4.30	3.84
103	1.3455	1.1895	1.0503	-4.36	3.89
104	1.3060	1.1535	1.0176	-4.42	3.94
105	1.2679	1.1188	0.9860	-4.47	3.98
106	1.2310	1.0853	0.9556	-4.53	4.03
107	1.1954	1.0529	0.9263	-4.59	4.08
108	1.1610	1.0217	0.8980	-4.65	4.13
109	1.1277	0.9915	0.8707	-4.70	4.17
110	1.0955	0.9624	0.8443	-4.76	4.22
111	1.0644	0.9342	0.8189	-4.82	4.27
112	1.0344	0.9070	0.7943	-4.88	4.32
113	1.0053	0.8807	0.7706	-4.94	4.37
114	0.9771	0.8553	0.7478	-5.00	4.41
115	0.9499	0.8307	0.7256	-5.06	4.46
116	0.9235	0.8070	0.7043	-5.12	4.51
117	0.8980	0.7840	0.6837	-5.18	4.56
118	0.8734	0.7618	0.6637	-5.24	4.61
119	0.8495	0.7404	0.6445	-5.30	4.66
120	0.8263	0.7196	0.6258	-5.36	4.71

Pipe Sensor

R25℃=10KΩ±3%

B25℃/50℃=3700K±3%

Temp.((℃))	Max.(KΩ)	Normal(KΩ)	Min.(KΩ)	Tolerance(℃)	
-30	165.2170	147.9497	132.3678	-1.94	1.75
-29	155.5754	139.5600	125.0806	-1.93	1.74
-28	146.5609	131.7022	118.2434	-1.91	1.73
-27	138.1285	124.3392	111.8256	-1.89	1.71
-26	130.2371	117.4366	105.7989	-1.87	1.70
-25	122.8484	110.9627	100.1367	-1.85	1.69
-24	115.9272	104.8882	94.8149	-1.83	1.67
-23	109.4410	99.1858	89.8106	-1.81	1.66
-22	103.3598	93.8305	85.1031	-1.80	1.64
-21	97.6556	88.7989	80.6728	-1.78	1.63
-20	92.3028	84.0695	76.5017	-1.76	1.62
-19	87.2775	79.6222	72.5729	-1.74	1.60
-18	82.5577	75.4384	68.8710	-1.72	1.59
-17	78.1230	71.5010	65.3815	-1.70	1.57
-16	73.9543	67.7939	62.0907	-1.68	1.55
-15	70.0342	64.3023	58.9863	-1.66	1.54
-14	66.3463	61.0123	56.0565	-1.64	1.52
-13	62.8755	57.9110	53.2905	-1.62	1.51
-12	59.6076	54.9866	50.6781	-1.60	1.49
-11	56.5296	52.2278	48.2099	-1.58	1.47
-10	53.6294	49.6244	45.8771	-1.56	1.46
-9	50.8956	47.1666	43.6714	-1.54	1.44
-8	48.3178	44.8454	41.5851	-1.51	1.42
-7	45.8860	42.6525	39.6112	-1.49	1.40
-6	43.5912	40.5800	37.7429	-1.47	1.39
-5	41.4249	38.6207	35.9739	-1.45	1.37
-4	39.3792	36.7676	34.2983	-1.43	1.35
-3	37.4465	35.0144	32.7108	-1.41	1.33
-2	35.6202	33.3552	31.2062	-1.38	1.31
-1	33.8936	31.7844	29.7796	-1.36	1.29
0	32.2608	30.2968	28.4267	-1.34	1.28
1	30.7162	28.8875	27.1431	-1.32	1.26
2	29.2545	27.5519	25.9250	-1.29	1.24
3	27.8708	26.2858	24.7686	-1.27	1.22
4	26.5605	25.0851	23.6704	-1.25	1.20
5	25.3193	23.9462	22.6273	-1.23	1.18
6	24.1432	22.8656	21.6361	-1.20	1.16
7	23.0284	21.8398	20.6939	-1.18	1.14
8	21.9714	20.8659	19.7982	-1.15	1.12
9	20.9688	19.9409	18.9463	-1.13	1.09

10	20.0176	19.0621	18.1358	-1.11	1.07
11	19.1149	18.2270	17.3646	-1.08	1.05
12	18.2580	17.4331	16.6305	-1.06	1.03
13	17.4442	16.6782	15.9315	-1.03	1.01
14	16.6711	15.9601	15.2657	-1.01	0.99
15	15.9366	15.2770	14.6315	-0.98	0.96
16	15.2385	14.6268	14.0271	-0.96	0.94
17	14.5748	14.0079	13.4510	-0.93	0.92
18	13.9436	13.4185	12.9017	-0.91	0.90
19	13.3431	12.8572	12.3778	-0.88	0.87
20	12.7718	12.3223	11.8780	-0.86	0.85
21	12.2280	11.8126	11.4011	-0.83	0.83
22	11.7102	11.3267	10.9459	-0.81	0.80
23	11.2172	10.8634	10.5114	-0.78	0.78
24	10.7475	10.4216	10.0964	-0.75	0.75
25	10.3000	10.0000	9.7000	-0.75	0.75
26	9.8975	9.5974	9.2980	-0.76	0.76
27	9.5129	9.2132	8.9148	-0.80	0.80
28	9.1454	8.8465	8.5496	-0.84	0.83
29	8.7942	8.4964	8.2013	-0.87	0.86
30	8.4583	8.1621	7.8691	-0.91	0.90
31	8.1371	7.8428	7.5522	-0.95	0.93
32	7.8299	7.5377	7.2498	-0.98	0.97
33	7.5359	7.2461	6.9611	-1.02	1.00
34	7.2546	6.9673	6.6854	-1.06	1.04
35	6.9852	6.7008	6.4222	-1.10	1.07
36	6.7273	6.4459	6.1707	-1.13	1.11
37	6.4803	6.2021	5.9304	-1.17	1.14
38	6.2437	5.9687	5.7007	-1.21	1.18
39	6.0170	5.7454	5.4812	-1.25	1.22
40	5.7997	5.5316	5.2712	-1.29	1.25
41	5.5914	5.3269	5.0704	-1.33	1.29
42	5.3916	5.1308	4.8783	-1.37	1.33
43	5.2001	4.9430	4.6944	-1.41	1.36
44	5.0163	4.7630	4.5185	-1.45	1.40
45	4.8400	4.5905	4.3500	-1.49	1.44
46	4.6708	4.4252	4.1887	-1.53	1.47
47	4.5083	4.2666	4.0342	-1.57	1.51
48	4.3524	4.1145	3.8862	-1.61	1.55
49	4.2026	3.9686	3.7443	-1.65	1.59
50	4.0588	3.8287	3.6084	-1.70	1.62
51	3.9206	3.6943	3.4780	-1.74	1.66
52	3.7878	3.5654	3.3531	-1.78	1.70
53	3.6601	3.4416	3.2332	-1.82	1.74

54	3.5374	3.3227	3.1183	-1.87	1.78
55	3.4195	3.2085	3.0079	-1.91	1.82
56	3.3060	3.0989	2.9021	-1.95	1.85
57	3.1969	2.9935	2.8005	-2.00	1.89
58	3.0919	2.8922	2.7029	-2.04	1.93
59	2.9909	2.7948	2.6092	-2.08	1.97
60	2.8936	2.7012	2.5193	-2.13	2.01
61	2.8000	2.6112	2.4328	-2.17	2.05
62	2.7099	2.5246	2.3498	-2.22	2.09
63	2.6232	2.4413	2.2700	-2.26	2.13
64	2.5396	2.3611	2.1932	-2.31	2.17
65	2.4591	2.2840	2.1195	-2.36	2.21
66	2.3815	2.2098	2.0486	-2.40	2.25
67	2.3068	2.1383	1.9803	-2.45	2.29
68	2.2347	2.0695	1.9147	-2.49	2.34
69	2.1652	2.0032	1.8516	-2.54	2.38
70	2.0983	1.9393	1.7908	-2.59	2.42
71	2.0337	1.8778	1.7324	-2.63	2.46
72	1.9714	1.8186	1.6761	-2.68	2.50
73	1.9113	1.7614	1.6219	-2.73	2.54
74	1.8533	1.7064	1.5697	-2.78	2.58
75	1.7974	1.6533	1.5194	-2.83	2.63
76	1.7434	1.6021	1.4710	-2.88	2.67
77	1.6913	1.5528	1.4243	-2.92	2.71
78	1.6409	1.5051	1.3794	-2.97	2.75
79	1.5923	1.4592	1.3360	-3.02	2.80
80	1.5454	1.4149	1.2942	-3.07	2.84
81	1.5000	1.3721	1.2540	-3.12	2.88
82	1.4562	1.3308	1.2151	-3.17	2.93
83	1.4139	1.2910	1.1776	-3.22	2.97
84	1.3730	1.2525	1.1415	-3.27	3.01
85	1.3335	1.2153	1.1066	-3.32	3.06
86	1.2953	1.1794	1.0730	-3.38	3.10
87	1.2583	1.1448	1.0405	-3.43	3.15
88	1.2226	1.1113	1.0092	-3.48	3.19
89	1.1880	1.0789	0.9789	-3.53	3.24
90	1.1546	1.0476	0.9497	-3.58	3.28
91	1.1223	1.0174	0.9215	-3.64	3.33
92	1.0910	0.9882	0.8942	-3.69	3.37
93	1.0607	0.9599	0.8679	-3.74	3.42
94	1.0314	0.9326	0.8424	-3.80	3.46
95	1.0030	0.9061	0.8179	-3.85	3.51
96	0.9756	0.8806	0.7941	-3.90	3.55
97	0.9490	0.8558	0.7711	-3.96	3.60

98	0.9232	0.8319	0.7489	-4.01	3.64
99	0.8983	0.8088	0.7275	-4.07	3.69
100	0.8741	0.7863	0.7067	-4.12	3.74
101	0.8507	0.7646	0.6867	-4.18	3.78
102	0.8281	0.7436	0.6672	-4.23	3.83
103	0.8061	0.7233	0.6484	-4.29	3.88
104	0.7848	0.7036	0.6303	-4.34	3.92
105	0.7641	0.6845	0.6127	-4.40	3.97
106	0.7441	0.6661	0.5957	-4.46	4.02
107	0.7247	0.6482	0.5792	-4.51	4.07
108	0.7059	0.6308	0.5632	-4.57	4.12
109	0.6877	0.6140	0.5478	-4.63	4.16
110	0.6700	0.5977	0.5328	-4.69	4.21
111	0.6528	0.5820	0.5183	-4.74	4.26
112	0.6361	0.5667	0.5043	-4.80	4.31
113	0.6200	0.5518	0.4907	-4.86	4.36
114	0.6043	0.5374	0.4775	-4.92	4.41
115	0.5891	0.5235	0.4648	-4.98	4.45
116	0.5743	0.5100	0.4524	-5.04	4.50
117	0.5600	0.4968	0.4404	-5.10	4.55
118	0.5460	0.4841	0.4288	-5.16	4.60
119	0.5325	0.4717	0.4175	-5.22	4.65
120	0.5194	0.4597	0.4066	-5.28	4.70

6. System Configuration

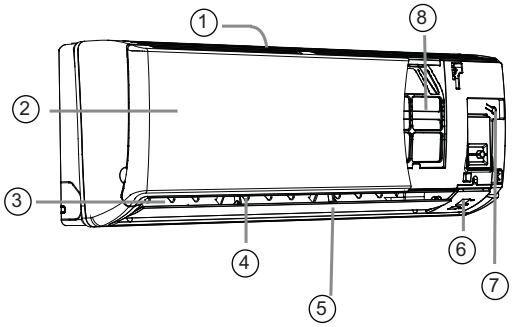
6.1 System Configuration

After the installation and test operation of the room air conditioner have been completed, it should be operated and handled as described below. Every user would like to know the correct method of operation of the room air conditioner, to check if it is capable of cooling (or heating) well, and to know a clever method of using it.In order to meet this expectation of the users, giving sufficient explanations taking enough time can be said to reduce about 80% of the requests for servicing. However good the installation work is and however good the functions are, the customer may blame either the room air conditioner or its installation work because of improper handling. The installation work and handing over of the unit can only be considered to have been completed when its handling has been explained to the user without using technical terms but giving full knowledge of the equipment.

6.2 Instruction

Parts and Functions

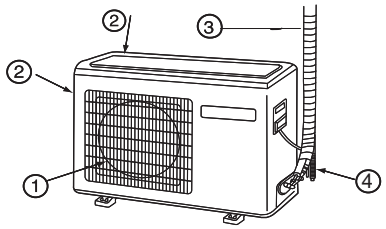
Indoor Unit



① Inlet
② Inlet grille
③ Outlet
④ Vertical blade
(adjust left and right air flow)
⑤ Horizontal flap
(adjust up and down air flow.
Don't adjust it manually)
⑥ Display board
⑦ Emergency Switch
⑧ Air Purifying Filter
(inside)

Please be subject to the actual produce purchased the above picture is just from your reference

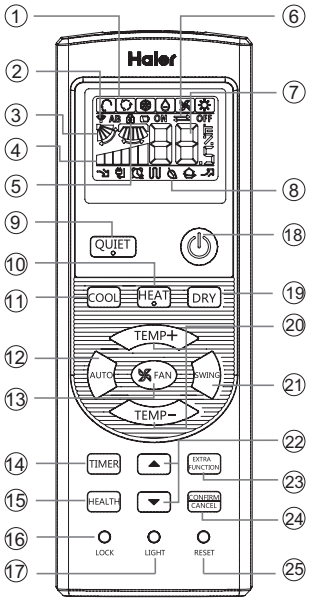
Outdoor Unit



① OUTLET
② INLET
③ CONNECTING PIPING AND ELECTRICAL WIRING
④ DRAIN HOSE

Please be subject to the actual produce purchased the above picture is just from your reference

Remote controller



1. Mode display

Operation mode	AUTO	COOL	DRY	HEAT	FAN
Remote controller					

2. Signal sending display
3. SWING display
4. FAN SPEED display

LO → MED → HI → Display circulated AUTO

5. LOCK display
6. TIMER OFF display
TIMER ON display
7.TEMP display

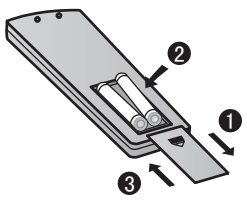
8.Additional functions display

Operation mode	QUITE	SLEEP	Supplemented electrical heating	HEALTH	POWER
Remote controller					

9. QUIET button
10. HEAT button
11. COOL button
12. AUTO button
13. FAN button
14. TIMER button
15. HEALTH button
16. LOCK button
Used to lock buttons and LCD display.
17. LIGHT button
Control the lightening and extinguishing of the indoor LED display board.
18. POWER ON/OFF button
19. DRY button
20. TEMP button
21. SWING button
22. HOUR button
23. EXTRA FUNCTION button
Function: Air sending-->Healthy airflow position1-->Healthy airflow position 2 -->Restore the original flap position --> Right & left air airflow -->A-B yard-->10 and heating symbol displayed simultaneously-->Sleeping -->Electrical heating-->Refresh air (reserved function) --> Power --> Fahrenheit/Celsius mode conversion
24.CANCEL/CONFIRM button
Function: Setting and cancel to the timer and other additional functions.
25. RESET button
When the remote controller appears abnormal, use a sharp pointed article to press this button to reset the remote

Healthy function is not available for some units.

Loading of the battery



1 Remove the battery cover;
2 Load the batteries as illustrated.
2 AAA batteries, resetting key (cylinder);
3 Be sure battery polarity is correct " + "/"-";
4 Load the battery,then put on the cover again.

Note:

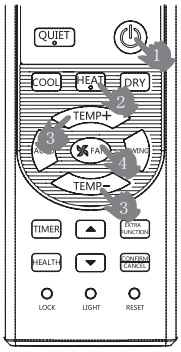
- The distance from the remote to the receiver should be less than 23 feet (7 meters) with no obstructions.
- Fluorescent lights or cordless telephones will reduce the range of the remote.
- If the display is dim the remote batteries may need to be replaced.
- Remote malfunctions can sometimes be corrected by removing the batteries for a few minutes and then replacing them.

Hint:
Remove the batteries in case won't be in use for a long period. If there is any display after taking-out, just press reset key.

Operation

Base Operation

Remote controller

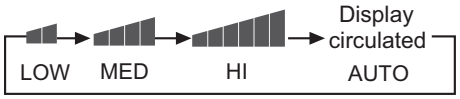


1. Unit start
   Press ON/OFF on the remote controller, unit starts.

2. Select operation mode
   COOL button:Cooling mode
   HEAT button: Heating mode
   DRY button: Dehumidify mode

3.Select temp.setting
   Press TEMP+ / TEMP− button
   TEMP+ Every time the button is pressed, temp.setting increase 1℃,if kept depressed, it will increase rapidly
   TEMP− Every time the button is pressed, temp.setting decrease 1℃,if kept depressed, it will decrease rapidly
   Select a desired temperature.

4.Fan speed selection
   Press FAN button. For each press, fan speed changes as follows:
   Remote controller:



Air conditioner is running under displayed fan speed. When FAN is set to AUTO, the air conditioner automatically adjusts the fan speed according to room temperature.

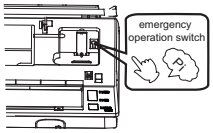
Operation Mode	Remote Controller	Note
AUTO		Under the mode of auto operation, air conditioner will automatically select Cool or Heat operation according to room temperature. When FAN is set to AUTO the air conditioner automatically adjusts the fan speed according to room temperature.
COOL		
DRY		In DRY mode , when room temperature becomes lower than temp.setting+2° C, unit will run intermittently at LOW speed regardless of FAN setting.
HEAT		In HEAT mode, warm air will blow out after a short period of the time due to cold-draft prevention function. When FAN is set to AUTO, the air conditioner automatically adjusts the fan speed according to room temperature.
FAN		In FAN operation mode , the unit will not operate in COOL or HEAT mode but only in FAN mode, AUTO is not available in FAN mode. And temp. setting is disabled. In FAN mode, sleep operation is not available.

