



De'Longhi CKP 10 EB '05 - CKP 20 EB '05 - CKP 30 EB '05 - CKP 20+20 EB '05 - CKP 21+31 EB '05

Ariagel APW 20 EB '05 - APW 25 EB '05 - APW 30 EB '05 - APW 25+25 EB '05 - APW 26+36 EB '05

Mizushi MKP 20 EB '05 - MKP 25 EB '05 - MKP 35 EB '05 - MKP 25+25 EB '05 - MKP 26+36 EB '05

Sorey NBS 70 EB '05 - NBS 90 EB '05 - NBS 120 EB '05 - NBS 90+90 EB '05 - NBS 91+121 EB '05

1. Technical and specifications

Model		7000 EB '05		9000 EB '05		
Function		Cooling	Heating	Cooling	Heating	
Rated voltage		220-230V~				
Rated frequency		50Hz				
Capacity	(Btu/h)	2000	2300	2500	2800	
Nominal power	(W)	840	840	1040	1050	
Max. power	(W)	980	980	1180	1180	
Max.current	(A)	4.3	4.3	5.1	5.1	
Air volume	(m ³ /h)	380				
Dehumidify volume	(L/h)	0.65	/	0.8	/	
C. O. P/EER	(W/W)	2.38	2.74	2.4	2.67	
INU	Model	INU 7000 EB '05		EXU 9000 EB '05		
	Fan speed (r/min) (H/M/L)	910/840/760				
	Motor output power (W)	7				
	Fan motor capacity(uF)	1				
	Fan type-piece	Cross flow fan -1				
	Diameter-length (mm)	Φ97×583				
	Evaporator	Aluminum fin-copper pipe				
	Pipe diameter	Φ7				
	Row- fin distance (mm)	2-1.6				
	Heat exchanger expand area (1kHxL)	0.13		0.14		
	Swing motor model	MP28EA		MP24GA		
	Motor power (W)	2				
	Protective fuse (A)	PCB3. 15A Transformer 0.2A				
	Noise dB(A)	37				
	Outline dimension (W/D/H) (mm)	740×180×250				
	Package dimension (W/D/H) (mm)	870×280×336				
	Net weight/Gross weight (kg)	9/12				
EXU	Model	EXU 7000 EB '05		EXU 9000 EB '05		
	Compressor model	YZG-22RY1T1		YZG-27RY1		
	Compressor model	Rotary				
	Blocking current	20		23		
	Compressor input power	730		910		
	Compressor overload model	MRA99279-9200		B220-135-241E		
	Throttling method	Capillary				
	Start-up method	Capacity				
	Working temp. range (℃)	-5~43℃				
	Condenser	Aluminum fin-copper pipe				
	Pipe diameter	Φ7		Φ9.52		
	Row- fin distance (mm)	1-1.4				
	Working area (m ²)	0.28				
	Fan power(W)/speed(rpm)	20/950				
	Fan blade type-piece	Axial flow fan-1				
	Fan diameter (mm)	Φ320				
	Defrosting method	Auto				
	Noise dB(A)	54				
	Outline dimension (W/D/H) (mm)	660×255×428				
	Package dimension (W/D/H) (mm)	765×350×500				
	Net weight/Gross weight (kg)	25/29				
	Refrigerant/refrigerant charge (kg)	R407C/0.63		R407C/0.76		
Connection pipe	Length	(m)		4		
	Outer diameter	Liquid pipe	(mm)		Φ6	
		Gas pipe	(mm)		Φ9.5	
	Max. diameter	Height	(m)		10	
		Length	(m)		20	

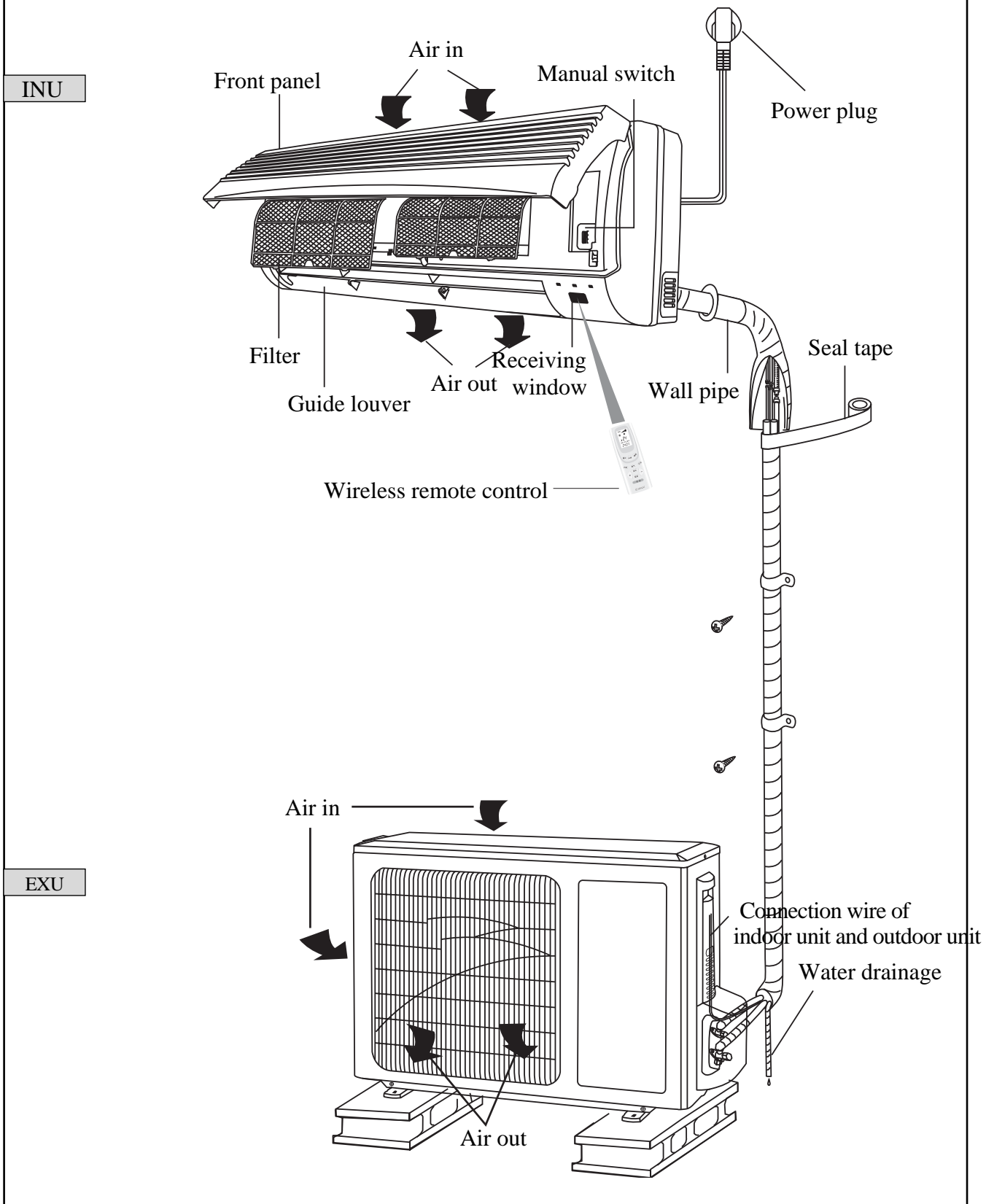
Model			12000 EB '05	
Function			Cooling	Heating
Rated voltage			220-230V~	
Rated frequency			50Hz	
Capacity	(Btu/h)		3200	3600
Nominal power	(W)		1300	1310
Max. power	(W)		1440	1500
Max.current	(A)		6.5	6.8
Air volume	(m ³ /h)		450	
Dehumidify volume	(L/h)		1	
C. O. P/EER	(W/W)		2.5	
INU	Model		INU 12000 EB '05	
	Fan speed (r/min) (H/M/L)		1160/1010/890	
	Motor output power (W)		14	
	Fan motor capacity(uF)		1	
	Fan type-piece		Cross flow fan -1	
	Diameter-length (mm)		Φ97×583	
	Evaporator		Aluminum fin-copper pipe	
	Pipe diameter		Φ7	
	Row- fin distance (mm)		2-1.4	
	Heat exchanger expand area (xHxL)		0.14	
	Swing motor model		MP24EA	
	Motor power (W)		2	
	Protective fuse (A)		PCB3.15A Transformer 0.2A	
	Noise dB(A)		40	
	Outline dimension (W/D/H) (mm)		740×180×250	
	Package dimension (W/D/H) (mm)		870×280×336	
	Net weight/Gross weight (kg)		9.5/12	
EXU	Model		EXU 12000 EB '05	
	Compressor model		QXC-21uB030g	
	Compressor model		Rotary	
	Blocking current		30	
	Compressor input power		1280	
	Compressor overload model		B260-150A-141E	
	Throttling method		Capillary	
	Start-up method		Capacity	
	Working temp. range		-7~43℃	
	Condenser		Aluminum fin-copper pipe	
	Pipe diameter		Φ9.52	
	Row- fin distance (mm)		1-1.6	
	Working area		781×508×44	
	Fan power(W)/speed(rpm)		48/900	
	Fan blade type-piece			
	Fan diameter (mm)		Φ400	
	Defrosting method		Auto	
	Noise dB(A)		56	
	Outline dimension (W/D/H) (mm)		848×320×540	
	Package dimension (W/D/H) (mm)		878×360×600	
	Net weight/Gross weight (kg)		40/44	
	Refrigerant/refrigerant charge (kg)		R407C/0.9	
Connection pipe	Length	(m)	4	
	Outer diameter	(mm)	Φ6	
	Liquid pipe Gas pipe	(mm)	Φ12	
	Max. Height	(m)	5	
	diameter Length	(m)	10	

Model		9000 + 9000 EB '05		9000 + 12000 EB '05	
Function		Cooling	Heating	Cooling	Heating
Rated voltage		230V~			
Rated frequency		50Hz			
Capacity	(W)	2500X2	2800X2	2500+3200	2900+3500
Nominal power	(W)	960X2	950X2	930+1120	1010+1480
Rated power	(W)	1150X2	1120X2	1180+1420	1200+1620
Rated current	(A)	6.15X2	5.3X2	6.2+9.5	5.7+7.6
Air flow volume	(m3/h)	450			
Dehumidify volume	(L/h)	1.2X2			
C. O. P/EER	(W/W)	2.6/3.1		2.7	
INU	Model	INU 9000 EB '05		INU 9000 EB '05	INU 12000 EB '05
	Fan speed (r/min) (H/M/L)	1160/1010/890			
	Motor output power (W)	14			
	Auxiliary electric heater power(W)	/			
	Fan motor capacity(uF)	1			
	Fan motor running current (A)	0.12			
	Fan type-piece	Cross flow fan -1			
	Diameter-length (mm)	Φ97×583			
	Evaporator	Aluminum fin-copper pipe			
	Pipe diameter (mm)	Φ7			
	Row- fin distance (mm)	2—1.4			
	Heat exchanger expand area (I×H×L)	580X228.6X25.4			
	Swing motor model	MP24GA			
	Motor power (W)	2			
	Protective fuse (A)	PCB3.15A		Transformer 3.15A	
	Noise (sound pressure level)dB(A)	38/35/32		Outdoor unit	
	Noise (sound power level) dB(A)	48/45/42		50/46/44	
	Outline dimension (W/D/H) (mm)	770 X180X250			
	Package dimension (W/D/H) (mm)	855X272X336			
	Net weight/Gross weight (kg)	8.5/12.5			

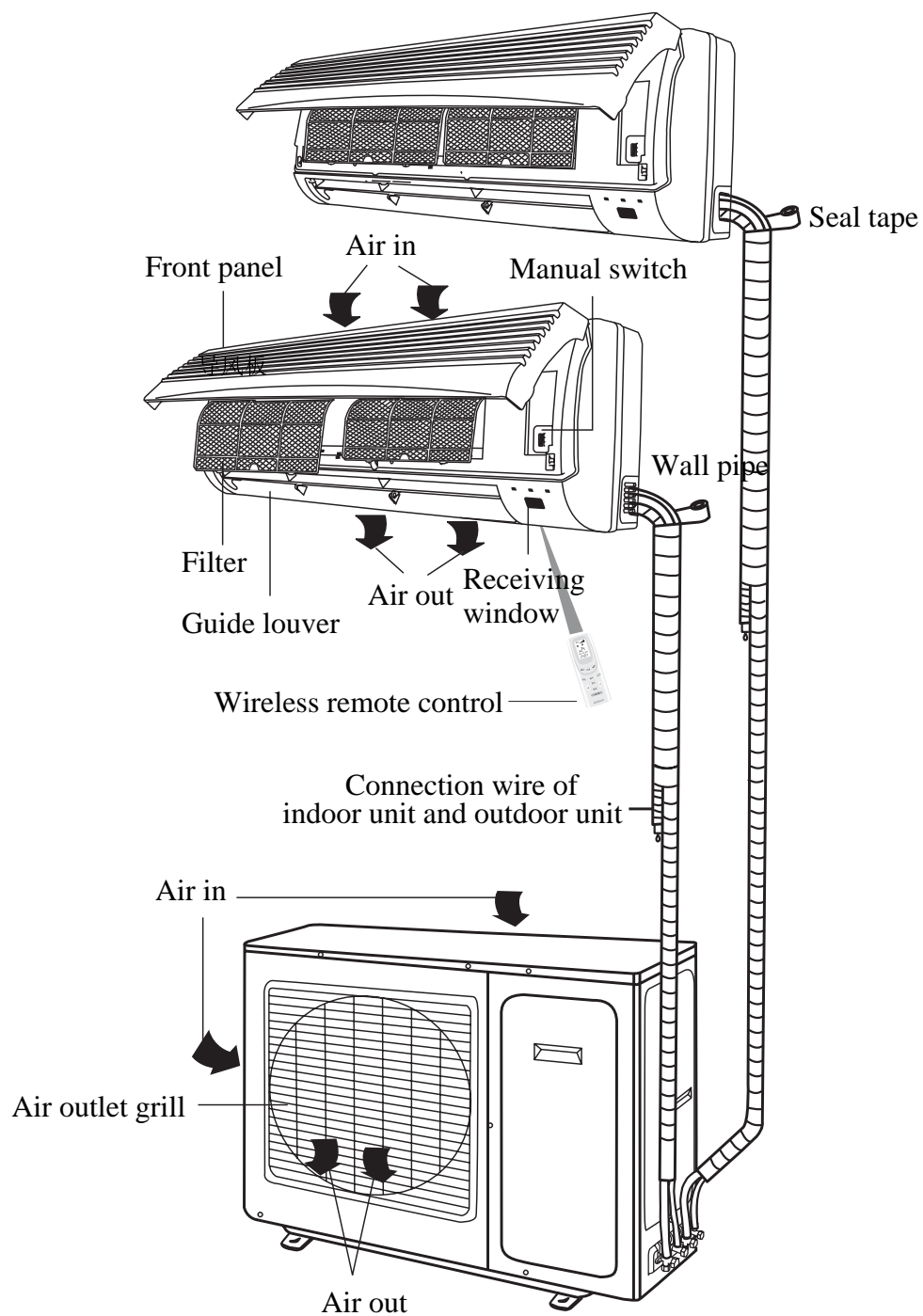
EXU	Model		EXU 9000 + 9000 EB '05		EXU 9000 + 12000 EB '05	
	Compressor model		YZG-27RY1		YZG-27RY1	YZG-36RY1T1
	Compressor type		Rotary		Rotary	
			23		23+33	
	Compressor running current(A)		4. 3		4. 2+6. 3	
	Compressor input power (W)		910		910+1090	
	Compressor overload model		B220-135-241E		B220-135-241E	UP3RE0591-T46
	Throttling method		Electronic expansion valve			
	Start-up method		Capacitance			
	Working temp. range		-5~43℃			
	Condenser		Aluminum fin-copper pipe			
	Pipe diameter (mm)		Φ9. 52			
	Row- fin distance (mm)		2-1. 8			
	Heat exchanger expand area (I×H×L) (mm)		730×660×44			
	Fan speed (r/min) (H/L)		700		780	
	Motor rated power (W)		38		60	
	Fan motor running current (A)		0. 43		0. 56	
	Fan motor capacity(uF)		3			
	Outdoor unit air volume		/			
	Fan type-piece		Axial flow fan-1			
	Fan blade diameter(mm)		Φ 400		Φ 460	
	Defrosting method		Auto			
	Climate type		T1			
	Insulated level		I			
	Water proof level		IP24			
	Air outlet side the highest working pressure (Mpa)		2. 5			
	Air inlet side the highest working pressure(Mpa)		0. 6			
	Noise (sound pressure level) dB(A)(H/L)		58			
	Noise(sound power level)dB(A)(H/L)		68			
	Outline dimension (W/D/H) (mm)		950/412/700		950/412/840	
	Package dimension (W/D/H) (mm)		1100/450/755		1100/450/920	
	Net weight/Gross weight (kg)		68/69		72/77	
	Refrigerant/refrigerant charge (kg)		R407C/0. 89×2		R407C/0. 9+1. 3	
Connection pipe	Length			Standard connection pipe length		
	Outer diameter	Liquid pipe	(mm)	Φ6		Φ6 Φ6
		Gas pipe	(mm)	Φ9. 52		Φ9. 52 Φ12
	Max. diameter	Height	(m)	5		
		Length	(m)	10		

The above parameters are subject to change without notice, please refer to nameplate for reference.

