

BEKO

Service Manual

Portable Air Conditioner



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Instruction

- ◆ This manual is only available for the above models.
BKP-09C、BKP-12C
- ◆ Please do not use this manual for any other products, we will not be responsible for the accident caused by the possible wrong action.
- ◆ The above must be repaired by professional workers。
- ◆ Please make sure the power plug and the power is off before the repair.

Chapter1.The repair of ordinary breakdown

1.1 Analysis of breakdown

When the unit is not able to work, please do not worry and do not separate the unit at once. In order to solve the problem, please try to handle it according to the below methods.

Breakdown	Analysis of the season	Methods
The unit is not able to work	1.power cut 2.power plug is not on 3.display “P2”	1.make the power supply available 2.make the power plug on 3. remove it into bathroom, pull out the water plug and drain the water inside (follow the operation methods)
Cooling effect is not distinct	1.air filter is full of dirt 2.anyobjct blocks the wind outlet 3.room space is too big and not airtight	1.clean the air filter (follow the operation methods) 2.remove the block 3.adjust the space and make the room airtight.
slack	1.the unit is declining 2water outlet is blocked	1.adjust the unit balance 2.pull off the water plug and remove the block
Abnormal noisy	1.thye unit is not stable 2.airfilter is blocked	1.put the unit stable 2clean the air filter
Under the heating mode, there is no warm wind at once	1.ambient temperature is lower than the one setted 2.befoe the warm wind is available, there is cool wind insisting 3 minutes	1.set the temperature higher than the ambient 2.please wait 3 minutes
Peculiar smell	Long time no use, the unit will absorb some smell from the environment	The peculiar smell will disappear after turning on the unit 3 minutes.

When there is any breakdown, please follow the above information, if it is not effective yet, please try to solve it according particular methods.

1.2 Operation step

Step1: (1) Pull off the water plug , see photo 1 with hands.



(2) Seeper will flow though the drainpipe.

(3) When all the seeper is out, cover the plug.

Step 2.:

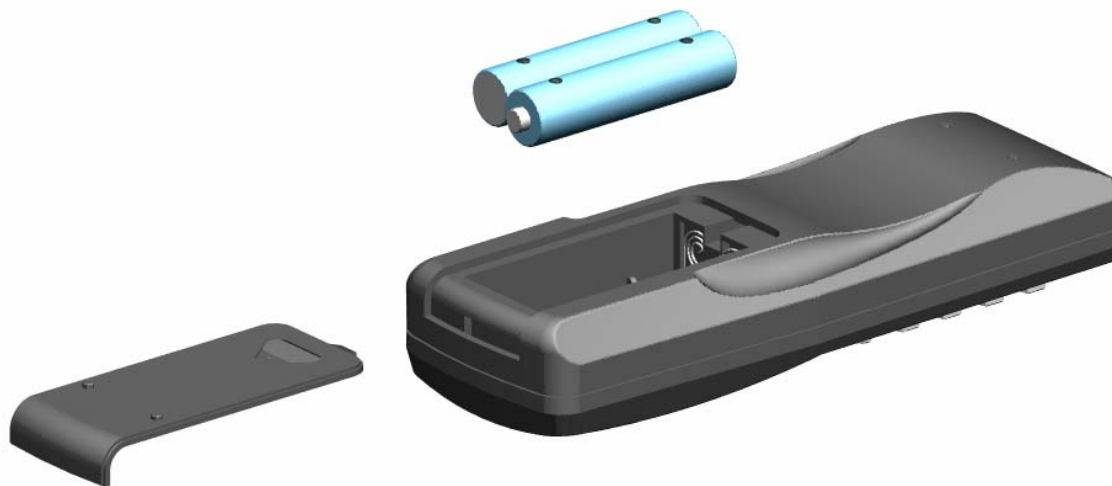
(1) Take out the air filter casing , see photo 2.

(2) Take out the air filter form the casing, see photo 3.

(3) Clean the filter, see photo 4.

(4) Put back the filter when it is dry





Step 3.

(1)open the batter cover of the remote control, see photo 5.

(2)make sure the battery is right. .

Chapter 2.

Repair when the unit is not able to on

2.1 Electric control theory

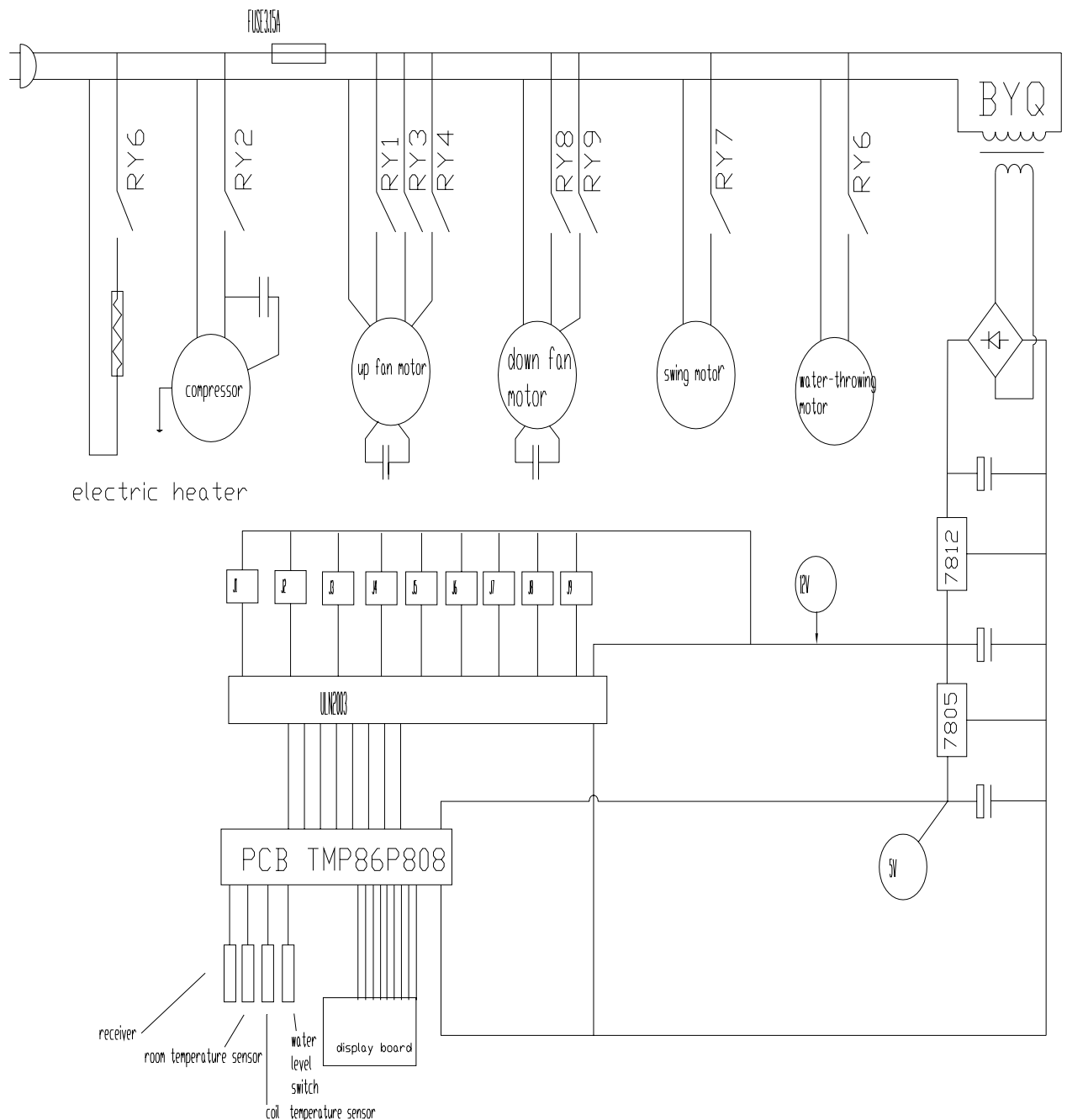
As we learnt from the picture, there are strong and **weak electricity in the whole circuit and the cut-off point is transformer.**

