Introduction

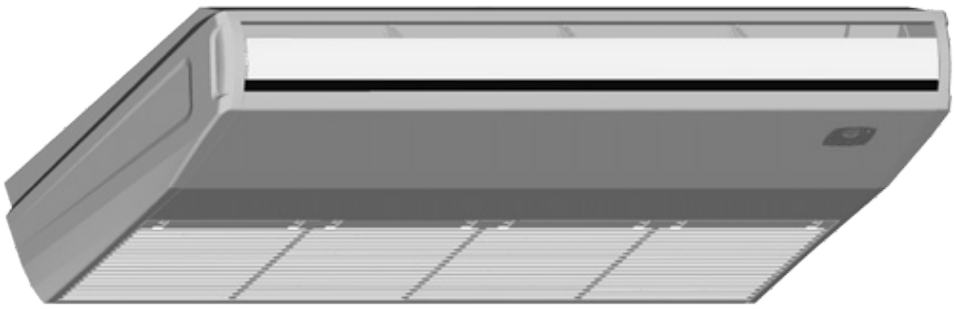
In this technical service manual, you will find rich references to KF(R)-120DW/NA1-34005 model including photoes, technical specifications, explosive views, spare parts lists and circuit diagrams. Service people and engineers of Gree' s customers and distributors would find it a very handy source of technical information of our products.

Technical Support Group

Mar.2004

Contents

1. Summary



Model	Note
KF-120DW/NA1-34005 KFR-120DW/NA1-34005	3Ph 400V 50Hz R407C

2.Technical specifications

Model		KF-120DW/NA1-34005
Function		COOLING
Power Supply (Phase-Frequency-Voltage)		3Ph – 400V – 50Hz
Capacity	(W)	12000
Rated Input	(W)	5300
Rated Current	(A)	8.9
Recycling Air Volume	(m^3/h)	2200
Dehumidifying Volume	(L/h)	3.4
C.O.P / EER	(W/W)	2.26
Indoor unit	Model	KF-120D/NA1-34005
	Motor Fan Speed (r/min) (H/M/L)	1100/1000/900
	Output Power (w)	150
	Fan Type-Piece	Centrifugal fan - 4
	Diameter-Length (mm)	ϕ155 X 175
	Evaporator	Aluminum fin-copper tube
	Pipe Diameter	ϕ7
	Row-Fin Gap (mm)	3-1.6
	Working Area ($m^{2)}$	1.34X 0.25
	Swing Motor	MP35CA
	Input Power of Motor (W)	4
	Fuse (A)	Controllor5A transformer0.2A
	Working Capacitor (uF)	3
	Noise dB (A)	≤55
	Dimension (W/D/H)(mm)	1590X238X695
	Dimension of Package (W/D/H)(mm)	1714X330X830
	Net Weight /Gross Weight (kg)	42
Outdoor unit	Model	KF-120W/dNA1-34005
	Input Power (W)	5150
	Running Current (A)	8.2
	L.R.A. (A)	48
	Throttling Method	Capillary
	Compressor Model	C-SBN373H8A
	Protector	Internal overload protection
	Starting Method	By capacitor
	Working Temp Range	2～43℃
	Condenser	Aluminum-copper
	Pipe Diameter	Φ9.52
	Rows - Fin Gap (mm)	2- 1.8
	Working Area ($m^{2)}$	0.725X1.218
	Fan Motor Power(W)/Speed (rpm)	68/840
	Fan Type-Piece	Axial fan –2
	Fan Diameter (mm)	Φ450

Outdoor unit	Defrosting Method			Auto defrost
	Noise dB (A)			≤63
	Dimension (W/D/H)(mm)			1250X950X412
	Dimension of Package (W/D/H)(mm)			1295X1110X450
	Net Weight /Gross Weight (kg)			112/133
	Refrigerant Charge (kg)			R407C/3.3
Connecting Pipe	Length		(m)	5
	Outer Diameter	Liquid Pipe	(mm)	Φ12(1/2")
		Gas Pipe	(mm)	Φ19(3/4")
	Max Distance	Height	(m)	5
		Length	(m)	10

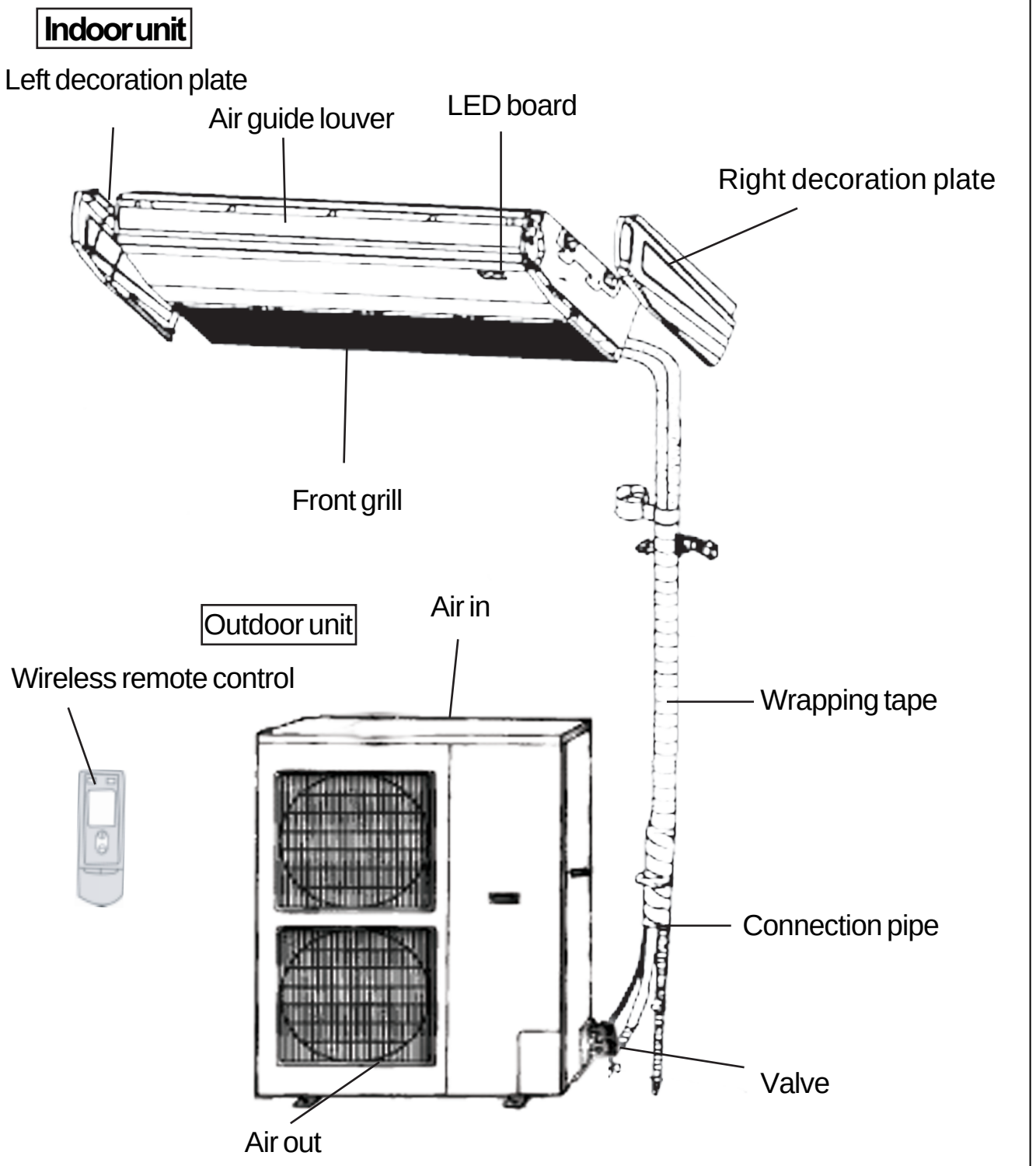
The data of above are subject to be changed, please refer to the nameplate for reference.

Model			KFR-120DW/NA1-34005	
Function			COOLING	HEATING
Power Supply (Phase-Frequency-Voltage)			3Ph – 400V – 50Hz	
Capacity		(W)	12000	13000
Rated Input		(W)	5000	4600
Rated Current		(A)	8.3	7.8
Recycling Air Volume		(m^3/h)	2200	
Dehumidifying Volume		(L/h)	3.4	
C.O.P / EER		(W/W)	2.4	2.83
Indoor unit	Model		KFR-120D/NA1-34005	
	Motor Fan Speed (r/min) (H/M/L)		1100/1000/900	
	Output Power (w)		150	
	Fan Type-Piece		Centrifugal fan - 4	
	Diameter-Length (mm)		ϕ155X 175	
	Evaporator		Aluminum fin-copper tube	
	Pipe Diameter		ϕ7	
	Row-Fin Gap (mm)		3-1.6	
	Working Area (m^2)		1.34X 0.25	
	Swing Motor		MP35CA	
	Input Power of Motor (W)		4	
	Fuse (A)		controllor5A transformer0.2A	
	Working Capacitor (uF)		3	
	Noise dB (A)		≤55	
	Dimension (W/D/H)(mm)		1590X238X695	
	Dimension of Package (W/D/H)(mm)		1714X330X830	
	Net Weight /Gross Weight (kg)		42/51	
Outdoor unit	Model		KFR-120W/dNA1-34005	
	Input Power (W)		4850	4450
	Running Current (A)		7.6	7.1
	L.R.A. (A)		55	
	Throttling Method		Capillary	
	Compressor Model		C-SBN353H8A	
	Protector		Internal overload protection	
	Starting Method		By capacitor	
	Working Temp Range		2～43℃	
	Condenser		Aluminum-copper	
	Pipe Diameter		Φ9.52	
	Rows - Fin Gap (mm)		2- 1.8	
	Working Area (m^2)		0.725X1.218	
	Fan Motor Power(W)/Speed (rpm)		68/840	
	Fan Type-Piece		Axial fan –2	

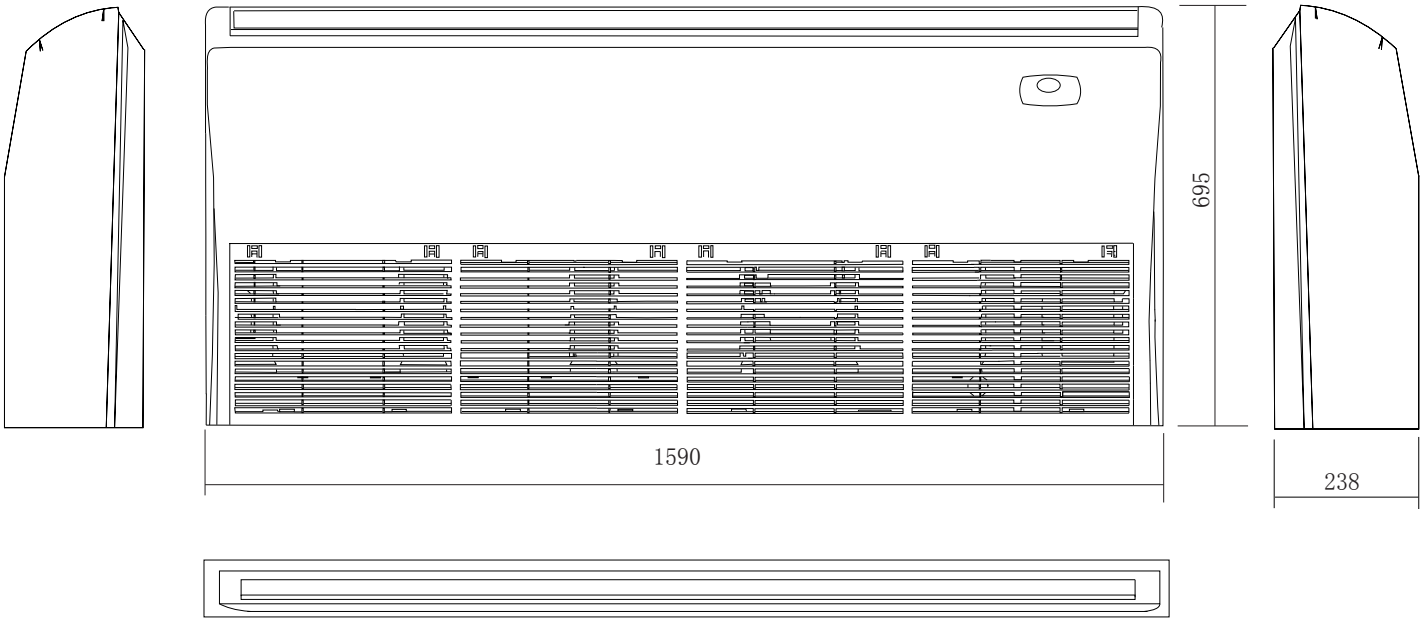
Outdoor unit	Fan Diameter (mm)			Φ450
	Defrosting Method			Auto defrost
	Noise dB (A)			≤63
	Dimension (W/D/H)(mm)			1250X950X412
	Dimension of Package (W/D/H)(mm)			1295X1110X450
Net Weight /Gross Weight (kg)				112/133
Refrigerant Charge (kg)				R407C/3.4
Connecting Pipe	Length		(m)	5
	Outer Diameter	Liquid Pipe	(mm)	Φ12(1/2")
		Gas Pipe	(mm)	Φ19(3/4")
	Max Distance	Height	(m)	5
		Length	(m)	10

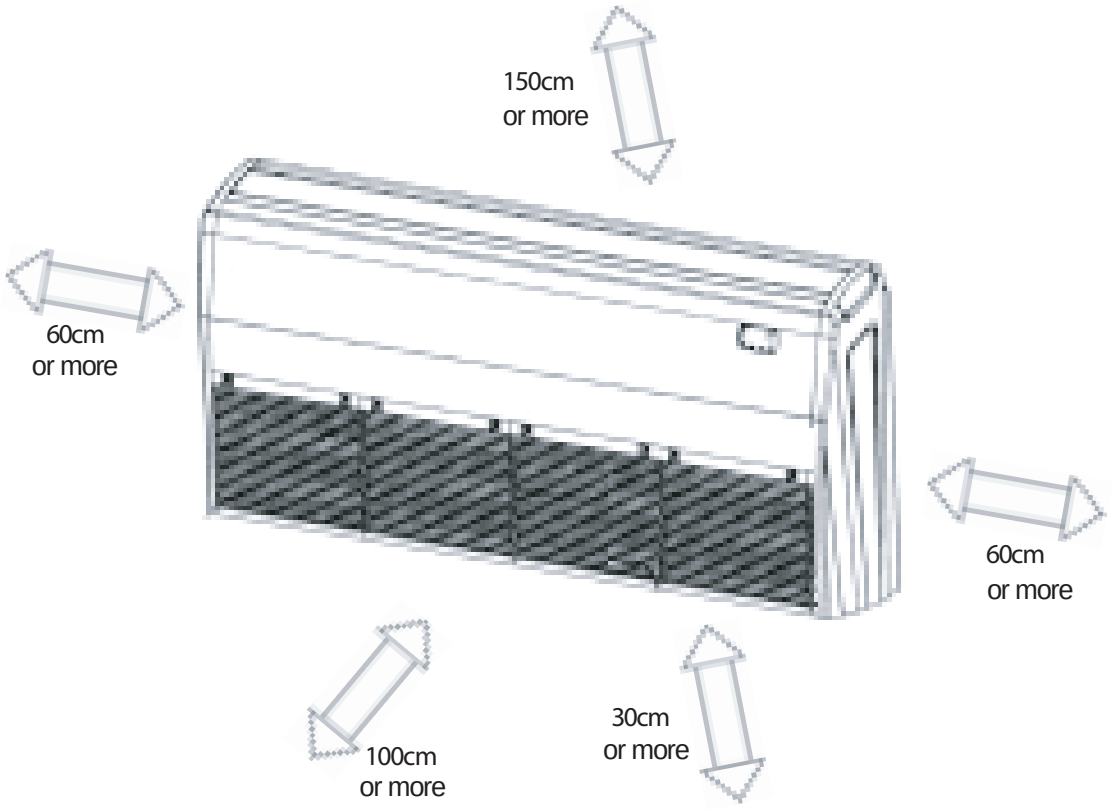
The data of above are subj ect to be changed, please referto the nameplate for reference.

