AKIRA

makes life better

Air Conditioner

Service Manual

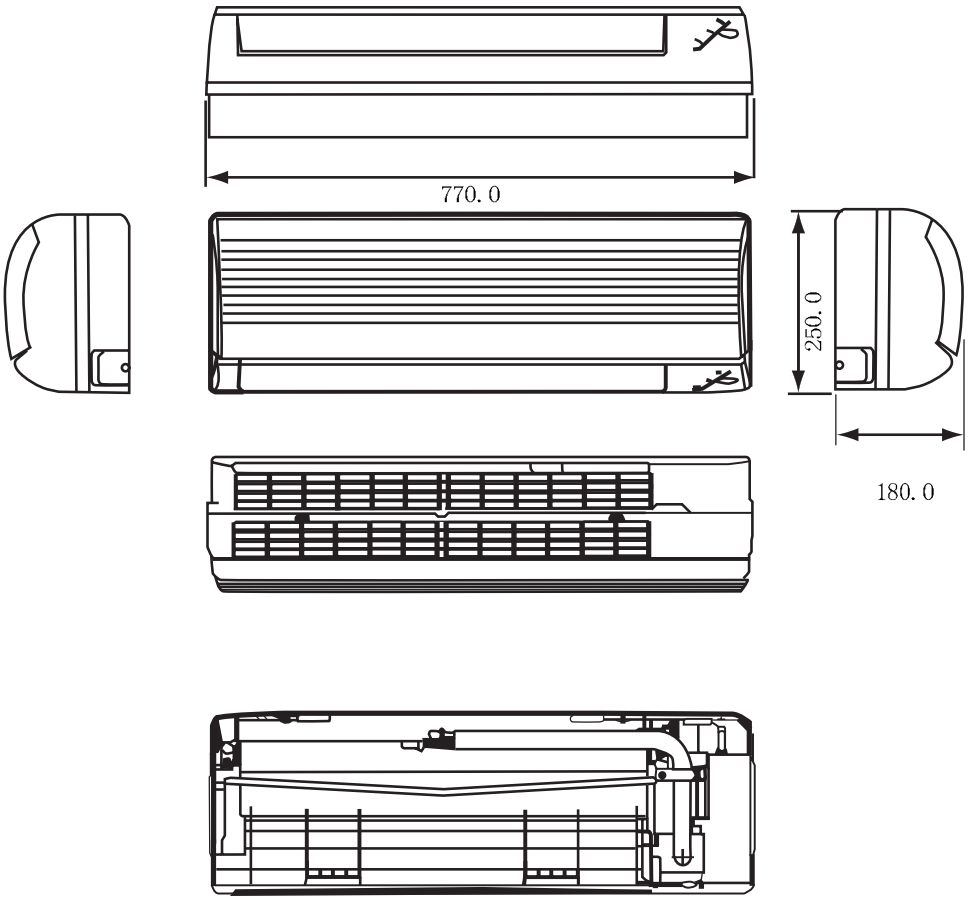
MODEL:
AC-S10HGX2

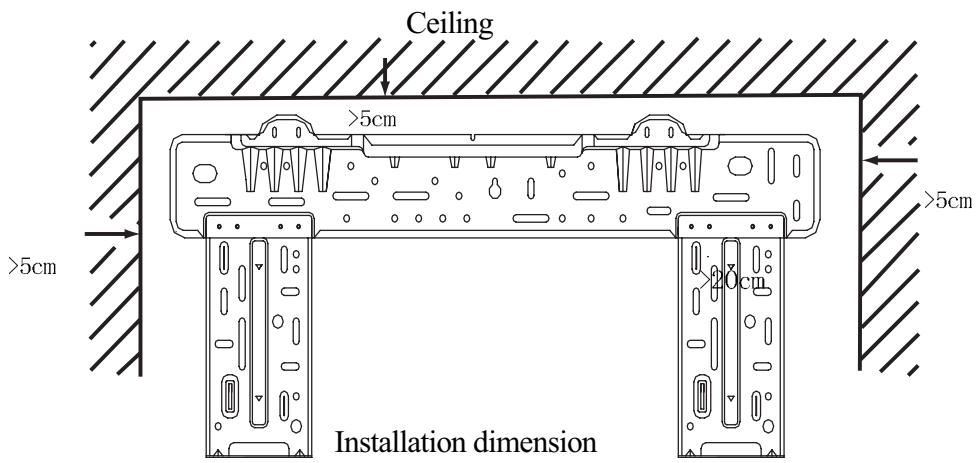
CONTENTS

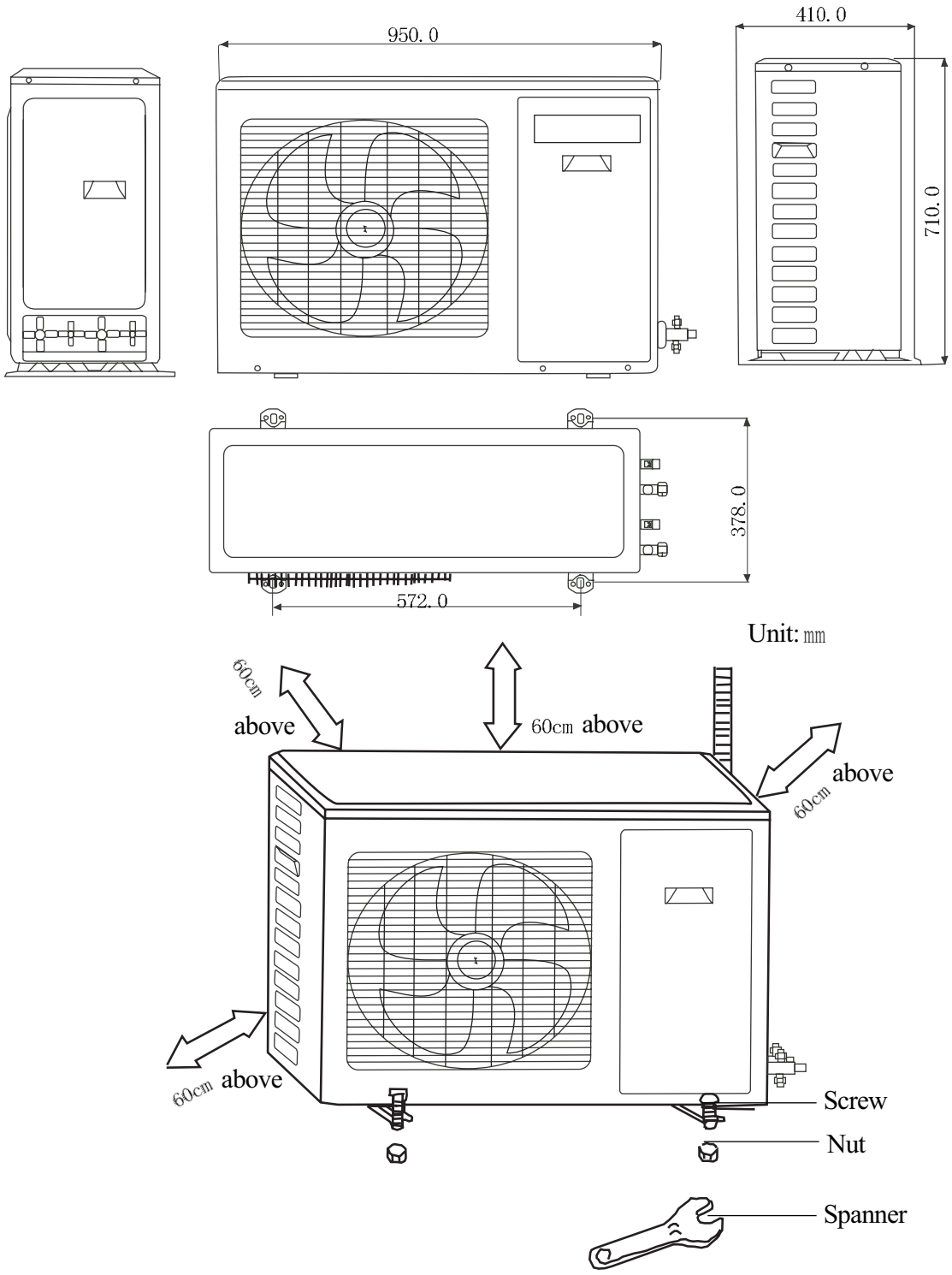
SPECIFICATION

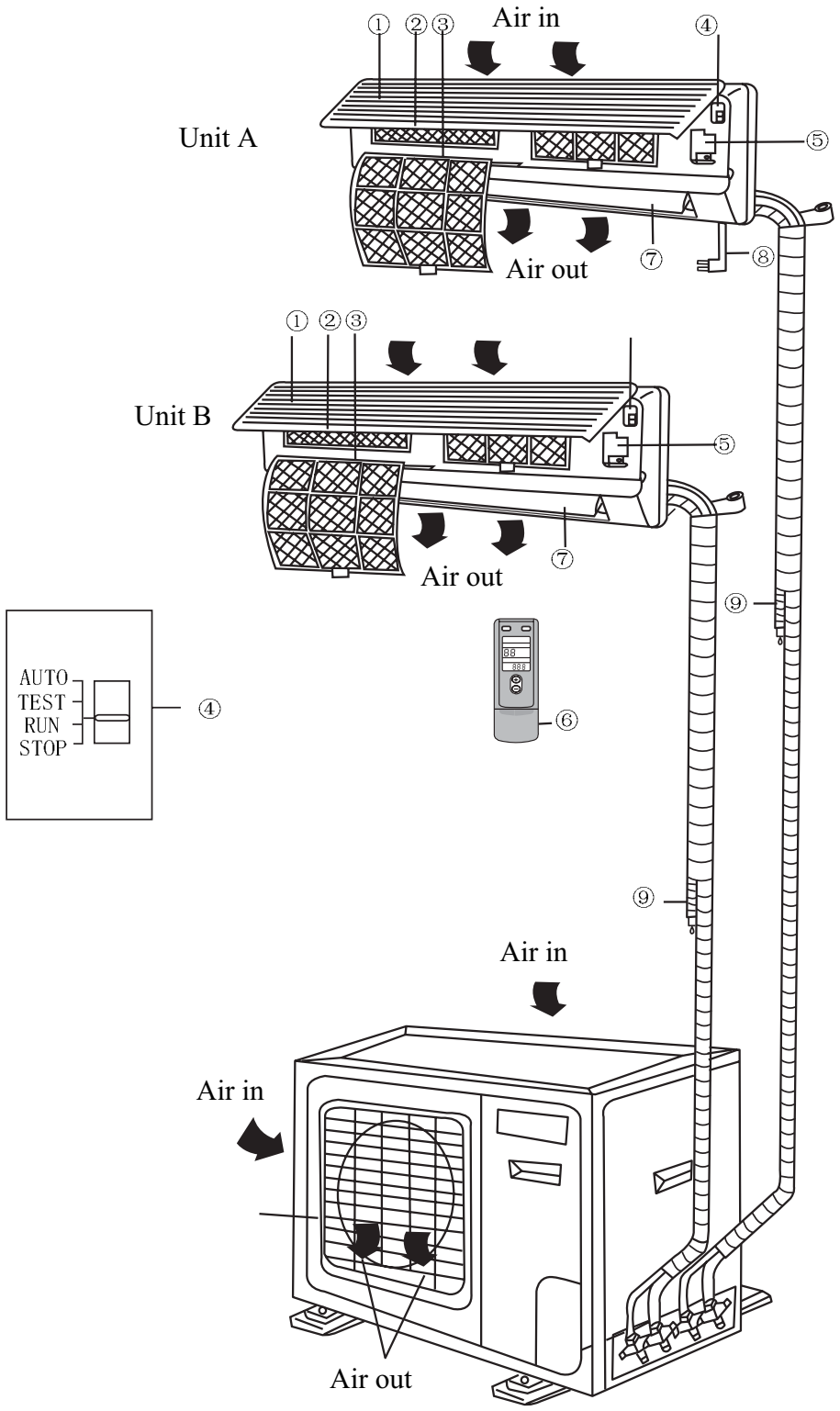
FUNCTION				Cooling	Heating
Power supply (Phase-Frequency-Voltage)				1Ph 230V 50Hz	
Capacity			(W)	2500 x 2	2900 x 2
Rated power			(W)	990 x 2	1040 x 2
Rated current			(A)	4.3 x 2	4.55 x 2
Dehumidify volume			(L/h)	1.2	-
C.O.P/EER			(W/W)	2.53	2.79
Indoor Unit	Fan speed (r/min) (H/M/L)			1060 /990 /910	
	Output power (W)			13	
	Fan type-piece			Cross flow fan – 1	
	Diameter-length (mm)			Φ 97 x 583	
	Evaporator			Aluminum fin-copper tube	
	Pipe diameter			Φ 7 x 0.41	
	Row-fin distance (mm)			2 – 1.6	
	Working area (m^2)			0.14	
	Stepping motor			MP24GA	
	Motor power (W)			2	
	Control method /Fuse (A)			Controller 3.15A Transformer 0.2A	
	Running capacity (μ F)			1	
	Noise dB (A)			≤ 38	
	Outline dimension (W /D /H) (mm)			770 x 250 x 180	
	Package dimension (W /D /H) (mm)			-	
	Net weight /Gross weight (kg)			8.5/-	
Outdoor Unit	Rated power (W)			975	1025
	Rated current (A)			4.15	4.35
	Throttling method			Capillary	
	Compressor type			855 x 366 x 272	
	Starting method			Capacity	
	Working temperature (°C)			2 – 43°C	
	Condensor			Aluminum fin-copper tube	
	Pipe diameter			Φ 9.52	
	Row – fin distance (mm)			1 – 1.6	
	Working area (m^2)			0.4	
	Fan motor power (W) /speed (rpm)			60/780	
