

# Service Manual

**Floor Standing Type Series**

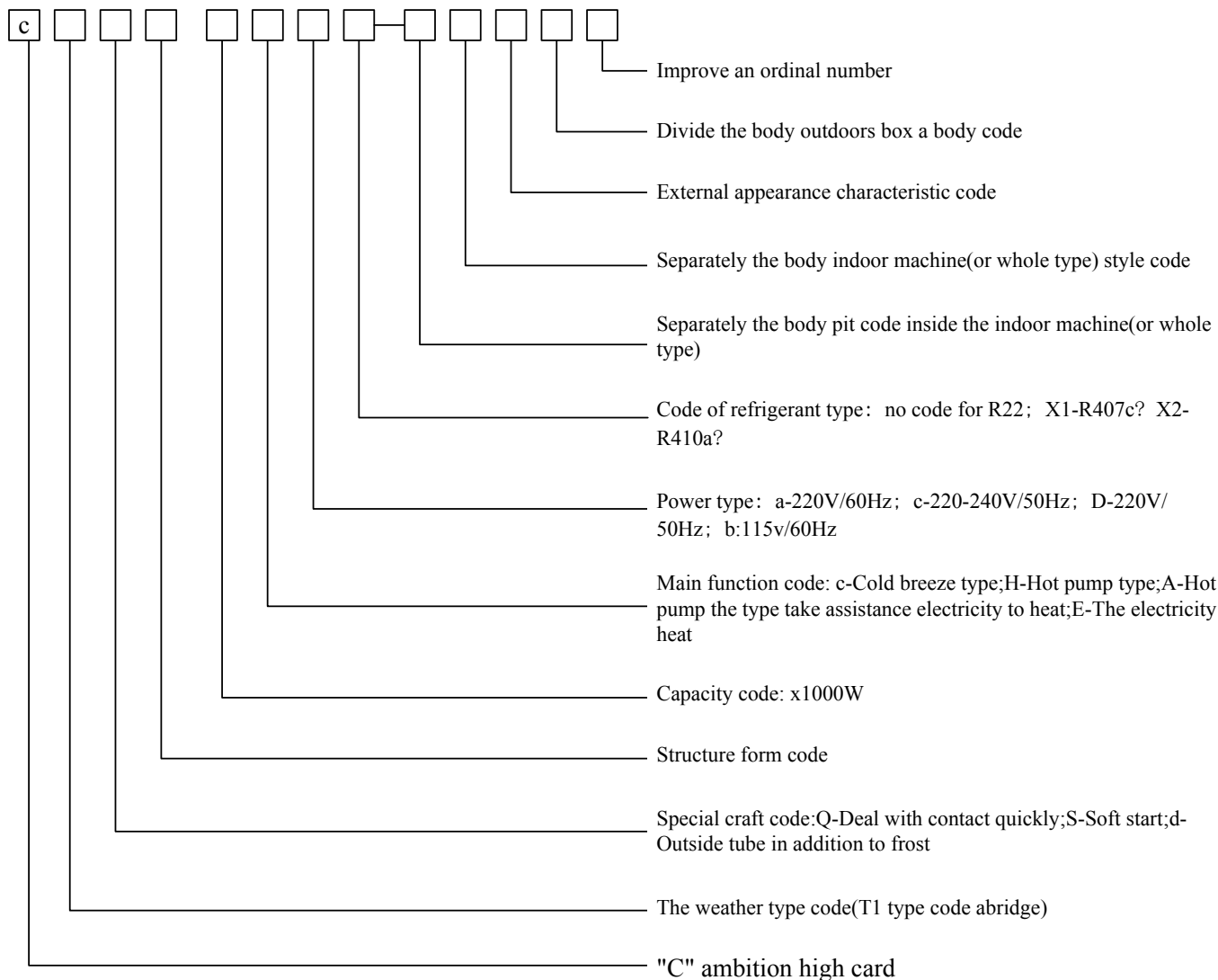
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# 1、 Summary



## 2、 Model explaining



## 3、 INSTALLATION

### BASIC ACCESSORIES

This Installation section explains how and where to connect this new air conditioner. Please read make sure all accessories are included as shown below and read manual thoroughly. This Installation section is provided to assist the person knowledgeable in air conditioner installation and should not be installed by anybody who is not thoroughly familiar with this type of installation. Please contact a professional installer if necessary.