3. Names of spare parts

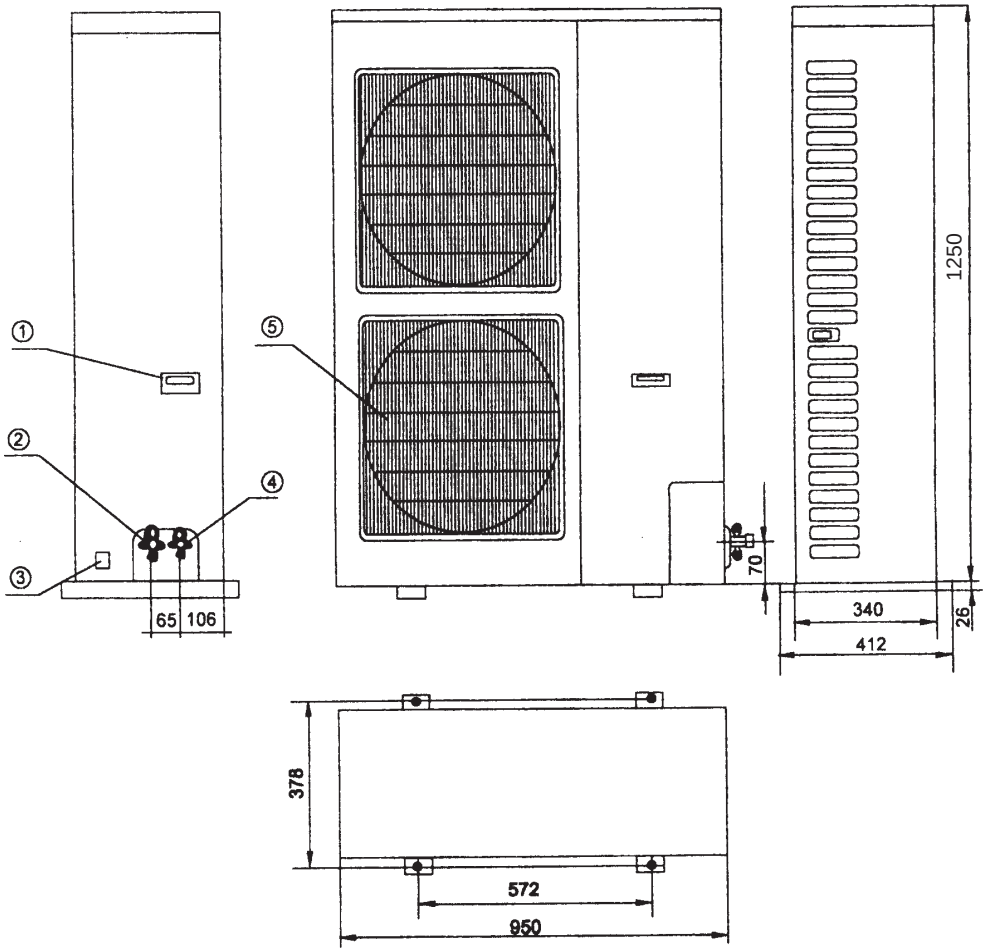


4. 1 Outlines and dimensions of indoor unit

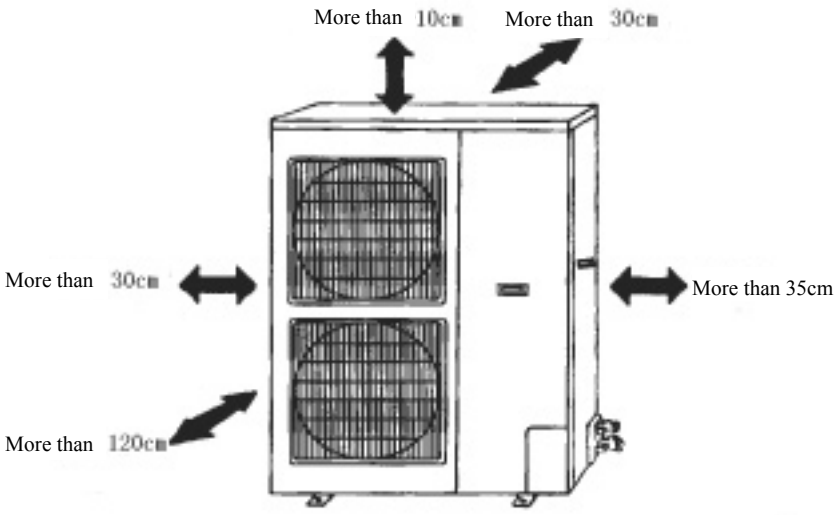




4.2 Outlines and dimensions of outdoor unit

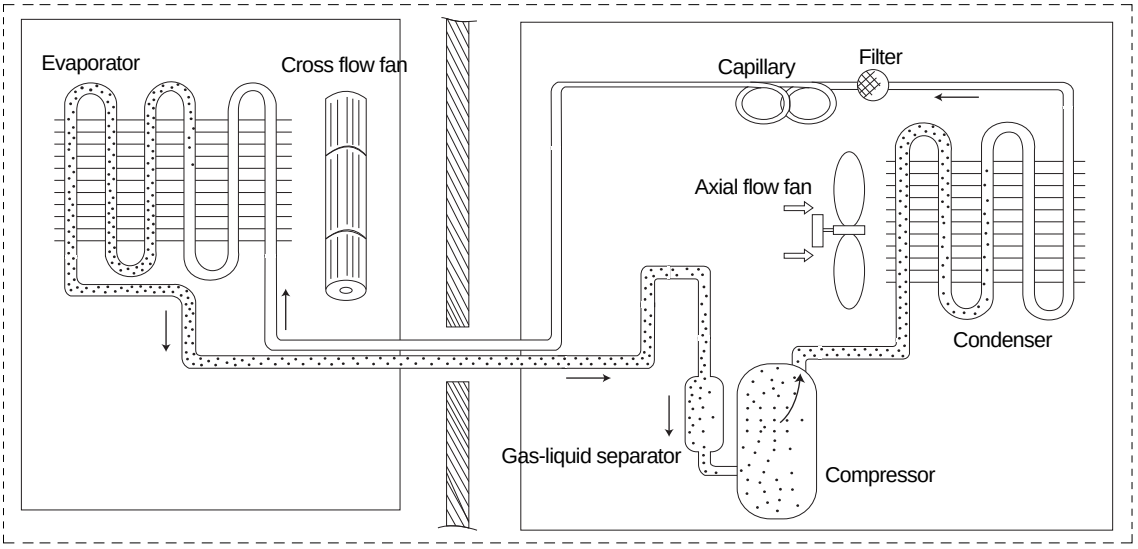


①Handle ②Gas pipe ③Wire hole ④Liquid pipe ⑤Front grill



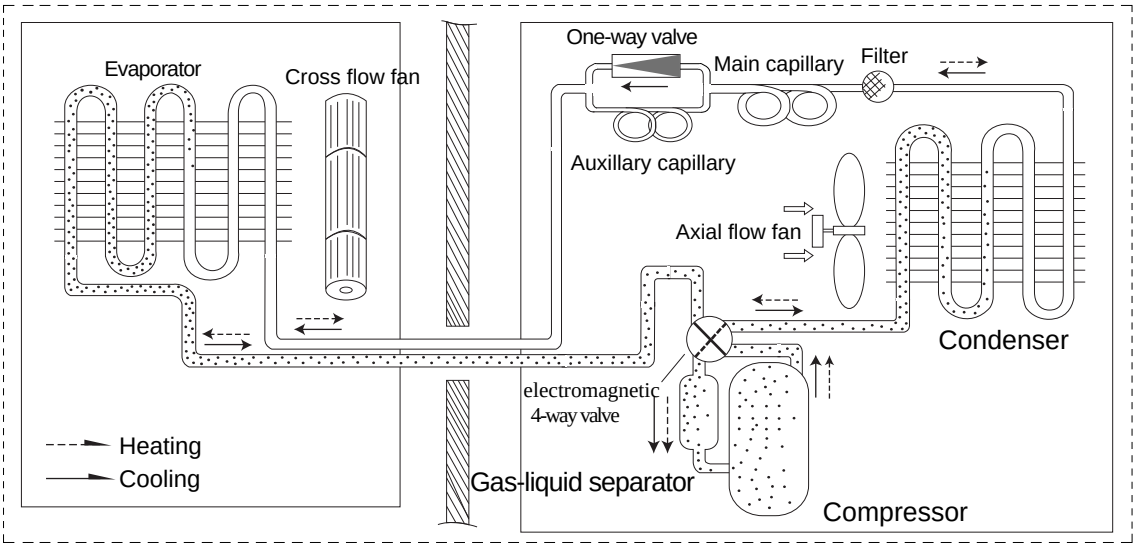
5. Working principle diagram

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 in 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.

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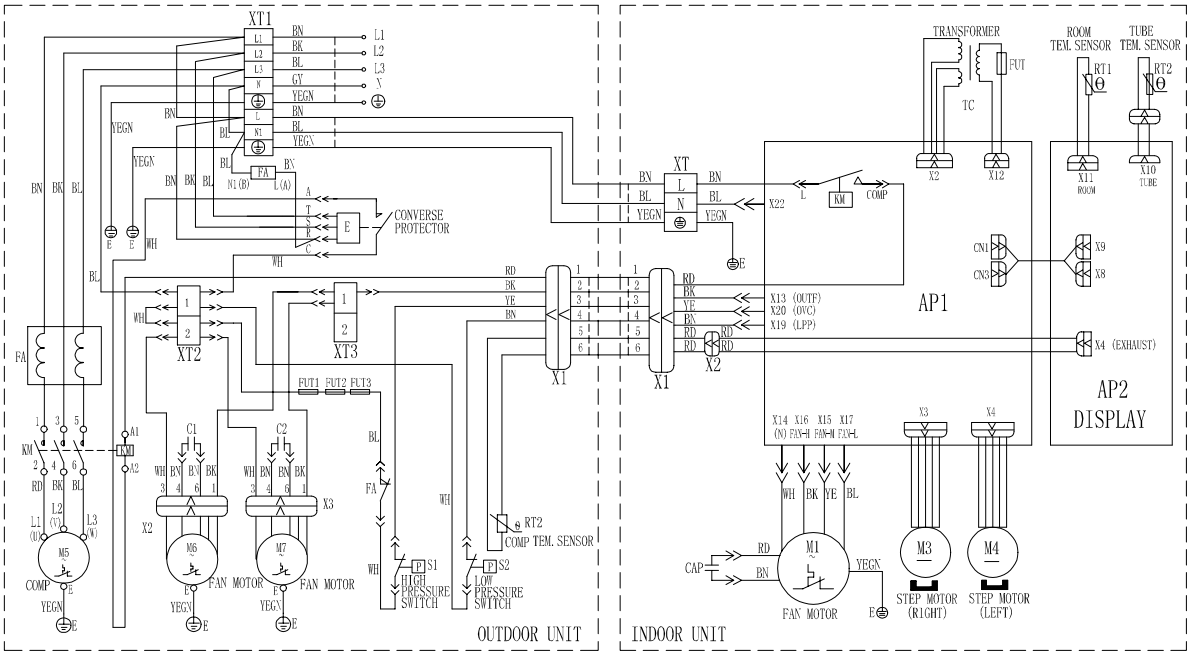
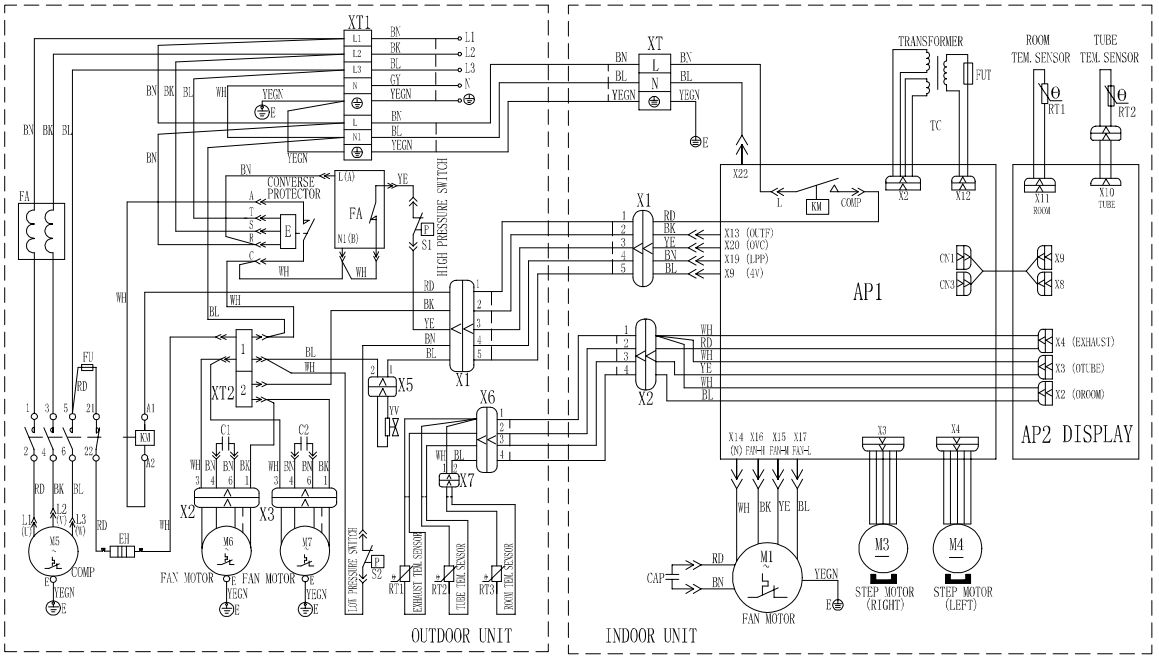
The circuit diagram are subject to change , please refer to the ones on the machine.

KF-120DW/NA1-34005



KFR-120DW/NA1-34005



7. PCB function manual

7.1 Temperature parameter

① The room ambient temp. (Tamb)
② The room evaporator temp. (Teva)
③ The outdoor condensor temp.(Tcon)
④ The air exhaust temp.(Texh)

7.2 Foundamental functions

● In each mode, the compressor starts at once, it will not stop within 6min according to the changes of Tamb, when it stopped once, after 3mins delayed, can start it again.

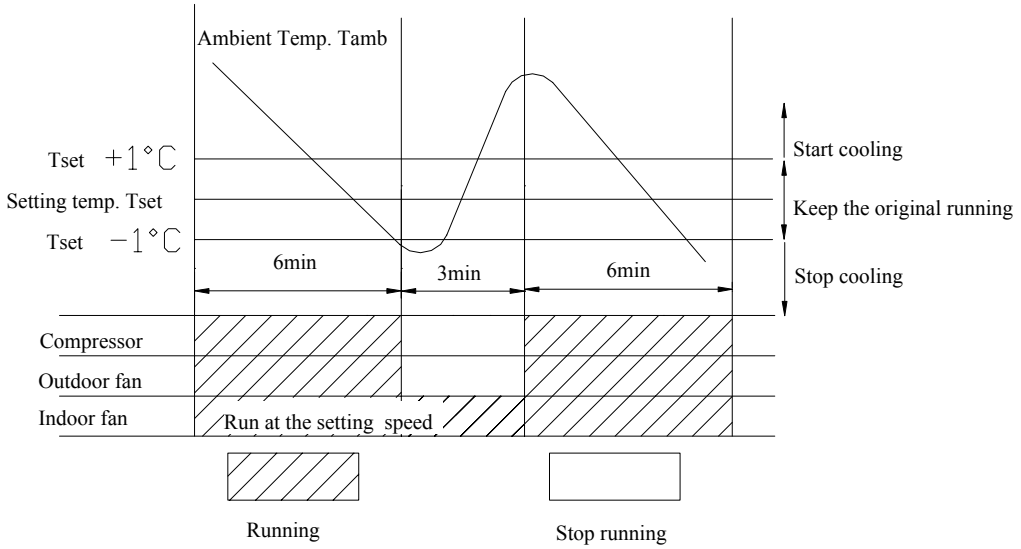
7.2.1 COOL mode

◆ When Tamb≥Tset+1℃, it will enter into COOL mode, the compressor, outdoor fan motor run. Indoor fanmotor and swing motor run at the setting fan speed and setting.

◆ When Tamb≤Tset-1℃,compressor, outdoor fan motor stop running. Indoor fan runs at set fan speed.

◆ When Tset-1℃< Tamb < Tset +1℃, keep the previous running mode.

◆ In COOL mode, temp. setting range is 16℃～30 ℃.



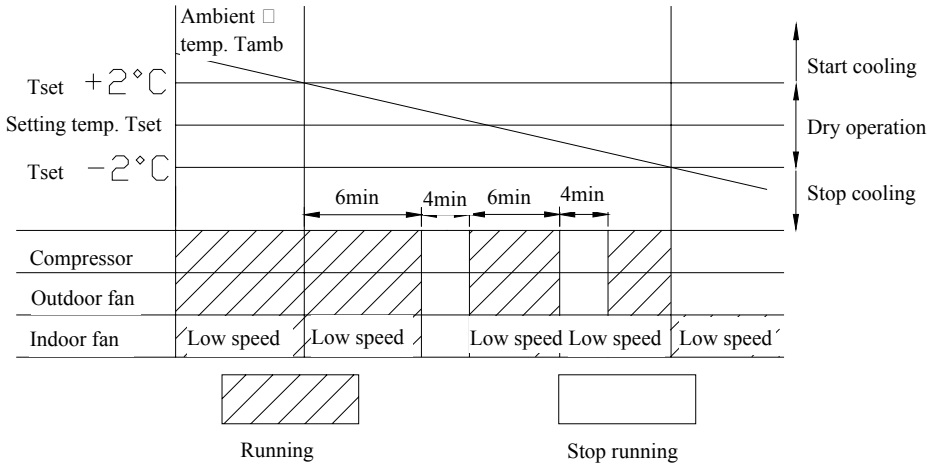
7.2.2 DRY Mode

◆ When Tamb＞Tset+2℃, enter into COOL mode, the compressor, outdoor fan motor run, indoor fan motor runs at setting low fan speed.