Emergency operation and test operation

Emergency Operation:

- Use this operation only when the remote controller is defective or lost, and with function of emergency running, air conditoner can run automatically for a while.
- When the emergency operation switch is pressed, the unit beeps once, which means the start of this operation.
- When power switch is turning on for the first time and emergency operation starts, the unit will run automatically in the following modes:

Room temperature	Designated temperature	Timer mode	Fan speed	Operation mode
Above 23°C	26°C	No	AUTO	COOL
Below 23°C	23°C	No	AUTO	HEAT

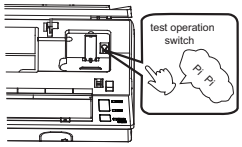


- It is impossible to change the settings of temp. and fan speed,It is also not possible to operate in timer or dry mode.

Test operation:

Test operation switch is the same as emergency switch.

- Use this switch in the test operation when the room temperature is below 16°C, do not use it in the normal operation.
- Continue to press the test operation switch for more than 5 seconds.After you hear two beeps, release your finger from the switch: the cooling operation starts with the air flow speed "Hi".



- Under this operation mode,the fan motor of indoor unit will run in high speed.

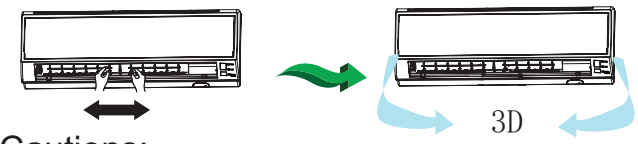
Air Flow Direction Adjustment

1.Status display of air flow

COOL/DRY:

2.Left and right air flow adjustment(manual)

Move the vertical blade by a knob on air conditioner to adjust left and right direction referring to the figure below.



Cautions:

- When adjusting the flap by hand,turn off the unit.
- When humidity is high,condensate water might occur at air outlet if all vertical louvers are adjusted to left or right.
- It is advisable not to keep horizontal flap at downward position for a long time in COOLor DRY mode , otherwise, condensate water might occur.

Note:

When restart after remote turning off, the remote controller will automatically return to the previous set swing position.

Operation

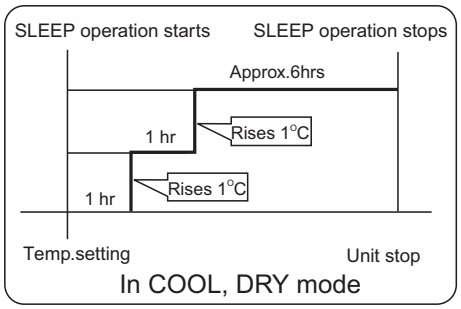
Sleep Operation

Press EXTRA FUNCTION button to enter additional options, when cycle display to , will flash. And then press CONFIRM CANCEL enter to sleep function.

Operation Mode

1. In COOL,DRY mode

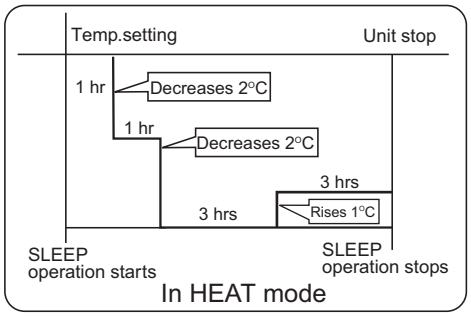
1 hours after SLEEP mode starts,temp.will become 1°C higher than temp.setting.After another 1 hours,temp.rises by 1°C futher.The unit will run for further 6 hours then stops Temp. is higher than temp.setting so that room temperature won't be too low for your sleep.



In COOL, DRY mode

2. In HEAT mode

1 hours after SLEEP mode starts,temp will become 2°C lower than temp.setting.After another 1 hours,temp decrease by 2°C futher.After more another 3 hours,temp. rises by 1°C futher.The unit will run for further 3 hours then stops.Temp.is lower than temp. setting so that room temperature won't be too high for your sleep.



In HEAT mode

3. In AUTO mode

The unit operaters in corresponding sleep mode adapted to the automatically selected operation mode.

4. In FAN mode

It has no SLEEP function.

5.Set the wind speed change when sleeping

If the wind speed is high or middle before setting for the sleep, set for lowing the wind speed after sleeping. If it is low wind, no change.

Note

When TIMER function is set, the sleeping function can't be set up .After the sleeping function is set up, if user resets TIMER function, the sleeping function will be cancelled; the machine will be in the state of timing-on.

POWER/QUIET Operation

(1) POWER Operation

When you need rapid heating or cooling, you can use this function.

Press EXTRA FUNCTION button to enter additional options, when cycle display to , will flash, and then press CONFIRM CANCEL ,enter to power function. When cancel the function, please enter additional options again and to cancel power function.

(2) QUIET Operation

You can use this function when silence is needed for rest or reading.

Press QUIET button, the remote controller will show , and then achieve to the quiet function. Press again this QUIET button , the quiet function will be cancelled.

Note：

During POWER operation, in rapid HEAT or COOL mode , the room will show inhomogeneous temperature distribution. Long period QUIET operation will cause effect of not too cool or not too warm.

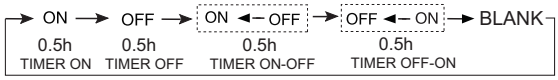
Operation

Timer On/Off On-Off Operation

1.After unit starts, select your desired operation mode.

2.Press TIMER button to change TIMER mode. Every time the button is pressed, display changes as follows:

Remote controller:



Then select your desired TIMER mode (TIMER ON or TIMER OFF or TIMER ON-OFF). " ON "or " OFF "will flash.

3.Press ▼ / ▲ button to set time.

▲ Press the button for each time, setting time in the first 12 hours increased by 0.5 hour every time, after 12 hours,increased by 1 hour every time.

▼ Press the button for each time, settiing time in the first 12 hours decreased by 0.5 hour every time, after 12 hours,decreased by 1 hour every time.
It can be adjusted within 24 hours.

4.Confirm timer setting
After adjust the time,press CONFIRM CANCEL button and confirm the time ON or OFF button will not flash any more.

5.Cancel timer setting
Press the timer button by times until the time display eliminated.

Hints:
After replacing batteries or a power failure happens, time setting should be reset.
According to the Time setting sequence of TIMER ON or TIMER OFF, either Start-Stop or Stop-Start can be achieved.

Healthy airflow Operation

1.Press ⏻ to starting
Setting the comfort work conditions.

2.The setting of healthy airflow function

Press EXTRA FUNCTION button to enter additional options,Press this button continuously, the louvers location will cycle between in the following three locations, to choose the swing location what you needed,and then press CONFIRM CANCEL button to confirm.

3.The cancel of the healthy airflow function
Press EXTRA FUNCTION button to enter additional options,Press this button continuously, the louvers location will cycle between in the following three locations again,and then press CONFIRM CANCEL button to cancel.

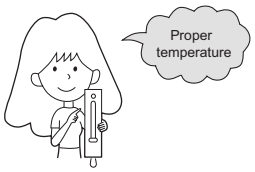
Notice: Do not direct the flap by hand. Otherwise, the grille will run incorrectly. If the grille is not run correctly, stop for a minute and then start, adjusting by remote controller.

Note:
1.After setting the healthy airflow function, the position grill is fixed.
2.In cooling, it is better to select the mode.
3.In cooling and dry, using the air conditioner for a long time under the high air humidity, condensate water may occur at the grille .

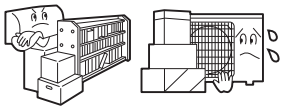
Maintenance

For Smart Use of The Air Conditioner

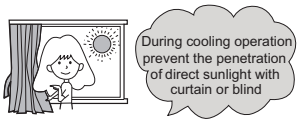
Setting of proper room temperature



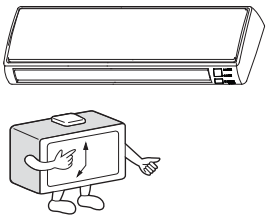
Do not block the air inlet or outlet



Close doors and windows during operation

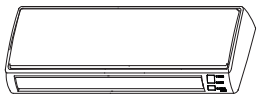


Use the timer effectively



If the unit is not to be used for a long time, turn off the power supply main switch.

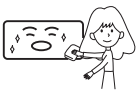
Use the louvers effectively



Remote Controller

Do not usewater,wipe the controller with a dry cloth.Do not use glass cleaner or chemical cloth.

Indoor Body



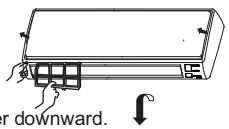
wipe the air conditioner by using a soft and dry cloth.For serious stains, use a neutral detergent diluted with water.Wring the water out of the cloth before wiping,then wipe off the detergent completely.

Do not use the following for cleaning

Gasoline,benzine, thinner or cleanser may damage the coating of the unit.

Hot water over 40°C(104°F) may cause discoloring or deformation.

Air Filter cleaning



1 Open the inlet grille by pulling it upward.

2 Remove the filter.
Push up the filter's center tab slightly until it is released from the stopper, and remove the filter downward.

3 Clean the filter.
Use a vacuum cleaner to remove dust, or wash the filter with water.After washing, dry the filter completely in the shade.

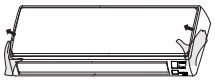
4 Attach the filter.
Attach the filter correctly so that the "FRONT" indication is facing to the front.Make sure that the filter is completely fixed behind the stopper.If the right and left filters are not attached correctly, that may cause defects.

5 Close the inlet grille.

Replacement of Air Purifying Filter

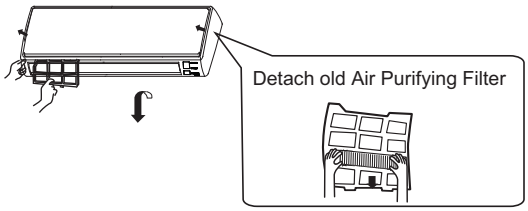
1.Open the Inlet Grille

Prop up the inlet grille by with a grille support located in the right side of the indoor unit.



2.Detach the standard air filter

Slide the knob slightly upward to release the filter, then withdraw it.

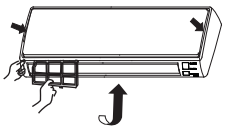


3.Attach Air Purifying Filter

Put air purifying filter appliances into the right and left filter frames.

4.Attach the standard air filter

(Necessary installation)



ATTENTION:

The white side of the photocatalyst air purifying filter face outside,and the black side face the unit The green side of the bacteria-killing medium air purifying filter face outside,and the white side face the unit.

5.Close the Inlet Grille

Close the Grille surely

NOTE:

- The photocatalyst air purifying filter will be solarized in fixed time. In normal family, it will be solarized every 6 months.
- The bacteria-killing medium air purifying filter will be used for a long time,no need for replacement. But in the period of using them ,you should remove the dust frequently by using vacuum cleaner or flaping them lightly,otherwise , its performance will be affected.
- Please keep the bacteria-killing medium air purifying filter in the cool and dry conditions avoid long time directly sunshine when you stop using it,or its ability of sterilization will be reduced.

Cautions

⚠ WARNING

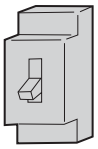
This system should be installed by a qualified HVAC professional.
Do not attempt to install the air conditioner by yourself because improper works may cause fire, water leakage, personal injury or cleath.

⚠ WARNING

When abnormality such as burnt-small found, immediately stop the operation button and contact sales shop.

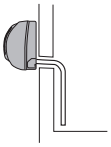
STRICT ENFORCEMENT

Use an exclusive power source with a circuit breaker



Check proper installation of the drainage securely

STRICT ENFORCEMENT



Connect power supply cord to the outlet completely

STRICT ENFORCEMENT

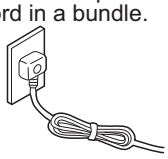
Use the proper voltage

STRICT ENFORCEMENT

1.Do not use power supply cord extended or connected in halfway
2.Do not install in the place where there is any possibility of inflammable gas leakage around the unit.
3.Do not get the unit exposed to vapor or oil steam.

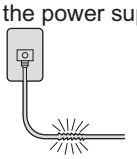
PROHIBITION

Do not use power supply cord in a bundle.



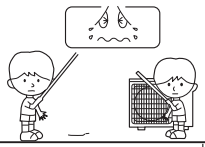
PROHIBITION

Take care not to damage the power supply cord.



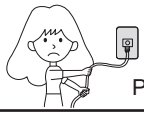
PROHIBITION

Do not insert objects into the air inlet or outlet.



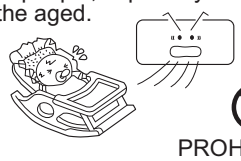
PROHIBITION

Do not start or stop the operation by disconnecting the power supply cord and so on.



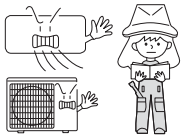
PROHIBITION

Do not channel the air flow directly at people, especially at infants or the aged.

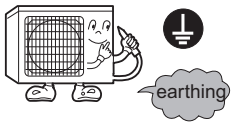


PROHIBITION

Do not try to repair or reconstruct by yourself.

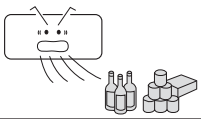


Connect the earth cable.



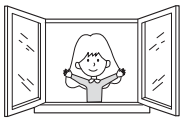
⚠ CAUTION

Do not use for the purpose of storage of food, art work, precise equipment, breeding, or cultivation.



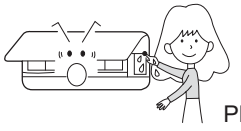
PROHIBITION

Take fresh air occasionally especially when gas appliance is running at the same time.



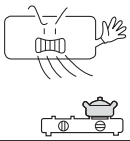
STRICT ENFORCEMENT

Do not operate the switch with wet hand.



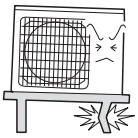
PROHIBITION

Do not install the unit near a fireplace or other heating apparatus.



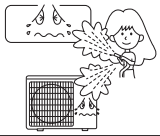
PROHIBITION

Check good condition of the installation stand



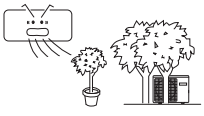
PROHIBITION

Do not pour water onto the unit for cleaning



PROHIBITION

Do not place animals or plants in the direct path of the air flow



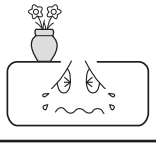
PROHIBITION

Do not place any objects on or climb on the unit.

PROHIBITION

Do not place flower vase or water containers on the top of the unit.

PROHIBITION



Trouble shooting

Before asking for service, check the following first.

	Phenomenon	Cause or check points
Normal Performance inspection	The system does not restart immediately. 	• When unit is stopped, it won't restart immediately until 3 minutes have elapsed to protect the system. • When the electric plug is pulled out and reinserted, the protection circuit will work for 3 minutes to protect the air conditioner.
	Noise is heard 	• During unit operation or at stop, a swishing or gurgling noise may be heard.At first 2-3 minutes after unit start, this noise is more noticeable. (This noise is generated by refrigerant flowing in the system.) • During unit operation, a cracking noise may be heard.This noise is generated by the casing expanding or shrinking because of temperature changes. • Should there be a big noise from air flow in unit operation, air filter may be too dirty.
	Smells are generated.	• This is because the system circulates smells from the interior air such as the smell of furniture, paint, cigarettes.
	Mist or steam are blown out. 	• During COOL or DRY operation, indoor unit may blow out mist. This is due to the sudden cooling of indoor air.
	In dry mode,fan speed can't be changed.	• In DRY mode, when room temperature becomes lower than temp. setting+2 °C,unit will run intermittently at LOW speed regardless of FAN setting.
Multiple check		• Is power plug inserted? • Is there a power failure? • Is fuse blownout?
	Poor cooling 	• Is the air filter dirty? Normally it should be cleaned every 15 days. • Are there any obstacles before inlet and outlet? • Is temperature set correctly? • Are there some doors or windows left open? • Is there any direct sunlight through the window during the cooling operation?(Use curtain) • Are there too much heat sources or too many people in the room during cooling operation?

Cautions

- Do not obstruct or cover the ventilation grille of the air conditoner.Do not put fingers or any other things into the inlet/outlet and swing louver.
- Do not allow children to play with the air conditioner.In no case should children be allowed to sit on the outdoor unit.

Specifications

- The refrigerating circuit is a sealed system.

The machine is adaptive in following situation

1.Applicable ambient temperature range:

Cooling	Indoor	Maximum:D.B/W.B	89.6°F /73.4°F
		Minimum:D.B/W.B	67°F/57°F
	Outdoor	Maximum:D.B/W.B	115°F/75°F
		Minimum: D.B	67°F/57°F
Heating	Indoor	Maximum:D.B	80.6°F
		Minimum: D.B	32°F
	Outdoor	Maximum:D.B/W.B	75°F/65°F
		Minimum:D.B/W.B	19.4°F
	Outdoor (INVERTER)	Maximum:D.B/W.B	75°F/65°F
		Minimum:D.B	5°F

2. If the power supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similar qualified person.

3.If the fuse of indoor unit on PC board is broken,please change it with the type of T. 3.15A/ 250V. If the fuse of outdoor unit is broken,change it with the type of T.25A/250V

4. The wiring method should be in line with the local wiring standard.

5. After installation, the power plug should be easily reached.

6. The waste battery should be disposed properly.

7. The appliance is not intended for use by young children or infirm persons without supervision.

8. Young children should be supervised to ensure that they do not play with the appliance.

9. Please employ the proper power plug,which fit into the power supply cord.

10. The power plug and connecting cable must have acquired the local attestation.

11. In order to protect the units,please turn off the A/C first, and at least 30 seconds later, cutting off the power.

7.Codes and Description

7.1.Problem Symptoms and Measures

Symptom	Check Item	Details of Measure
None of the units operates	Check the power supply	Check to make sure that the rated voltage is supplied.
	Check the indoor PCB	Check to make sure that the indoor PCB is broken
Equipment operates but does not cool, or does not heat (only for heat pump)	Diagnosis by service port pressure and operating current.	Check for insufficient gas.
Large operating noise and vibrations	Check the installation condition.	Check to make sure that the required spaces for installation (specified in the Technical Guide, etc.) are provided.