	Fan type-piece			Axial flow fan – 1	
	Fan blade diameter (mm)			450	
	Defrost method			Auto defrost	
	Noise dB (A)			58	
	Outline dimension (W /D /H) (mm)			920 x 710 x 412	
	Package dimension (W /D /H) (mm)			-	
	Net weight /Gross weight (kg)			65/-	
	Refrigerant /refrigerant charge (kg)			R22 /0.9 x 2	
Connection pipe	Length		(m)	4	
	Outer diameter	Liquid pipe	(mm)	Φ 6(1/4”)	
		Gas pipe	(mm)	Φ 9.52 (3/8”)	
	Max distance	Height	(m)	5	
		Length	(m)	10	

OUTLINE AND INSTALLATION DIMENSION







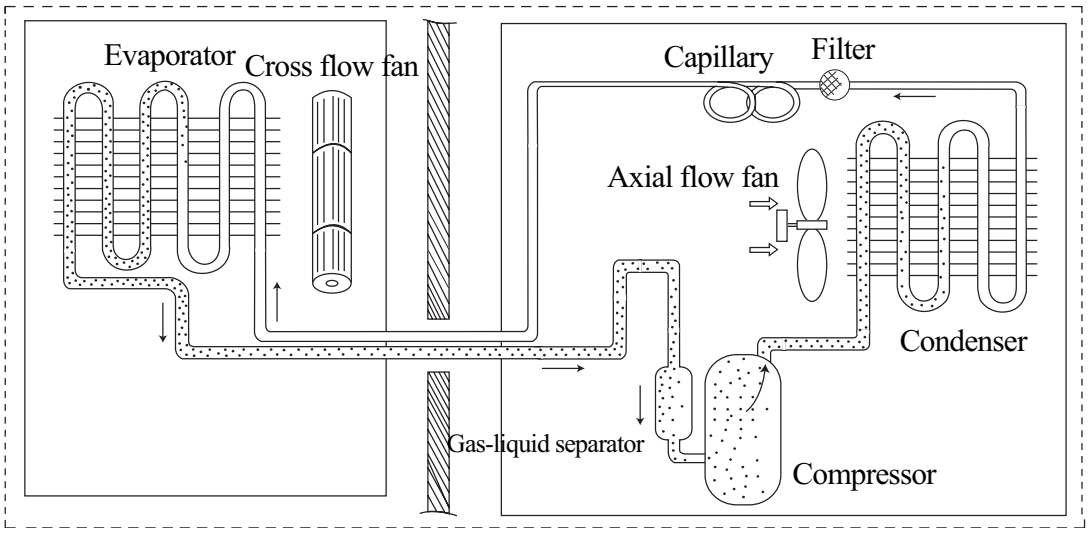


① Front panel
② Air cleaner
③ Filter
④ Manual switch
⑤ Covering plate
⑥ Wireless remote control
⑦ Guide louver
⑧ Power plug
⑨ Water drainage pipe
⑩ Air outlet grille

COOLING SYSTEM DIAGRAM

Cooling system diagram for cooling only type

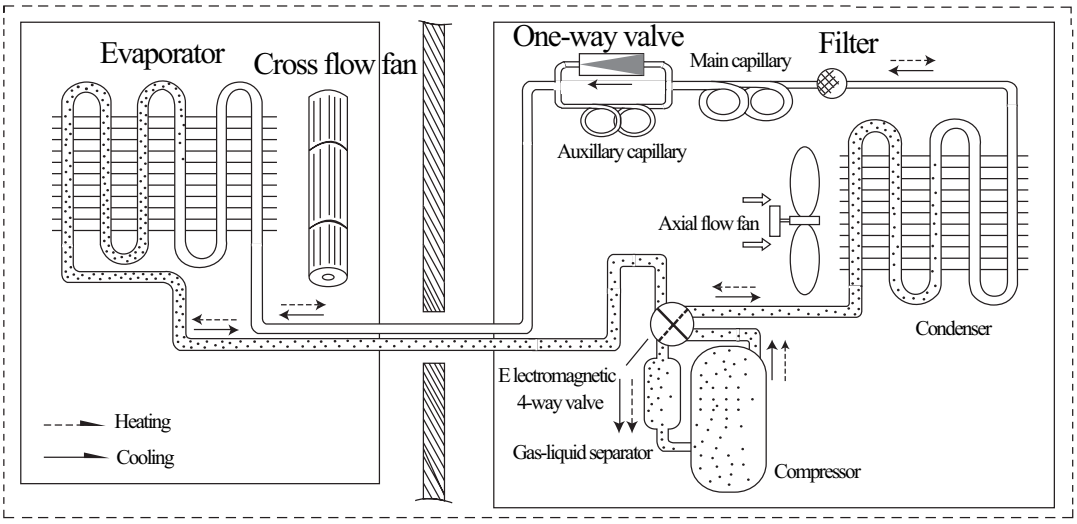
When the power is on, indoor and outdoor units will start to run. The compressor sucks low-pressure refrigerant gas from the evaporator of indoor unit and then discharges high-temperature, high-pressure refrigerant gas into outdoor condenser. Then air exchange the heat with outdoor air and becomes refrigerant liquid. The liquid is throttled by the capillary and changes into low-temperature and low-pressure liquid and then flows into indoor evaporator. Then liquid exchanges the heat with the required air and changes into low-temperature and low-pressure refrigerant gas. The cycle introduced above goes on and on, and the demanded low temperature environment is maintained.