### ACCESSORIES SUPPLIED WITH THE UNIT:

No	Part Name	Q'ty	Remark	No	Part Name	Q'ty	Remark
1	Installation Plate	1		6	Battery	2	
2	Remote Controller	1		7	Nail	4	
3	Remote Holder	1		8	Screw	4	

### OPTIONAL ACCESSORIES

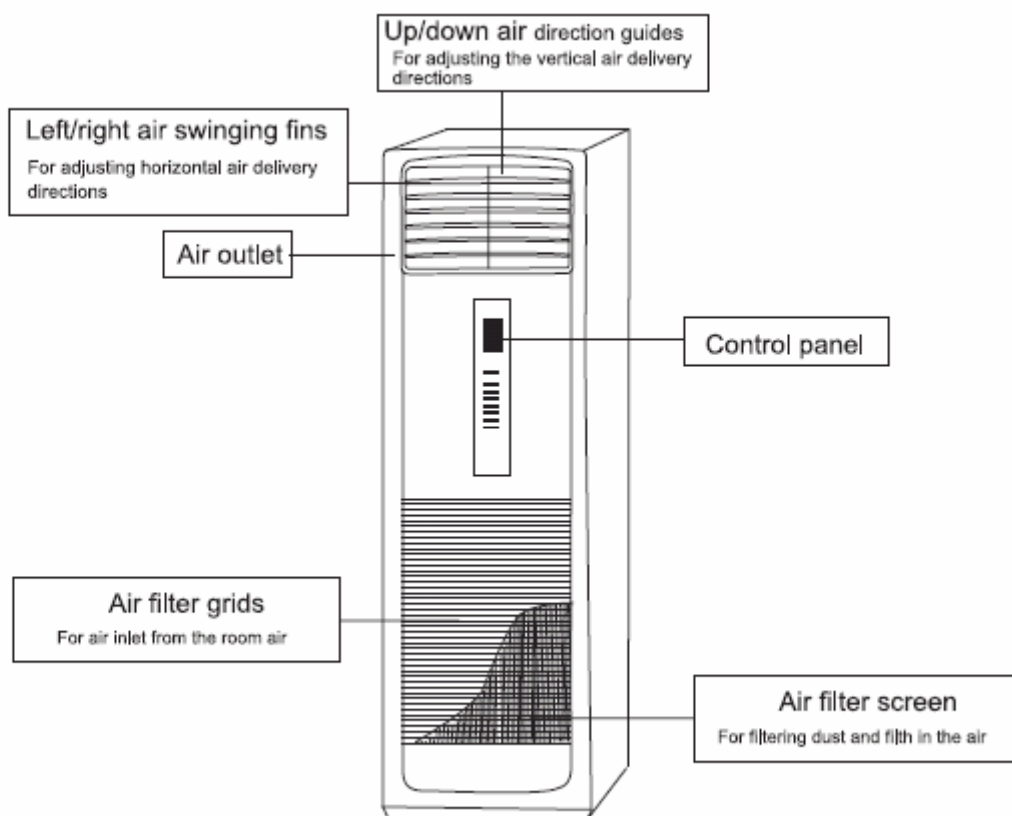
## ACCESSORIES NOT SUPPLIED WITH THE UNIT:

No	Part Name	Q'ty	Description	Remark
1	Drain Hose Extension	1	PVC, 20mm x 2M	
2	Tape Finish	1	PVC, W80mm x 25M	
3	Insulator Plate	1	PE, T8.0	
4	Putty	1	Gray, 80g	

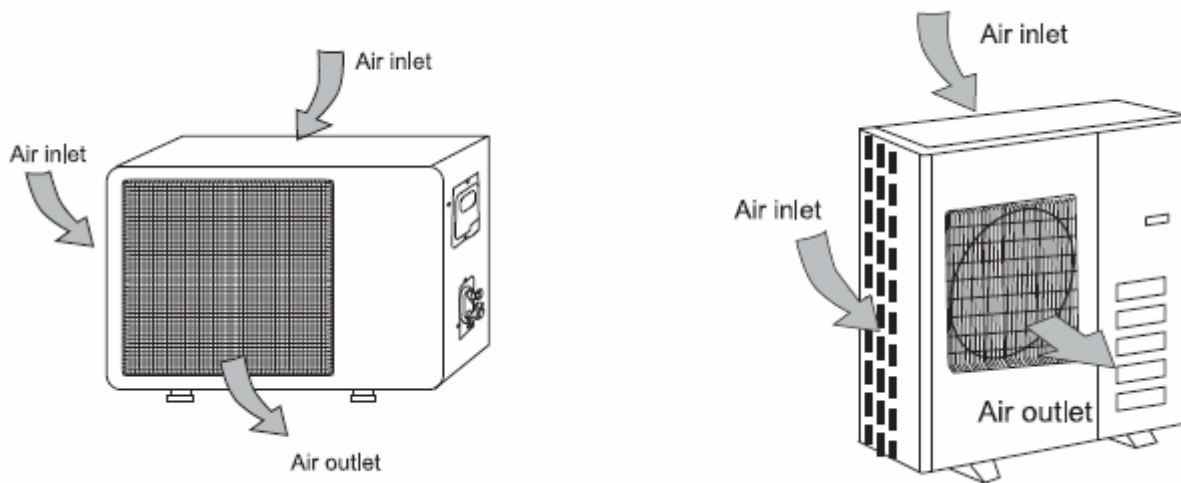
## NOMENCLATURE AND FUNCTIONS OF VARIOUS PARTS

