

1 Summary and features



Model	Remarks
KF-20GW/J31-K KFR-20GW/31-K	1PH 220V 50Hz R22



Model	Remark
KF-25GW/J31-K KFR-25GW/31-K KF-35GW/J31-K KFR-35GW/J31-K KF-45GW/J31-K KFR-45GW/J31-K	1PH 220V 50Hz R22

2 Specifications and Technical Parameter

Model			KF-20GW/J31-K	KFR-20GW/J31-K
Function			Cooling only	Cooling/heating
Power supply (Phase-Frequency-Voltage)			Single-phase -50Hz-220~240	Single-phase -50Hz-220~240
Capacity	(W)		2000	2000/2300
Rated power	(W)		720	730/730
Rated current	(A)		3.27	3.32/3.32
Dehumidify volume	(L/h)		1	1
C.O.P/EER	(W/W)		2.78	2.74/3.15
Indoor unit	Model		KF-20G/J31-K	KFR-20G/J31-K
	Fan speed (r/min) (H/M/L)		960/870/780	
	Output power (W)		8	
	Fan type-piece		Cross flow fan -1	
	Diameter-length (mm)		$\phi 97 \times 583$	
	Evaporator		Aluminum fin-copper tube	
	Pipe diameter		$\phi 7$	
	Row - fin distance (mm)		2-1.5	
	Working area (m ²)		0.14	
	Guide air motor		MP28VA	
	Motor power (W)		2	
	Control method/Fuse (A)		Remote control/3.15	
	Running capacity (μ F)		1	
	Noise dB (A)		35	35
	Outline dimensions (W/D/H)(mm)		770 \times 250 \times 190	
	Package dimensions (W/D/H)(mm)		855 \times 336 \times 272	
	Net weight/Gross weight (kg)		8	
Outdoor unit	Model		KF-20W/J31-K	KFR-23W/J31-K
	Rated power (W)		690	690
	Rotation blocking current (A)		17	17
	Throttling method		Capillary	
	Compressor type		Rotary	
	Starting method		capacitor starting	
	Working temperature (°C)		T1 (18~43°C)	T1 (-7~43°C)
	Condenser		Love water film aluminum foil screwed thread pipe	
	Pipe diameter		$\phi 9.52$	
	Row- fin distance (mm)		1-1.4	1-1.4
	Working area (m ²)		0.4	0.4
	Fan motor power (W)/ speed (rpm)		20/950	20/950
	Fan type-piece		Axial flow fan -1	
	Fan blade diameter		$\phi 320$	$\phi 320$
	Defrost method		Auto defrost	
	Noise dB (A)		52	52
	Outline dimensions (W/D/H)(mm)		720 \times 260 \times 430	720 \times 260 \times 430
	Package dimensions (W/D/H)(mm)		765 \times 350 \times 500	765 \times 350 \times 500
	Net weight/Gross weight (kg)		25	25
	Refrigerant/refrigerant charge (g)		R22/500	R22/550
Connection pipe	Length	(m)	4	4
	Outer diameter	Liquid pipe	$\phi 6$	$\phi 6$
		Gas pipe	$\phi 9.52$	$\phi 9.52$
	Max. distance	Height	5	
		Length	10	

Model			KF-25GW/J31-K	KFR-20GW/J31-K
Function			Cooling only	Cooling/heating
Power supply (Phase-Frequency-Voltage)			Single-phase -50Hz-220~240	Single-phase -50Hz-220~240
Capacity	(W)		2500	2500/2900
Rated power	(W)		900	920/930
Rated current	(A)		4.09	4.18/4.23
Dehumidify volume	(L/h)		1.2	1.2
C.O.P/EER	(W/W)		2.78	2.72/3.12
Indoor unit	Model		KF-25G/J31-K	KFR-25G/J31-K
	Fan speed (r/min)(H/M/L)		960/870/780	
	Output power (W)		8	
	Fan type-piece		Cross flow fan-1	
	Diameter-length (mm)		$\phi 97 \times 583$	
	Evaporator		Aluminum fin-copper tube	
	Pipe diameter		$\phi 7$	
	Row- fin distance (mm)		2-1.5	
	Working area (m ²)		0.14	
	Guide air motor		MP28VA	
	Motor power (W)		2	
	Control method/Fuse (A)		Remote control/3.15	
	Running capacity (μ F)		1	
	Noise dB (A)		36	36
	Outline dimensions (W/D/H)(mm)		770×190×250	
	Package dimensions (W/D/H)(mm)		855×272×336	
	Net weight/Gross weight (kg)		8	
Outdoor unit	Model		KF-25W/J31-K	KFR-25W/J31-K
	Rated power (W)		880	800
	Rotation blocking current(A)		23	23
	Throttling method		Capillary	
	Compressor type		rotary	
	Starting method		Capacitor starting	
	Working temperature (°C)		T1 (18~43°C)	T1 (-7~43°C)
	Condenser		Love water film aluminum foil screwed thread pipe	
	Pipe diameter		$\phi 9.52$	
	Row- fin distance (mm)		1-1.4	1-1.4
	Working area (m ²)		0.4	0.4
	Fan motor power (W)/ speed (rpm)		48/850	30/850
	Fan type-piece		Axial flow fan-1	
	Fan blade diameter		$\phi 400$	$\phi 320$
	Defrost method		Auto defrost	
	Noise dB (A)		52	52
	Outline dimensions (W/D/H)(mm)		848×320×540	848×320×540
	Package dimensions (W/D/H)(mm)		878×360×600	878×360×600
	Net weight/Gross weight (kg)		36	36
	Refrigerant/refrigerant charge (g)		R22/700	R22/700
Connect ion pipe	Length	(m)	4	4
	Outer diameter	Liquid pipe (mm)	$\phi 6$	$\phi 6$
		Gas pipe (mm)	$\phi 9.52$	$\phi 9.52$
	Max. distance	Height (m)	5	
		Length (m)	10	

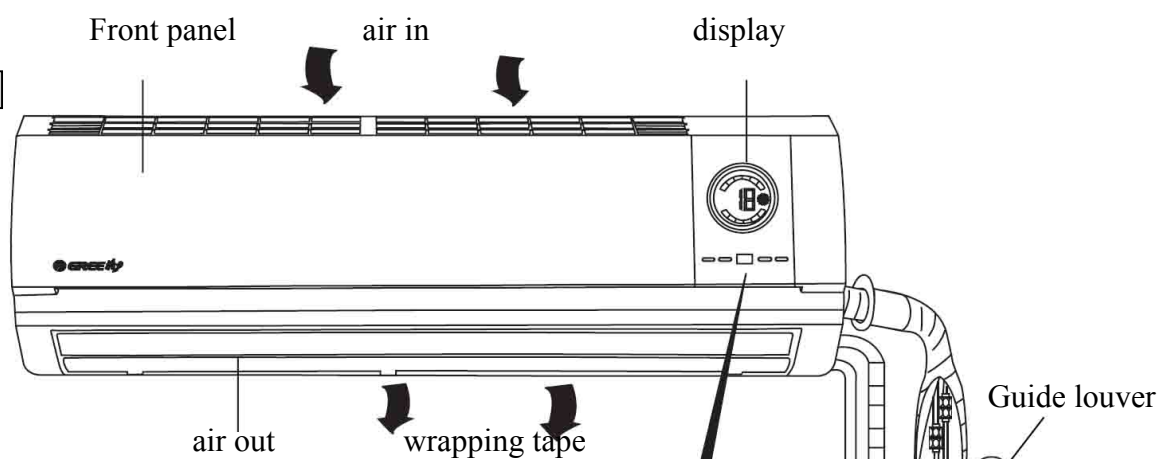
Model				KF-35GW/J31-K		KFR-35GW/J31-K	
Function				Cooling only		Cooling / heating	
Power supply (Phase-Frequency-Voltage)				Single-phase-50Hz-220～240		Single-phase -50Hz-220～240	
Capacity		(W)		3500		3500/3800	
Rated power		(W)		1350		1350/1380	
Rated current		(A)		6.14		6.14/6.27	
Dehumidify volume		(L/h)		1.5		1.5	
C.O.P/EER		(W/W)		2.6		2.6/2.75	
Indoor unit	Model			KF-35G/J31-K		KFR-35G/J31-K	
	Fan speed (r/min) (H/M/L)			1050/1010/920			
	Output power (W)			8			
	Fan type-piece			Cross flow fan-1			
	Diameter-length (mm)			φ 92×616			
	Evaporator			Aluminum fin-copper tube			
	Pipe diameter			φ 7			
	Row- fin distance (mm)			2-1.4			
	Working area (m²)			0.18			
	Guide air motor			MP28EA			
	Motor power (W)			2			
	Control method/Fuse (A)			Remote control/3.15			
	Running capacity (μ F)			1			
	Noise dB (A)			37		36	
	Outline dimensions (W/D/H)(mm)			830×189×285			
	Package dimensions (W/D/H)(mm)			875×250×378			
	Net weight/Gross weight (kg)			11			
Outdoor unit	Model			KF-35W/J31-K		KFR-35W/J31-K	
	Rated power (W)			1050		1100	
	Rotation blocking current (A)			34		34	
	Throttling method			Capillary			
	Compressor type			Rotary			
	Starting method			Capacitor starting			
	Working temperature (℃)			T1 (18～43℃)		T1 (-7～43℃)	
	Condenser			Love water film aluminum foil screwed thread pipe			
	Pipe diameter			φ 9.52			
	Row- fin distance (mm)			1-1.6		1-1.6	
	Working area (m²)			0.4		0.4	
	Fan motor power (W)/ speed (rpm)			48/900		48/900	
	Fan type-piece			Axial flow fan-1			
	Fan blade diameter			φ 400		φ 400	
	Defrost method			Auto defrost			
	Noise dB (A)			54		54	
	Outline dimensions (W/D/H)(mm)			848×320×540		848×320×540	
	Package dimensions (W/D/H)(mm)			878×360×600		878×360×600	
	Net weight/Gross weight (kg)			36		36	
	Refrigerant/refrigerant charge (g)			R22/900		R22/1000	
Connection pipe	Length		(m)	4		4	
	Outer diameter	Liquid pipe	(mm)	φ 6		φ 6	
		Gas pipe	(mm)	φ 12		φ 12	
	Max. distance	Height	(m)	5			
		Length	(m)	10			

Model				KF-45GW/J31-K		KFR-45GW/J31-K	
Function				Cooling only		Cooling/heating	
Power supply (Phase-Frequency-Voltage)				Single-phase-50Hz-220～240		Single-phase -50Hz-220～240	
Capacity		(W)		4500		4500/5000	
Rated power		(W)		1750		1750/1800	
Rated current		(A)		7.95		7.95/8.18	
Dehumidify volume		(L/h)		1.8		1.8	
C.O.P/EER		(W/W)		2.57		2.57/2.78	
Indoor unit	Model			KF-45G/J31-K		KFR-45G/J31-K	
	Fan speed (r/min)(H/M/L)			1350/1200/1100			
	Output power (W)			8			
	Fan type-piece			Cross flow fan-1			
	Diameter-length (mm)			φ 92×616			
	Evaporator			Aluminum fin-copper tube			
	Pipe diameter			φ 7			
	Row- fin distance (mm)			2-1.4			
	Working area (m²)			0.18			
	Guide air motor			MP28EA			
	Motor power (W)			2			
	Control method/Fuse (A)			Remote control/3.15			
	Running capacity (μ F)			1			
	Noise dB (A)			44		44	
	Outline dimensions (W/D/H)(mm)			830×189×285			
	Package dimensions (W/D/H)(mm)			875×250×378			
	Net weight/Gross weight (kg)			11			
Outdoor unit	Model			KF-45W/J31-K		KFR-45W/J31-K	
	Rated power (W)			1735		1735	
	Rotation blocking current (A)			45		45	
	Throttling method			Capillary			
	Compressor type			Rotary			
	Starting method			Capacitor starting			
	Working temperature (℃)			T1 (18～43℃)		T1 (-7～43℃)	
	Condenser			Love water film aluminum foil screwed thread pipe			
	Pipe diameter			φ 9.52			
	Row- fin distance (mm)			2-1.6		2-1.6	
	Working area (m²)			0.4		0.4	
	Fan motor power (W) / speed (rpm)			48/900		48/900	
	Fan type-piece			Axial flow fan-1			
	Fan blade diameter			φ 400		φ 400	
	Defrost method			Auto defrost			
	Noise dB (A)			56		56	
	Outline dimensions (W/D/H)(mm)			848×320×540		848×320×540	
	Package dimensions (W/D/H)(mm)			878×360×600		878×360×600	
	Net weight/Gross weight (kg)			40		40	
	Refrigerant/refrigerant charge (g)			R22/1300		R22/1300	
Connection pipe	Length		(m)	4		4	
	Outer diameter	Liquid pipe	(mm)	φ 6		φ 6	
		Gas pipe	(mm)	φ 12		φ 12	
	Max. distance	Height	(m)	5			
		Length	(m)	10			

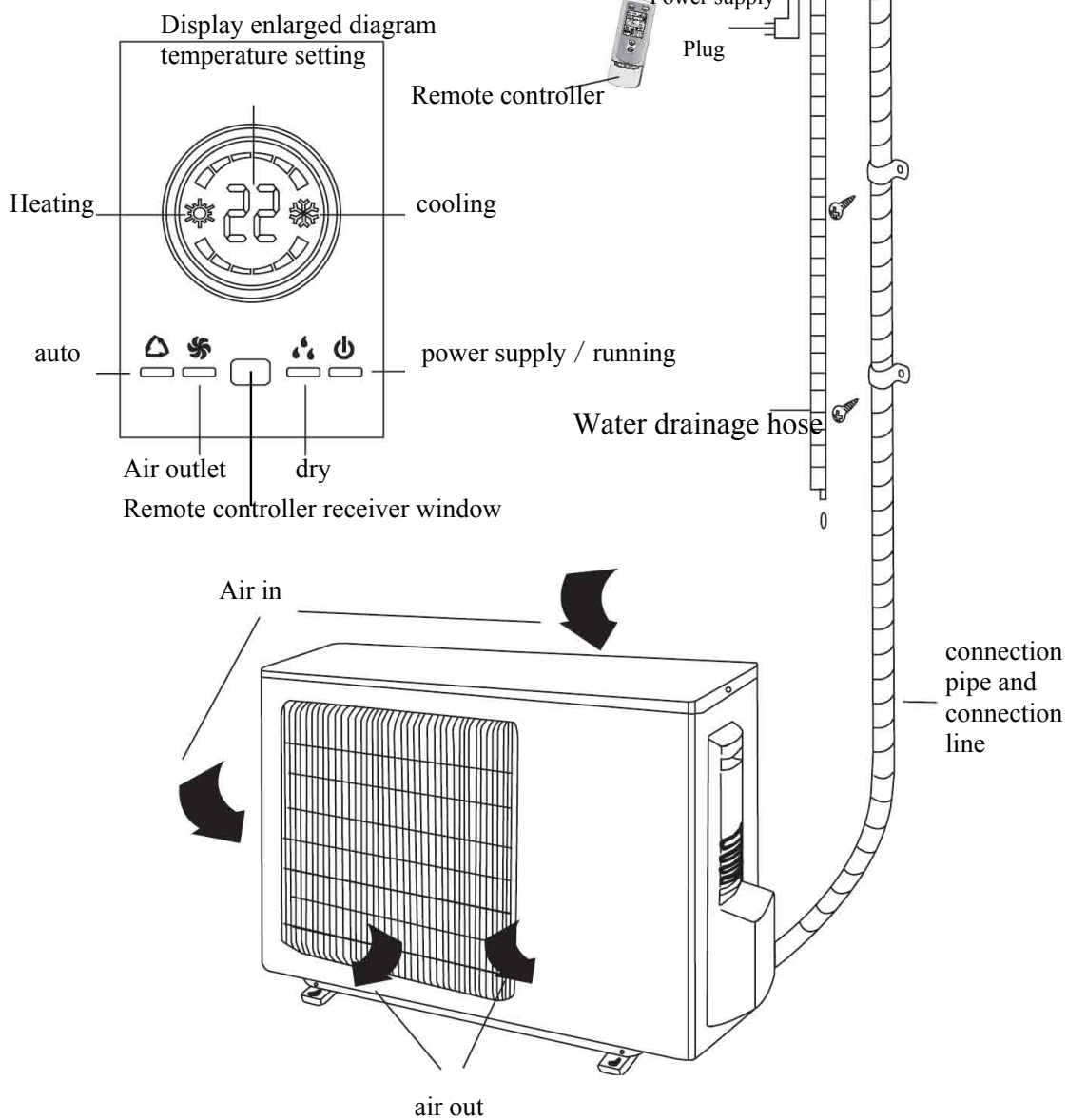
The technical data are subject to change without notice. Please refer to the name plate of the unit.

3 Parts name

Indoor unit



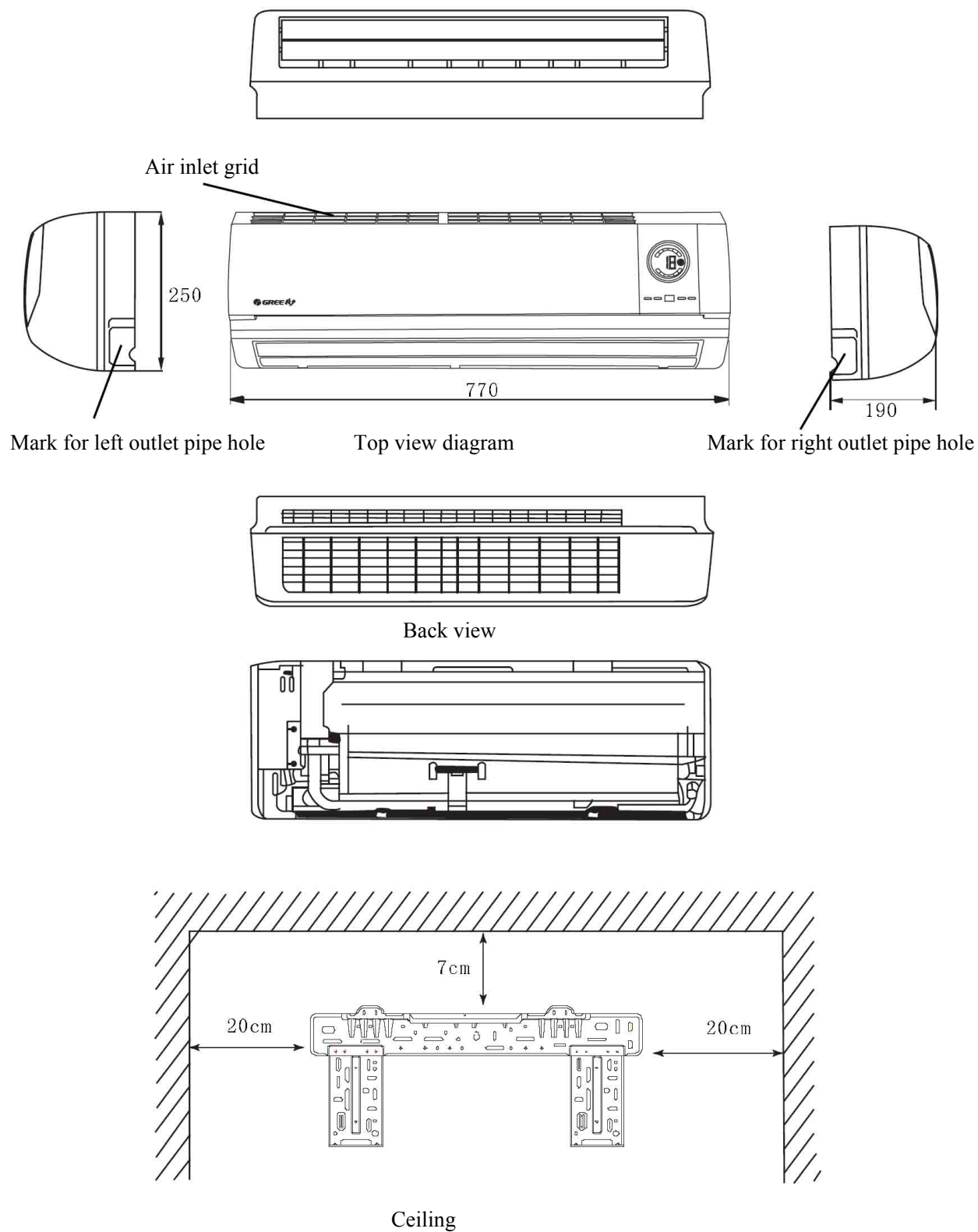
Outdoor unit



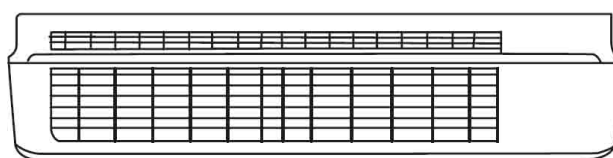
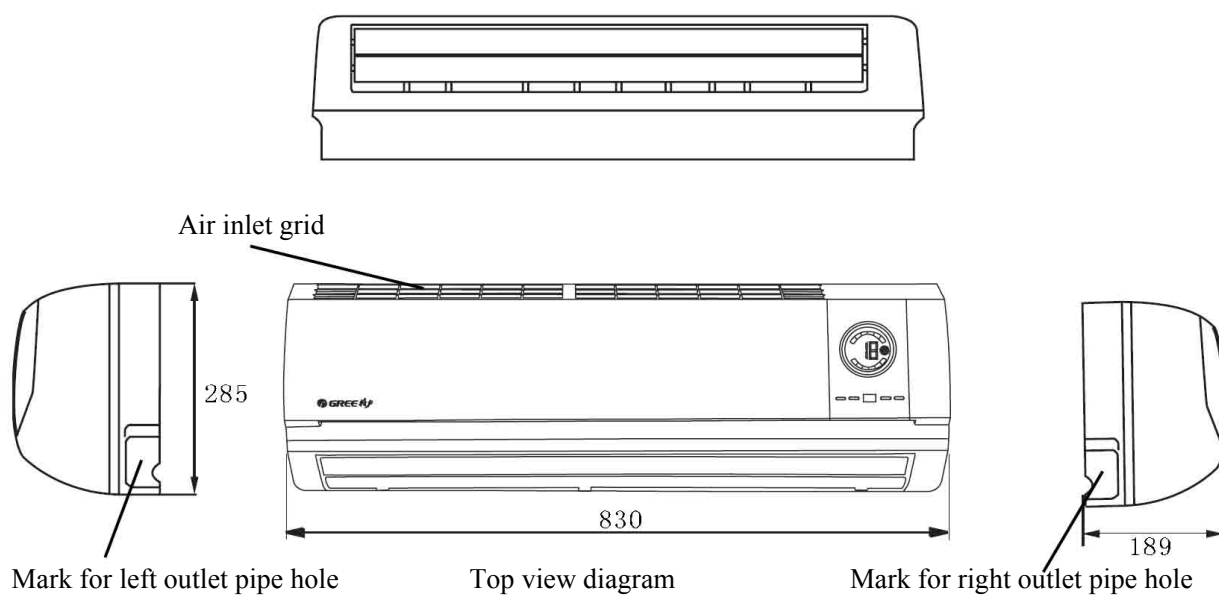
4