Cooling system diagram for cooling /heating type

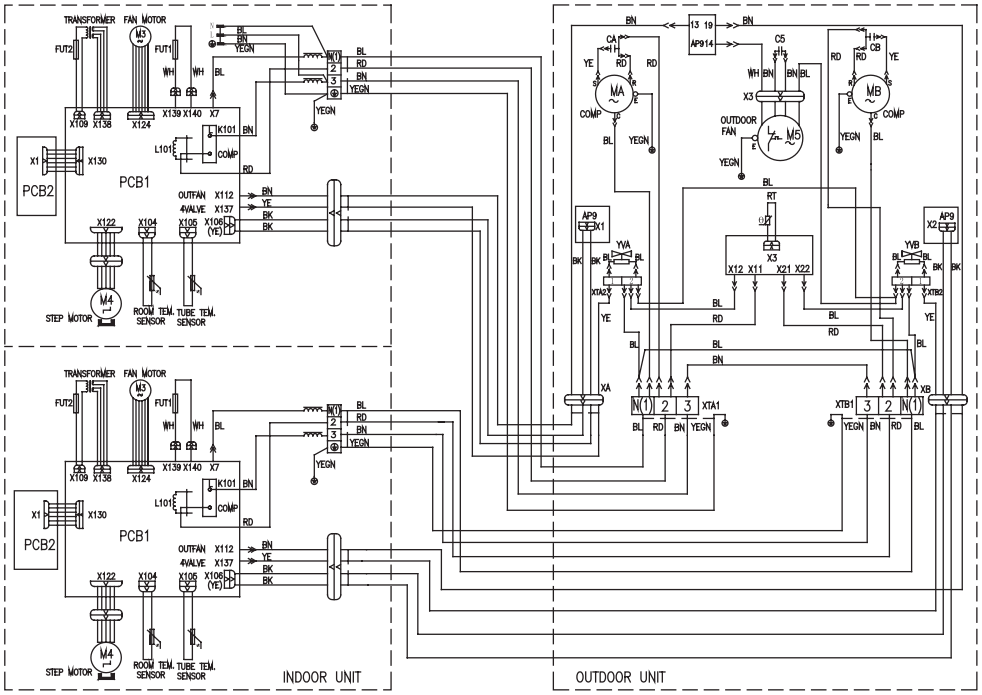
When the power is on, indoor and outdoor units will start to run. When the system operates in cool mode, the compressor sucks low-temperature, low pressure refrigerant gas from indoor evaporator and then discharges high-temperature, high-pressure refrigerant gas into outdoor heat exchanger. With the help of axial flow fan, the gas transfers its latent heat into outdoor air and becomes high-pressure refrigerant liquid. The liquid is throttled by the capillary and changes into low-temperature and low-pressure liquid and the flows into indoor heat exchanger. With the help of centrifugal fan, the liquid evaporates into low-temperature refrigerant gas and indoor air is cooled down. The refrigerant gas is sucked into the compressor and the cycle introduced above goes on and on, and the demanded low temperature environment is maintained.

When the system operates in heat mode, 4-way valve changes its way and refrigerant flows into the reversible cycle as the cool mode. The refrigerant discharges its latent heat in the indoor heat exchanger, and sucks heat from outdoor heat exchanger and forms the heat pump cycle. This cycle goes on and on and the demanded high temperature environment is maintained.



CIRCUIT DIAGRAM

** The circuit diagram is subject to change without notice. Please refer to the ones stuck on the machines.



PCB FUNCTION MANUAL AND OPERATION METHOD

PCB function manual

Temperature parameter

1. The room set temperature: (T_{set})
2. The room ambient temperature: (T_{amb})
3. The evaporator tube temperature: (T_{tube})
4. The condenser tube temperature: ($T_{defrost}$)

Fundamental functions

After power is on, no matter when compressor is started, the time span between the startups cannot be less than 3 minutes.

1. COOL mode
   a. Cooling condition
      i. If $T_{amb} \geq T_{set} + 1^oC$, COOL mode will act, compressor and outdoor fan will run, indoor fan will run at the set speed.
      ii. If $T_{amb} \leq T_{set} - 1^oC$, unit will stop, compressor will stop and then outdoor fan will delay 15 sec and stop.
      iii. If $T_{set} - 1^oC < T_{amb} < T_{set} + 1^oC$, the unit will keep running in the old mode.

      ❖ In this mode, the reversal valve will not power on, the setting temp. range :16^oC~30^oC.

   b. Protection functions
      i. Overcurrent protections
         ❖ When the system current is tested higher than 13A, only fan will run. After 3 minutes, the whole unit will run in the old mode, if the over current cannot be eliminated, the whole unit will stop and can be restarted by wireless remote control.
      ii. Antifreezing protection
         ❖ When the system is tested, the compressor and outdoor fan will stop, indoor fan will run at the set speed. When the antifreezing protection is and the compressor has stopped for 3 min, the unit will return to the old mode.

2. DRY mode
   a. The conditions and process of dehumidifying
      i. If $T_{amb} > T_{set} + 2^oC$, the cooling mode will act, indoor fan speed could be adjusted, outdoor fan will run.
      ii. If $T_{set} - 2^oC \leq T_{room} \leq T_{set} + 2^oC$, DRY mode will act, the indoor fan will run at the low speed. After running for 6mins, outdoor fan and compressor will stop but indoor fan will delay 30secs and stop after 3.5mins. Compressor and outdoor fan will run and indoor fan will run at the low speed. The processes of dehumidifying are shown as the cycle.
      iii. If $T_{amb} < T_{set} - 2^oC$, the unit will stop, the compressor will stop after 15sec later, outdoor fan will stop after another 15sec, indoor fan will stop.
         ❖ In this mode, the reversal will not power on, the setting temp. range: 16^oC~30^oC.

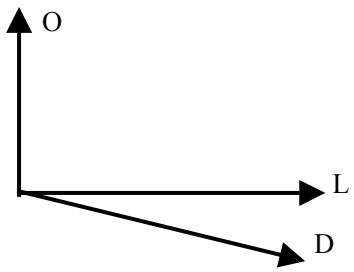
b. Protection function
   i. Antifreezing protection
      ❖ When running in COOL mode, antifreezing protection is the same as the cooling. The DRY mode act, when antifreezing protection is detected, the compressor will stop but outdoor fan will delay 15sec and stop. Indoor fan will run at low speed. When antifreezing protection is eliminated and compressor has stopped for 3min, the whole unit will run at the original status.

3. HEAT mode
   a. The conditions and process of heating
      i. If $T_{amb} \leq T_{set}+2^oC$, HEAT mode will act, compressor, outdoor fan and reversing valve will run but indoor fan will after 20sec delayed and run.
      ii. If $T_{amb} \leq T_{set}+4^oC$, compressor will stop first, outdoor fan will delay 15s and stop. Reversing valve will keep working. After 30secs, indoor fan will blow the surplus heat, after 30secs it will stop.
      iii. If $T_{set}+2^oC<T_{set}<T_{set}+4^oC$, the unit will keep running in the old mode.
         ❖ In this mode, the reversal valve will not power on, the setting temp. tange: 16^oC~30^oC.
   b. The conditions and process of defrosting
      When detecting there is frost on the condenser, system enter into defrosting state, 10sec later, indoor fan stops running, reversing valve delay 2sec and stop out door fan delay another 2sec will stop. When detecting the defrosting has been finished or has frosted for 10min, outdoor fan and revering valve are turned on 20sec later. Indoor fan will start to run and start heat circulation.
   c. Protection function
      i. Overcurrent protection
         ❖ When the system current is tested higher than 13A, the compressor outdoor fan and indoor fan stop running. 3min later, whole unit will run in old mode, indoor fan will delay 20sec and start to run.
      ii. Avoiding high temp
         ❖ In HEAT mode, when detecting tube is very high, outdoor fan will stop running. When detecting tube is normal, outdoor fan will return to run.
      iii. Noise cancellation protection
         ❖ When turning off the unit or exchanging the mode, the reversing valve will delay 2min to stop.

4. AUTO mode
   According to the ambient temperature to select COOL or HEAT mode automatically. The protection function as HEAT/COOL mode.

Other control

1. Swing motor
   When it is powered on, the swing motor turn to position O, to turn off the air outlet vent. When the unit is turned on, turn to position D, then return to position L. In swing state, the louver swings between position L and D. when the unit is turned off, will return to position O



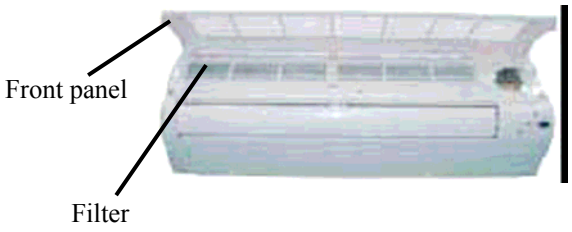
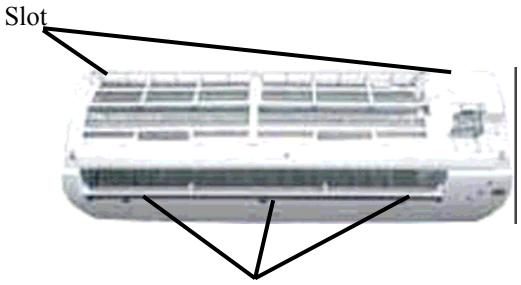
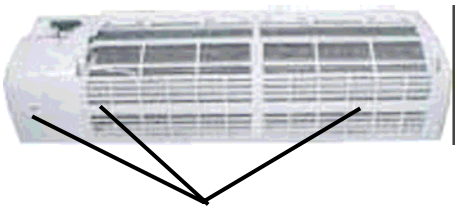
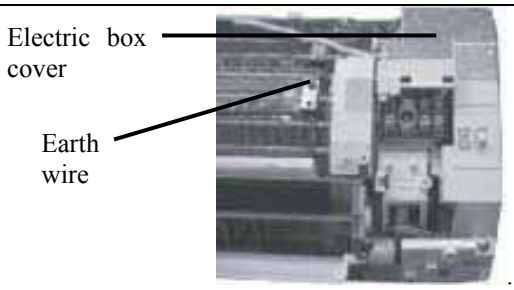
2. Buzzer
   When PCB is power on or receives the signal from the wireless remote control, the buzzer will send out the sound once.

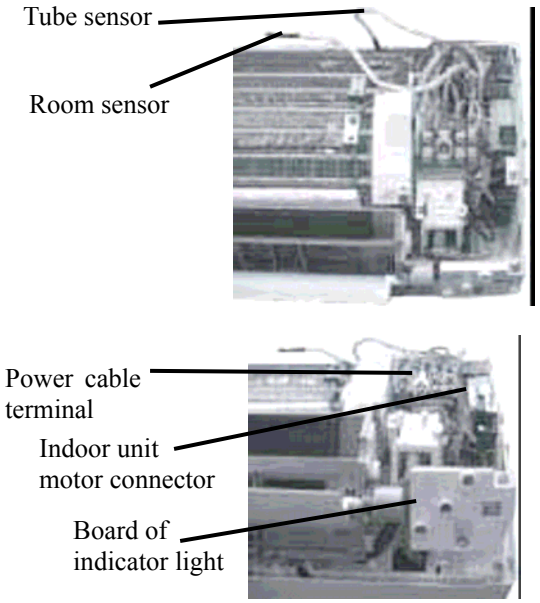
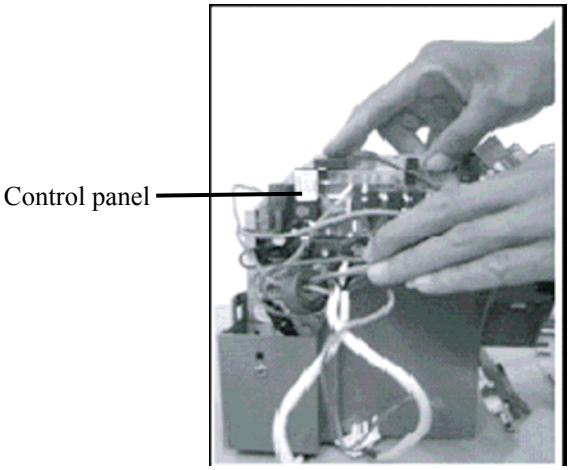
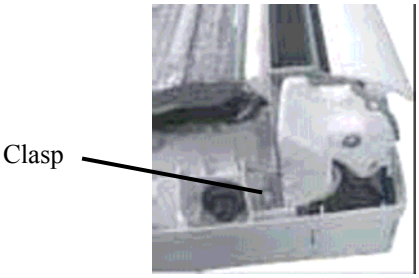
3. Run indicator
   Run indicator, it will light when starting the unit and extinguish when defrosting.

