

8. Installation

Preparation

Necessary Tools for Installation

- Driver
- 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

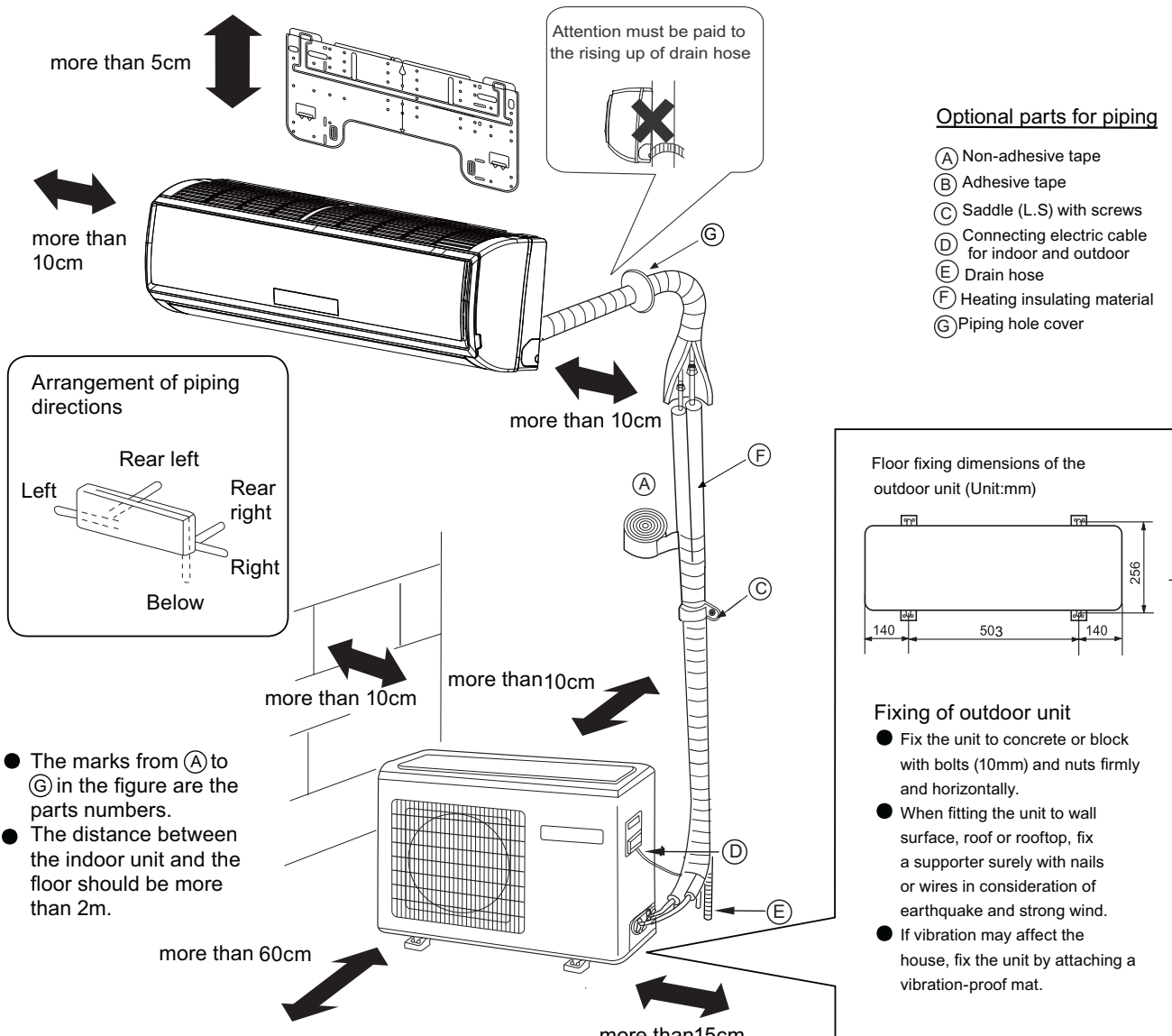
- Place, robust not causing vibration, where the body can be supported sufficiently.
- Place, not affected by heat or steam generated in the vicinity, where inlet and outlet of the unit are not disturbed.
- Place, possible to drain easily, where piping can be connected with the outdoor unit.
- Place, where cold air can be spread in a room entirely.
- Place, nearby a power receptacle, with enough space around. (Refer to drawings).
- Place where the distance of more than 1m 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 lightened.

Outdoor Unit

- Place, which is less affected by rain or direct sunlight and is sufficiently ventilated.
- Place, possible to bear the unit, where vibration and noise are not increased.
- Place, where discharged wind and noise do not cause a nuisance to the neighbors.
- Place, where a distance marked \leftrightarrow is available as illustrated in the above figure.

Drawing for the installation of indoor and outdoor units

The models adopt HFC free refrigerant R410A











Please be subject to the actual product purchased , the above picture is just for your reference.

Read this manual before installation

Explain sufficiently the operating means to the user according to this manual

Accessory parts

Remote controller (1)	Drain hose (1) 
R-03 dry battery (2) 	Cushion (4) 
Mounting plate (1) 	Drain-elbow (1) 
Plastic cap (4) 	Pipe supporting plate (1) 
Ø4X25 Screw (4) 	

Selection of pipe

Liquid pipe (Ø)	6.35mm(1/4")
Gas pipe (Ø)	12.7mm(1/2")

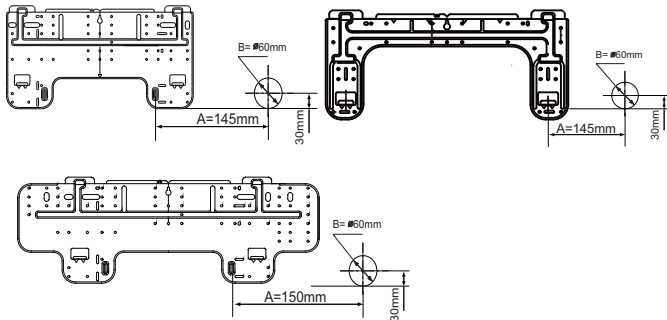
NOTE: The thickness of the pipe must be 0.8mm at least.

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 neighboring pillars 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 securely the plate with the attachment steel nail.
3. Find the wall hole location A using a measuring tape

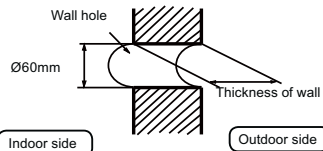


When the mounting plate is fixed side bar and lintel

- Fix to side bar and lintel a mounting bar, Which is separately sold, and then fasten the plate to the fixed mounting bar.
- Refer to the previous article, "When the mounting plate is first fixed", for the position of wall hole.

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

- Make a hole of 60 mm in diameter, slightly descending to outside the wall.
- Install piping hole cover and seal it off with putty after installation



(Section of wall hole) (G) Piping hole pipe

3 Installation of the Indoor Unit

Drawing of pipe

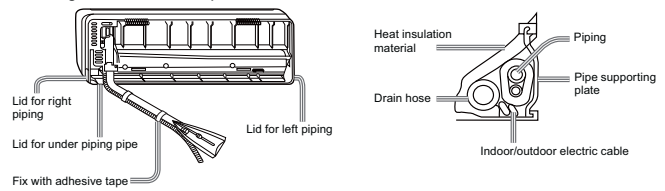
[Rear piping]

- 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 dent 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 closely, and make sure fixing with adhesive tape



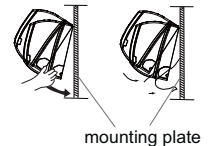
- Indoor/outdoor electric cable and drain hose must be bound with refrigerant piping by protecting tape.

[Other direction piping]

- 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 crash pipes.
- Connect beforehand the indoor/outdoor electric cable, and then pull out the connected to the heat insulation of connecting part specially.

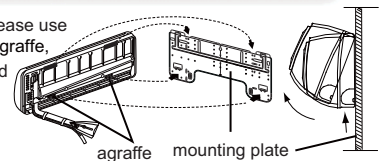
Fixing the indoor unit body

- Hang surely the unit body 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 aslant 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 arise the body to leave aagraffe, then lift the bottom of the body outward slightly and lift the unit aslant 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.



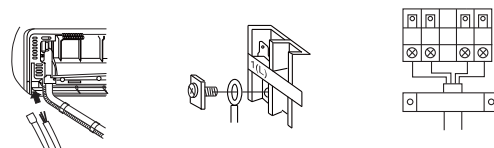
When connecting the cable after installing the indoor unit

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.



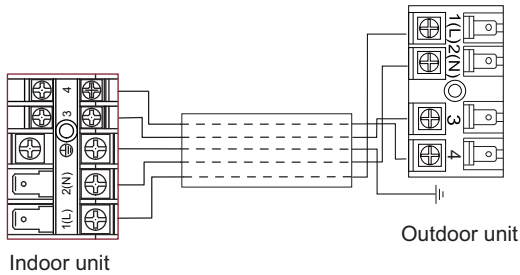
When connecting the cable before installing the indoor unit

- Insert the cable from the back side of the unit, then pull it out on the front side.
- Loosen the screws and insert the cable ends fully into terminal block, then tighten the screws.
- Pull the cable slightly to make sure the cables have been properly inserted and tightened.
- After the cable connection, never fail to fasten the connected cable with the wiring cover.



Note

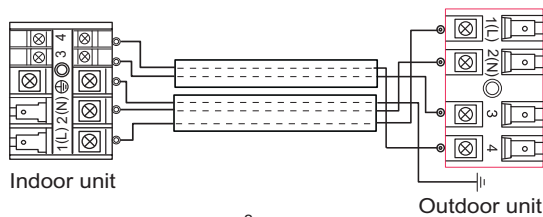
When connecting the cable, confirm the terminal number of indoor and outdoor units carefully. If wiring is not correct, proper operation can not be carried out and will cause defect.



Power cable: $\geq 3G1.5mm^2$

Connecting wiring: 1(L)、2(N)、 $\oplus \geq 3G1.5mm^2$
3、4 $\geq 2G0.75mm^2$

HSU-18RE03/R2 HSU-14HR03/R2
HSU-22RE03/R2 HSU-18HR03/R2



Power cable: $\geq 3G1.5mm^2$

Connecting wiring: $\geq 3G1.5mm^2$ (For: L N \oplus) + 2x0.75mm²

HSU-18HEK03/R2 HSU-18HRA03/R2
HSU-18HEA03/R2 HSU-18HV03/R2
HSU-18RH03/R2

1. If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similar qualified person. The type of connecting wire is H05RN-F or H07RN-F.
2. If the fuse on PC board is broken please change it with the type of T. 3.15A/250V.
3. The wiring method should be in line with the local wiring standard.
4. After installation, the power plug should be easily reached.
5. A breaker should be incorporated into fixed wiring. The breaker should be all-pole switch and the distance between its two contacts should be not less than 3mm.