Outline and installation dimensions

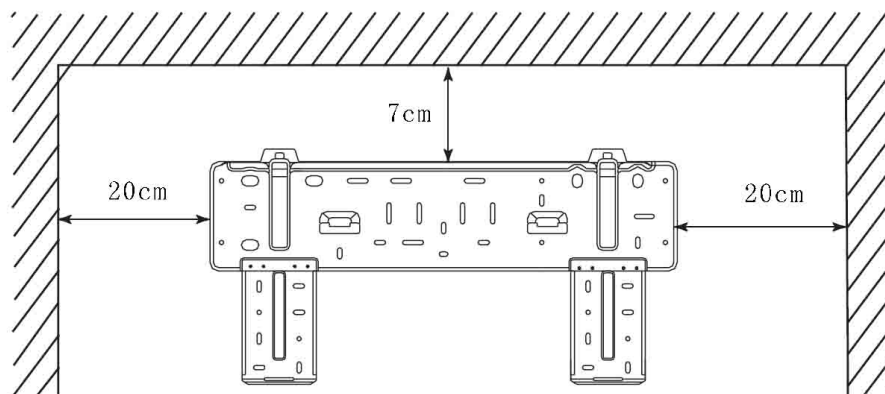
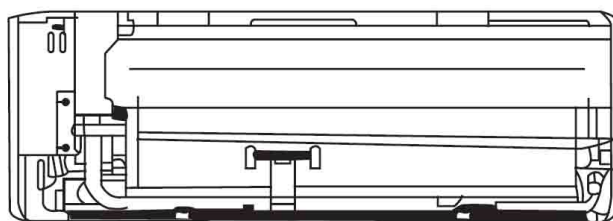
4.1 Outline and installation dimensions of indoor unit 23, 26, 32



4.2 Outline and installation dimensions of indoor units 35, 45

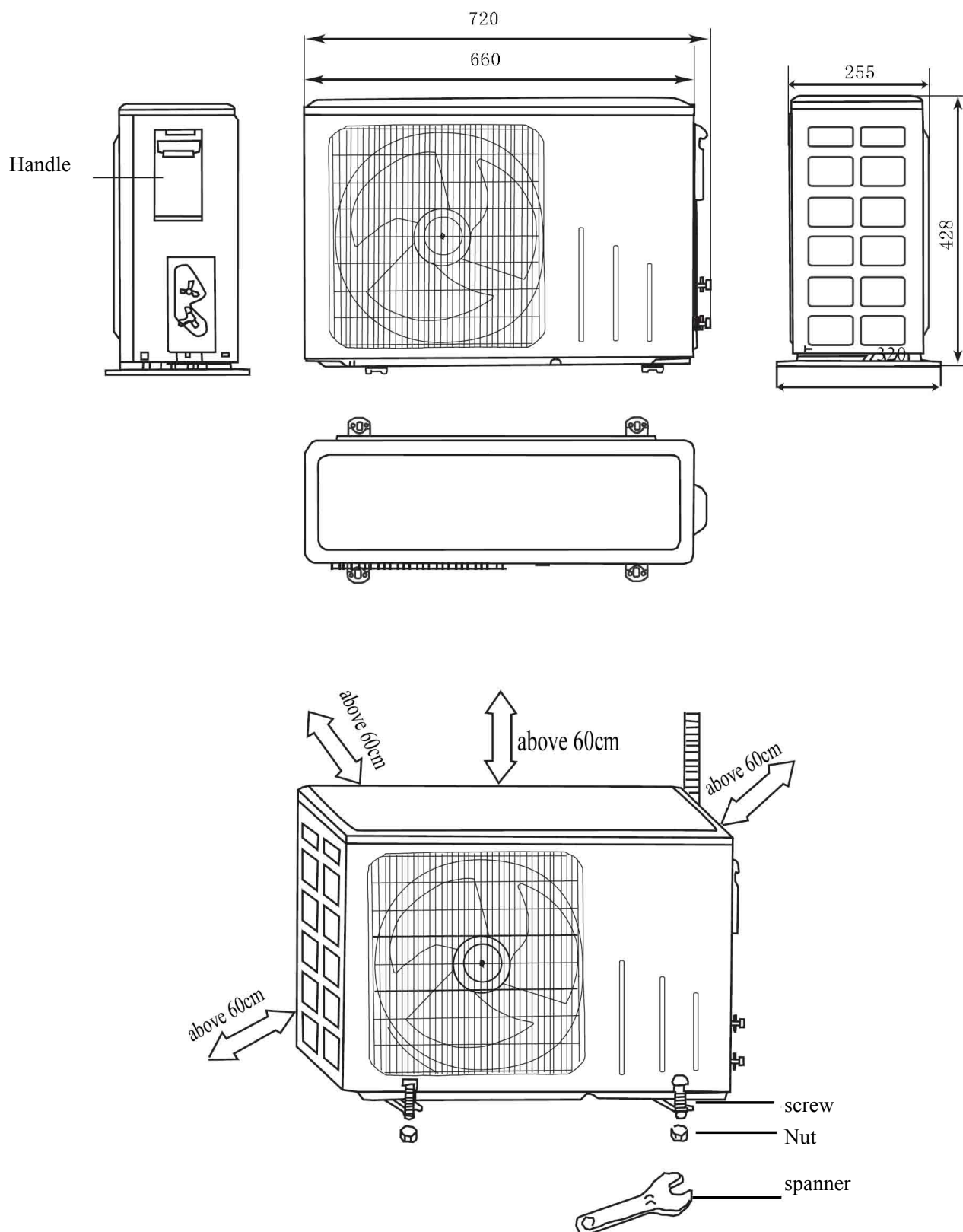


Back view

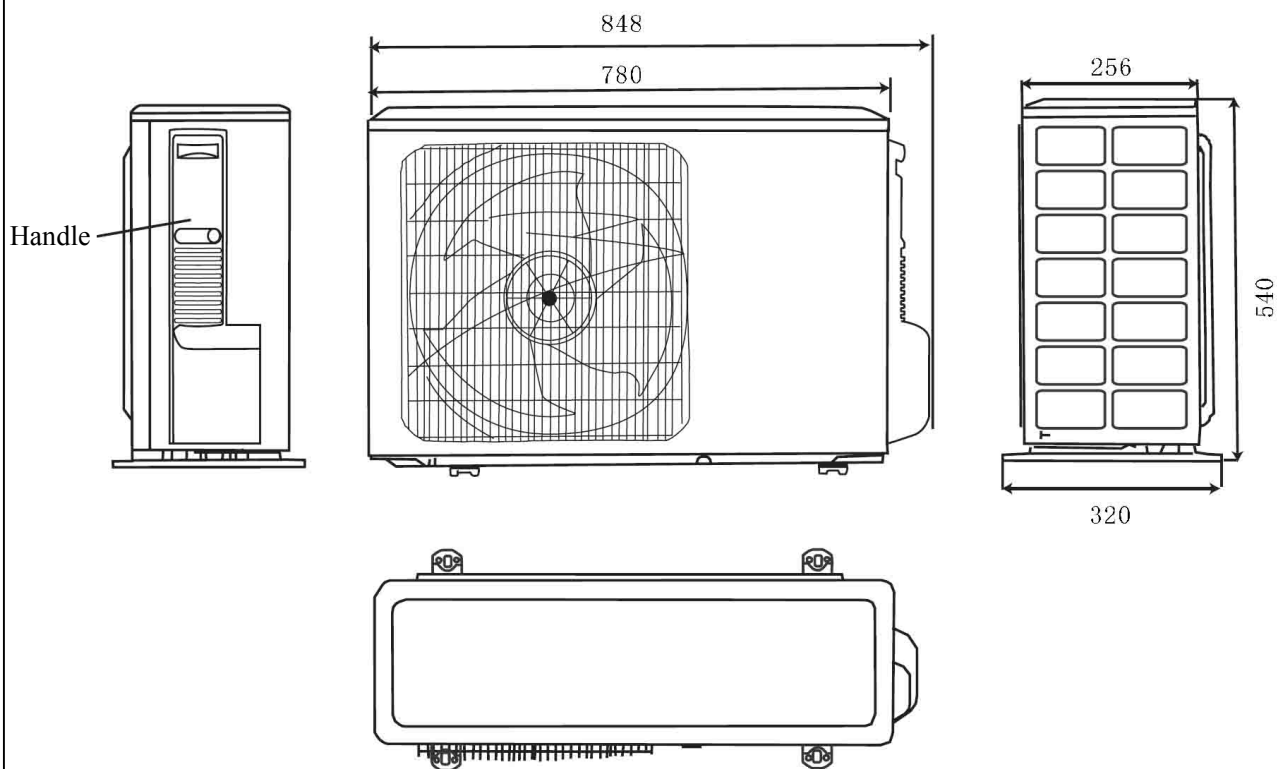


Ceiling

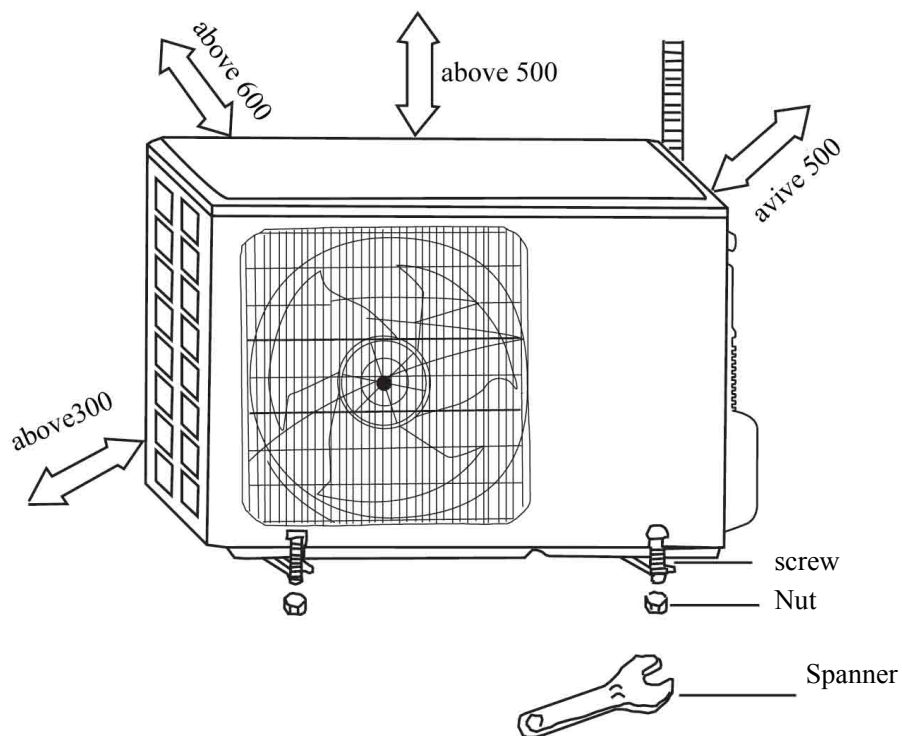
4.3 Outline and installation dimensions of outdoor unit 20



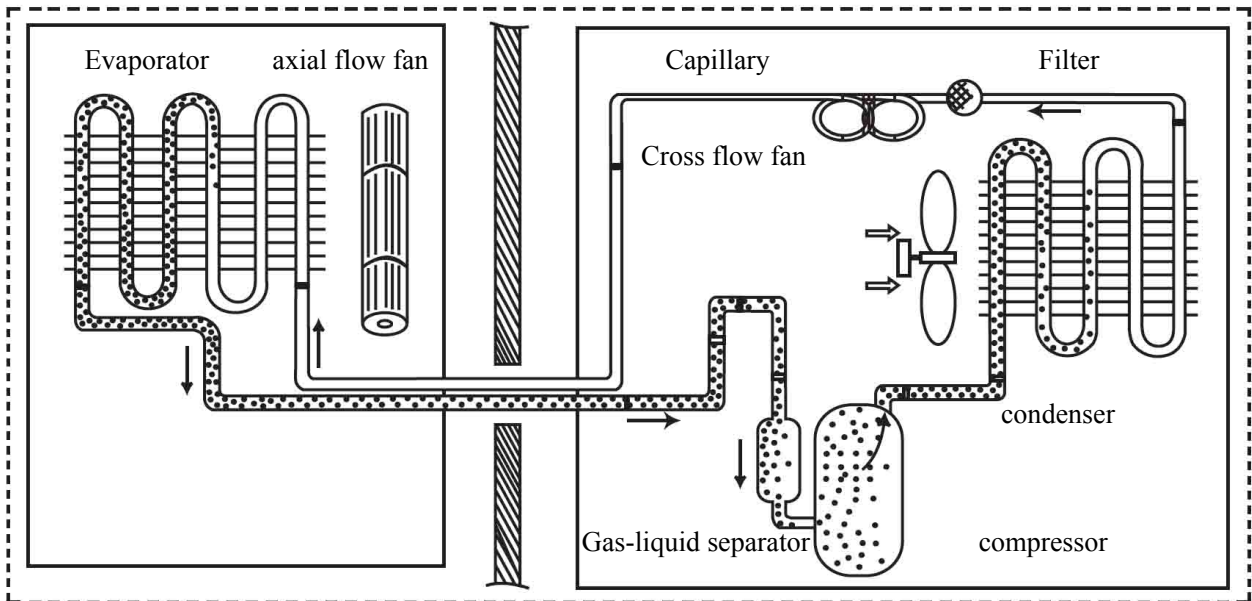
4. 4 Outline and installation dimensions of outdoor units 25, 32, 35, 45



Unit: mm

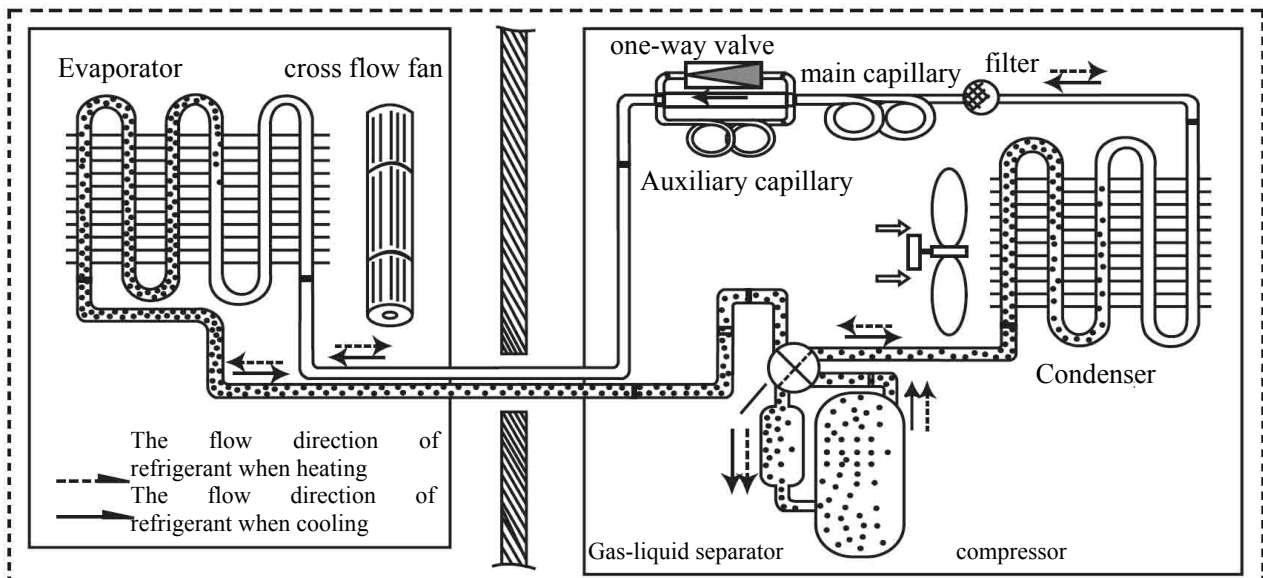


5.1 Cooling system diagram for cooling only type



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 exchanges 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.

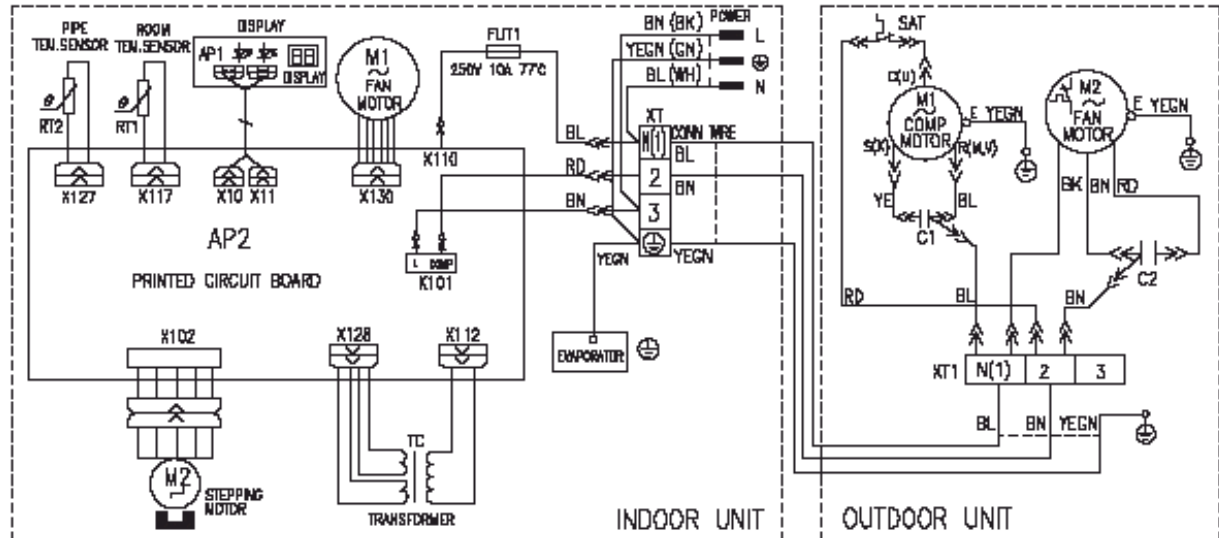
5.2 Cooling system diagram for cooling/heating type



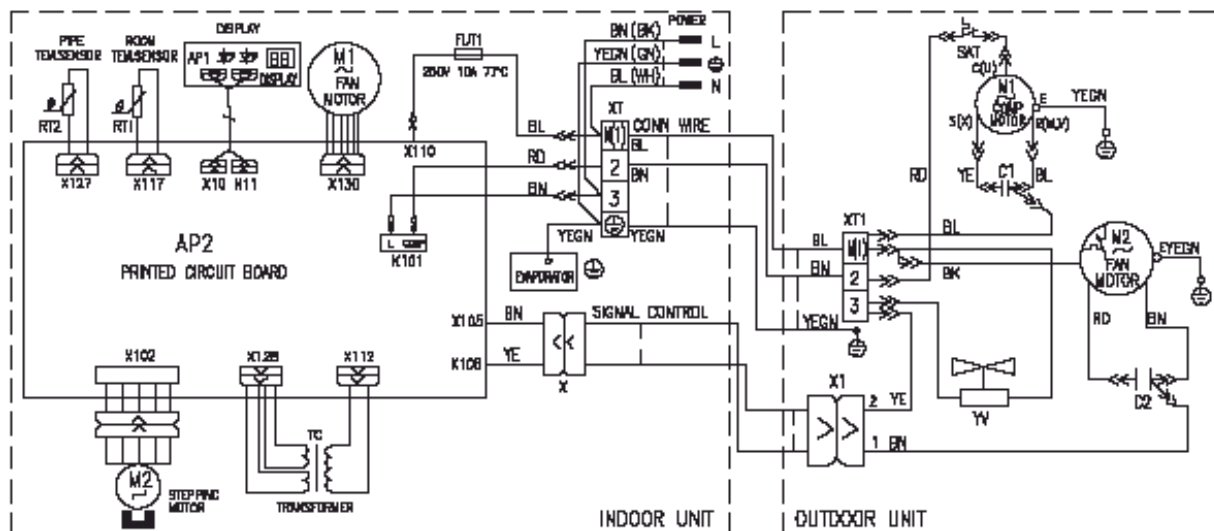
When the power is on, indoor and outdoor units will start to run. When the system operates in cool mode, the compressor sucks low-temperature, low-pressure refrigerant gas from indoor evaporator and then discharges high-temperature, high-pressure refrigerant gas into outdoor heat exchanger. With the 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 then 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 the 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.