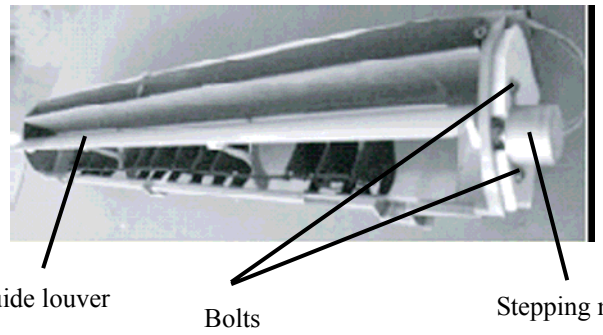
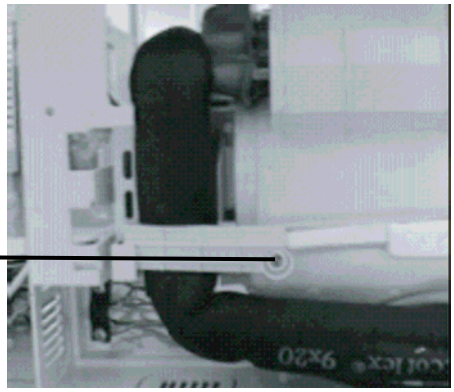
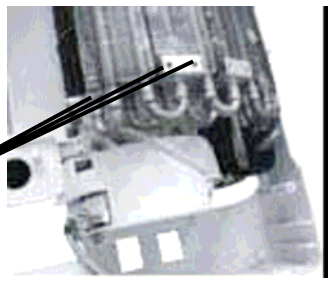
4. Manual switch function (under indoor unit front panel)
   a. Auto function
      When setting the switch to AUTO mode. If receiving the signal, it will run according to the remote signal.
   b. Test function
      When setting the switch to “TEST”, the unit will run in COOL mode, indoor fan will run at high speed, louver will run in SWING mode. If receiving remote signal, the unit will run according to remote signal. If the sensor is open-circuited or short-circuited, buzzer will alarm.
   c. Run function
      When setting the switch to “RUN”, the unit will run according to remote signal.
   d. Stop function
      When setting the switch to “STOP”, the unit will stop running.
5. Sleep function
   a. In COOL or DRY mode, when the set sleeping has run for 1 hour, T_{set} will rise 1^{o}C; 2 hours later, T_{set} will rise 2^{o}C. Indoor fan will run at low speed.
   b. In HEAT mode, when the set sleeping has run for 1 hour, T_{set} will fall 1^{o}C; 2 hours later, T_{set} will fall 2^{o}C indoor fan will run at low speed.
6. Auto fan
   In this mode, according to ambient temperature, indoor fan will select High, Middle, Low fan speed.
7. Timing function
   a. Time On
      The unit is stopped when the timer for turning on acts. When it is time to turn on, the PCB will act in the set mode. The distance of setting twice is 0.5 hour and time range is 0.5 – 24 hours.
   b. Time Off
      Set the timer for turning off function when the unit is turned on, when it is time to turn off, the unit will be switched off. The distance of setting twice is 0.5 hour and time range is 0.5 – 24 hours.
8. Memory function
   The unit will restart in the old mode with memory function after power is turned off.

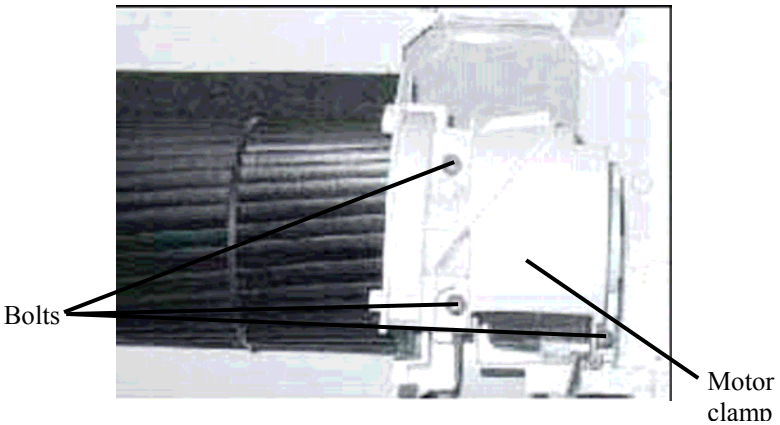
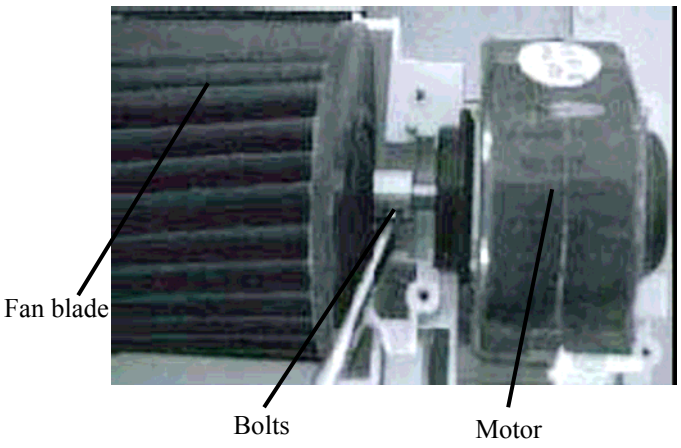
DISSASSEMBLY PROCEDURES

1. Disassembly procedures for indoor unit

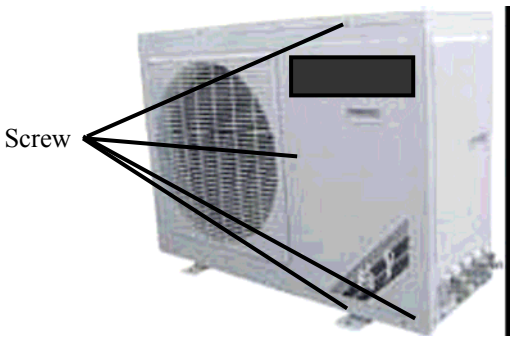
Remove the front case	
Open the front panel, along the slots, which is fixing the front panel to pull it out and then could take out the front panel.	
Take out 3 pcs bolt cover and 3 pcs tapping screw and ram the clasp, which is in the rear of front case inward with screw driver. Then take out the front case assay.	 
Disassemble electric box	
To push the left clasp of the electric box cover with screw driver and take out the electric box cover and loose the earth bolts on the evaporator. Take out the tube sensor.	

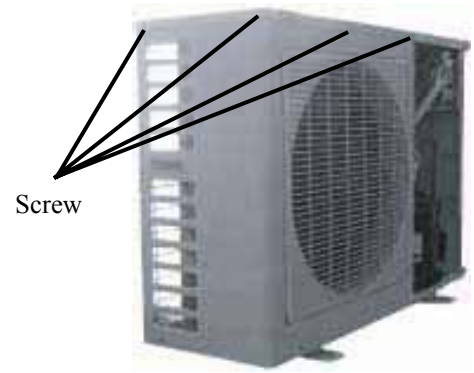
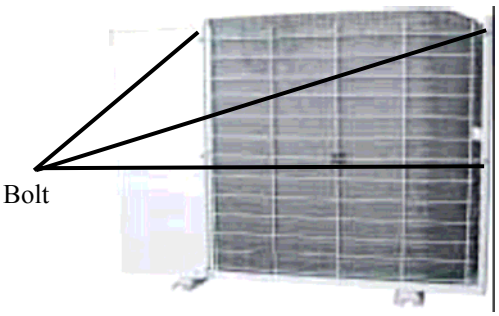
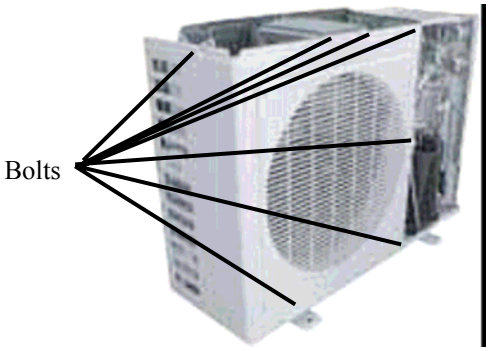
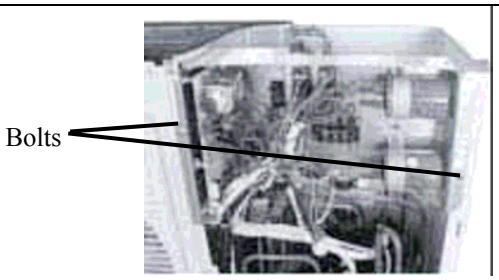
Take off the indoor motor of the electric box, the connector of swing motor. And take out of the electric box. Pull out of the connection wire and power cord, which are on the connection wire terminal. To screw off 3 pcs bolts, which fix on the board of indicator light and take the board of indicator light, wireless receiver and indoor sensors out of the electric box. Prize up electric box clasp.	
Take out the control panel with hands	
Disassemble water-tray	
Draw out the rear case clasp from the water tray clasp forcely at full tilt and take out the water-tray assy. Because of the drainage pipe, so pay more attention	