◆ When Tset-2℃≤Tamb≤Tset+2℃, compressor, outdoor fan motor run 6min, stop for 4min, that goes round and round, indoor fan motor runs at low fan speed.

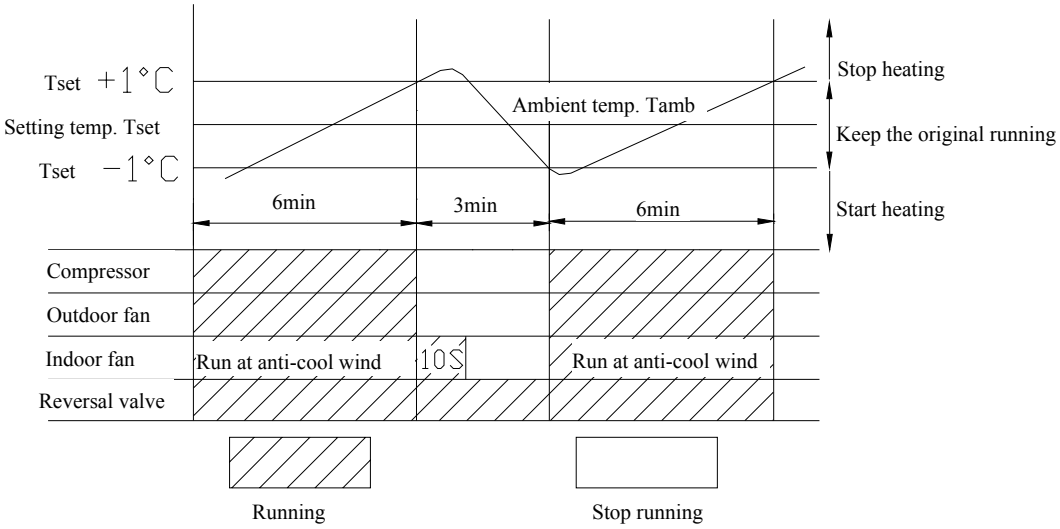
◆ When Tamb ＜Tset-2℃,the compressor and outdoor fan motor stop running, indoor fan motor runs at low fan speed.

◆ In DRY mode, temp. setting range is 16℃～30℃



7.2.3 HEAT Mode

- When Tamb≤Tset-1℃,enter into HEAT mode, reversing valve, compressor, outdoor fan motor start to work, indoor fan motor runs at setting fan speed and anti-cool wind.
- When Tamb≥ Tset +1℃,compressor, outdoor fan motor stop running, reversing valve is powered on, indoor fan motor runs at low speed and after blowing for 10s later, it will stop.
- When Tset-1℃＜Tamb＜Tset+1℃ it will keep the original status.
- In HEAT mode, the temp. setting range is 16℃～30℃.
- In HEAT mode, the unit is turned off or swtich to othermode, after compressor stopped for 2min, the 4-way valve is powered off.

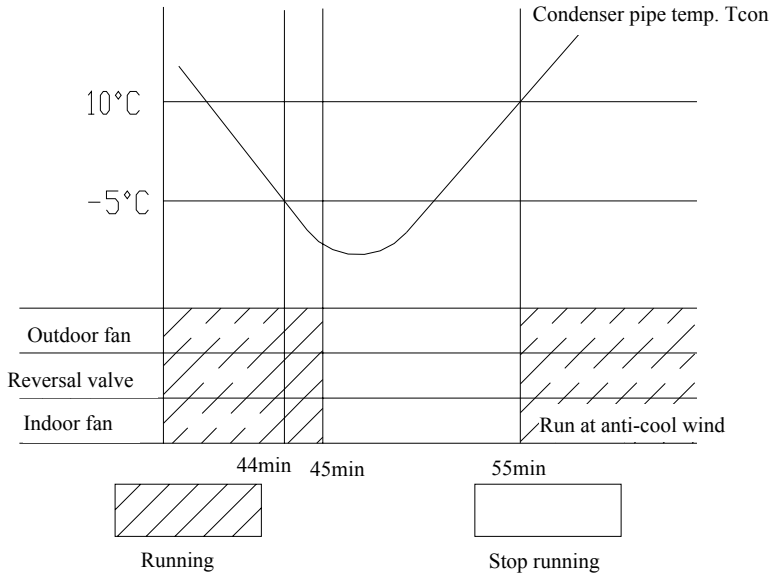


7.2.3.1 The conditions and processes of heating

- When compressor starts HEAT running, indoor fan motor does not run, 3min later indoor fan motor runs at the setting speed.

7.2.3.2 The defrosting working conditions:

- When continuously heating operation for 44 minutes, continuously 1min detected Tcondensor ≤-5℃, defrost operation starts up, reversing valve, indoor and outdoor fan motor stop running.
- When defrost operation start running for 10min or Tcondenser≥10℃,defrosting operation complete, reversing valve, outdoor fan motor start to run at the same time, indoor fan motor runs at anti-cool wind.



7.2.4 FAN mode

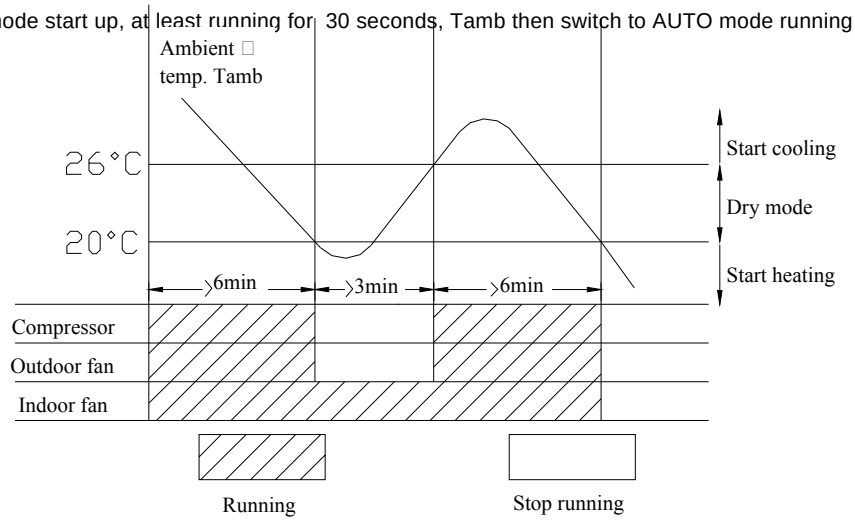
Indoor fan motor runs at setting fan speed:

AUTO → LOW → MED → HIGH →

- Temp. setting range is 16℃～30℃.

7.2.5 Auto mode

- When Tamb＞26℃, it runs at cool mode, indoor setting temp. is 25℃.
- When 20℃≤Tamb≤26℃, it will run in DRY mode, the inner setting temp. is 24℃.
- When Tamb＜20℃, it will run in HEAT mode, inner setting temp. is 20℃, Tamp≥24℃,quit HEAT mode.
- If it is cooling only type unit, when Tamb＜20 ℃ , it will run in FAN mode, inner setting temp. is 24℃.
- When each mode start up, at least running for 30 seconds, Tamb then switch to AUTO mode running status.

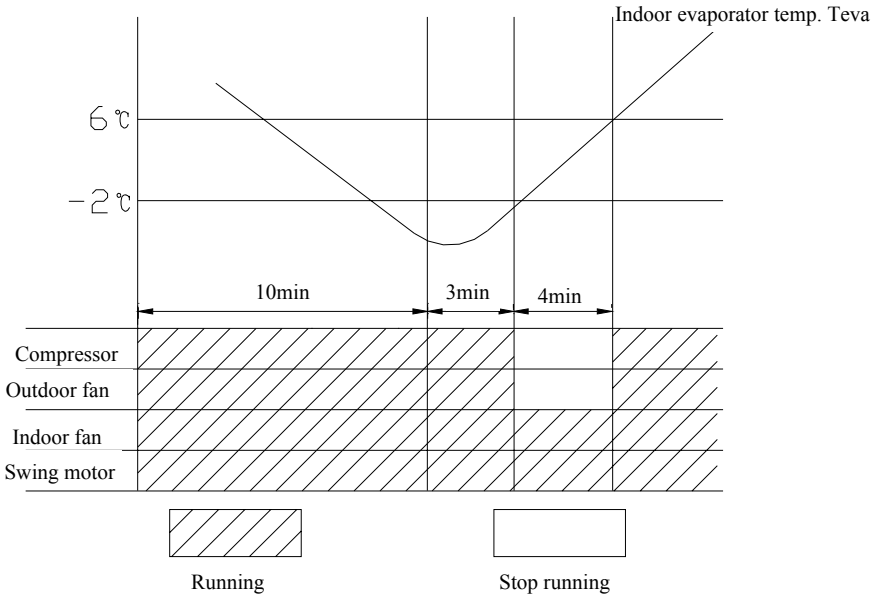


7.3 Protection Functions

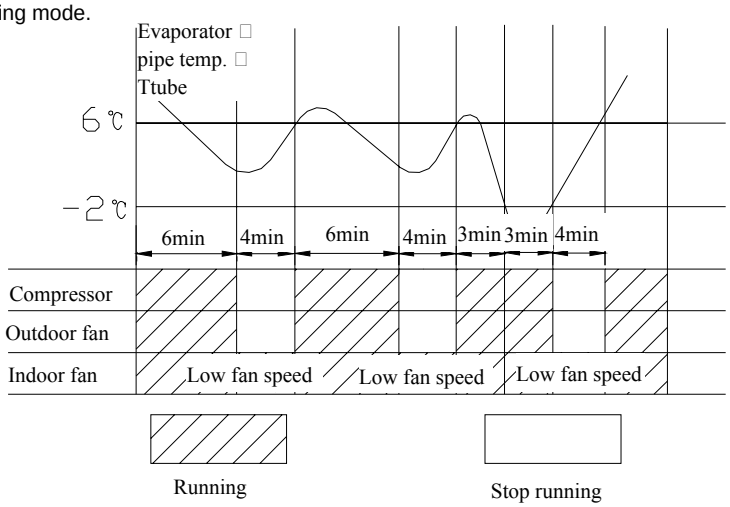
7.3.1 Indoor antifreezing Protection

● When in COOL mode, compressor started up 10min, when continuously 3min detected Teva＜-2℃, it shows E2, compressor stops running, outdoor and indoor fan motor, swing motor keep original running; when Teva＞6℃, compressor has stopped 4min,

it will come back to display, controller runs at setting mode.



- In DRY mode, starts running 6minutes, stop running 4minutes, after the compressor running for 3min, if 3min continuously detected Ttube＜-2℃, compressor stop running, outdoor, indoor fan motor run at low fan speed, it displays E2. When Ttube＞6℃, and compressor had stopped 4min, it come back to display, controller runs at setting mode.



7.3.2 Compressor high pressure protection

- When detected high pressure protection, E1 will be displayed.
- When detected the compressor high pressure protection is released, E1 still display, that need to press ON/OFF button to clean E1 displaying, and repress ON/OFF button to resume to run.

7.3.3 Compressor low pressure protection

- ◆ When detected the low pressure switch tripped off, the unit will stop, after 3min it will resume to work automatically; If E3 displayed, that can not resume automatically, so need to press ON/OFF button to turn off the unit, and repress ON/OFF button for resuming.
- ◆ When compressor stopped, detected low pressure switch tripped off, the unit stop, and E3 displayed, that cannot resume automatically, need to press ON/OFF to turn off the unit, then repress ON/OFF button can resume to work.

7.3. 4 Air exhaust pipe high temperature protection

- ◆ After compressor started up, when detected delivery temp. is too high or air exhaust sensor is short circuit (or open circuit), according to indoor ambient temp. if achieved the setting temp. the unit will stop.
- ◆ After compressor stopped for 3min, when delivery temp. is get right, unit resume to run.

◆ If the above phenomenons existed, the unit cannot resume to run, E4 will be display. Press ON/OFF button to turn off the unit, repress ON/OFF button return to run at the original running mode.

7.3.5 Indoor ultra high temperature protection

● In HEAT mode, when detected the evaporator tube temp. is too high, outdoor fan motor stop running; when evaporator tube temp. get right, outdoor fan motor start up.

7.3.6 Low voltage protection

● Compressor is turned on, if the current had been detected exceed 22A, the room ambient temp. achieved the setting temp., the unit will stop. When compressor had stopped 3min, it will automatically return to the original setting mode. When displaying E5, can not automatically return to the original running mode, that need to press ON/OFF button to turn off the unit, then repress the ON/OFF button to resume to work.

7.3.7 Error codes

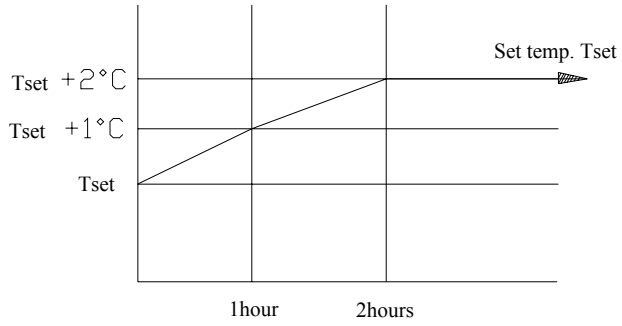
E1: Compressor high pressure protection E2: Indoor anti-freezing protection E3: Compressor low pressure protection

E4: Air exhaust pipe high temp. protection E5: Low pressure protection

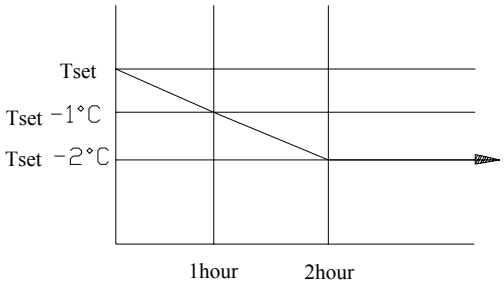
7.4、Functions of Sleep and Timer:

7.4.1 Sleep

◆ If controller is in COOL mode or DRY mode, after SLEEP operation run for 1hour, the presetting Tset will be increased 1 ℃, 2hours later, it will be increased 1℃, it has been decreased 2℃within 2hours in all, then it runs at the setting temp.



◆ If controller is in HEAT mode, after SLEEP operation run for 1hour, the presetting Tset will be decreased 1℃, 2 hours later it will be decreased 1℃, it has been decreased 2 ℃ within 2hours in all, then it runs at the setting temp.



◆ There is no SLEEP function in FAN mode and AUTO mode.

7.4.2 Timer on

◆ At powered on, the timer on could be set, when the time arrived, the controller runs at the original setting mode, the time interval is 0.5h, setting range is 0.5-24h.

7.4.3 Timer off

◆ At operating, the timer off could be set, if the time arrived, the unit will turned off, the time interval is 0.5h, setting range is 0.5-24h.

7.5 Other control

7.5.1 SWING Control

◆ Use SWING button to start or stop the control, only when indoor fan motor is running the SWING operation is available.

7.5.2 The buzzer control

◆ When controller is powered on or received the signals, the buzzer will sound.

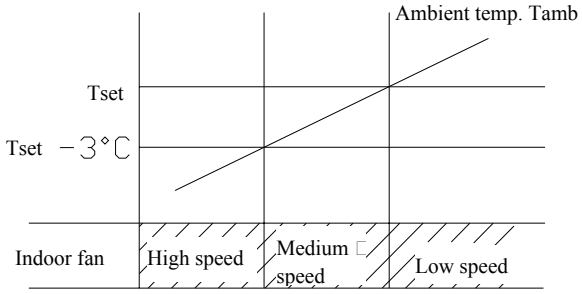
7.5.3 The auto fan speed control of the fan motor

In HEAT mode:

If Tamb≥ Tset, is low speed

If Tset-3℃≤ Tamb< Tset, is medium speed

If Tamb< Tset-3℃, is high speed

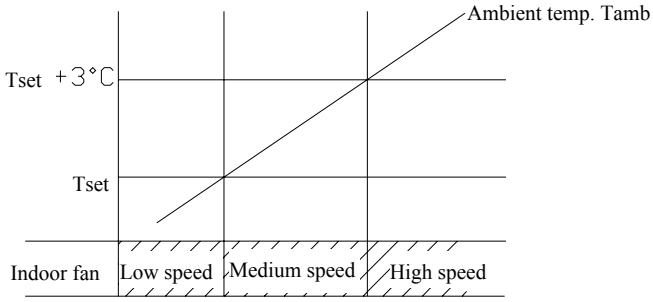


In COOL mode:

If Tamb≤Tset, that is low speed

If Tset< Tamb≤ Tset+3℃, is medium speed

If Tamb>Tset+3℃, is high speed



In FAN mode:

The auto fan speed is as the same as the cool mode.