6 Circuit diagram

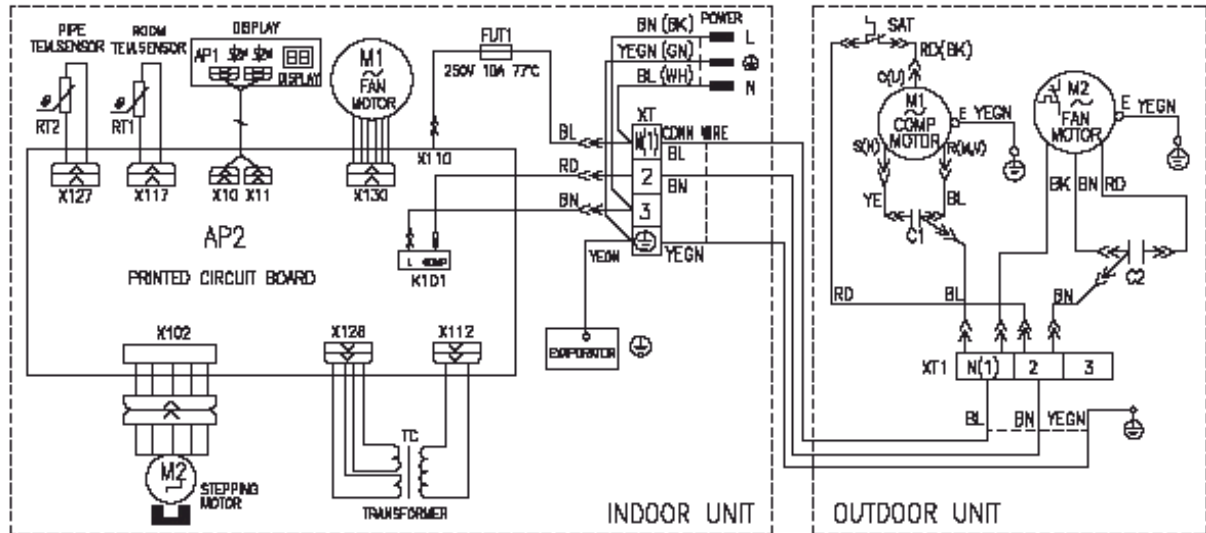
KF-20GW/J31-K



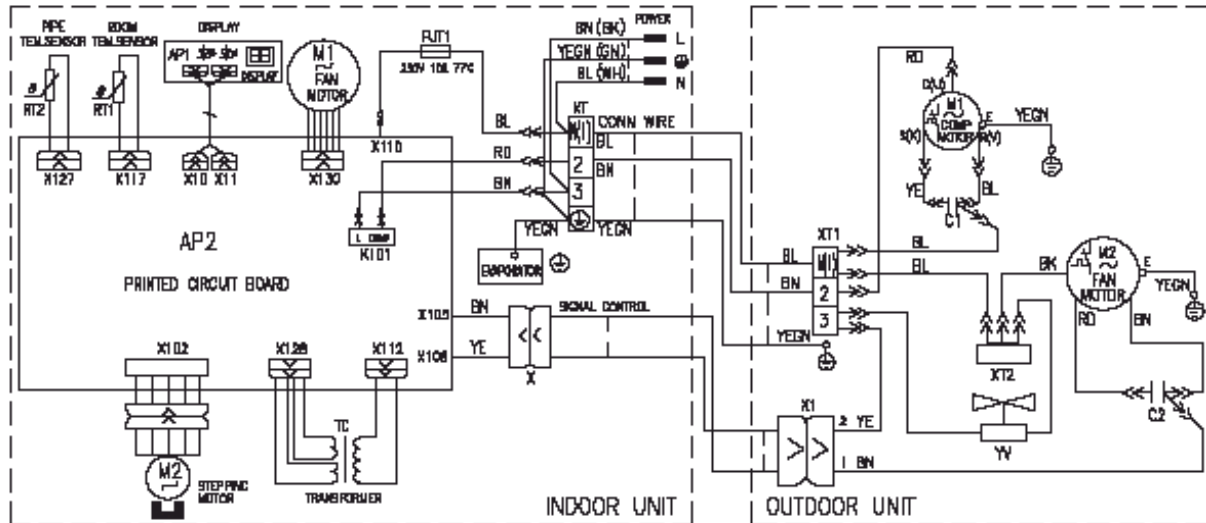
KFR-20GW/J31-K



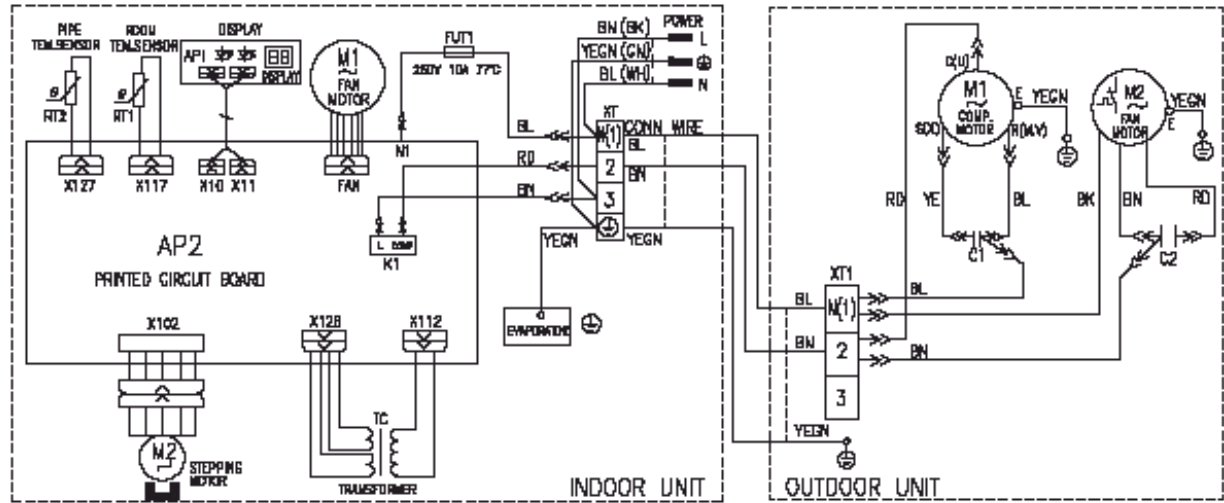
KF-25GW/J31-K



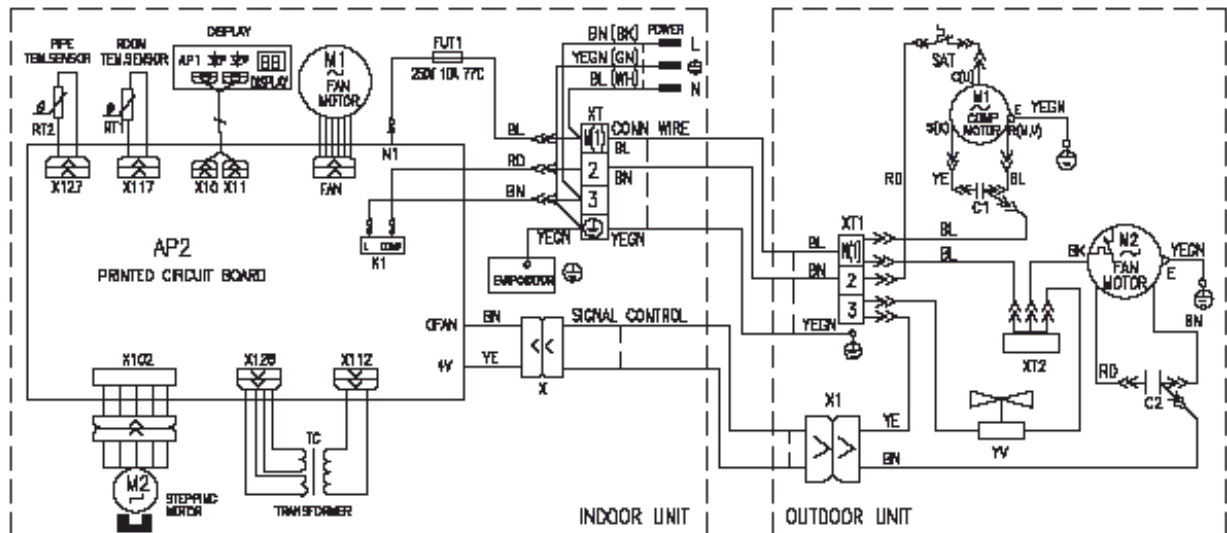
KFR-25GW/J31-K



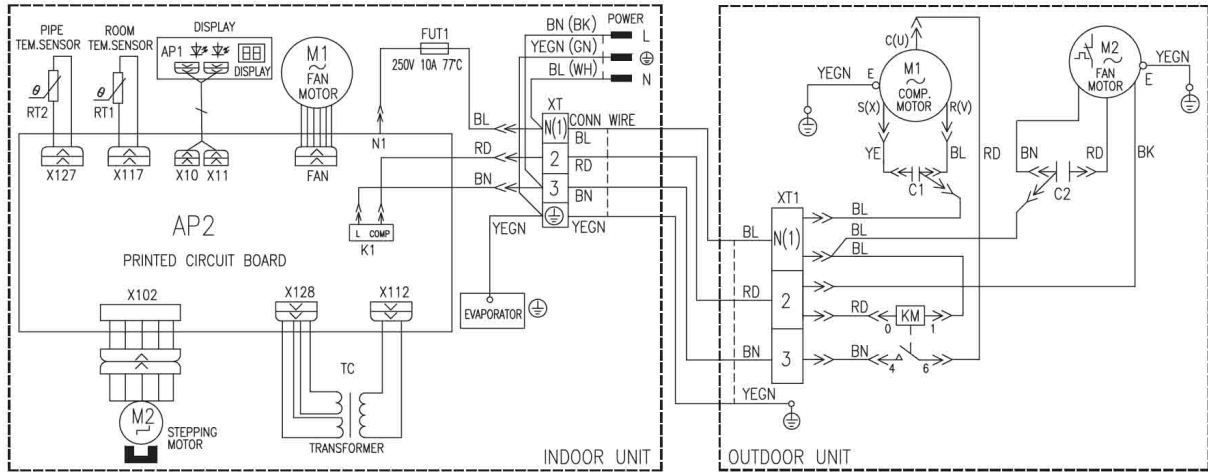
KF-35GW/J31-K



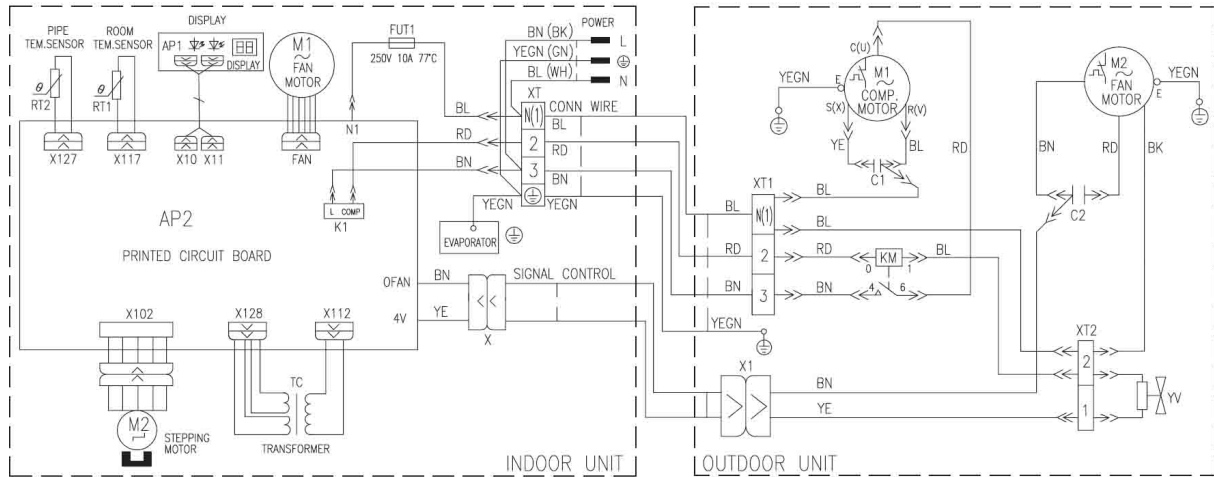
KFR-35GW/J31-K



KF-45GW/J31-K



KFR-45GW/J31-K



These circuit diagrams are subject to change without notice. Please refer to the ones stuck on the machines.

7

Manual of functions of remote controller and operation method

7.1 Manual of functions of remote controller

The manual of function is suitable for Linge Feng one driving one series

7.1.1 Temperature parameter

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

7.1.2 Fundamental functions

After the power is turned on, the separation time of two consecutive starting times of the compressor should not be less than 3min under all conditions. For the first time powering on, there is no 3min delay for the compressor. Once the compressor is started, it will not stop in 6min as the variation of the indoor temperature.

7.1.2.1 COOL mode

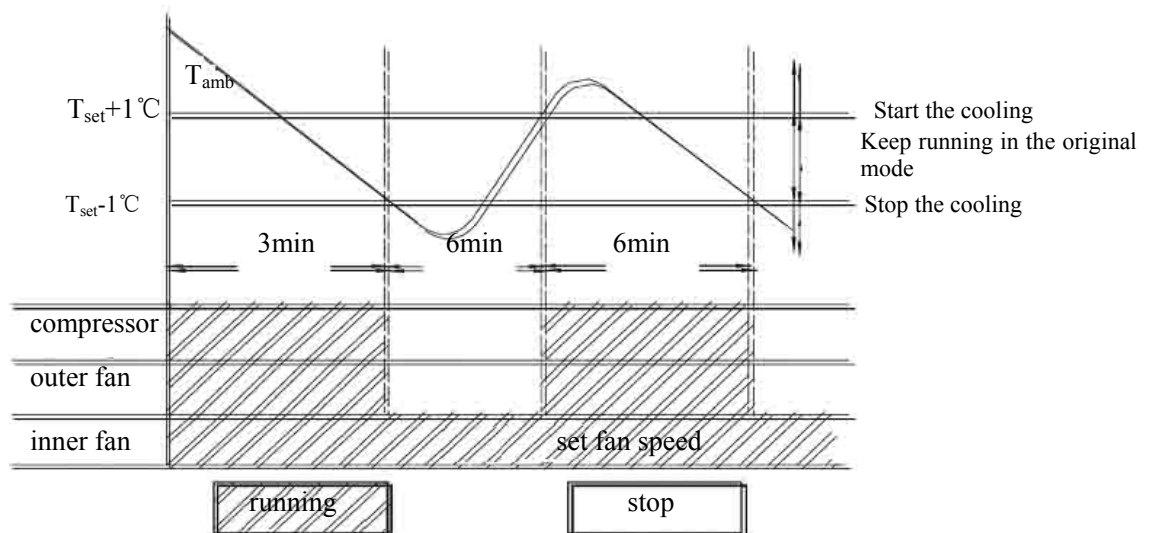
7.1.2.1.1 the conditions and processes of cooling

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 setting speed.

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

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

- In this mode, the reversal valve will not be powered on, the setting temperature range is $16 \sim 30^\circ\text{C}$



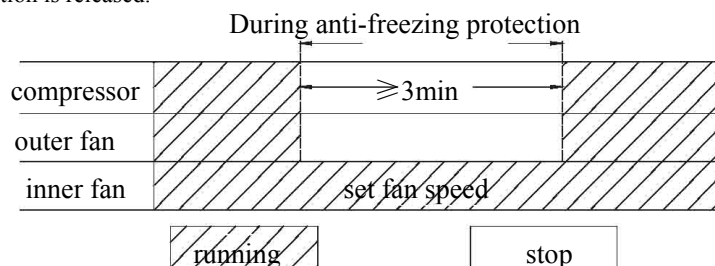
7.1.2.1.2 Display method

The running indicator and cooling indicator are lit and the double "8" digital tube displays the setting temperature.

7.1.2.1.3 Protection Functions

- ◆ Anti-freezing protection

In case anti-freezing protection is detected by the system after running for 6min continuously, the compressor and outer fan will stop running, but the inner fan will run at a setting fan speed. The system will recover the original running mode 3min after compressor stops running and the anti-freezing protection is released.



7.1.2.2 DRY Mode

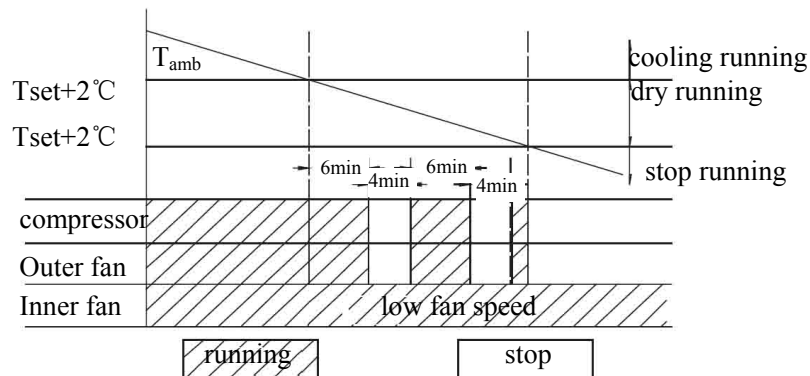
7.1.2.2.1 The conditions and processes of dehumidifying

If $T_{amb} > T_{set} + 2^\circ\text{C}$, the system will be running in the dry and cooling modes. The inner fan will run in a low speed.

If $T_{set} - 2^{\circ}\text{C} \leq T_{amb} \leq T_{set} + 2^{\circ}\text{C}$, it enters dry mode. In this case, the outer fan and compressor will stop 6min later and will be turned on again 4min later. The dry process will be carried out as per the circulation given above, and the inner fan will keep in running at a low speed.

If $T_{amb} < T_{set} - 2^{\circ}\text{C}$, the outer fan and compressor will stop running and the inner fan will keep in running at a low speed.

➤ In this mode, the reversal valve will not power on, the setting temperature range is 16~30°C



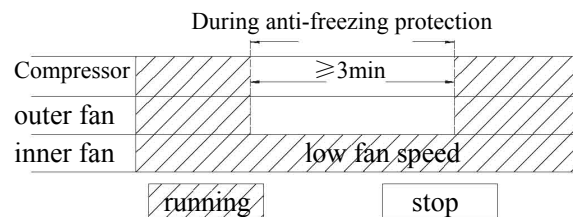
7.1.2.2.2 Display method

The running indicator and dry indicator are lit and the double “8” digital tube displays the setting temperature.

7.1.2.2.3 Protection Functions

◆ Anti-freezing Protection

In case anti-freezing protection is detected by the system after running for a certain time (3-6min) continuously, the compressor and outer fan will stop running, but the inner fan will run at low fan speed. The system will recover to the original running mode 3-4min after compressor stops running and the anti-freezing protection is released.



7.1.2.3 HEAT Mode (no such mode for cooling only unit)

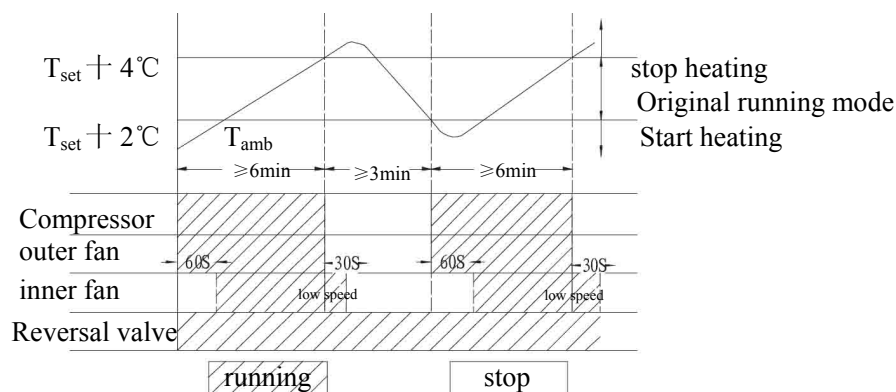
7.1.2.3.1 The conditions and processes of heating

If $T_{amb} \leq T_{set} + 2^{\circ}\text{C}$, it enters heating mode. In this case, the outer fan, 4-way valve and compressor will run simultaneously. The inner fan will be turned on at most 3min later.

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

If $T_{amb} \geq T_{set} + 4^{\circ}\text{C}$, the outer fan and compressor will stop running. The inner fan will run at the setting speed and will be turned off 60s later.