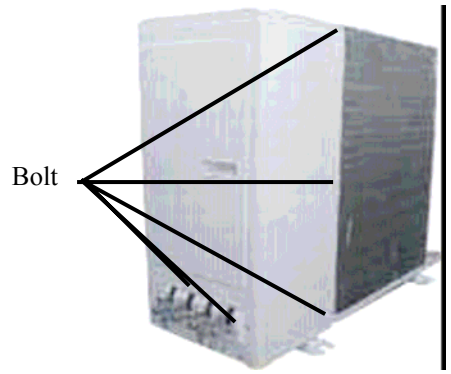
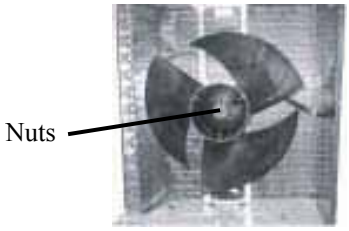
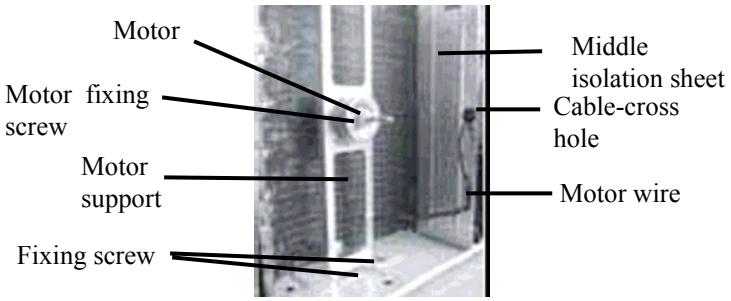
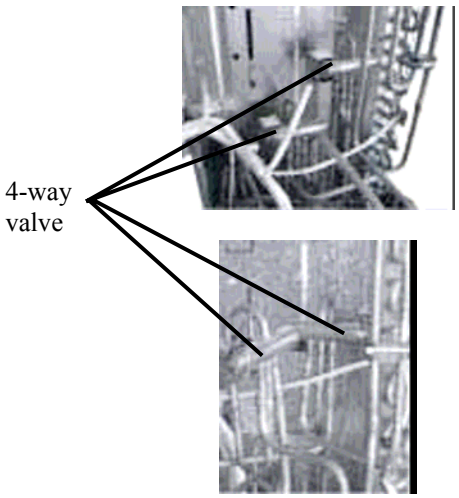
Disassemble the water-tray assy	
Press the drainage pipe jpint tightly and take off the drainage pipe anticlockwise. Disassemble the guide louver, bend it with your finger at full tilt and pull out the guide louver. Screw off 2 pcs bolt which fix the stepping motor and take off the stepping motor.	 Guide louver Bolts Stepping motor
Disassemble evaporator	
To screw off the tapping screws from the back of rear case, which fix the rear plate and push up the clasp of rear case and pull out the connection pipe.	 Screws
To screw off 1 pc screw, which is in the left side of evaporator and 3pcs screws in the right side of evaporator, press the lowleft of the evaporator and move it and take out the side-board clasp from the groove and take out the evapoator carefully and pay attention to protect connection pipe.	 Screws  Screws

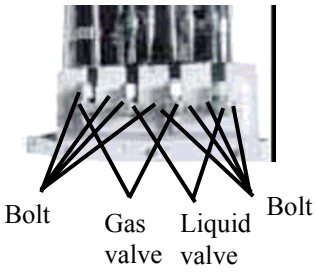
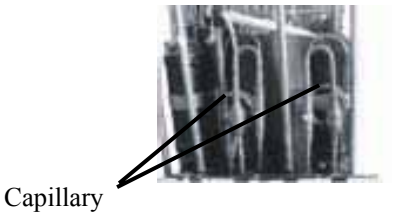
Disassemble cross flow fan and motor	
Use screw driver to loose the bolts of motor clamp and take off the motor clamp.	
Loose 1 pc M4 fixing bolt of right bearing of cross flow fan and take out themotor fan blade.	

2. Disassembly procedures for outdoor unit

Disassemble front side plate	
Screw off 4 pcs fixing screw of front side plate, the pull it downward, can take off it.	

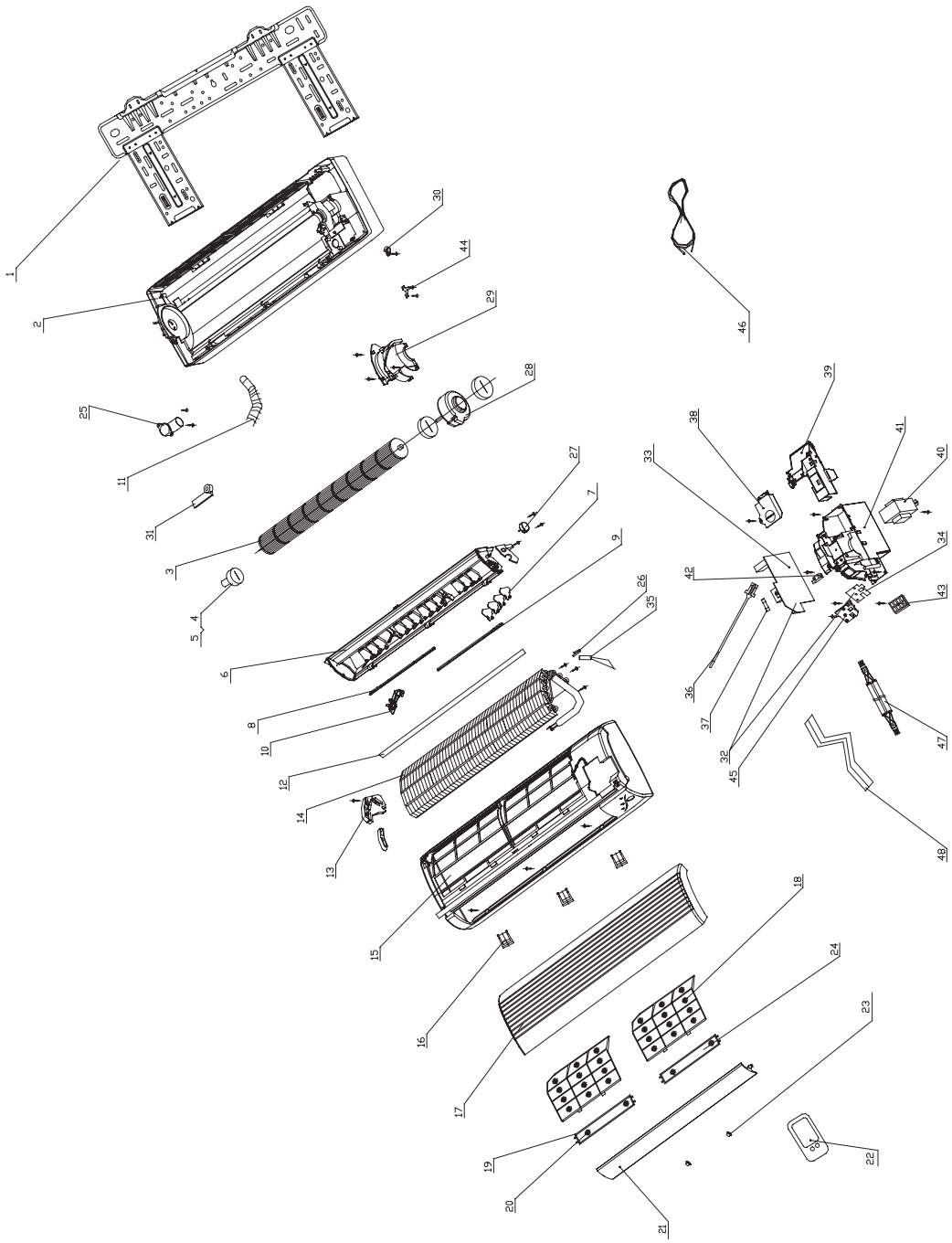
Disassemnle the top cover	
Screw off the screws which fix the top cover around, take off the top cover.	
Dissassemble the rear grill	
Screw off 4 pcs bolt or rear grill, lift it upward, could take off the rear grill.	
Disassemble the cabinet	
Screw off the surrounding bolts of the cabinet and take off the cabinet.	
Disassemble the electric box	
Screw off 2 pcs bolt of electric box and disassemble the electric box assy.	

Disassemble right side plate	
Screw off the surrounding bolts of the right side plate, and take off the right side plate.	
Disassemble axial flow fan	
Screw off the nuts of fan blade by spanner and could take off the fan blade	
Disassemble the outdoor motor	
Screw off 4 pcs tapping screw which fixing the motor and pull out the motor lead wire connection insert and disassemble the motor. To screw off 2 pcs tapping screw from the motor support and lift it upward, disassemble the motor support.	
Disassemble 4-way valve	
(Only for cooling and heating unit) Unsolder 8 pcs solder joint of two pcs 4-way valve, then remove the connection wire of 4-way valve wire loop and take off the 4-way valve.	