7.6 Indicators:

◆ When power suply indicator is powered on, it will light, when powered off, it will extinguish. When it is indoor anti-freezing protection, compressor high pressure protection, low pressure protection as well as defrosting operations, the indicator flash.

◆ The COOL indicator is lighting in COOL mode, DRY mode, Auto COOL, Auto DRY, in the other modes will extinguish.

◆ The HEAT indicator is lighting in HEAT mode, and Auto HEAT mode, it will extinguish in other modes.

7.7 Memory function:

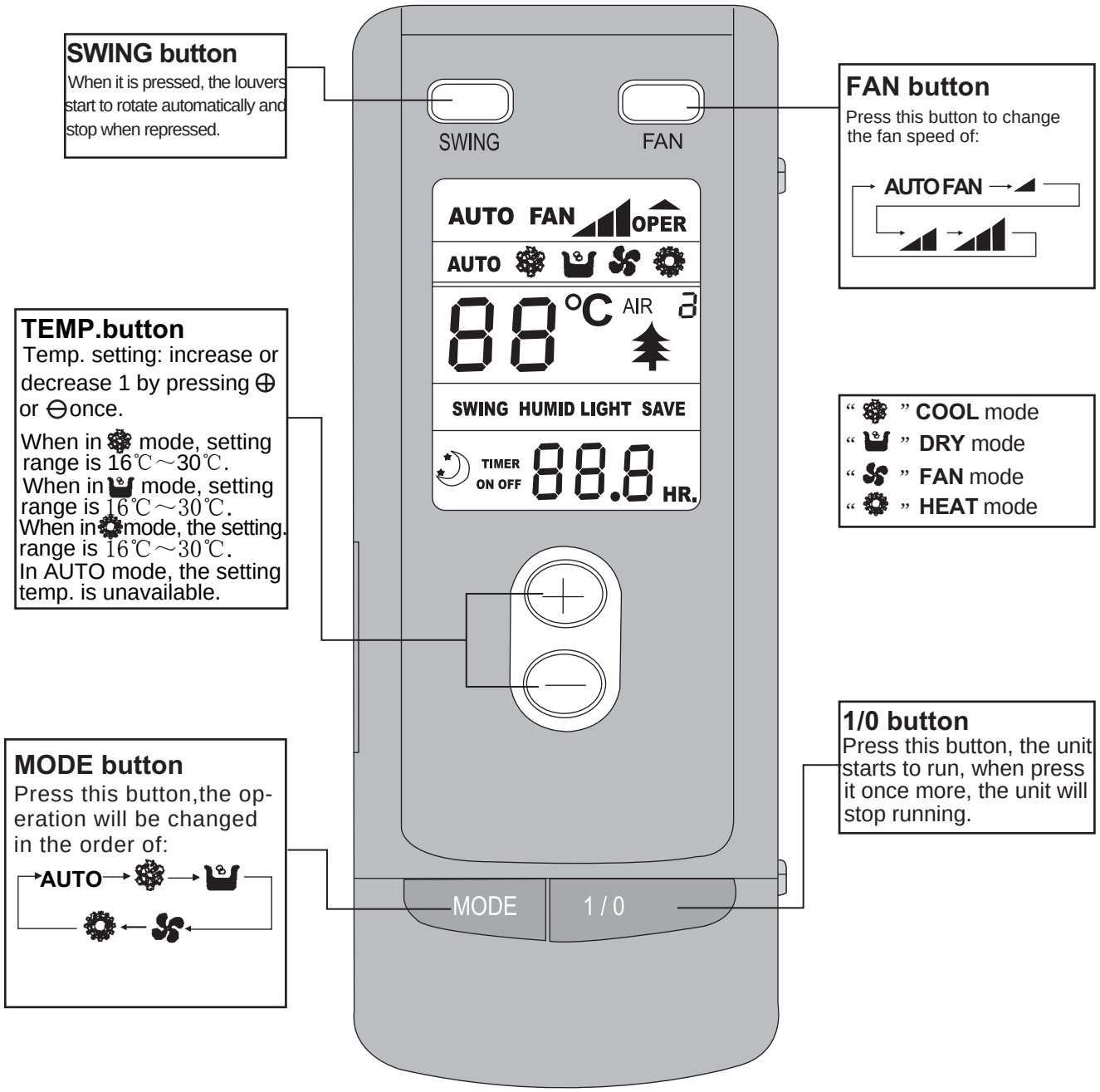
◆ Memory contents: when MODE, SWING, TEMP. Setting, FAN Setting, TIMER Setting (When the time hasn't arrived, and it powered off, the time will be recalculated; if the time had arrived and it is powered off, when powered on, it will run at the mode which is the time arrived.)

◆ After powered off, when powered on, the unit can automatically start up and run at the memory contents.

7.8 Names and functions of wireless remote control

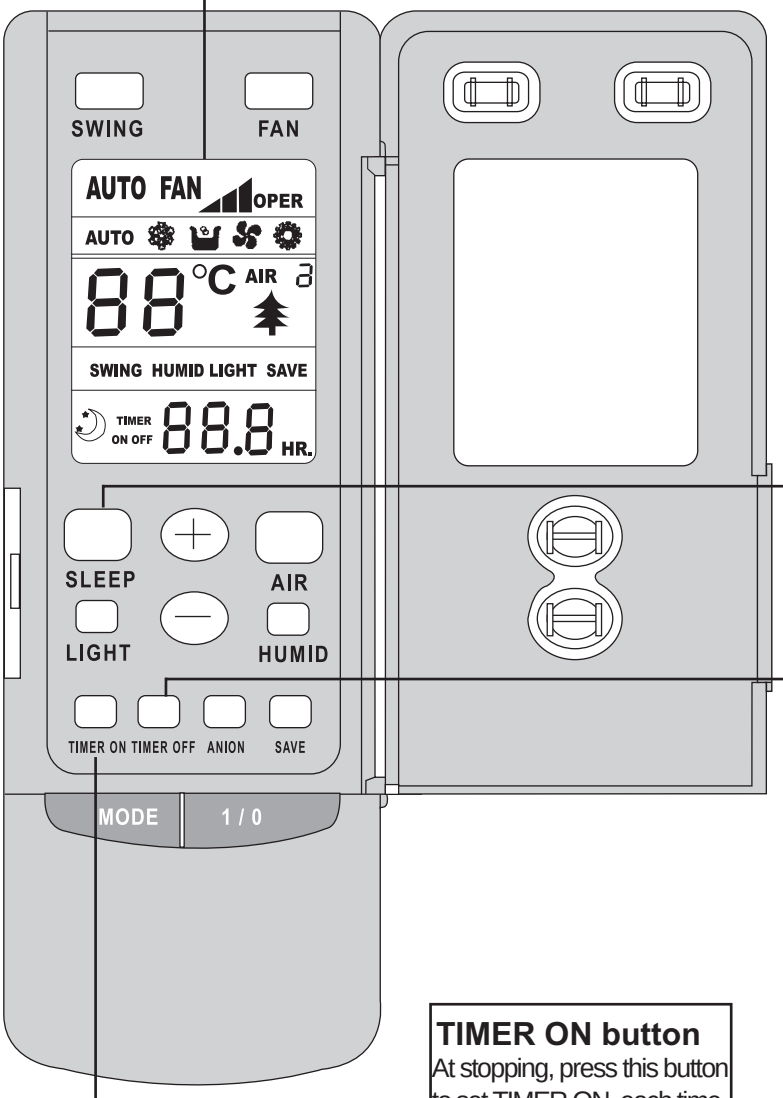
Note:

- Be sure that there are no obstructions between receiver and wireless remote control.
- The wireless remote control could receive the signal within 10 meters.
- 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.



7.9 Names and functions of wireless remote control(Remove the cover)

Note: **This type of wireless remote control is a kind of new current control. Some buttons of the control which are not available to this air conditioner will not be described below.**



Liquid crystal displayer
It shows all set contents.

SLEEP button
Press this button to set SLEEP operation and stop when repressed.

TIMER OFF button
At stopping, press this button to set TIMER OFF, each time to press it , the time will be increased 0.5h.
It circulates as below:

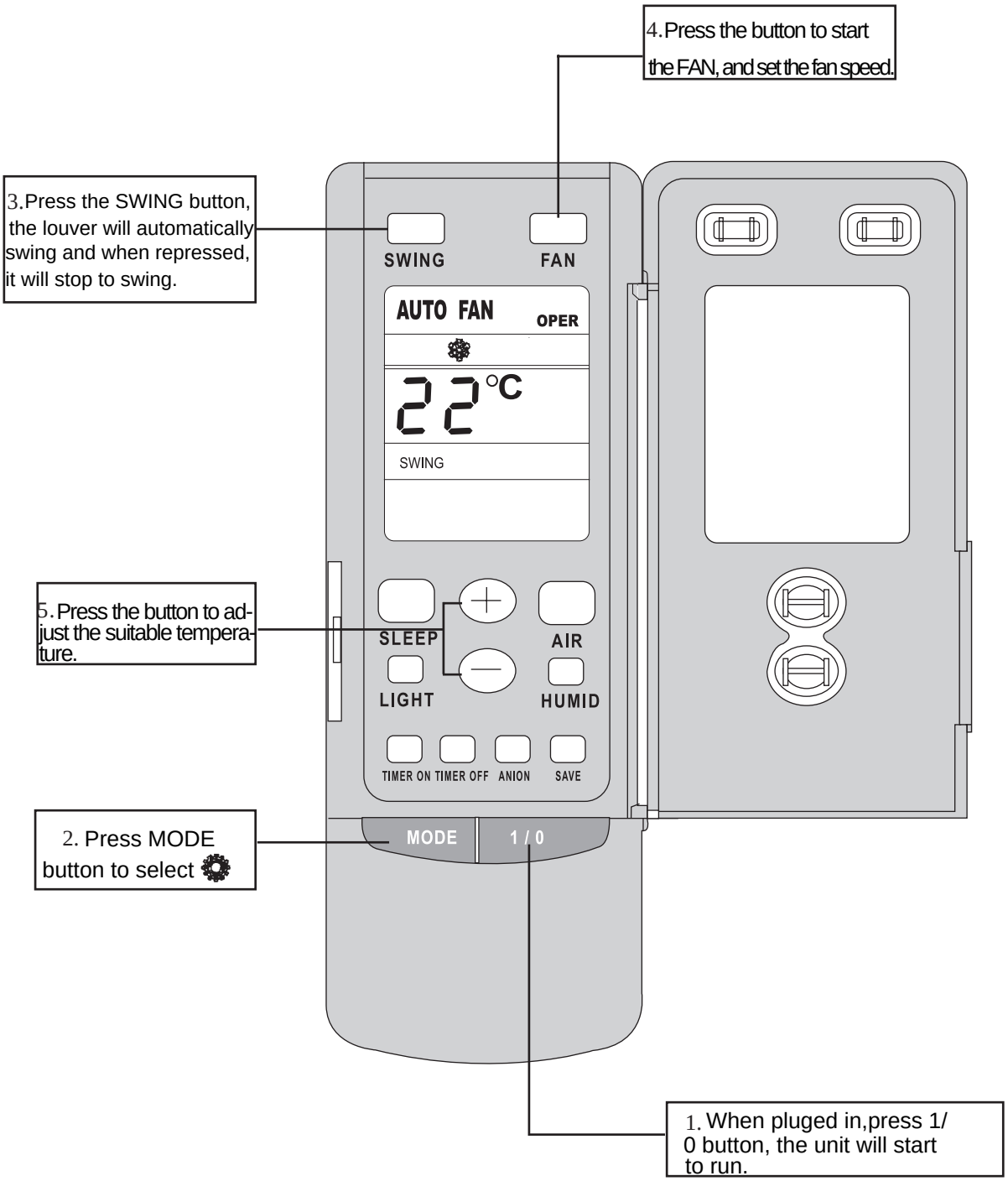
0 → 24h → Cancel

TIMER ON button
At stopping, press this button to set TIMER ON, each time to press it, the time will be increased 0.5h.
It circulates as below:

0 → 24h → Cancel

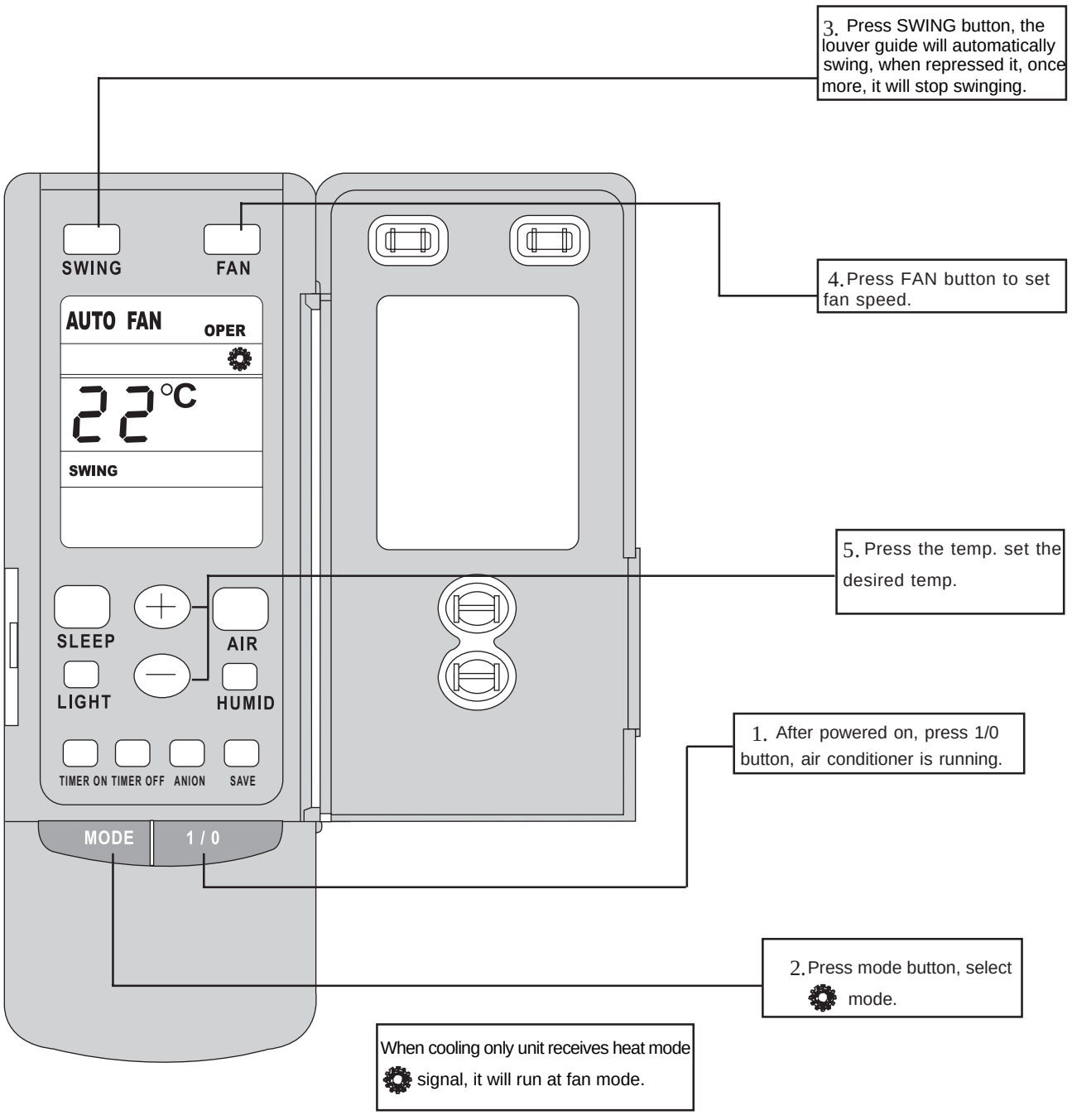
7.10 COOL mode operation

- **Microcomputer will accord to the room sensor detected the temp. and setting temp. differences to start the cool operation or not.**
- **The room sensor detected temp. is higher than setting temp., the cool mode operate.**
- **The room sensor detected temp. is lower than setting temp., indoor fan motor will stop running, water valve will be turned off, cool operation will stop.**
- **Temp. setting range is 16℃ ～30℃.**