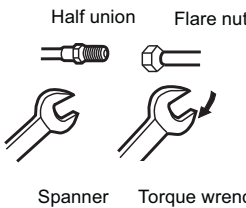
Outdoor unit

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, give the roundness as large as possible not to crush the pipe, and the bending radius should be 30 to 40 mm or longer.
- Connecting the pipe of gas side first makes working easier.
- The connection pipe is specialized for R410A.

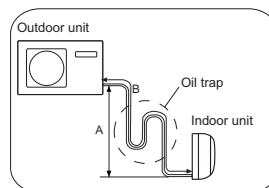
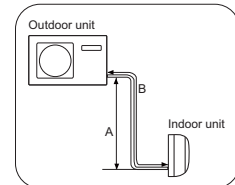
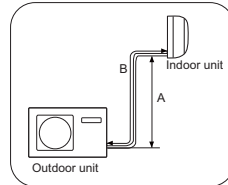


Forced fastening without careful centering may damage the threads and cause a leakage of gas.

Pipe Diameter(φ)	Fastening torque
Liquid side 6.35mm(1/4")	18N.m
Liquid/Gas side 9.52mm(3/8")	42 N.m
Gas side 12.7mm(1/2")	55N.m
Gas side 15.88mm(5/8")	60 N.m

Be careful that matters, such as wastes of sands, etc. shall not enter the pipe. The standard pipe length is 5m. If it is over 7m, 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. But the charge of refrigerant must be conducted by professional air conditioner engineer. Before adding additional refrigerant, perform air purging from the refrigerant pipes and indoor unit using a vacuum pump, then charge additional refrigerant.

CAUTION



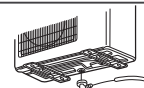
- Max. Elevation: Amax=10m
- In case the elevation A is more than 5m, oil trap should be installed every 5~7m
- Max. Length: Bmax=15m
- In case the pipe length B is more than 7m, the refrigerant should be charged, according to 20 g/m.

3 Connection

- Use the same method on indoor unit. Loosen the screws on terminal block and insert the plugs fully into terminal block, then tighten the screws.
- Insert the cable according to terminal number in the same manner as the indoor unit.
- If wiring is not correct, proper operation can not be carried out and controller may be damaged.
- Fix the cable with a clamp.

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. Detach the service port's cap of 3-way valve, the valve rod's cap for 2-way valve and 3-way's, connect the service port into the projection of charge hose (low) for gaugemanifold. Then connect the projection of charge hose (center) for gaugemanifold into vacuum pump.
2. Open the handle at low in gaugemanifold, operate vacuum pump. If the scale-moves of gauge (low) reach vacuum condition in a moment, check 1. again.
3. Vacuumize for over 15min. And check the level gauge which should read -0.1MPa (76 cm Hg) at low pressure side. After the completion of vacuumizing, close the handle 'Lo' in gaugemanifold and stop the operation of the vacuum pump. Check condition of the scale and hold it for 1-2min. If the scale-moves back in spite of tightening, make flaring work again, the return to the beginning of 3.
4. Open the valve rod for the 2-way valve to an angle of anticlockwise 90 degrees. After 6 seconds, close the 2-way valve and make the inspection of gas leakage.

5. No gas leakage?

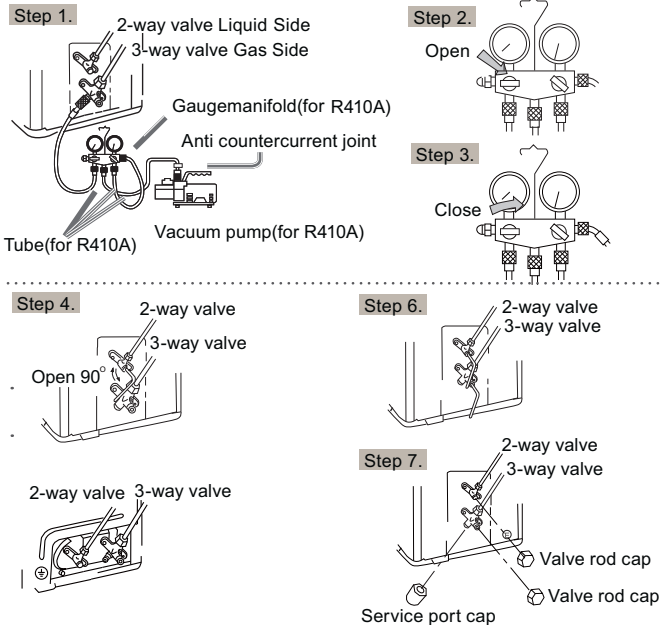
In case of gas leakage, tighten parts of pipe connection. If leakage stops, then proceed 6. steps

If it does not stop gas leakage, discharge whole refrigerants from the service port. After flaring work again and vacuumize, fill up prescribed refrigerant from the gas cylinder.

6. Detach the charge hose from the service port, open 2-way valve and 3-way. Turn the valve rod anticlockwise until hitting lightly.

7. To prevent the gas leakage, turn the service port's cap, the valve rod's cap for 2-way valve and 3-way's a little more than the point where the torque increases suddenly.

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



CAUTION

- If the refrigerant of the air conditioner leaks, it is necessary to discharge all the refrigerant. Vacuumize 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 to make it crack and lead to personal injuries.

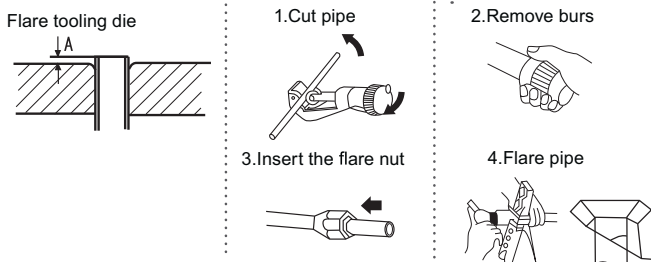
1 Power Source Installation

- The power source must be exclusively used for air conditioner. (Over 10A)
- In the case of installing an air conditioner in a moist place, please install an earth leakage breaker.
- 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.

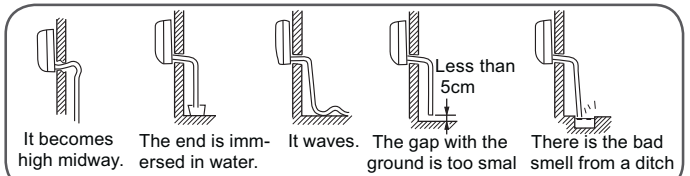
Flare tool for R410A	Conventional flare tool	
	Clutch-type	Wing-nut type (Imperial-type)
A	0~0.5mm	1.0~1.5mm
		1.5~2.0mm



Correct	Incorrect				
	Lean	Damage of flare	Crack	Partial	Too outside

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

Contains fluorinated greenhouse gases covered by the Kyoto Protocol		A
R410A		B
1=	kg	C
2=	kg	D
1+2=	kg	

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 pipe connecting?
- ☐ Heat insulation of pipe connecting?
- ☐ 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 earth line 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?

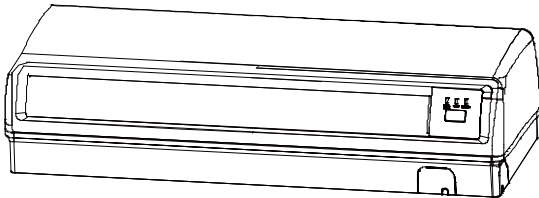
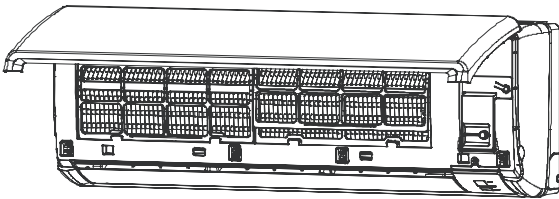
9. Removal Procedure