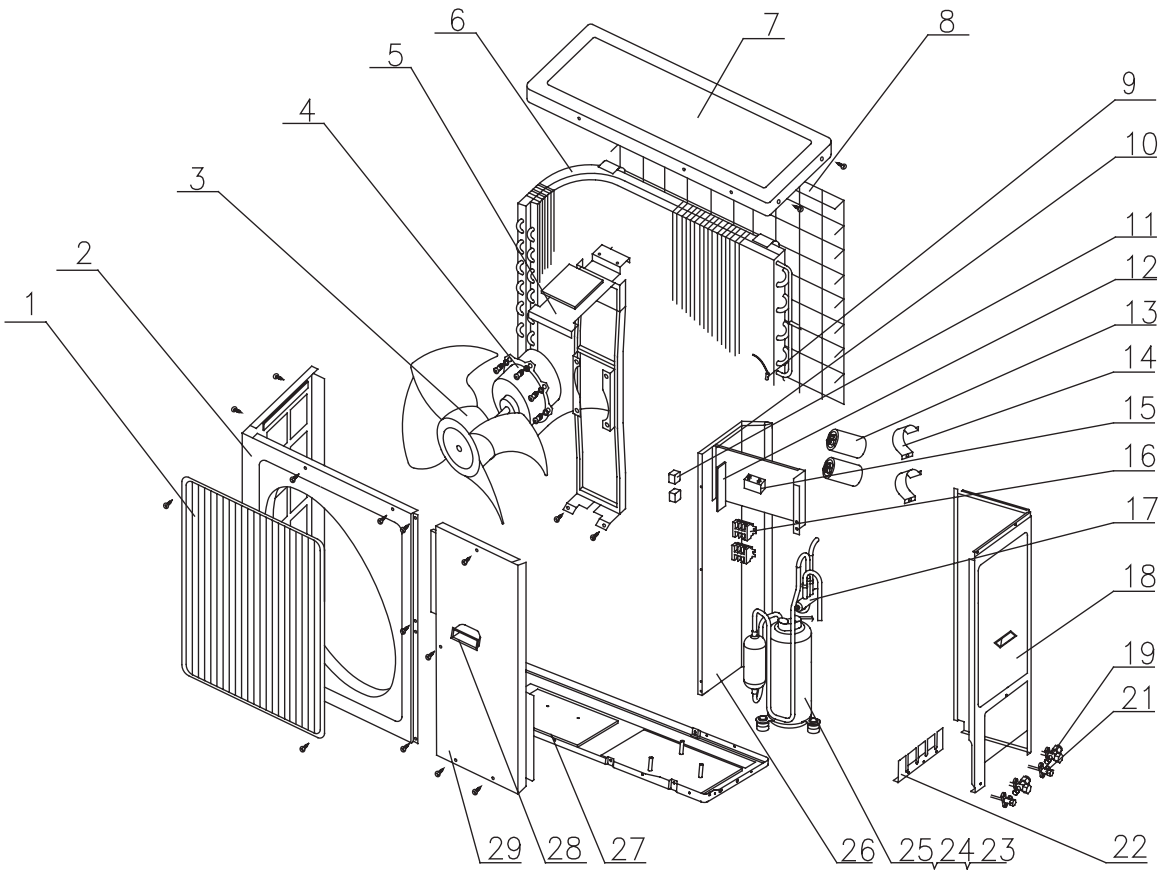
Disassemble the valve gate	
Screw off 2pcs bolt of each valve gate and unsolder their connection pipe and take off the valve gate	
Disassemble the capillary	
Unsolder both sides solder joints of capillary and can take off the capillary.	
Disassemble the compressor	
Screw off 6 pcs bottom nut from two compressor and unsolder the connection pipe and take off the compressor.	

EXPLODED VIEW

Indoor Unit



Outdoor Unit



PART LIST

Indoor Unit

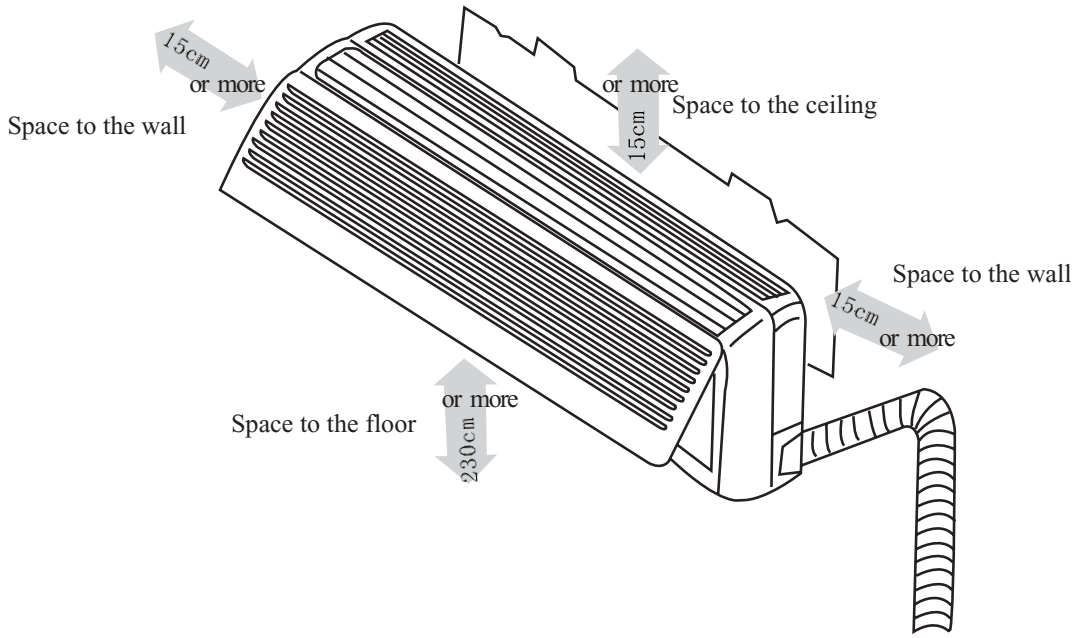
No	Description	Qty
1	Wall mounting frame	1
2	Rear case	1
3	Cross flow fan	1
4	Fan bearing	1
5	Ring of bearing	1
6	Water tray assy	1
7	Swing louver	1
8	Swing connecting rod 1	12
9	Swing connecting rod 2	1
10	Manual lever	2
11	Water drainage pipe	1
12	Evaporator gate	1
13	Evaporator supporter	1
14	Evaporator assy	1
15	Front case	1
16	Screw cover	3
17	Front panel	1
18	Filter	2
19	Air cleaner holder	2
20	Air cleaner screen A	1
21	Guide louver	1
22	Wireless remote control Y512	1
23	Guide louver bearing	3
24	Air cleaner screen B	1
25	Evaporator tray	1
26	Sensor insert B	1
27	Stepping motor Mp 24GA	1
28	Motor FN13B	1
29	Motor clamp	1
30	Wire clamp	1
31	Connecting pipe clamp	1
32	PCB 5K512J	1
33	Main board 5K522J	1
34	Receiving board JD	1
35	Tube sensor	1
36	Room sensor	1
37	Fuse	1
38	Top cover of electric box 2	1
39	Top cover of electric box	1
40	Transformer SC28B1	1
41	Electric box	1
42	Cable groove	1
43	Terminal board GT4B3A2	1
44	Wire clip	1
45	LED holder	1
46	Power connecting cable	1
47	Signal control cable	1
48	Power cable	1

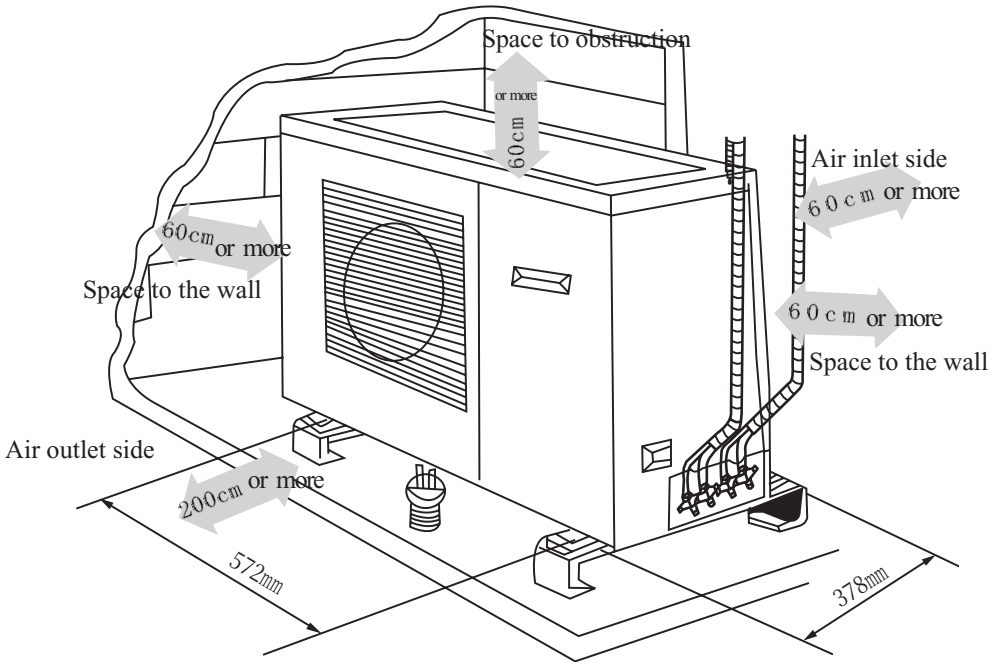
Outdoor Unit

No	Description	Qty
1	Front grill	1
2	Cabinet	1
3	Axial flow fan	1
4	Motor FW 60J	1
5	Motor support	1
6	Condenser sub-assy	1
7	Top cover	1
8	Rear grill	1
9	Outdoor tube sensor	1
10	Electric box sub-assy	1
11	Terminal board 2-8	1
12	Dual defrost board 2F16HS	1
13	Capacitor 25uF /450V	1
14	Capacitor clamp	2
15	Capacitor 3uF /450V	1
16	Three-bit terminal board A	1
17	4-way valve fittings	1
18	Rear side plate	1
19	4-way valve	2
20	Valve 3/8”	2
21	Valve ¼”	2
22	Valve support	1
23	Compressor and fitting	2
24	Compressor gasket	6
25	Compressor overload	2
26	Mid isolation sheet	1
27	Chassis sub-assy	1
28	Handle	2
29	Front side plate sub-assy	1

GUIDE FOR INSTALLATION

1. Installation dimension diagram

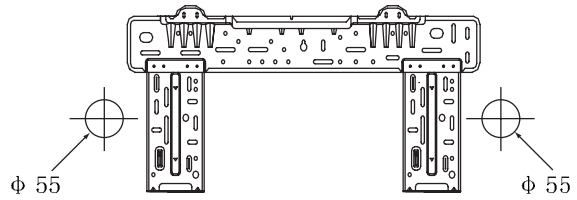




2. Installation location selection
   a. Indoor unit
      - ❖ The inlet and outlet should be far from the obstructions so that the out flow air can reach all parts of the room.
      - ❖ A location from which the condensation water can be drained out conveniently.
      - ❖ A location easily connect with the outdoor unit.
      - ❖ Avoid a location where there is heat source, steam and inflammable gas.
      - ❖ Install in a location where is strong enough to withstand the full weight and vibration of the unit and will not increase the operation noise.
      - ❖ Be sure that the installation conforms to the installation dimension diagram.
      - ❖ Be sure to leave enough space to allow access for routine maintenance. The height of the indoor unit location should be more than 230cm from the floor.
      - ❖ Install in a location where is 1m or more away from other electric appliances such as television, audio devices etc.
      - ❖ Select location where is easy to remove and clean the filter.
      - ❖ Do not use the unit in the immediate surroundings of a laundry, a bath, a shower or a swimming pool.
   b. Outdoor unit
      - ❖ Select location from which noise and outflow air emitted by unit will not disturb neighbors.
      - ❖ Select location where ventilate freely.
      - ❖ The inlet and outlet should not be covered.
      - ❖ The location should be able to withstand the full weight and vibration of the outdoor unit.
      - ❖ There should be no danger of flammable gas or corrosive gas leaks.
      - ❖ Be sure that the installation conforms to the installation dimension diagram.