➤ In this mode, the reversal valve will not power on, the setting temperature range is 16-30°C



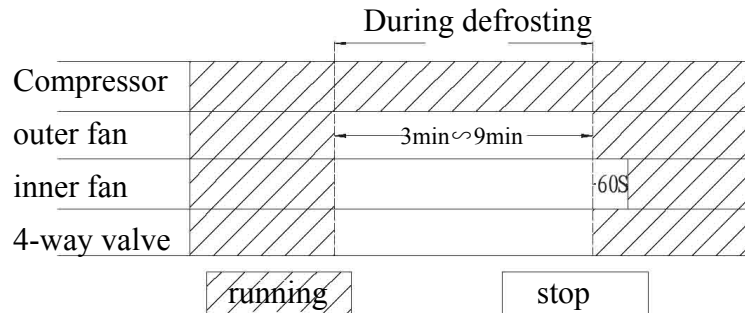
7.1.2.3.2 Display method

The running indicator and heating indicator are lit and the double “8” digital tube displays the setting temperature.

7.1.2.3.3 Conditions and process of defrosting

In case frost is detected with the condenser, the system enters defrost mode. In this case, the compressor goes on running. But the outer fan, 4-way valve and inner fan will stop running. The running indicator flashes. The outer fan, 4-way valve and inner fan system will run simultaneously. And the compressor keeps on running when the defrosting operation for condenser is completed.

- The defrosting time is 9min 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. 9min, min. 3min). Exit from the defrosting mode if the frost removal is ended.



7.1.2.3.4 Protection Functions

◆ High temperature protection

If the evaporator is detected with a high temperature, the outer fan stops running and if the evaporator recovers to a normal temperature, the outer fan resumes running.

◆ Noise elimination protection

If the system is turned off by “run/stop”, the reversal valve will delay for 2min before it is turned off.

7.1.2.4 Auto mode

For this mode, the system will select automatically the cooling, heating or air delivery modes according to the ambient temperature, with the protection function same as the cooling/heating mode.

7.1.2.4.1 Display method

The running indicator and auto mode indicator (for module type only) are lit and the double “8” digital tube displays the setting temperature.

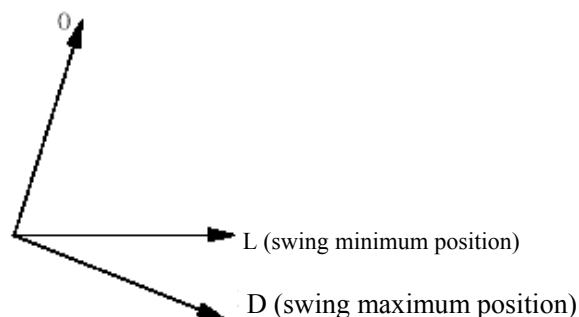
7.1.2.5 Air supply mode

The inner fan runs at the setting speed. The running indicator and air supply indicator (for module type only) are lit and the double “8” digital tube displays the setting temperature.

7.1.3 Other control

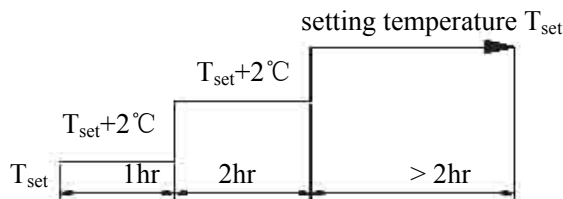
7.1.3.1 Swing Up/Down control

After the power is turned on, the swing Up/Down motor will firstly rotate the guide blade back to 0 position to close the air outlet vent. If there is no swing function setting after the power is turned on, the swing guide blade will rotate to minimum position, the outlet air vent, L position (for System 35, the guide louver blade rotating between L and D for air delivery). If there is swing function setting when the system is turned on, the swing guide blade will be swinging from L to D. The guide louver is closed when the system is turned off.

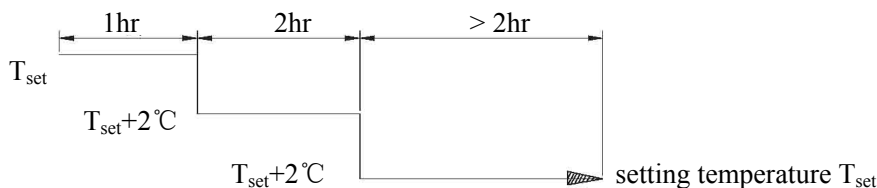


7.1.3.2 Sleep mode control

For cooling or dry mode of the air conditioner, after the sleep setting for one hour, T_{set} will be raised for 1°C . 2 hours later it will be raised for 2°C .



For heating running of the air conditioner, after the sleep setting for one hour, T_{set} will be decreased for 1°C . 2 hours later it will be decreased for 2°C .



➤ For auto mode, the setting temperature will not change.

7.1.3.3 Buzzer

The buzzer will deliver a pleasing sound when the controller is powered on, detecting the push button signal or receiving a signal from the remote controller.

7.1.3.4 Auto button (on main board)

When the button is pressed down, the system will be running at auto mode. The indoor fan will be running at auto speed, and the guide louver opens to swing. Press the button once more to turn off the system.

7.1.3.5 Display indication

7.1.3.5.1 Running picture and mode display

After the power is turned on, the display picture is lit completely. After that, only the power supply indicator is lit. The running indicator is lit when the remote controller is turned on. At the same time, the running mode indicator of present setting will be lit. All the indication except the red running indicator will be turned off when the sleep function is set or the light button is turned off.

7.1.3.5.2 Double 8 display method

When the air conditioner is turned on, the double digital tube displays the present setting temperature ($16\sim 30^{\circ}\text{C}$). For auto mode, the cooling and air delivery have an indication of 25°C , and for heating, 20°C for cooling only controller, only 25°C .

7.1.3.5.3 Fan speed display (only for module type)

The fan speed picture is displayed dynamically in three modes periodically, i.e. two sections in the middle, four sections in the middle and all six sections display, among which, the medium two sections are always displayed. The fan speed picture at high fan speed at remote control mode flashes in the quickest speed. The fan speed picture at low fan speed at remote control mode flashes in the lowest speed, and the fan speed picture at medium fan speed at remote control mode flashes at a speed between the high and low fan speeds. The fan speed picture at remote control auto mode will flash according to the practical running speed. The fan speed picture will flash at the lowest speed when the inner fan stops running.

7.1.3.6 Auto fan speed control

For heating/cooling mode, the high, medium and low fan speeds are selected automatically in accordance with the ambient temperature. For dry and air delivery, it is running at the low fan speed.

7.1.3.7 Timing control

7.1.3.7.1 Timer on

If the system is at off mode, the time setting for the timer on can be set up and the setting range being $0.5\sim 24\text{hr}$. The controller will run at the original setting mode when the timer setting time is up.

7.1.3.7.2 Timer off

If the system is at on mode, the time setting for the timer off can be set up and the setting range being $0.5\sim 24\text{hr}$. The controller will stop running when the timer setting time is up.

7.2 Operation method of remote controller

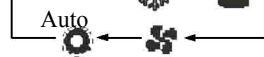
Note:

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

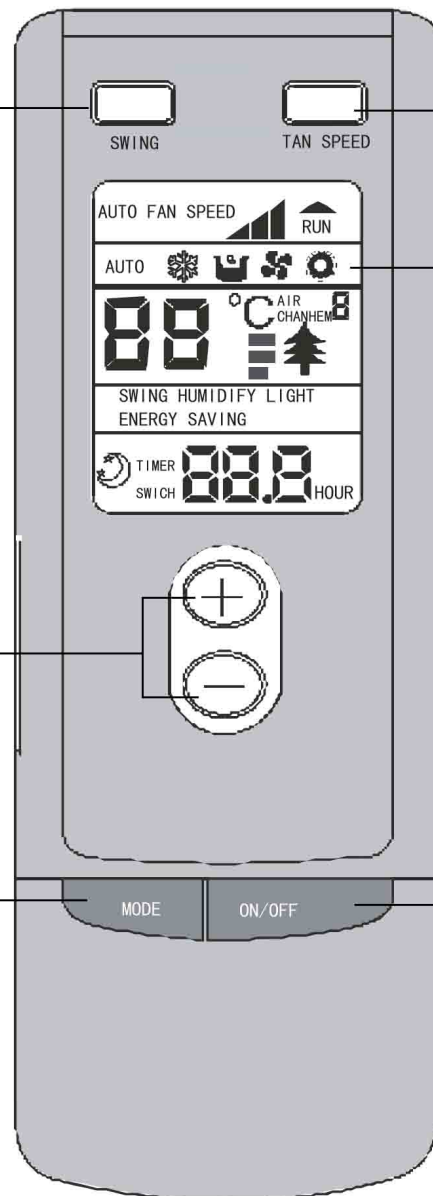
Swing button
When it is pressed, the louvers start to swing at the stated angle and stop when repressed.

TEMP button
When pressing the \oplus button, the setting temperature will be increased by 1 °C, when pressing the \ominus button, the setting temperature will be decreased 1 °C.
In “ ❄ ” “ 💧 ” “ 🌀 ” “ 🔥 ” mode, the temperature could be adjusted in 16°C-30 °C.

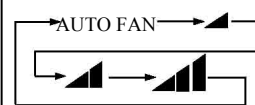
MODE button
Press down the mode buttons in turn the running modes will be changed as follows:



(cooling only unit does not have “ 🔥 ” mode)



FAN speed button
Press this button to change the fan speed:



(Note: In “ 💧 ” mode, fan speed cannot be adjusted.)

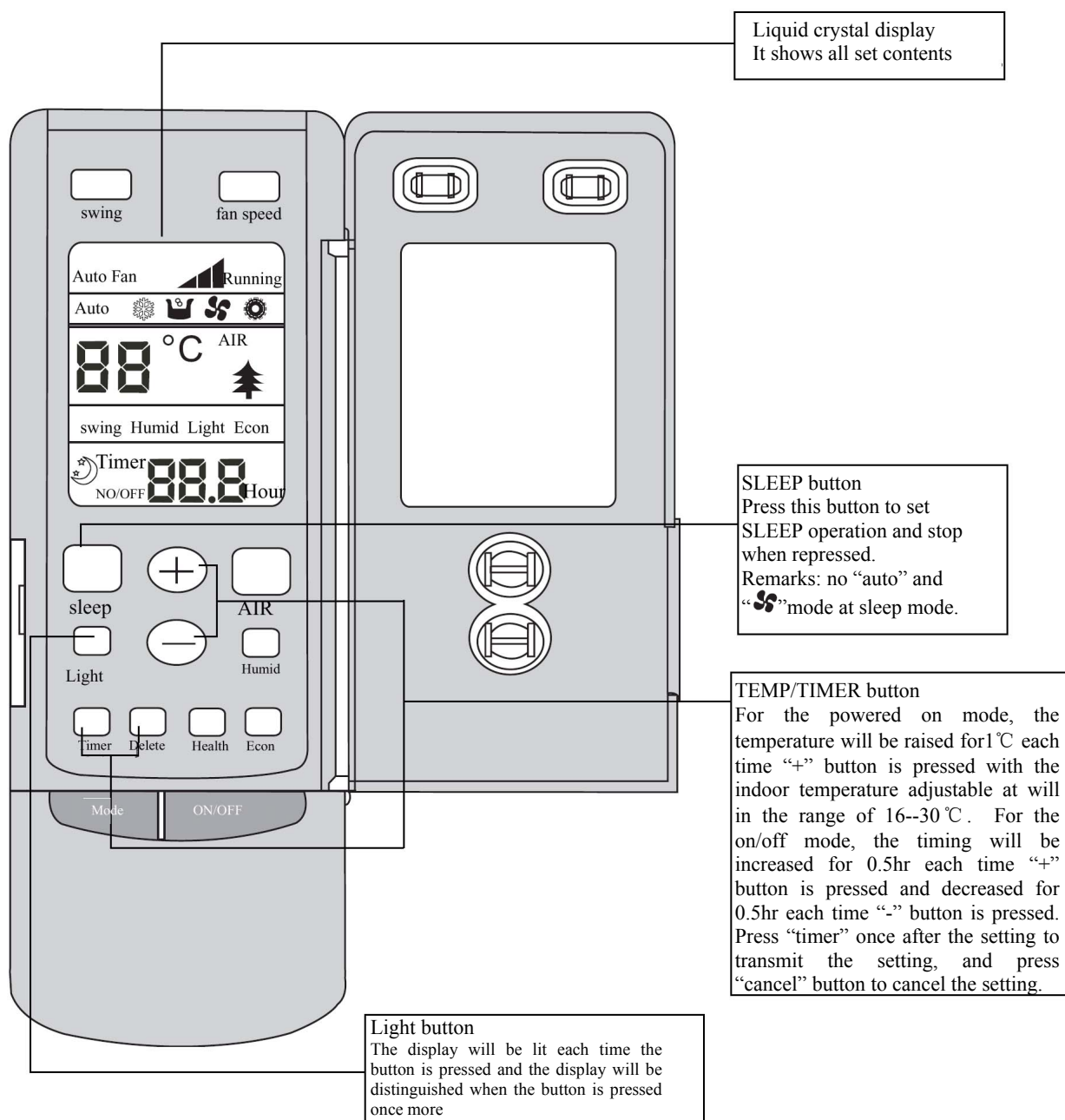
“ ❄ ” COOL mode
“ 💧 ” DRY mode
“ 🌀 ” FAN mode
“ 🔥 ” HEAT mode

I/O button
Press this button, the unit will start to run, when repressed it, it will stop running.

7.3

Names and functions of remote controller (with the cover removed)

Note: This type of remote controller is a kind of new current control. Some buttons of the controls, which are not available for this type of air conditioner, will not be described below.



7.4 Installation of battery for remote controller

● Guide for operation procedure

The general procedure:

1. After the power supply is turned on, the buzzer will deliver pleasing music and all the pictures in the indoor unit display will be indicated. Several seconds later, all the indicators except the power/run indicator, which is now red, at a standby mode. (Remarks: each time the buzzer will deliver pleasing music when the power supply is turned on or a signal is received from the remote controller.)
2. Press down ON/OFF button of the remote controller, the power/run indicator will be green and at the same time, the running mode and setting temperature will be displayed. The air conditioner will start to run. (Remarks: turn off all the indications except the power/run indicator when sleep function has been set up or after turning off the light button.)
3. Press MODE button to select the suitable operation mode.
4. Press SWING button, swing louver will swing automatically, repressed it and it will stop swinging.
5. Press the FAN button, to set the desired fan speed.
6. Press TEMP button to set the desired temperature.

The selected procedure:

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

Remarks: To select auto mode, the air conditioner will select automatically the suitable running mode in accordance with the indoor temperature so that a comfortable ambient is given.

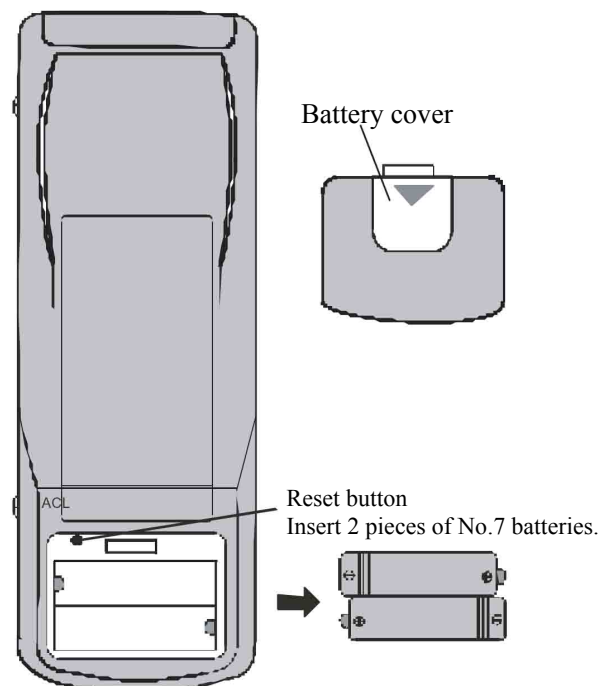
● How to insert batteries

Two pieces of No. 7 alkali battery are used in the remote controller.

1. Slide downward the cover of battery compartment of remote controller and remove the used batteries and replace with two pieces of new batteries (paying attention to the polarities).
2. Re-attach the cover

Notes:

- Don't confuse the new and worn of different types of batteries
- Remove batteries when the remote controller is not to be used for several weeks to avoid the leakage damaging the remote controller. Remote controller
- The operation of remote controller should be in its operation range.
- The remote controller should be placed about 1m or more from the TV set or any other electric appliances.



8 Disassembly Procedures

8.1 Disassembly procedures for indoor units 23, 26, 32

Operation procedures/pictures

8.1.1 Disassemble the front panel

Pull the panel open. Firstly, screw off a screw fixing the upper protection plate at the receiving window and remove the protection plate. Then, pull away the connection terminal. Pull the panel outward with force along the groove fixing the panel of the panel body to remove the panel as shown in Fig.8-1.

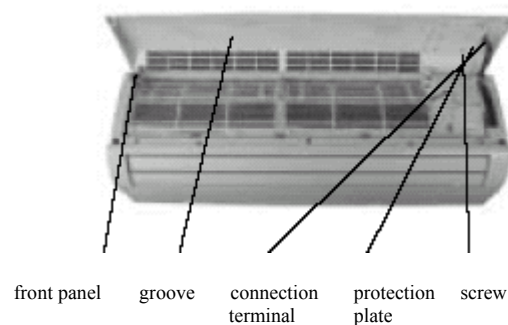


Fig 8-1

8.1.2 Disassemble top cover of electric box

Screw off the screw fixing the top cover of the electric box and remove the top cover. Loose the latch to disassemble the top cover of the electric box as shown in Fig.8-2.

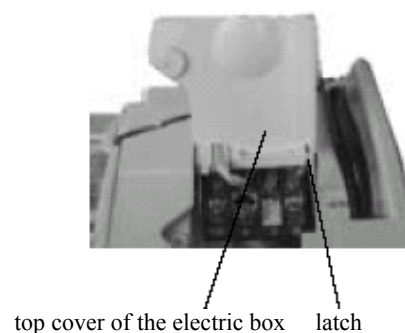


Fig 8-2

8.1.3 Disassemble filter

Push the filter inward and then upward to remove the filter as shown in Fig.8-3.

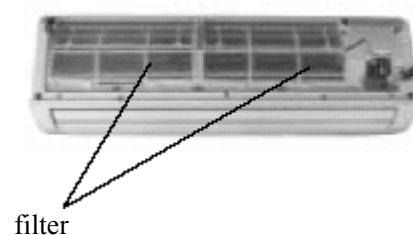


Fig.8-3

Operation procedures/pictures

8.1.4 Disassemble the guide louver

Bend the lower guide louver with hand so that the movable latch of lower guide louver is released to remove the guide louver as shown in Fig. 8-4. (Remarks: To remove the upper guide louver, it is necessary to firstly open the panel body and screw off the upper guide louver and screw at the water tray. Then, bend the screw at the upper guide louver to remove it).

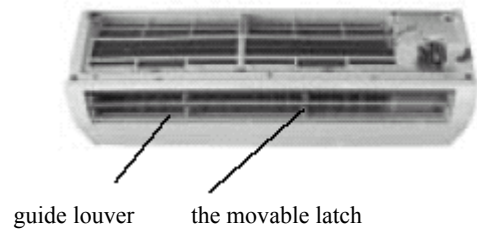


Fig 8-4

8.1.5 Disassemble the panel body

Open the 3 screw covers at the panel body and screw off 3 screws and remove the temperature sensor. Pull out the movable latch at the panel body with hand and then pull it backward to disassemble the panel body as shown in Fig.8-5.

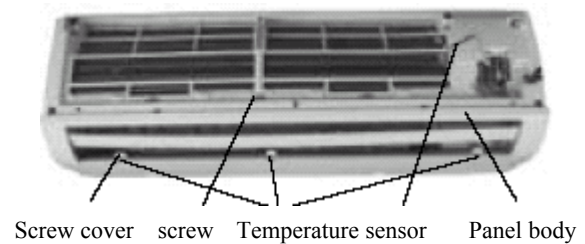


Fig 8-5

8.1.6 Disassemble water tray

Screw off the fixing screws fixing the water tray with a screw driver. Loose the movable latch at the other end and pull out the terminal board of the step motor. Pull upward the water tray and take it out. Remove the water tray as shown in Fig. 8-6.

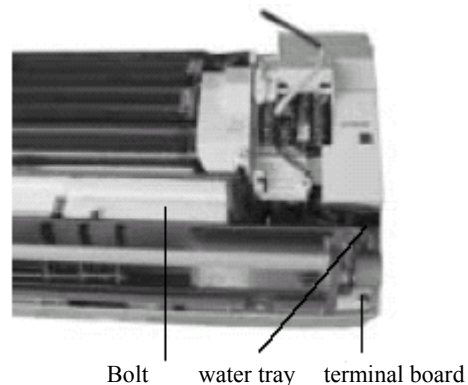


Fig 8-6

Operation procedures/pictures

8.1.7 ||||| Disassemble cover of electric box

Open three movable latches with hand and then pull them upward to remove the cover of electric box as shown in Fig. 8-7.