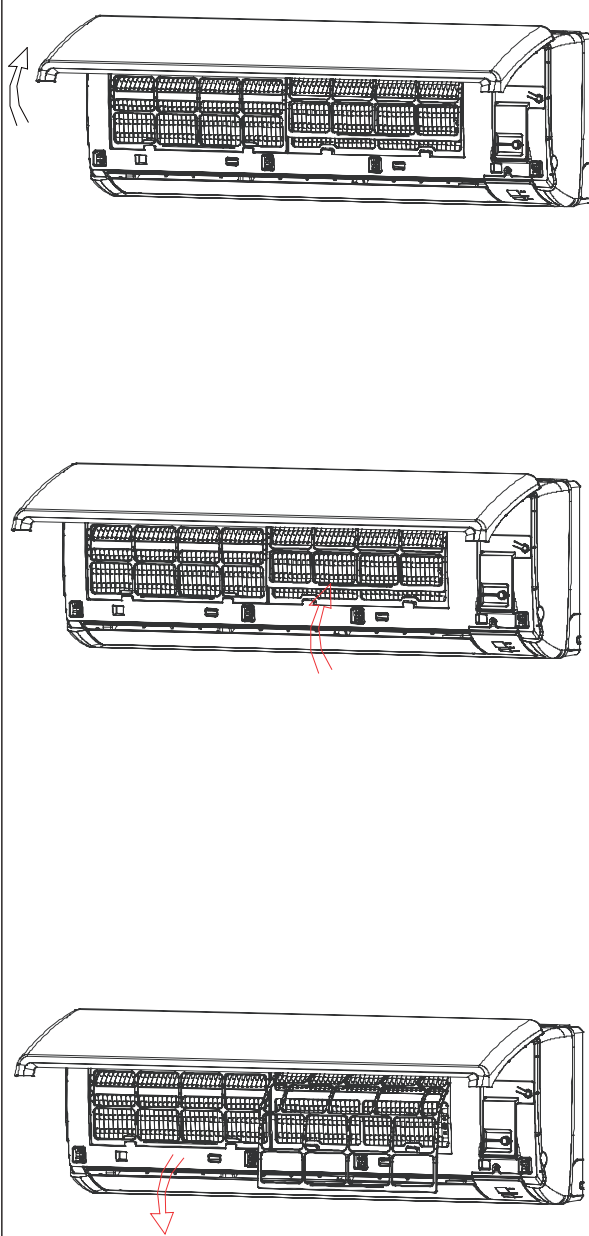
9.1 Removal of indoorunit

Procedure



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

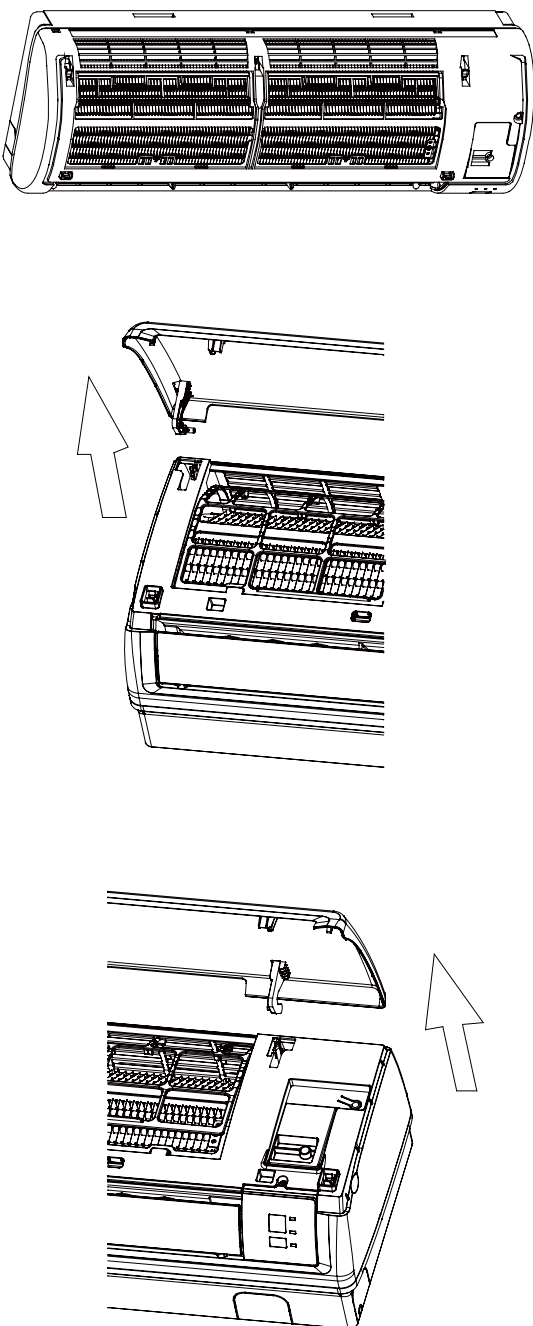
Step	Procedure	Points
1. Features		
2. Remove the air filters.		
1	Hold the front panel by the tabs on the both sides and lift it until it stops with a click.	

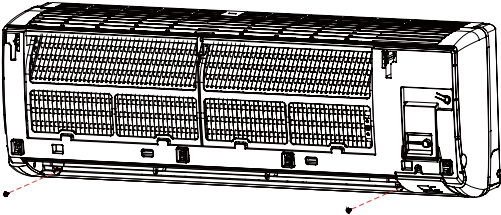
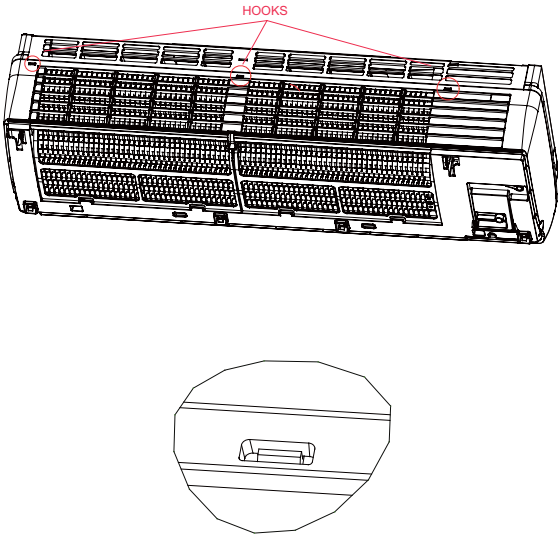
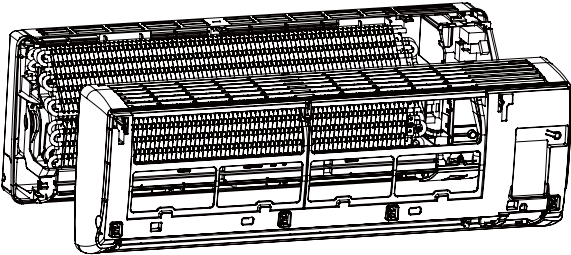
Step	Procedure	Points
2	<p>Lift an air filter upwards slightly and then pull it out downwards.</p> 	<ul style="list-style-type: none">■ Please embed the air filters into the unit along the grooves as installation.■ Please embed the two hooks on air filter completely into the unit during installation.

Procedure



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

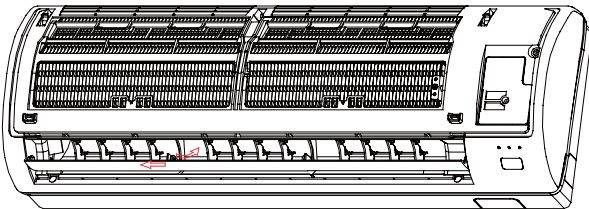
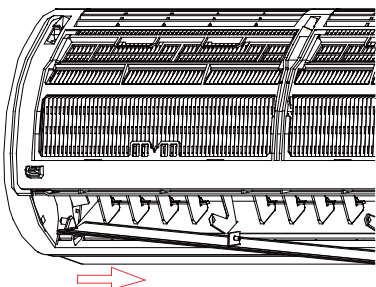
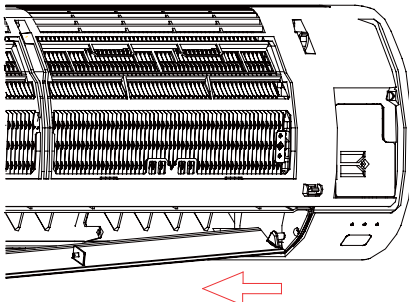
Step	Procedure	Points
1. Remove the front panel.		
1	<p>Open the front panel until it is on the horizontal position, and then release the pivots on both sides of the unit to remove the front panel.</p> 	<ul style="list-style-type: none"> ■ Please close the panels before start the removal procedure of 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.

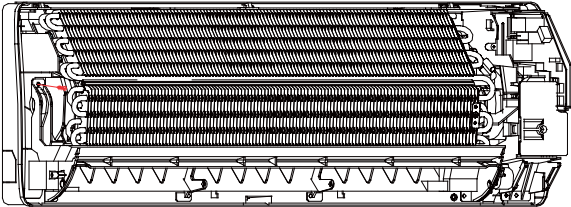
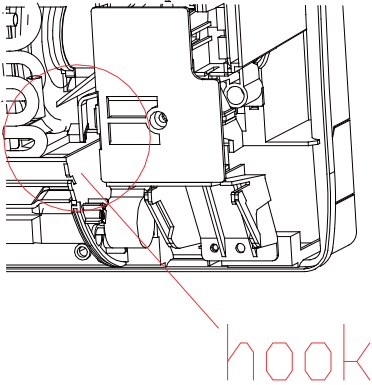
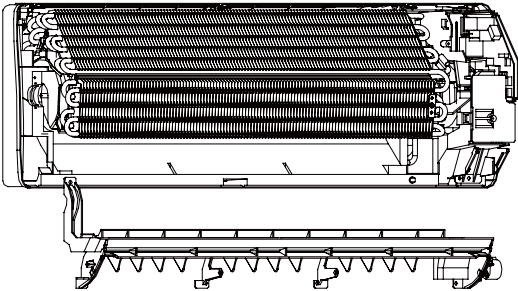
Step	Procedure		Points
2	Loosen the marked two screws		
3	Release the marked three hooks.		
4	Pull the front grille out horizontally and remove it.		<ul style="list-style-type: none">■ When assembling, install the front grille horizontally so as not to stuff the flap inside.■ When assembling, make sure the three hooks are caught properly.

Procedure




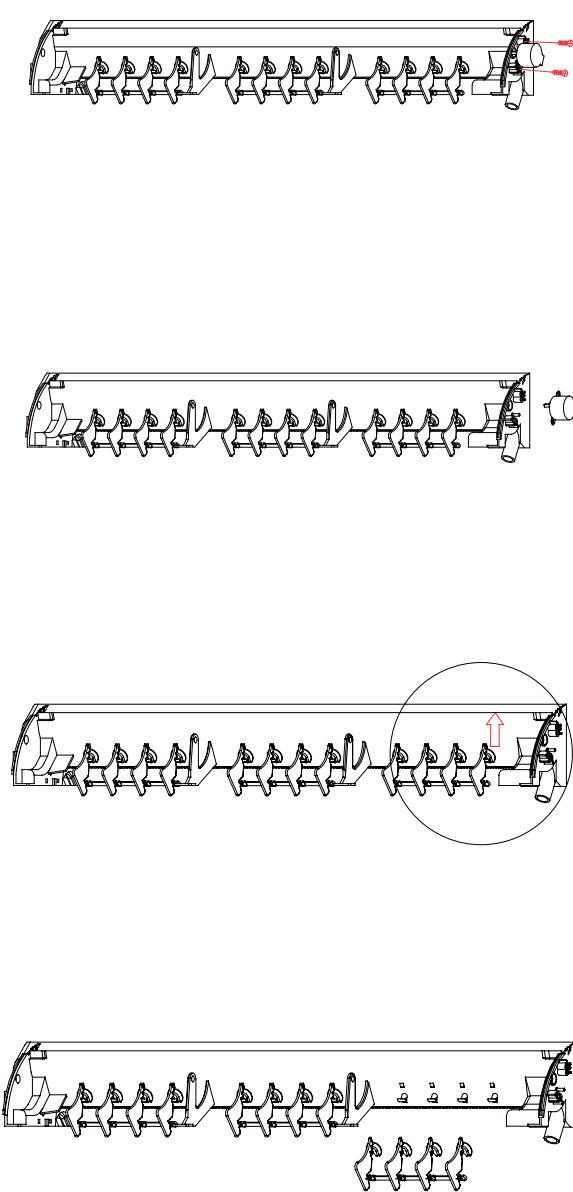
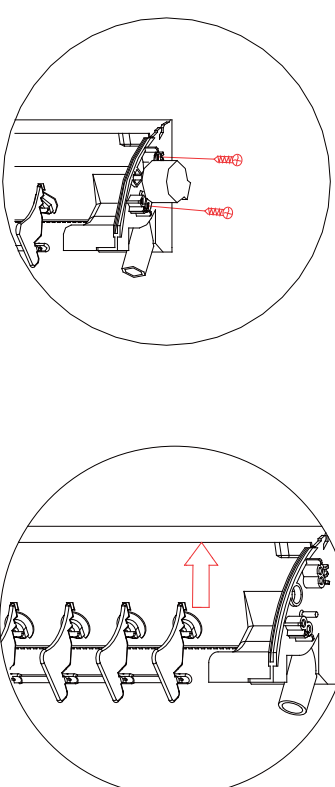
Warning Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.

Step	Procedure	Points
1. Remove the horizontal		<ul style="list-style-type: none"> ■ The horizontal flap is single.
1	Release the center pivot.	
	 	<ul style="list-style-type: none"> ■ Installation procedure <ol style="list-style-type: none"> 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.	
		