When the strong electricity part is powered, two 50A relays RY6 and RY2 will respectively control PTC heater and compressor. The current goes through fuse and then, up-motor, down-motor, swing motor and water-spray motor. Up-motor has three speeds, and respectively controlled by three 5A relays, which are RY1, RY3, RY4. They indicate respectively high, middle and low speed. Only one of the three relays could be connected at one time. When RY1 is connected, the up-fan speed is high; When RY3 is connected, the up-fan speed is medium; When RY4 is connected, the up-fan speed is low. The starting capacitor is 2uf/450V. The down-motor has two speeds and is controlled by two 5A relays, RY8 and RY9 respectively. When RY8 connected, fan speed is high; when RY9 connected, fan speed is low. The starting capacitor is 3 uf/450v. The swing motor is a step motor and controlled by relay RY7. The water-spray motor is a electrode-covered motor and controlled by RY5 relay.

Weak electricity part could be divided into two parts. One part is power supply, another part is micro-control. The electricity becomes 13.5V alternate current through transformer, and then is bridge-rectified by four IN4001 diodes. After rectification, the current becomes 18.5V D.C through C2 capacitor, and goes through 7812 regulator and becomes 12V stable current. The current then is divided into two routes. One route is

from RY1 to RY2...RY9 etc, which are nine relays and driver ICULN2003; another route becomes stable 5V after 7812 regulator, and becomes single-chip, to supply electricity to LED or LCD, or boozier etc.

Buttons, LED or LCD is a window of man-machine inter-action. The work status of machine can be changed through buttons, LED or LCD indicates real-time work status of machine. If remote control mode, the receiver of RC receive or send order or signal, and then pass them to the single-chip. The surface temperature of evaporator is transferred to single-chip through an evaporator sensor. Water level sensor transmit water level information to the single-chip. All these signals pass to the single-chip, and then analyzed and processed and the single-chip send all kinds of orders and control the on-off status of all relays through driver ICULN2003. The whole machine works well under the coordination of the single-chip.