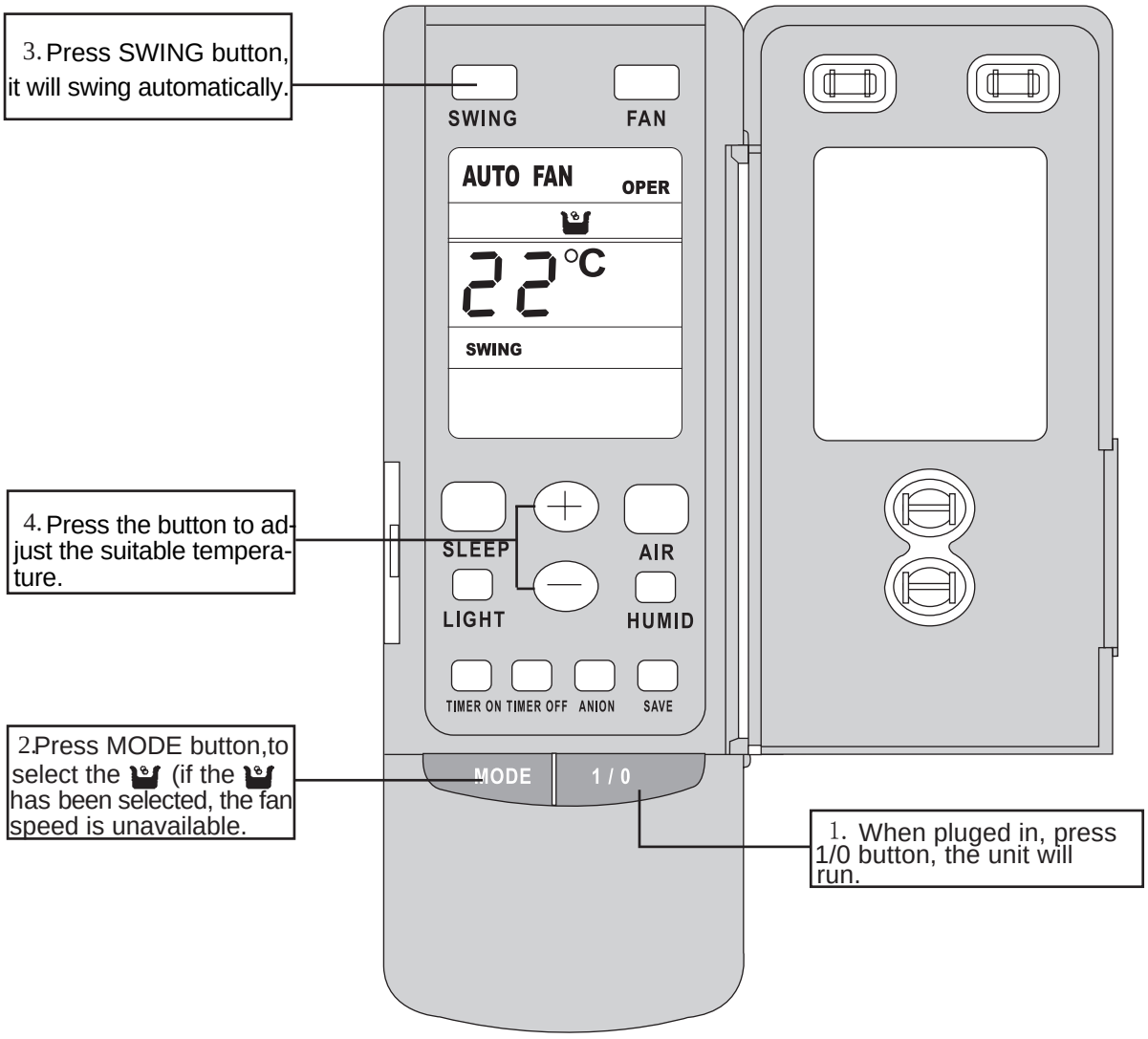
7.11 HEAT mode operation

- **When room sensor detected temp. is lower than setting temp., heat mode start running.**
- **When room sensor detected temp. is higher than setting temp., indoor fan motor stop running, water valve is turned off, heat operation is stopped.**
- **The setting range is 16℃ ~ 30℃。**



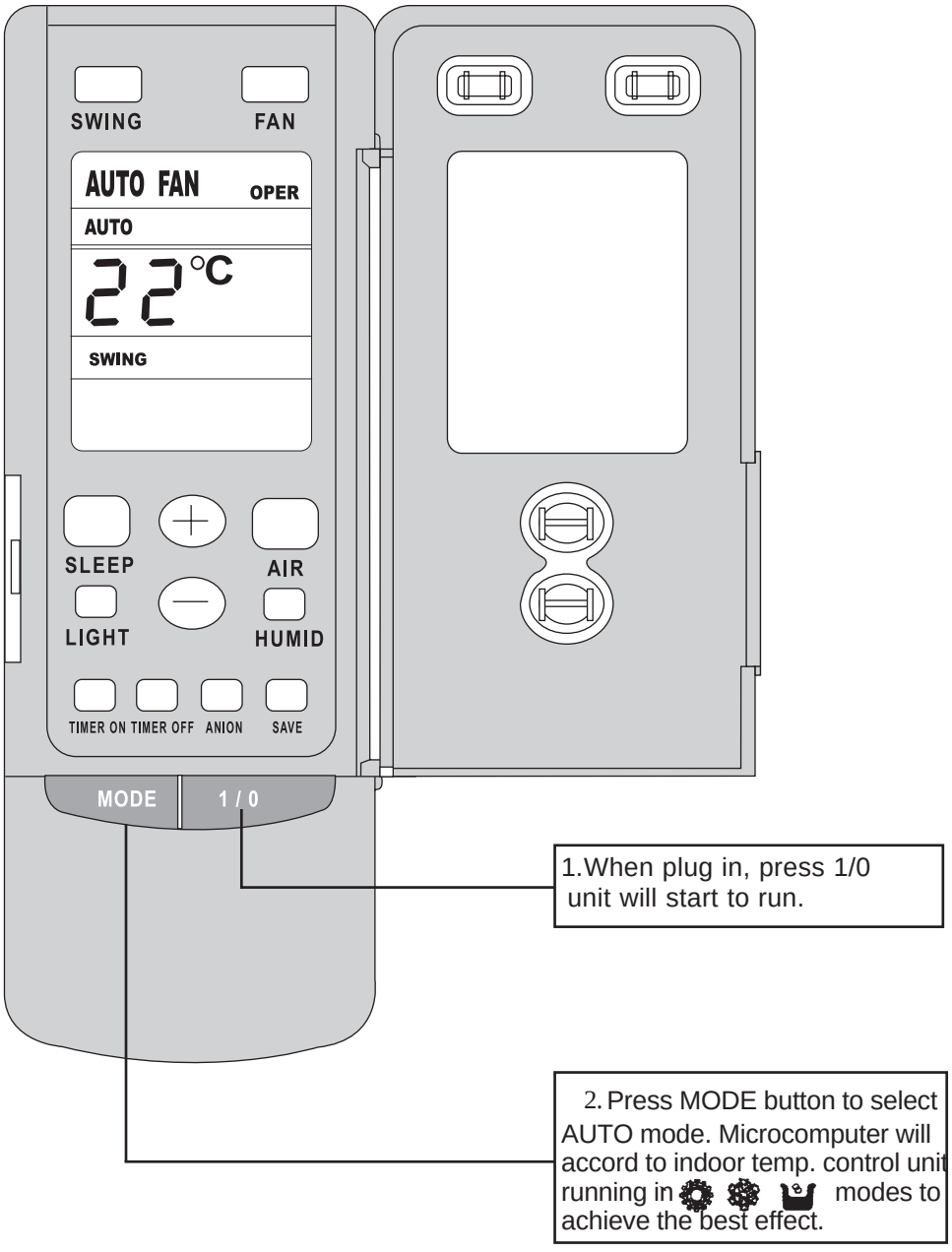
7.12 DRY mode operation

- **When room sensor detected the temp. is lower than setting temp. 2℃ or more, the water valve, indoor fan motor stop running.**
  When room sensor detected the temp. is between the ± 2℃ of the setting temp. it will enter into dry mode operation, when room sensor detected the temp. is higher than the setting temp.2℃ or more, it will enter into cool mode operation. The indoor fan motor runs at low fan speed.
- **In this mode, the setting temp. range is 16℃~30℃。**

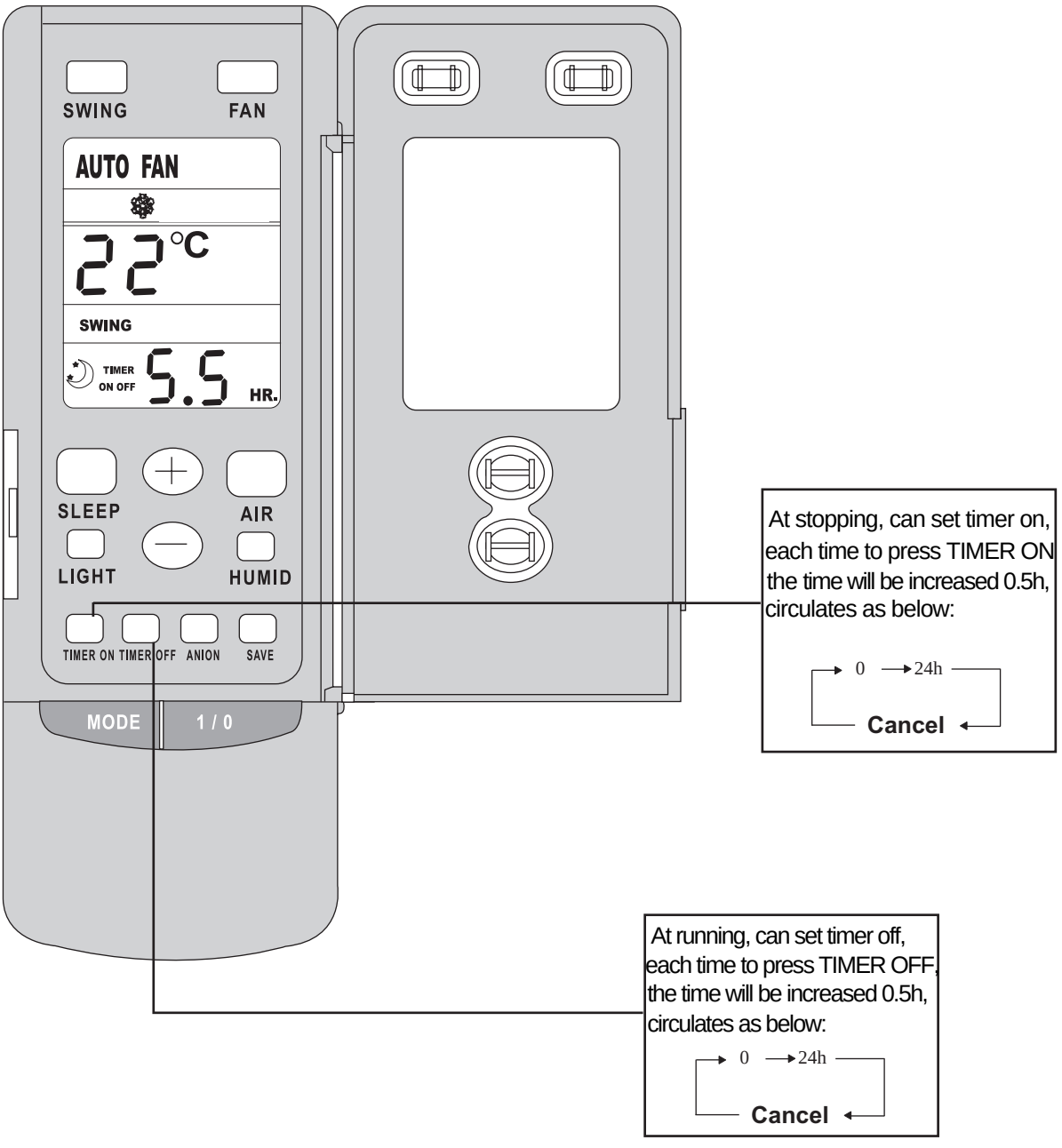


7.13 AUTO mode operation

- In AUTO mode, the standard cooling setting temp. is 25℃, the standard heating setting temp. is 20℃ .