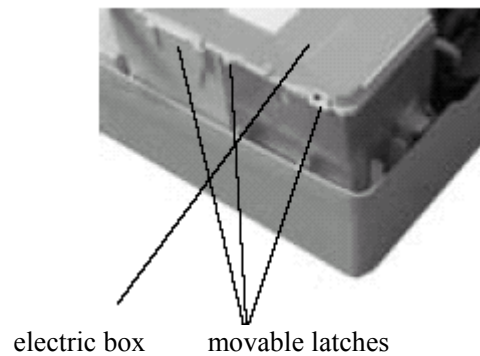


Fig 8-7

8.1.8 ||||| Disassemble electric box

Remove the grounding wire of the evaporator, and remove the temperature sensor for the pipe. Remove the socket/plug connector for the indoor motor of the electric box. Screw off the screws fixing the electric box with a screw driver. Remove the electric box as shown in Fig. 8-8.

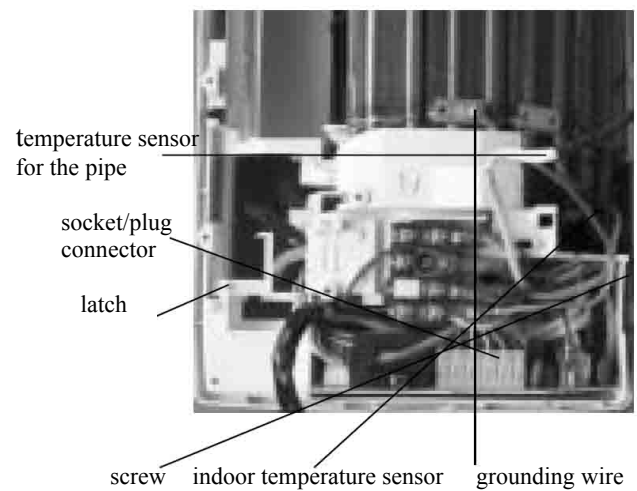


Fig.8-8

8.1.9 ||||| Disassemble evaporator

The lower rear clamp plate can be removed by just screwing off one screw with a screw driver. Screw off one screw at the left and two screws at the right of the evaporator and take out the evaporator with hand, 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 as shown in Fig.8-9, 8-10, 8-11:

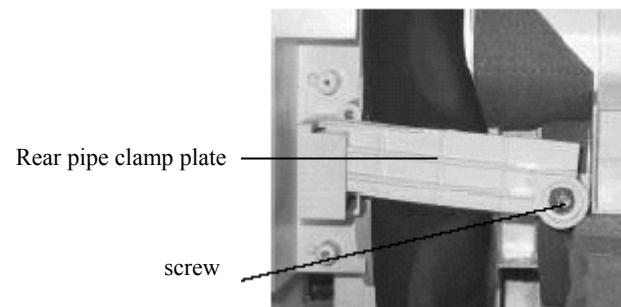


Fig 8-9

Operation procedures/pictures

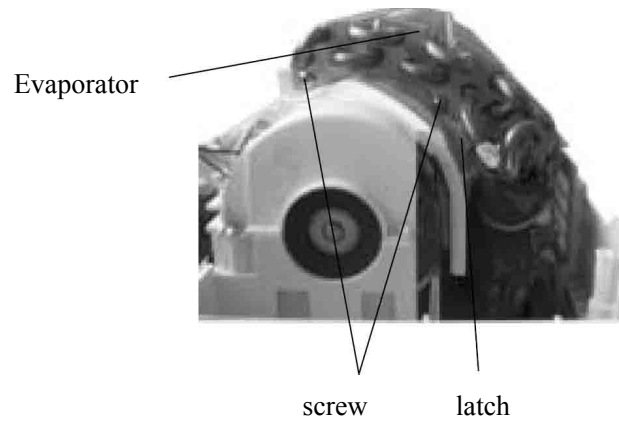


Fig.8-10

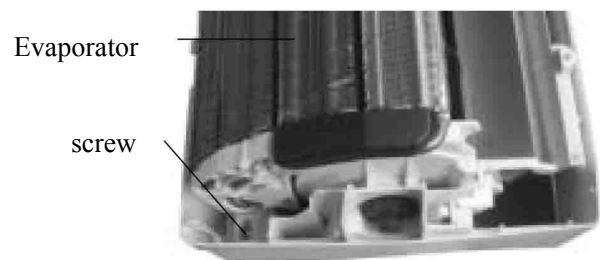


Fig.8-11

8.1.10 Disassemble motor

Screw off the two screws fixing the motor pressure plate with a screw driver and remove the pressure plate.
Screw off the three fixing screws at the axle sleeve and remove the motor as shown in Fig.8-12, 8-13.

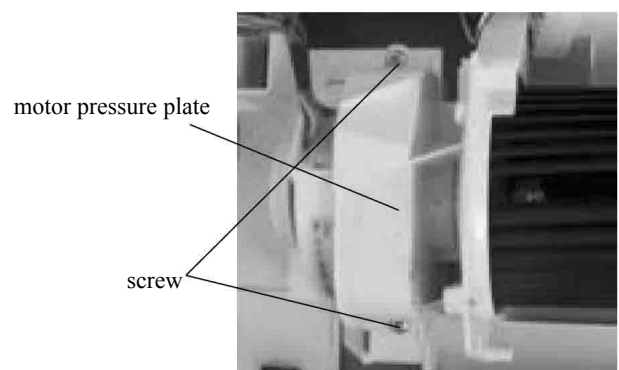


Fig 8-12

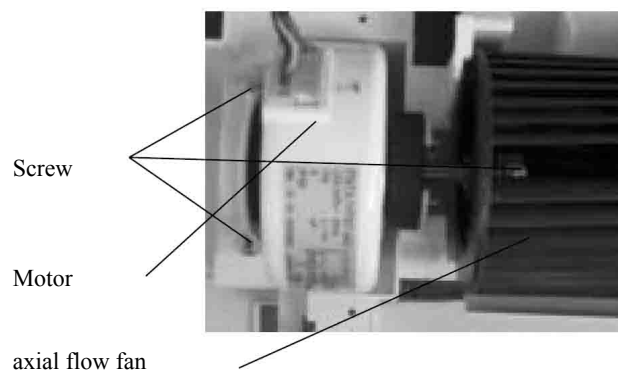


Fig.8-13

8.1.11 ||||| Disassemble cross flow fan

After the motor has been taken away, remove the bearing rubber gasket from the left as shown in Fig.8-14.

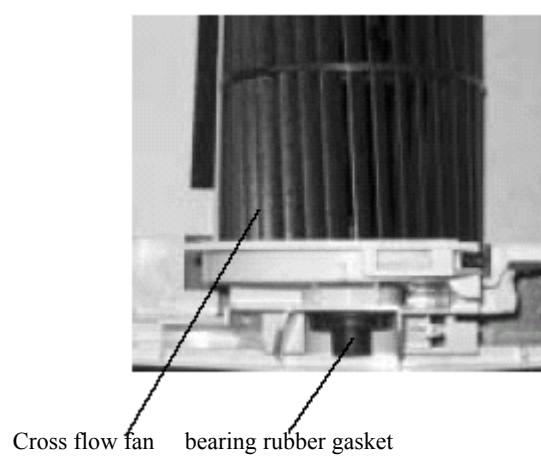


Fig 8-14

8.2 Disassembly procedures for indoor unit 35

Operation procedures/pictures

8.2.1 ||||| Disassemble the front panel

Pull the panel open. Screw off a screw fixing the upper protection plate at the receiving window and remove the protection plate. Pull away the connection terminal. The, screw off the screw at the to cover of the electric box. Remove the to cover of the electric box. Pull the panel outward with force along the groove fixing the panel of the panel body to remove the panel as shown in Fig.8-15.

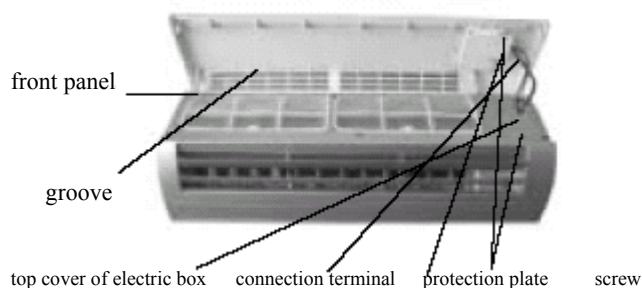


Fig.8-15

8.2.2 ||||| Disassemble filter

Pull upward the filter a little and then push inward to remove the filter as shown in Fig.8-16.

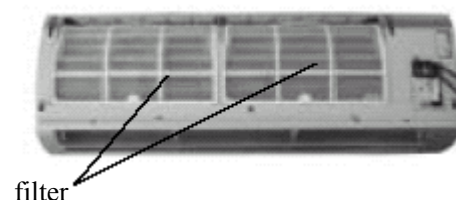


Fig.8-16

8.2.3 ||||| Disassemble guide louver

Bend the guide louver with hand so that the movable latch of guide louver is released to remove the guide louver as shown in Fig. 8-17.

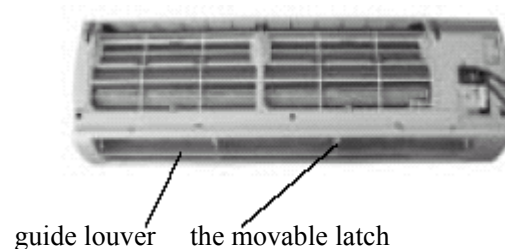


Fig 8-17

Operation procedures/pictures

8.2.4 ||||| Disassemble panel body

Open the 3 screw covers at the panel body and screw off 3 screws. Pull out the movable latch at the panel body with hand and then pull it backward to disassemble the panel body as shown in Fig.8-18.

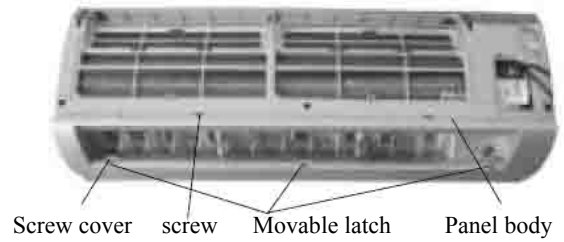


Fig 8-18

8.2.5 ||||| Disassemble Electric box cover

Remove the three movable latches and pull upward. Remove the electric box cover as shown in Fig. 8-19.

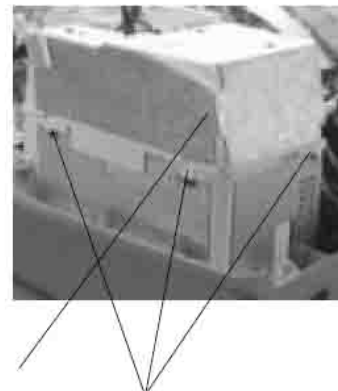


Fig.8-19

8.2.6 ||||| Disassemble water tray

Screw off the fixing screws fixing the water tray with a screw driver. Loose the movable latch at the other end and pull out the terminal board of the step motor. Pull upward the water tray and take it out. Remove the water tray as shown in Fig. 8-20.

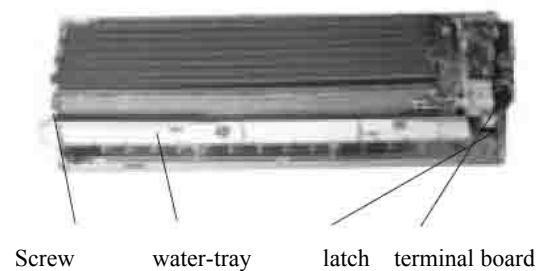


Fig 8-20

Operation procedures/pictures

8.2.8 Disassemble electric box

Remove the grounding wire of the evaporator.

Remove the temperature sensor for the pipe.

Remove the thin foil for water stopping.

Remove the socket/plug connector for the indoor motor of the electric box. Screw off the screws fixing the electric box with a screw driver. Remove the electric box as shown in Fig. 8-21.

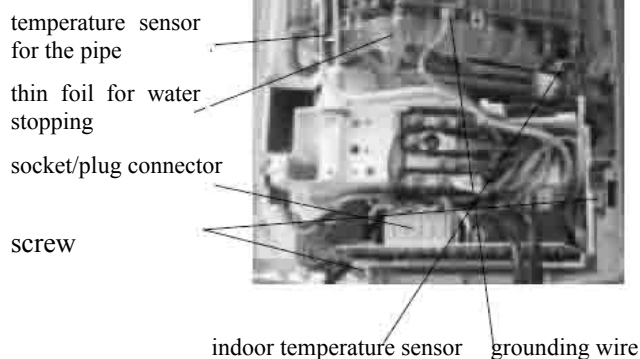


Fig.8-21

8.2.9 Disassemble evaporator

The lower rear clamp plate can be removed by just screwing off one screw with a screw driver.

Screw off two screws at the left/right each of the evaporator (remarks: one being sunk into sponge and requiring tearing the sponge first). Take out the evaporator with hand, 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 as shown in Fig.8-22, 8-23, 8-24:

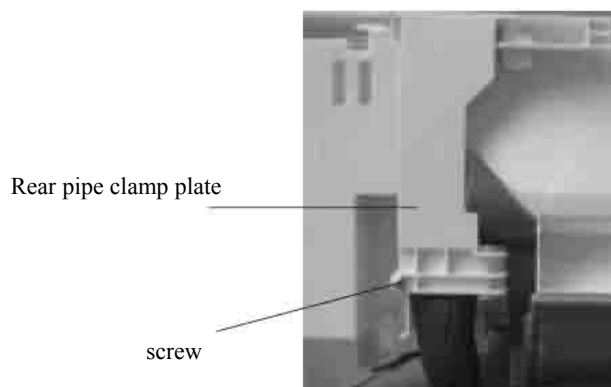


Fig.8-22

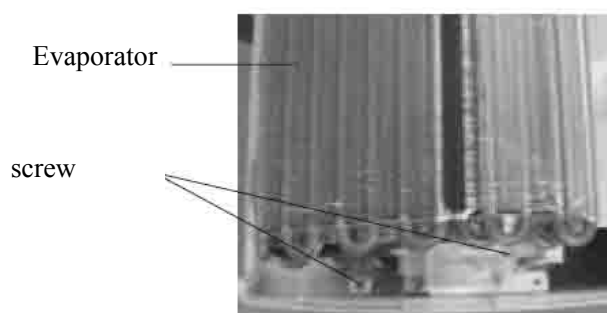


Fig.8-23

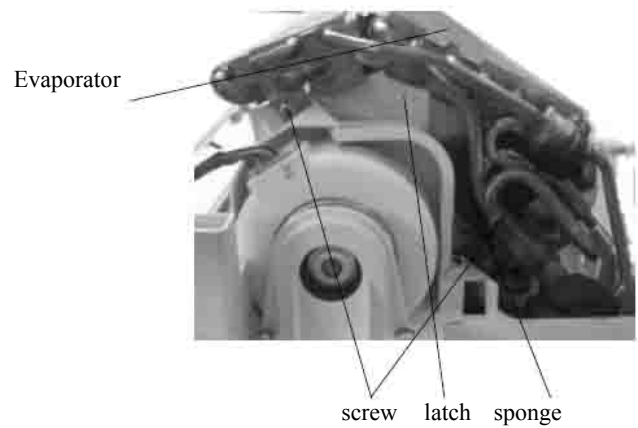


Fig.8-24

8.2.9 ||||| Disassemble motor

Screw off the two screws fixing the motor pressure plate with a screw driver and remove the pressure plate. Screw off the three fixing screws at the axle sleeve and remove the motor as shown in Fig.8-25, 8-26.

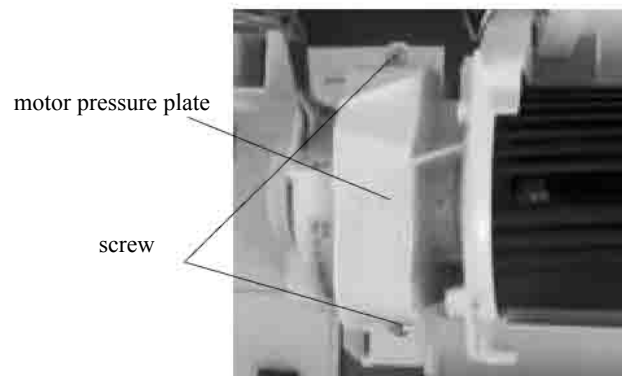


Fig 8-25

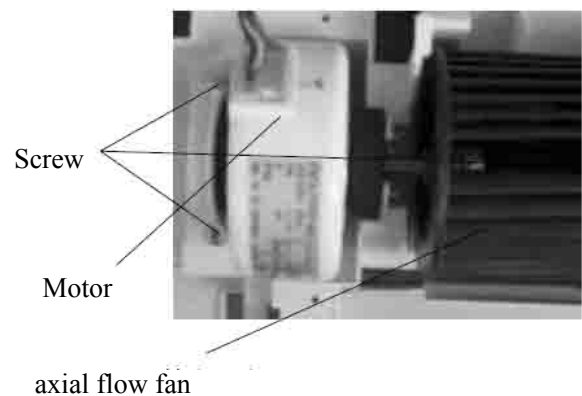


Fig 8-26

Operation procedures/pictures

8.2.10 ||||| Disassemble cross flow fan

Remove screw fixing the bearing rubber gasket with a screw driver. After the bearing rubber gasket has been taken away, remove the cross flow fan as shown in Fig.8-27.

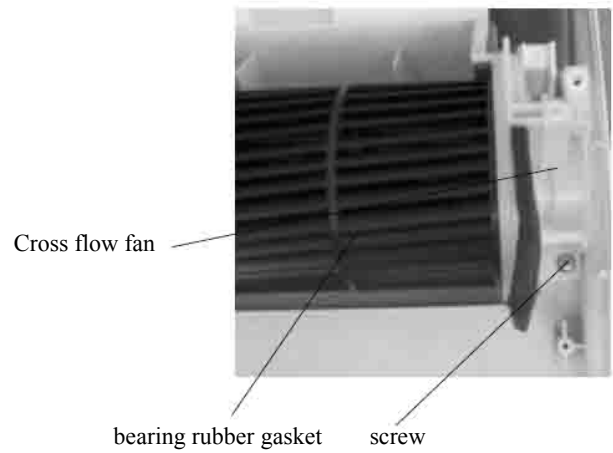


Fig 8-27

Operation procedures/pictures

8.3.1 ||||| Disassemble top cover and handle

Screw off a screw fixing the lower handle with a screw driver to remove the handle. Screw off the three screws around the top cover to remove the top cover as shown in Fig.8-28.



Fig.8-28

8.3.2 ||||| Disassemble the rear grill

Screw off 4 screws around the rear grill with a screw driver to remove the rear grill as shown in Fig.8-29.



Fig.8-29

8.3.3 ||||| Disassemble front panel

Screw off 6 screws fixing the front panel with a screw driver to remove front panel as shown in Fig.8-30

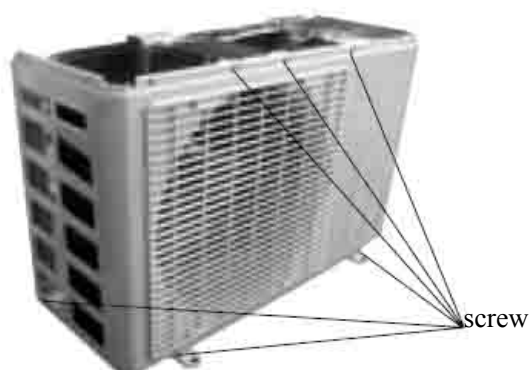


Fig.8-30

Operation procedures/pictures

8.3.4 ||||| Disassemble electric box

Screw off 3 screws of the electric box with a screw driver to remove the electric box as shown in Fig.8-31.

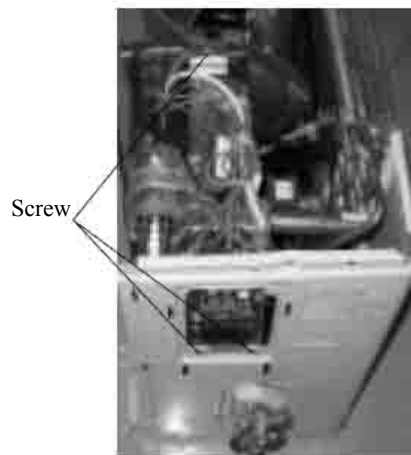


Fig.8-31

8.3.5 ||||| Disassemble right side plate

Screw off 5 screws at the right side board with a screw driver to remove the right side board as shown in Fig.8-32.

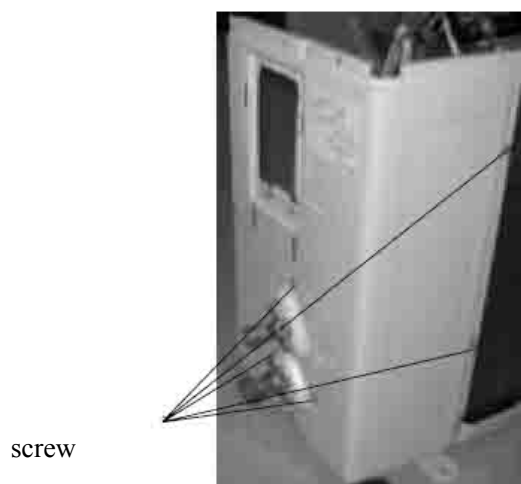


Fig.8-32

8.3.6 ||||| Disassemble axial flow fan

Screw off the nut fixing the axial fan with a spanner to pull outward and remove the axial fan. as shown in Fig.8-33.