2.2. Typical Trouble-shooting Analysis

Abnormal display

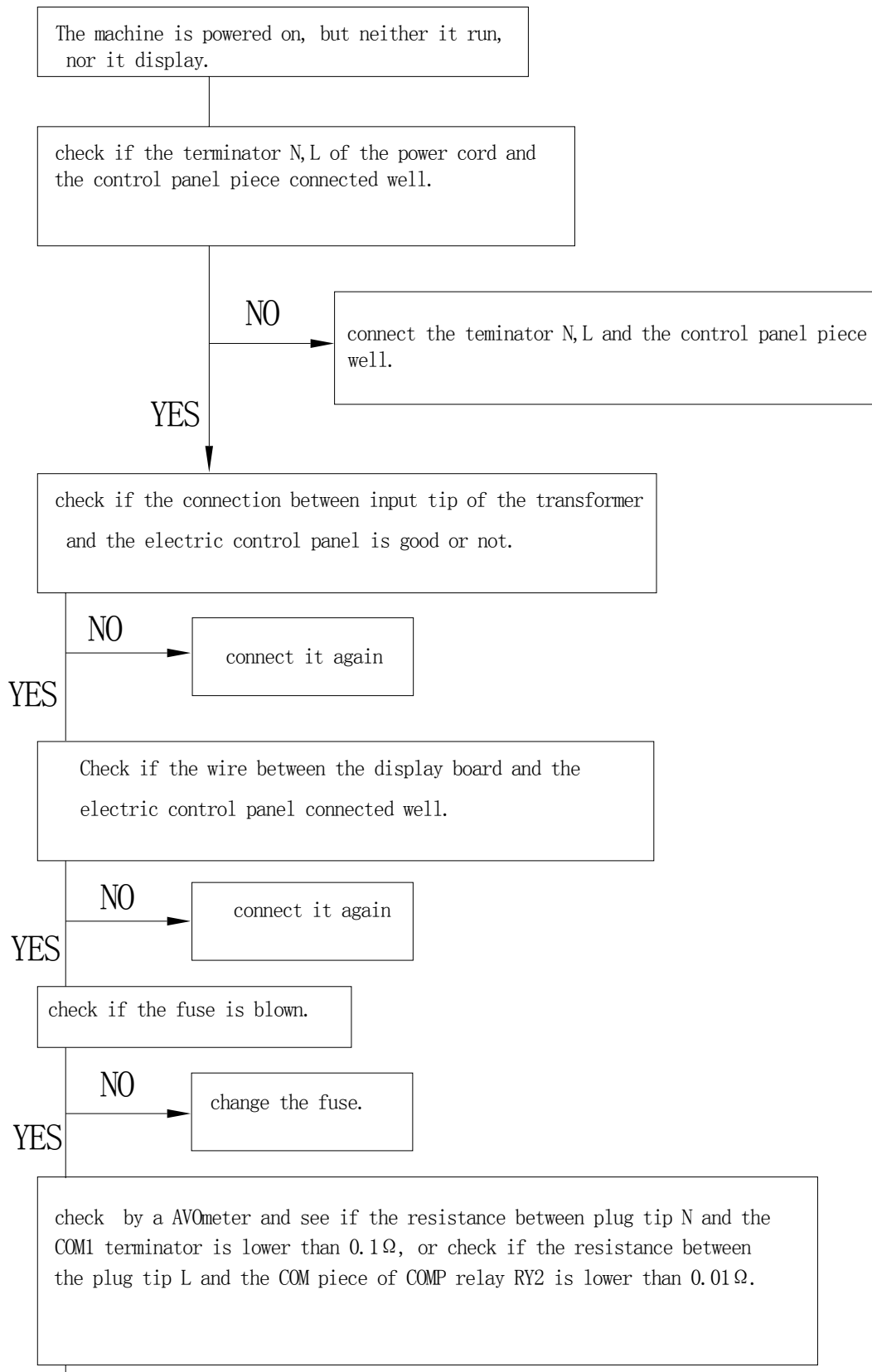
Display failure code

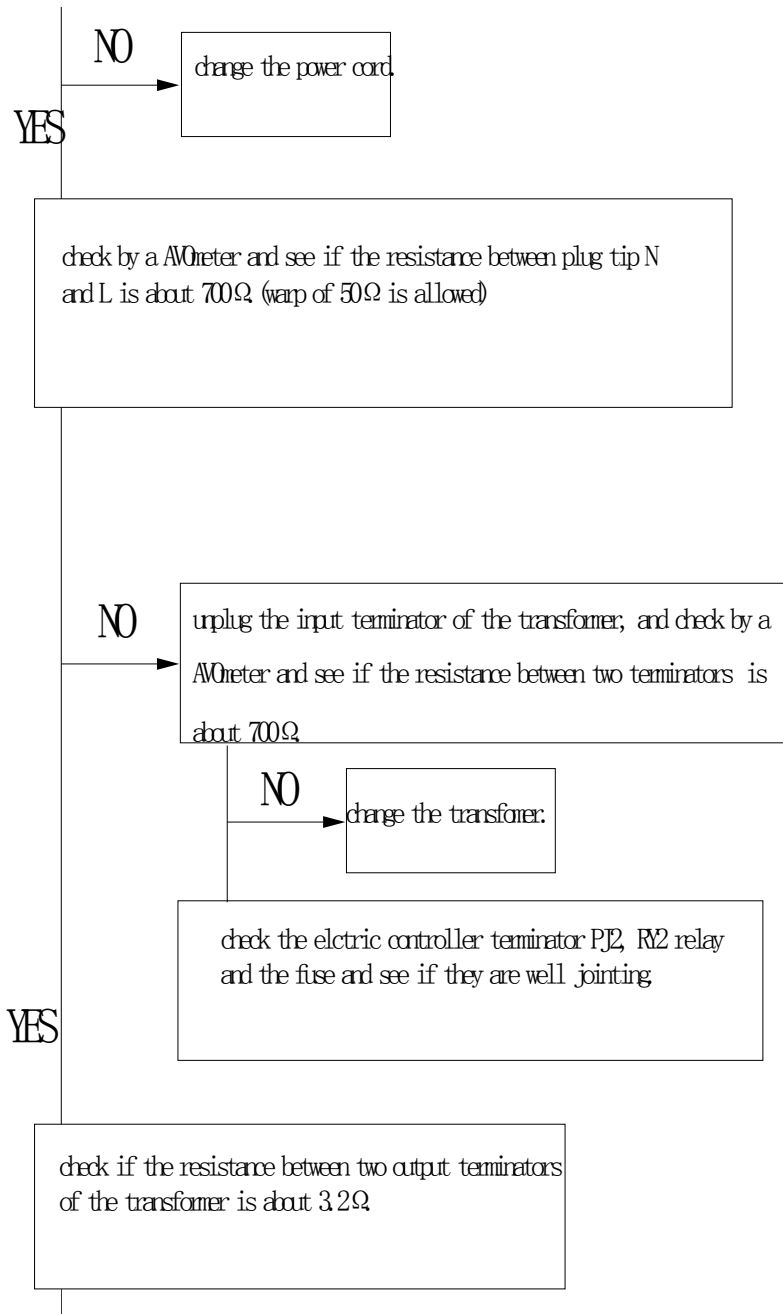
E1: Failure of the evaporator temperature sensor: connection between the sensor plug and the electric control panel is not very good, or there is something wrong with sensor. E2: Failure of room temperature sensor: connection between the sensor plug and the electric control panel is not very good, or there is something wrong with sensor.
E3: cooling system is abnormal: the compressor does not start, or there is something wrong with down fan motor. (see part 2 of chapter 3)
E4: Anti-frozen protection, it is normal.
P2:Water is full. (see part 1 of chapter 1).

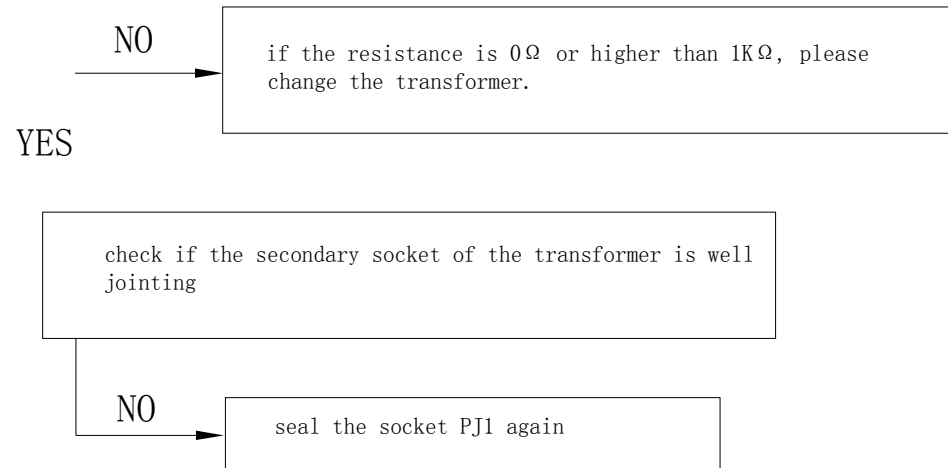
the display is not complete, or the indicator is not flash :

1.possibllly because the connection between the electric control panel and the display board is not very good. just connect it again.