7.2 Error Codes and Description indoor display

	Code indication	Description	Reference Page
	indoor		
Indoor Malfunction	E1	Room temperature sensor failure	32
	E2	Heat-exchange sensor failure	32
	E4	Indoor EEPROM error	33
	E14	Indoor fan motor malfunction	33

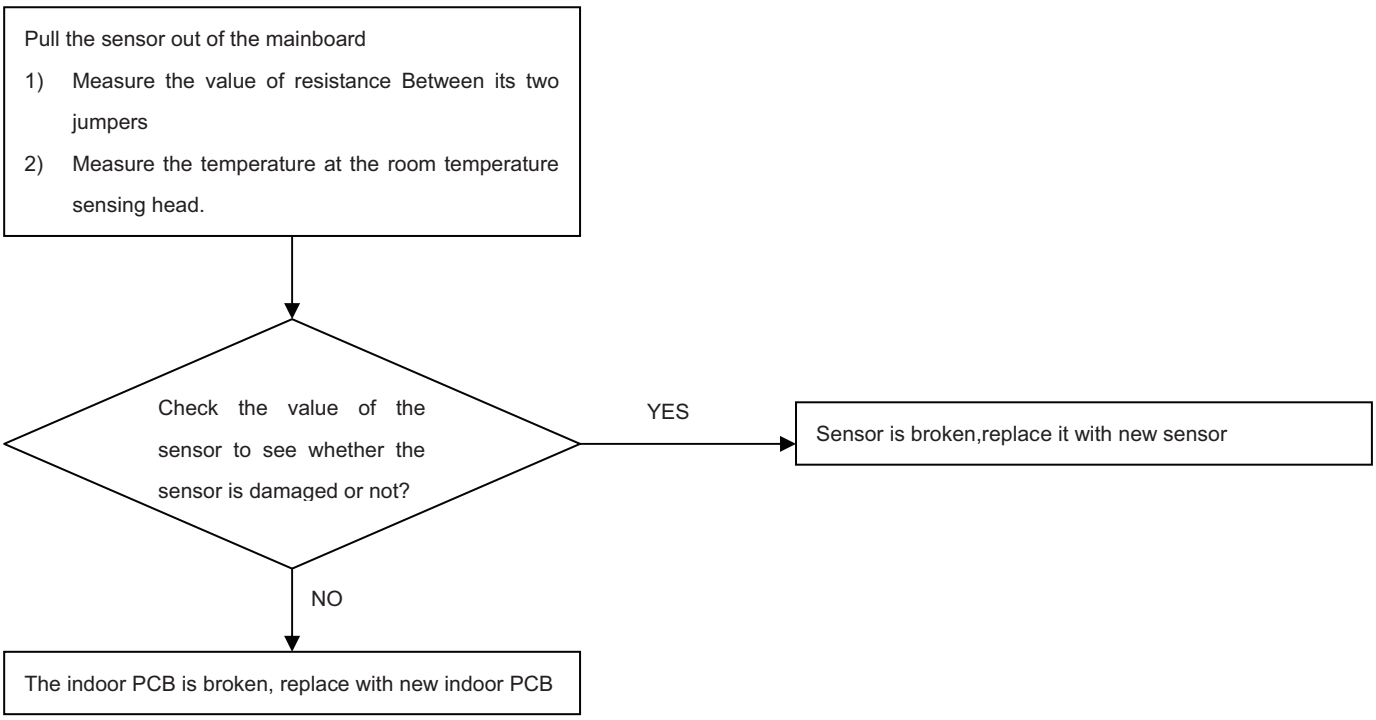
The code indication that is listed above is the main fault

Troubleshooting

Caution

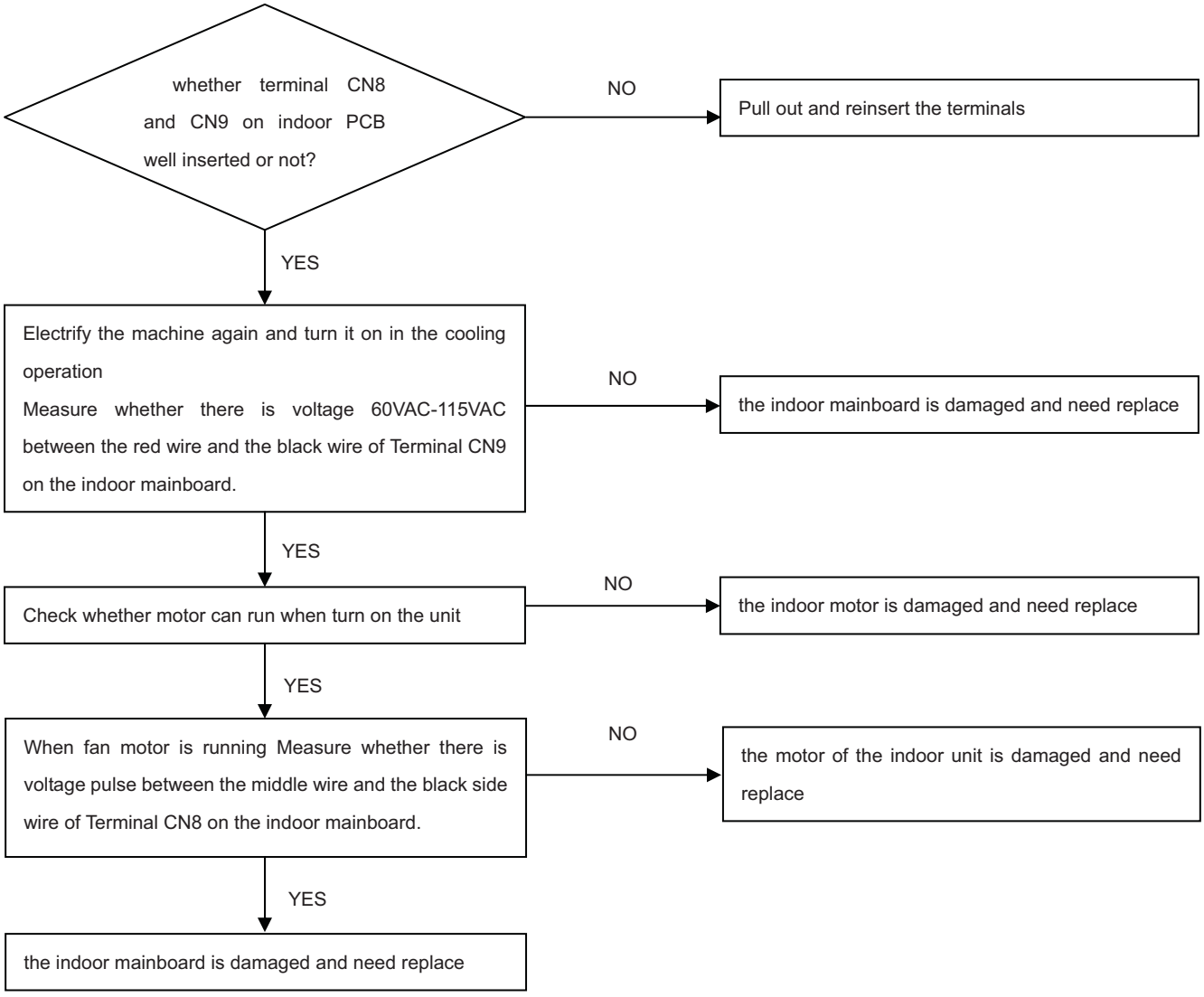
Be sure to turn off power switch before connect or disconnect connector, or else parts damage may be occurred.

E1: Room temperature sensor failure CN6
E2: Heat-exchange sensor failure CN6



E4：Indoor EEPROM error:：Replace the PCB of indoor unit
E14 :Indoor fan motor malfunction

Notes: When the unit is on ,don't pull out or insert the terminal of the motor (CN9), or else The motor would be damaged.


whether terminal CN8 and CN9 on indoor PCB well inserted or not?
NO
Pull out and reinsert the terminals
YES
Electrify the machine again and turn it on in the cooling operation
Measure whether there is voltage 60VAC-115VAC between the red wire and the black wire of Terminal CN9 on the indoor mainboard.
NO
the indoor mainboard is damaged and need replace
YES
Check whether motor can run when turn on the unit
NO
the indoor motor is damaged and need replace
YES
When fan motor is running Measure whether there is voltage pulse between the middle wire and the black side wire of Terminal CN8 on the indoor mainboard.
NO
the motor of the indoor unit is damaged and need replace
YES
the indoor mainboard is damaged and need replace

8 Installation Manual of Room Air Conditioner

Preparation

Necessary Tools for Installation

- Hammer
- Nipper
- Hacksaw
- Hole core drill
- Spanner(17,19 and 26mm)
- Gas leakage detector or soap-and-water solution
- Torque wrench (17mm,22mm,26mm)
- Pipe cutter
- Flaring tool
- Knife
- Measuring tape
- Reamer

Power Source

- Before inserting power plug into receptacle, check the voltage without fail. The power source is the same as the corresponding name plate.
- Install an exclusive branch circuit of the power.
- A receptacle shall be set up in a distance where the power cable can be reached. Do not extend the cable by cutting it.

Selection of Installation Place

Indoor Unit - Select a location that is

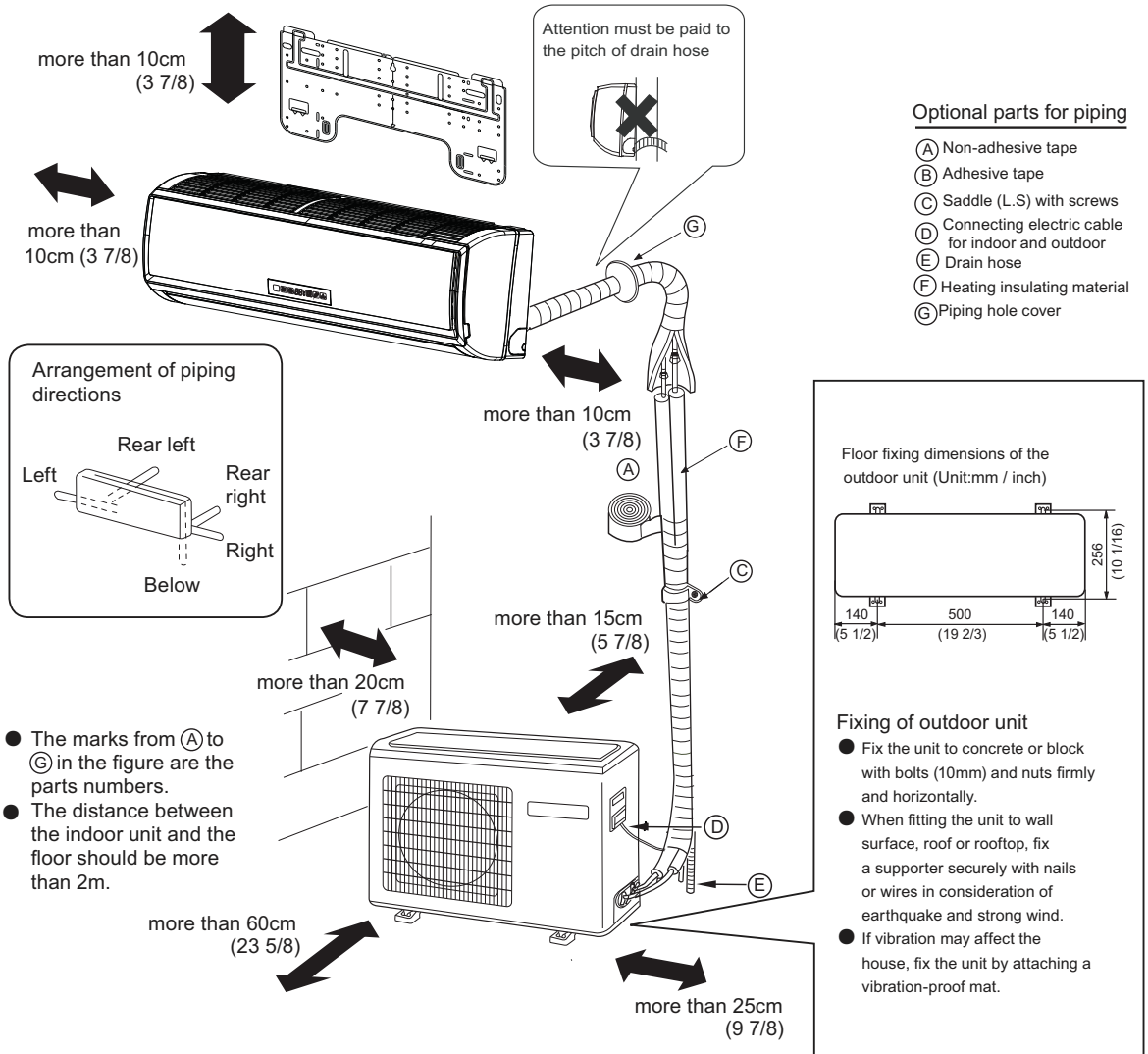
- Robust not causing vibration, where the body can be supported sufficiently.
- Not affected by heat or steam generated in the vicinity, where inlet and outlet of the unit are not disturbed.
- Possible to drain easily, where piping can be connected with the outdoor unit.
- Where cold air can be spread in a room evenly.
- Nearby a power receptacle. (Refer to drawings).
- Place where the distance of more than lm from televisions, radios, wireless apparatuses and fluorescent lamps can be left.
- In the case of fixing the remote controller on a wall, place where the indoor unit can receive signals when the fluorescent lamps in the room are in use.

Outdoor Unit - Select a location that is

- Less affected by rain or direct sunlight and is sufficiently ventilated.
- Strong enough to bear the unit, where vibration and noise are not increased.
- Not causing a nuisance to neighbors due to discharged air or noise.
- A distance marked ↔ is available as illustrated in the below figure.

Drawing for the installation of indoor and outdoor units

The models adopt HCFC free refrigerant R410A



- The marks from Ⓐ to Ⓖ in the figure are the parts numbers.
- The distance between the indoor unit and the floor should be more than 2m.

The above picture is for your reference only. Your product may look different.
Read this manual before installation.
Explain the operation of the unit to the user according to this manual.

NO.0010536242

Accessory parts

Remote controller (1)	Drain hose (1)
AAA dry battery (2)	Cushion (4)
Mounting plate (1)	Drain-elbow (1)
Plastic cap (4) Ø4X25 Screw (4)	Pipe supporting plate (1)

Selection of pipe

Liquid pipe (Ø)	6.35mm(1/4")
Gas pipe (Ø)	9.52mm(3/8")

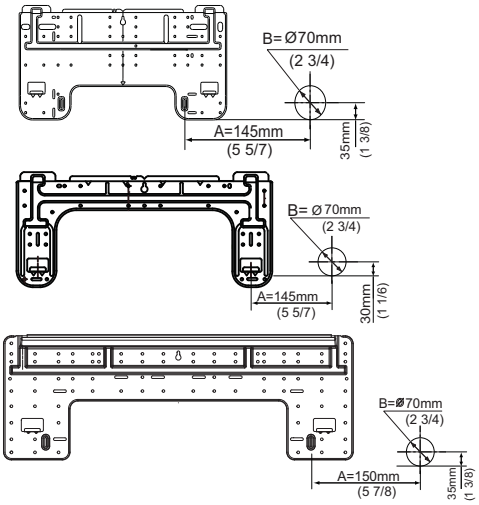
NOTE：The thickness of the pipe must be 0.8mm(1/16") at least.

Indoor unit

1 Fitting of the Mounting Plate and Positioning of the wall Hole

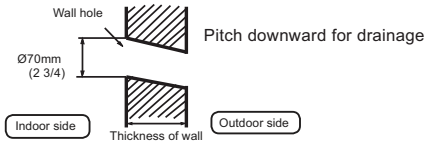
When the mounting plate is first fixed

1. Carry out, based on the wall studs or lintels, a proper leveling for the plate to be fixed against the wall, then temporarily fasten the plate with one steel nail.
2. Make sure once more the proper level of the plate, by hanging a thread with a weight from the central top of the plate, then fasten the plate.
3. Find the wall hole location A using a measuring tape



2 Making a Hole on the Wall and Fitting the Piping Hole Cover

- Make a hole of 70mm (2 3/4) in diameter, slightly descending to outside the wall.
- Install piping hole cover and seal it off with putty after installation



3 Installation of the Indoor Unit

Drawing of pipe

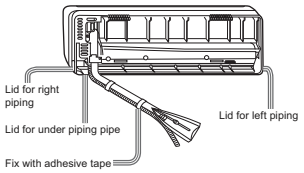
[Rear piping]

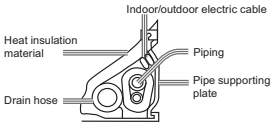
- Draw pipes and the drain hose, then fasten them with the adhesive tape

[Left · Left-rear piping]

- In case of left side piping, cut away, with a nipper, the lid for left piping.
- In case of left-rear piping, bend the pipes according to the piping direction to the mark of hole for left-rear piping which is marked on heat insulation materials.

1. Insert the drain hose into the carity of heat insulation materials of indoor unit.
2. Insert the indoor/outdoor electric cable from backside of indoor unit, and pull it out on the front side, then connect them.
3. Coat the flaring seal face with refrigerant oil and connect pipes. Cover the connection part with heat insulation materials, cover with adhesive tape.





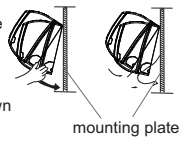
- Indoor/outdoor electric cable and drain hose must be bound with refrigerant piping with protecting tape.

[Other piping direction]

- Cut away, with a nipper, the lid for piping according to the piping direction and then bend the pipe according to the position of wall hole. When bending, be careful not to crush pipes.
- Connect beforehand the indoor/outdoor electric cable, and then pull out the connected to the heat insulation of connecting part specially.

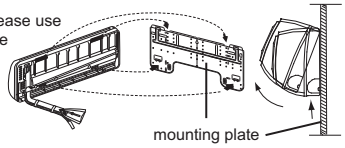
Fixing the indoor unit body

- Hang the unit body securely onto the upper notches of the mounting plate. Move the body from side to side to verify its secure fixing.
- In order to fix the body onto the mounting plate,hold up the body at a slant from the underside and then put it down perpendicularly.



Unloading of indoor unit body

- When you unload the indoor unit, please use your hand to raise the body, then lift the bottom of the body outward slightly and lift the unit until it leaves the mounting plate.