Procedure		<div><div><div></div></div><div>Warning</div></div> 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		

Procedure

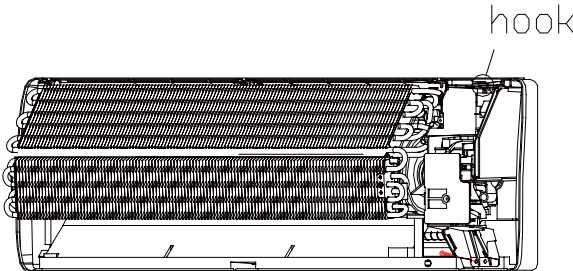
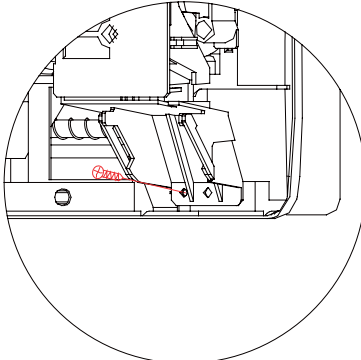
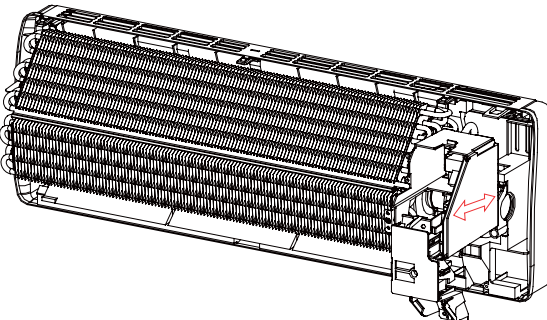
 **Warning** Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.

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

Procedure



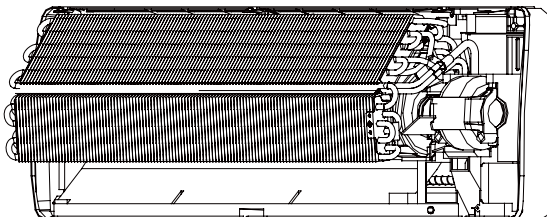

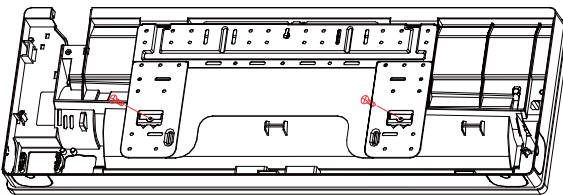

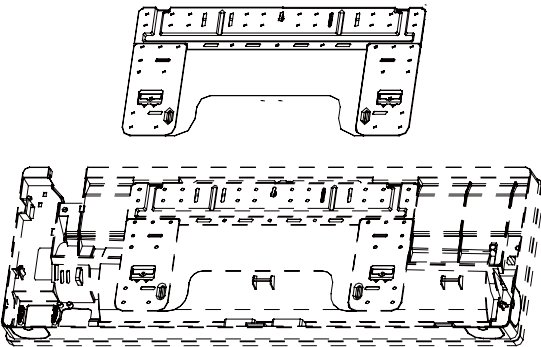
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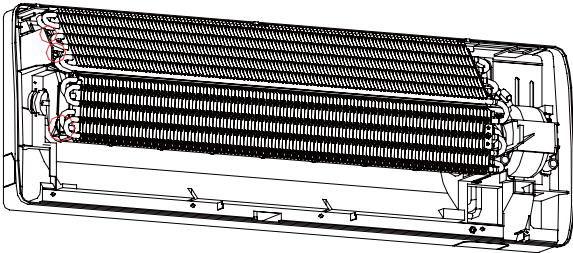
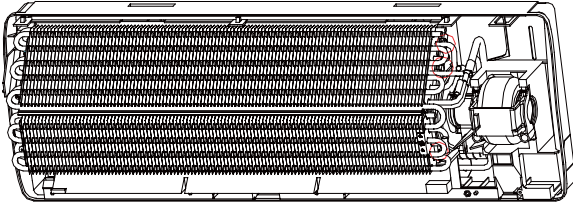
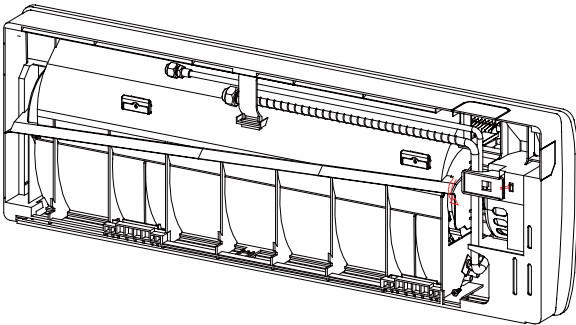
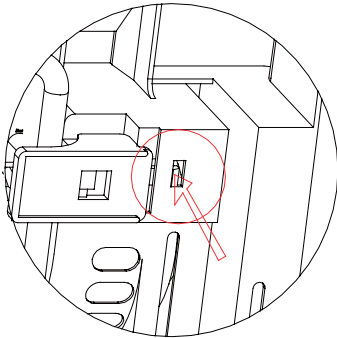
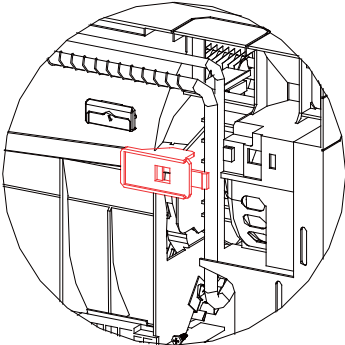
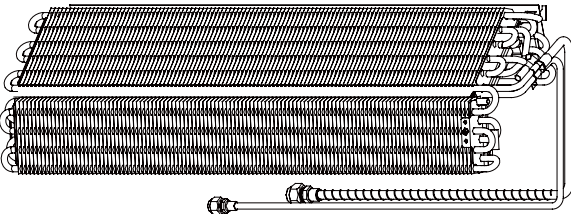
Step	Procedure		Points
■ Remove the front grille.			
1. Remove the electrical box.			
1	Loosen the screw of the drip proof plate.		<div>■ Discharge the static electricity from your body before touching the electrical parts like signal receiver PCB. It may cause malfunction of PCB.</div> <div></div>
2	Lift and remove the electrical box.		

Procedure




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

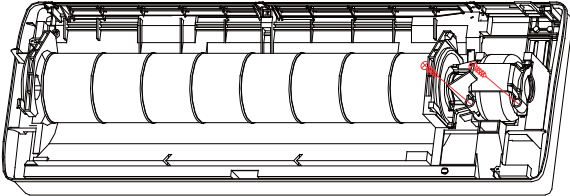
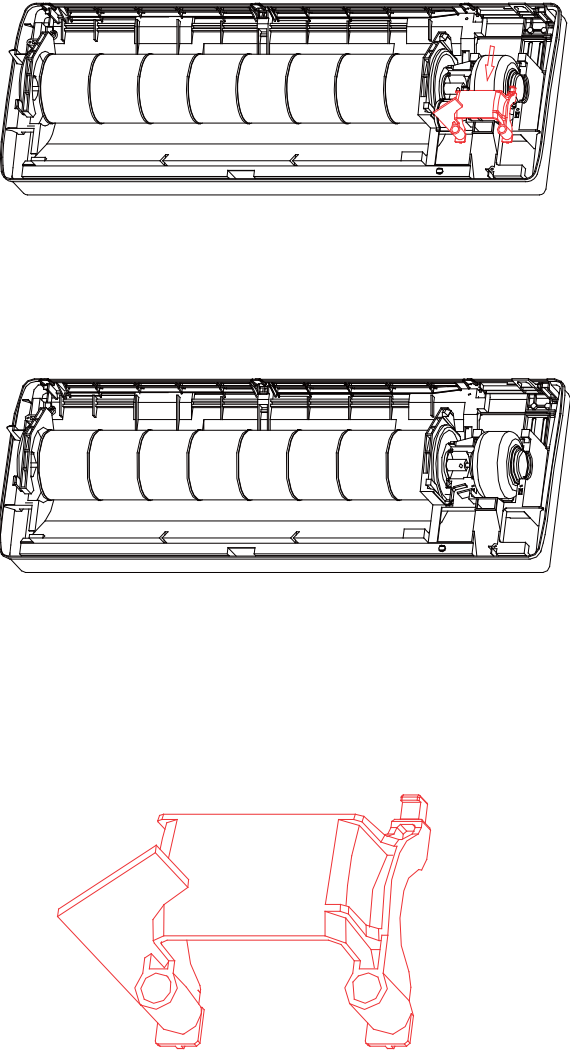
Step	Procedure	Points	
		<div>■ You can detach the indoor unit without removing the assembly of the outlet grille.</div>	
1	Loosen the screws fixed to the installation plate.	<div></div>	<div><div> Caution</div><div>If gas leaks, repair the spot of leaking, then collect all refrigerant from the unit. After conducting vacuum drying, recharge proper amount of refrigerant.</div></div>
2	Loosen the marked hooks	<div></div>	<div><div> Caution</div><div>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.)</div></div>
3	Loosen the marked screws and remove mounting plate	<div></div>	<div><div>■ Pay attention so that the residual water in the drain will not make the floor wet.</div><div>■ In case that a drain hose is buried inside a wall, remove it after the drain hose in the wall is pulled out.</div><div>■ Use two wrenches to disconnect pipes.</div><div>■ When disconnecting pipes, cover every nozzle with caps so as not to let dust and moisture in.</div></div>

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		

Procedure



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

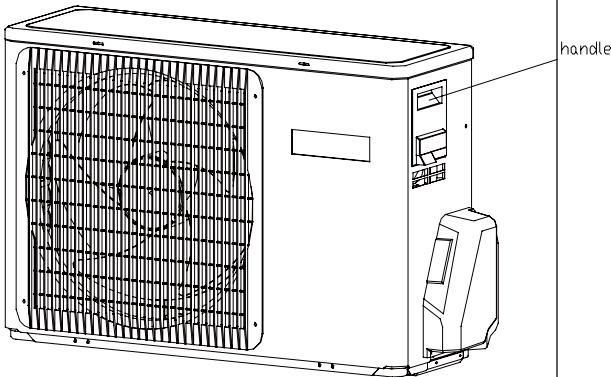
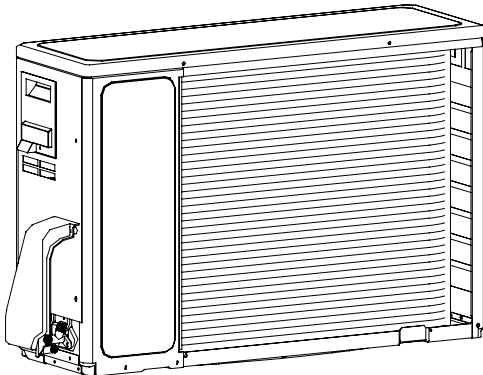
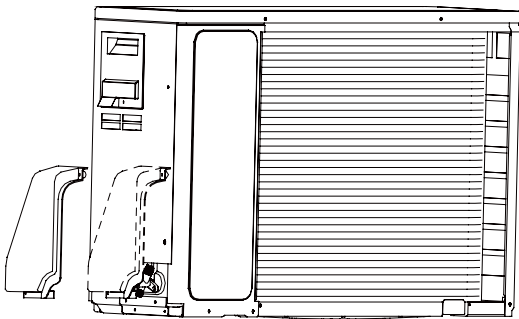
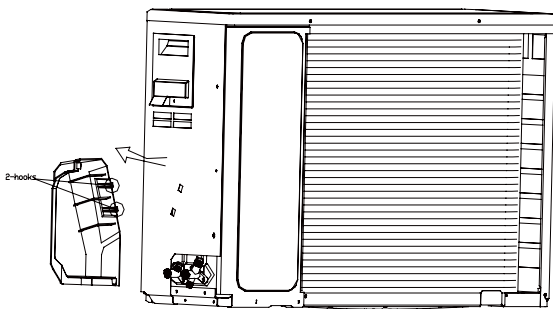
Step	Procedure	Points
1. Remove the right side plate.		
1 Loosen the 2 screws.		
2 Remove the fixing plate.		