2.It also might because the problem of the display board, please change the display board.







The down fan motor doesn't run.

Set the machine in cooling mode, and see the down fan motor is running.

No

Yes

Restart the cooling mode

Slightly move the fan and check if something blocked the fan.

No

Yes

Move away the stem.

Check is the connection between the motor and the electric controller is well.

Yes

No

Connect again or change the plug.

Check if the fan motor is OK, and check if the wire connected well.

Yes

No

Change the fan motor capacitor.

Check if the resistance of principal windings or secondary windings is 0Ω or higher than $1\text{ K}\Omega$.

No

Yes

Replace with a same motor.

Change the PCB

The up fan motor doesn't run.

After starting the machine, choosing fan mode and see if there is any wind blowing from the up motor.

No

Yes

Kindly check. Be sure that the setting temperature should be lower than the room temperature when in cooling mode; it also should be higher than the room temperature when in heating mode.

No

Yes

Reset the temperature.

Check the main electric controller or change the temperature sensor.

Slightly move the fan and check if something blocked the fan.

No

Yes

Move away the stem.

Check is the connection between the motor and the electric controller is well.

Yes

No

Connect again or change the plug.

Check if the fan motor is OK, and check if the wire connected well.

Yes

No

Change the fan motor capacitor.

Check if the resistance of principal windings or secondary windings is 0Ω or higher than $1\text{ K}\Omega$.

No

Yes

Replace with a same motor.

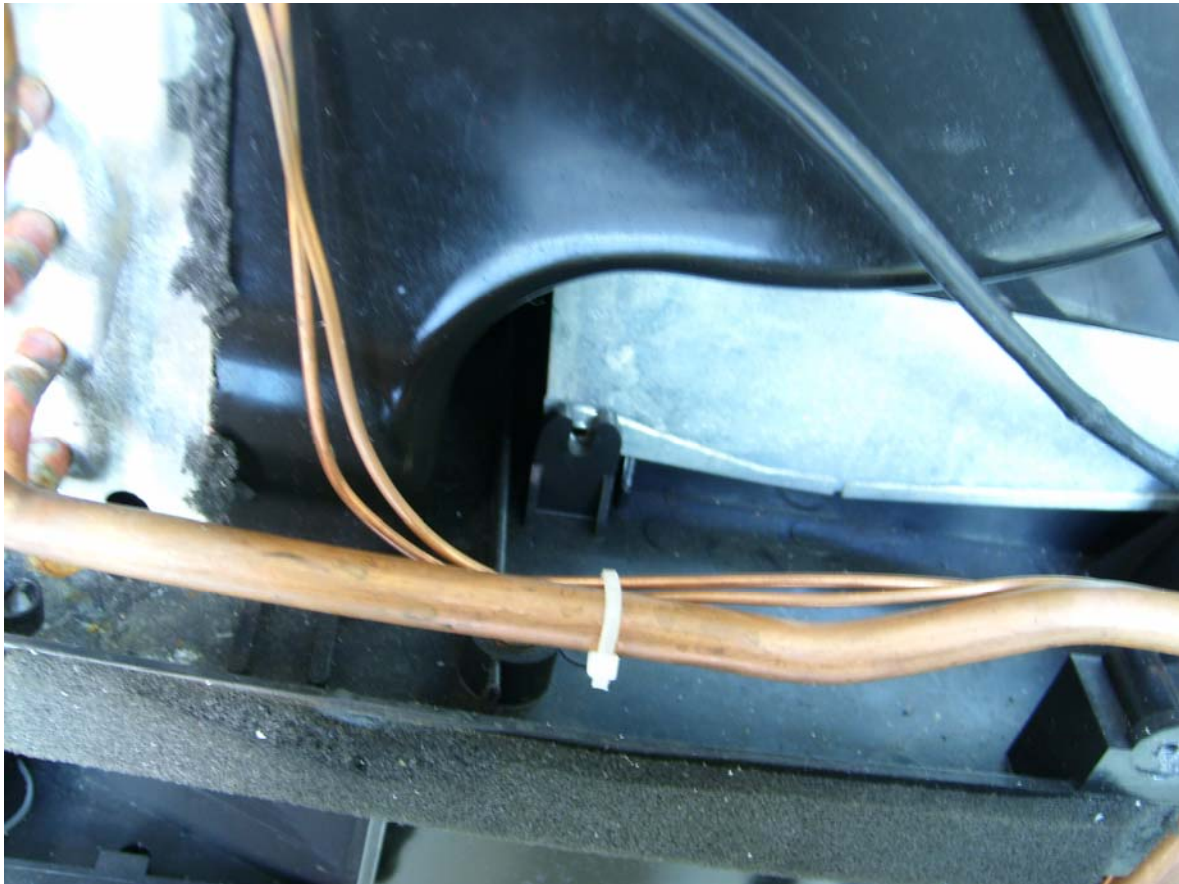
Change the PCB.

2.3 Electric Control disassembly

Step 1: Disassembly six bolts at the both side pane. Also take part of two bolts between the bottom front panel and the base plate. Then you can disassembly the front panel.. See photo 6.



(2) Disassembly 7 bolt at the back panel and take part of the back panel. See photo 7.

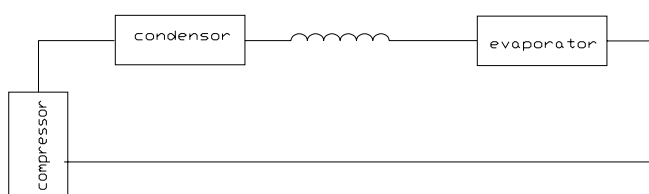


(3) Disassembly 2 bolts at left side and right side of the electric control. Meanwhile, disconnect the Bolt on the electric control cover. Then you can take part of the electric control cover. Please refer to Photo 8.