4 Connecting the indoor/outdoor Electric Cable

Removing the wiring cover

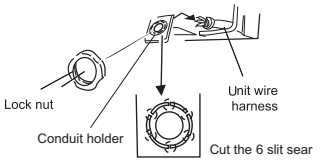
- Remove terminal cover at right bottom corner of indoor unit, then take off wiring cover by removing its screws.

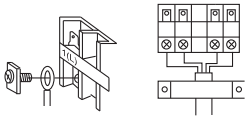
When connecting the cable after installing the indoor unit

1. Insert from outside the room cable into left side of the wall hole, in which the pipe has already existed.
2. Pull out the cable on the front side, and connect the cable making a loop.

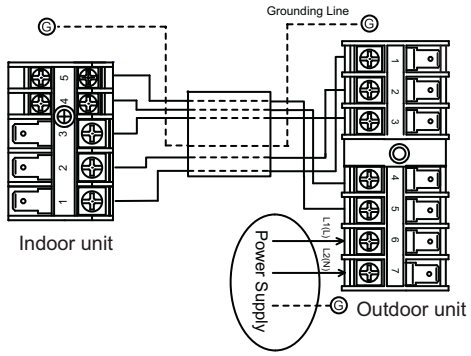
When connecting the cable before installing the indoor unit

- Insert the cord from the back side of the unit, then pull it out on the front side.
- Fasten the unit wire harness to the conduit holder using the lock nut.
- Position the conduit holder to its original state using screw.

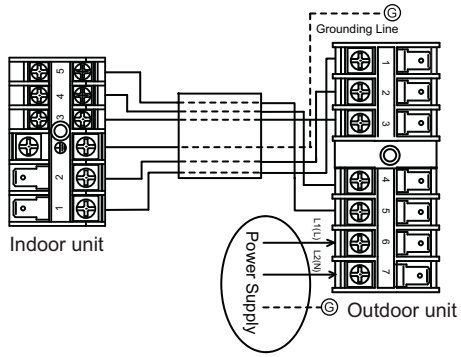




Note When connecting the cable, confirm the terminal number of indoor and outdoor units carefully. If wiring is not correct, improper operation may occur and cause damage to the units.



HSU09XHK Power cable: ⩾ 2wire with ground 16AWG



HSU12XHK Power cable: ⩾ 2wire with ground 16AWG

1. If the fuse on PC board is broken please change it with the type of T. 3.15A/250V(indoor unit),25A/250V(outdoor unit).
2. The wiring method should be in line with the local wiring standard.
3. After installation, the power plug should be easily reached.
4. A breaker should be incorporated into fixed wiring. The breaker should be all-pole switch.

Outdoor unit

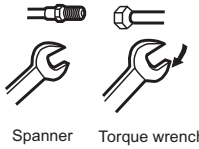
1 Installation of Outdoor Unit

Install according to Drawing for the installation of indoor and outdoor units

2 Connection of pipes

- To bend a pipe, be careful not to crush the pipe, and the bending radius should be 30 (1 1/6) to 40 mm (1 4/7) or longer.
- Connecting the pipe of gas side first makes working easier.
- The connection pipe is specialized for R410A.

Half union Flare nut



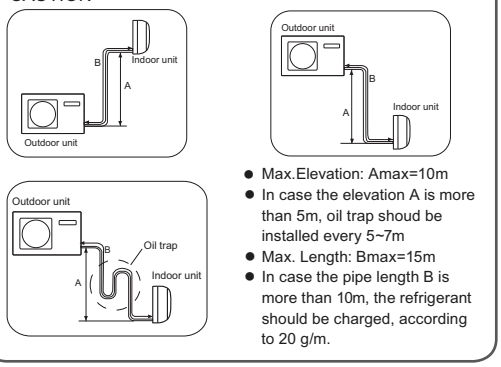
Spanner Torque wrench

Forced fastening without careful centering may damage the threads and cause a leakage of gas.

Pipe Diameter(ø)	Fastening torque
Liquid side6.35mm(1/4")	18N.m/13.3Ft.lbs
Liquid/Gas side9.52mm(3/8")	42 N.m/30.1Ft.lbs
Gas side 12.7mm(1/2")	55N.m/40.6Ft.lbs
Gas side 15.88mm(5/8")	60 N.m/44.3Ft.lbs

Ensure that no dirt or debris enters the pipe.
The standard pipe length is 7m (27 9/16). If it is over 7m (27 9/16), the function of the unit will be affected. If the pipe has to be lengthened, the refrigerant should be charged, according to 20 g/m (0.018 oz/inch). But the charge of refrigerant must be conducted by professional air conditioner servicer. Before adding additional refrigerant, perform air purging from the refrigerant pipes and indoor unit using a vacuum pump,then charge additional refrigerant.

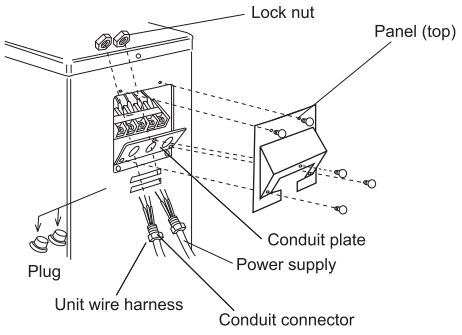
CAUTION



- Max.Elevation: Amax=10m
- In case the elevation A is more than 5m, oil trap shoud be installed every 5~7m
- Max. Length: Bmax=15m
- In case the pipe length B is more than 10m, the refrigerant should be charged, according to 20 g/m.

3 Connection

- Take off the panel(top), by removing the 5 screws.
- Remove the plugs on the conduit plate.
- Temporarily mount the conduit tubes on the conduit plate.
- Connect both the power supply and unit wire harness to the corresponding terminals on the terminal board.
- Ground the unit in accordance with local codes.
- Allow several extra inches of wire for making wiring connections.
- Use lock nuts to secure conduit tubes.



4 Attaching Drain-Elbow

- If the drain-elbow is used, please attach it as figure. (Note: Only for heat pump unit.)

5 Purging Method:To use vacuum pump

1. Remove the service port cap of the 3-way valve and the valve stem cap for both valves. Connect the low pressure hose from the manifold set to the 3-way valve. Connect the center hose to the vacuum pump.
2. Open the handle on low side of manifold and operate vacuum pump. If the low side gauge reaches a vacuum immediately, ensure the hoses are connected properly and the low side manifold handle is open.
3. Vacuum for a minimum of 15 minutes and check the gauge for a proper vacuum. After the completion of vacuuming, close the handle 'Lo' in gaugemanifold and stop the operation of the vacuum pump. Leave the hoses connected and check the vacuum level again in 1-2 minutes. If you lose the vacuum, ensure all connections are tight and flare the tubes again if needed.
4. Open the valve rod stem the 2-way valve counterclockwise to 90 degrees. After 6 seconds, close the 2-way valve and inspect for gas leakage.

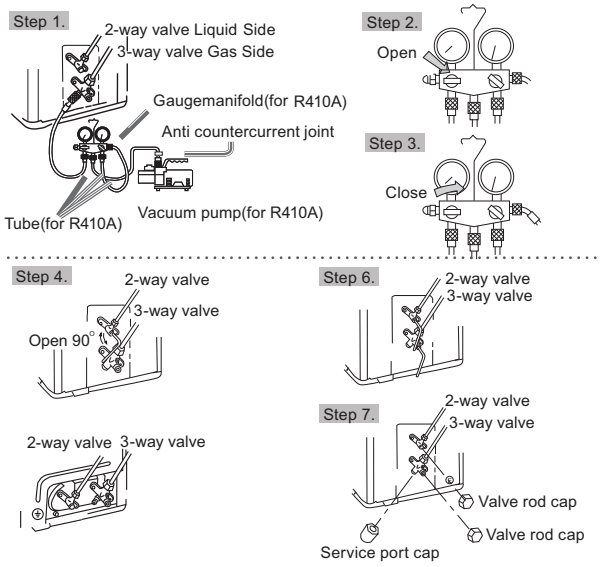
5. No gas leakage?

In case of gas leakage, tighten parts of pipe connection. If leakage stops, then proceed step 6. If leak continues, remove the refrigerant used for the leakage check and flare tubes again. Repeat vacuum and leak and if no leakage, proceed to step 6.

6. Detach the charge hose from the service port, open 2-way valve and 3-way. Turn the valve stem counterclockwise.

7. To prevent the gas leakage, replace the service port and valve stem caps securely.

8. After attaching each cap, check for gas leakage around the caps.



CAUTION

- If the refrigerant of the air conditioner leaks, it is necessary to discharge all the refrigerant. Vacuum first, then charge the liquid refrigerant into air conditioner according to the amount marked on the name plate.
- Please do not let other cooling medium, except specified one (R410A), or air enter into the cooling circulation system. Otherwise, there will be abnormal high pressure in the system casuing damage and possibly personal injuries.

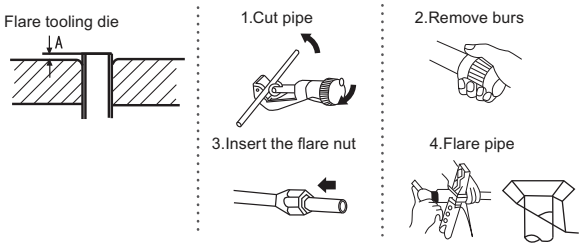
1 Power Source Installation

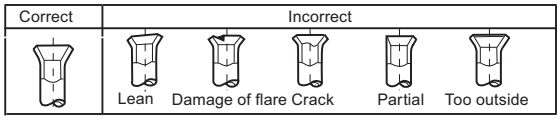
- The power source must be exclusively used for air conditioner. (Over I0A)
- In the case of installing an air conditioner in a moist place, please install an earth leakage breaker (GFCI).
- For installation in other places, use a circuit breaker as far as possible.

2 Cutting and Flaring Work of Piping

- Pipe cutting is carried out with a pipe cutter and burs must be removed.
- After inserting the flare nut, flaring work is carried out.

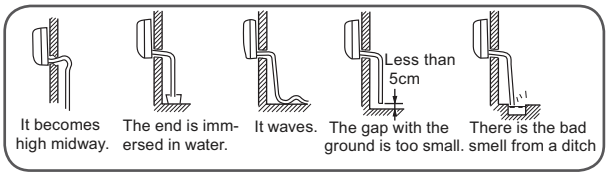
	Flare tool for R410A	Conventional flare tool	
	Clutch-type	clutch-type(Rigid-type)	Wing-nut type (Imperial-type)
A	0~0.5mm 0~1/51 inch	1.0~1.5mm 3/76~1/17 inch	1.5~2.0mm 1/17~1/8 inch





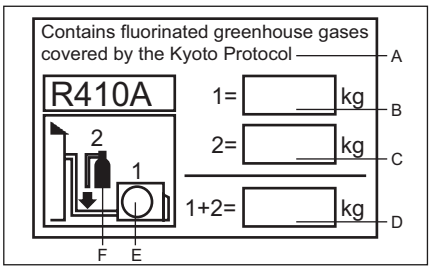
3 On Drainage

- Please install the drain hose so as to be downward slope without fail.
- Please don't do the drainage as shown below.



- Please pour water in the drain pan of the indoor unit, and confirm that drainage is carried out surely to outdoor.
- In case that the attached drain hose is in a room, please apply heat insulation to it without fail.

■ Refrigerant charge label



This product contains fluorinated greenhouse gases covered by the Kyoto Protocol. Do not vent into the atmosphere.
Refrigerant type:R410A
GWP* value:1975
GWP=global warming potential
Please fill in with indelible ink,
• 1 the factory refrigerant charge of the product
• 2 the additional refrigerant amount charged in the field and
• 1+2 the total refrigerant charge
on the refrigerant charge label supplied with the product.
The filled out label must be adhered in the proximity of the product charging port (e.g. onto the inside of the stop valve cover).
A contains fluorinated greenhouse gases covered by the Kyoto Protocol
B factory refrigerant charge of the product: see unit name plate
C additional refrigerant amount charged in the field
D total refrigerant charge
E outdoor unit
F refrigerant cylinder and manifold for charging

■ Check for Installation and Test Run

■ Please kindly explain to our customers how to operate through the instruction manual.

Check Items for Test Run

□ Put check mark ✓ in boxes

- □ Gas leak from connecting pipe?
- □ Heat insulation of connecting pipe?
- □ Are the connecting wirings of indoor and outdoor firmly inserted to the terminal block?
- □ Is the connecting wiring of indoor and outdoor firmly fixed?
- □ Is drainage securely carried out?
- □ Is the ground wire securely connected?
- □ Is the indoor unit securely fixed?
- □ Is power source voltage abided by the code?
- □ Is there any noise?
- □ Is the lamp normally lighting?
- □ Are cooling and heating (when in heat pump) performed normally?
- □ Is the operation of room temperature regulator normal?

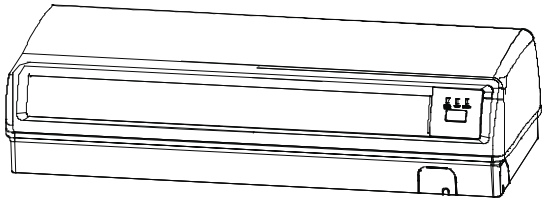
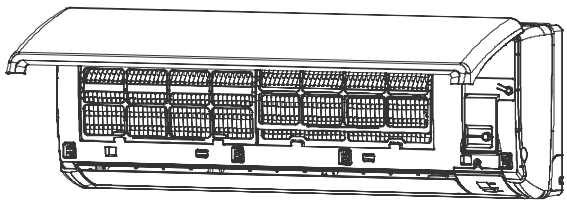
9. Removal Procedure

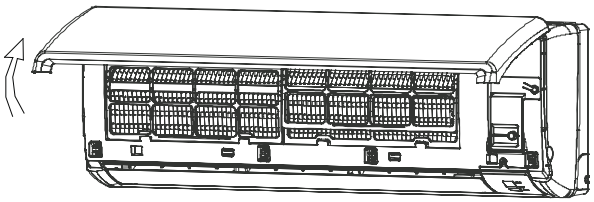
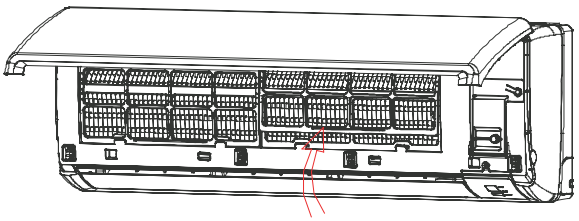
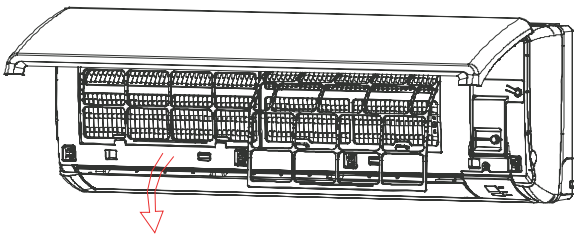
9.1 Indoor unit

9.1.1 Removal of Air Filter

Procedure

Warning Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.

Step	Procedure	Points
1. Features		
2. Remove the air filters.		
1 Hold the front panel by the tabs on the both sides and lift it until it stops with a click.		

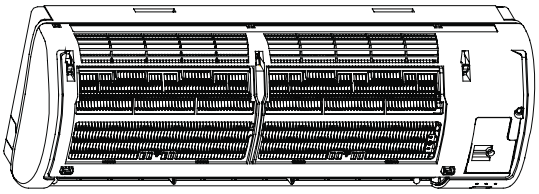
Step	Procedure		Points
2	Lift an air filter upwards slightly and then pull it out downwards.	  	■ Please embed the air filters into the unit along the grooves as installation. ■ Please embed the two hooks on air filter completely into the unit during installation.

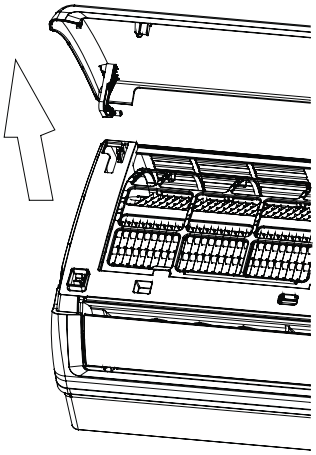
9.1.2 Removal of Front Panel

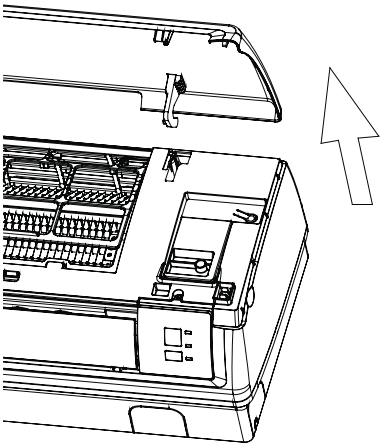
Procedure

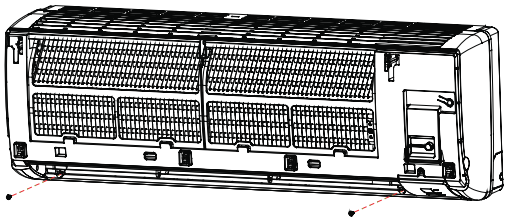
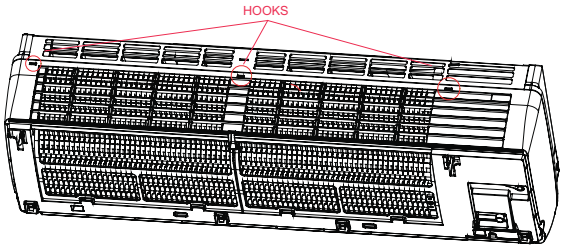
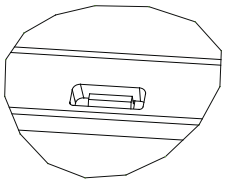
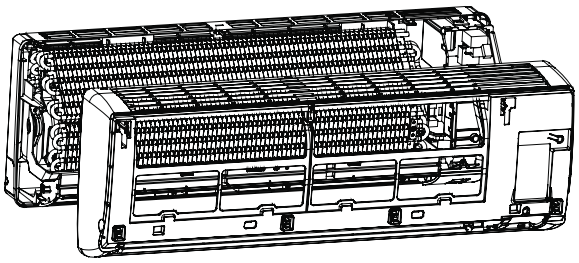
Warning Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.