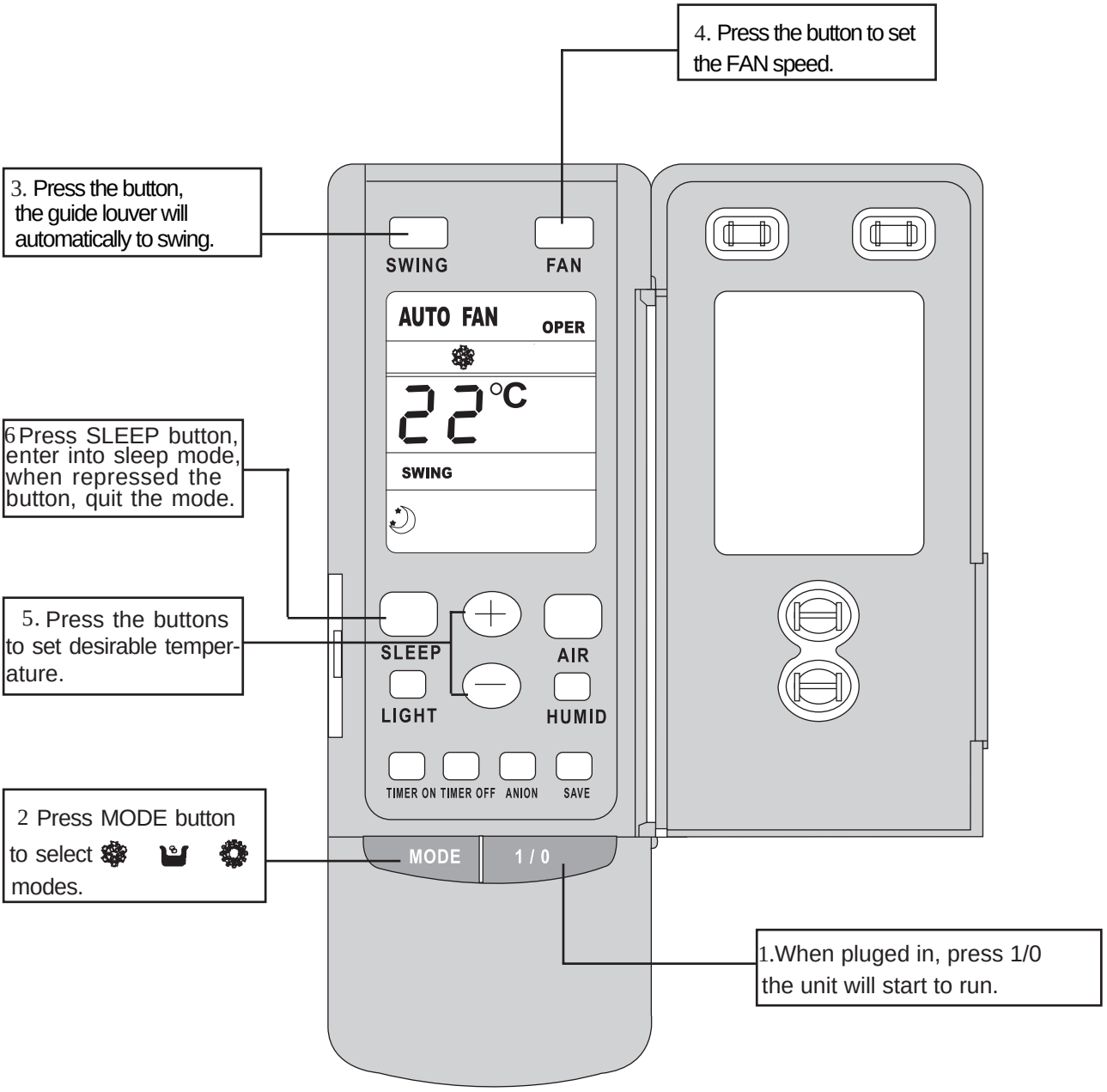


7.14 TIMER operation mode



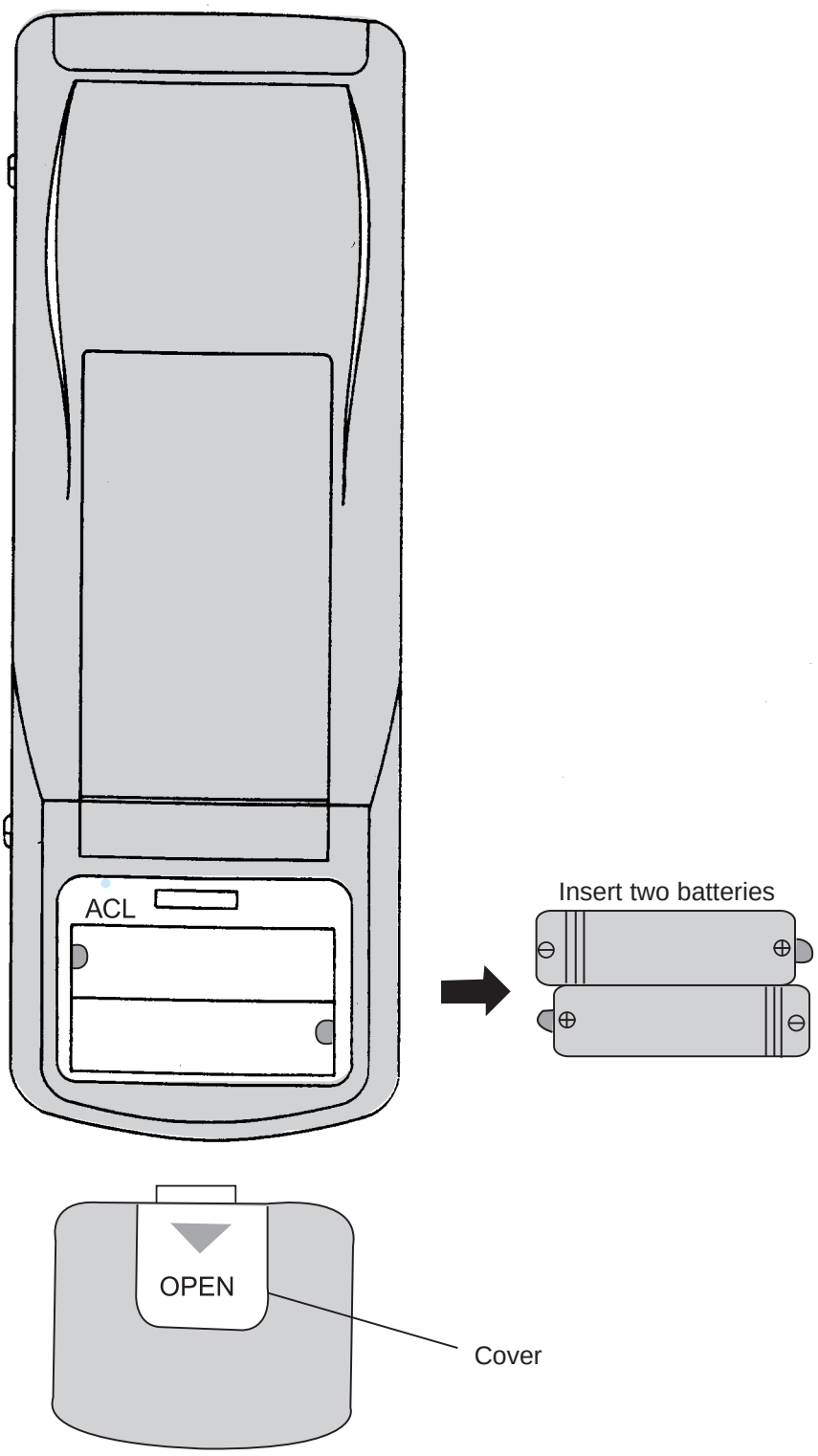
7.15 SLEEP mode operation

- **In cool and dry modes, set the sleep operation and run for 1 hour later, the setting temp. will be increased 1℃, 2hours later, the setting temp. will be increased 2℃ , then it runs at the setting temp.**
- **In heat mode, set the sleep operation and run for 1hour later,the setting temp. will be decreased 1℃, 2hours later, the setting temp. will be decreased 2℃ , then it runs at the setting temp.**



7.16 Guide for operation

1. Remove the cover from the back, take out the old batteries.
2. Insert two batteries. (pay attention to the Polarity)
3. Re-attach the cover.



NOTE:

- Never mix new and used or different types of two batteries to insert.
- Take out the batteries,when the wireless remote control is not in use, to avoid the the liquid damage it.
- The operation range should be in 10m or above.
- The lifespan of the battery is about 1 year.
- The wireless remote control should be placed about 1m or more away from TV or any other electric appliances.
- Never use the old batteries.

8-1. Disassembly procedures for indoor unit

Dissassembly Procedures/Photoes

1. Remove the front grill assy

To remove the clasps of the front grill assy by tools downward, until the front grill is opened.

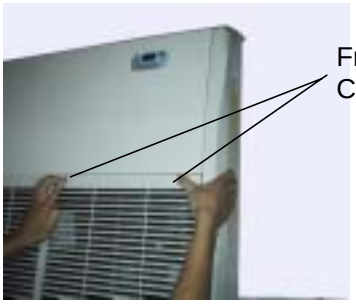


Fig.8-1

2. Disassemble the left, right decoration plates

Disassemble the bolts of the photo by screwdriver, then take out the left, right decoration plates along the direction of arrow.

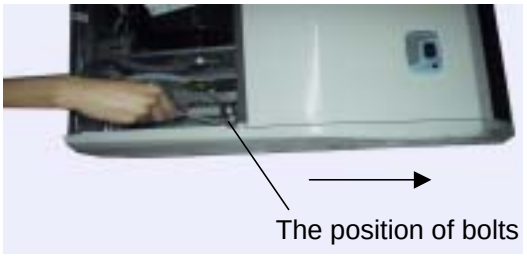


Fig. 8-2

3. Disassemble electric box assy

a. Screw off 2pcs bolts with screwdriver as shown in Fig.8-3, and take off the electric box cover;

b. Screw off the bolts of Fig.8-4 with screwdriver, take off capacitor fixing plate, and disassemble the wires;

c. Screw off the bolts of Fig.8-5 with screwdriver, take out the electric box assy, and disassemble the wires.

Fig.8-3

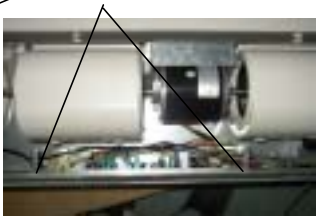


Fig.8-4

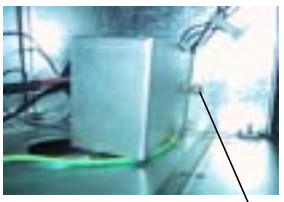


Fig.8-5

Fig.8-6

4. Remove the front panel assy

Use screwdriver to screw off 7pcs bolt as shown in the fig. then along the indicated direction can take off the front panel assy.

Fig. 8-7

Dissassembly Procedures/ Photoes

5. Disassemble the guide louver assy

Take out the guide louver from the guide louver holder, then take out the both ends from the swing motor.

Fig. 8-8

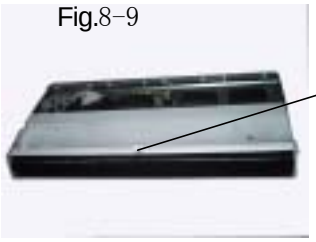
Assorted position of guide louver and guide louver holder

6. Disassemble the water-tray assy

To screw off 3pcs bolts in the photoes can disassemble the water-tray assy.

Fig.8-9

Fig.8-10



3pcs bolt

Fig.8-11

7. Disassemble swing louver and holder assy

Firstly to screw off 2pcs bolts at two ends of the swing louver holder assy by screw-driver, then take out the swing louver holder assy from the guide louver holder by hands.

Fig.8-12

Fig. 8-13

Bolts

8. Disassemble evaporator assy

a. Screw off 2pcs bolt as shown in Fig.8-14 with screwdriver, then take out the evaporator outlet pipe block assy;
b. Screw off the bolts as shown in Fig.8-15 and Fig.8-16, take off the evaporator assy, please handle with care.

Fig. 8-14

Bolts

Fig. 8-15

Bolts

Fig.8-16

Dissassembly Procedures/ Photoes

9. Disassemble the air outlet rear side plate assy

a Firstly to remove the velveteen and the left and right sides ' of liners;

b To screw off the bolts as shown in the Fig. with screwdriver.

Fig.8-17

Fig.8-18

Bolts

10. Disassemble the left, right decoration plates assy of the swing motor

To screw off the bolts with screwdriver as shown in the fig.

Bolts

Fig. 8-19

Bolts

Fig. 8-20

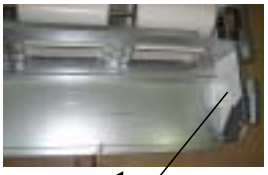
11. Disassemble the left, right sides plates foam sub-assy

According to the direction,

to take out the left, right sides plates foam sub-assy.

Right side plate foam sub-assy

Fig.8-21



Left side plate foam sub-assy

Fig.8-22

12. Disassemble motor assy

a. Pressing the clasp position where assorted with front, rear propeller housing(Fig.8-23), then lift up can take out the front propeller housing;

b. Holding the clasp position of rear propeller housing (Fig.8-24) and lift it up, can take out the rear propeller housing;

c. Then to loose the fixing bolts on the clutch with special tools(Fig.8-25), then move the clutch toward the louver, until can take out the clutch and rotating axial assy;

d. To screw off the fixing screw on the louver with special tool, and take out the louvers;

Fig. 8-23

Clasp position

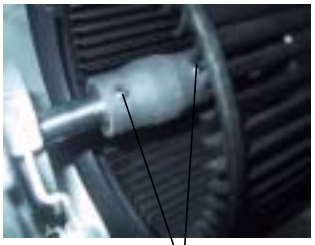


Fig.8-25

Fixing screw

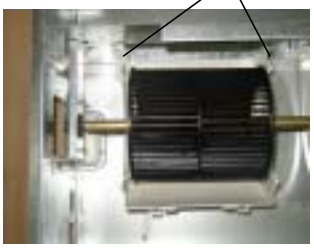


Fig. 8-24

Dissassembly Procedures/ Photoes

13. Disassemble the bearing mounting plate

To screw off 4pcs bolt in the fig. with screwdriver.

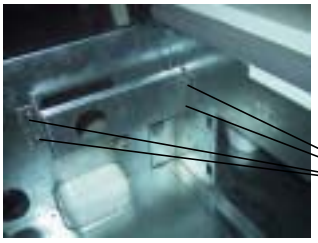


Fig. 8-26

Bolt

14. Disassemble the motor

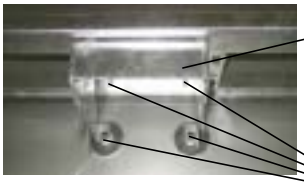
To loose the bolts in the fig with screwdriver, can take out the motor clamp and motor fixing hoop.

Fig. 8-27

Bolt

15. Disassemble the motor holder sub-assy

To screw off the bolts in the fig. with screwdriver, so that can take off the motor holder sub-assy.



Motor holder sub-assy

Fig. 8-28

Tapping screw

16. Disassemble the motor holder, supporting plate

Using the screwdriver to screw off the bolts in the motor holder, rear side plate assy and supporting plate.

Fig. 8-29

Fig. 8-30

Tapping screw

17. Disassemble the left and right plates

Using the tool to take off the bolts which are fixing the left and right plates.(There are 2pcs M8 bolt and 2pcs M6b bolt)

Fig. 8-31

Fig. 8-32

Right holder plate

Bolts(4pcs)

Left holder plate

18. Disassemble the motor support sub-assy

a. Using the screwdriver to take out the bolts in the figure;

b. Using the tool to take out the bolts in the fig, can take off the motor support sub-assy.

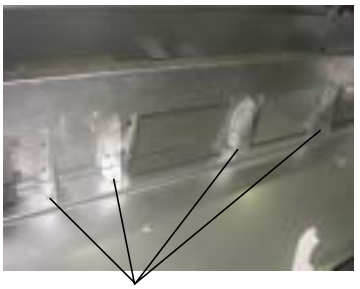
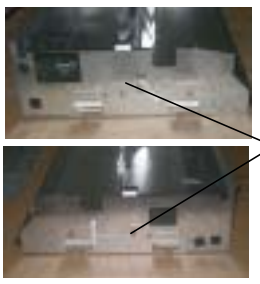


Fig. 8-33

Tapping screw



Bolts

Fig. 8-34

8-2. The disassembly procedures for outdoor unit

The disassembly procedures for outdoor unit

1. Disassemble the top cover

To screw off the bolts around the top cover then lift it upward can take off the top cover. As shown in Fig.

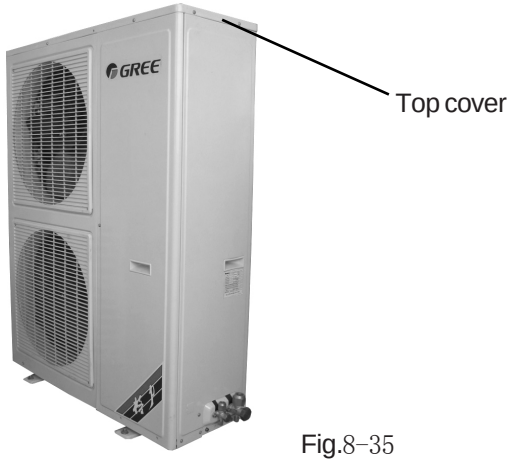


Fig.8-35

2. Disassemble the front side plate

To screw off the bolts around the top cover then downward it can take off the front side plate. As shown in the Fig.

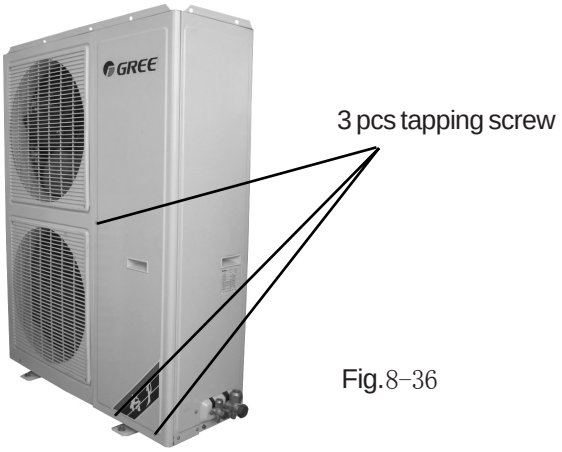


Fig.8-36

3. Disassemble the cabinet

To screw off 8pcs tapping screw which are fixing the cabinet, can take off the cabinet.

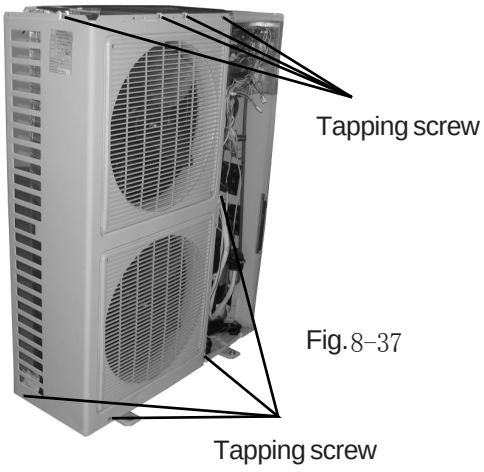


Fig.8-37

Dissassembly Procedures/ Photoes

4. Disassemble the electrical appliances mounting plate

Disassemble 3pcs bolt which are fixing the electric mounting plate, pull out the lead wire insert of the compressor and fan motor, take out the electrical appliances mounting plate..

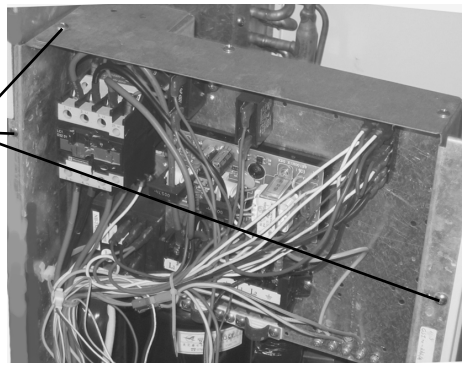


Fig. 8-38

5. Disassemble the rear side plate assy

Screw off 5pcs bolt of the rear side plate and 2pcs bolt of the rear grill, can disassemble the rear side plate assy. As shown in Fig.

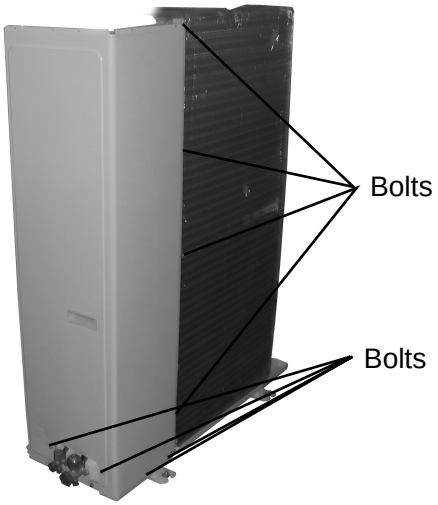


Fig. 8-39

6. Disassemble the gas valve and liquid valve

To screw off 2pcs bolt which fix the gas valve, then unsolder the gas valve.(Note: When unsolding the solder point, need to wrap the gas valve entirely with wet cloth, avoid the valve be damaged by high temperature), to screw off 2pcs bolt of the liquid valve, and unsolder the solder point of liquid valve and fork pipe, and take off the liquid valve.

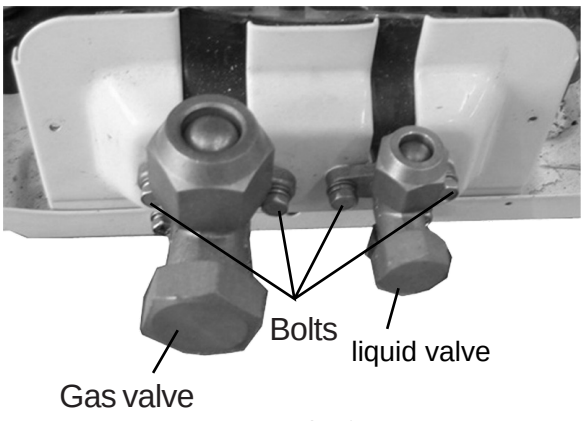


Fig.8-40

Dissassembly Procedures/ Photoes

7. Disassemble the fan blade of outdoor unit

To screw off the laeotropic nut, can take off the fan blade.