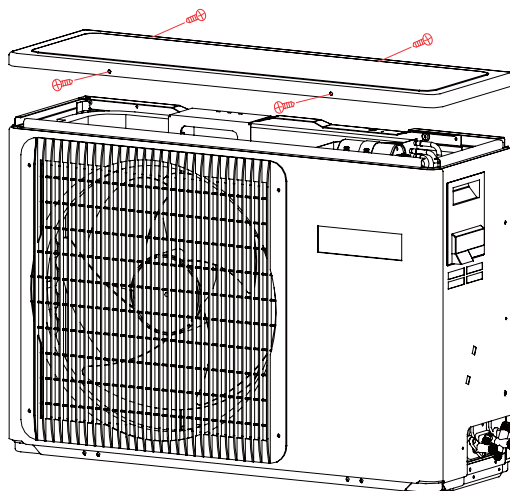
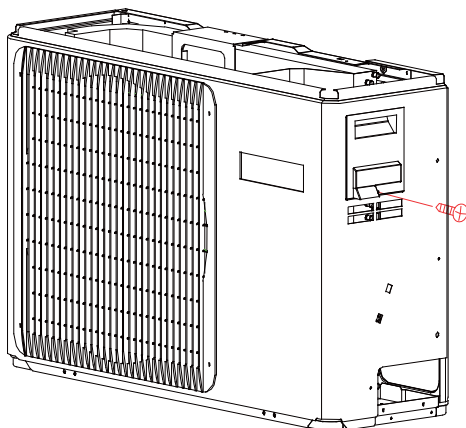
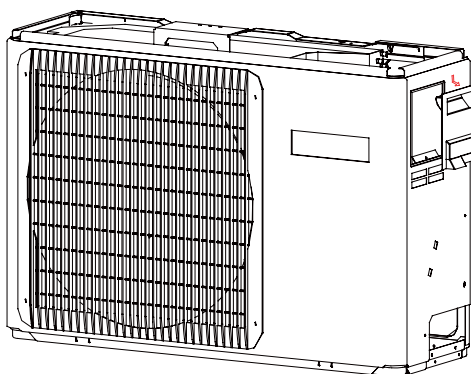
Step	Procedure	Points
3. Remove the fan.		
1	Loosen the marked screw.	
2	Lift up the right part of the fan motor and slide it to the rightward to remove.	
3	Lift up the right part of the fan and remove it	

Procedure

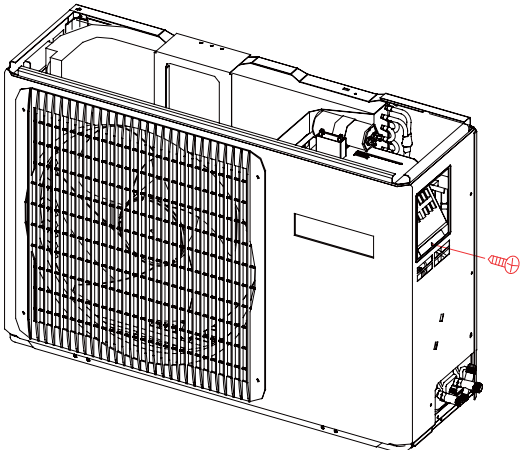


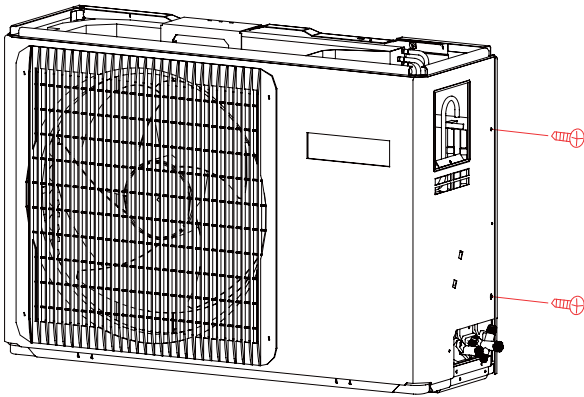
Warning Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.

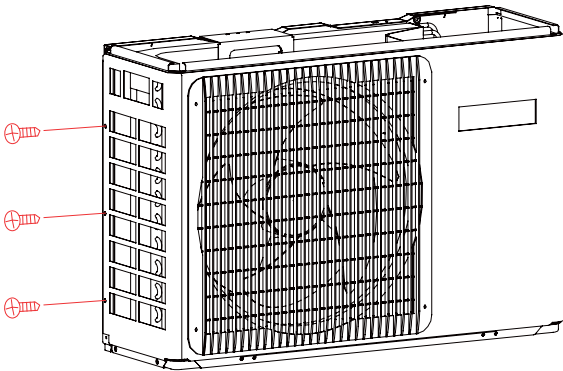
Step	Procedure	Points
1. Features		
	   	<p>■ Be careful not to cut your finger by the fins of the heat exchanger.</p> <p>■ The stop valve cover is united with the shelter.</p> <p>■ When assembling, make sure to fit the 5 hooks.</p>
1	<p>Loosen the screw of the stop valve cover. Pull down the stop valve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

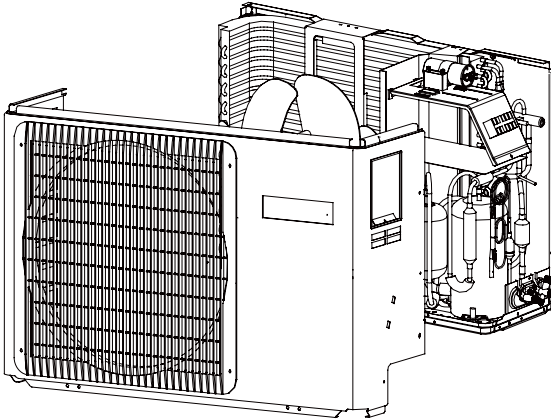
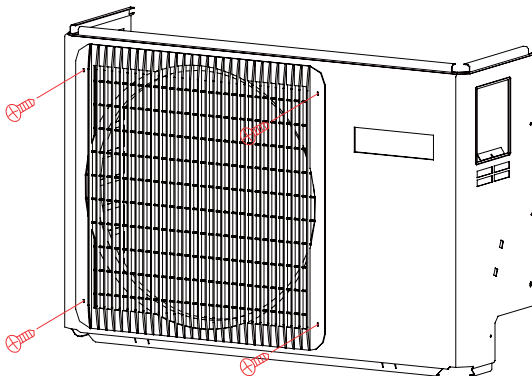
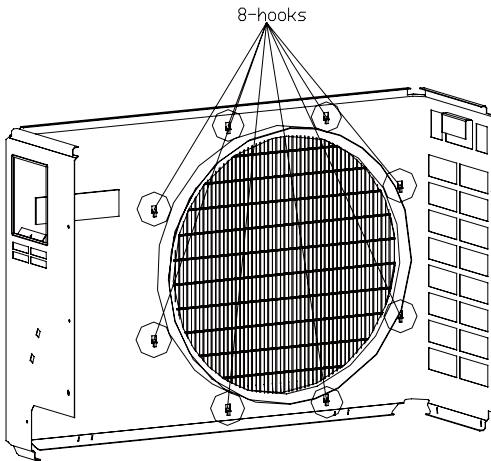
Step	Procedure	Points
2. Remove the panels.		
1	Loosen the 4 screws and lift the top panel	
2	Loosen the service cover screw and remove the service cover.	 

Step	Procedure	Points
3	Loosen the screws of the panel.	





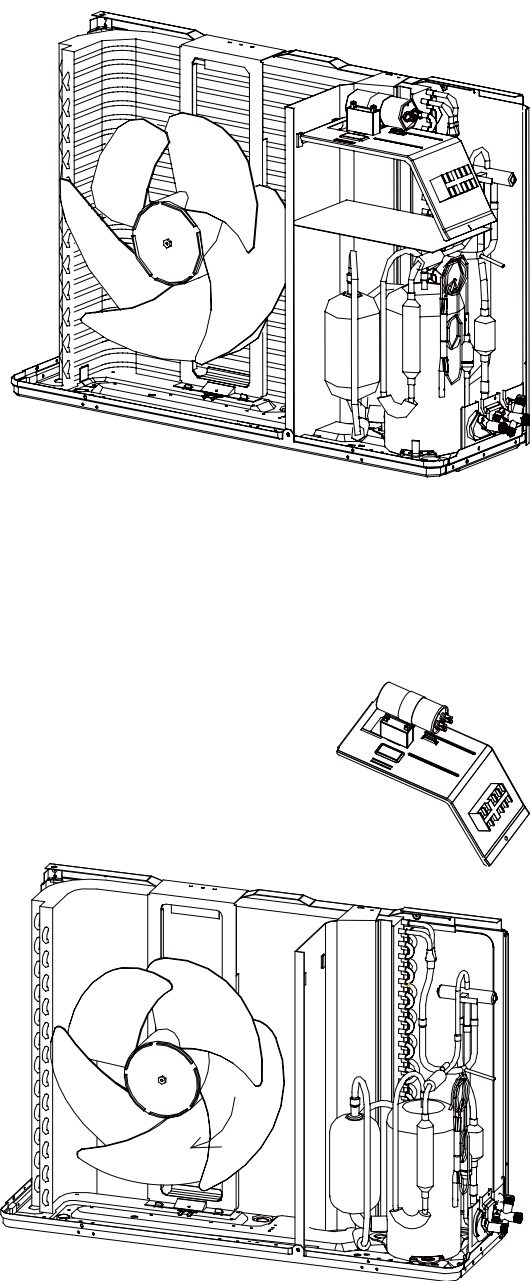


Step	Procedure		Points
4	Pull and remove the front panel.		
3.	Remove the outlet grille		
1	Unscrew the four marked screws		
2	Push the eight hooks on the inside back of front panel, then pull the outlet grille off.		