Step	Procedure	Points
1. Remove the front panel.		
1	Open the front panel until it is on the horizontal position, and then release the pivots on both sides of the unit to remove the front panel.	■ Please close the panels before start the removal procedure of front grille. ■ Slide the front panel from one side to another to release each axis. ■ When assembling, align the right and left axes with grooves in turn and insert them to the end.





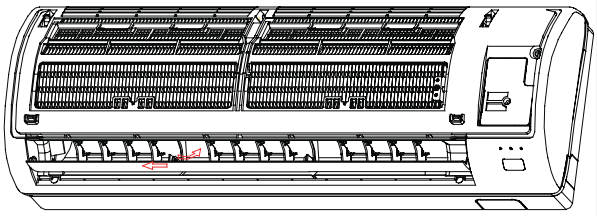
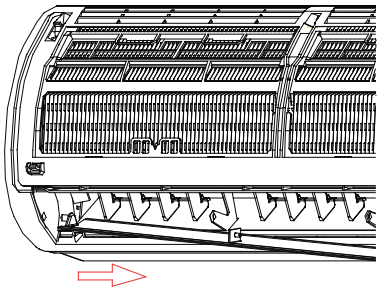
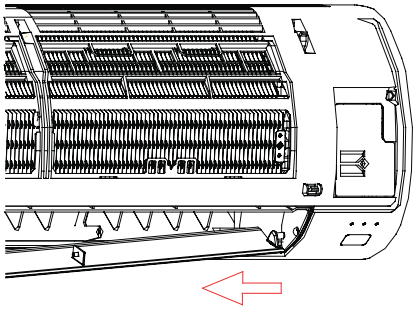


Step	Procedure		Points
2	Loosen the marked two screws		
3	Release the marked three hooks.	 	
4	Pull the front grille out horizontally and remove it.		■ When assembling, install the front grille horizontally so as not to stuff the flap inside. ■ When assembling, make sure the three hooks are caught properly.

9.1.3 Removal of horizontal flap

Procedure

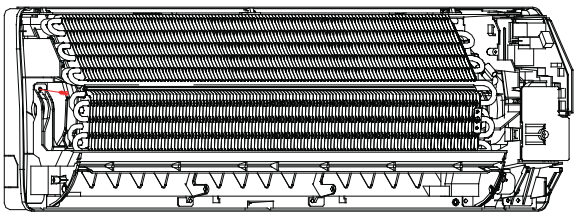
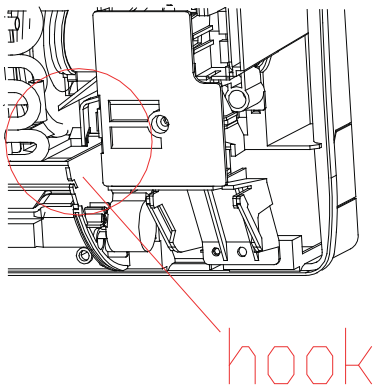
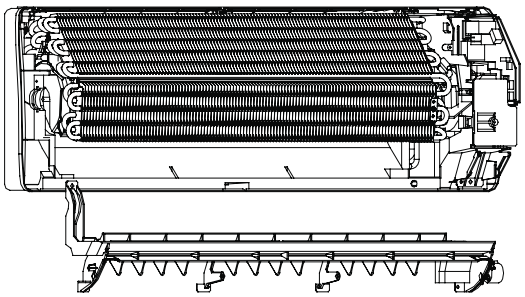
Warning Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.

Step	Procedure	Points
1. Remove the horizontal		■ The horizontal flap is single.
1 Release the center pivot.		
		■ Installation procedure 1. Since key pattern hook is provided, rotate the flap and fit it to the left pivot first. 2. Fit the flap to the right pivot. 3. Fit the flap to the center pivot.
2 Bend the horizontal blade slightly and remove it.		

9.1.4 Removal of Drain pan

Procedure

Warning Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.

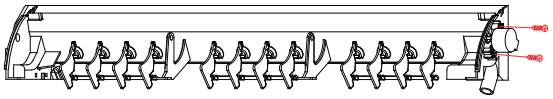
Step	Procedure	Points
1. Remove the Drain pan		
		
1	Loosen the marked screws under the screw covers	
		
2	Lift up the lower part of the grille to release the hook on the upper backside.	
		
3	Rotate the upper part of the grille to release the hook on the lower back side. Pull out the drain pan	

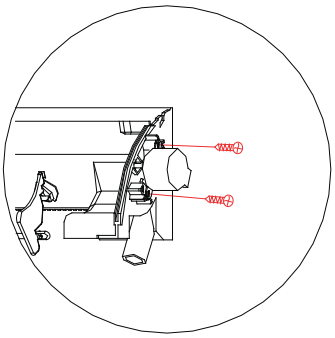
9.1.5 Removal of Vertical Blades and Swing Motor

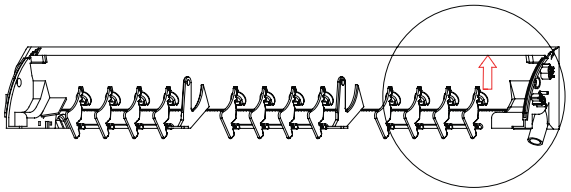
Procedure

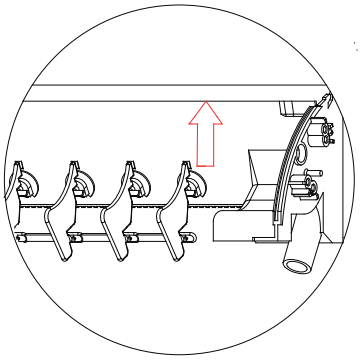
Warning Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.

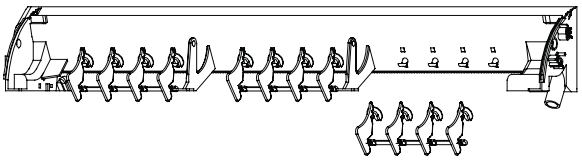
Step	Procedure	Points
■ Remove the assembly of the outlet grille.		
1. Remove the vertical blades.		
1	Push the hooks on the back of the vertical blades and remove.	







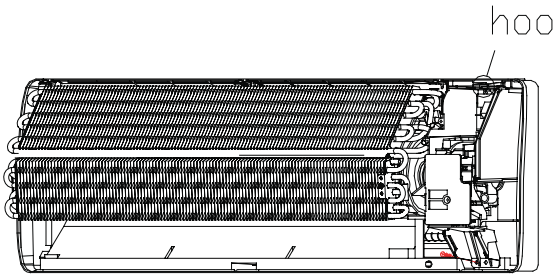
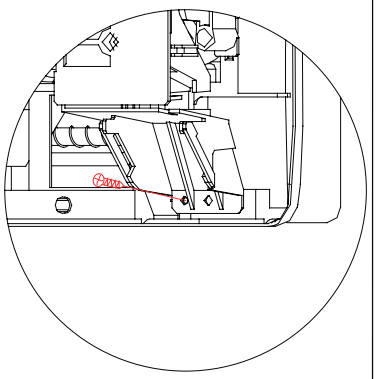
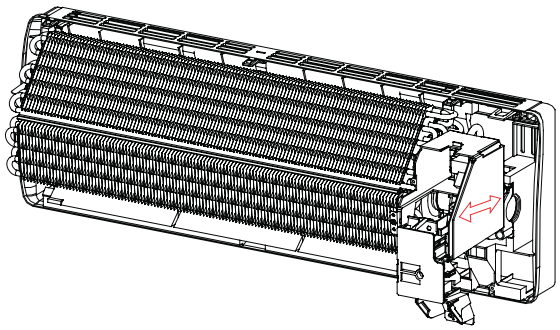




9.1.6 Removal of Electrical Box

Procedure

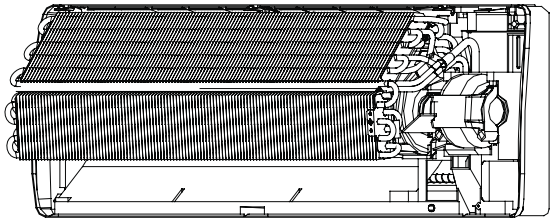
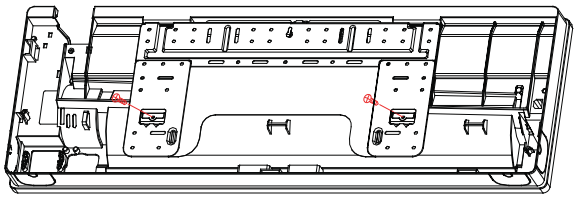
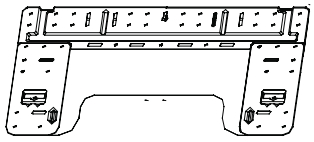
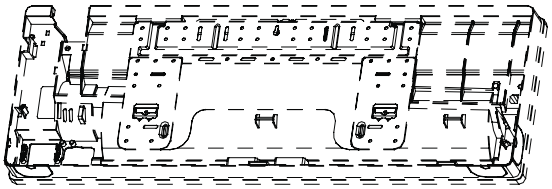
Warning Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.

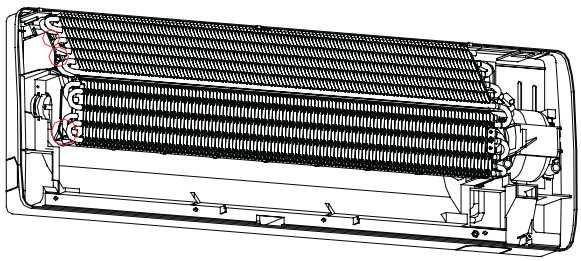
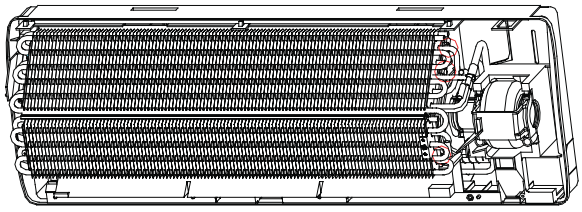
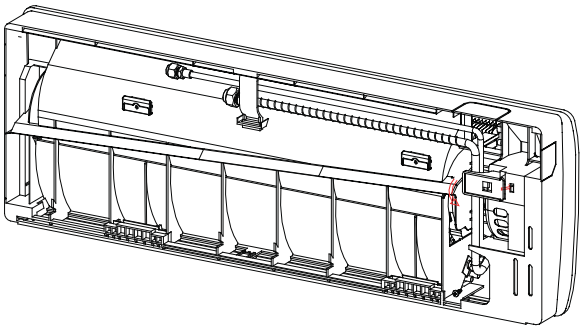
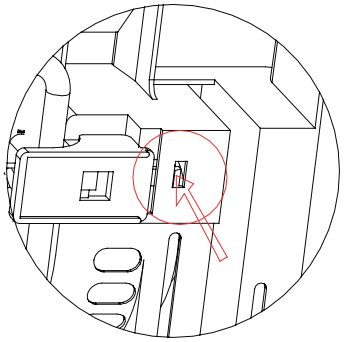
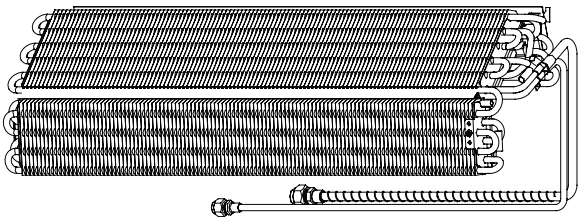
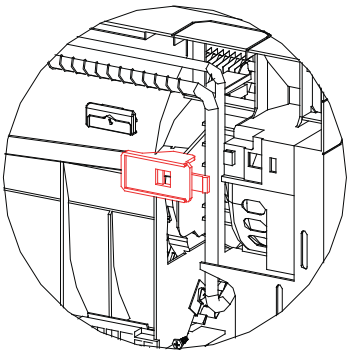
Step	Procedure	Points
■ Remove the front grille.		■ Discharge the static electricity from your body before touching the electrical parts like signal receiver PCB. It may cause malfunction of PCB.
1. Remove the electrical box.		
1 Loosen the screw of the drip proof plate.	 	
2 Lift and remove the electrical box.		■ When assembling, insert the left hook of the drip proof plate into the hem plate of the heat exchanger.

9.1.7Removal of Heat Exchanger

Procedure

Warning Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.

Step	Procedure	Points
		■ You can detach the indoor unit without removing the assembly of the outlet grille.
1	Loosen the screws fixed to the installation plate.	Caution If gas leaks, repair the spot of leaking, then collect all refrigerant from the unit. After conducting vacuum drying, recharge proper amount of refrigerant.
2	Loosen the marked hooks	Caution Do not contaminate any gas (including air) other than the specified refrigerant (R410A), into refrigerant cycle. (Contaminating of air or other gas causes abnormal high pressure in refrigerating cycle, and this results in pipe breakage or personal injuries.)
		
3	Loosen the marked screws and remove mounting plate	■ Pay attention so that the residual water in the drain will not make the floor wet. ■ In case that a drain hose is buried inside a wall, remove it after the drain hose in the wall is pulled out. ■ Use two wrenches to disconnect pipes. ■ When disconnecting pipes, cover every nozzle with caps so as not to let dust and moisture in.
		
		

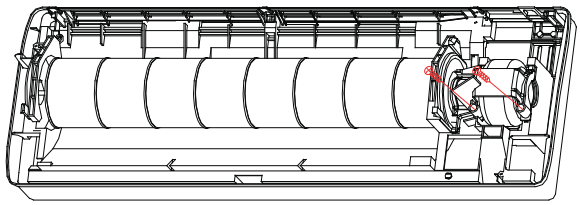
Step	Procedure	Points
1	Release the hooks	 
2	Release the hook from the back side. Lift up the lower part of the fixture plate and remove it.	 
6	Remove the heat exchanger	 

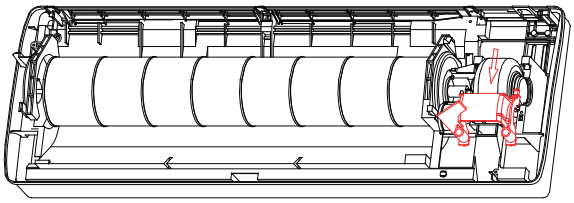
9.1.8 Removal of Fan Rotor and Fan Motor

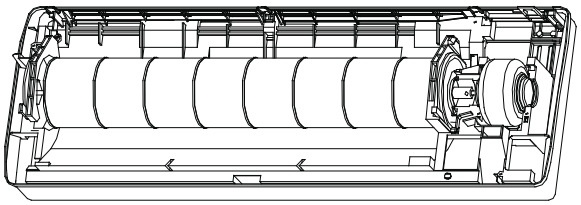
Procedure

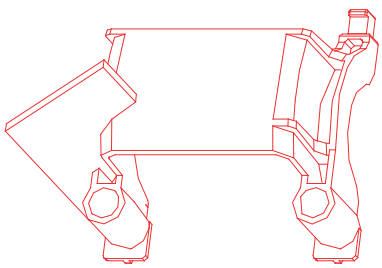
Warning Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.

Step	Procedure	Points
1. Remove the right side plate.		
1	Loosen the 2 screws.	
2	Remove the fixing plate.	

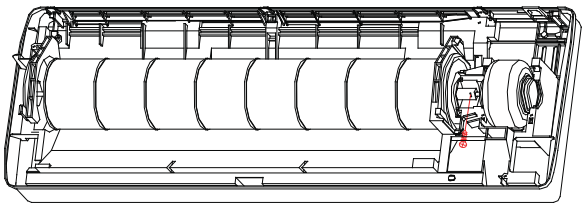


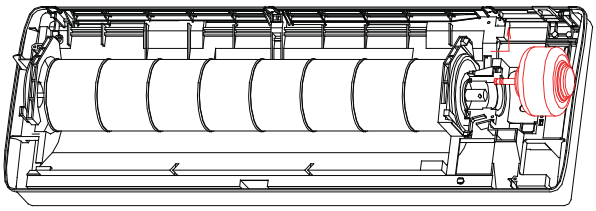


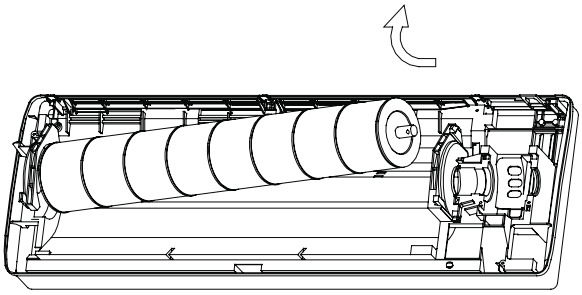


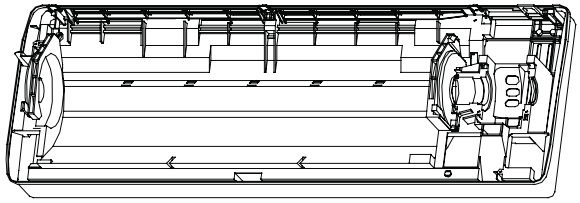


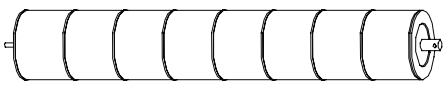
Step	Procedure	Points
3. Remove the fan.		
1	Loosen the marked screw.	
2	Lift up the right part of the fan motor and slide it to the rightward to remove.	
3	Lift up the right part of the fan and remove it	











Outdoor unit

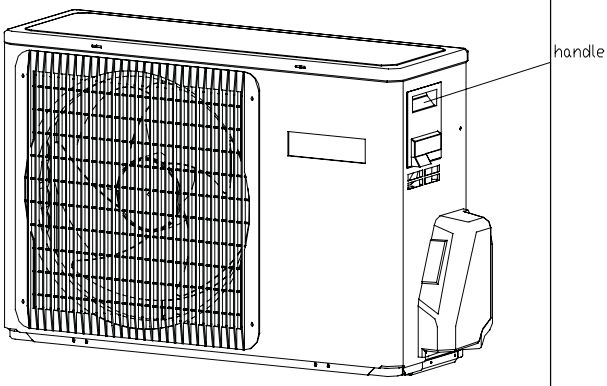
9.2 Outdoor unit

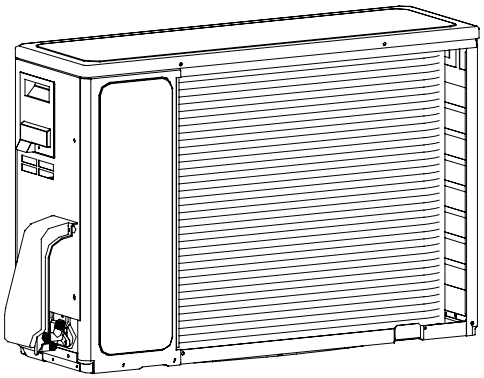
9.2.1 Removal of Outdoor panel

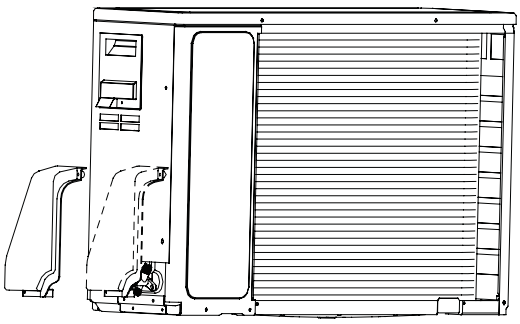
Procedure

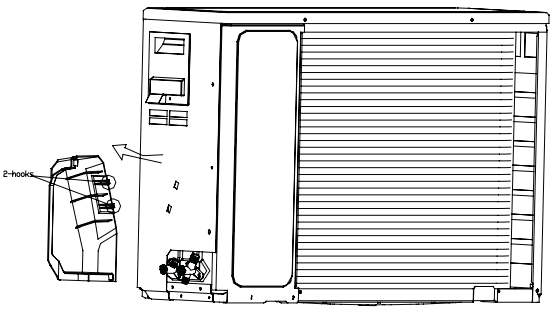
Warning Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.