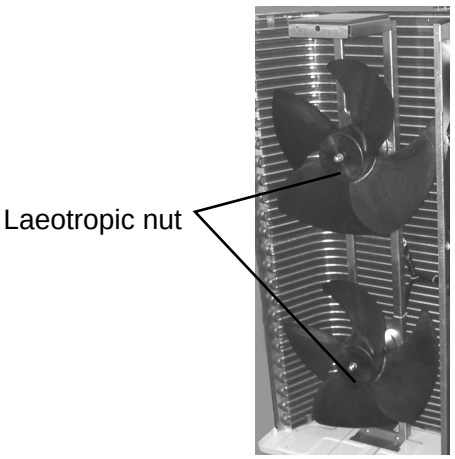


Fig.8-41

8. Disassemble the outdoor unit motor

To screw off the fixing bolt of motor and motor support, and pull out the connection wire of the motor, can take off the motor.

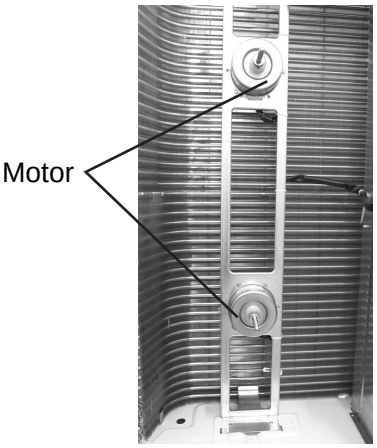


Fig. 8-42

9. Disassemble four-way valve (only the cooling and heating unit has)

Unsolder 4pcs solder point of 4-way valve, disassemble the connection wire of 4-way valve wire loop, then can disassemble the 4-way valve. As shown in Fig.

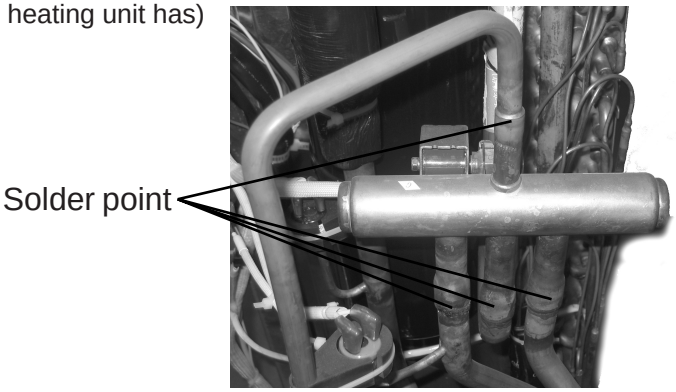


Fig. 8-43

10. Disassemble the capillary

Unsolder the solder point of the capillary, valve gate and condenser gate, then can disassemble the capillary, make sure that do not let any welding dregs to block the capillary. As shown in right fig.

Fig.8-44

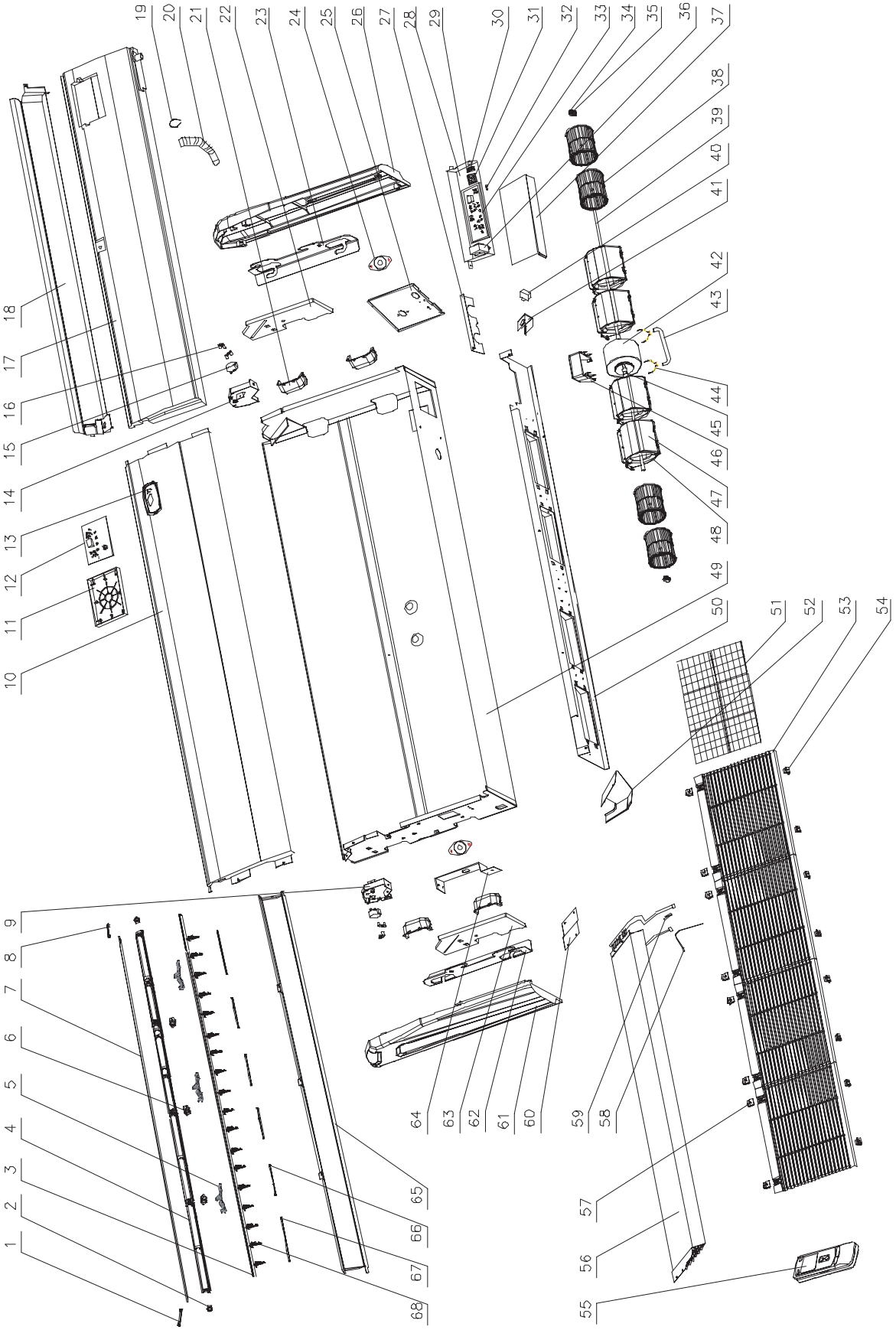
11. **Disassemble the compressor**

Firstly to disassemble the relative pipelines of compressor, then to disassemble 4pcs bottom bolt of comjpressor, can disassemble the compressor.

Fig.8-45

9. Explosive view and spare parts lists

9.1 For KF(R)-120DW/NA134005 Explosive view of indoor unit spare parts



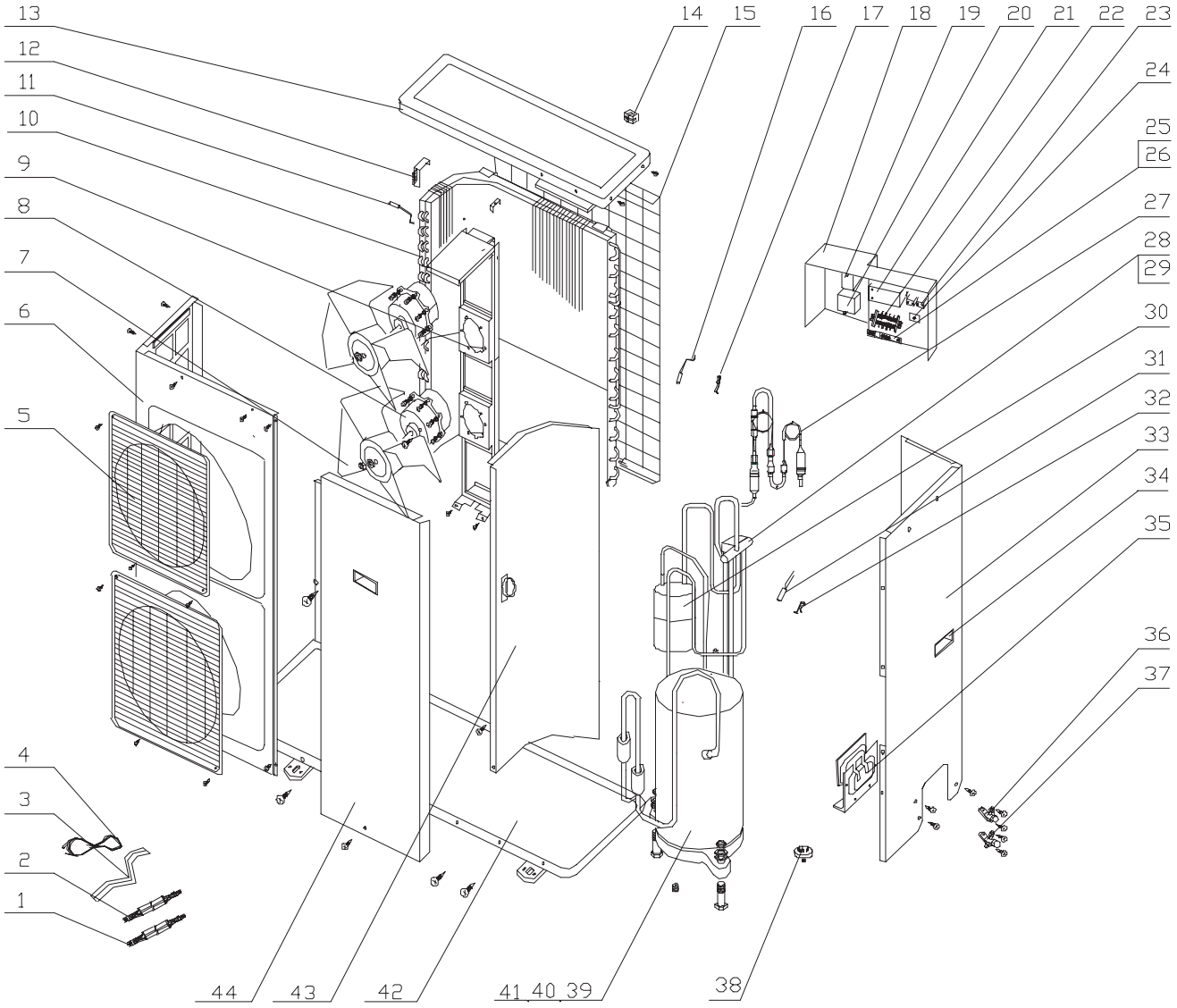
9.2 Spare parts lists of indoor unit

No	Description		Part Code		Qty
			KFR-120D/NA1-34005	KF-120D/NA1-34005	
1	Left Decoration Plate	导板挤塑条左装饰板	26112415	26112415	1
2	Shaft of Louver I	导风板转轴I	10512025	10512025	2
3	Swing Louver Fixer	扫风叶片安装板	01332409	01332409	1
4	Louver Support	导风板支架	24212019	24212019	4
5	Louver Fixer	导风板固定架	24212018	24212018	3
6	Shaft of Louver II	导风板转轴II	10512026	10512026	3
7	Louver	导风板	10512408	10512408	1
8	Right Decoration Plate	导板挤塑条右装饰板	26112416	26112416	1
9	Left Swing Motor Fixer	扫风电机左安装板	26152005	26152005	1
10	Front Panel	面板组件	01532413	01532413	1
11	Display Box	电路板安装盒	20102138	20102138	1
12	Display Board	显示板6152AJ/6151AJ	30546104	30546103	1
13	Buttons Panel	按键面板组件	201620041	201620041	1
14	Right Swing Motor Fixer	扫风电机右安装板	26152006	26152006	1
15	Step Motor MP35CA	步进电机(导风) MP35CA	15212402	15212402	1
16	Motor Clamp	扫风电机压板	26112026	26112026	2
17	Water Tray	接水盘组件	01272408	01272408	1
18	Auxiliary Water Tray	辅助接水盘	01272409	01272409	1
19	Pipe Clip	管箍	70812001	70812001	1
20	Drainage Pipe	排水管组件	05235433	05235433	1
21	Handle	提手	26232001	26232001	4
22	Foam of Right Side Plate	右侧板泡沫	12312402	12312402	1
23	Right Fixing Palte	右安装板	01332404	01332404	1
24	Support of Motor Bearing	电机轴承座	01792408	01792408	2
25	Fixer of Motor Support	电机支架支撑板	01792407	01792407	1
26	Right Decoration Panel	右装饰板	26112027	26112027	1
27	Pipe Clamp	蒸发器出管压板	01072425	01072425	1
28	Electric Box	电器盒组件	01403242	01403242	1
29	Wire Base	压线座	24253001	24253001	1
30	Wire Clamp	压线板	24253002	24253002	1
31	Terminal Board RS9413G	接线板RS9413G	42010178	42010178	1
32	Fuse 5A 250VAC	保险管5A 250VAC VDE	46010013	46010013	1
33	Main PCB	主板6152J/6151J	30036052	30036051	1
34	Ring of Bearing	轴承胶圈	76512404	76512404	2

No	Description		Part Code		Qty
			KFR-120D/NA1-34005	KF-120D/NA1-34005	
35	Fan Bearing	风扇轴承	76512210	76512210	2
36	Transformer SC28D	电源变压器 SC28D	43110194	43110194	1
37	Cover of Electric Box	电器盒盖	1413008	1413008	1
38	Centrifugal Fan	离心风叶	10319051	10319051	4
39	Rotary Axis	转动轴组件	73012402	73012402	2
40	Capacitor CBB61 5uF/450	电容 CBB61 5uF/450	33010064	33010064	1
41	Capacitor Fixer	电容固定板	01722405	01722405	1
42	Motor FN150A	电机FN150A	15012405	15012405	1
43	Motor Fixer	电机固定箍	01722410	01722410	1
44	Motor Clamp	电机压板	01702405	01702405	1
45	Axes Connector	联轴器	73012403	73012403	2
46	Motor Fixing Plate	电机安装板组件	01332425	01332425	1
47	Front Snail Shell	前蜗壳	22202030	22202030	4
48	Rear Snail Shell	后蜗壳	22202029	22202029	4
49	Rear Side Plate	后侧板部件	01302411	01302411	1
50	Motor Support	电机支架组件	01702411	01702411	1
51	Filter	过滤网	11122013	11122013	1
52	Water Lead Plate	引水板组件	01362407	01362407	1
53	Front Grill	面板格栅	22412010	22412010	4
54	Front Grill Clip 2	面板格栅卡扣2	26252003	26252003	4
55	Remote Controller Y512	遥控器Y512(GREE)	30512506	30512506	1
56	Evaporator Assy	蒸发器部件	01002406	01002406	1
57	Front Grill Clip 1	面板格栅卡扣1	26252002	26252002	4
58	Temp Sensor	感温包	390001215	390001215	1
59	Temp Sensor Insert	感温包插片B	42020063	42020063	1
60	Cover of Evaporator	蒸发器盖板	01072409	01072409	1
61	Left Decoration Panel	左装饰板	26112028	26112028	1
62	Left Fixing Plate	左安装板	01332405	01332405	1
63	Left Side Foam	左侧板泡沫	12312401	12312401	1
64	Bearing Fixing Plate	轴承安装板	01332406	01332406	1
65	Rear Side Plate of Air Outlet	出风口后侧板	01302416	01302416	1
66	Connecting Lever	扫风连杆	10582008	10582008	2
67	Connecting Lever	扫风连杆	10582009	10582009	4
68	Swing Louver	扫风叶片	10512027	10512027	26

The above data are subject to change without notice.