2. Parts name



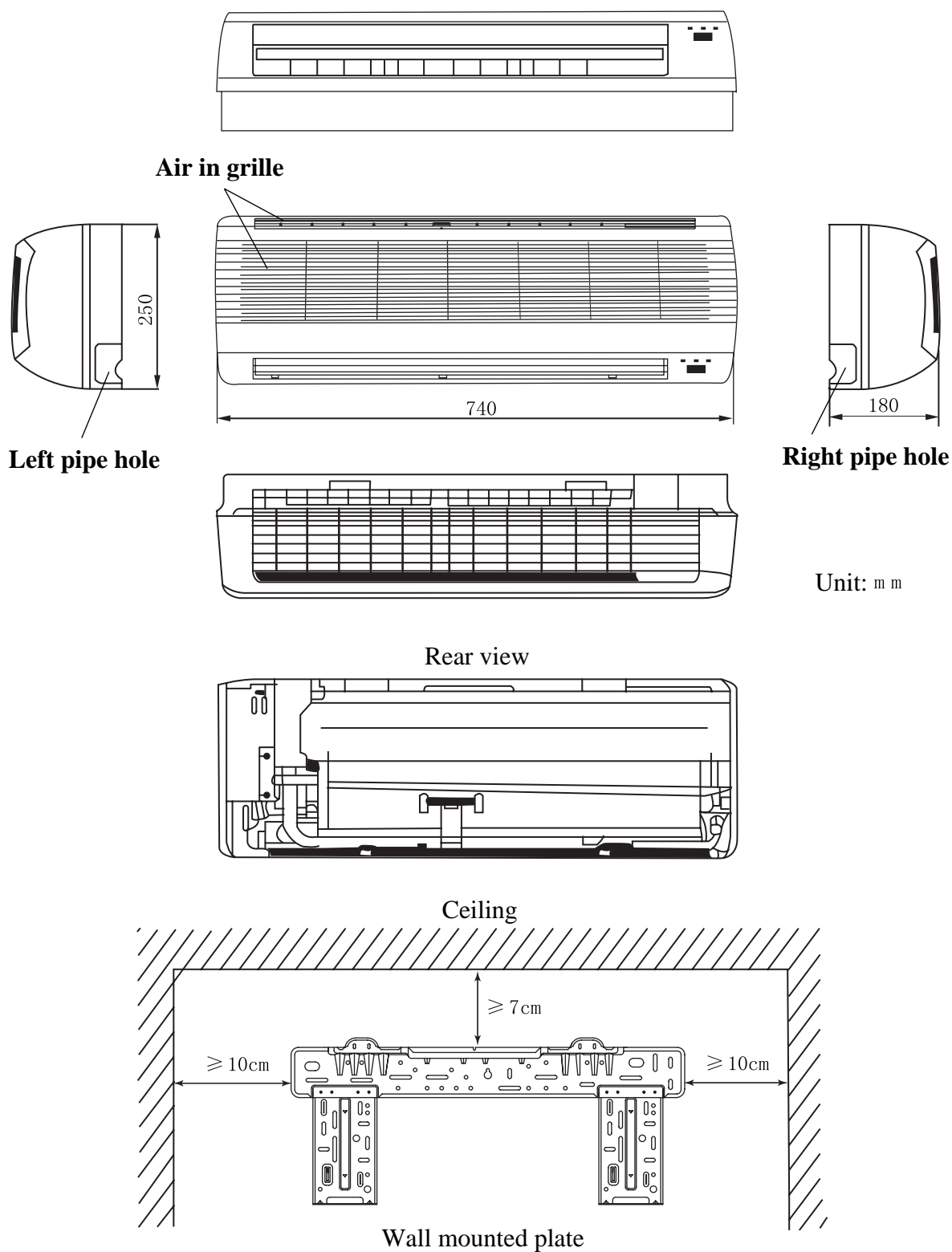
INU



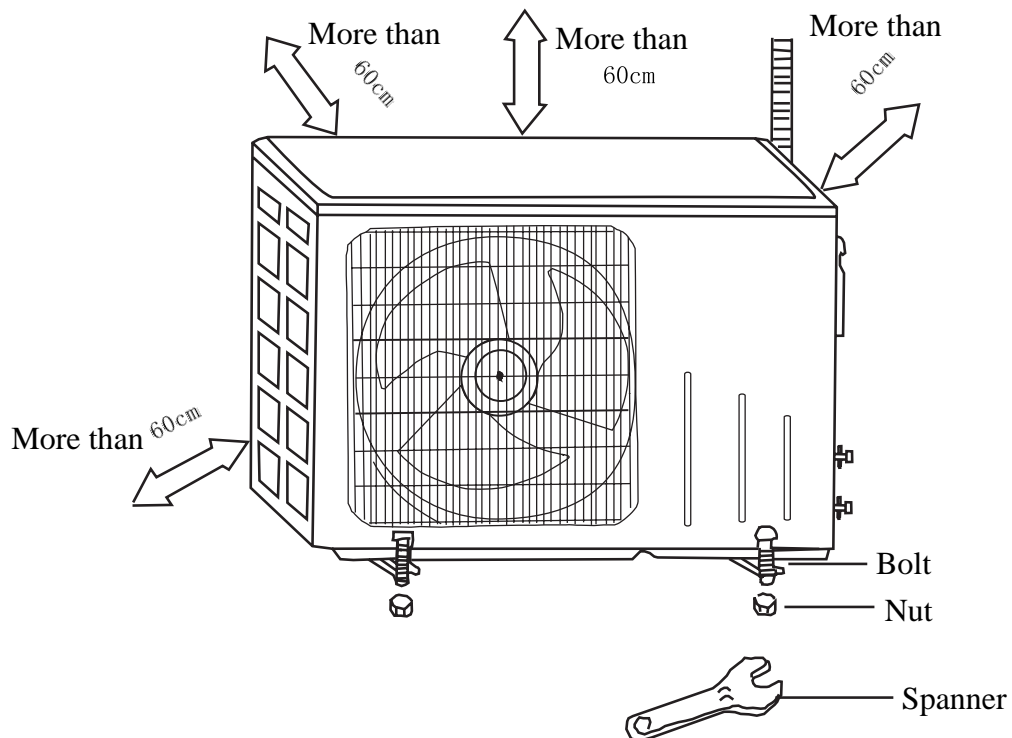
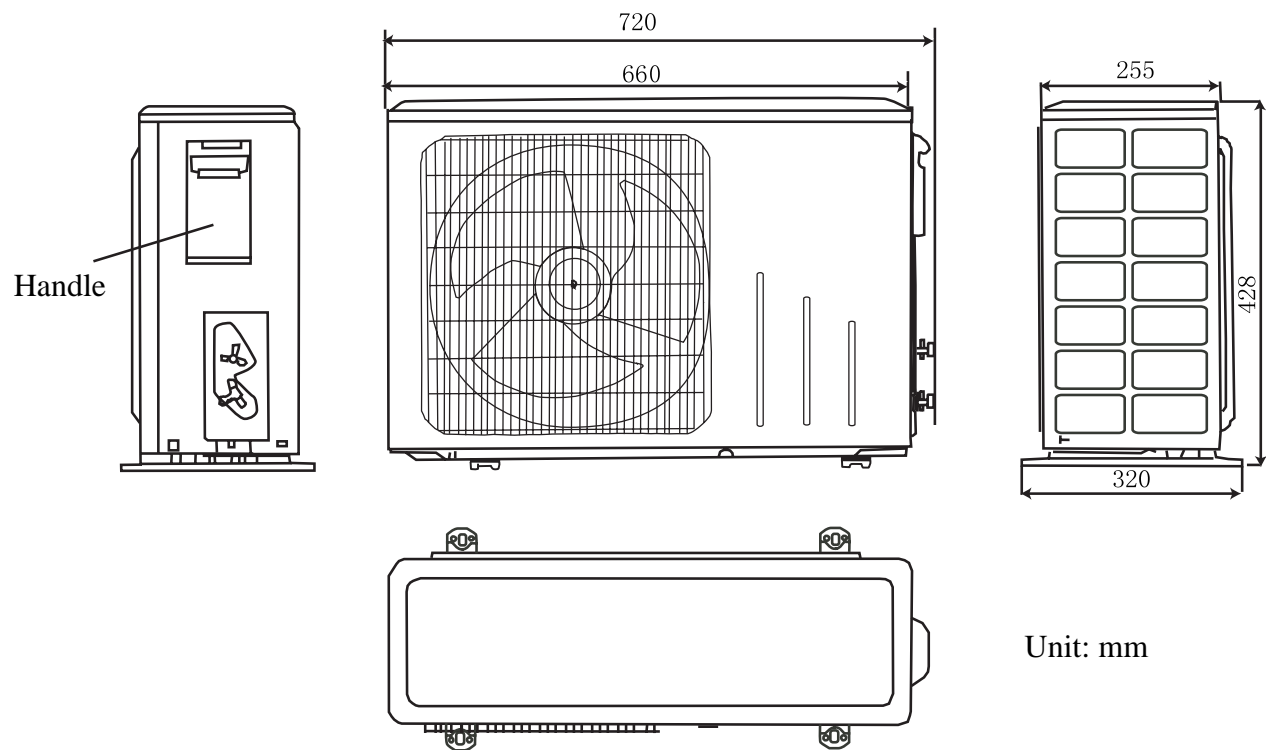
EXU

3. Outline and installation dimension

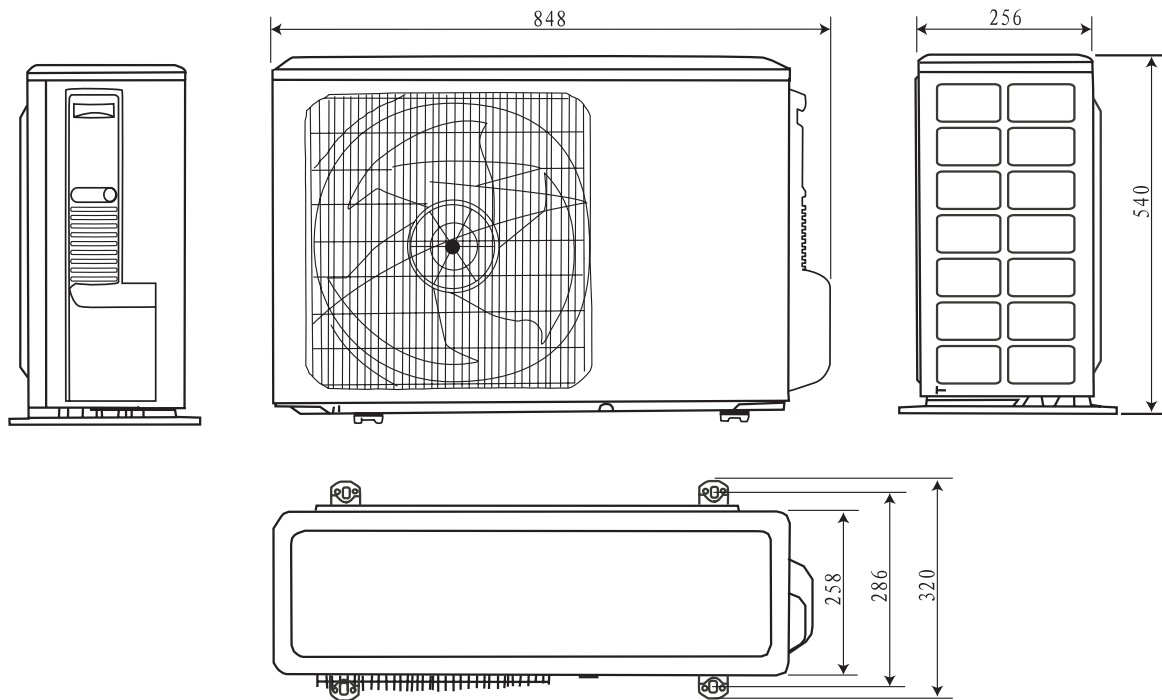
3.1 Outline and installation dimension for indoor unit



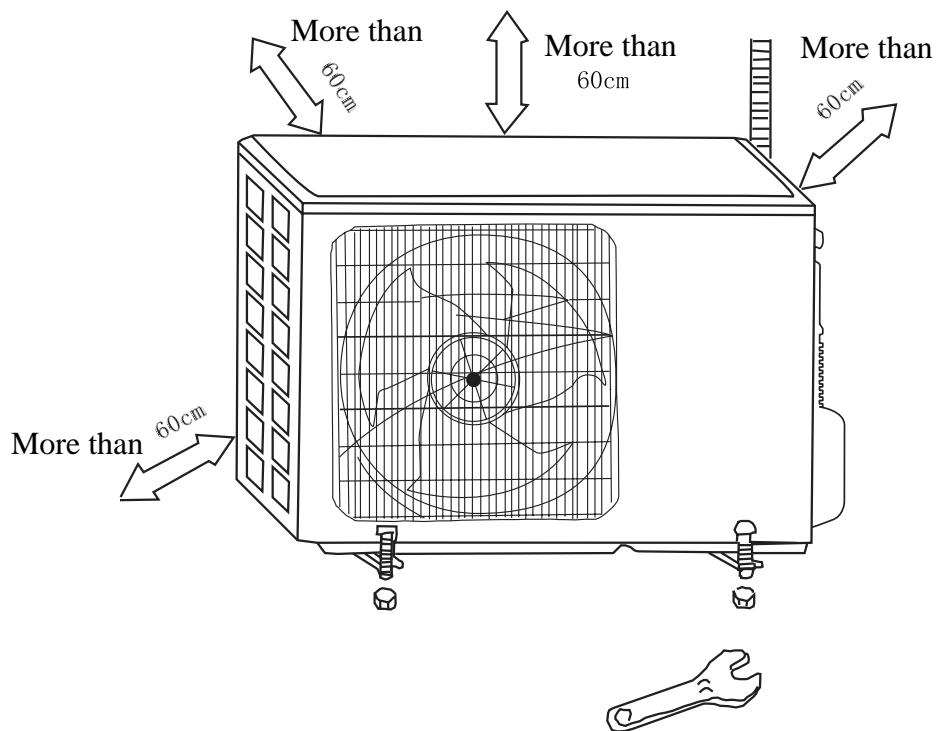
3.2 Outline and installation dimension for 7000 and 9000 outdoor unit



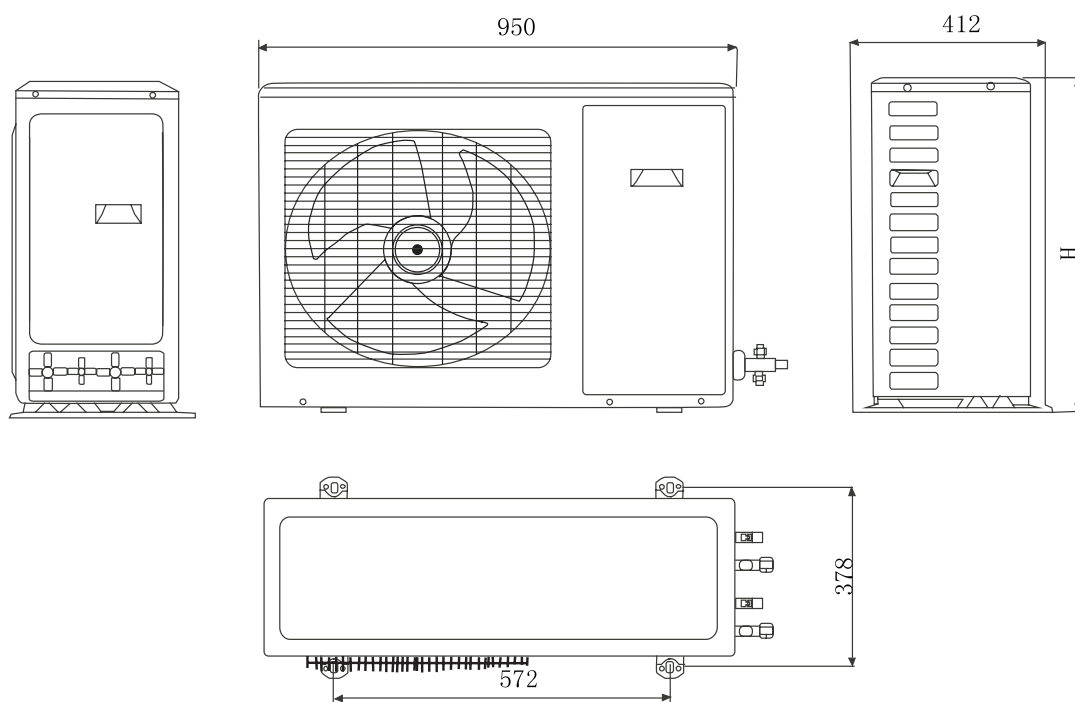
3.3 Outline and installation dimension for 12000 outdoor unit