   Note:
   Install in the following place may cause malfunction.
   - ❖ Place where oil (machine oil) is used.
   - ❖ The place where a lot of salinities such as coast exists.
   - ❖ Place where a sulfured gas such as the hot spring zones is generated. Place where high-frequency waves are generated by radio equipment, welders and medical equipment.
   - ❖ Other place with special circumstance.

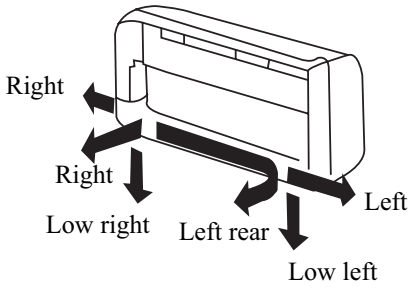
3. Install the indoor unit
   a. Install the rear panel
      i. Use the seton to find the horizontal place because the drainage hose nozzle is in the left side when adjusting the rear panel should lower down the left side a little.



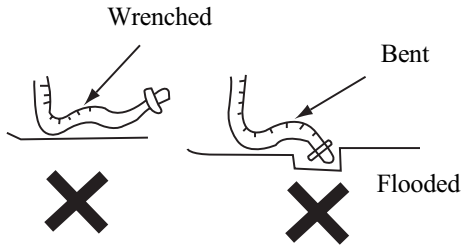
Left piping hole Right piping hole

      ii. Fix the rear panel on the selected location with screws supplied with the unit.
      iii. Be sure that the rear panel has been fixed firmly enough to withstand the weight of an adult of 60kg. Furthermore, the weight should be evenly shared by each screw.

b. Install the piping hole
   i. The direction of piping can be chosen from six directions.
   ii. Make the piping hole (Φ55) in the wall at a slight downward slant to the outdoor side.
   iii. Insert the piping-hole sleeve into the hole to prevent the connection piping and wiring from being damaged when passing through the hole.



c. Install the drainage hole
   i. For well draining, the drain hose should be placed at a downward slant.
   ii. Do not wrench or bend the drain hose or flood its end by water.

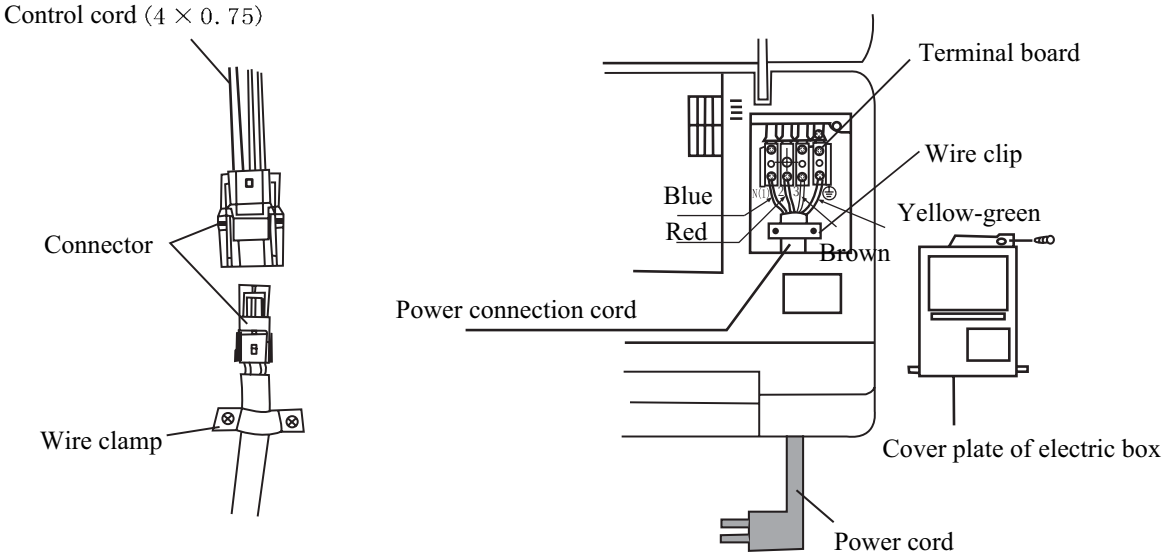


   iii. When the long drainage hose passing through indoor, should wrap the insulation materials.

d. Install the connection pipes
   i. Connect the connection pipes with the relevant union pipes of the indoor unit. Tighten the nut of the connection pipe joint. (Please refer to “Installation the connection pipe”).

Note:
   i. Connect the connection pipes with the indoor unit firstl and the outdoor unit secondly.
   ii. Be careful in bending the connection pipes, or you will damage the pipes.
   iii. If the tightening torque is too great in tightening the flare nuts, leakage will happen.

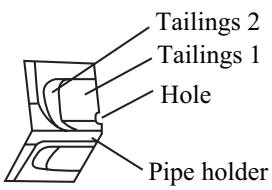
e. Electrical wiring
   i. Open the surface upward.
   ii. Screw off the fixing screw of wiring cover
   iii. Route the power connection cord from the back of the indoor unit and pull it toward the front through the wiring hole for connection.
   iv. Connect the blue wire of the power connection cord to the terminal "N(1)", the red one to "2" brown one to "3" and the yellow-green one (earth wire) to "⏚" and use the wire clamp to fix the wire.



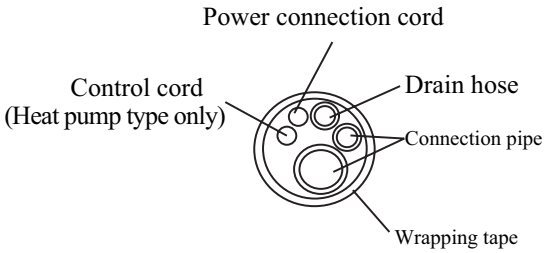
   v. For the heat pump type, connect the control cord (4 x 0.75) to the indoor unit through the connector and fix it with the wire clamp.
   vi. Reassemble the wire covering plate and screw down the screws.
   vii. Recover the surface panel.

Note:
- ❖ All the electric work must be done by qualified personnel according to the rules and this manual.
- ❖ The rated voltage and the exclusive circuit must be used.
- ❖ Electricity leakage protection switch must be installed.
- ❖ Please adopt the qualified fuse.
- ❖ If the power connection cord of unit is damaged, it should be replaced by the professional who came from the dealer or technical service organization in order to avoid the harm.
- ❖ The diameter of power cord should be large enough. Use the exclusive wire to replace the damage wire.
- ❖ Wiring work should conform to national standard.

f. Install the indoor unit
   i. When routing the piping and wiring from the left or right side of the indoor unit, cut off the tailings from the pipe holder in necessary.
      - ❑ Through the tailings 1 when routing the wiring only.
      - ❑ Cut off the tiling 1 when routing both the wiring and piping. (heat pump type only).



ii. Wrap the piping and wiring and pull them through the cut-off tailings hole.



iii. Hang the mounting slots of the indoor unit on the upper tabs of the rear panel and check if it is firm enough.

iv. The height of the installed location should be 2.3m or more from the floor.

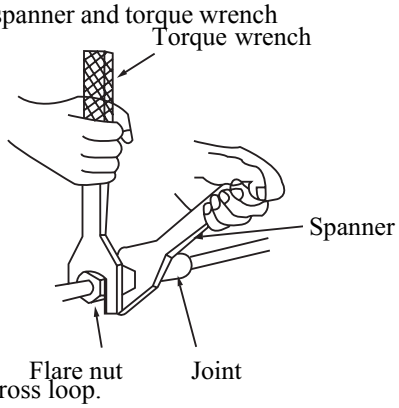
4. Install the outdoor unit

a. Install the connection pipe

i. Align the center of the piping flare with the relevant valve.

ii. Screw in the flare nut by hand and then tighten the nut with spanner and torque wrench refer to right figure.

Note: Exceeding tightening torque will damage the flare nut.



Tightening torque table.

Hex nut diameter (mm)	Tightening torque (N.m)
Φ 6	15 ~ 20
Φ 9.5	31 ~ 35
Φ 12	50 ~ 55

b. Electric wiring connection

i. Disassemble the front side plate of outdoor unit.

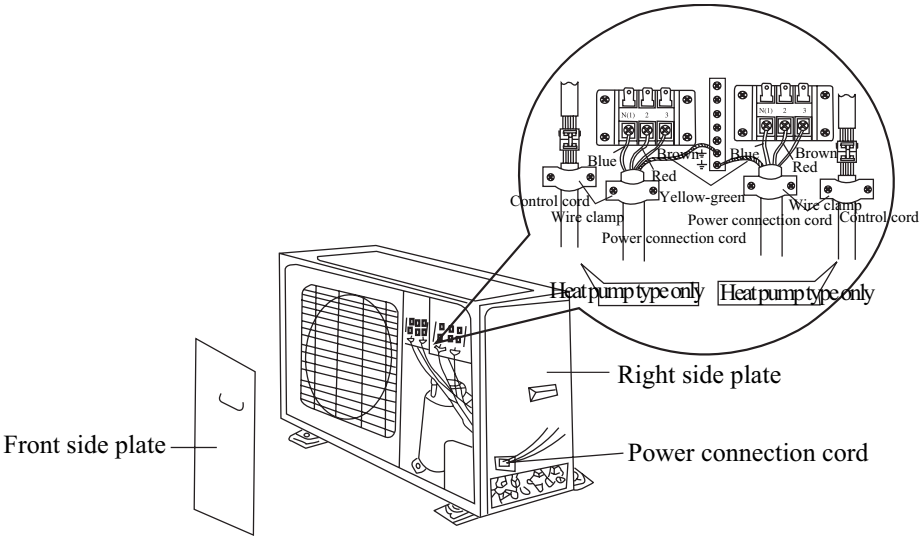
ii. Get through the wire hole of outdoor unit, cover the cable-cross loop.

iii. Disassemble the wire clamp, fixing the power connection cord on the terminal of line bank.

iv. Use the wire clamp to fix the power connection cord and control cord, then connect the corresponding connector.