Chapter 3 Maintenance for Not Cooling Troubleshoot

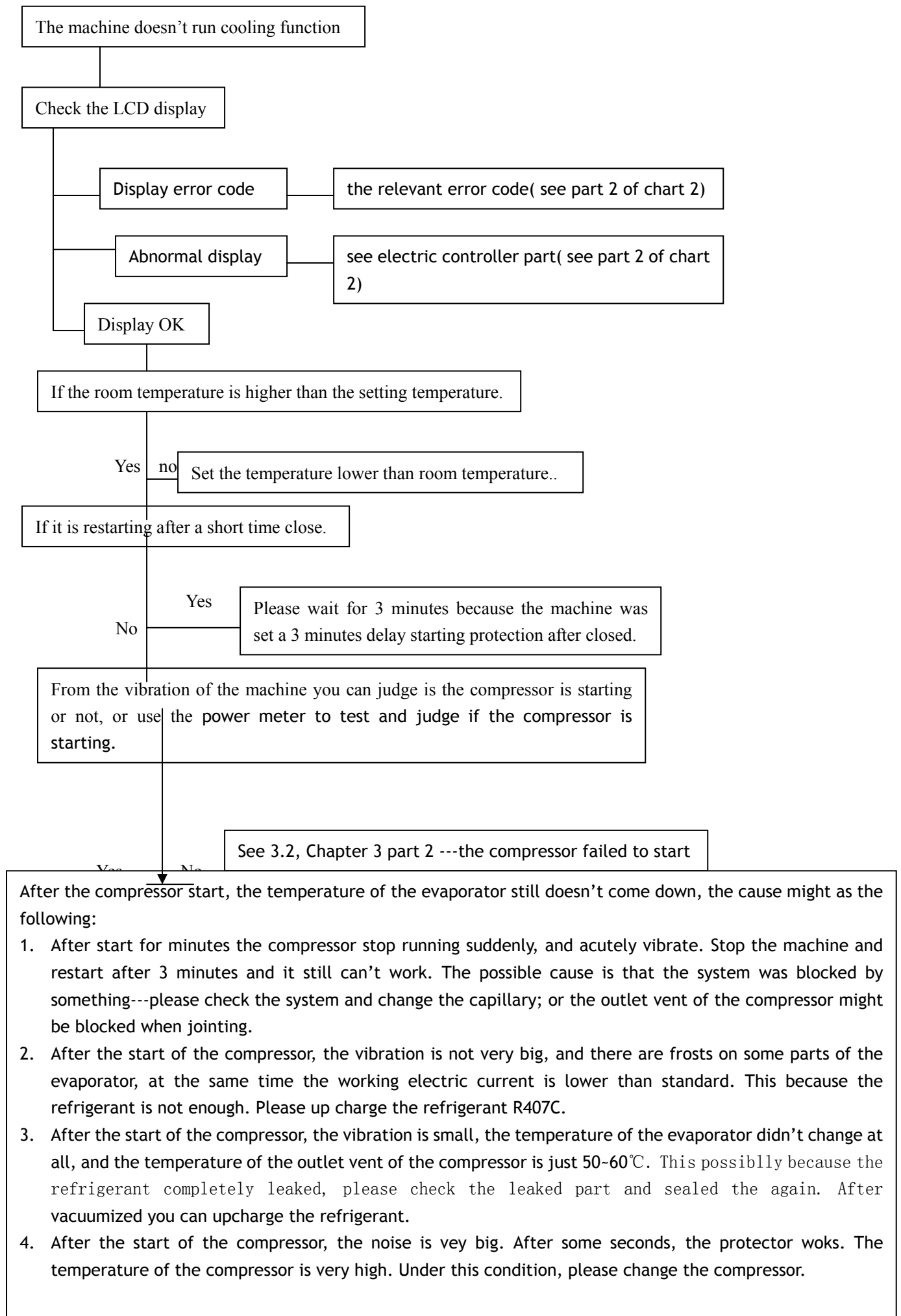
3.1 Cooling Theory

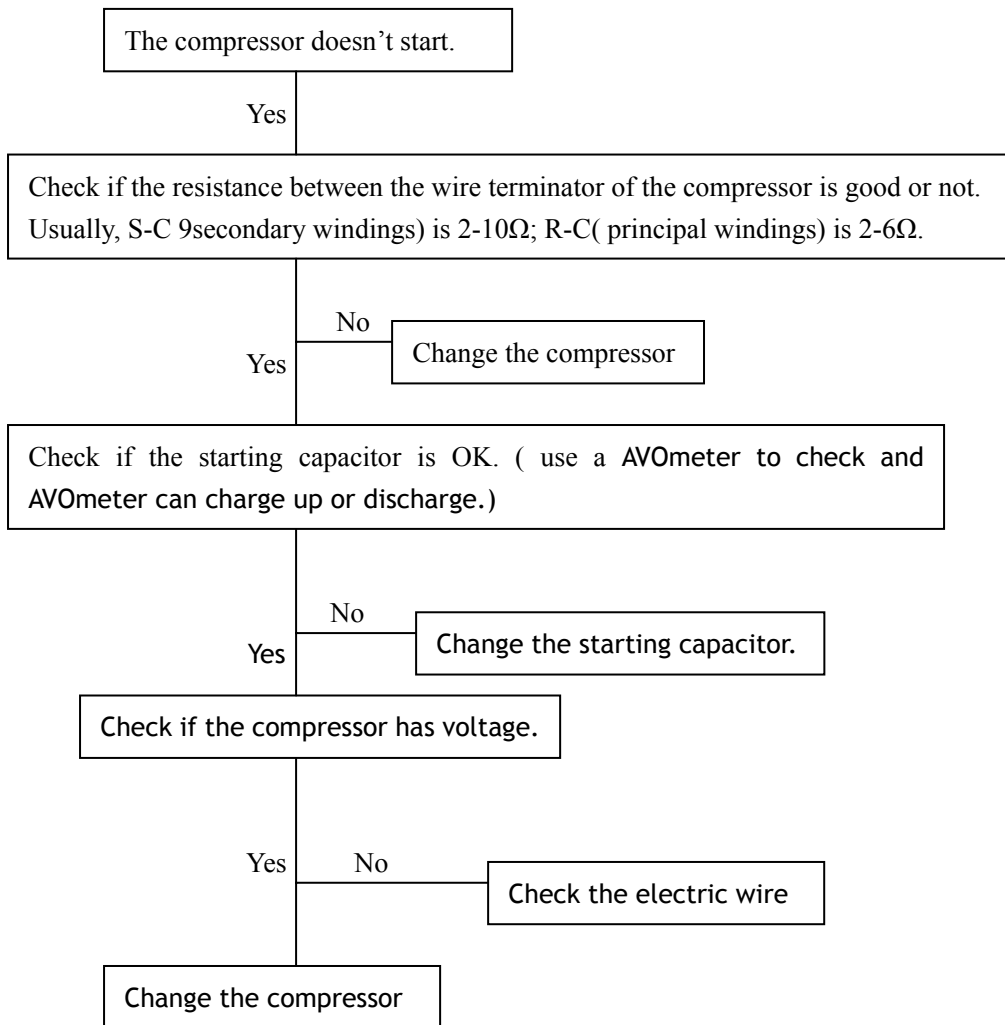
There are four parts for cooling system of our portable air conditioner. They are compressor, condenser, capillary and evaporator, which will be connected by copper, see diagram as below.