Unit: mm

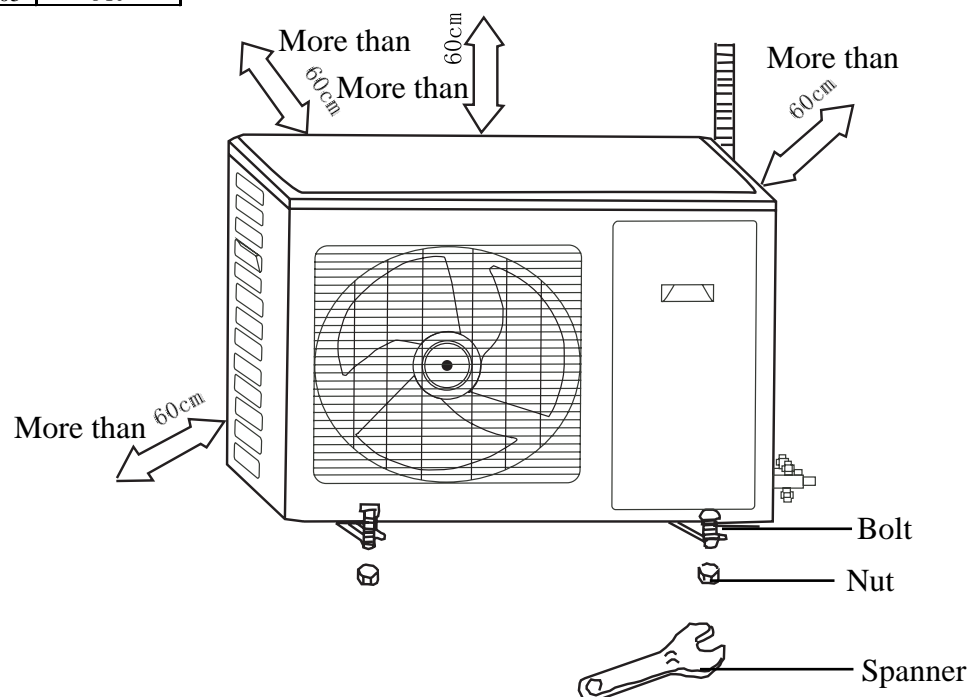


3.4 Outline and installation dimension for outdoor unit



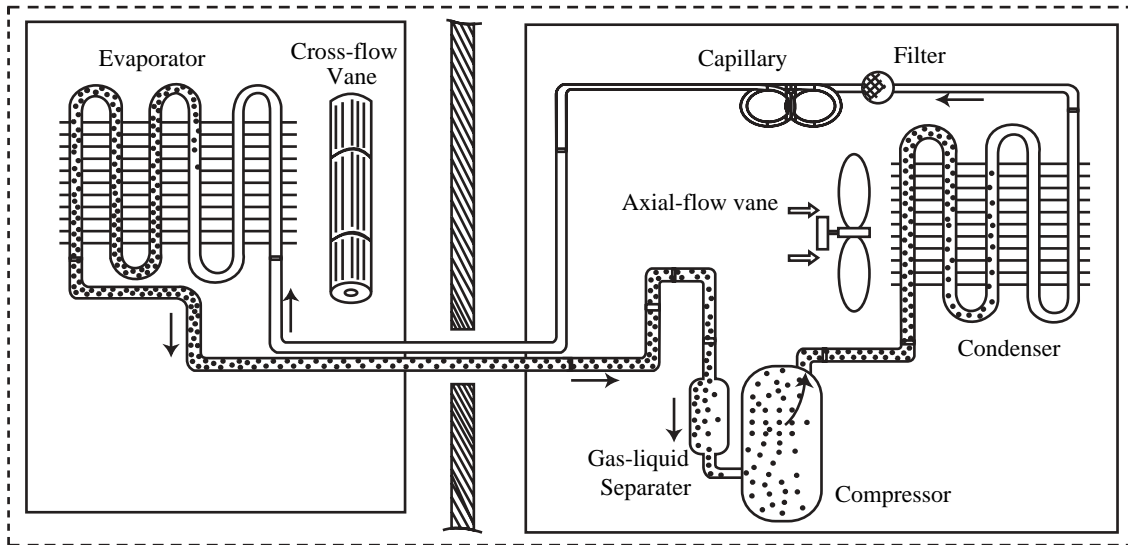
Models	H
9000+9000 EB '05	700
9000+12000 EB '05	840

Unit: mm



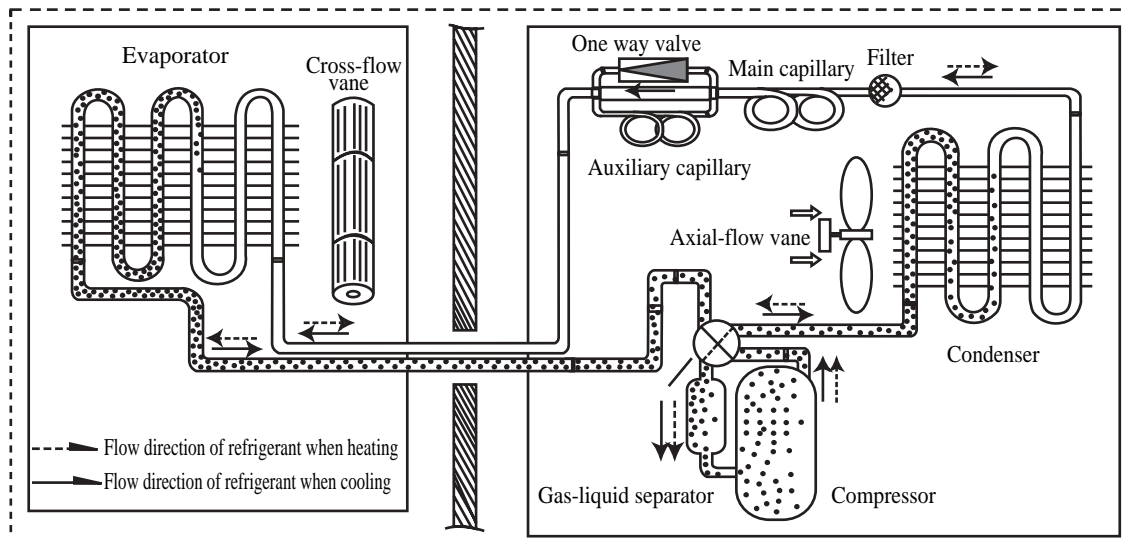
4. System Principle Diagram

4.1 Cooling only type system principle diagram



Connect power, then indoor and outdoor unit begins working. The refrigerant steam that is low temp. and low pressure from evaporator would be sucked in by compressor and compressed as high temp. and high pressure gas then be pushed into condenser. Then the high temp. and pressure gas becomes refrigerant liquid after heat exchanging with outdoor air, then via capillary throttling, lower pressure and temp. and then enters evaporator. After exchanging heat with the indoor air that needs adjust, it becomes low temp. and lower pressure refrigerant steam. Thus, the cooling is achieved by non-stop recycling.

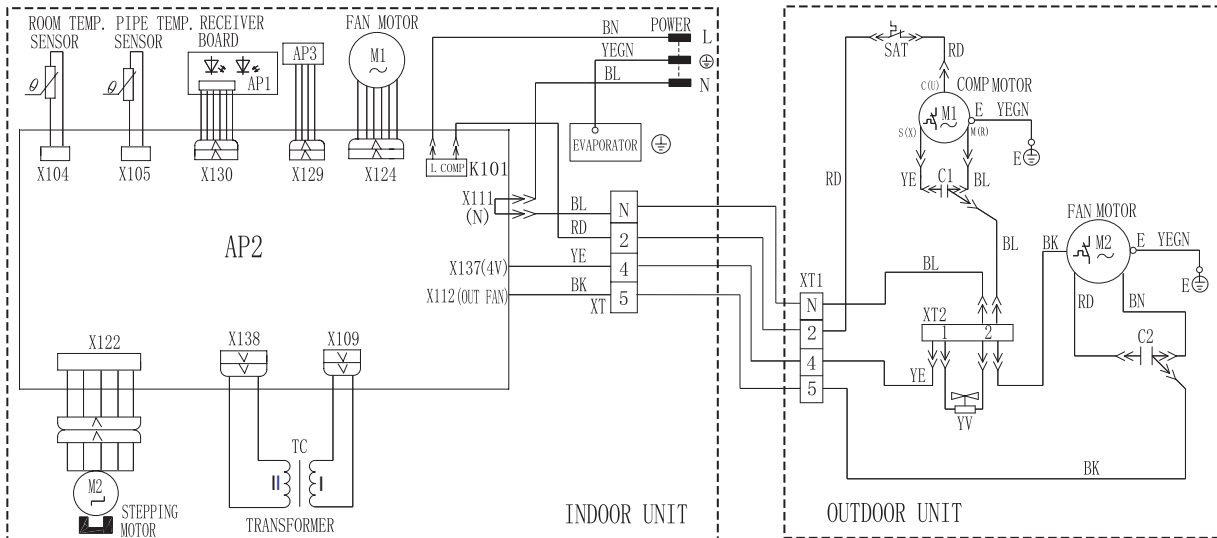
4.2 System Principle Diagram of Cooling and Heating Type



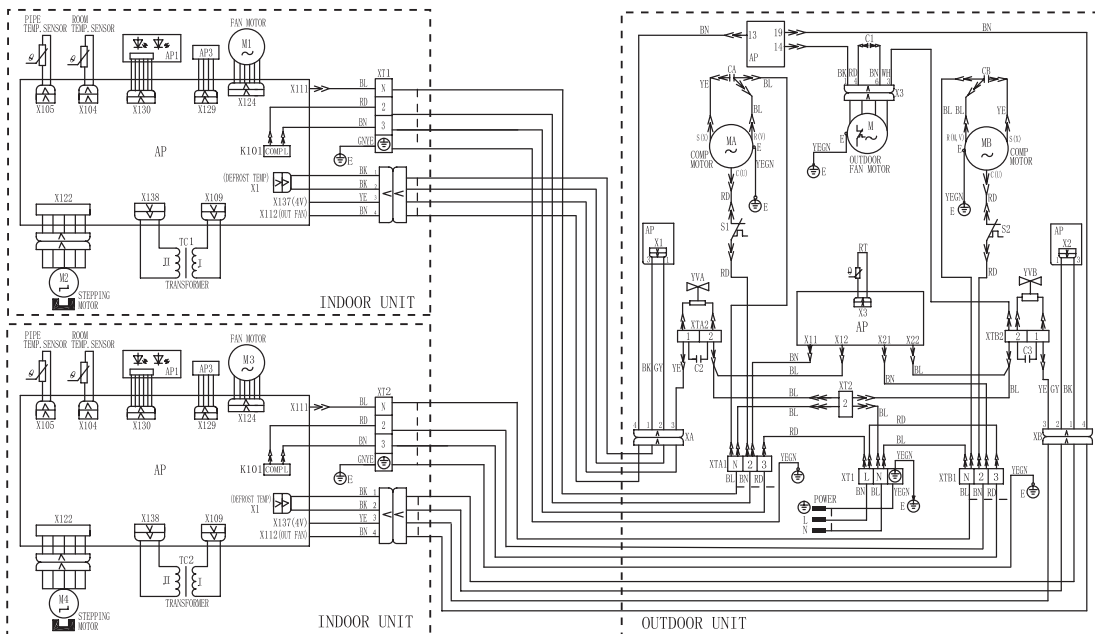
Connect with power supply, and then indoor and outdoor unit begins to work. When cooling, refrigerant steam of low temp. and low pressure from indoor evaporator is sucked in by compressor and be compressed as high temp. and high pressure gas then be exhausted into heat changer of outdoor unit. Via axial-flow fan, the gas exchanges heat with outdoor air and becomes refrigerant liquid. After throttled by capillary and lowered pressure and temp. it enters indoor heat exchanger and reach the aim of cooling in indoor unit. When heating, solenoid 4-way reversing valve acts to make refrigerant flow in an anti-process of cooling. Refrigerant sends out heat when passing heat exchanger and absorbs heat in heat exchanger of outdoor unit to conduct heat pump heat cycle so that heating aim can be reached.

5. Electric Circuit Diagram

7000 EB '05 - 9000 EB '05 - 12000 EB '05



9000 + 9000 EB '05



[illegible]

If the above electric circuit diagrams are changed, please refer the ones offered with unit.

6. PCB function manual and operation method

6.1 PCB function manual

6.1.1 Temperature parameter

- ◆ The room set temperature(T_{set}).
- ◆ The room ambient temperature(T_{amb}).

6.1.2 Fundamental functions

After power is on, no matter when compressor is started, the time span between the startups cannot be less than 3 minutes. When powered on for the first time, the compressor will not delay 3 minutes; once started, the compressor will not stop in five minutes as room temperature changes.

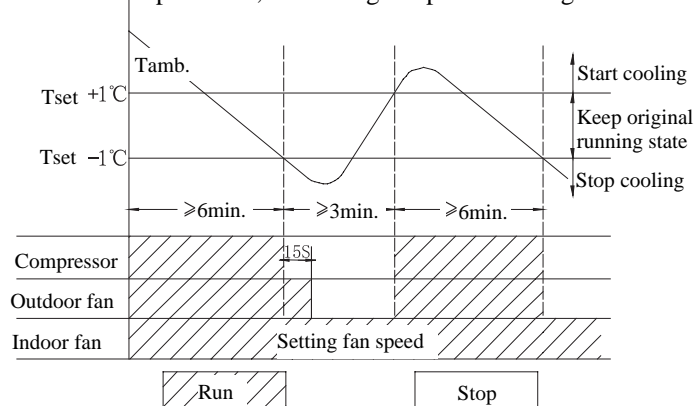
6.1.2.1 COOL mode

6.2.1.1 The conditions and processes of cooling

If $T_{amb} \geq T_{set} + 1^\circ\text{C}$, COOL mode will act, compressor and outdoor fan will run, indoor fan will run at the set speed.
If $T_{amb} \leq T_{set} - 1^\circ\text{C}$, unit will stop, compressor will stop and then outdoor fan will delay 15sec and stop. The indoor unit will run at the set speed.

If $T_{set} - 1^\circ\text{C} < T_{amb} < T_{set} + 1^\circ\text{C}$, the unit will keep running in the original mode.

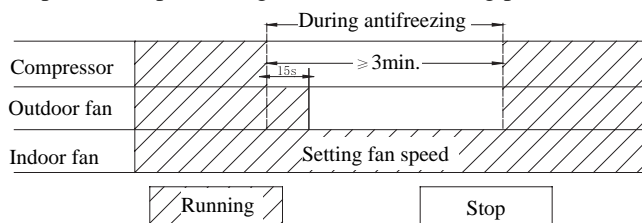
➤ In this mode, the reversal valve will not power on, the setting temperature. range $16-30^\circ\text{C}$.



6.1.2.1.2 Protection functions

◆ Anti-freezing protection

In case anti-freezing protection is detected and the compressor has run for 6min, the compressor will stop running and the outer fan will stop running after a delay of 15s while the inner fan will run at a setting fan speed. The system will recover running 3min after compressor stops running and the anti-freezing protection is released.



6.1.2.2 DRY Mode

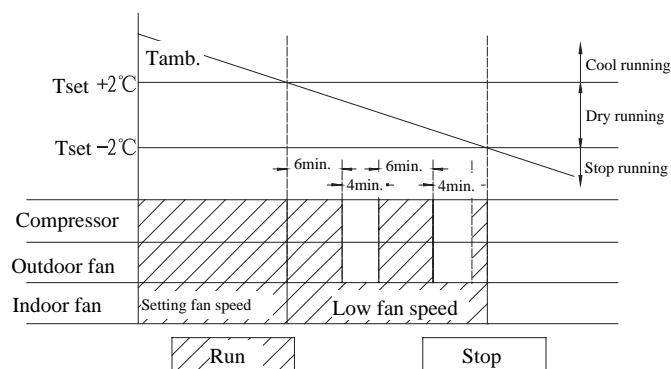
6.1.2.2.1 The conditions and processes of dry

If $T_{amb} > T_{set} + 2^\circ\text{C}$, the cooling mode will act, compressor, outdoor fan, indoor fan run in setting fan speed.

When $T_{set} - 2^\circ\text{C} \leq T_{amb} \leq T_{set} + 2^\circ\text{C}$, enter into DRY mode, at this time, indoor fan motor runs at low speed, compressor and outdoor fan motor start running for 6min then stop running, 4min later, compressor and indoor fan motor will restart,

the dry operation will runs at the above circulation. Indoor unit keeps the low fan speed running. When $T_{amb} < T_{set} - 2^{\circ}\text{C}$, compressor, outdoor fan motor and indoor fan motor stop running.

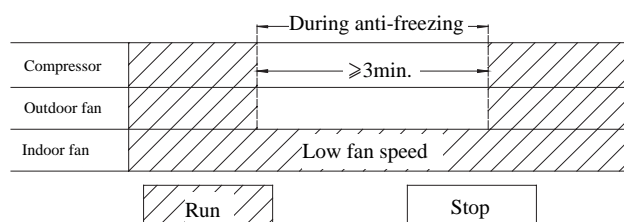
➤ In this mode, the reversal valve will not power on, the setting temperature. range $16-30^{\circ}\text{C}$.