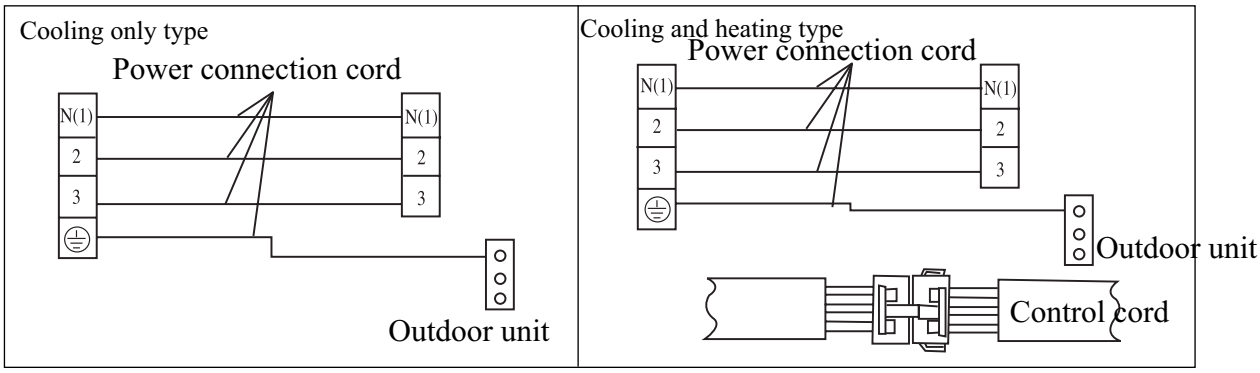
v. Make sure that the wiring has been connected firmly.

vi. Reassemble the front side plate.



Note:

- Wrong wiring connection will cause electrical malfunction.
- The lead between the connecting and the fixed should be a little free when fixing it with wire clamp.



c. Air purging and leakage test

i. Remove the nut cap from the cut-off valves of the outdoor unit.

ii. Align the center of the piping flare with the relevant valve and screw in the flare nut by hands.

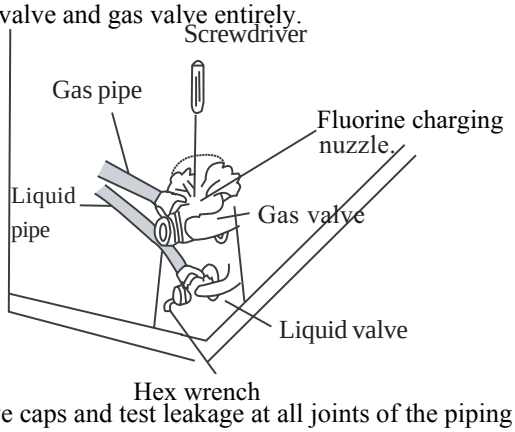
iii. Tighten the flare nut with spanner.

iv. Remove the valve caps of the gas valve and liquid valve and the service port nut.

v. Loosen the valve stem of the liquid valve with a hex wrench. Push the check valve core of the gas valve to discharge air and moisture remaining in refrigerant system.

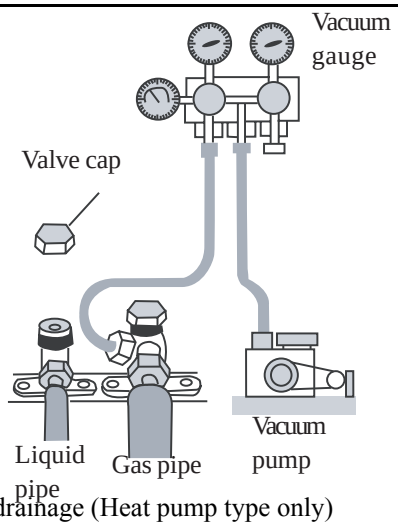
vi. After 15 seconds, stop pushing the valve core as soon as the refrigerant starts to be discharged and reinstall the service port nut.

vii. Open the liquid valve and gas valve entirely.



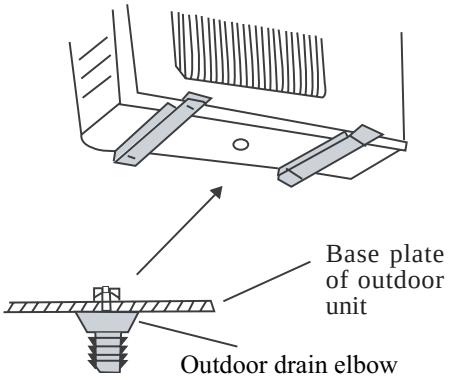
viii. Tighten the valve caps and test leakage at all joints of the piping (both indoor and outdoor) by liquid soap or leak detector.

ix. If possible, discharge air and moisture remaining in the refrigerant system with a vacuum pump.



d. Outdoor condensation drainage (Heat pump type only)
   i. When the unit heating or defrosting, the condensing water and defrosting water formed in the outdoor unit can be drained out reliably through the drain hose.

Installation:
Install the outdoor drain elbow in the Φ25 hole on the base plate and joint the drain hose to the elbow, so that the waste water formed can be drained out to a proper place.



5. Test operation and check after installation
   a. Check after installation

Items to be checked	Possible malfunction
Has it been fixed firmly?	The unit may drop, shake or emit noise.
Have you done the refrigerant leakage test?	It may cause insufficient cooling (heating) capacity.
Is heat insulation sufficient?	It may cause condensation and dripping.
Does the unit drain well?	It may cause condensation and dripping.
Is the voltage in accordance with the rated voltage marked on the nameplate?	It may cause electric malfunction or damage the part.
Is the electric wiring and piping connection installed correctly and securely?	It may cause electric malfunction or damage the part.
Has the unit been connected to a secure earth connection?	It may cause electrical leakage.
Is the power cord specified?	It may cause electric malfunction or damage the part.
Has the inlet and outlet been covered?	It may cause insufficient cooling (heating) capacity.
Has the length of connection pipes and refrigerant capacity been recorded?	The refrigerant capacity is not accurate.

TROUBLE SHOOTING GUIDE

PROBLEM	PASSIBLE CAUSE		SUGGESTED SOLUTION
Air conditioner can not start up.	Breaker tripped or fuse burnt out	When set breaker to ON, it will trip off at once.	Test the insulative resistance for earthing to confirm whether unit is current leakage or not.
		When turn on the unit, the breaker will trip in a few minutes.	Check the breaker and test the resistance.
	Both indoor unit and outdoor unit can't start up.	No power supply.	Check the circuit.
		The power plug is not connected well or poor connected.	Check and insert the plug tightly.
		Wrong wire connection between the indoor unit and outdoor unit.	According to the electric diagram to check the wire and connect correctly.
		Malfunction of wireless remote control.	Check the wireless remote control.
		Fuse of controller was burnt out.	Replace the fuse of controller.
		Whether the wire connection between strong current board and light current board of the controller is firmed?	Please fix the connection wire firmly.
		Is the transformer output wire connected well, is there voltage output?	Please fix connection wire firmly check output voltage.
Poor COOL (HEAT) operation	Is the setting temp. suitable?		Adjust the setting temp.
	Is COOL (HEAT) load suitable?		To check the pretested COOL (HEAT) load.
	Malfunction of refrigerant flow	Malfunction of 4-way valve	Replace the 4-way valve.
		Short of refrigerant volume	Charge the refrigerant.
		Malfunction of compressor.	Replace the compressor.
		Short of valve gate flow volume	To open the valve gate adequately.
	Short of air volume	Air filter were blocked.	Clean the filter
		Fan speed was set too slow.	To set the fan speed to high or middle speed.
	Outdoor unit installation place is improper		Outdoor unit should be install in a place with well ventilation and should be installed the awning.
	Indoor unit filter was blocked.		To clean the filter regularly.
	The outdoor unit heat exchanger was blocked.		To clean the adhesive dust on heat exchanger.
	Leakage between compressor high pressure and low pressure.		Replace the compressor.
	Some part of capillary was blocked		Replace the capillary.
	Refrigerant leakage.		Check leakage and charge refrigerant.
	Outdoor unit one-way valve was blocked.		Replace one-way valve.

PROBLEM	PASSIBLE CAUSE	SUGGESTED SOLUTION
Set the fan operation the motor doesn't run	Indoor fan motor burnt out or disconnected	Mend or replace the fan motor.
	The wire is wrong connected.	To connect the wire according to electric diagram.
	Fan capacitor tripped off or broken.	Replace the same model and type fan motor capacitor.
When in COOL, HEAT model, the outdoor unit and compressor do not work.	Loop of relay was disconnected.	Replace the relay.
	Poor connected of relay.	Replace the relay.
	The setting temp was improper.	To adjust the setting temp.
When in COOL, HEAT mode, compressor works but outdoor unit does not work.	Outdoor fan motor was broken	Replace the fan motor.
	The wire is wrong connected.	To connect the wire according to electric diagram.
	Outdoor fan motor capacitor was broken.	Replace the fan motor capacitor.
When in COOL, HEAT mode, outdoor unit works, compressor doesn't work.	Compressor malfunction.	Replace the compressor.
	Compressor run capacitor was broken.	Replace the capacitor.
	Voltage is too low or too high.	To equip the monostat.
	The wire is wrong connected.	To connect the wire according to electric diagram.
Water leakage	Water drainage pipe was blocked or broken.	Replace the drainage pipe.
	The joint of refrigerant pipe was not wrapped tightly.	Wrap again tightly.
Abnormal sound and vibration	Indoor fan touched other part.	Adjust the fan position.
	There is abnormal thing in the indoor unit.	Take out the abnormal thing.
	Compressor shakes terribly.	Adjust the compressor support pad, tighten the loose bolts.
	Indoor unit pipelines collide with each other.	Divide the collided pipelines.
	Indoor unit metal sheet collide with each other.	1. Connect the bolt tightly. 2. Stick the damping between the metal sheets.
	Outdoor unit fan blade collide with body case.	Adjust the fan blade position.
	Abnormal sound in compressor.	Replace the compressor.
	Abnormal electric magnetic sound in 4-way valve when in HEAT mode.	Solenoid valve is short circuit, replace the solenoid valve.