Because there are many models, features and appearance will vary, only introduce the following pattern, others please refer to using

Indoor Units



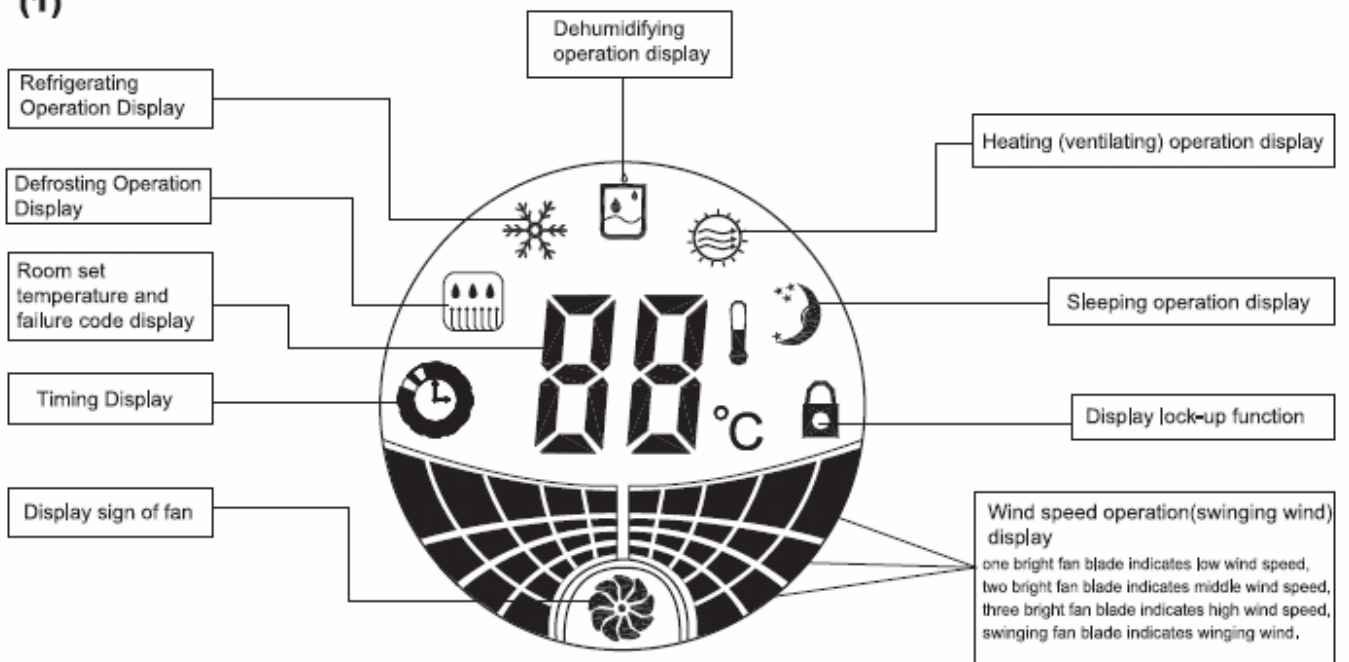
Outdoor Units