6.1.2.2.2 Protection Functions

◆ Anti-freezing protection

In case anti-freezing protection is detected and the compressor, outdoor fan stop running, indoor fan runs at setting low fan speed; The system will recover running 3min after compressor stops running.



6.1.2.3 HEAT Mode

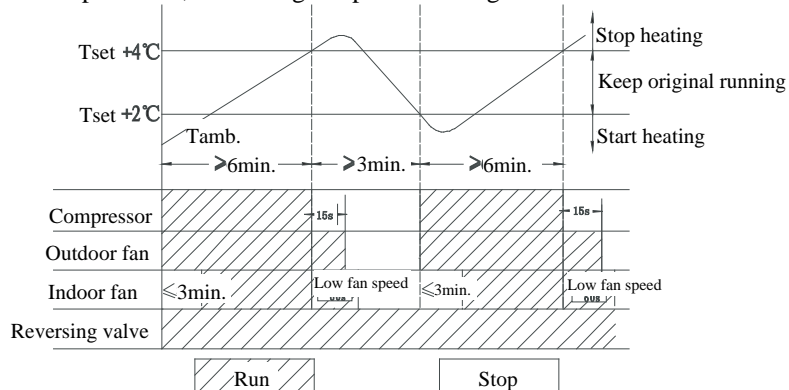
6.1.2.3.1 The conditions and processes of heating

If $T_{amb} \leq T_{set} + 2^{\circ}\text{C}$, HEAT mode will act, compressor, outdoor fan and reversing valve will run, but indoor fan will run after 3sec delay.

If $T_{amb} \geq T_{set} + 4^{\circ}\text{C}$, Compressor, outdoor fan will delay 15s and stop, reversing valve will keep working, indoor fan will blow at low speed for 60 seconds.

If $T_{set} + 2^{\circ}\text{C} < T_{amb} < T_{set} + 4^{\circ}\text{C}$, the unit will keep running in the original mode.

➤ In this mode, the reversal valve will power on, the setting temperature. range $16-30^{\circ}\text{C}$.

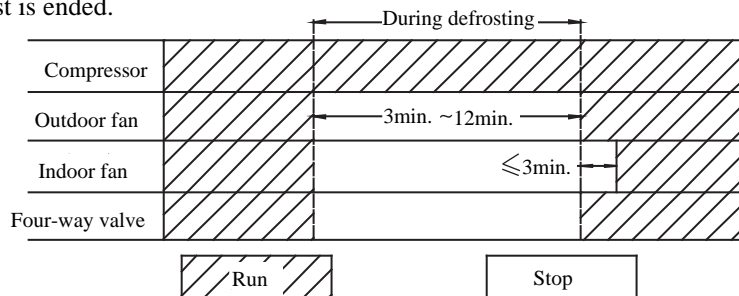


6.1.2.3.2 The conditions and processes of defrost

When frost is detected in the condenser, the system will enter into defrosting mode. At this time the compressor outdoor fan, the four-way valve and indoor fan stop running, the running indicator will flash, when detecting the defrosting

in the condenser is completed, the outdoor fan and four-way valve will run simultaneously. The indoor fan will run at most 3min later, compressor keep running mode, the running indicator stops flash.

➤ The defrosting time is 10min for the first time power on and the defrosting time afterwards depends on the practical frost condition, the more the frost, the longer the defrosting time (Max. 12min, min. 3min). Exit from the defrosting mode if the defrost is ended.



6.1.2.3.3 Protection Functions

◆ Anti-high temperature protection

When the temperature of evaporator pipe is detected to be very high, the outdoor fan will stop running; when detected evaporator tube temperature is normal, outdoor fan will recover running.

◆ Noise elimination protection

When using "RUN/STOP" to turn off the unit, the reversal valve will delay 2min to stop, when in heat mode, except first power on, after the compressor stopped for 2min, the four-way valve start running.

6.1.2.4 Auto mode

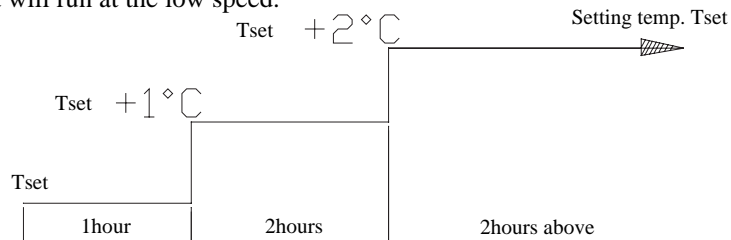
In this mode, the system will select COOL, DRY or HEAT running mode automatically according to the ambient temperature. The protection function is same as HEAT/COOL mode.

➤ Each mode once starting, at least running for 30s, it will shift the running state of auto mode, according to ambient temp.

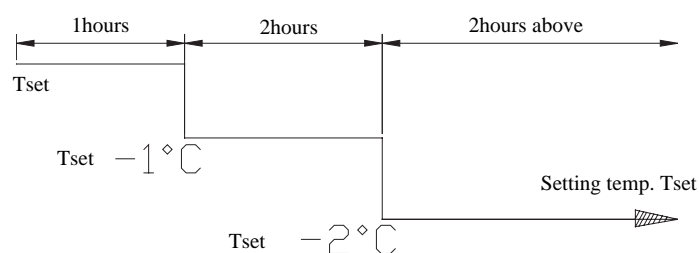
6.1.3 Other control

6.1.3.1 Sleep function

At COOL or DRY mode, when the sleep setting has been run for 1 hour, T_{set} will be increased for 1°C ; and 2 hours later, 2°C . The indoor unit will run at the low speed.



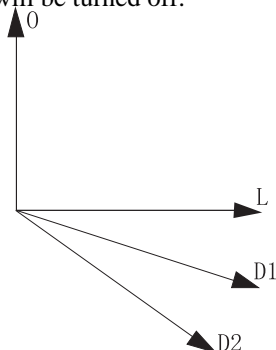
At HEAT mode, when the sleep setting has been run for 1 hour, T_{set} will be decreased for 1°C ; and 2 hours later, 2°C . The indoor unit will run at the low speed.



6.1.3.2 Swing motor control

After the power is turned on, the swing motor will firstly turn counter clockwise the guide louver blade to 0 position and closes the air outlet vent; after the unit is turned on, it will first return back to the max. air outlet D2 position, and then return back to the L position to stand by; when in swinging state and at cooling mode, it will swing between L and D1 position; at heating mode it will swing between L and D2 position. When the unit is turned off, it will return back to O position.

After unit is turned on, if swing function has not set up, at the COOL mode, the up and down guide louver place at the horizontal position for air outlet, when in HEAT mode, the up and down guide louver place at vertical downward position for air outlet. If unit is turned on, and swing function is set up, the guide louver will swing between L and D. When unit is turned off, the guide louver will be turned off.



6.1.3.3 Timer function

6.1.3.3.1 Timer on

Timer on setting: if the system is at timer off status and the time setting is up for the timer on, the controller will run at the original setting mode, with the timer interval being 0.5hr and the setting range being 0.5~24hr.

6.1.3.3.2 Timer off

Timer off setting: if the system is at timer on status and the time setting is up for the timer off, the system will be turned off with the timer interval being 0.5hr and the setting range being 0.5~24hr.

6.1.3.3.3 The other timer

- ◆ In the timer operation, to deliver the same or different time of timer, the former time of timer will be canceled, and restart again;
- ◆ After timer has been setup, when the time has not arrived, press the cancellation button, the timer will be turned off automatically;
- ◆ After the setting set up, when the time has not arrived, when turn off the unit and turn on the unit again, it will be canceled automatically;
- ◆ When timer has been setup, when power off before the time has arrived and power on, the timer will restart again.

6.1.3.4 Buzzer

When controller is powered on or receives the effective signal from the remote controller, the buzzer will send out a pleasing sound.

6.1.3.5 Indicator light

Running indicator light(RED): when unit is on, it will light, when unit is off, it will extinguish;

Cool, Dry modes indicator light (GREEN): when unit is in cool or dry mode, it will light(GREEN);

Heat, Auto heat modes indicator light(YELLOW);when unit is in heat mode, defrosting, it will light(YELLOW).

6.1.3.6 Auto fan speed control

At this mode, the indoor fan will select High, Middle, Low fan speed automatically according to the ambient temperature, with the interval of fan speed change over being 30s.

6.1.3.7 Memory function

1. When the unit is running and power off happened and power on, the unit will run the running state before power off the memory(mode, setting temp., fan speed, swing, timer; do no include sleep function);
2. When manual switch is placed at RUN position, and turn to STOP position, unit will stop running immediately, when turn to RUN position, the unit will stand by, and will run at this state;

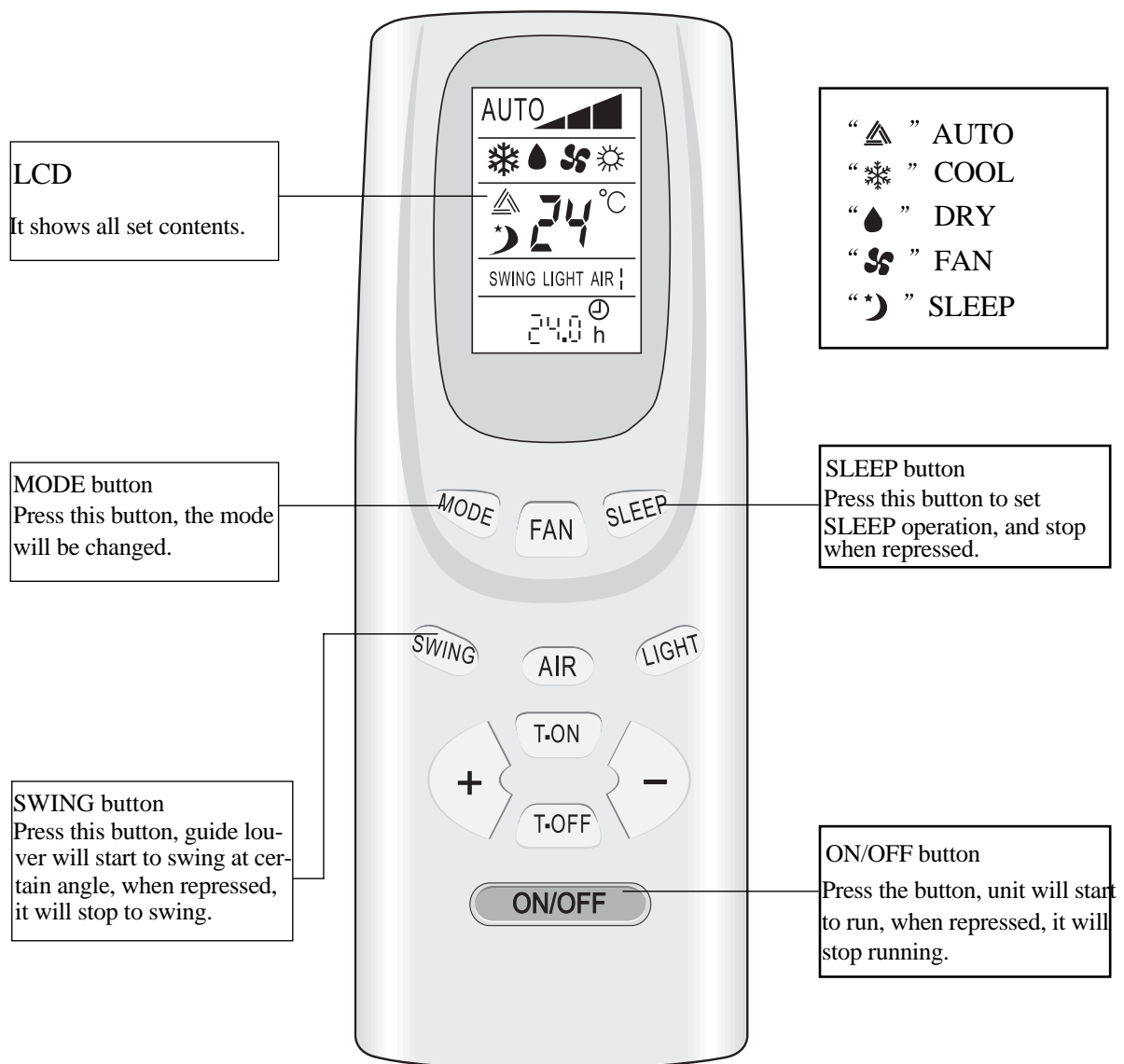
6.1.3.8 Manual switch

- A. When manual switch is placed at AUTO position, it will run at auto mode, if there is remote control signal, it will run at the remote control signal;
- B. When manual switch is placed at TEST position, the unit will be compelled to run in COOL mode, compressor, outdoor fan, swing motor will be compelled to run, indoor fan will run at high speed; If sensor open circuit or short circuit are tested, the buzzer will alarm as the frequency of 2Hz. If there is remote control order, unit will run at the remote control order.
- C. The manual switch is placed at RUN position, the unit will run at the received remote control order.
- D. When manual switch is placed at STOP position, the unit will stop running.

6.2 Names and functions of wireless remote control of each part

Note:

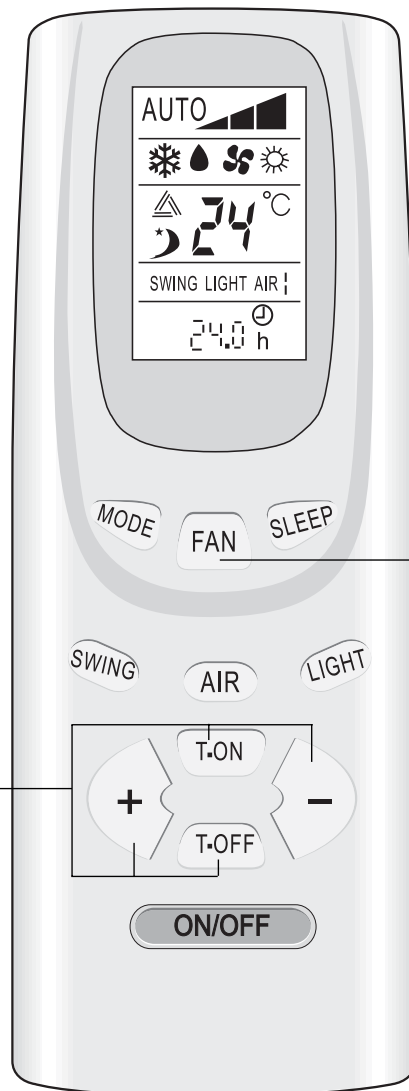
- Be sure that there are no obstructions between receiver and wireless remote control.
- Don't drop or throw the wireless remote control.
- Don't let any liquid in the wireless remote control and put it directly under the sunlight or any place where is very hot.



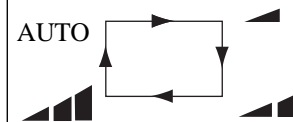
Note:

This type of wireless remote control is a kind of current control, it is applicable to various type (function) of units. Some buttons of the controller which are not available to this air conditioner will not be described below.

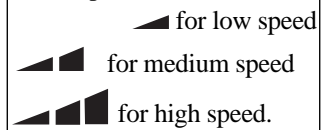
TEMP/ TIMER button
At operating, set TEMP. increases 1°C by pressing "+" button once and decreases 1°C by pressing "-" button once. Set temp. can be selected from 16°C to 30°C. At stopping, press "TIMER" button, to set TIMER ON and TIMER OFF, increases 0.5hour by pressing "+" button once and decreases 0.5hour by pressing "-" button once more, to send the setting: Press "CANCEL" button to cancel the setting.

**FAN button**

To press the button each time the fan speed will be changed in order of:



There are three speed of fan speed in this unit:



6.3 Guide for operation procedure

6.3.1 The general procedure:

1. Plug to power supply and press ON/OFF button to start the unit.
2. Press MODE button to select the suitable operation mode.
3. Press SWING button to swing according to a certain direction and stop when pressing it again.
4. Press FAN button to set desired fan speed.
5. Press button to set desired temperature.

6.3.2 The selected procedure:

6. Press SLEEP button to set the sleep.
7. Press TIMER button, then press + / - button to set scheduled time.

Note: In AUTO mode, the unit will automatically adjust its running modes according to the room temperature changes

(There are no "AIR CHANGE""LIGHT" function in this series of product)

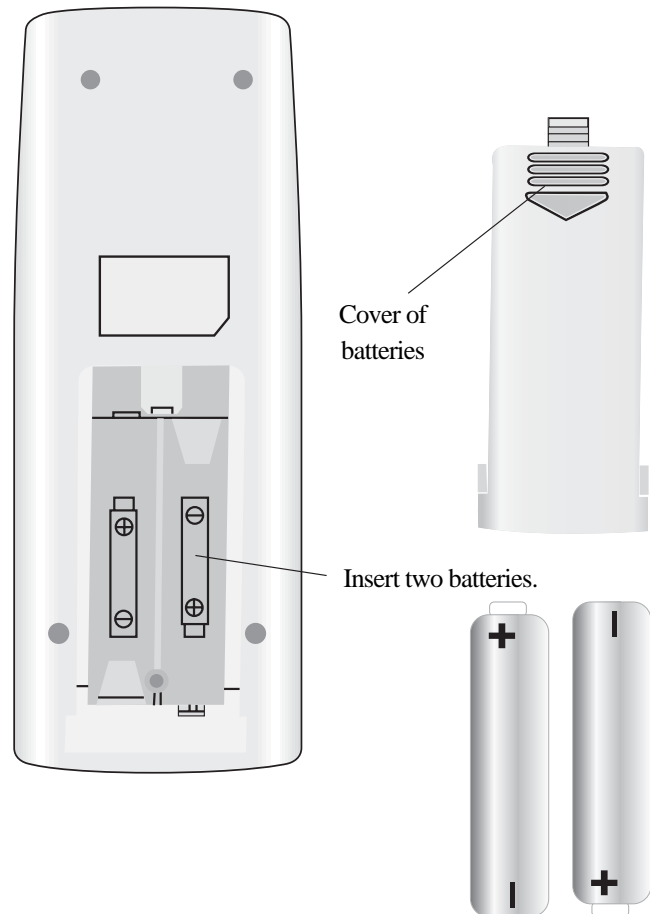
6.4 How to insert batteries

The remote control adopts two alkaline dry-cell batteries.