Step	Procedure	Points
1. Features		
1	Loosen the screw of the stop valve cover. Pull down the stop valve cover and remove it.	■ Be careful not to cut your finger by the fins of the heat exchanger. ■ The stop valve cover is united with the shelter. ■ When assembling, make sure to fit the 5 hooks.

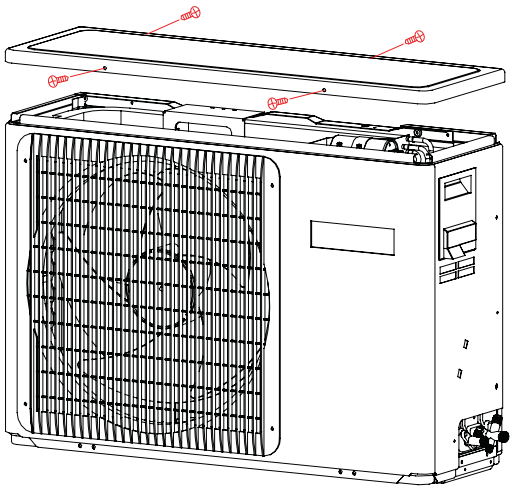


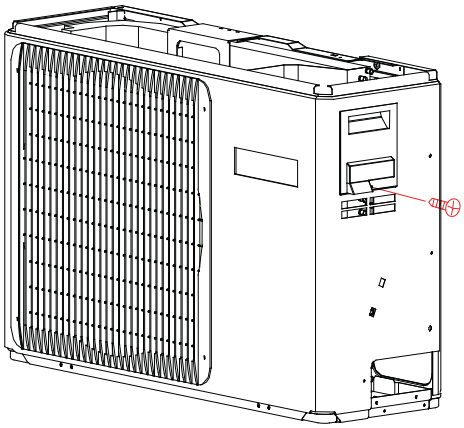


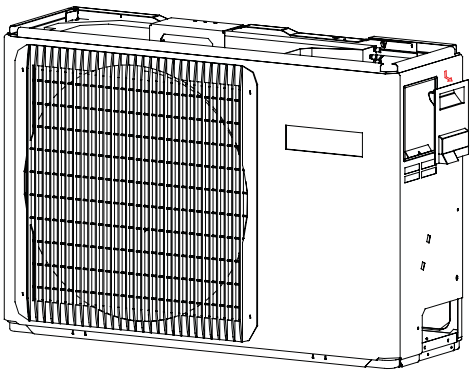




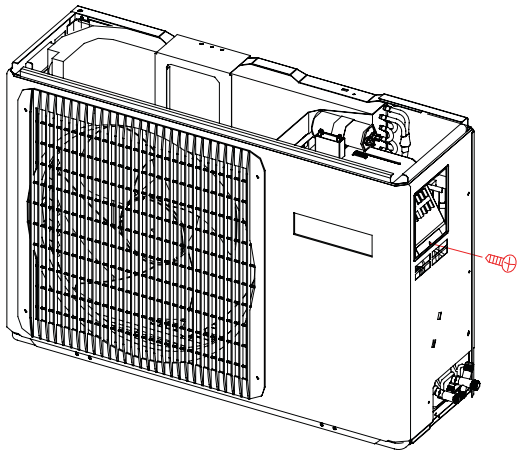
Step	Procedure	Points
2. Remove the panels.		
1	Loosen the 4 screws and lift the top panel	
2	Loosen the service cover screw and remove the service cover.	

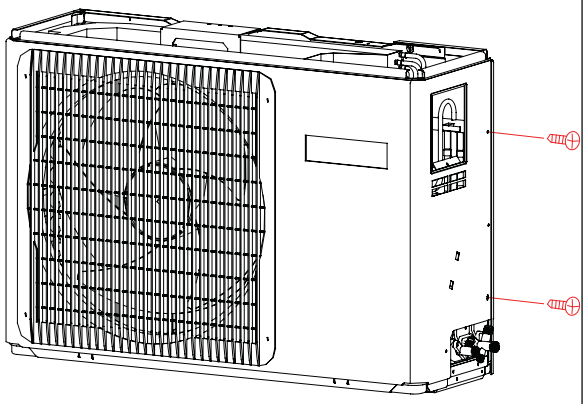


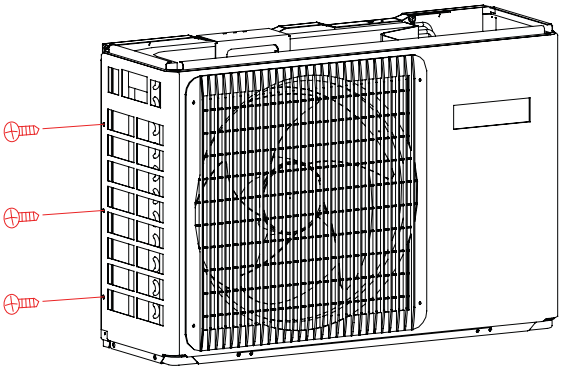


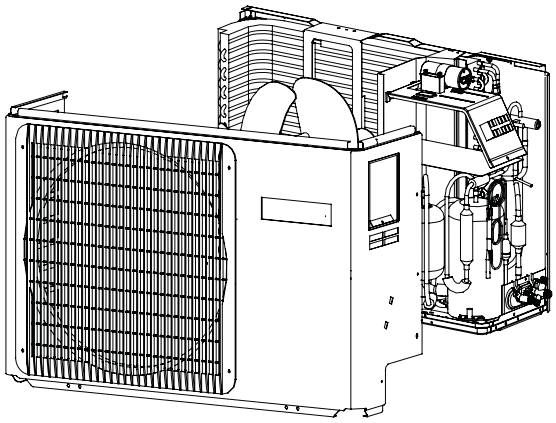
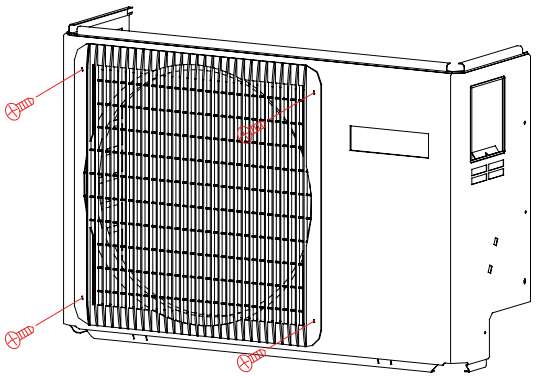
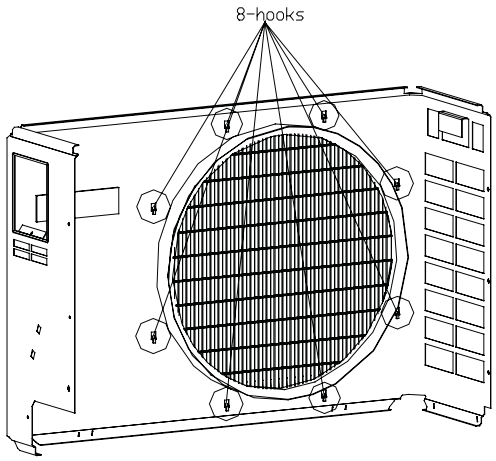


Step	Procedure	Points
3	Loosen the screws of the panel.	







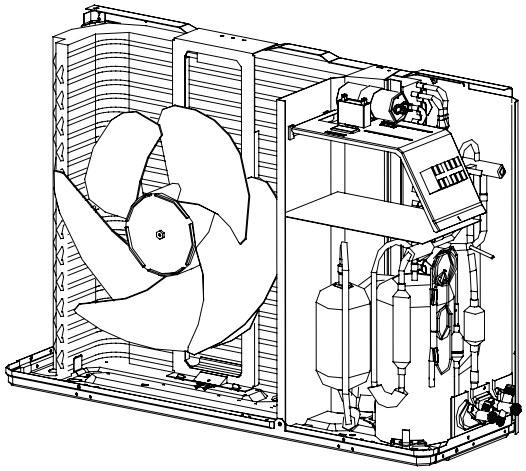
Step	Procedure	Points
4	Pull and remove the front panel.	
		
3.	Remove the outlet grille	
1	Unscrew the four marked screws	
		
2	Push the eight hooks on the inside back of front panel,then pull the outlet grille off.	
		

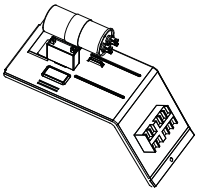
9.2.2 Removal of Electrical Box

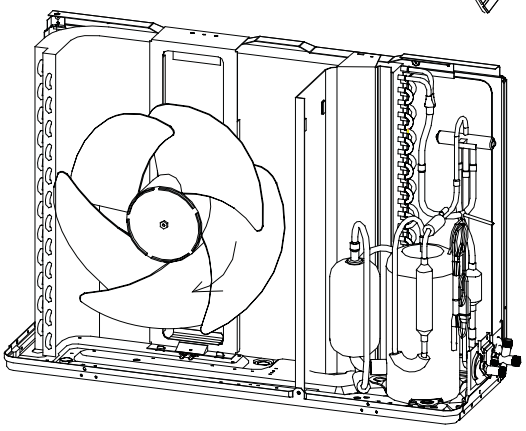
Procedure

Warning Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.

Step	Procedure	Points
1	Remove the fixing screws Then lift the electrical box	



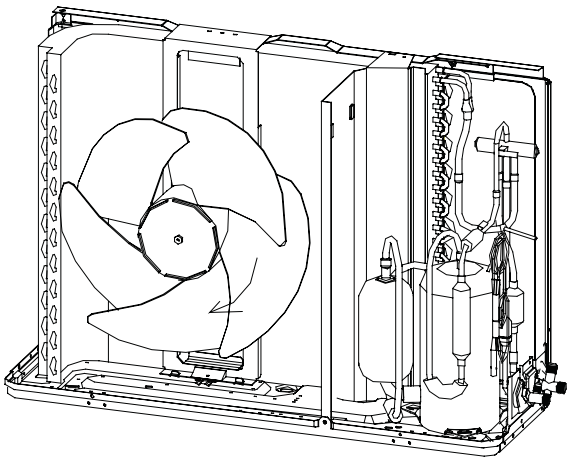
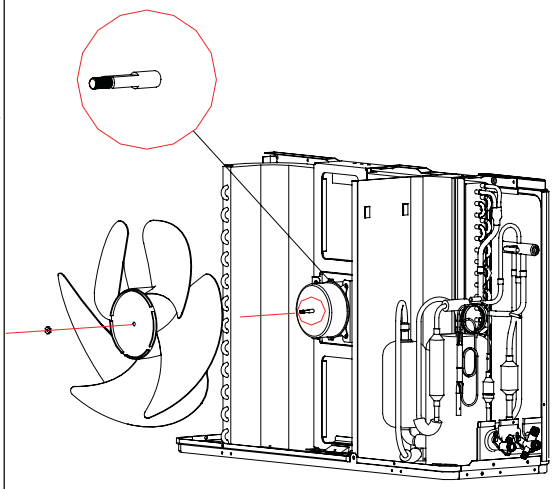
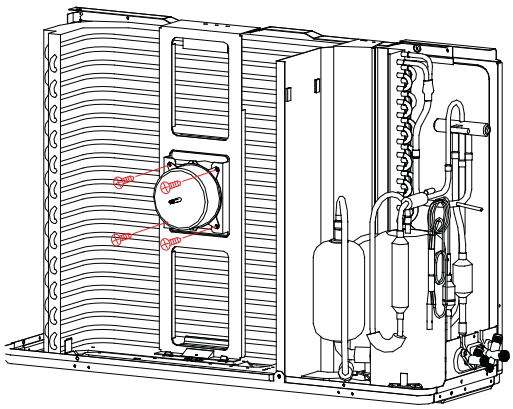
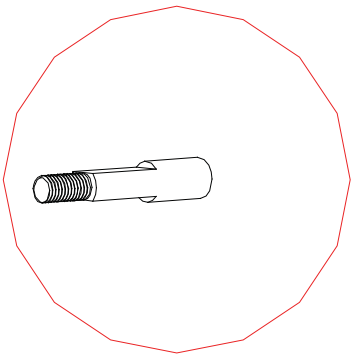




9.2.3 Removal of Fan and Fan Motor

Procedure

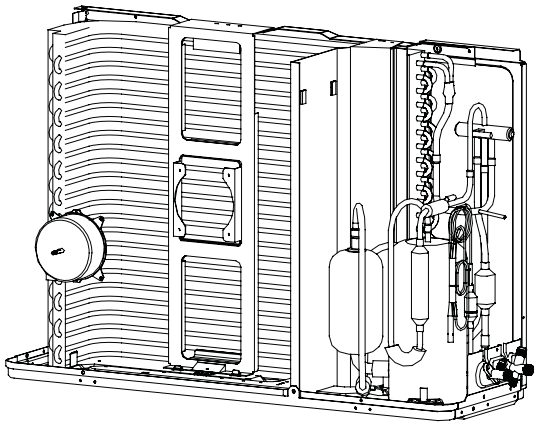
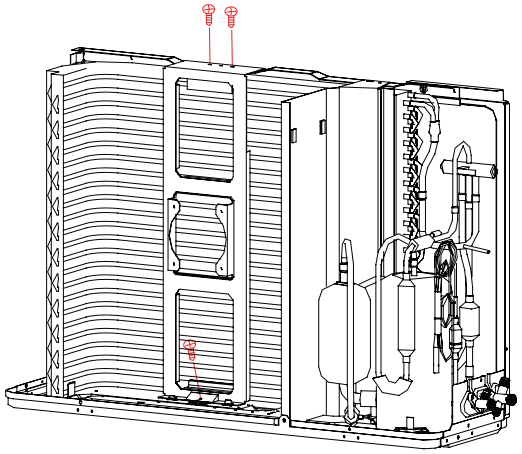
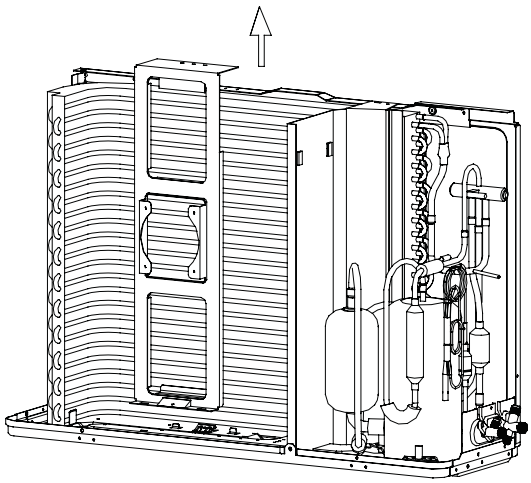
Warning Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.

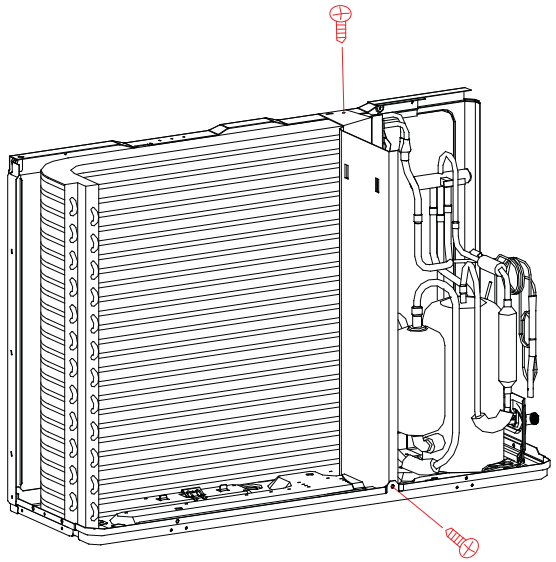
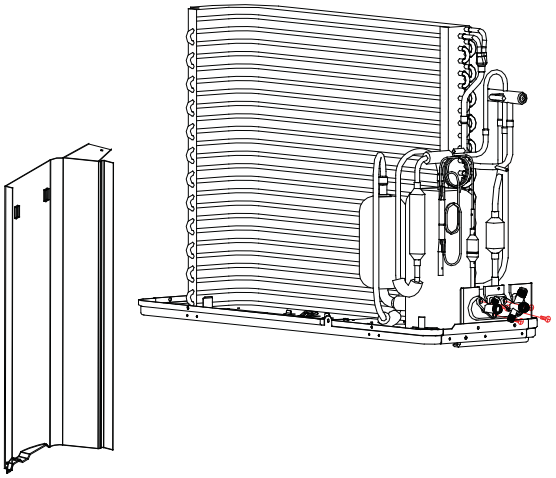
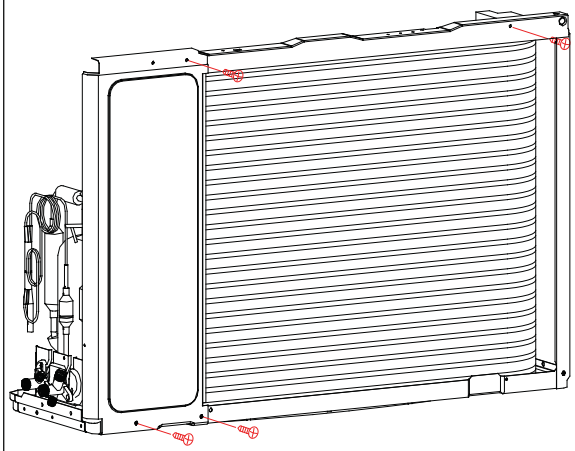
Step	Procedure		Points
1	Loosen the fixing screw and remove the fan	  	 ■ Put the lead wire through the back of the motor when assembling. (so as not to be entangled with the propeller fan)

9.2.4 Removal of fan motor bracket and partition

Procedure

Warning Be sure to wait 10 minutes or mo
before disassembling work.