Procedure



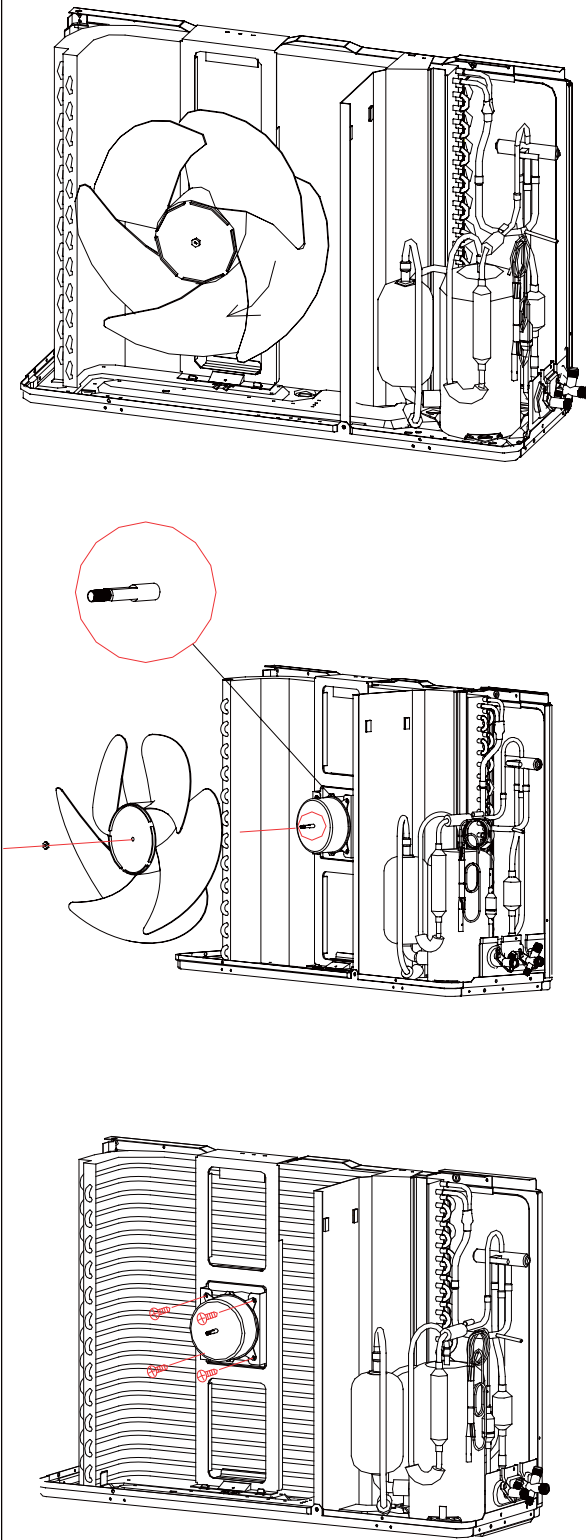
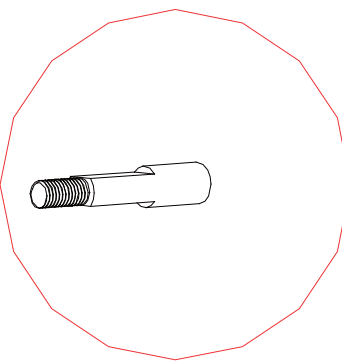
Warning Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.

Step	Procedure	Points
1	<p>Remove the fixing screws Then lift the electrical box</p> 	

Procedure



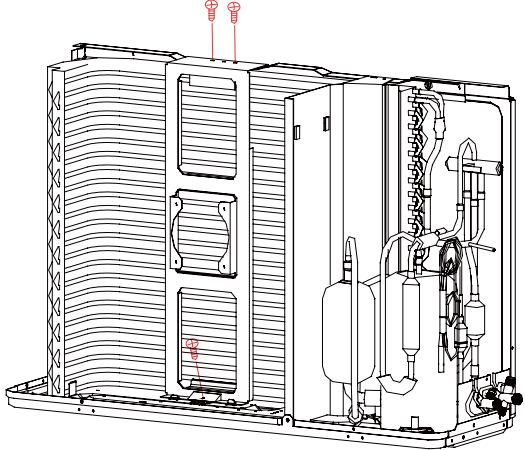
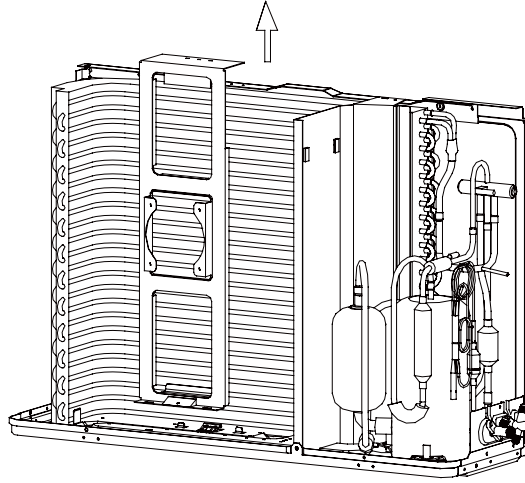
Warning Be sure to wait 10 minutes or more after turning off all power supplies before disassembling work.

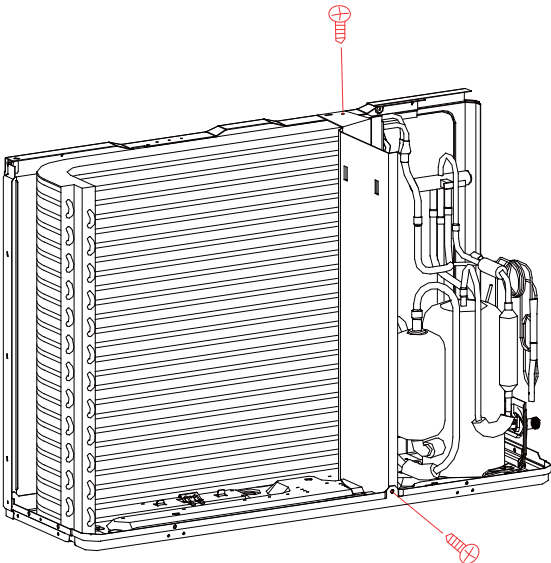
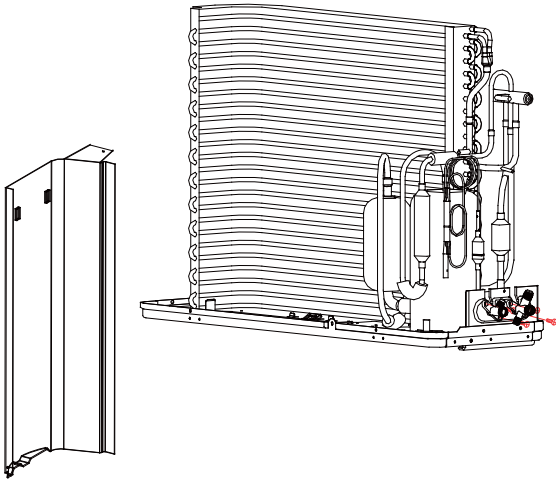
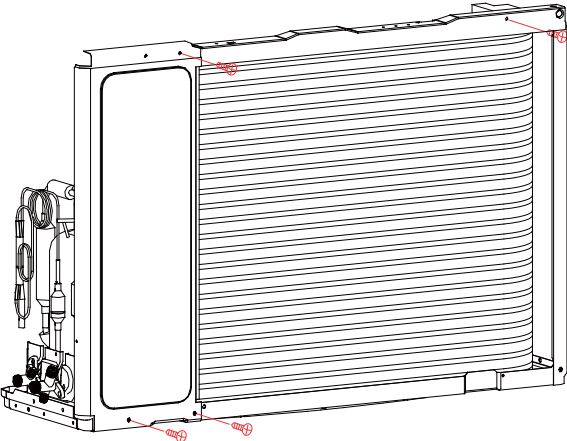
Step	Procedure	Points
1	<p>Loosen the fixing screw and remove the fan</p> 	 <ul style="list-style-type: none">■ Put the lead wire through the back of the motor when assembling. (so as not to be entangled with the propeller fan)

Procedure



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

Step	Procedure	Points
1	<p>Loosen the fixing screws and lift the fan motor bracket .</p>  	

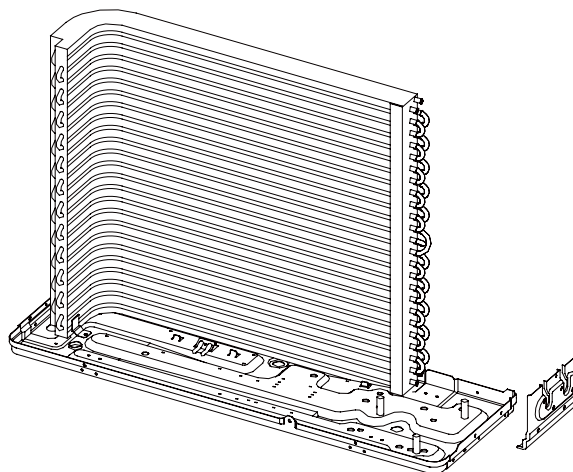
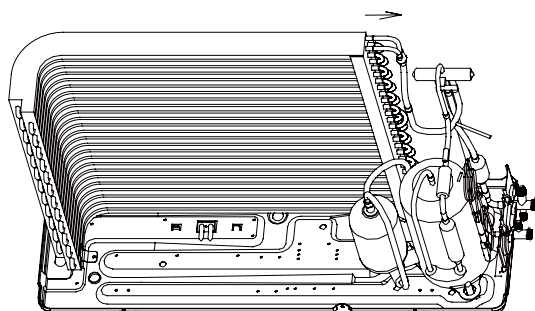
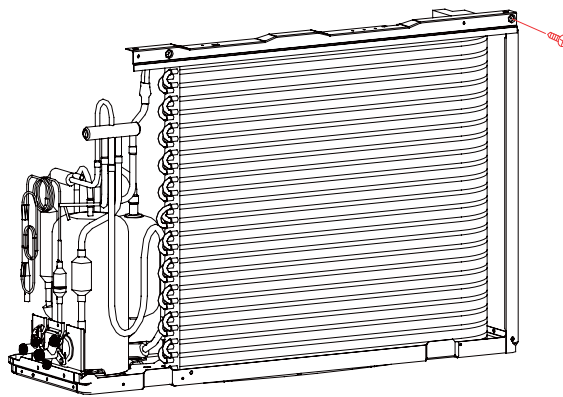
Step		Procedure	Points
3	Loosen the 2 screws		
4	The partition plate has a hook on the lower side. Lift and pull the partition plate to remove.		<p>■ When assembling ,fit the lower hook into the bottom frame .</p>
5	Loosen the marked fixing screws		