1. Remove the cover from the back of the remote control and insert two new batteries (Pay more attention to the polarity.)
2. Re-attach the cover.

Note:

- Don't mix new and used or different types of batteries.
- Remove batteries away when the remote control is not in use for a long time.
- The life span of batteries are about 1 year.
- The remote control should be placed about 1m or more away from the TV set or any other electric appliances.



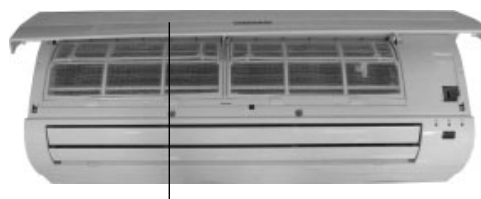
7. Disassembly procedures

7.1 Disassembly procedures for indoor unit

Operation procedures/pictures

7.1.1 Disassembling the front panel

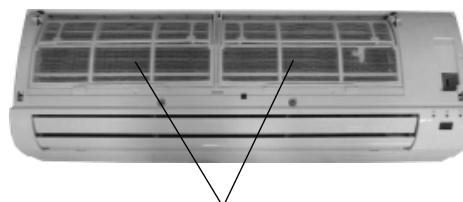
Open the front panel, slide the rotating shaft from the groove.
As show in Fig.8-1



Front panel
Fig.8 — 1

7.1.2 Disassembling the filter

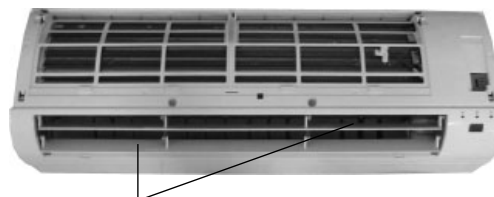
Bend the filter toward middle, to make the clasp
away from the groove, then can take off the filter.
As show in Fig.8-2



Filter
Fig. 8 — 2

7.1.3 Disassembling the guide louver

To bend the air guide louver at full tilt, then take it out.
As show in Fig.8-3.

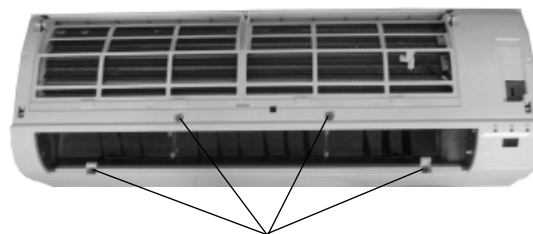


Guide louver
Fig. 8 — 3

Operation procedures/pictures

7.1.4 Disassemble the front case

Screw off the screw cap, and screw off 4pcs screw which fix the front panel, and open the front case, loosen the clasp behind. Then can take off the front case. Show in Fig.8-4.



Screws

Fig. 8 - 4

7.1.5 Disassemble Electric box cover

Loose one piece of screw that fix the electric box cover and LED support, loosen the rear clasp, can take off the electric box cover. As show in Fig.8-5

Electric box cover

Screw

LED support

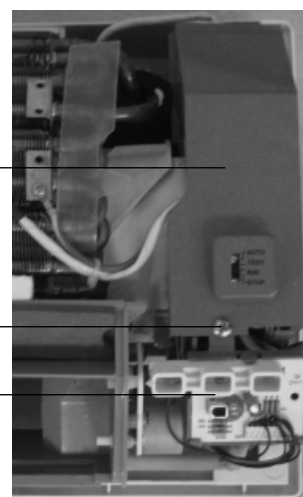


Fig. 8 - 5

7.1.6 Disassemble water-tray sub-assy

Loose the screw at the left fixing the water tray with a screwdriver, and pull out the connection terminal of guide louver motor. Remove the water tray. Since water drainage pipe is located altogether, please be careful. As shown in Fig. 8-6,8-7

Clasp

Water pipe sub assy

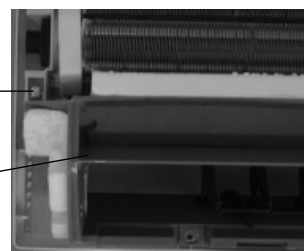


Fig. 8 - 6

Wire terminal

Clasp

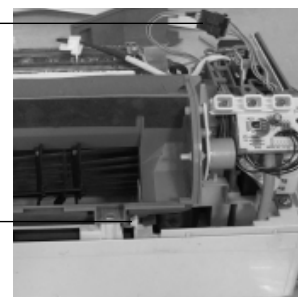


Fig. 8 - 7

Operation procedures/pictures

7.1.7 Disassemble electric box

Loose the two pieces of screws that fix the indicator base of the electric box. Take out the control panel. Unplug the corresponding connecting terminals to take out the indicator base.

As shown in Fig. 8-8

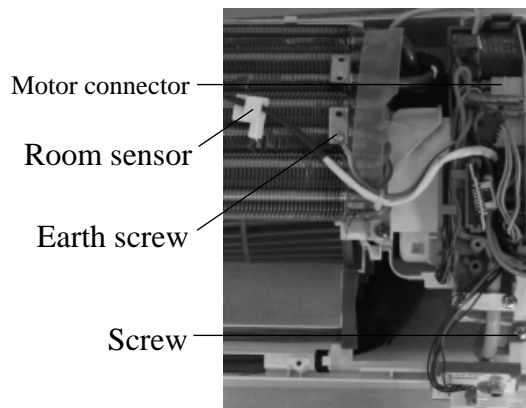


Fig. 8 – 8

7.1.8 Disassemble evaporator assembly

Screw off the screws that fix the connecting pipe clamp. Press the clasp with strength and take out the rear plate clamp as shown in Fig. 8-9

Screw off 2 screws each at right/left sides of the evaporator as shown in Fig.8-10, 8-11.

Lift upward slightly the left end of the evaporator with hand and push backward so that the side board latch of the evaporator is disengaged from the groove. Remove the evaporator carefully and take care to protect the connection pipe.

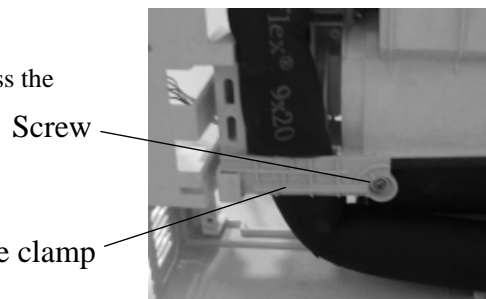


Fig. 8 – 9

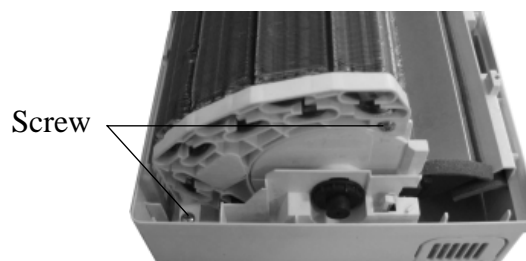


Fig.8 – 10

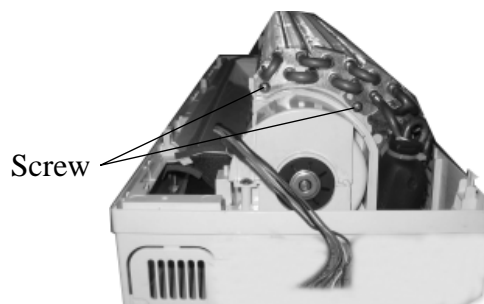
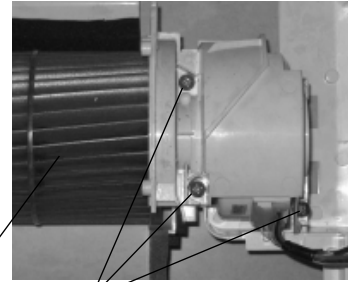


Fig. 8 – 11

Operation procedures/pictures

7.1.9 Disassemble motor

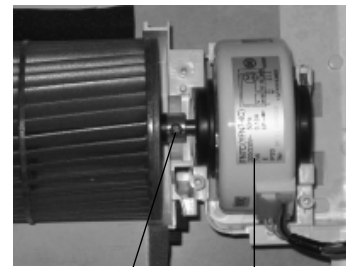
Loose three fixing screws on the clamp plates of motor and remove the clamp plates. As show in Fig.8-12. Loose a fastening screw at the left end ring of bearing of the cross flow fan to take out the motor as shown in Fig. 8-13.



Cross flow fan

Screw

Fig 8 – 12



Tightened screw

Motor

Fig 8 – 13

7.1.10 Disassemble cross flow fan

Remove the cross flow blade from the chassis.

7.2 Disassembly Procedures of the 7000-9000 EB '05 outdoor unit

Operation procedures/pictures

7.2.1 Disassemble big handle

Screw off one fixing screw that fixes the handle with screwdriver to take out the handle as shown in Fig. 8-14.

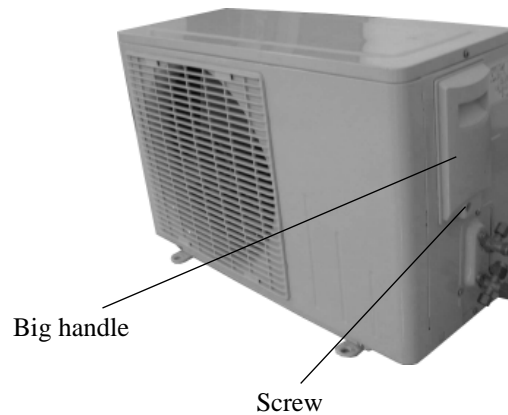


Fig. 8 — 14

7.2.2 Disassemble the top cover

Screw off the 3 screws that fix the top cover, to take out the top cover as shown in Fig. 8-15.

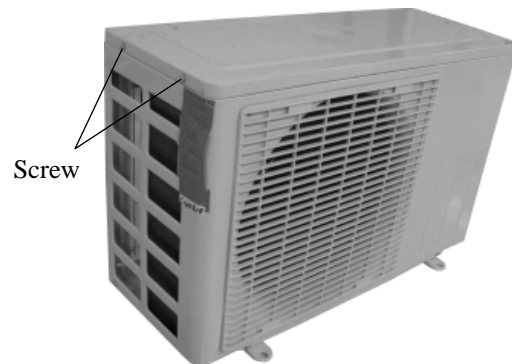


Fig. 8 — 15

7.2.3 Disassemble the rear grill

Screw off 4pcs screw of rear grill, then can take off the rear grill. As show in Fig.8-16.

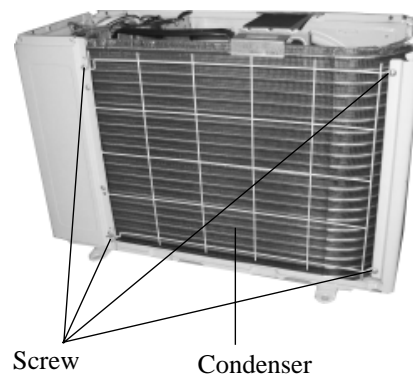


Fig. 8 — 16

Operation procedures/pictures

7.2.4 Disassemble front panel

Screw off 6 screws fixing the panel and rotate slightly rightward to take out the panel from the groove of the right side plate as shown in Fig.8-17.

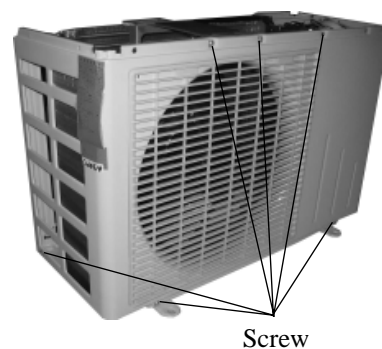


Fig 8 - 17

7.2.5 Disassemble electric box

Screw off 3 screws fixing the electric box and loose the connection lines to remove the electric box as shown in Fig.8-18, 8-19.

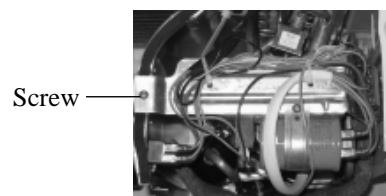


Fig 8 - 18

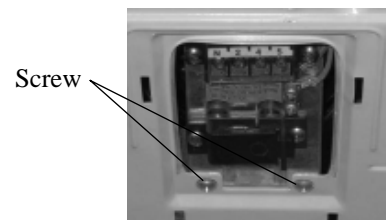


Fig 8 - 19

7.2.6 Disassemble right side plate

Screw off the 5 screws that fix the right side plate and lift it upward to take out the right side plate as shown in Fig.8-20

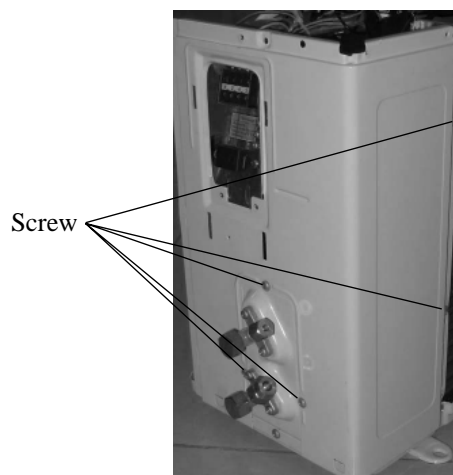


Fig 8 - 20

Operation procedures/pictures

7.2.7 Disassemble axial flow fan

Loose the fixing nut with spanner, and remove the nut, spring gasket and flap gasket.

As show in Fig.8-21.

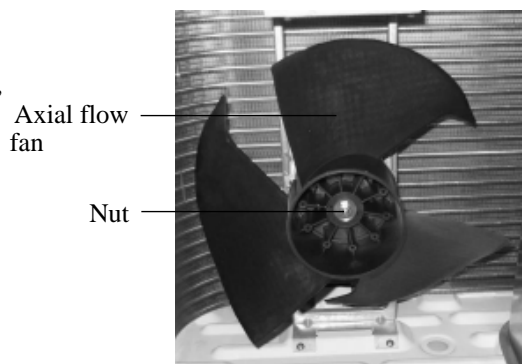


Fig 8 – 21

7.2.8 Disassemble motor and motor support

Screw off the 4 pieces of tapping screws that fix the motor, and take out the motor. Then screw off the 2 pieces of tapping screws that fix the motor support, lift it upward and take out the motor support. As show in Fig.8-22

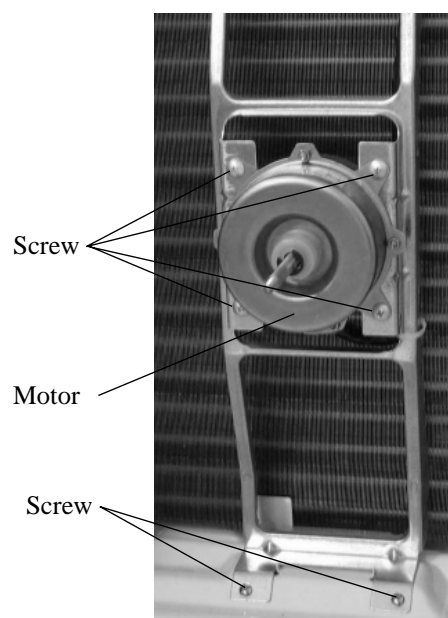


Fig 8 – 22

7.2.9 Disassemble four-way valve

Screw off the fixing nut of the four-way valve coil and remove the coil. Wrap the four-way valve with wet cotton gauze and weld off four welding spots on the four-way valve to take off the four-way valve. Remarks: It is required to firstly discharge completely the freon).

Welding process should be as quick as possible and the wetness of the wrapping cotton gauze should be maintained wet all the time. Be sure not to burn out the lead wire of the compressor.