On the working condition, first the compressor will compress the normal temperature and low pressure refrigerant to be high temperature and high pressure air. This air will discharge to the condenser, dispersing the heating from the lower fan motor. The refrigerant in the condenser cooled to be middle temperature and high pressure liquid (45°C – 50°C). Decompressed by the capillary, refrigerant expand in the evaporator, appealing the quantity of heat of the surrounding air. Then the cooling air will blow by upper fan motor.

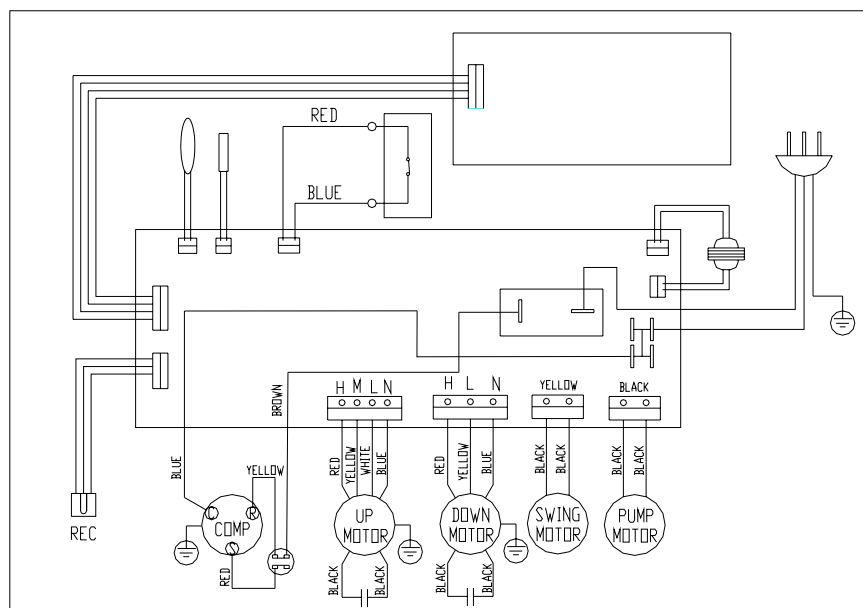
3.2 Examine & Repair of Cooling Troubleshoot