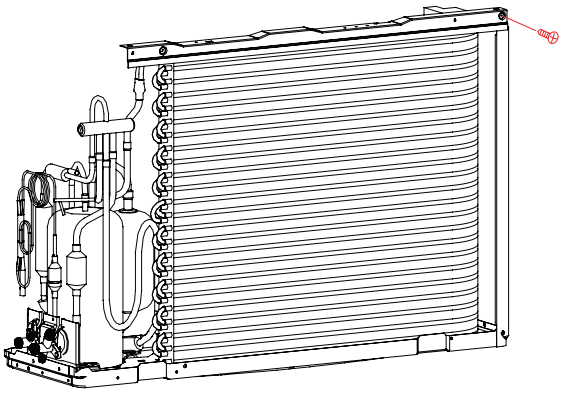
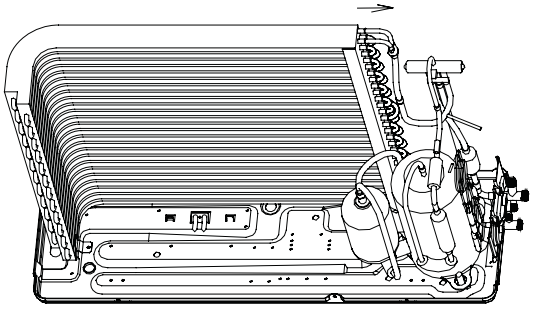
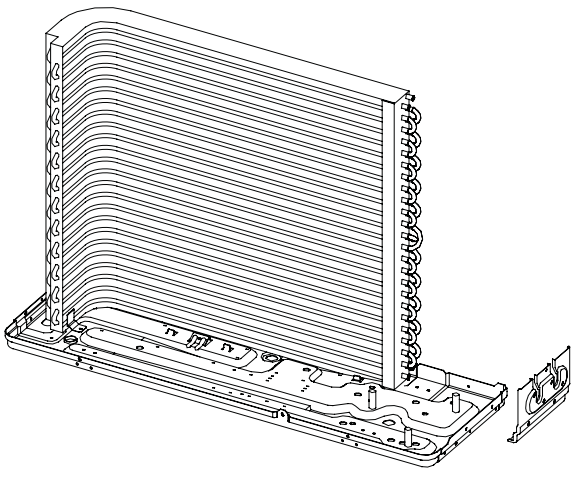
Step	Procedure	Points
1	Loosen the fixing screws and lift the fan motor bracket .   	

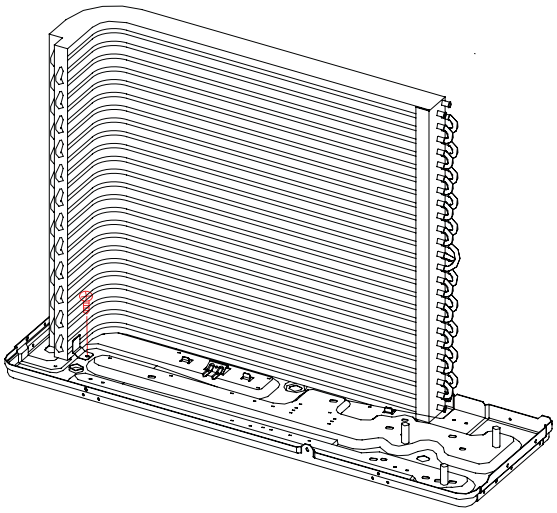
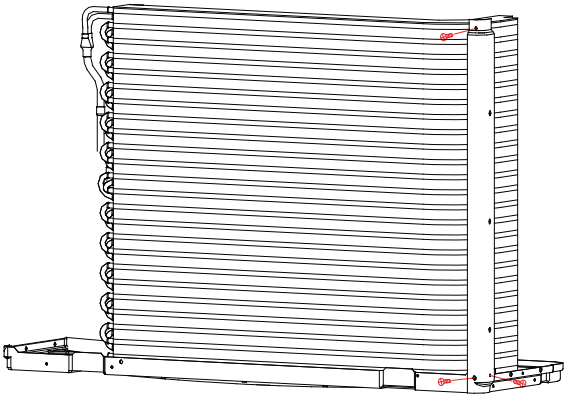
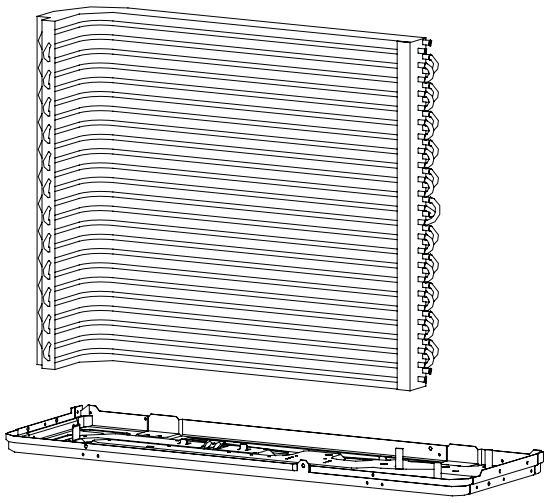
Step	Procedure		Points
3	Loosen the 2 screws		
4	The partition plate has a hook on the lower side.Lift and pull the partition plate to remove.		■ When assembling ,fit the lower hook into the bottom frame .
5	Loosen the marked fixing screws		

9.2.5 Removal of compressor and heat exchanger

Procedure

Warning Be sure to wait 10 minutes or more after tu
before disassembling work.

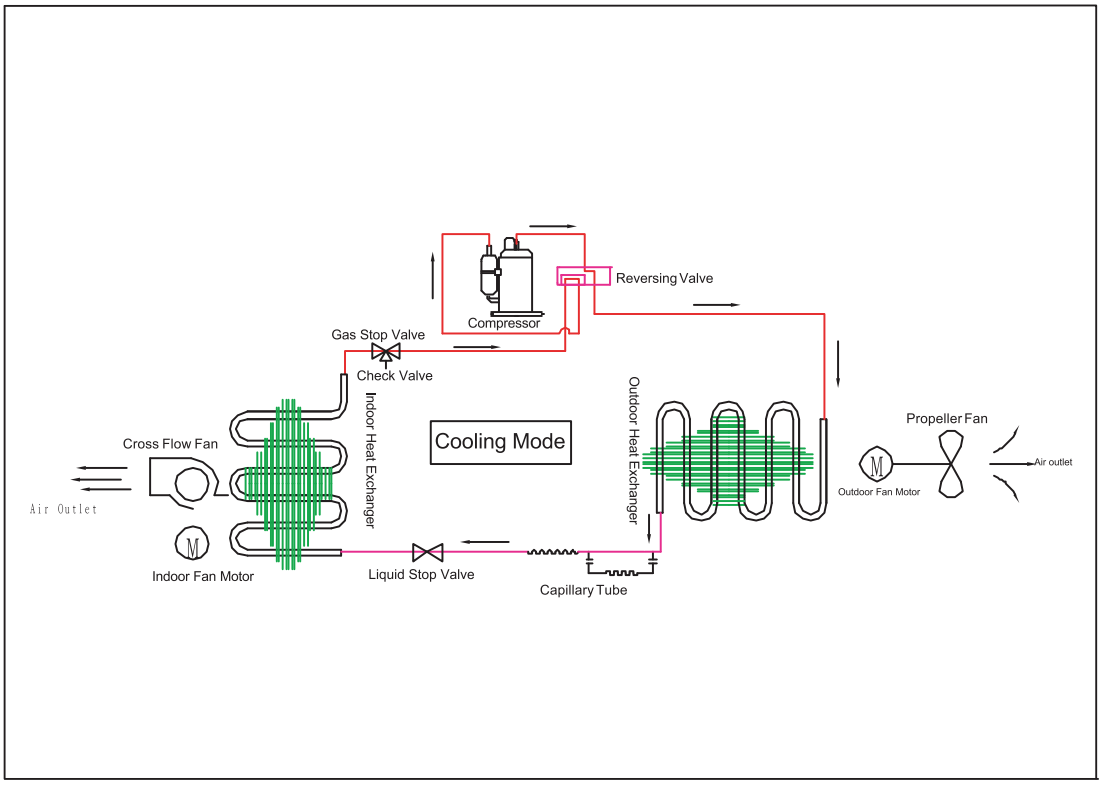
Step	Procedure	Points
1	Loosen the marked screw . 	
2	Cut down the conecting pipe and pull out the compressor and remove the valve bracket .  	

Step	Procedure	Points
3	Loosen the marked fixing screw . 	
4	Loosen the fixing hook and remove the heat exchanger .  	

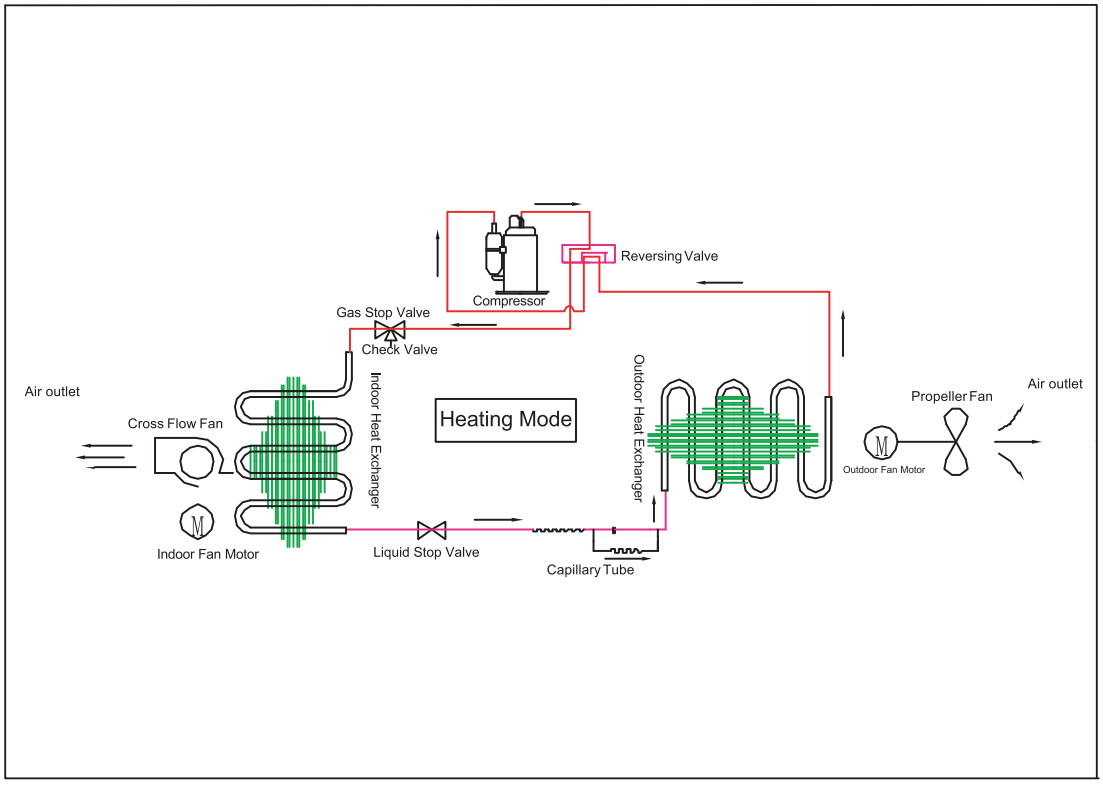
10. Appendix

10.1 Piping Diagrams

Cooling mode



Heating mode

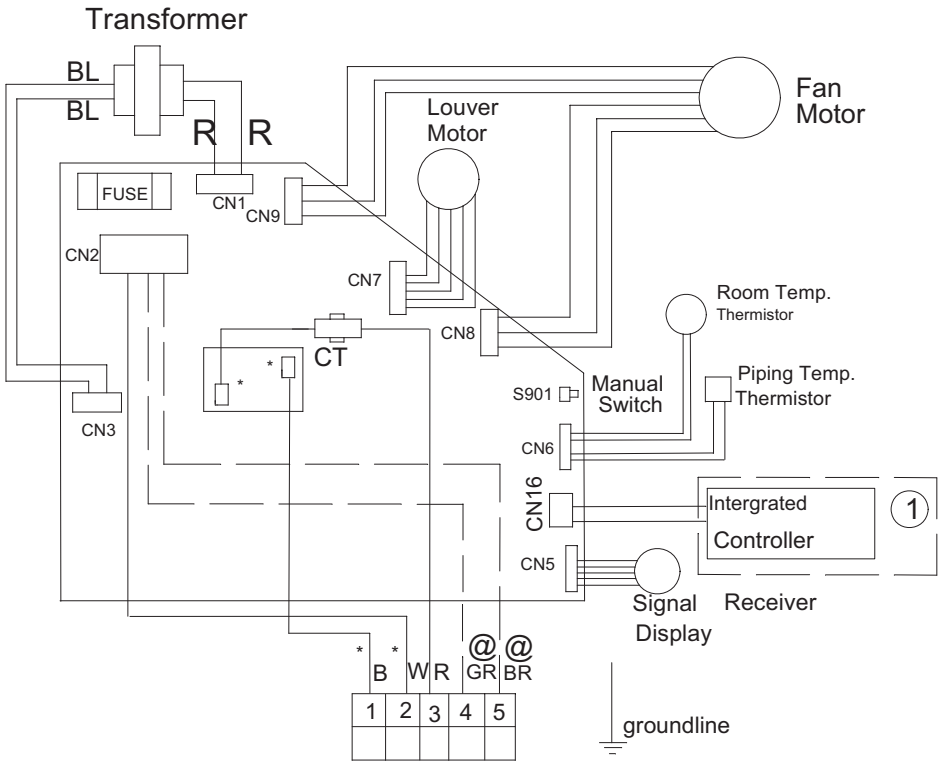


10.2 Wiring Diagrams

10.2.1Indoor wiring diagram of HSU09XHK

0010539918

WIRING DIAGRAM OF SPLIT UNIT,INDOOR



B:BLACK
R:RED
W:WHITE
BR:BROWN
GR:GRAY

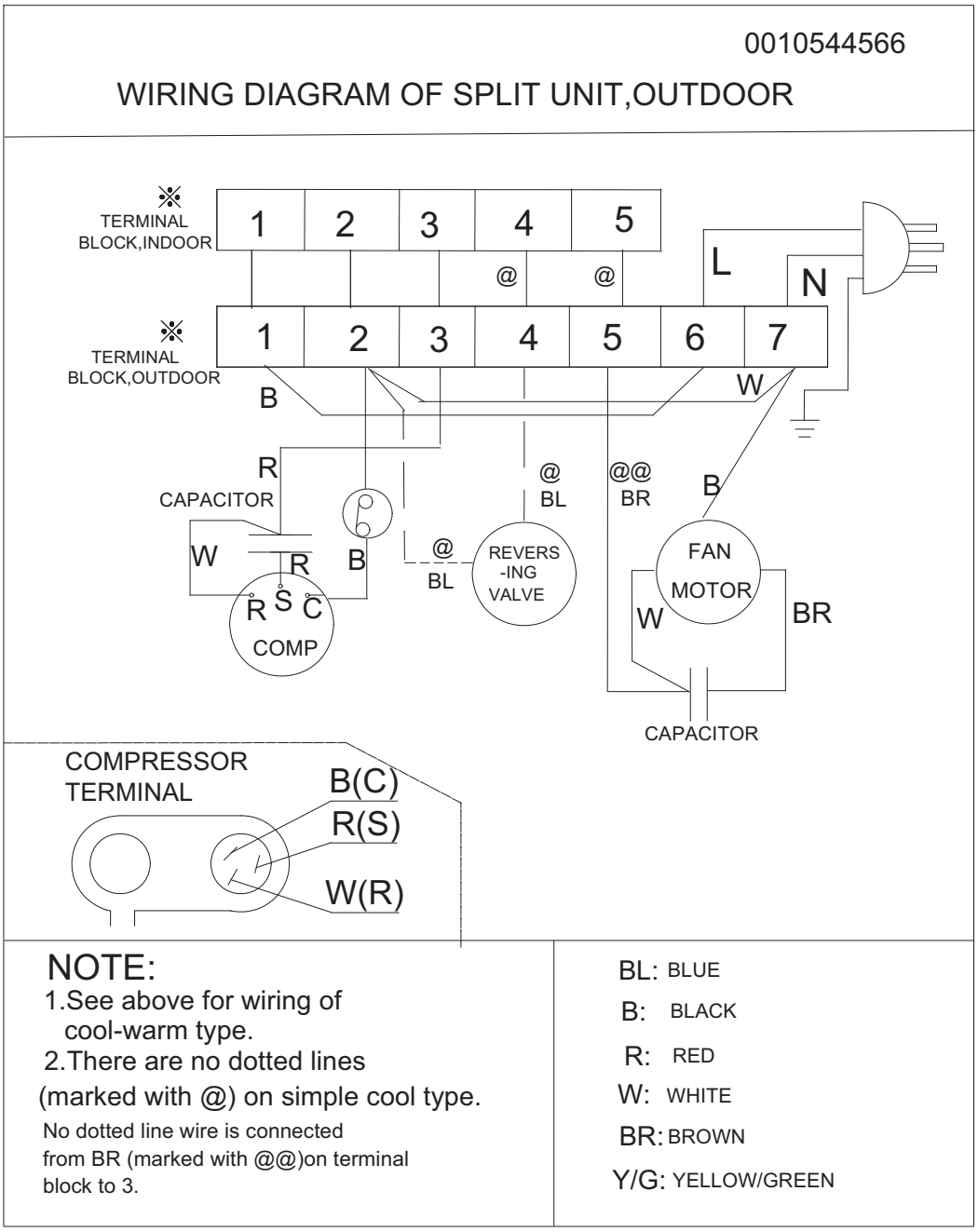
Note:

1.HEAT PUMP have dotted line(signed @)

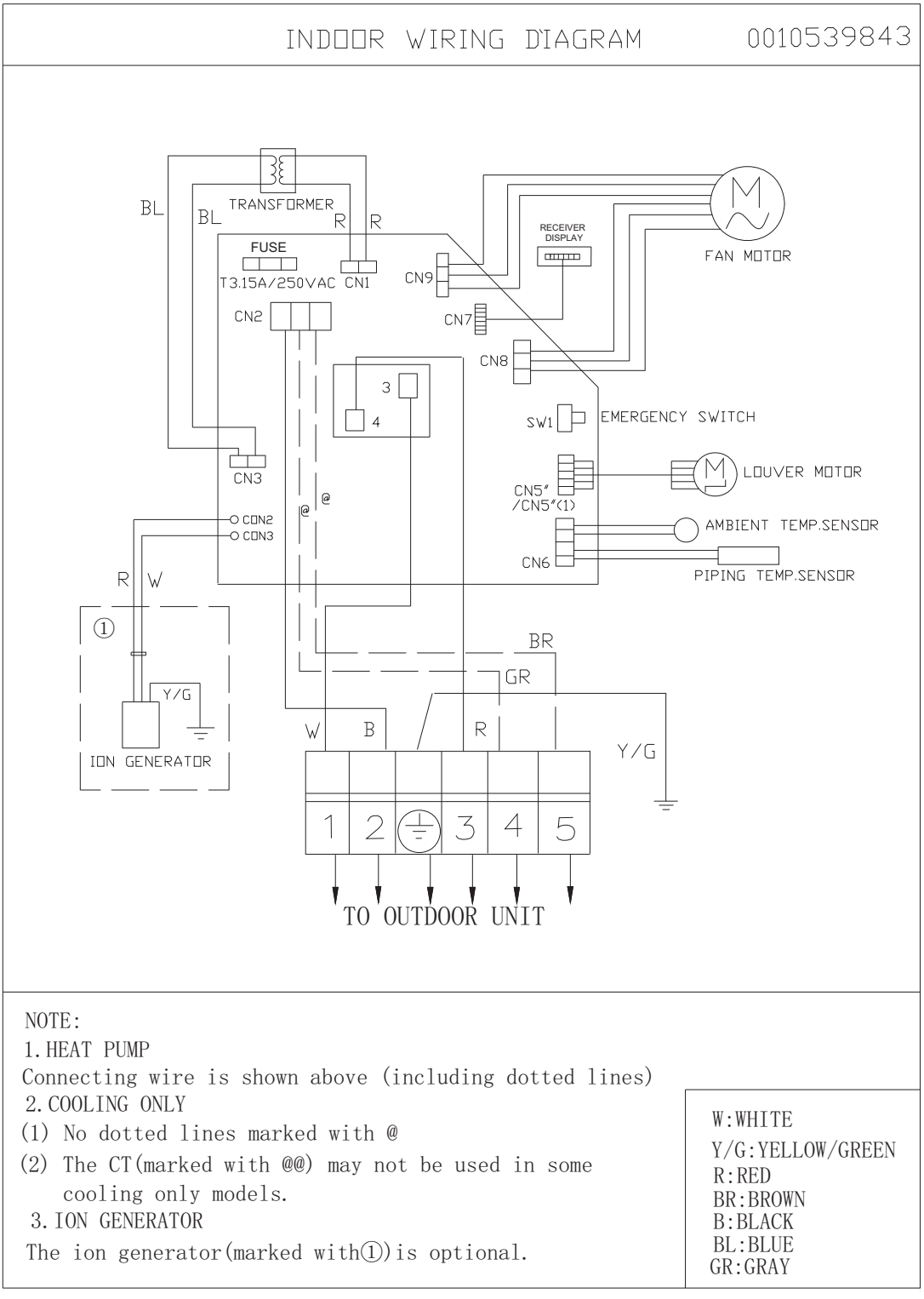
2.COOLING ONLY No dotted line.

3.You can choose the part in dashed frame or not.

10.2.2 Outdoor wiring diagram of HSU09XHK



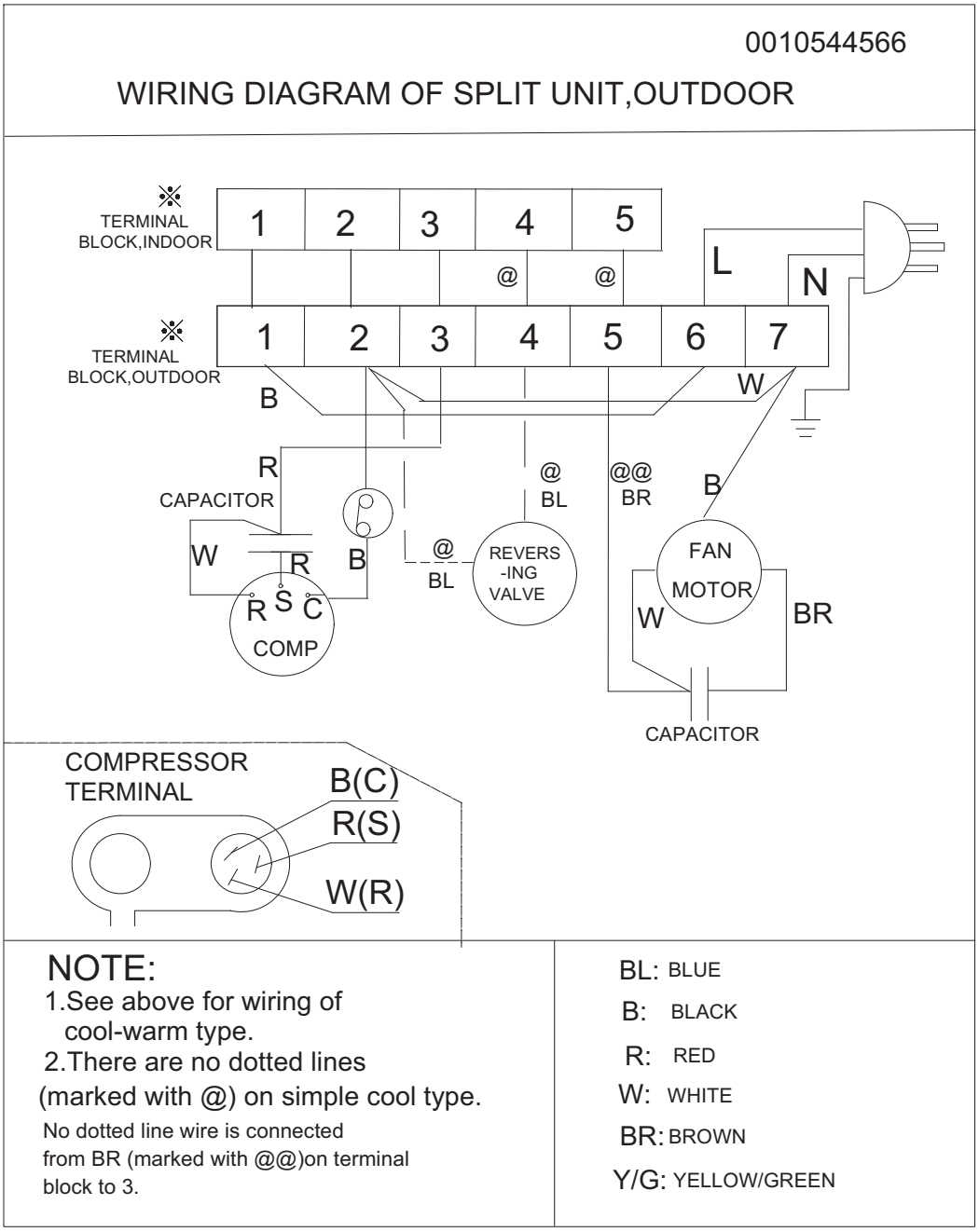
10.2.3 Indoor wiring diagram of HSU12XHK



NOTE:
1. HEAT PUMP
Connecting wire is shown above (including dotted lines)
2. COOLING ONLY
(1) No dotted lines marked with @
(2) The CT(marked with @@) may not be used in some cooling only models.
3. ION GENERATOR
The ion generator(marked with①)is optional.

W:WHITE
Y/G:YELLOW/GREEN
R:RED
BR:BROWN
B:BLACK
BL:BLUE
GR:GRAY

10.2.4 Outdoor wiring diagram of HSU12XHK



NOTE:

1.See above for wiring of cool-warm type.

2.There are no dotted lines (marked with @) on simple cool type.

No dotted line wire is connected from BR (marked with @@)on terminal block to 3.

BL: BLUE

B: BLACK

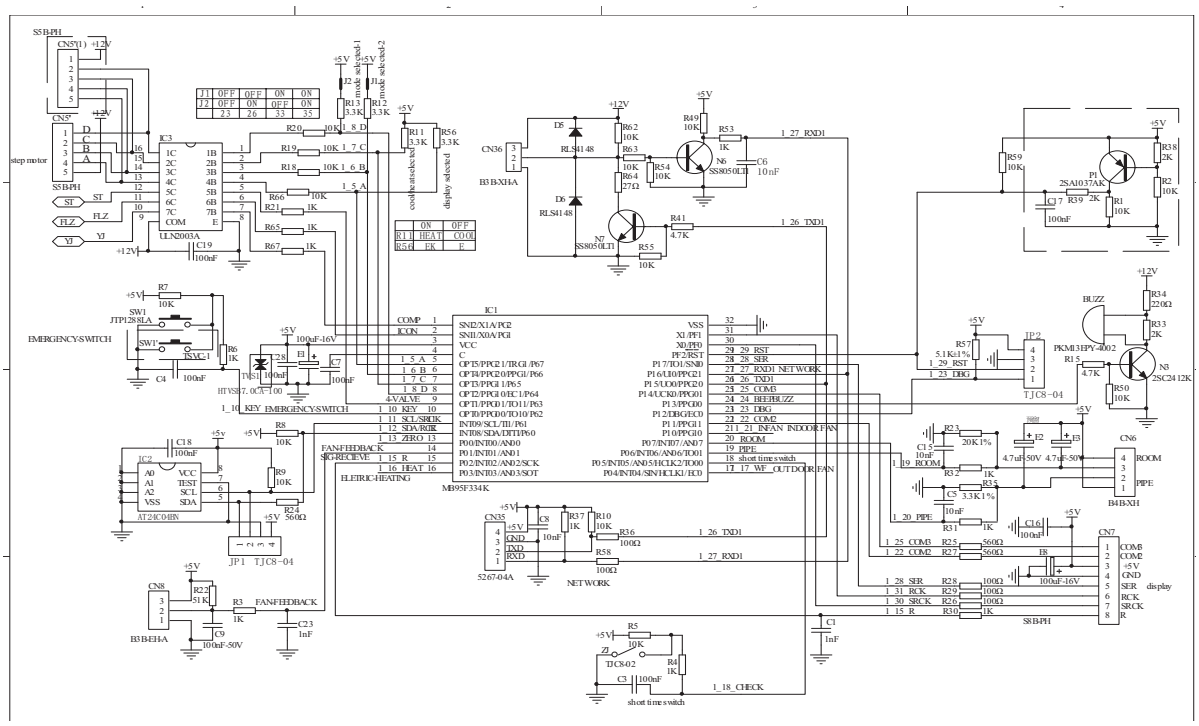
R: RED

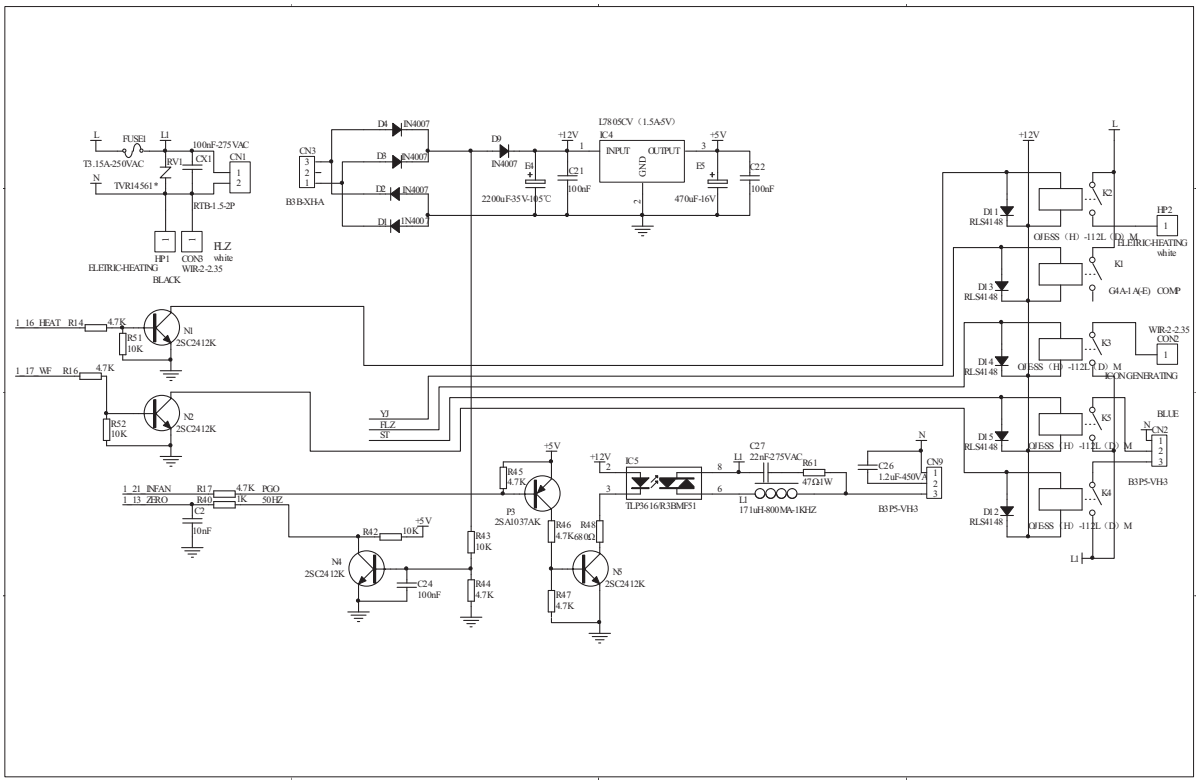
W: WHITE

BR: BROWN

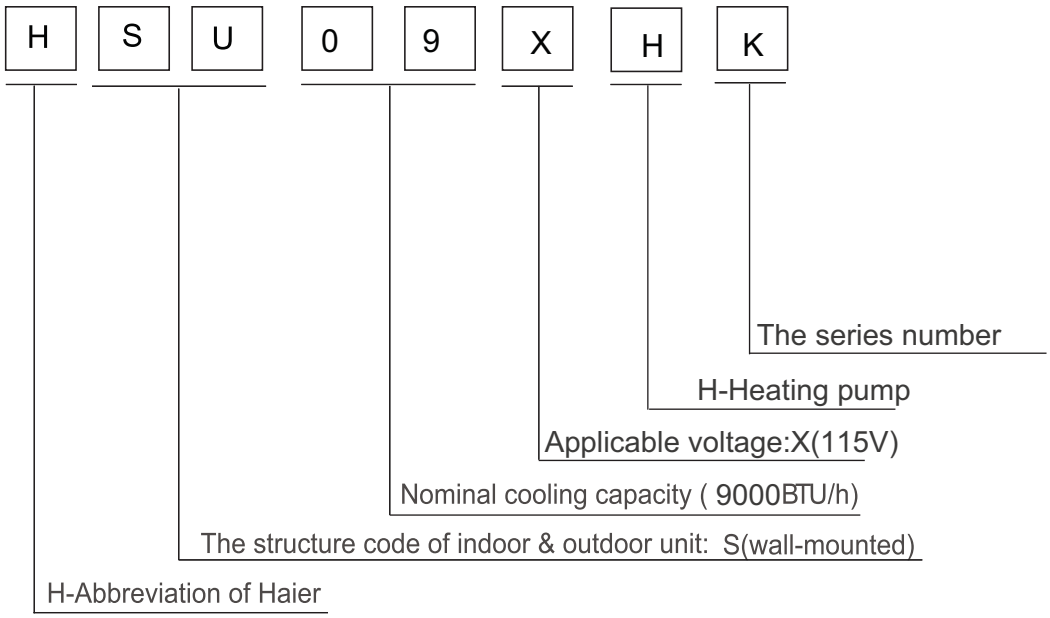
Y/G: YELLOW/GREEN

10.3 Circuit Diagram





11.Description of coding rules of unit model



HSU12XHK means 12000BTU.

Examples:

HSU-07RD03/R1,It represents wall-mounted split type heat pump air conditioner .The cooling capacity is 7000BTU/h,and the power supply is 220-230V/50Hz,”D” means the developing sequence,and"R1" means the refrigerant is R407C.

Sincere Forever

Haier Group

Haier Industrial Park, No.1, Haier Road

266101, Qingdao, China_

E-mail: hractech@haier.com

Tel: +86 532 87636957

Http://www.haier.com

Edited by: Cui Wenjuan
Guo Liang

Signed by: Wang Fei

Approved by: Wu Hongjin