As shown in Fig.8-23

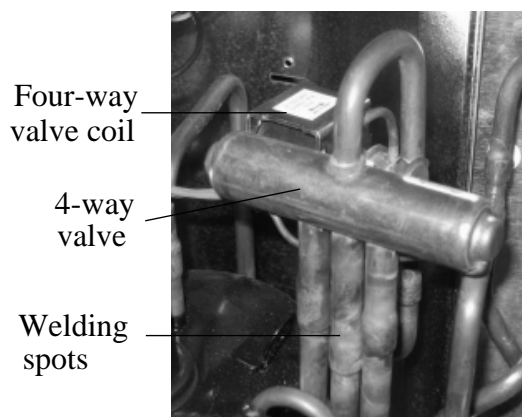


Fig. 8 – 23

Operation procedures/pictures

7.2.10 Disassemble capillary

Weld off two welding spots of the capillary, then take off the capillary. As show in Fig.8-24

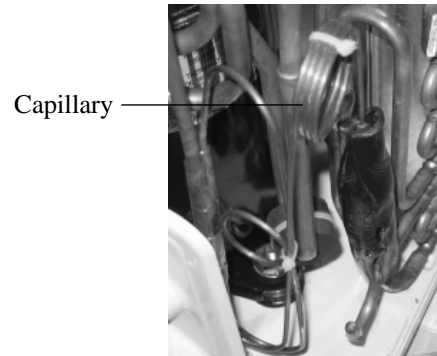


Fig. 8 — 24

7.2.11 Disassemble gas and liquid valves

Screw off 2 pieces of screws each fixing the gas and liquid valves and weld off the welding spot between the valve and connecting pipe to take off the valve.

(Note: When weld off the welding spot, wrap the big valve completely with wet cotton gauze to avoid high-temperature damaging to the valve body.)

As shown in Fig.8-25

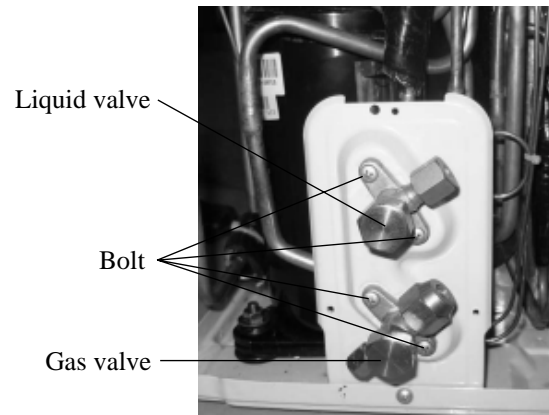


Fig. 8 — 25

7.2.12 Disassemble the compressor

Loose the 3 pieces of nuts with gaskets and weld off the welding spots of the compressor's suction and discharge pipe. Remove the pipeline carefully and take out the compressor as shown in Fig.8-26

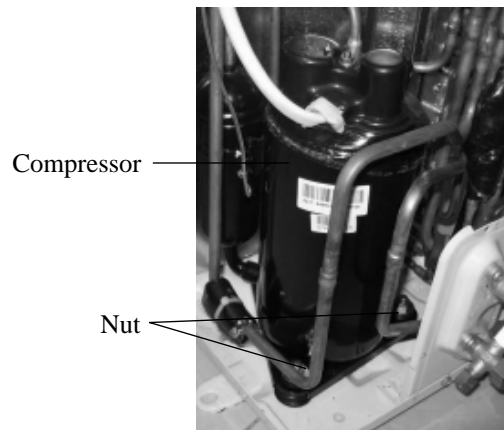


Fig 8 — 26

7.3 Disassembly Procedures of the 12000 EB '05 outdoor unit

Operation procedures/pictures

7.3.1 Disassemble handle

Screw off one fixing screw that fixes the handle to take out the handle as shown in Fig. 8-27

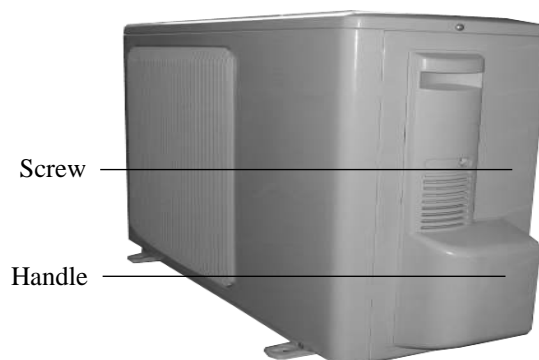


Fig. 8 – 27

7.3.2 Disassemble the top cover

Screw off the screws that fix the top cover, 2 at the left and 1 at the right. And then lift it upward to take out the top cover as shown in Fig. 8-28.



Fig. 8 – 28

7.3.3 Disassemble the rear grill

Screw off 4pcs screw which fix the rear grill, then can take off rear grill. As show in Fig.8-29

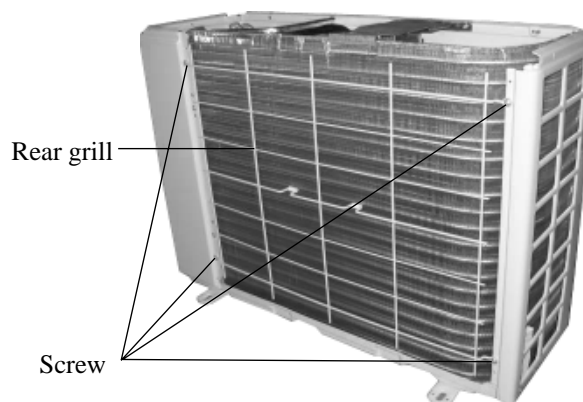


Fig. 8 – 29

Operation procedures/pictures

7.3.4 Disassemble front panel

Screw off 5 screws fixing the panel and rotate slightly rightward to take out the panel from the groove of the right side plate as shown in Fig.8-30.



8 — 30

7.3.5 Disassemble electric box

Screw off 3 screws fixing the electric box and loose the wiring terminals of the compressor and four-way valve, take off the electric box. As show in Fig.8-31, Fig.8-32.

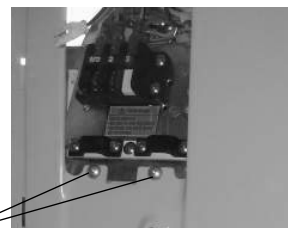
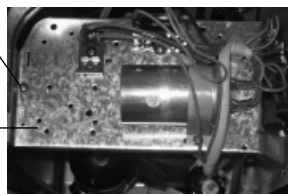


Fig 8 — 31

Screw



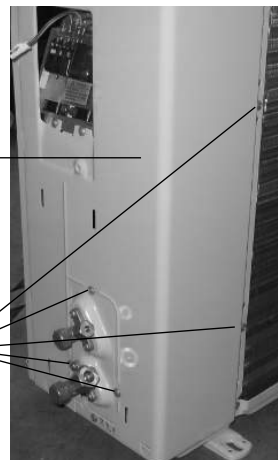
Electric box

Fig 8 — 32

7.3.6 Disassemble right side plate

Screw off the 5 screws that fix the right side plate and lift it upward to take out the right side plate as shown in Fig.8-33

Right side plate



Screw

Fig 8 — 33

Operation procedures/pictures

7.3.7 Disassemble axial flow fan

Loose the fixing nut with spanner, and remove the nut, spring gasket and flap gasket.
As show in Fig.8-34.

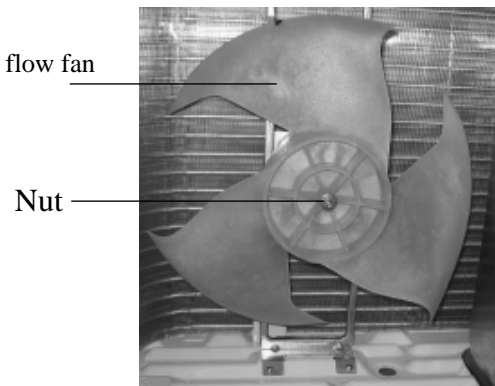


Fig 8 – 34

7.3.8 Disassemble motor and motor support

Screw off the 4 pieces of tapping screws that fix the motor, and take out the motor. Then screw off the 2 pieces of tapping screws that fix the motor support, lift it upward and take out the motor support. As show in Fig.8-35

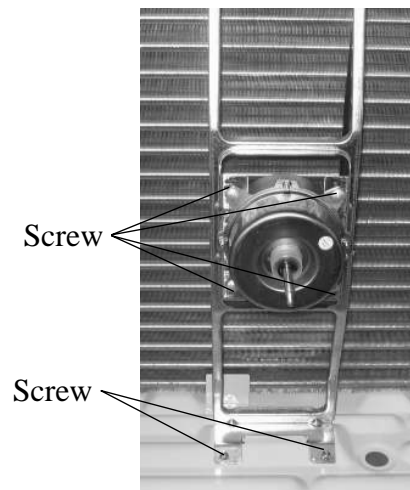


Fig 8 – 35

7.3.9 Disassemble four-way valve

Screw off the fixing nut of the four-way valve coil and remove the coil. Wrap the four-way valve with wet cotton gauze and weld off four welding spots on the four-way valve to take off the four-way valve. Remarks: It is required to firstly discharge completely the freon).
Welding process should be as quick as possible and the wetness of the wrapping cotton gauze should be maintained wet all the time. Be sure not to burn out the lead wire of the compressor.

As shown in Fig.8-36

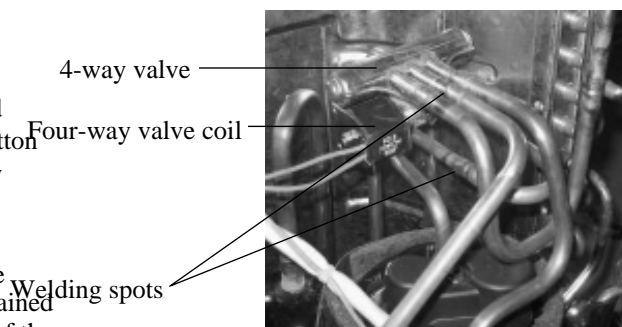


Fig 8 – 36

Operation procedures/pictures

7.3.10 Disassemble capillary

Weld off two welding spots of the capillary, then take off the capillary. As show in Fig.8-37

Main capillary

Auxiliary capillary



Fig. 8 — 37

7.3.11 Disassemble gas and liquid valves

Screw off 2 pieces of screws each fixing the gas and liquid valves and weld off the welding spot between the valve and connecting pipe to take off the valve.

(Note: When weld off the welding spot, wrap the big valve completely with wet cotton gauze to avoid high-temperature damaging to the valve body.)

As shown in Fig.8-38

Liquid valve

Bolt

Gas valve

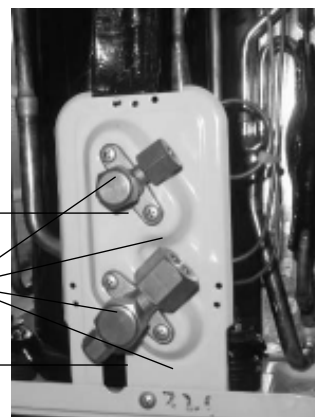


Fig. 8 — 38

7.3.12 Disassemble the compressor

Loose the 3 pieces of nuts with gaskets and weld off the welding spots of the compressor's suction and discharge pipe. Remove the pipeline carefully and take out the compressor as shown in Fig.8-39

Compressor

Button nut



Fig 8 — 39

7.4 Disassemble procedure for outdoor unit

Operation procedures/pictures

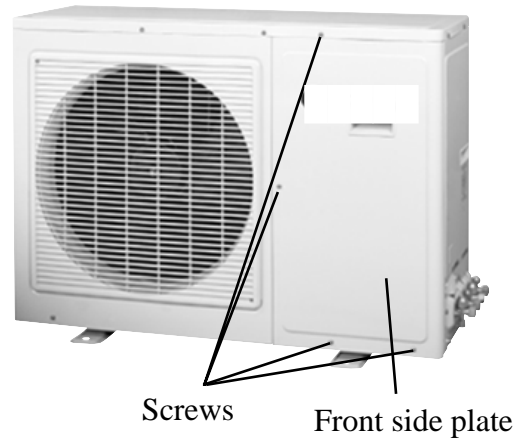
7.4.1 Disassemble the front side plate

Screw off the screw that fix the front side plate, and slide down, can take out the front side plate.

As show in Fig.8-40;

(Note: the internal structure of 9000+9000 EB '05 and 9000+120000 EB '05 is the same, so take the 9000+9000 EB '05 for an example)

9000+9000 EB '05



9000+12000 EB '05

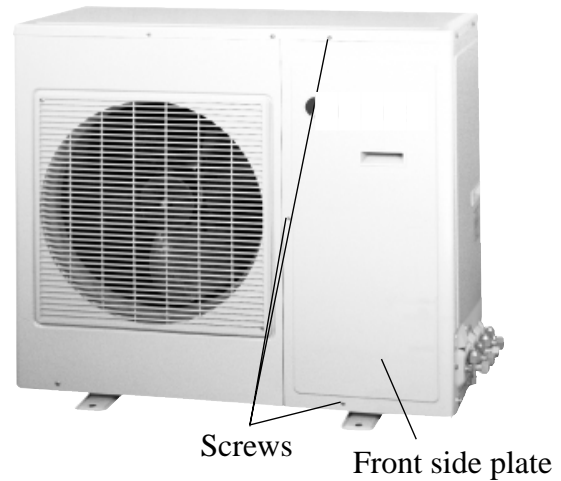


Fig. 8 - 40

7.4.2 Disassemble the top cover

Screw off the screw that fix the top cover, then can disassemble the top cover. As show in Fig.8-41;

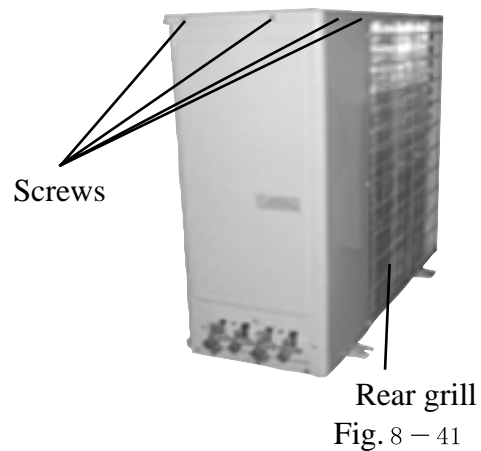


Fig. 8 - 41

Operation procedures/pictures

7.4.3 Disassemble the rear grill

Screw off 4pcs screw of rear grill, can disassemble the rear grill. As show in Fig.8-42;

Fig. 8 – 39

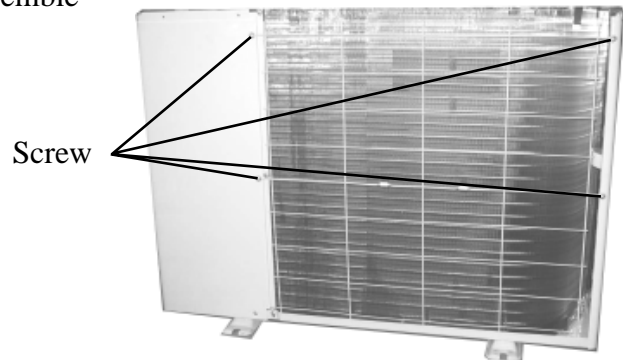


Fig. 8-42

7.4.4 Disassemble the cabinet

Screw off 8pcs tapping screw of front panel, can disassemble the front panel. As show in Fig.8-43;

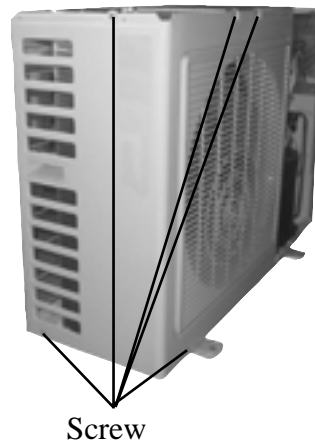


Fig. 8 – 43

7.4.5 Disassemble electric box

Pull out the motor lead insert, and pull out the connection wire of two compressors, and screw off two pieces tapping screw, and disassemble the electric box. As show in Fig. 8-44;

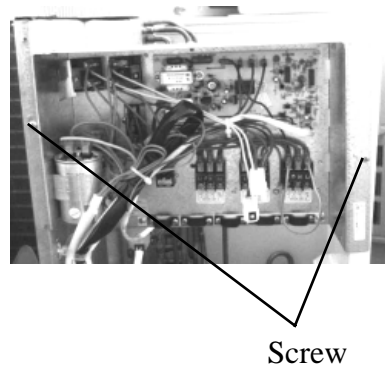


Fig. 8 – 44

Operation procedures/pictures

7.4.6 Disassemble the rear side plate

Screw off 8 fixing screws that fixe the rear side plate, that can disassemble the rear side plate. As show in Fig.8-45;



Fig. 8 – 45

7.4.7 Disassemble axial flow fan

Loose the fixing nut with spanner, and remove the nut, spring gasket and flap gasket. Then take out the axial flow fan with strength. As shown in Fig.8-46;

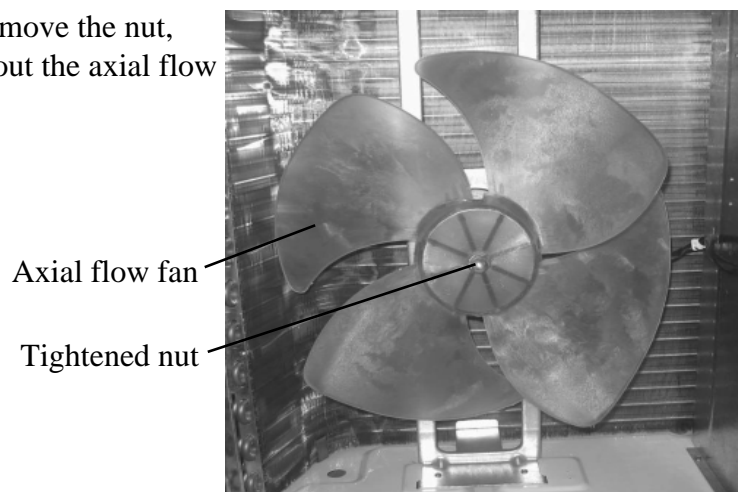


Fig. 8 – 46

Operation procedures/pictures

7.4.8 Disassemble motor support

Screw off the tapping screws that fix the motor, and take out the motor. Then screw off the 2 pieces of tapping screws that fix the motor support, lift it upward and take out the motor support.