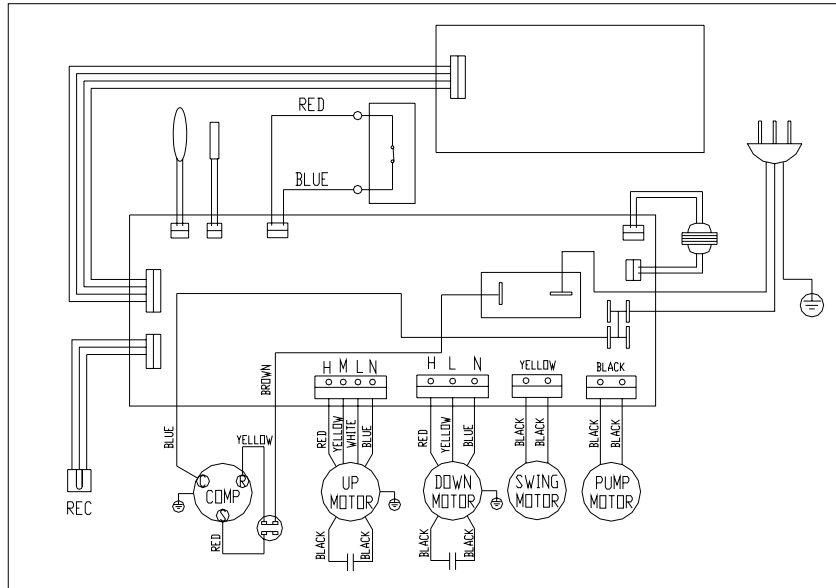


3.3 Circuit Diagram

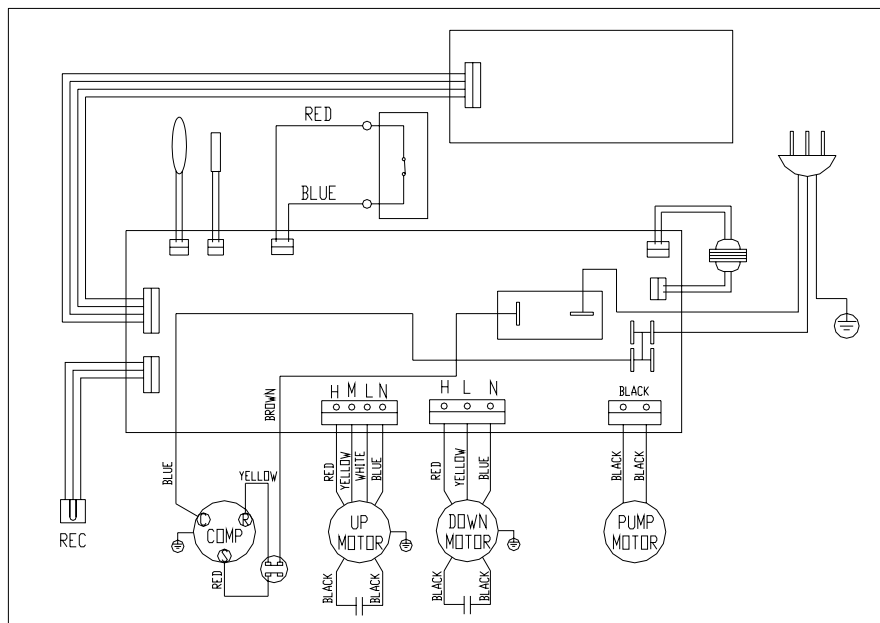
YPA1-C ELECTRIC CIRCUIT DIAGRAM



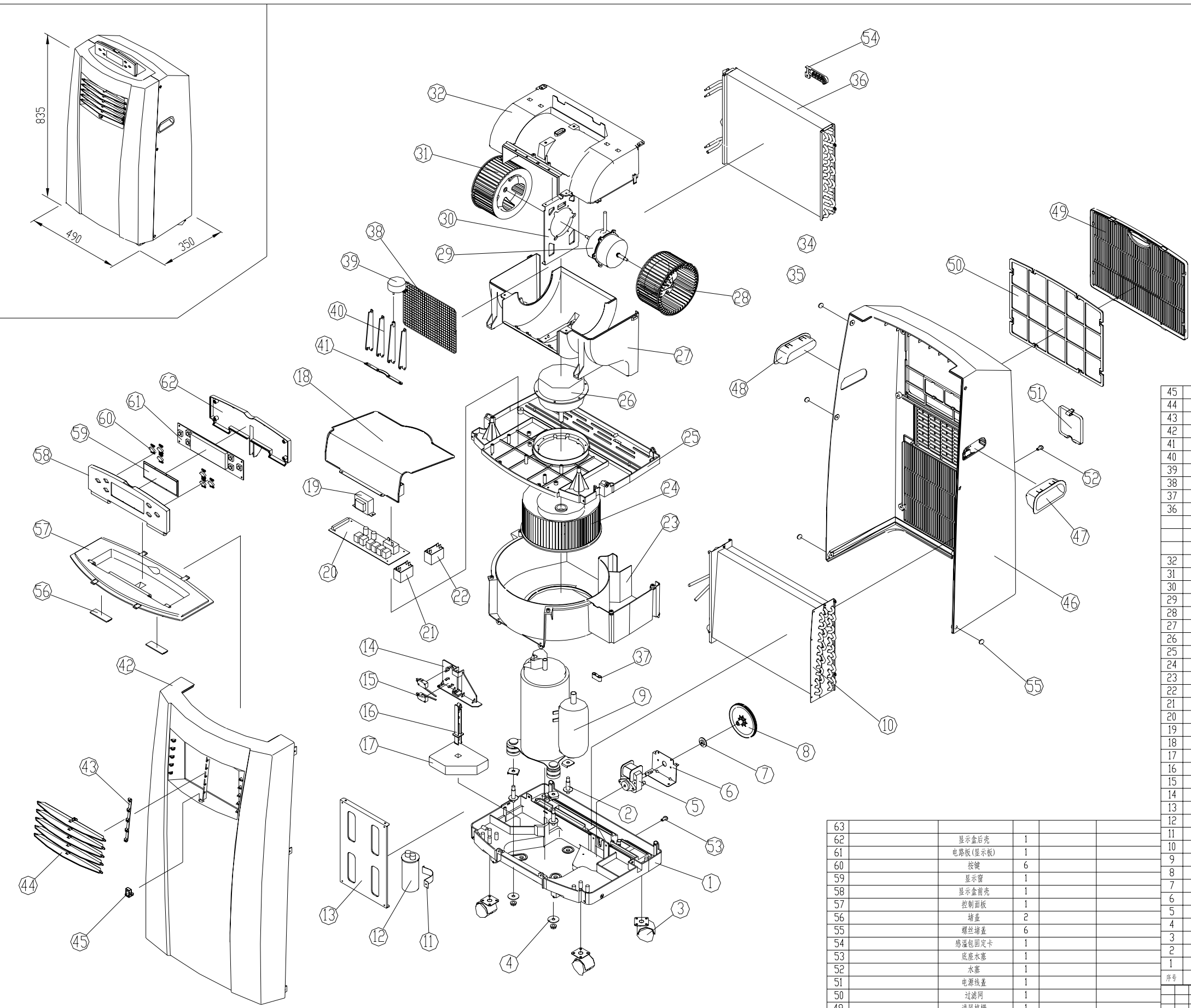
YPA-C ELECTRIC CIRCUIT DIAGRAM



YPB-C ELECTRIC CIRCUIT DIAGRAM

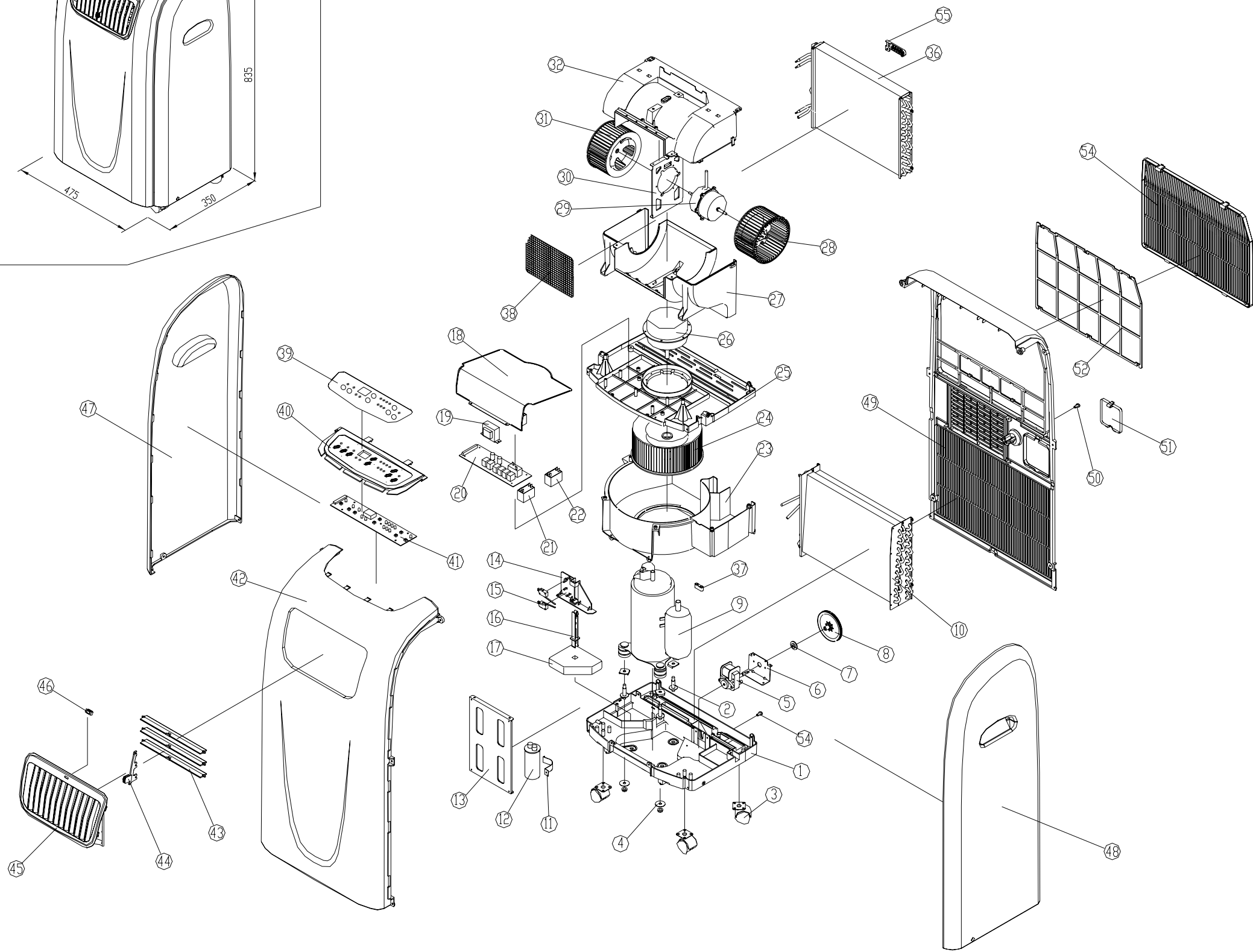
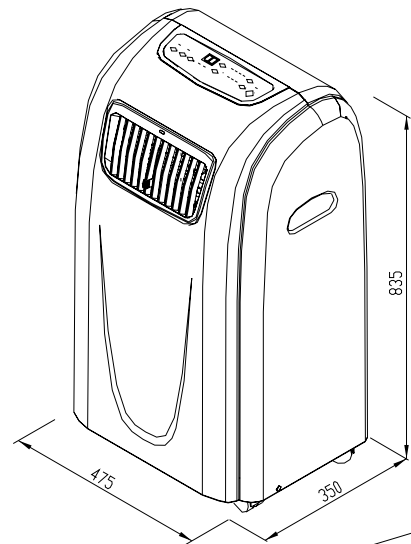


单冷



45	遥控接收窗	1			
44	水平导风条	5			
43	水平导风条连杆	1			
42	前面板	1			
41	垂直导风条连杆	1			
40	垂直导风条I	4			
39	同步电机	1			
38	安全网	1			
37	电源线压条	1			
36	蒸发器部件	1			
32	送风蜗壳(上)	1			
31	送风风轮I	1			
30	送风电机支架	1			
29	送风电机	1			
28	送风风轮I	1			
27	送风蜗壳(下)	1			
26	排风电机	1			
25	排风蜗壳盖	1			
24	排风风轮	1			
23	排风蜗壳	1			
22	排风电机电容	1			
21	送风电机电容	1			
20	电路板(主控板)	1			
19	变压器	1			
18	电控盒盖	1			
17	浮子	1			
16	浮子顶杆	1			
15	水位开关	1			
14	水位开关板	1			
13	加强板	1			
12	压缩机电容	1			
11	电容卡	1			
10	冷凝器部件	1			
9	压缩机	1			
8	打水轮	1			
7	水封	1			
6	打水电机支架	1			
5	罩极异步电机	1			
4	大垫片	3			
3	万向轮	4			
2	压缩机安装螺栓	3			
1	底盘	1			
序号	代号	名称	数量	材料	备注
		CE-KD32Y1/N2-A1			
		移动空调			
		移动空调爆炸图			
标记	处数	更改文件号	签字	日期	