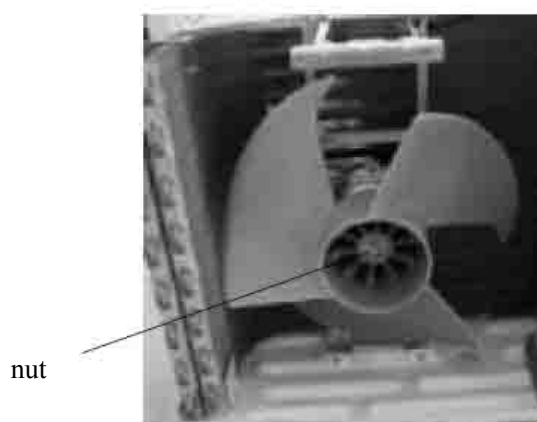


Fig.8-33

Operation procedures/pictures

8.3.7 ||||| Disassemble motor and motor support

With a screw driver, screw off the screw fixing the motor and motor frame to remove the motor and motor frame as shown in Fig.8-34.

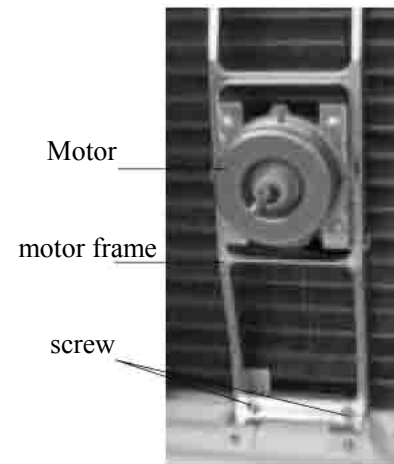


Fig.8-34

8.3.8 ||||| Disassemble 4-way valve (not for cooling only)

Screw off the fixing nuts for fixing the solenoid of 4-way valve and remove the solenoid. Wrap the 4-way valve with wet cotton gauze. It is recommended to solder as quickly as possible and the cotton gauze should always be wet. Make sure not to burn the leads of compressor by the fame as shown in Fig.8-35.(Remarks: prior to disassembling, it should be sure that no Freon inside any more.)

as shown in Fig.8-35

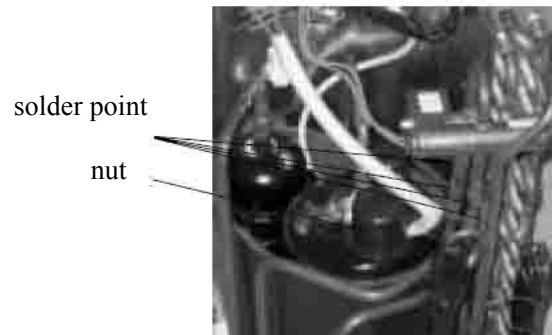


Fig.8-35

8.3.9 ||||| Disassemble capillary

Solder off both ends of capillary assembly to remove the capillary. It should be noted to block the capillary as shown in Fig.8-36

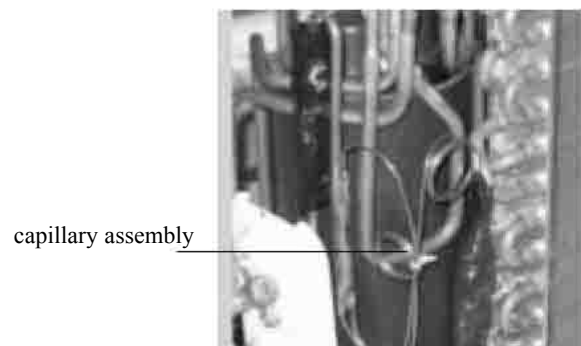


Fig.8-36

Operation procedures/pictures

8.3.10 ||||| Disassemble valve

With a screw driver, screw off the screw fixing the valve, and then solder off the connecting pipe of the valve to remove the valve

as shown in Fig.8-37

valve



Fig.8-37

8.3.11 ||||| Disassemble compressor

Solder off two ends of compressor and screw off 3 base screws with a spanner to remove the compressor

as shown in Fig.8-38.

Solder point

base screw



Fig.8-38

8. 4 Disassembly procedures of the outdoor unit

Operation procedures/pictures

8. 4.1 ||||| Disassemble top cover

With a screw driver, screw off 1 fixing screw of the handle and push downward with force to remove the handle.
Screw off 3 screw around the top cover and pull upward to remove the top cover
as shown in Fig.8-39.

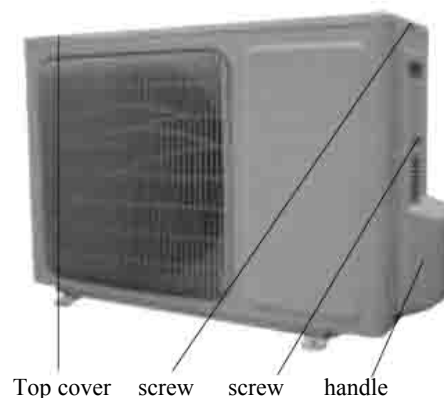


Fig.8-39

8. 4.2 ||||| Disassemble the net mask

Screw off 4 taping screws fixing the rear side board and valve frame chassis and condenser side board to remove the net mask
as shown in Fig.8-40

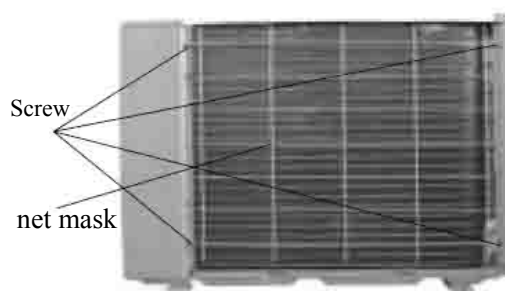


Fig.8-40

8. 4.3 ||||| Disassemble the front panel assembly

Screw off 5 taping screws fixing the front panel and valve frame chassis and condenser side board to remove the front panel assembly
as shown in Fig.8-41

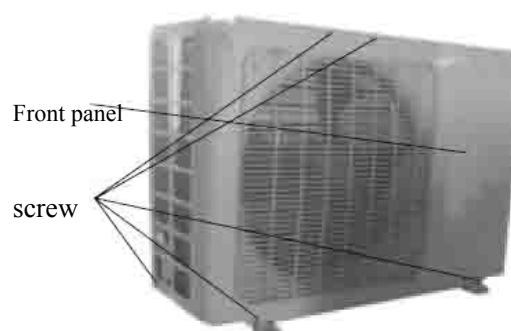


Fig.8-41

Operation procedures/pictures

8.4.4 ||||| Disassemble the electric installation board

Screw off 3 screws fixing the electric installation board, pull off the contacts of leads for compressor and fan motor to remove the electric installation board as shown in Fig.8-42

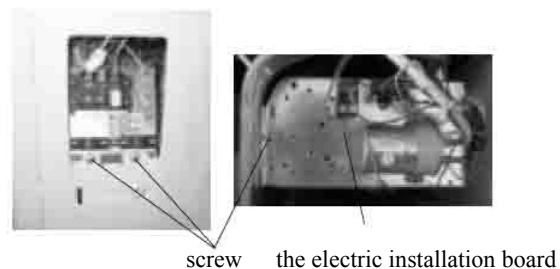


Fig.8-42

8.4.5 ||||| Disassemble right side plate

Screw off 5 screws at the rear side board to remove the right side board assembly as shown in Fig.8-43

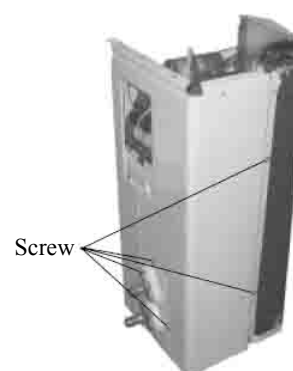


Fig.8-43

8.4.6 ||||| Disassemble axial flow fan

Loose the fixing nut with a spanner and remove the nut, spring washer and flat washer. Remove the axial fan with force as shown in Fig.8-44.

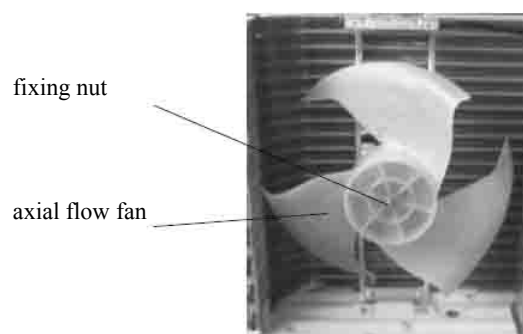


Fig.8-44

Operation procedures/pictures

8.4.7 ||||| Disassemble motor and motor support

Screw off the 4 tapping screws fixing the motor and remove the motor. Screw out the 2 tapping screws fixing the motor frame and remove the motor frame by pulling upward as shown in Fig.8-45.

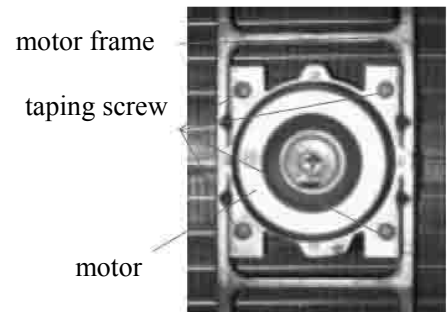


Fig.8-45

8.4.8 ||||| Disassemble 4-way valve

Screw off the fixing nuts for fixing the solenoid of 4-way valve and remove the solenoid. Wrap the 4-way valve with wet cotton gauze and solder off the 4 soldering points of 4-way valve, remove the 4-way valve. It is recommended to solder as quickly as possible and the cotton gauze should always be wet. Make sure not to burn the leads of compressor by the fame as shown in Fig.8-46.

(Remarks: prior to disassembling, It should be sure that no freon inside any more.)

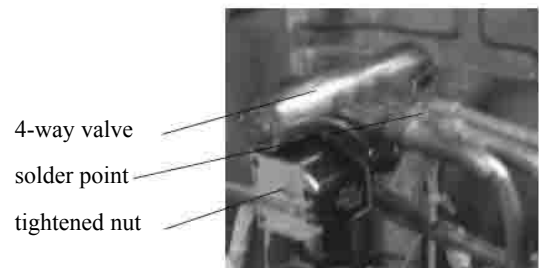


Fig.8-46

8.4.9 ||||| Disassemble capillary assembly (liquid separator assembly)

Solder off the soldering points connecting the capillary assembly and other pipes and remove the capillary assembly as shown in Fig.8- 47 (except 20, 45).

Solder off the soldering points connecting the liquid separator assembly and other pipes. And remove the liquid separator assembly as shown in Fig.8-48 (suitable for 45).

Suitable except 20, 45

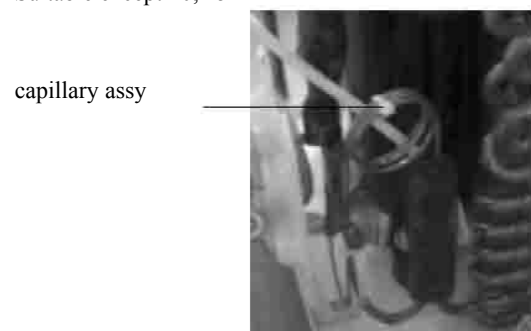


Fig.8-47

Operation procedures/pictures

For unit 45

Liquid separator
assembly



Fig.8-48

8.4.10 ||||| Disassemble big and small valves

Screw off the 2 screw bolts fixing the big valve and solder off the soldering point connecting the big valve and the gas returning pipe. Remove the big valve

(Remarks: It is recommended to wrap the big valve with wet gauze completely when soldering off the soldering points to prevent the valve body from being damaged by high temperature).

Screw off the 2 screw bolts fixing the small valve, and Solder off the soldering point connecting the small valve and the cross type pipe. Remove the small valve as shown in Fig.8-49.

Small valve

big valve

bolt

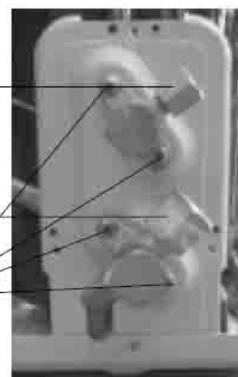


Fig.8-49

8.4.11 ||||| Disassemble the compressor

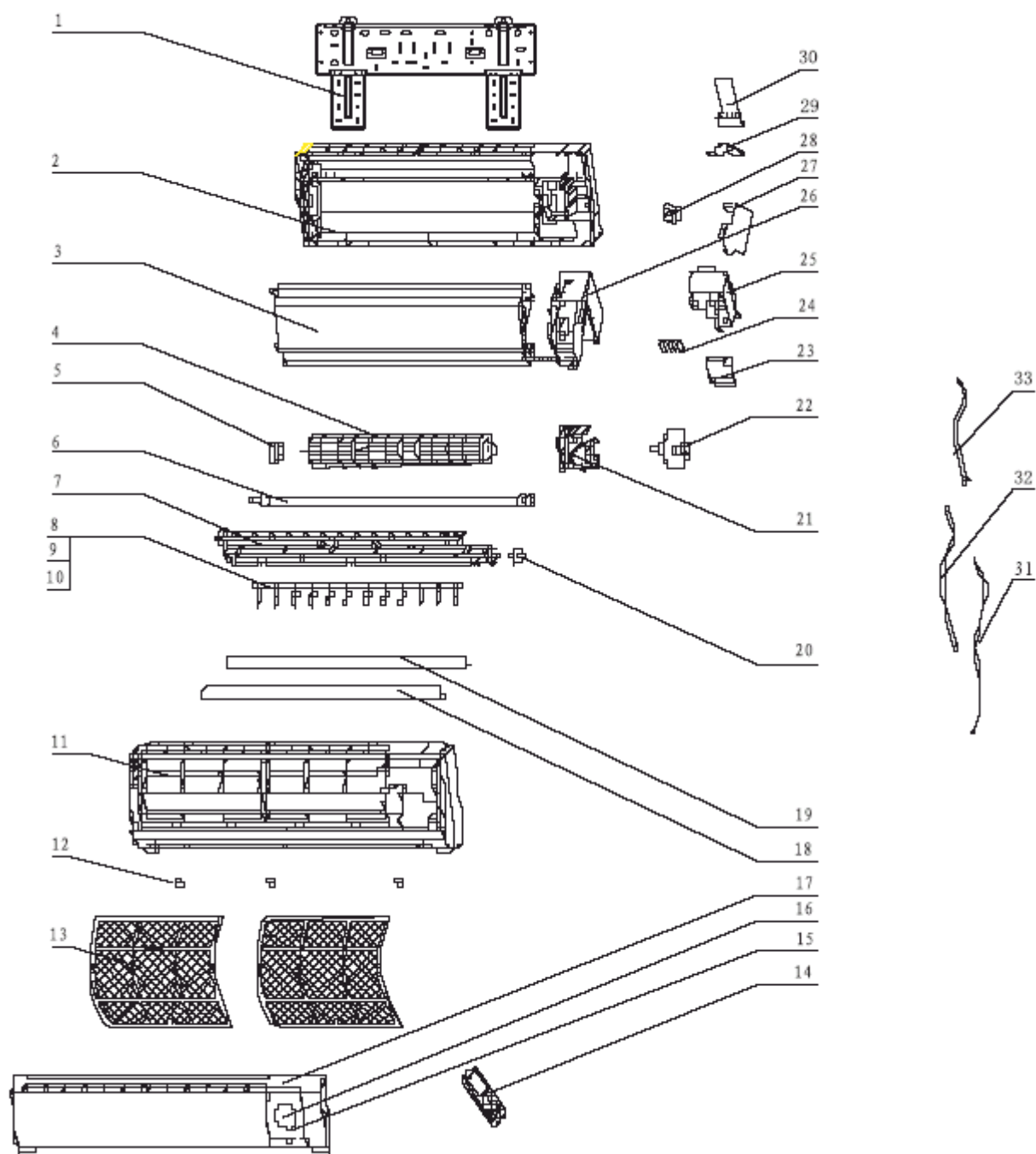
Screw off the 3 washer nuts at the base legs of the compressor. Solder off all the soldering points of sucking/discharging pipes for the compressor, and remove carefully the piping. Remove the compressor as shown in Fig.8-50.

Compressor bolt



Fig.8-50

9.1 Explosive view of indoor unit



9.2 Parts list of indoor unit

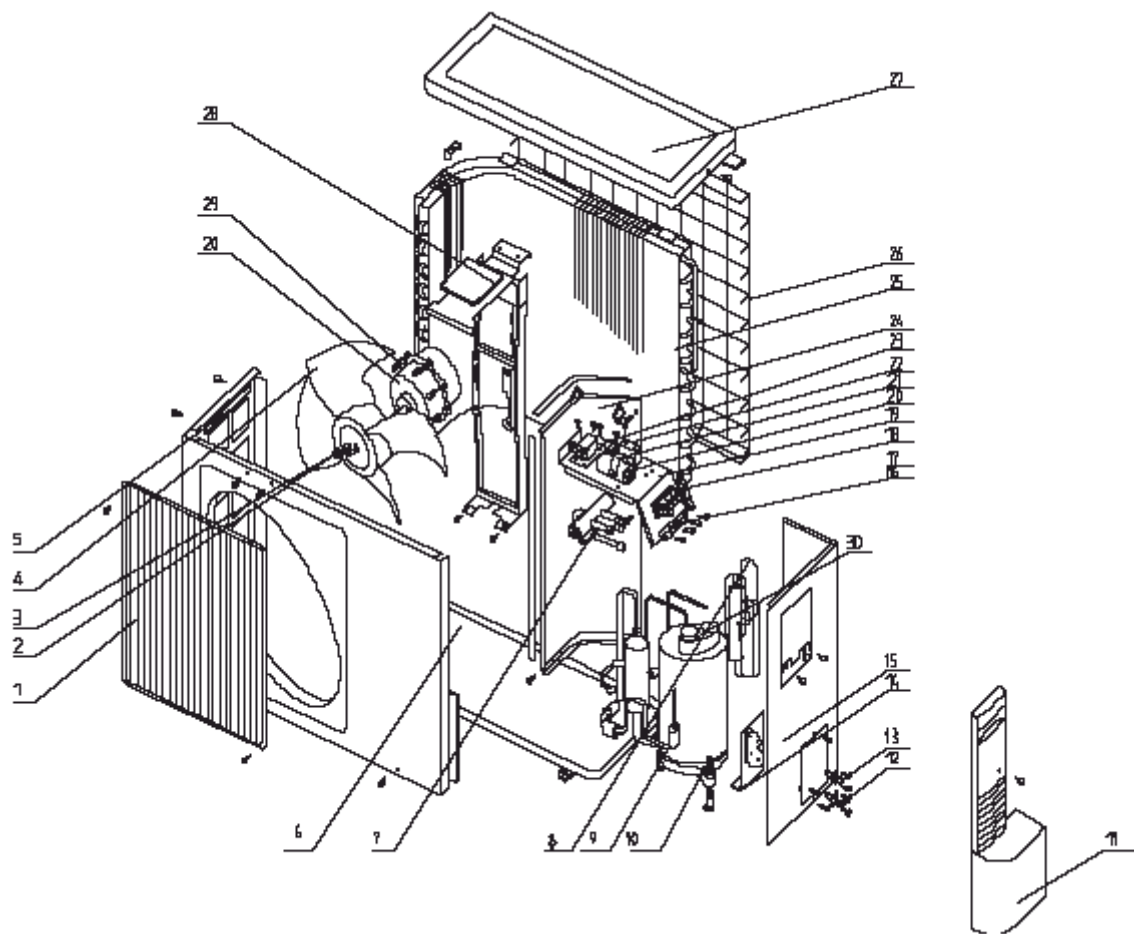
Serial No.	Names of material	Codes of material		Amount
		KF-20G/J31-K	KFR-20G/J31-K	
1	Wall mounting frame	01252220	01252220	1
2	Chassis	222020012	222020012	1
3	Evaporator part	01002072	01002072	1
4	Cross flow fan	10352001	10352001	1
5	Bearing gasket	76512203	76512203	1
6	Water drainage pipe	052320102	052320102	1
7	Water-tray	20182027	20182027	1
8	Swing blade	10512032	10512032	1
9	Swing connection rod 1	10582002	10582002	1
10	Swing connection rod 2	10582003	10582003	1
11	Panel body	20002210	20002210	1
12	Screw cover	24252006	24252006	3
13	Filter	11122002	11122002	2
14	Remote controller	30512506	30512506	1
15	Magic lens	68012019	68012019	1
16	Display panel	30545702	30545702	1
17	Front panel	20002209	20002209	1
18	Guide louver 2	10512034	10512034	1
19	Guide louver 1	10512033	10512033	1
20	Stepping motor MP28VA	15212110	15212110	1
21	Motor pressure plate	26112014	26112014	1
22	Motor FN8L	15012064	15012064	1
23	Top cover of electric box	22242030	22242030	1
24	Terminal board GT4A3A3	42011134	42011134	1
25	Cover of electric box	201220061	201220061	1
26	Electric board	02102178	20102178	1
27	Main board	30055787	30055788	1
28	Power supply transformer	43110204	43110204	1
29	Wire clamp	71010103	71010103	1
30	Connection pipe pressure plate	24242001	24242001	1
31	Rubber flexible line	40020402	40020402	1
32	Signal control line	\	400321444	1
33	Power supply line assembly	40020202	40020202	1