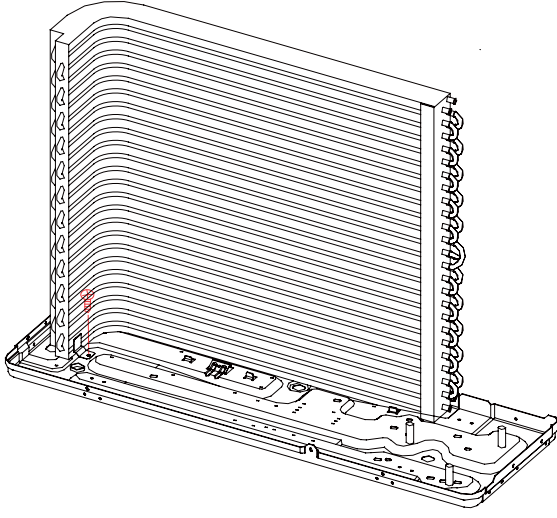
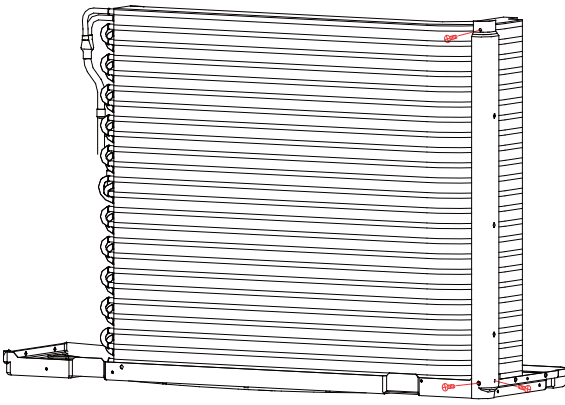
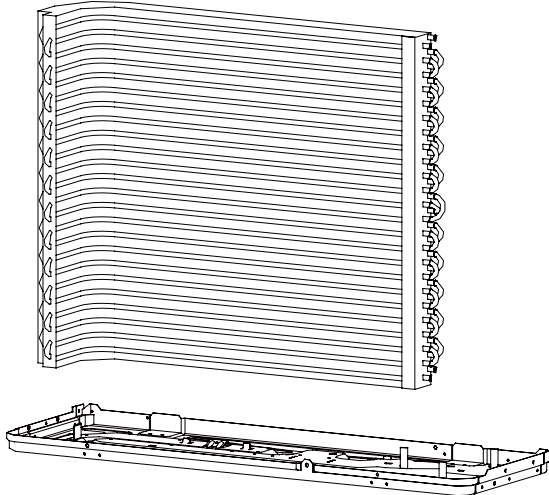
Procedure



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 coneccting pipe and pull out the compressor and remove the valve bracket .	

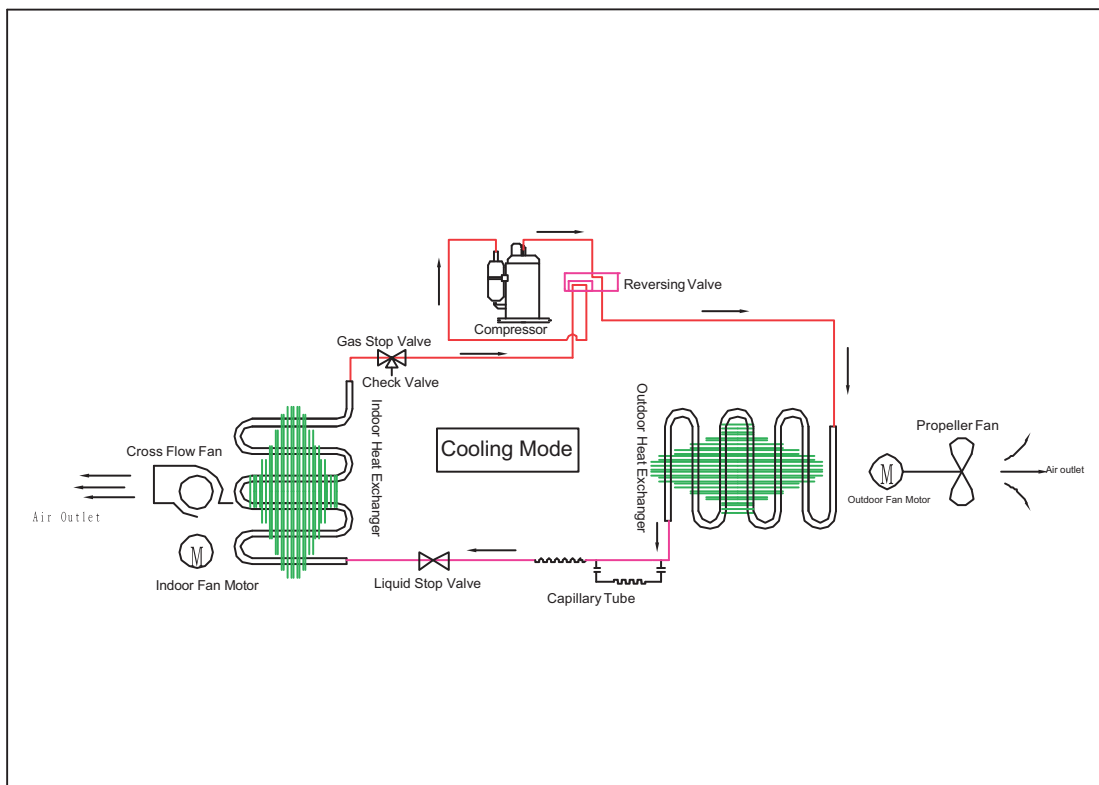


Step	Procedure	Points
3	Loosen the marked fixing screw . 	
4	Loosen the fixing hook and remove the heat exchanger .  	