9.3 For KF(R)-120DW/NA134005 Explosive view of outdoor unit spare parts



9.4 Spare parts lists of outdoor unit

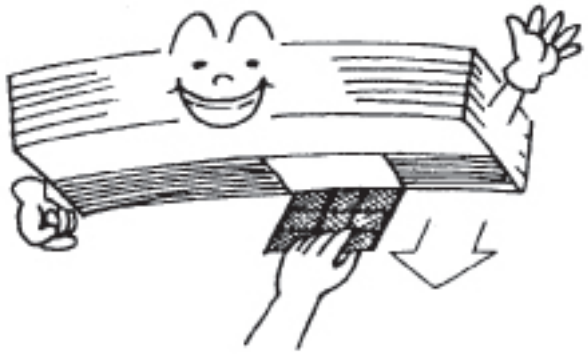
No	Description		Part Code		Qty
			KFR-120W/dNA1-34005	KF-120W/dNA1-34005	
1	Signal Cable	信号控制线 #	40032142	\	1
2	Signal Cable	信号控制线 #	40032143	400321531	1
3	Connecting Cable	电源连接线 #	400204771	400204772	1
4	Power Cord	电源连接线 #	40020454	400204771	1
5	Front grill	面罩	22265251	22265251	2
6	Front plate	外罩	01435433	01435433	1
7	Axial flow fan	轴流风叶	10335253	10335253	2
8	Motor FW68T	电机 FW68T	15013302	15013302	2
9	Motor support	电机支架组件	01705433	01705433	1
10	Condenser assy	冷凝器组件	01133455	011054381	1
11	Temp Sensor	热敏电阻	34030030	\	1
12	Sensor holder	感温包架	24215101	\	1
13	Top cover	顶盖	01255262	01255262	1
14	Rear grill padding	网罩垫块	76315251	76315251	1
15	Rear grill	网罩	01475431	01475431	1
16	Temp Sensor	热敏电阻	34030031	\	1
17	Temp Sensor Insert	感温包插片B	42020063	\	1
18	Electric box assy	电器盒组件	01405471	01405471	1
19	Ac contactor	交流接触器	44010226	44010226	1
20	Reverse Phase Protector	逆相保护器	46020052	46020052	1
21	Over current protector	过流保护器	46020103	46020103	1
22	Wiring terminal T8F0A	接线板 T8F0A	42011224	42011036	1
23	Capacitor 3.5uF	电容CBB61 3.5uF/450V	33010010	33010010	1
24	Wiring terminal 2-8	接线板 2-8	42011103	42011103	1
25	Wiring clamp	电线夹 #	71010102	71010102	2
26	Isolation Washer C	绝缘垫片C	70410523	70410523	1
27	Capillary Assy	毛细管部件	030037131	030037141	1
28	4-way Valve	四通阀(5匹)	430004051	\	1
29	4-way Valve Coil	四通阀配件	430004005	\	1
30	Gas-liquid Separator	汽液分离器部件	07225433	07225433	1
31	Temp Sensor	热敏电阻	34030019	34030019	1
32	Temp Sensor Insert	感温包插片E	42020066	42020066	1
33	Rear Side Plate	后侧板组件	01303712	01303712	1
34	Handle	把手	26235253	26235253	3
35	Valve Support	阀门支架组件	01715001	01715001	1
36	Liquid Valve Assy	小阀门组件	07103704	07103704	1
37	Gas Valve Assy	大阀门组件	07103703	07103703	1
38	Drainage Connector	室外机排水接头	06123401	\	1
39	Compressor C-SBN353H8A	压缩机C-SBN353H8A	00100157	00100332	1
40	Overload Protector	（过载内置）	Built in	Built in	
41	Compressor Gasket	压缩机胶垫	76710209	76710209	4
42	Metal Base	底盘组件	01205433	01205433	1
43	Isolation Sheet Assy	隔板组件	01235440	01235440	1
44	Front Plate	前侧板	01305431	01305431	1

10.Care and maintenance

Warning: Please turn power off before maintenance.

10.1 Cleaning the filter

Take out the filter, use the dust collector to clean, if it is too dirty could use the soap water to clean. Make sure to dry the filter then can reinsert it.



Advice:

▼ If the filter is too dirty that will affect the air in volume, so that make the system overloaded and consum more than 6% of electric energy. So it is very necessary to clean the filter.

10.2 Cleaning the equipment, spare parts

Use the dry, soft cloth or vacuum cleaner to clean the unit and wireless remote control. If the cloth is wet, please dry it after cleaned.

Warning:

▼ Never use the benzene, gasoline or something is hard to clean.

▼ Never use the hot water (40℃above) for cleaning, in order to avoid some spare part or part deformation.

10.3 Check in use

▼ Check that are there any obstructions block the air inlet or air outlet vents of indoor unit and outdoor unit.

▼ If there is not air filter when the unit is running, the dust will be accumulated and may cause the malfunction, ususally it is necessary to install the filter.

▼ Check that the drainage pipe is bent or damaged.

▼ To check the equipment is normal or correct installaed.

10.4 Check after use

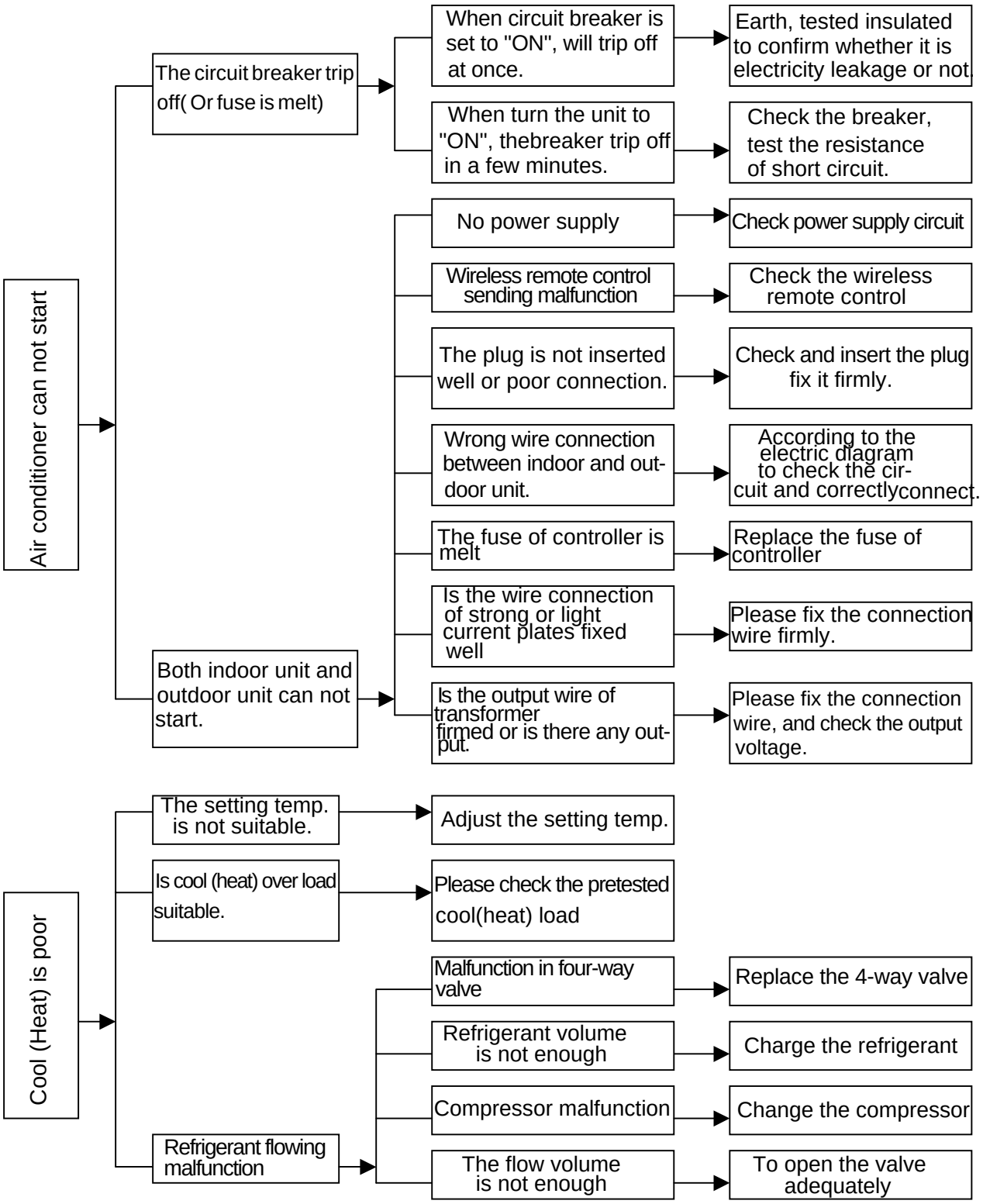
▼ Pull out the plug, cut off the power supply.

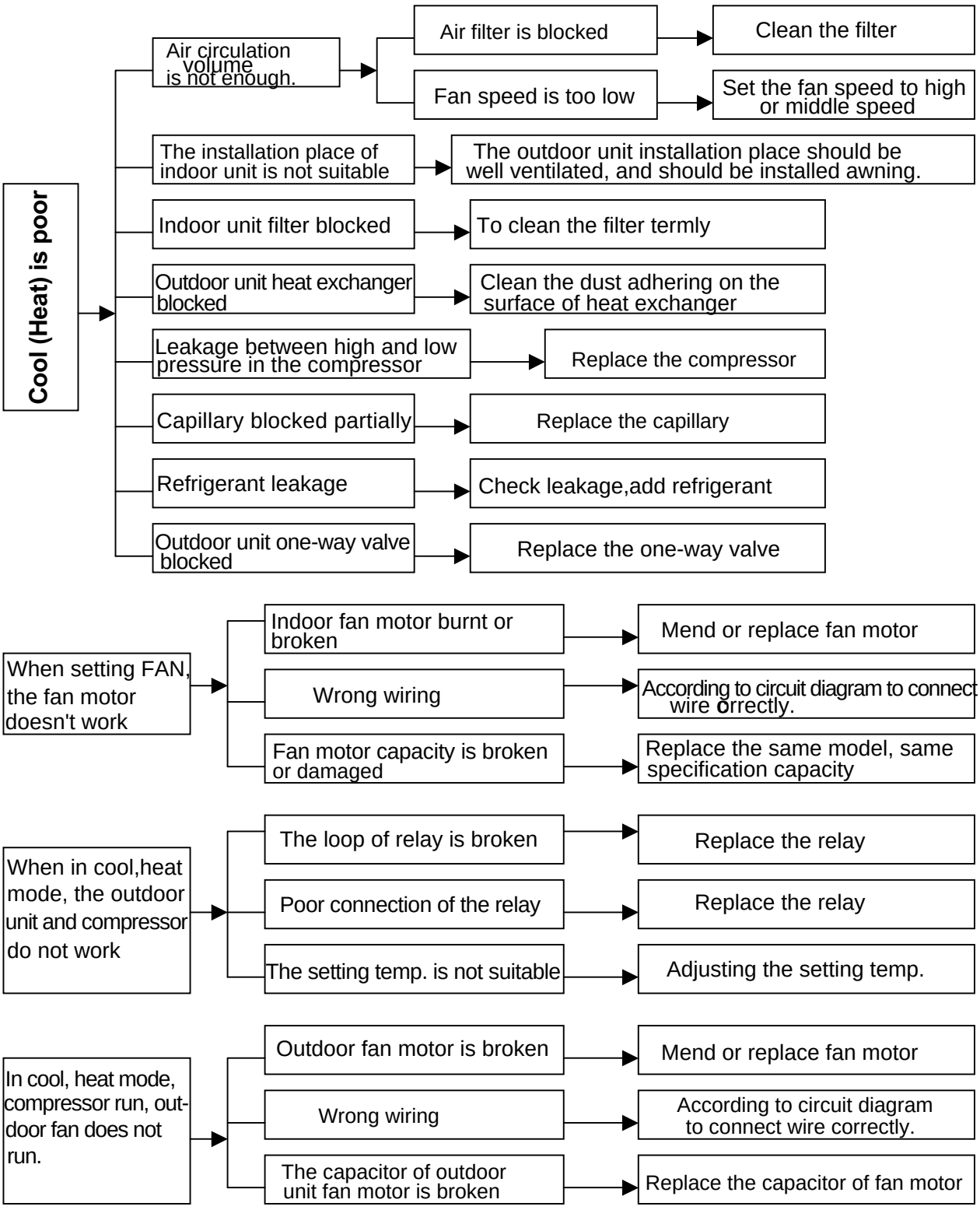
▼ Clean the filter and equipment, spare parts.

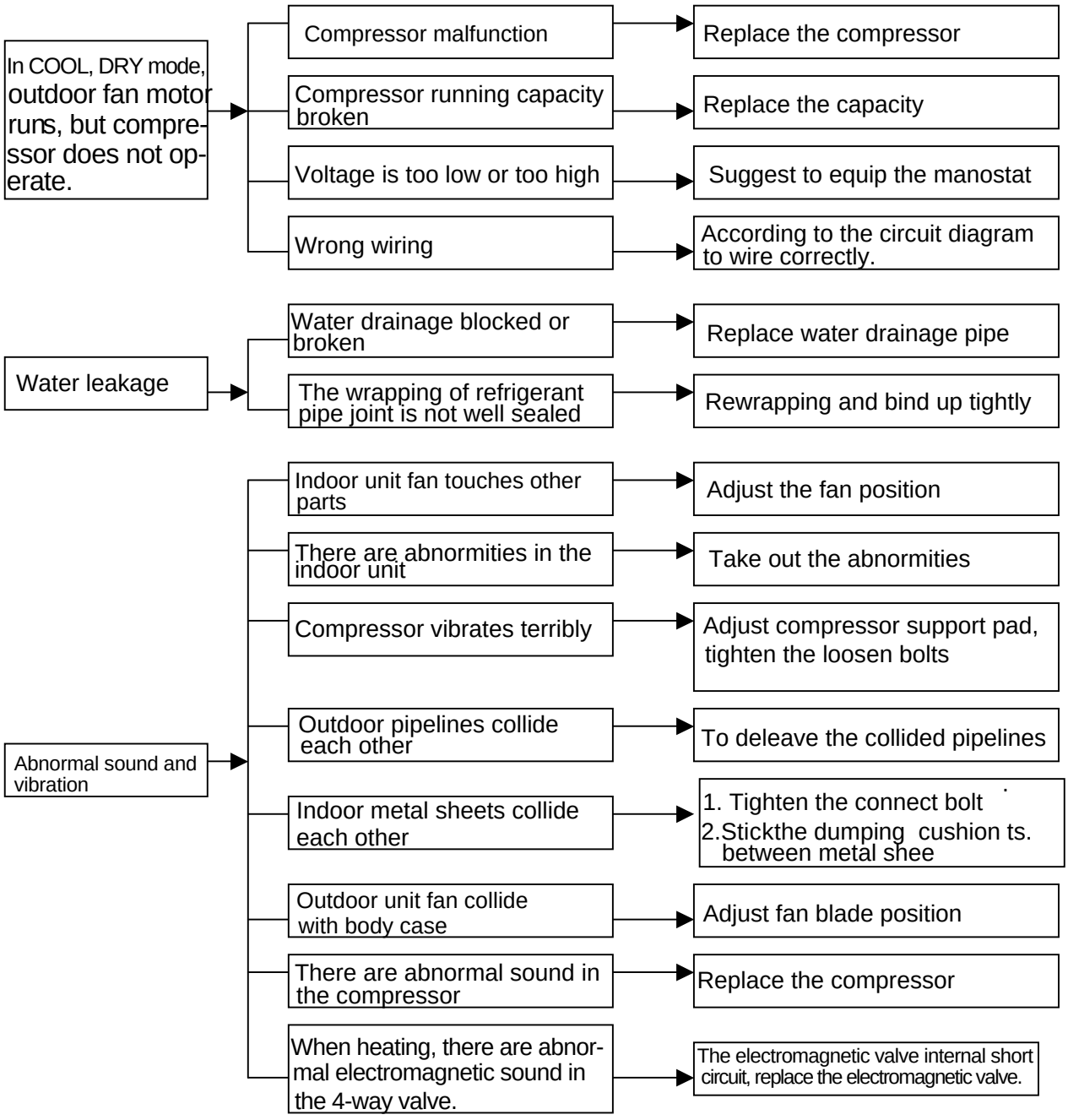
▼ Start fan motor for 2-3 hours in order to clean, dry the equipmenbt internal.

11. Trouble shooting

Trouble shooting




Cool (Heat) is poor
Air circulation volume is not enough.
Air filter is blocked
Clean the filter
Fan speed is too low
Set the fan speed to high or middle speed
The installation place of indoor unit is not suitable
The outdoor unit installation place should be well ventilated, and should be installed awning.
Indoor unit filter blocked
To clean the filter termly
Outdoor unit heat exchanger blocked
Clean the dust adhering on the surface of heat exchanger
Leakage between high and low pressure in the compressor
Replace the compressor
Capillary blocked partially
Replace the capillary
Refrigerant leakage
Check leakage,add refrigerant
Outdoor unit one-way valve blocked
Replace the one-way valve
When setting FAN, the fan motor doesn't work
Indoor fan motor burnt or broken
Mend or replace fan motor
Wrong wiring
According to circuit diagram to connect wire correctly.
Fan motor capacity is broken or damaged
Replace the same model, same specification capacity
When in cool,heat mode, the outdoor unit and compressor do not work
The loop of relay is broken
Replace the relay
Poor connection of the relay
Replace the relay
The setting temp. is not suitable
Adjusting the setting temp.
In cool, heat mode, compressor run, out-door fan does not run.
Outdoor fan motor is broken
Mend or replace fan motor
Wrong wiring
According to circuit diagram to connect wire correctly.
The capacitor of outdoor unit fan motor is broken
Replace the capacitor of fan motor



Error codes:

E1: Compressor high pressure protection E2: Indoor antifreezing protection E3: Compressor low pressure protecition

E4: Air outlet pipe high temp. protection E5: Low voltage protection