Serial No	Names of material	Codes of material		Amount
		KF-25G/J31-K	KFR-25G/J31-K	
1	Wall mounting frame	01252220	01252220	1
2	Chassis	222020012	222020012	1
3	Evaporator part	01002072	01002072	1
4	Cross flow fan	10352001	10352001	1
5	Bearing gasket	76512203	76512203	1
6	Water drainage pipe	052320102	052320102	1
7	Water-tray	20182027	20182027	1
8	swing blade	10512032	10512032	1
9	Swing connection rod1	10582002	10582002	1
10	Swing connection rod2	10582003	10582003	1
11	Panel body	20002210	20002210	1
12	screw cover	24252006	24252006	3
13	Filter	11122002	11122002	2
14	Remote controller	30512506	30512506	1
15	Magic lens	68012019	68012019	1
16	Display panel	30545702	30545702	1
17	Front panel	20002209	20002209	1
18	Guide louver 2	10512034	10512034	1
19	Guide louver 1	10512033	10512033	1
20	Stepping motor MP28VA	15212110	15212110	1
21	Motor pressure plate	26112014	26112023	1
22	Motor FN8L	15012064	15012064	1
23	Top cover of electric box	22242030	22242030	1
24	Terminal board GT4A3A3	42011134	42011134	1
25	cover of electric box	201220061	201220061	1
26	Electric board	20102178	20102178	1
27	Main board	30055787	30055788	1
28	Power supply transformer	43110204	43110204	1
29	Wire clamp	71010103	71010103	1
30	Connection pipe pressure plate	24242001	24242001	1
31	Rubber flexible line	40020402	40020402	1
32	Signal control line	\	400321444	1
33	Power supply line assembly	40020202	40020202	1

Serial No.	Names of material	Codes of material		Amount
		KF-35G/J31-K	KFR-35G/J31-K	
1	Wall mounting frame	01252384	01252384	1
2	Chassis	22202050	22202050	1
3	Evaporator part	010021343	01002134	1
4	Cross flow fan	10352005	10352005	1
5	Bearing gasket	76712015	76712015	1
6	Water drainage pipe	76512210	76512210	1
7	Water-tray	052320101	052320101	1
8	Swing blade	20182030	20182030	1
9	Swing connection rod 1	10512041	10512041	1
10	Swing connection rod 2	10582439	10582439	1
11	Panel body	20002295	20002295	1
12	Screw cover	24252007	24252007	3
13	Filter	11122440	11122440	2
14	Remote controller	30512506	30512506	1
15	Magic lens	68012019	68012019	1
16	Display panel	30545552	30545552	1
17	Front panel	20002292	20002292	1
18	Guide louver 2	26112043	26112043	1
19	Guide louver 1	26112042	26112042	1
20	Stepping motor MP28VA	15212105	15212105	1
21	Motor pressure plate	26112429	26112429	1
22	Motor FN8L	15012051	15012051	1
23	Top cover of electric box	22242017	22242017	1
24	Terminal board GT4A3A3	42011134	42011134	1
25	Cover of electric box board	20102123	20102123	1
26	Electric board	20102108	20102108	1
27	Main board	30055582	30055583	1
28	Power supply transformer	43110204	43110204	1
29	Wire clamp	71010103	71010103	1
30	Rear board clamp plate	26112430	26112430	1
31	Rubber flexible line	40020403	40020403	1
32	Signal control wire	\	400321444	1
33	Power supply line assembly	40020203	40020203	1

Serial No.	Names of material	Codes of material		Amount
		KF-45G/J31-K	KFR-45G/J31-K	
1	Wall mounting frame	01252384	01252384	1
2	Chassis	22202050	22202050	1
3	Evaporator part	01002017	01002017	1
4	Cross flow fan	10352005	10352005	1
5	Bearing gasket	76712015	76712015	1
6	Water drainage pipe	76512210	76512210	1
7	Water-tray	052320101	052320101	1
8	Swing blade	20182030	20182030	1
9	Swing connection rod 1	10512041	10512041	1
10	Swing connection rod 2	10582439	10582439	1
11	Panel body	20002295	20002295	1
12	screw cover	24252007	24252007	3
13	Filter	11122440	11122440	2
14	Remote controller	30512506	30512506	1
15	magic lens	68012019	68012019	1
16	Display panel	30545552	30545552	1
17	Front panel	20002292	20002292	1
18	Guide louver 2	26112043	26112043	1
19	Guide louver 1	26112042	26112042	1
20	Stepping motor MP28VA	15212105	15212105	1
21	Motor pressure plate	26112429	26112429	1
22	Motor FN8L	15012062	15012062	1
23	Top cover of electric box	22242017	22242017	1
24	Terminal board GT4A3A4	42011138	42011138	1
25	Cover of electric box board	20102123	20102123	1
26	Electric board	20102108	20102108	1
27	Main board	30055582	30055583	1
28	Power supply transformer	43110204	43110204	1
29	Wire clamp	71010103	71010103	1
30	Rear board clamp plate	26112430	26112430	1
31	Rubber flexible line	40020440	40020440	1
32	Signal control wire	\	400321444	1
33	Power supply line assembly	40020203	40020203	1

9 . 3 Explosive view of outdoor unit, 45 below



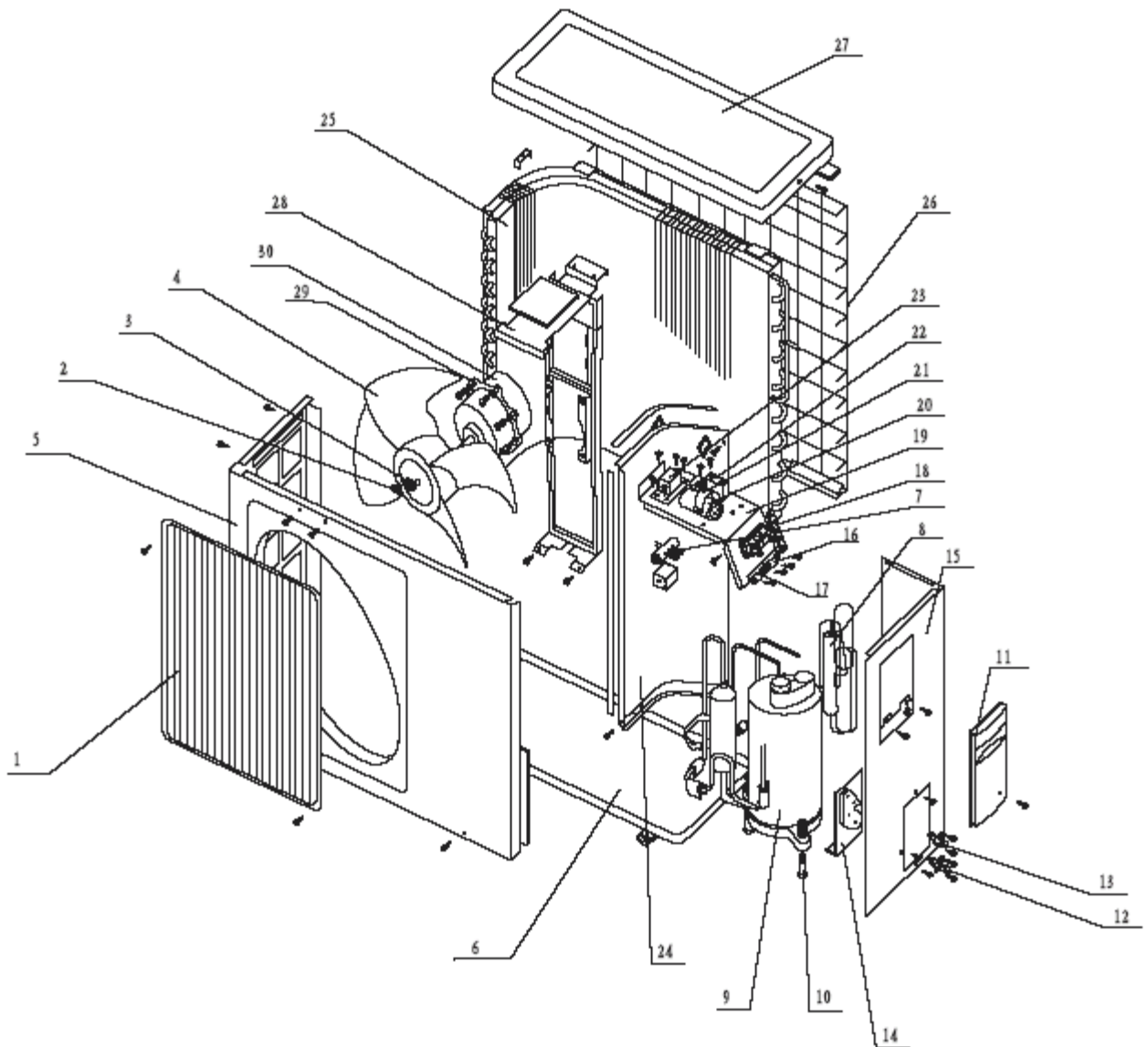
9 . 4 Parts list of outdoor unit below 45

Serial No.	Names of material	Codes of material		Amount
		KF-20W/J31-K	KFR-20W/J31-K	
1	Mask	22263002	22263002	1
2	Nut M6	70310132	70310132	1
3	Gasket 6	70410252	70410252	1
4	Axial flow fan	10333002	10333002	1
5	Front panel	01533014	01533014	1
6	Chassis assembly	01203157	01203157	1
7	4-way valve	/	43000402	1
8	Capillary assy	03003367	03003368	1
9	Compressor and its fittings	00100374	00100373	1
10	Washer nut	70310011	70310011	3
11	Big handle	26233101	26233101	1
12	Valve1/4"	07100024	07100024	1
13	Valve3/8"	07100145	07100145	1
14	Valve support	01713424	01713424	1
15	Right side board assembly	01303151	01303151	1
16	Line pressure seat	24253001	24253001	1
17	Gasket	70410112	70410112	1
18	3-position wiring board	42011241	42011241	1
19	Electric box	01413034	01413034	1
20	Compressor running capacitor	33010044	33010044	1
21	Capacitor clamp	02143014	02143014	1
22	Fan capacitor	33010020	33010020	1
23	Terminal board 1	/	/	1
24	Separation board assembly	01233101	01233101	1
25	Condenser assembly	01133069	011330691	1
26	Rear grill	11123201	11123201	1
27	Top cover board	01253027	01253027	1
28	Motor support	01703029	01703029	1
29	Bolt	70140259	70140259	4
30	Motor FW20F	15013156	15013156	1

Serial No.	Names of material	Codes of material		Amount
		KF-25W/J31-K	KFR-25W/J31-K	
1	Front panel grid	22413431	22413431	1
2	Nut M6	70310131	70310131	1
3	Gasket 6	70410252	70410252	1
4	Axial flow fan	10333413	10333413	1
5	Front panel	01533012	01533012	1
6	Chassis assembly	01203211	01203073	1
7	4-way valve	/	43000402	1
8	Capillary assy	03003184	030034242	1
9	Compressor and its fittings	00120110	00120078	1
10	Washer nut	70310014	70310011	3
11	Big handle	26233433	26233433	1
12	Valve1/4"	07100024	07100024	1
13	Valve3/8"	07100145	07100145	1
14	Valve support	01713041	01713041	1
15	Right side board assembly	01302004	01302004	1
16	Wire clamp	71010103	71010103	1
17	Insulation pad	70410525	70410523	1
18	3-position wiring board	42011241	42011241	1
19	Electric box	01413425	01413425	1
20	Compressor running capacitor	33000018	33000017	1
21	Capacitor clamp	02143401	02143401	1
22	Fan capacitor	33010026	33010026	1
23	Terminal board 1	/	42011147	1
24	Separation board assembly	01233417	01233417	1
25	Condenser assembly	011330181	01133018	1
26	Net mask	11123203	11123203	1
27	Top cover board	01253448	01253448	1
28	Motor support	01703002	01703002	1
29	Bolt	70140259	70140259	4
30	Motor FW30K	15013067	15013067	1

Serial No.	Names of material	Codes of material		Amount
		KF-35W/J31-K	KFR-35W/J31-K	
1	Front panel grid	22413431	22413431	1
2	Nut M6	70310131	70310131	1
3	Gasket 6	70410252	70410252	1
4	Axial flow fan	10333413	10333413	1
5	Front panel	01533012	01533012	1
6	Chassis assembly	01203045	01203008	1
7	4-way valve	/	43000402	1
8	Capillary assy	030032092	03003208	1
9	Compressor and its fittings	00120079	00100339	1
10	Washer nut	70310011	70310011	3
11	Big handle	26233433	26233433	1
12	Valve1/4"	07100024	07100024	1
13	Valve3/8"	07100147	07100147	1
14	Valve support	01713041	01713041	1
15	Right side board assembly	01302004	01302004	1
16	Wire clamp	71010103	71010103	1
17	Insulation pad	70410525	70410523	1
18	3-position wiring board	42011241	42011241	1
19	Electric box	01413425	01413425	1
20	Compressor running capacitor	33000018	33000018	1
21	Capacitor clamp	02143401	02143401	1
22	Fan capacitor	33010025	33010025	1
23	Terminal board	/	42011147	1
24	Separation board assembly	01233417	01233417	1
25	Condenser assembly	01103176	01103173	1
26	Net mask	01473030	01473030	1
27	Top cover board	01253443	01253443	1
28	Motor support	01703068	01703068	1
29	Bolt	70140259	70140259	4
30	MotorFW48G	15013066	15013066	1

9. 5 Explosive view of 45 outdoor unit



9. 6 Parts list of outdoor unit 45

Serial No.	Names of material	Codes of material		Amount
		KF-45W/J31-K	KFR-45W/J31-K	
1	Front panel grid	22413431	22413431	1
2	Nut M6	70310131	70310131	1
3	Gasket 6	70410252	70410252	1
4	Axial flow fan	10333413	10333413	1
5	Front panel	01533012	01533012	1
6	Chassis assembly	01203144	01203144	1
7	4-way valve	/	43000403	1
8	Capillary assy	06100203	06100203	1
9	Compressor and its fittings	00100135	00100135	1
10	Washer nut	70310014	70310015	3
11	Big handle	26233433	26233433	1
12	Valve1/4"	07100115	07100115	1
13	Valve3/8"	07100142	07100142	1
14	Valve support	01713041	01713041	1
15	Right side board assembly	01302004	01302004	1
16	Wire clamp	71010103	71010103	1
17	Insulation pad	70410525	70410523	1
18	3-position wiring board	42011113	42011113	1
19	Electric box	01413425	01413425	1
20	Compressor running capacitor	33000001	33000001	1
21	Capacitor clamp	02143401	02143401	1
22	Fan capacitor	33010025	33010027	1
23	Terminal board	/	42011103	1
24	Separation board assembly	01233417	01233417	1
25	Condenser assembly	01103186	011031852	1
26	Net mask	01473030	01473030	1
27	Top cover board	01253443	01253443	1
28	Motor support	01703391	01703391	1
29	Bolt	70140259	70140259	4
30	Motor FW48G	15013066	15013066	1

10 Maintenance

Warning:

- Turn the power off and pull out the power plug before cleaning air conditioner. Or it may cause the electric shock.
- Never dampen the air conditioner; it can cause the electric shock. And never sprinkle water on the unit. Wipe the units with a dry soft cloth, or a cloth slightly moistened with water or cleanser.
- Volatile liquid like thinner or gasoline would damage the appearance of air conditioner (only adopt soft dry cloth and wet cloth with neutral detergent when cleaning air conditioner appearance).

10.1 Clean the front panel

1 Take down the front panel

Screw off the screw at the protection board firstly. Pull out the connection terminal for connection. Pull the panel in the direction as shown by arrow with force at the concave grooves at both sides of the panel.

2 Clean the front panel

Use brush, water and neutral detergent to clean and then dry it in the shadow.

3 Install the front panel

Firstly insert the terminal board and install the protection board. Insert the supporting pillows at both sides of the front panel to the supporting slot, with the medium rotation axle putting in the groove positions. Cover and lock the front panel in the direction as shown by arrow.

10.2 Cleaning the air filters

1 Take down the air filter

Along the direction of arrow, pull off the front panel an angle from the slots of the front panel and then pull down the air filter and take it out as shown in the right diagram.

2 Cleaning the air filters

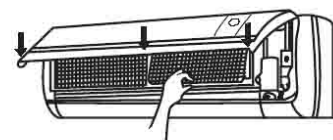
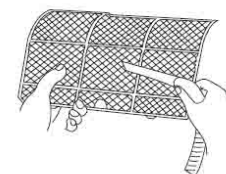
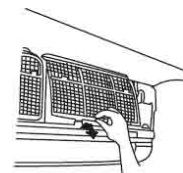
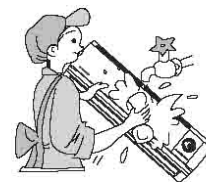
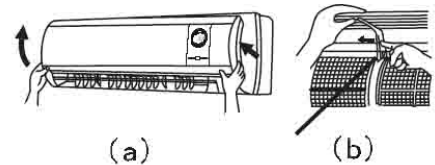
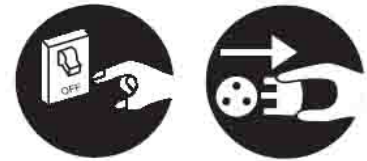
To clear the dust adhering to the filters, you can either use a dust collector, or wash them with warm water (the water with the neutral detergent should be below 45°C) when the filters are very dirty (such as oil stain), and dry it in the shadow as shown in the right diagram.

3 Install the air filters

Install air filter properly by arrow direction, let its side that marked "Front" faces you, then cover and buckle the panel properly.

Note:

Don't dry the panel or air filter directly under sun shine, don't wash them by hot water which is hotter than 45°C or burn it on fire (For these would cause fade, fire or deformation).



11 Installation Guide

11.1 Selection of Install Location

1 Indoor unit

- The air inlet and outlet vent should be far away from obstruction so that air can be blown to the entire room.
- Select the place where it is easy to drain condenser or easy to connect with outdoor unit;
- Be far away from heat source, steam and inflammable gas;
- Select the place where it is possible to stand the weight of indoor unit without increasing the running noise and vibrations.
- Ensure there should be enough space for maintenance or repair, distance between indoor unit and floor should be over 2m;
- Place the units to where 1m or more away from TV, Hi-fi and other appliances;
- Place the unit to where air filter may be taken out easily.
- Ensure the installation of indoor unit meeting requirements on install dimensions diagram;

2 Outdoor unit

- It should be located at a place not affecting the neighbors with noise and air generated by discharging.
- Don't install the outdoor unit in sealed space; it should be installed in where with good ventilation.
- No obstacles affecting the air inlet/outlet of the set should be allowed around the outdoor unit:
- The installation location should be able to bear the weight and vibration of outdoor unit and should enable the safe installation.
- It should be installed in a location free from leakage of inflammable or corrosive gas.
- It is required that the installation of outdoor unit should meet the requirements of the attached diagram for installation.

3 Circuit wiring

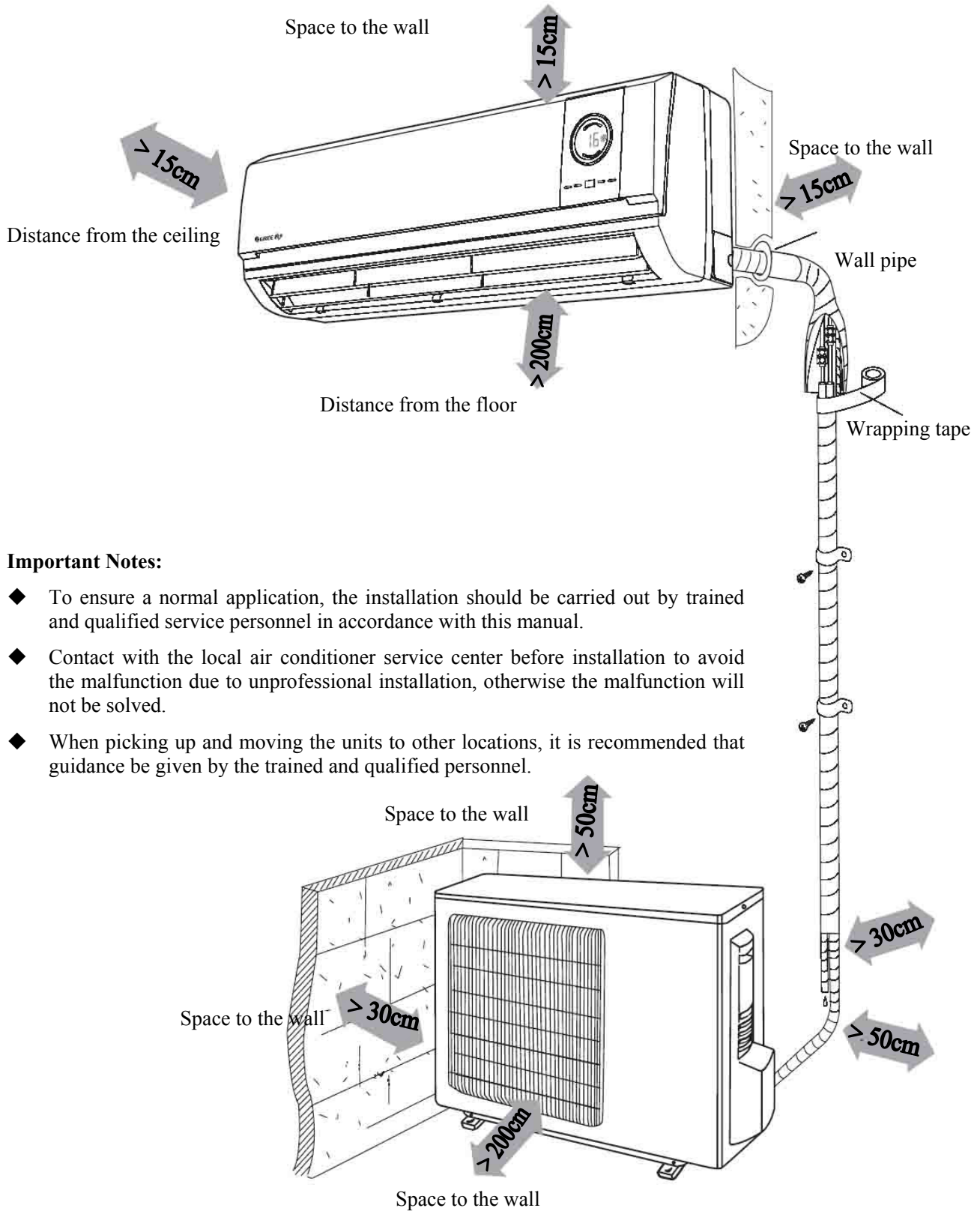
1. Installation is required to follow the regulations for wire connection of National Standards.
2. It is required that the rated voltage should be used and the diameter of special power line for air conditioner should be big enough.
3. Please do not pull with force the power supply line.
4. The ground wire should be reliable and should be connected to the special ground device of the building by a specialist. Installed in the fixed lines, the leakage protection switch and air breaker should be with enough capacity (as shown in the table below). The air breaker should be at the same time having magnetic disengaging function so that short circuit and overload protection may be provided for the system.