As shown in Fig.8-47;

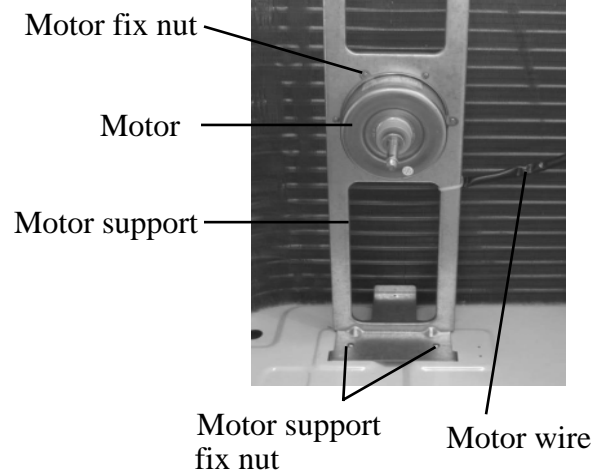


Fig. 8 – 47

7.4.9 Disassemble four-way valve

Screw off the fixing nut of the four-way valve coil and remove the coil. Wrap the four-way valve with wet cotton gauze and weld off four welding spots on the four-way valve to take off the four-way valve. (Remarks: It is required to firstly discharge completely the freon).

Welding process should be as quick as possible and the wetness of the wrapping cotton gauze should be maintained wet all the time. Be sure not to burn out the lead wire of the compressor.

As shown in Fig.8-48;

Solenoid coil
Soldered point 4pcs

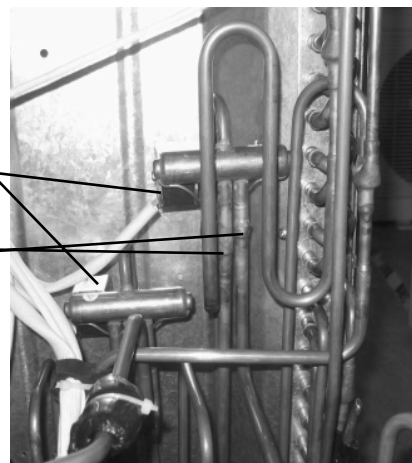


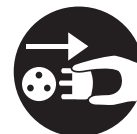
Fig. 8 – 48

8. Care and maintenance



Warning:

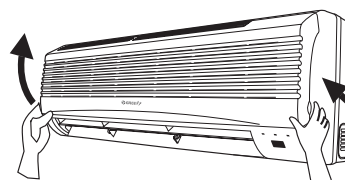
- Turn power off and pull out the power plug before cleaning the air conditioner. Or it may cause electric shock.
- Never dampen the air conditioner, which may cause electric shock. Never rinse the unit with water.
- Volatile liquid such as thinner or gasoline will damage the appearance of the air conditioner (only use soft dry cloth or wet cloth with neutral cleanser to clean the outer case of the air conditioner).



8.1 Cleaning the front panel

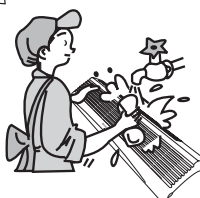
8.1.1 Take off the front

Pull the grooves on both sides of the front panel with strength at the same time according to the arrow direction and then take off the panel.



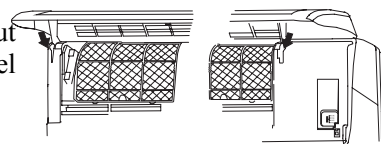
8.1.2 Clean the front panel

Use soft brush, water and neutral detergent to clean the panel and then wipe off the water and dry it.



8.1.3 Install the front panel

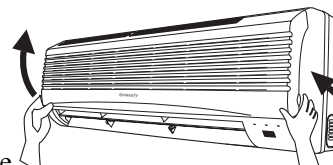
Put the props on both ends of the panel into the fulcrum groove and put the middle rotating shaft into the groove. Then cover and clasp the panel cover well according to the arrow direction.



8.2 Cleaning the air filter

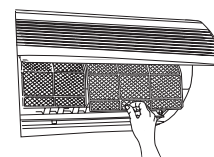
8.2.1 Take off the air filter

Pull the grooves on both sides of the front panel with strength at the same time according to the arrow direction to lift up the panel to a certain angle. Then pull the air filter downward and take it out, as shown in the right figure.



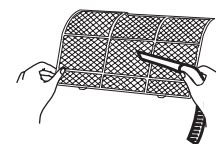
8.2.2 Clean the air filter

Use vacuum cleaner or water rinsing to clean the filter. If the air filter is very dirty (such as oil stain), use warm water (below 45 °C) with neutral detergent dissolved to clean the air filter, and place it in a shady and cool



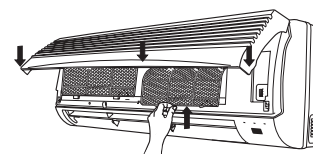
8.2.3 Install the air filter

Install the air filter properly according to the arrow direction. Let its side that marked with "Front" face you. Then cover and clasp the panel well.



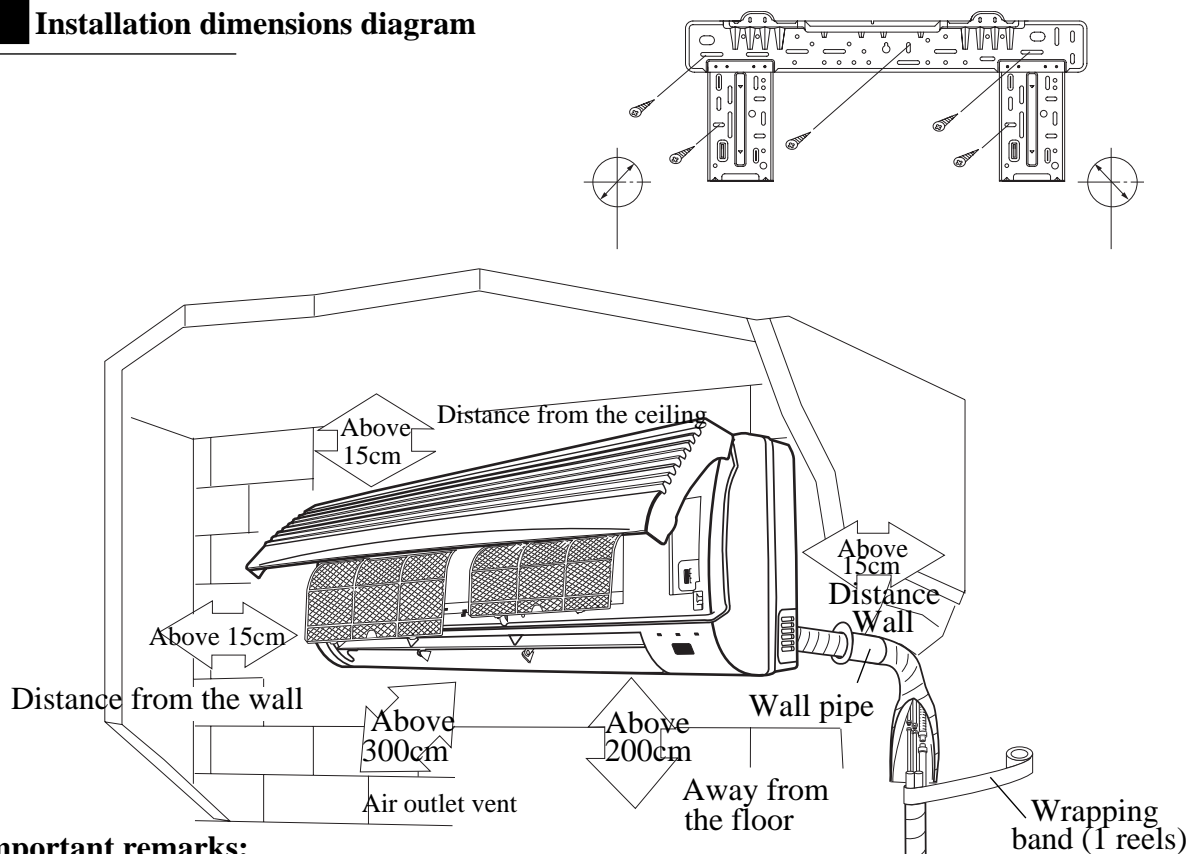
Note:

Do not dry the panel or air filter directly under the sun; do not wash them with hot water above 45°C or dry it over a fire (This will cause fade, fire or deformation).



9. Guide for installation

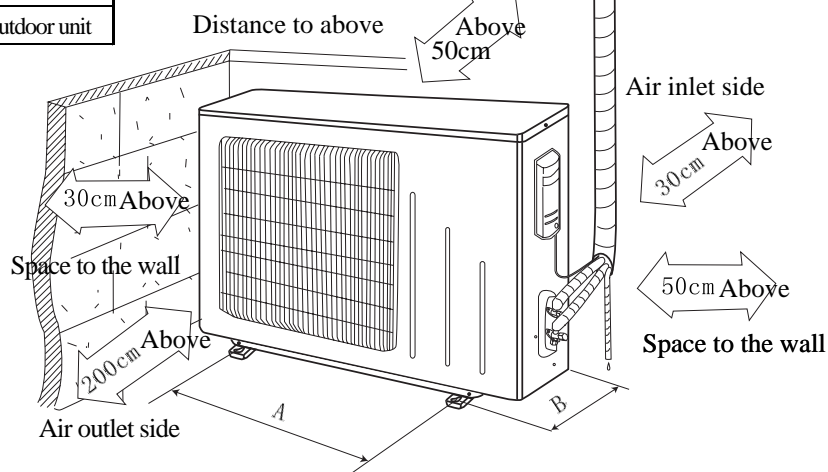
9.1 Installation dimensions diagram

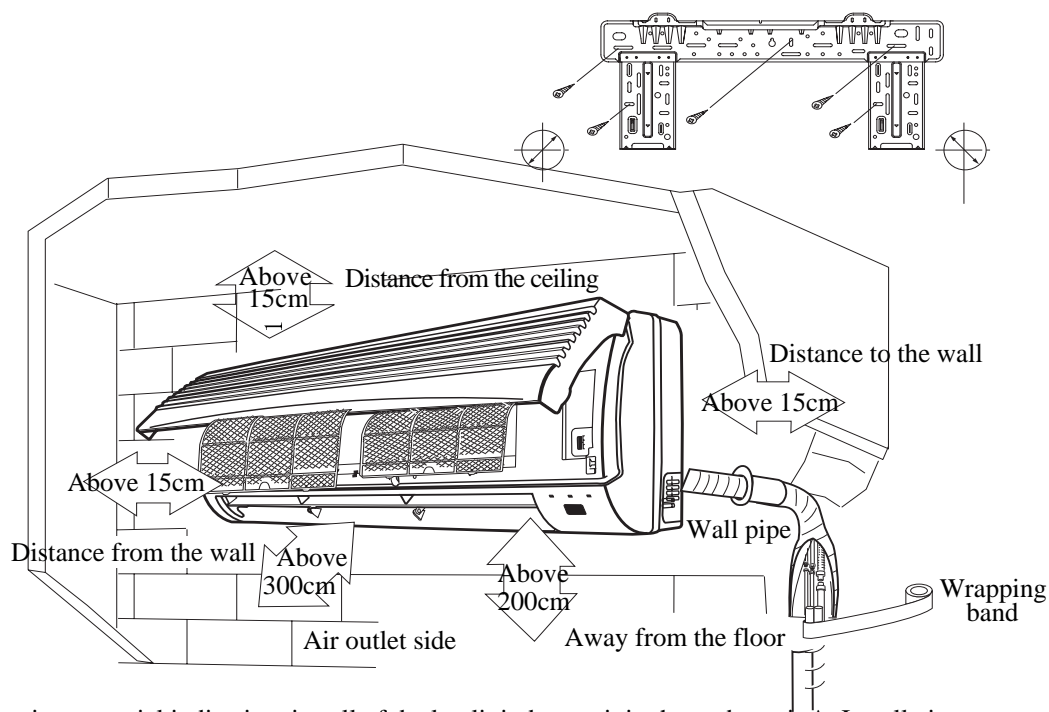


Important remarks:

- ◆ The air conditioner should be installed by a specialized personnel to ensure a good application.
- ◆ Please contact the local service department appointed by Gree air conditioner prior to installation. Otherwise, the inconvenient business contact may happen or it may not be treated timely if there is any failure occurred.
- ◆ It is recommended to move the air conditioner to other location under the guidance of the specialist.

Outdoor unit installation dimension		Applicable to
A	B	
440 (mm)	286 (mm)	20,25 outdoor unit
540 (mm)	286 (mm)	32 outdoor unit

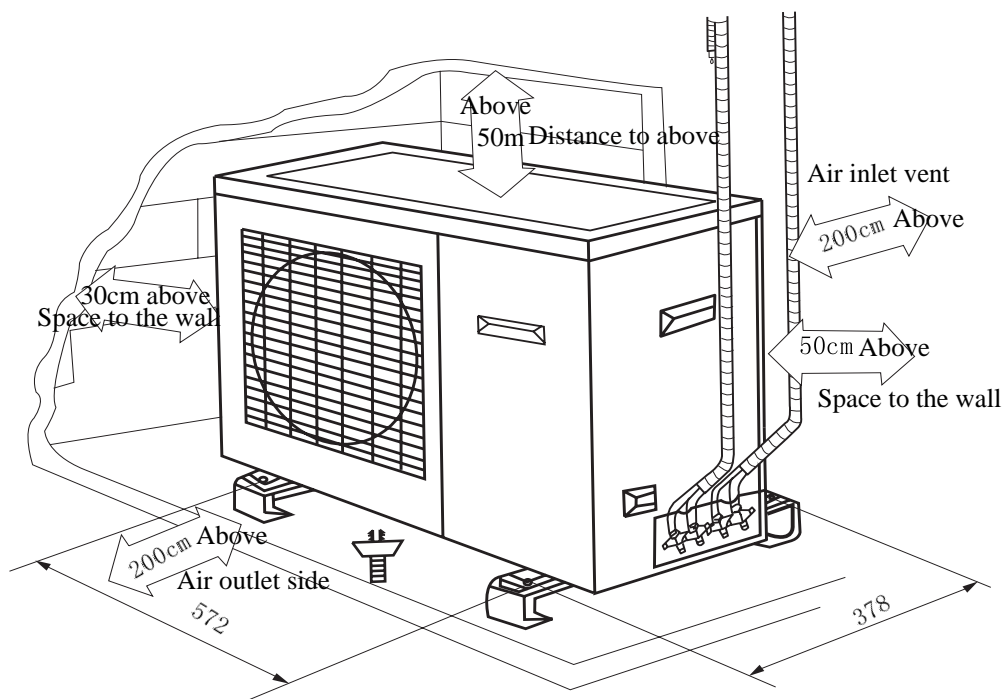




- ★ If there is no special indication, install of dual-split indoor unit is shown by unit A. Installation method of unit B is the same as that of unit A.

Important remarks:

- ★ The air conditioner should be installed by a specialized personnel to ensure a good application.
- ★ Please contact the local service department appointed by Gree air conditioner prior to installation. Otherwise, the inconvenient business contact may happen or it may not be treated timely if there is any failure occurred.
- ★ It is recommended to move the air conditioner to other location under the



9.2 Select of Install Location

9.2.1 Indoor Unit

- The air inlet and outlet vent should far away from obstruction so that air can be blown to the entire room;
- Select the place where is easy to drain condensate; Select the place where is easy to connect with outdoor unit;
- Far way from heat source, steam and flammable gas;
- Select the place where that can stand the weight of indoor unit without increasing the running noise and vibrations.
- Ensure the install of indoor unit fits requirements on install dimension diagram;
- Ensure there should be enough space for maintenance or repair, height of indoor unit to floor should over 2.3m;
- Place the units to where there is 1m or more away from TV, Hi-fi and other appliances;
- Place where air filter can be easily taken out;
- Prevent to use unit near ambient of laundry, bathroom, shower and swimming pool etc..
- There should be socket behind the unit for plugging

9.2.2 Outdoor Unit

- Place where noise and airflow produced when exhausting would not bother neighbour;
- Ensure that indoor unit has well ventilation;
- There should not be any obstruction near air inlet and outlet vent of outdoor unit;
- The install place should be able to stand the weight and shake of outdoor unit;
- Place where has no leakage of dangerous, flammable and corruptive gas;
- Ensure that install of outdoor unit fits requirements on dimension diagram.