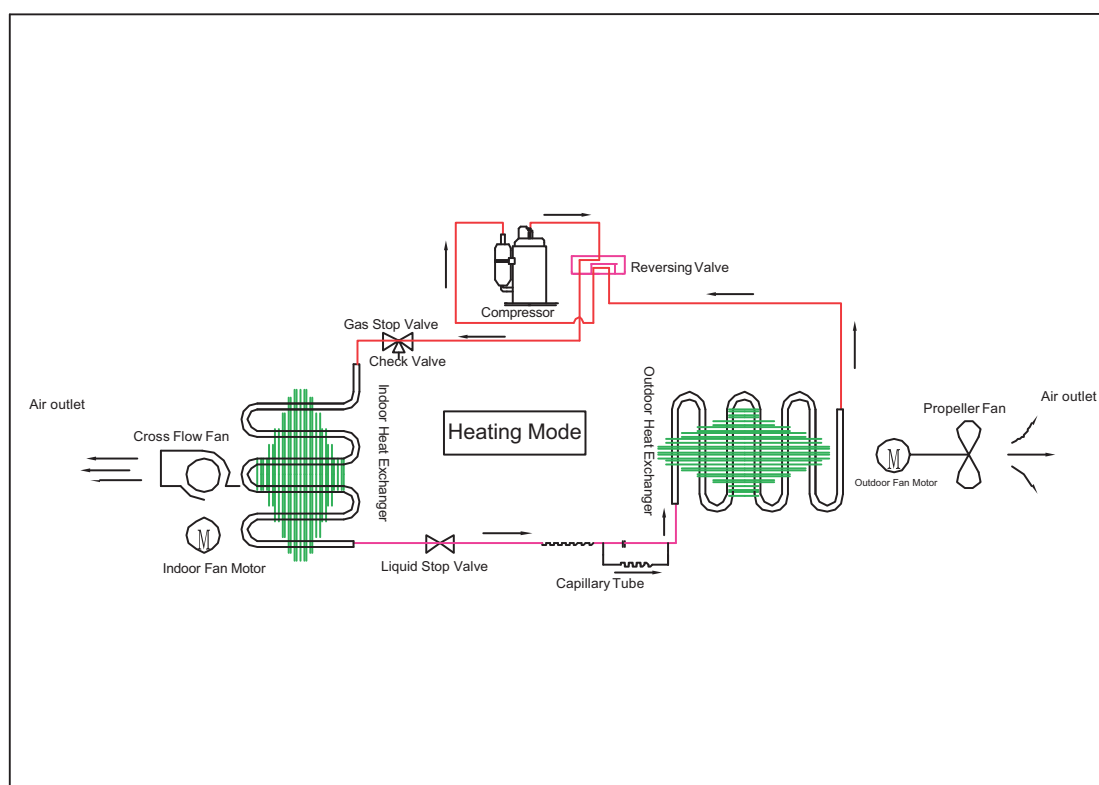
10. Appendix

10.1 Piping Diagrams

Cooling mode

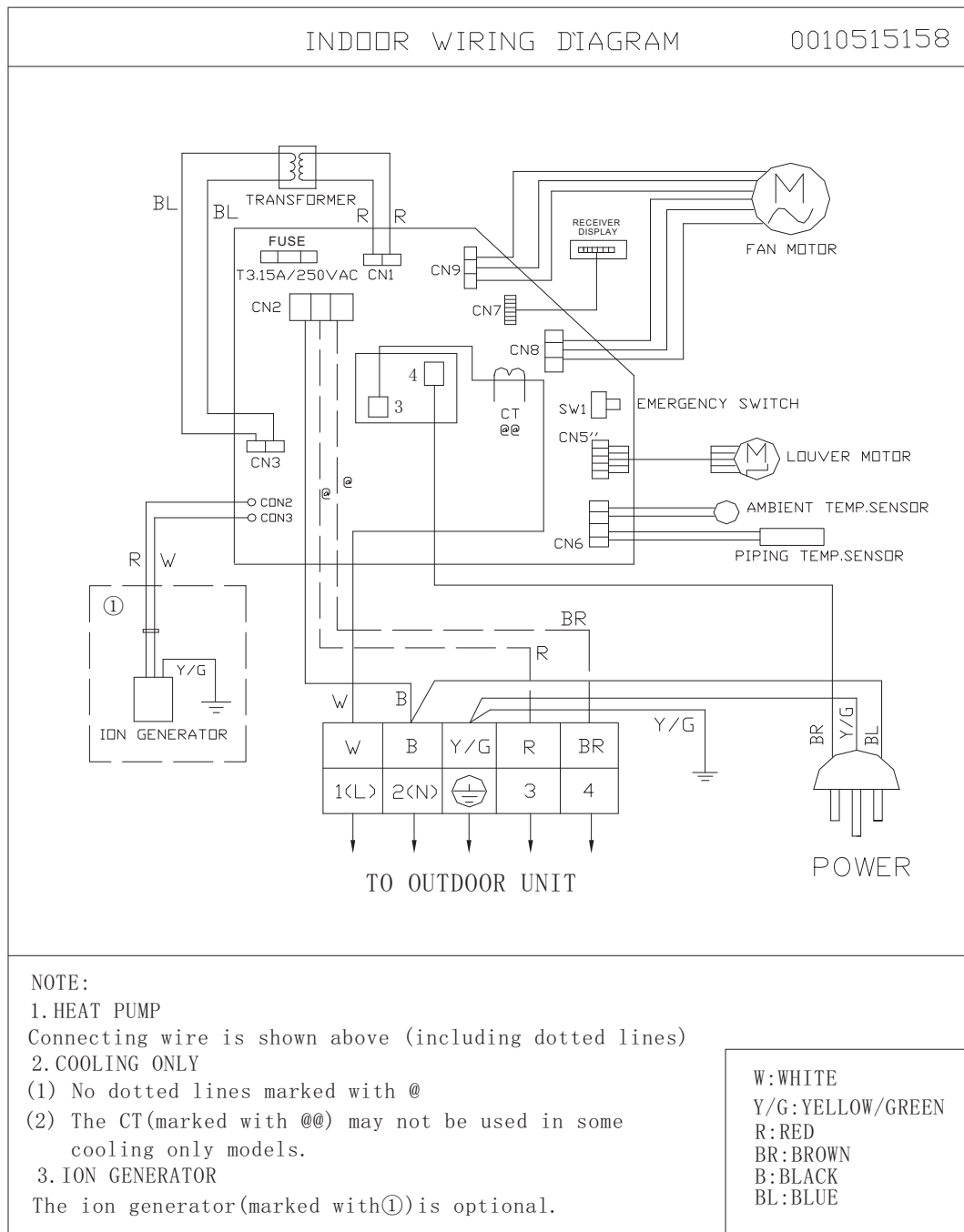


Heating mode

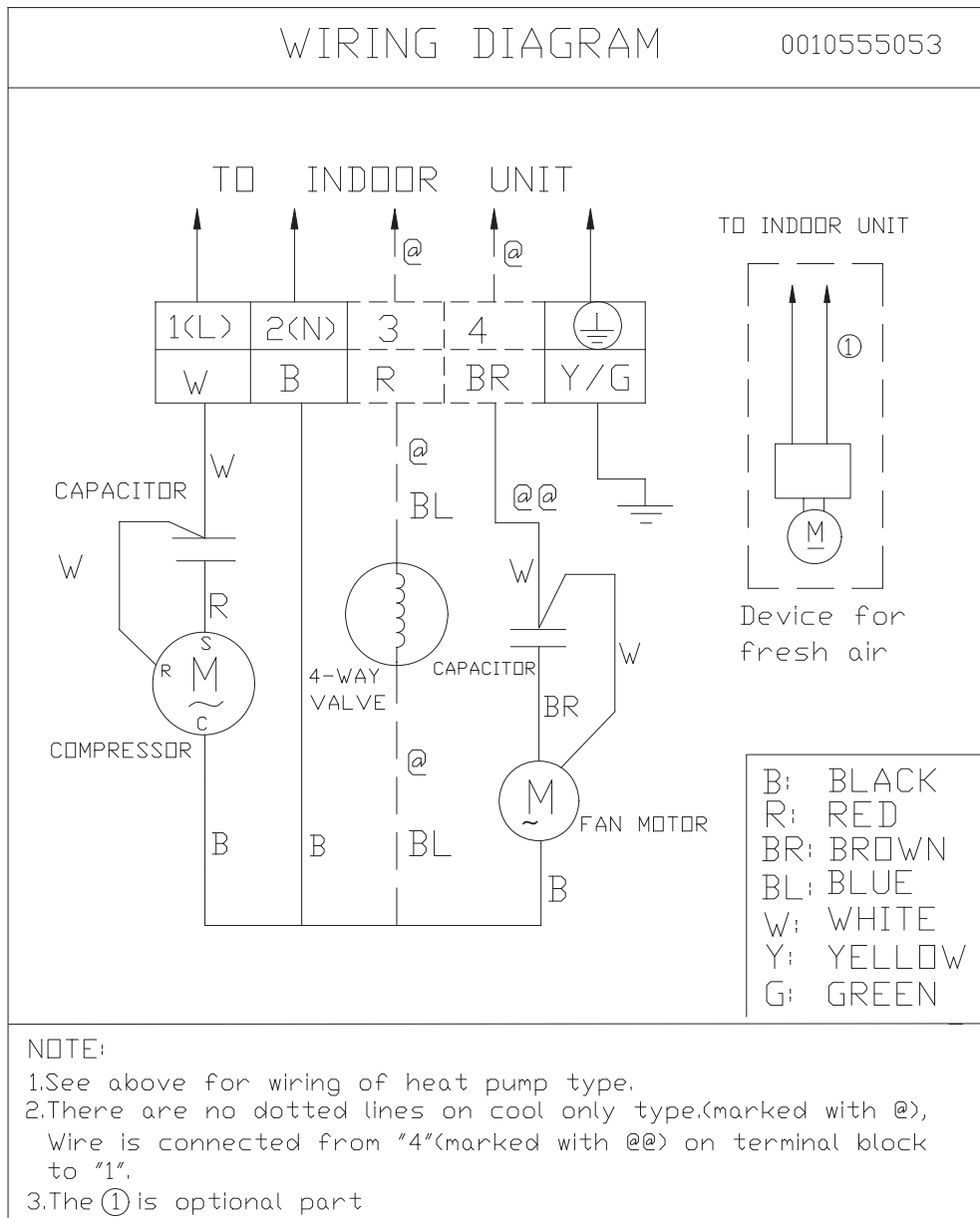


10.2 Wiring Diagrams

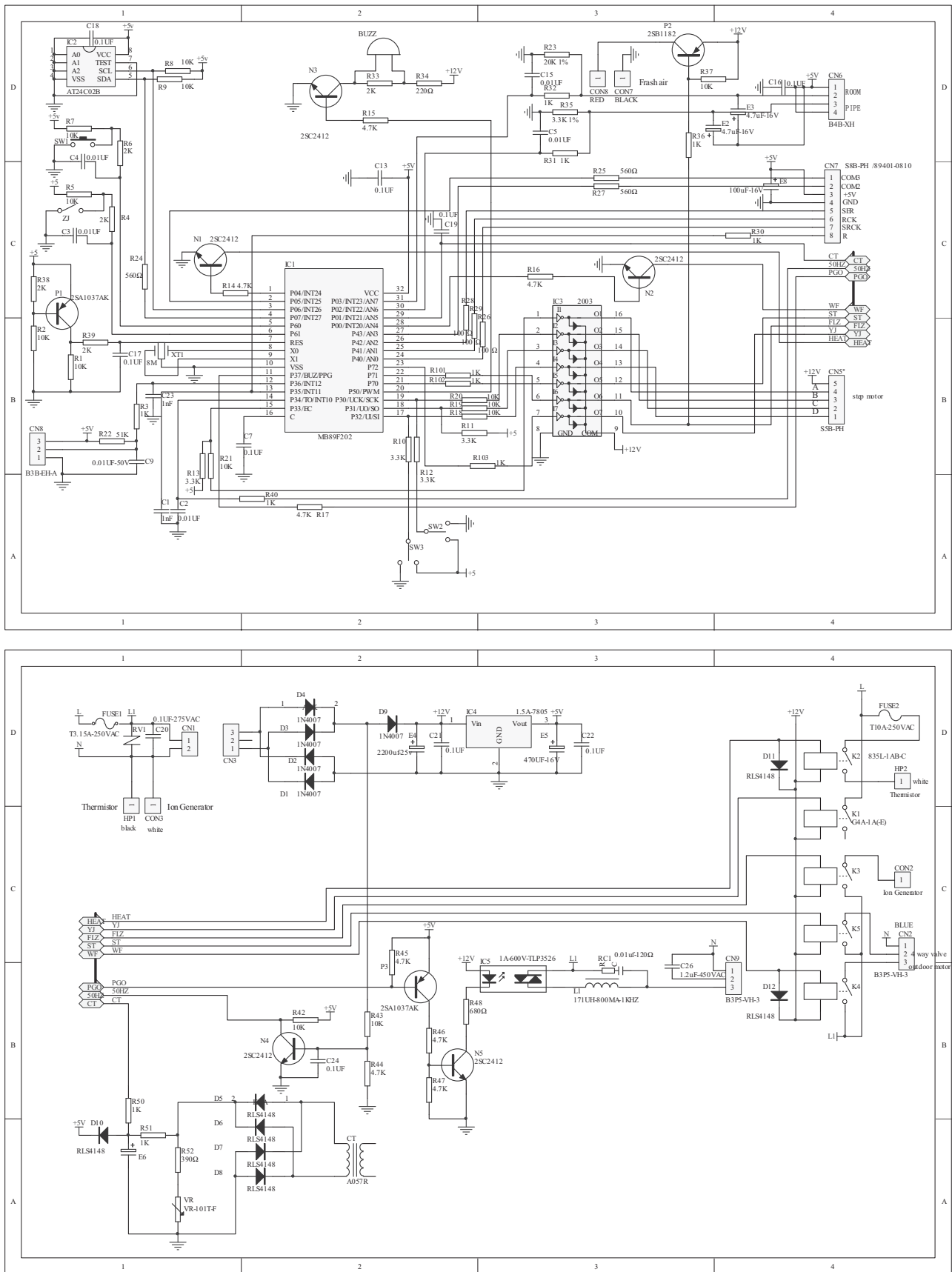
Indoor



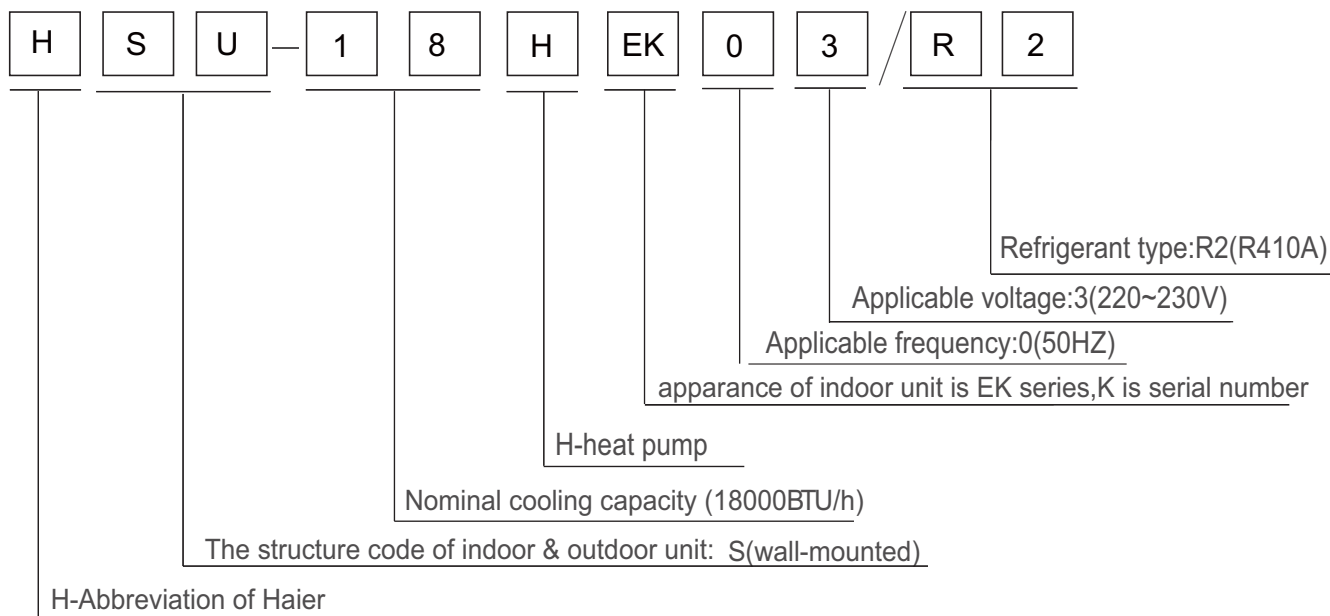
Outdoor



10.3 CIRCUIT DIAGRAM



Description of coding rules of unit model



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

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