4 Ground requirements

1. It is required to use reliable ground measure since the air conditioner is a Class I electric appliance.
2. The yellow and green double color line is the ground wire inside the air conditioner and should not be used for other purpose. It is not allowed to cut it down.
3. The grounding resistance should meet the requirements of National Standards GB17790.
4. The power supply of the users should be provided with a reliable grounding. Please do not connect the grounding wire to the locations as given below:

① Running water pipe ② Gas pipe ③ Drainage pipe ④ Other locations where they are considered to be not reliable.

11. 2 Installation dimensions diagram



Important Notes:

- ◆ To ensure a normal application, the installation should be carried out by trained and qualified service personnel in accordance with this manual.
- ◆ Contact with the local air conditioner service center before installation to avoid the malfunction due to unprofessional installation, otherwise the malfunction will not be solved.
- ◆ When picking up and moving the units to other locations, it is recommended that guidance be given by the trained and qualified personnel.

11. 3 Install Indoor Unit

1 Install the wall-mounted plate

- Measure the horizontal position by a hanging line method; since drainage pipe hole is on left side, thus it is better to let the left side a little bit lower when adjusting wall-mounted plate
- Fix the 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 on each screw.

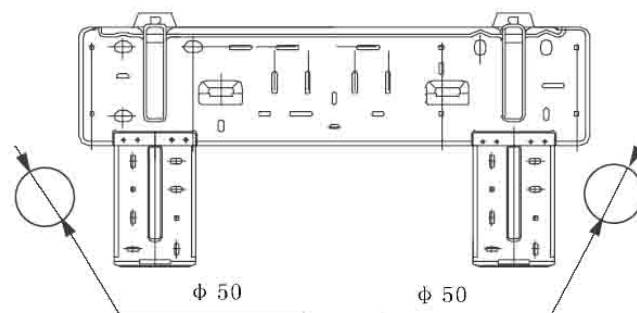


Fig.11-1

2 Make piping hole

- After determining the location of hole for auxiliary pipe as shown in Fig.11-1, drill a hole declined outward (φ 50).
- To protect the auxiliary pipe and cable passing through the wall from being damage, it is required to install wall pipe.

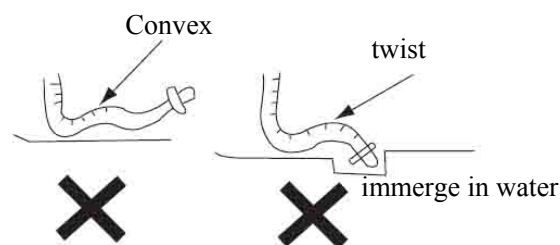


Fig.11-2

3 Install drainage hose

- Drainage hose must be placed at a downward slant for smooth drainage.
- Do not twist, bend or heave the drain hose or immerge its end into water (as shown in Fig 11-2)
- The prolonged drainage hose must be wrapped by heat insulation material when going through indoor unit.

4 Install connection pipe


Connect the connecting pipe with the 2 leading pipes from indoor unit correspondingly, tighten joint nuts on connection pipe (Refer to the following: Install Connecting 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.

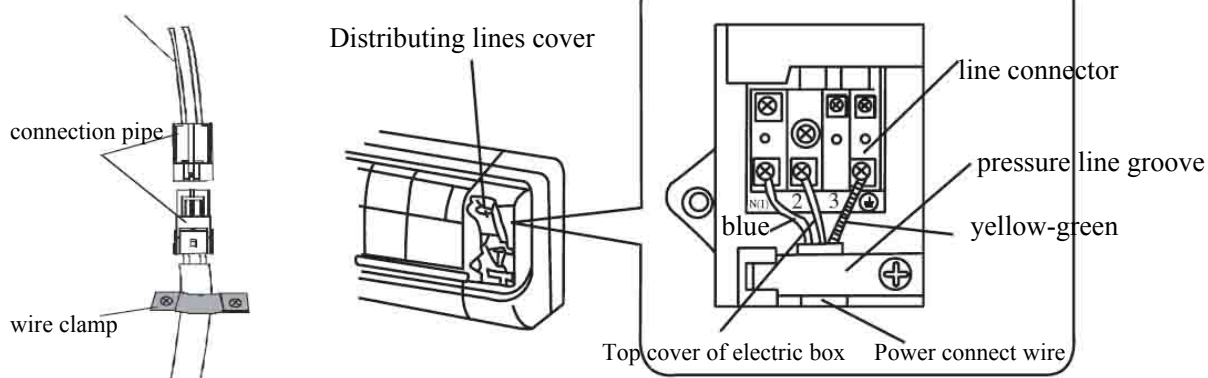
5

Electric wiring

- Open the panel upwardly;
- Remove the fixing screw of the connection cover board, as shown in Fig.11-3;
- Lead power connecting wire goes through bottom case and wire hole at bottom of electric box from below upward.
- Connect the power supply blue line to terminal “N(1)” at the terminal board, and the brown line, to terminal “2”, the yellow/green (i.e. the grounding line) to terminal , as shown in Fig.11-4 and press tightly the power supply lines with the line pressure groove in front of the line connector at the electric box.
- For cooling/heating unit, the signal control line is connected to the indoor unit, as shown in Fig.11-3.
- Install the cover plate of connecting wire to its original location. And screw tightly the screw.
- Recover the front panel back.

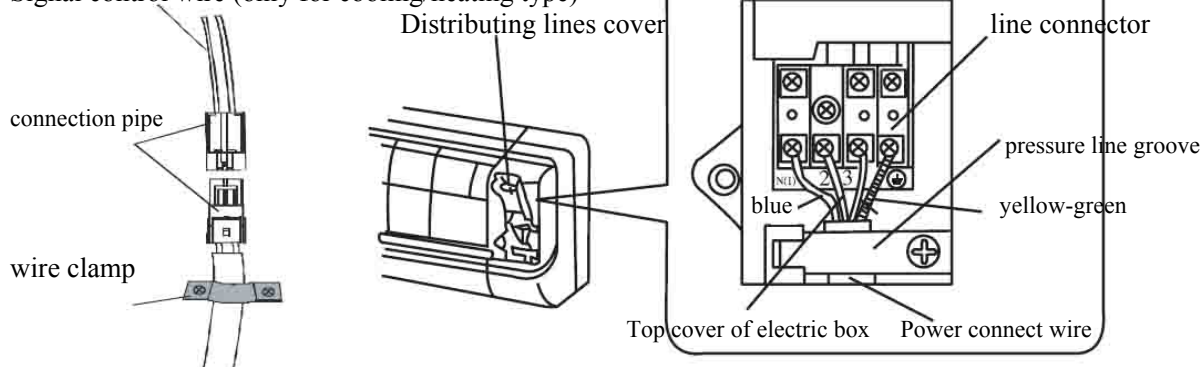
Available for 20, 25 units

Signal control wire (only for cooling/heating type)



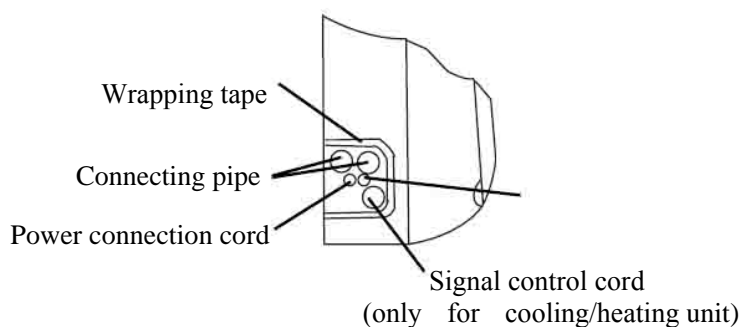
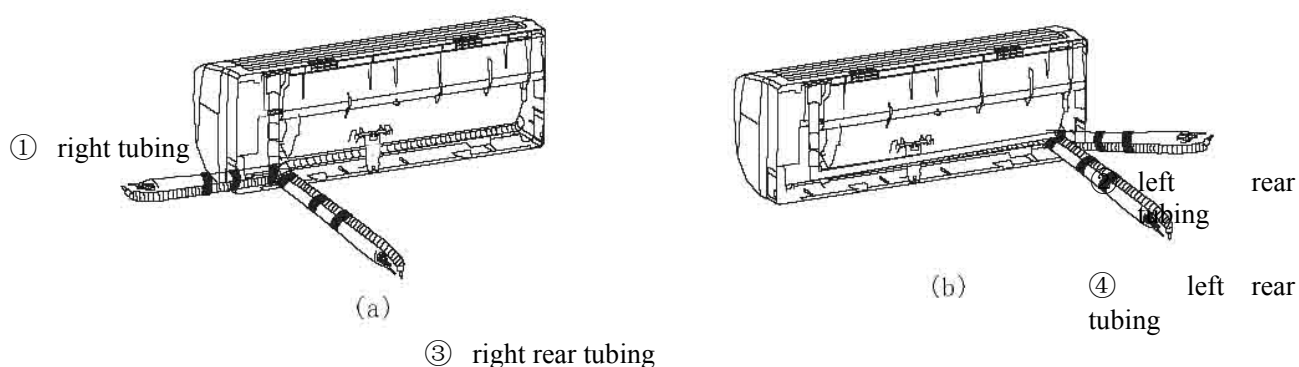
Available for 35 unit

Signal control wire (only for cooling/heating type)



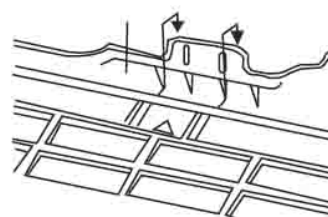
6 Install the indoor unit

- The indoor distribution of pipe is referred to Fig.11-4 (a), (b). For pipe (line) distribution at the left or right side, it is required to cut off the sections as shown in Fig.11-4 (c) for the auxiliary pipe at the unit chassis.
 - Cut down section 1 when only the power cord is led.
 - Cut down sections 1,2 (or 1,2,3) when the connection cord and wire are led: the pad wire type①, ②, ③ are recommended.
- Let the tubing and cord pass through the piping hole after tied up. (As shown in the following Fig.11-5)
- Hang the claw behind the indoor unit on the pothook on the wall rear panel, move the unit left and right to check if the body is firm (as shown in Fig 11-6)
- Guarantee that the install height of the indoor unit should be above 2.0m from the floor.



11-5

water drainage pipe



11-6

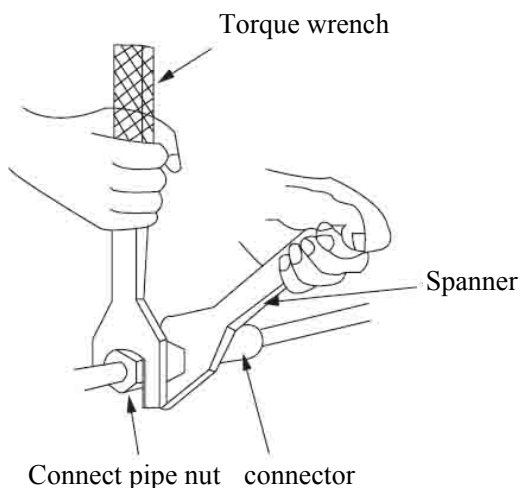
11. 4 Install the outdoor unit

1 Install connection pipe

- The taping end of connection pipe is aligned with the corresponding taping mouth of the valve connector.
- Tighten nuts on connecting pipe forcibly then tighten it by spanner (as shown in Fig 11-7).

Note: Too great of torque would damage nuts.

Refer to the following list for tightening torque



Hex nut	Tighten torque (N • M)
Φ 6	15-20
Φ 9.5	31-35
Φ 12	50-55

2 Wiring connection

- Take off right side big handle of outdoor unit (1 screw)
- Take off clamp, connect and fix the power connect wire to wiring terminal board. The wiring allocation should be in accordance with that of indoor unit.
- Use a line clamp to fix the power lines. As to cooling/heating unit, it is required to fix the signal control line and connect properly the corresponding connector.
- Ensure that wire had been fixed firmly. (as shown in Fig 11-8)
- Install the handle (1 screw fixing)

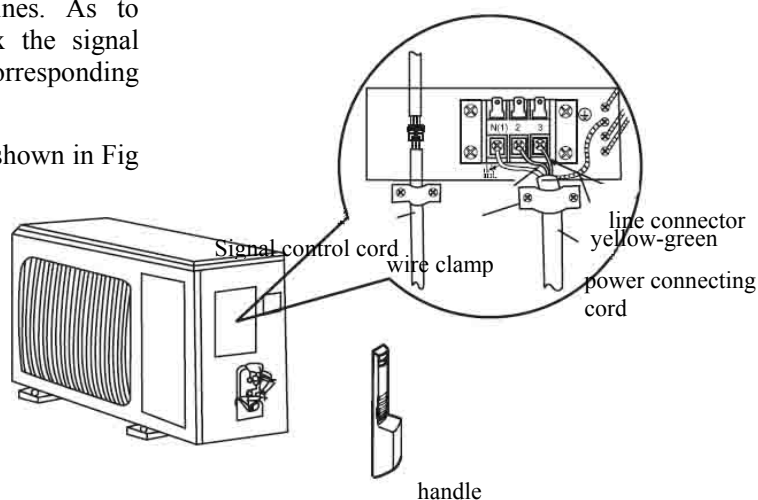


Fig 11-8

Note

- **Wrong wire connection would cause malfunction of some electric components.**
- **After fixing the lines, it should be assured that there is certain freedom for the lines from the connecting points to the fixing location.**

3 Evacuation and Leakage Detection

- Remove the nut cover at the stop valve of outdoor unit.
- Screw tightly the taper nut with hand by aligning the distributing pipe.
- Tight the nut with a spanner.
- Remove the valve covers of liquid/gas valves and the nozzle nut for filling freon.
- Use an inner hexagon spanner, screw off the valve core of the liquid valve. Use a screw driver to top off the air core at the gas valve. In this case, there should be some gas discharging.
- After discharging for 15s and when the cooling refrigerant appears, close the gas core and tighten the nozzle nut for filling freon.
- Open completely the valve cores for liquid valve and gas valve (Fig.11-9).
- Screw tightly the valve cover and check for gas leakage at the connection sections between the indoor/outdoor units and the pipes with soap water or leakage tester.
- If condition allows, it is available to evacuate air inside the unit from the gas valve core with a vacuum pump. (Fig.11-10).

Steps are as follows:

1. Remove the nut cover of freon filling nozzle from the gas valve.
2. Connect the middle filling flexible hose of the vacuum meter to the vacuum pump and the low pressure (Lo) (terminal to the freon filling nozzle of the gas valve).
3. Start the vacuum pump to evacuate and when the multimeter indicates 1 bar, close completely the low pressure handle (Lo) at the vacuum meter and top evacuating, and hold on for more than 15 min to confirm that the pressure on the vacuum meter does not change.
4. Remove the cover for the gas/liquid valve.
5. Use an inner hexagon spanner, screw off a little the valve core of the liquid valve until the pressure on the vacuum meter reaches 0 bar and above.
6. Remove the filling hose from the freon filling nozzle, and cover tightly the nut cover of freon filling nozzle.
7. Use an inner hexagon spanner, screw off completely the cores for the gas/liquid valves.
8. Tighten the valve cover for the gas/liquid valve and check if there is any leakage.

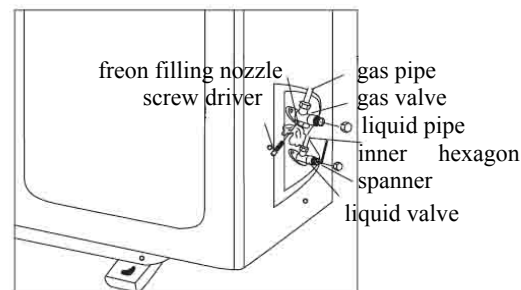


Fig 11-9

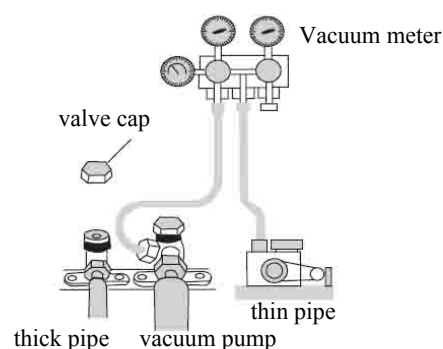


Fig 11-10

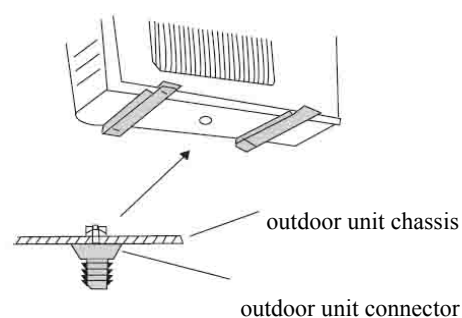


Fig 11-11

4 Drainage of condense of outdoor unit (not for cooling only unit)

- When heating, condensed water and defrost water produced when defrosting by outdoor unit can be drained to a proper place through drainage hose.

Install Method:

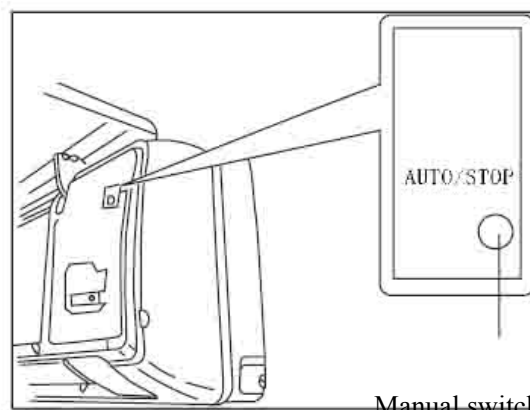
- Insert the outdoor drainage connector as shown in Fig.11-11 to the $\Phi 25$ hole at the chassis. Then, connect the drainage hose to the water drainage port so as to drain the condensed water and defrost water to a proper location.

11.5 Check Items for Trial Running and after Installation

1 Trial Running

1. Preparation of trial running

- Before completing the entire installation, power cannot be turned on.
- Control circuit should be connected correctly and safely, all the wires should be connected firmly.
- Big/small pipe stop valves should be opened.
- All the scattered things, especially metal scraps, thum and jaws etc. must be removed from the unit



Manual switch

2. Trial running methods

- Connect the power supply and press ON/OFF button on remote controller to start the unit.
- Press On/Off of the remote controller and then press MODE to select working modes such as COOL, DRY; HEAT and FAN etc. to see if operations are normal.
- Emergency running: In case the remote controller is lost, a ball pen or similar object may be used to carry out the following operation:
 - (1). At the OFF mode, press the button switch. The air conditioner will enter automatic running mode. The microcomputer will then select automatically the cooling/heating/air delivery to achieve the comfortable effect. To stop the running, press the button switch again.
 - (2). Under running mode, press On/Off button, the unit will stop running.

2 Items to be checked after installation

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 cooling (heating) capacity
Is heat insulation sufficient?	Condensation or water drop may occur
Is drainage smooth?	Condensation or water drop may occur
Is power voltage the same as that listed in nameplate?	Malfunction or burnt out of parts may occur
Is installation of circuit and pipeline correct?	Malfunction or burnt out of parts may occur
Is unit grounded safely?	Leakage may occur
Is wire type fits the relative specifications?	Malfunction or burnt out of parts may occur
Is air inlet or outlet vent of indoor and outdoor unit blocked?	It may cause insufficient of cooling (heating) capacity
Is the length of refrigerant pipe and charge amount of refrigerant recorded?	Cannot handle the charging amount of refrigerant