Note:

Installation of the following places may cause malfunction; if it is unavoidable to install there, please contact Gree Authorized Service Center.

- Place where there is machine oil.
- Saline and alkaline place where is near sea.
- Place where there is sulfureted gas (such as sulfureted spring).
- Place where there is high-frequency equipments such as radio, welders and medical equipment.
- Place in special ambient.



9.3 Install of indoor unit

9.3.1 Install of rear panel

- Measure horizon pision by hanging line; since drainage pipe hold is on left side, thus it is better to let the left side a little bit lower when adjusting rear plate.
- Fix rear plate on wall by bolts.
- Pull the rear panel after installation to see if it is firm enough. the rear panel after installed should be able to stand the weight of an adult (60kg), and the weight should be evenly shared by each screw.

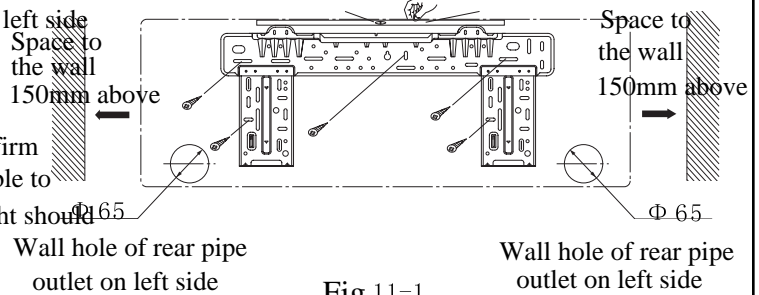


Fig.11-1

9.3.2 Drilling piping holes

- After confirming the piping hole position according to Fig. 11-1, drill a slant hole ($\Phi 65$)
- In order to protect the pipes and cables from damage when going through the wall, wall tube should be installed.

9.3.3 Install drainage hose

- Drainage hose must be placed at a downward slant for smooth drainage.
- Do not wrench, bend or heave the drain hose or flood its end into water.
- The prolonged drainage hose must be wrapped by heat insulation material when going through indoor unit.

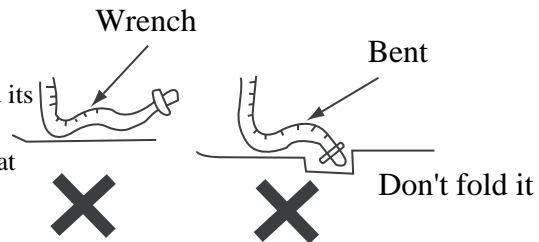


Fig.11-2

9.3.4 Install connecting pipe

- Connect the connecting pipe with the 2 leading pipe from indoor unit correpondently, tighten joint nuts on connect pipe.

Note :

- Connect the connecting pipe with indoor unit first and then outdoor unit.
- Be careful when bending connecting pipe and prevent damaging it.
- Don't tighten the joint nut too much, or leakage would occur.

9.3.5 Electric wiring

When connect the power connection cord, the front panel assy should be disassembled, fix the power connection cord through the terminal board of the electric box, clamp the power connection cord by using the wire clamp of the bottom of the rear case. As show in Fig.11-3

NOTE:

- All the electrical work must be done by qualified personnel according to the local rules and this manual.
- The rated voltage and the exclusive circuit must be used.
- Leakage circuit breaker must be installed.
- Please use the air-break switch (10A), which accord with the power supply specification.
- Wiring work should conform to national standard.

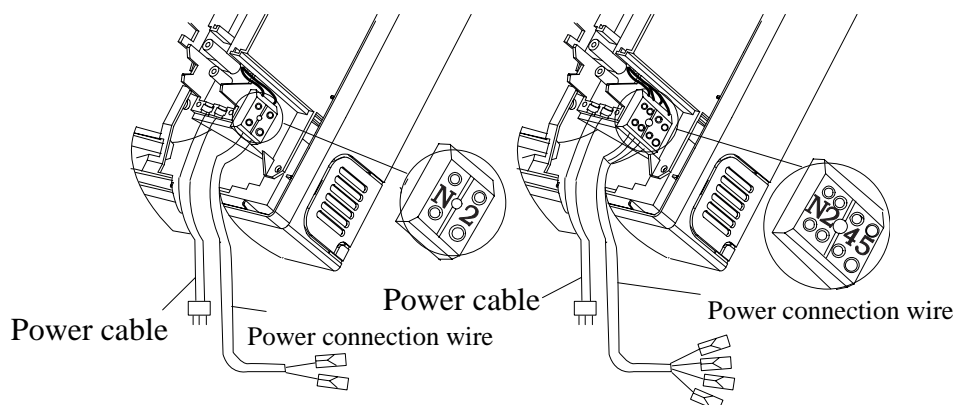


Fig.11-3

9.3.6 Install the indoor unit

● The routing piping of indoor unit please refer to the right Fig. (a) (b), when routing the piping and wiring from the left or right side of the indoor unit, cut off the tailings from the chassis in necessary (Shown in Fig.11-4 (c))

- (1) Cut off the tailings 1 when routing the wiring only;
- (2) Cut off the tailings 1 and tailings 2 when routing both the wiring and piping.

①、②、③ are the recommended piping.

● Wrap the piping and wiring and pull them through the cut-off-tailings hole Shown in Fig.11-5.

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

● The height of the installed location should be 200cm or more from the floor.

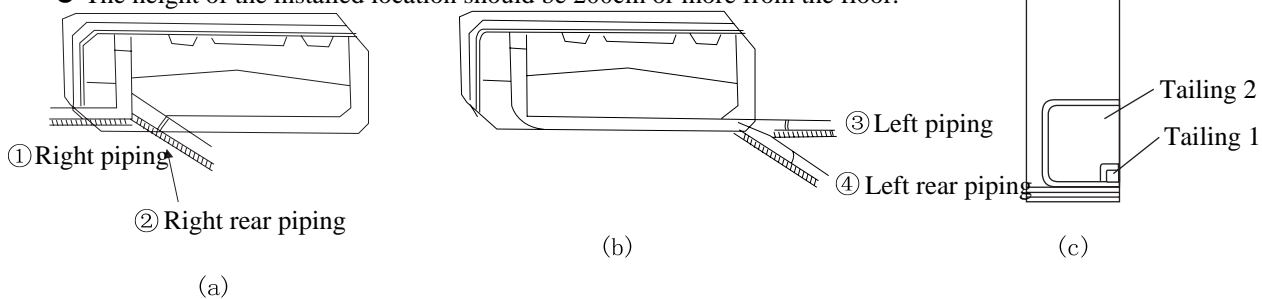


Fig.11 - 4

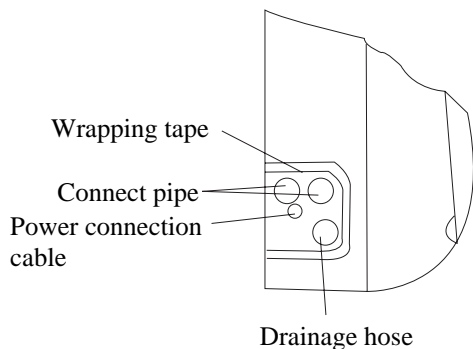


Fig.11 - 5

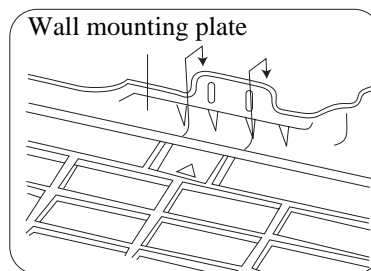


Fig.11 - 6

9.4 Install outdoor unit

9.4.1 Install connect pipe

- The flare end of the connecting pipe coincides with the flare end connector of the corresponding valve.
- Tighten nuts on connecting pipe with force then tighten it by spanner (as shown in the diagram at the right).

Notes: Too great of torque would damage nuts.

Refer the following list for tightening torque

Nut diameter (mm)	Tighten torque(N • m)
Φ6	15~20
Φ9.5	31~35
Φ12	50~55

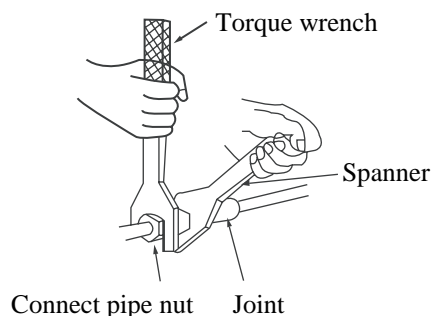


Fig. 11 - 7

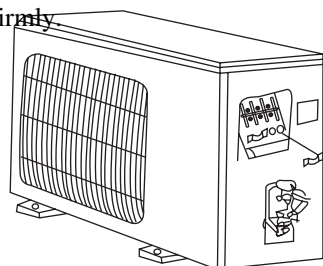
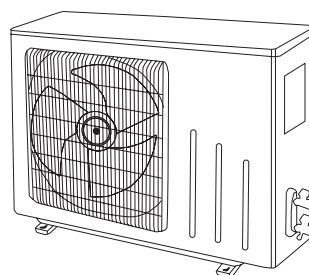
9.4.2 Electric wiring connection

Single type

- Dissassemble the big handle of the right side plate of the outdoor unit(1screw).
- Remove the wire clamp and connect the power connection cord with screws to the wiring terminal board. Be sure that the wiring connection is in accordance with the indoor unit's, the red wire of the cooling and heating units should be connected to the signal control wire.
- Fix the wiring with clamp.
- Make sure that the wiring has been connected firmly.
- Reassemble the big handle.(1piece of bolt)

Note:

- Wrong wiring connection will cause electrical malfunction.
- Do not pull the well clamped wire.



Big handle

Dual type

- Disassemble the front side plate.
- Cut off the tailings of wire hole on the right side plate, and put on the wire collar.
- Putting the wire through the wire collar to the outdoor unit.
- Using the screw to fix the power cable on the terminal board, make sure that the wiring is according to the wiring diagram of the indoor unit, and the earth wire should be reliably earthed.
- For heat pump unit, connect the signal control cable(5X1.0) to the corresponding terminal of outdoor unit.
- Fix the wiring with wire clamp.
- Fix all wiring on the clasp of right side plate, avoid the wiring contact with the compressor. As show in Fig.11-9.
- Assemble the front side plate.

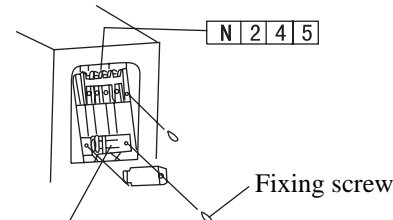



Fig.11-8

List for wire connection

Wire terminal	Electric wire
N(1)	
2	
3	
	Red

NOTE:

- Wrong wiring connection will cause electrical malfunction.
- Do not pull the electrical wire when fixing it.

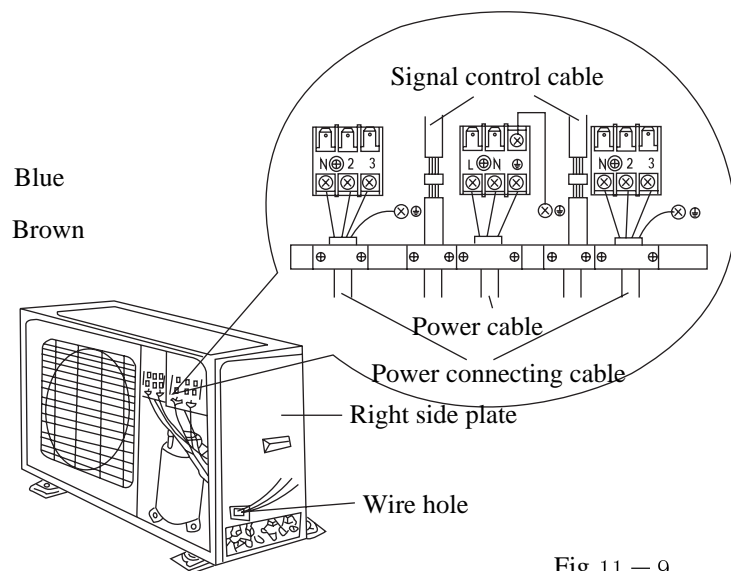
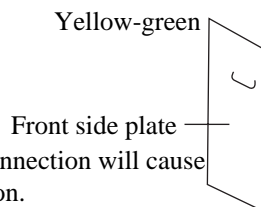


Fig.11 - 9

9.4.3 Air purging and leakage test

- Remove the flare nuts from the cut-off valves of the outdoor unit.
- Align the center of the piping flare with the relevant valve, and screw in the flare nut by hand.
- Tighten the flare nut with spanner and torque wrench.
- Remove the valve caps of the gas valve and liquid valve and the service port nut.
- 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.
- After 15 seconds, stop pushing the valve core as soon as the refrigerant starts to be discharged, and reinstall the service port nut.
- Open the liquid valve and gas valve entirely. Shown in Fig.11-10
- Tighten the valve caps and test leakage at all joints of the piping (both indoor and outdoor) by liquid soap or leak detector.
- If possible, discharge air and moisture remaining in the refrigerant system with a vacuum pump. (Shown in Fig.11-11)

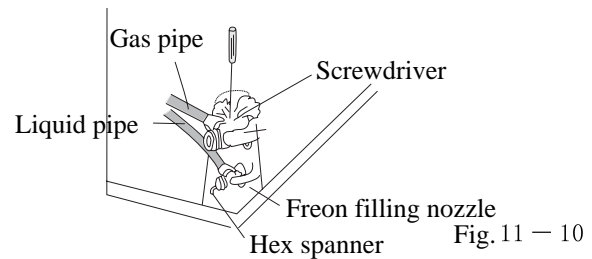


Fig. 11 - 10

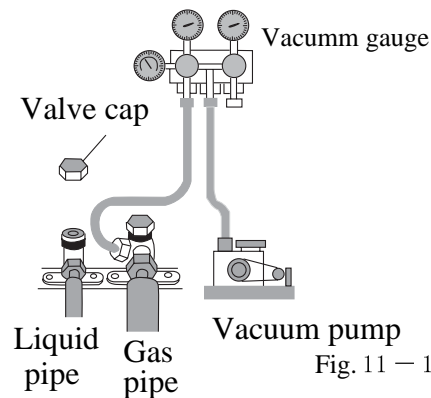
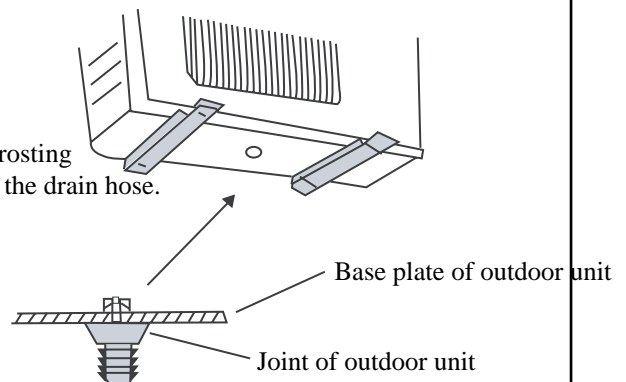


Fig. 11 - 11

9.4.4 Outdoor condensation drainage

When the unit is heating or defrosting, the condensing water and defrosting water formed in the outdoor unit can be drained out reliably through the drain hose.

Install the outdoor drain elbow in the $\phi 25$ hole on the base plate as shown in the fig., and joint the drain hose to the elbow, so that the wastewater formed in the outdoor unit can be drained out to a proper place.

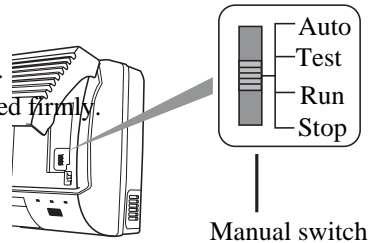


9.5 Trial run and check items after installation

9.5.1 Trial Running

1. Preparation for trial run

- Before complete of entire installation, power cannot be turned on.
- Control circuit should be connected correctly, all wire be connected firmly.
- Open cut-off valve of both thick and thin pipe.
- All scattered things, especially scrap and wire etc., should be taken out from the unit.



2. Test operation method

- Switch on power.
- Press "ON/OFF" button, then press "MODE" button and choose the COOL, DRY, HEAT, SWING to check whether the operation is normal or not.
- Emergency running

When the remote control is lost, emergency run operation can be done as follow:

- (1) At stopping, push the manual switch to the "AUTO" position, then the unit will automatically run in the AUTO mode, the COOL, HEAT, SWING will be selected by the microcomputer system according to the surrounding temperature.
- (2) At operation, press the switch to the "STOP" position, the unit will stop running.

9.5.2 Check after installation

Check Items	Items to be checked Possible malfunction	
Is the installation firm enough?	Unit may drop, shake or emit noise	
Is leakage test done?	It may cause insufficient of refrigerating (heating) capacity	
Is heat insulation sufficient?	Condensation or drop may occur	
Is drainage smooth?	Condensation or drop may occur	
Is the voltage in accordance with the rated voltage marked on the nameplate?	Malfunction or burn out of parts may occur.	
Is the electric wiring and piping connection installed correctly and securely?	Malfunction or burn out of parts may occur.	
Has the unit been connected to a secure earth connection?	Creepage may occur	
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.	

10. Malfunction Analysis