绘图			审核		
设计			标准		
校对			审定		
工艺			日期		
图样标记	数量	重量	比例		
S	X		1:1		
共 1 页			第 1 页		
江苏友典电器有限公司					

单冷



63					
62					
61					
60					
59					
58					
57					
56					
55	感温包固定卡	1			
54	进风格栅	1			
53	底座水塞	1			
52	过滤网	1			
51	电源线盖	1			
50	水塞	1			
49	后面板	1			
48	右侧板	1			
47	左侧板	1			
46	遥控接收窗	1			
45	出风框	1			
44	拨叉	1			
43	水平导风条	3			
42	前面板	1			
41	电路板(显示板)	1			
40	控制面板	1			
39	显示板标贴	1			
38	安全网	1			
37	电源线压条	1			
36	蒸发器部件	1			
32	送风蜗壳(上)	1			
31	送风风轮II	1			
30	送风电机支架	1			
29	送风电机	1			
28	送风风轮I	1			
27	送风蜗壳(下)	1			
26	排风电机	1			
25	排风蜗壳盖	1			
24	排风风轮	1			
23	排风蜗壳	1			
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14	水位开关板	1			
13	加强板	1			
12	压缩机电容	1			
11	电容卡	1			
10	冷凝器部件	1			
9	压缩机	1			
8	打水轮	1			
7	水封	1			
6	打水电机支架	1			
5	罩极异步电机	1			
4	大垫片	3			
3	万向轮	4			
2	压缩机安装螺栓	3			
1	底盘	1			
序号	代号	名称	数量	材料	备注
		CE-KD32Y1/V2-B			
		移动空调			
		移动空调爆炸图			
标记	审核	更改文件号	签字	日期	
绘图		审核			图样标记
设计		标准化			数量
校对		审定			重量
工艺		日期			比例
					1:1
					共 1 页
					第 1 页
					江苏友奥电器有限公司