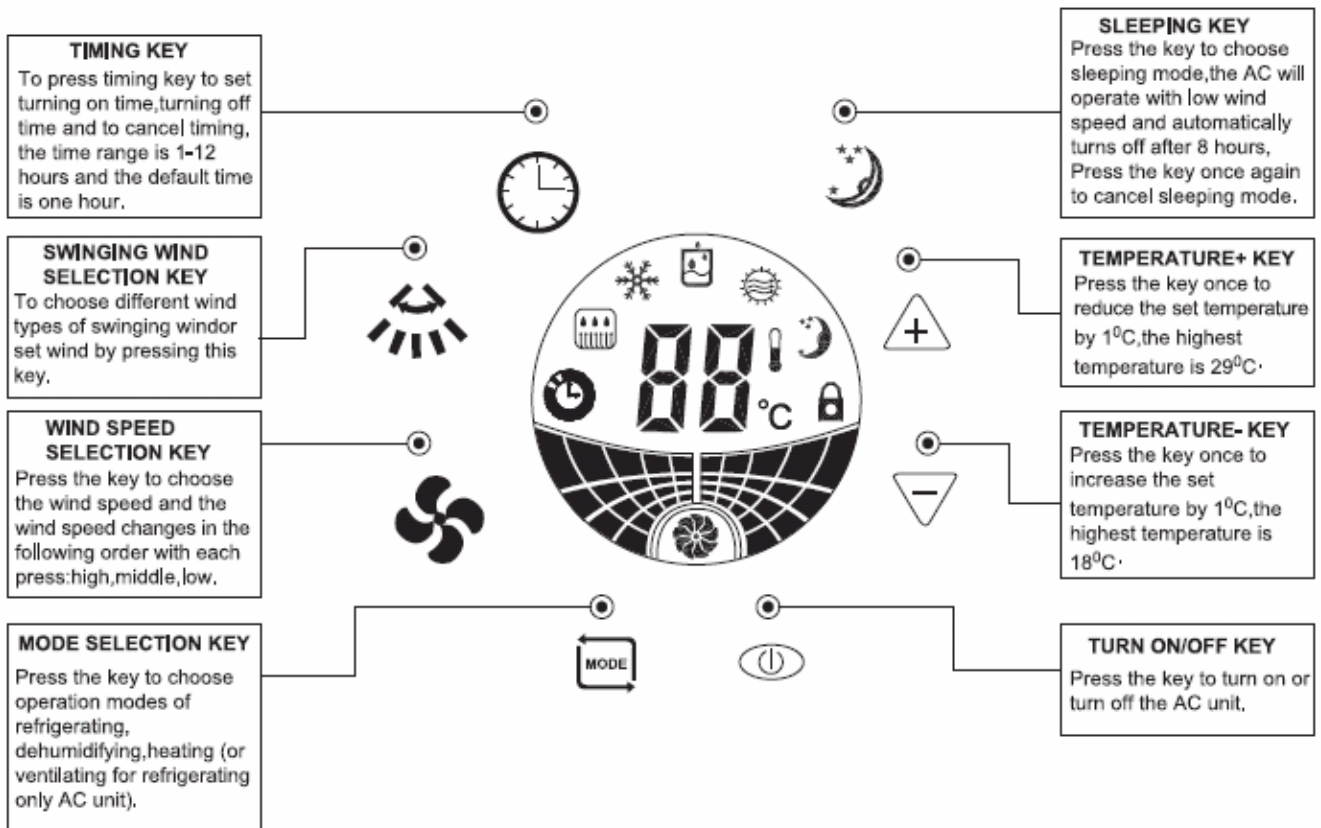


Features and appearance will vary, all the figure give a demonstration to introduce the function

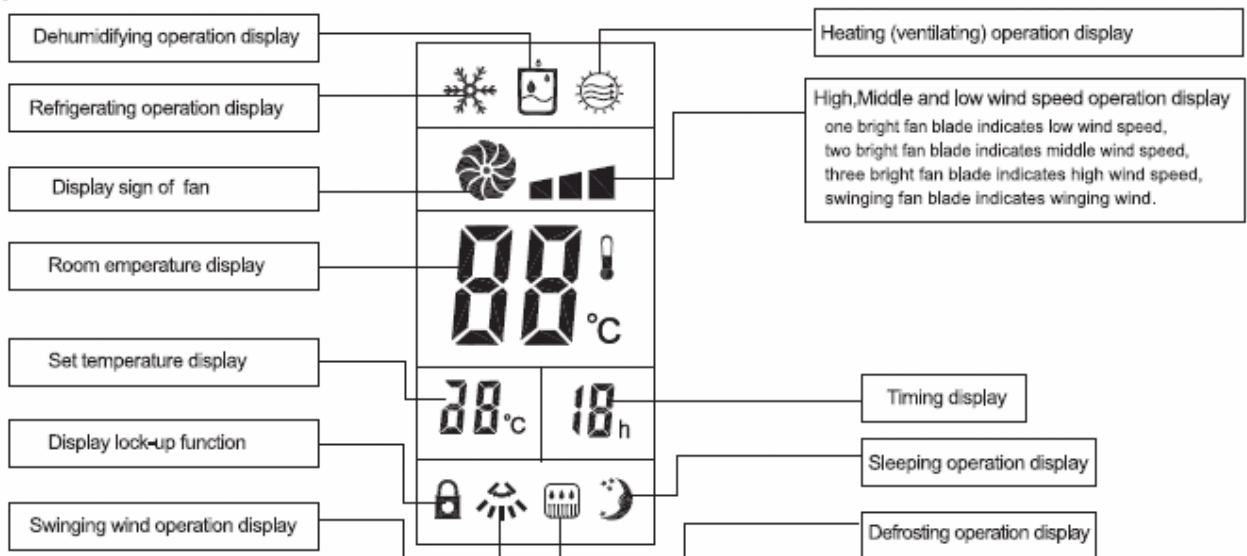
## Operation Panel

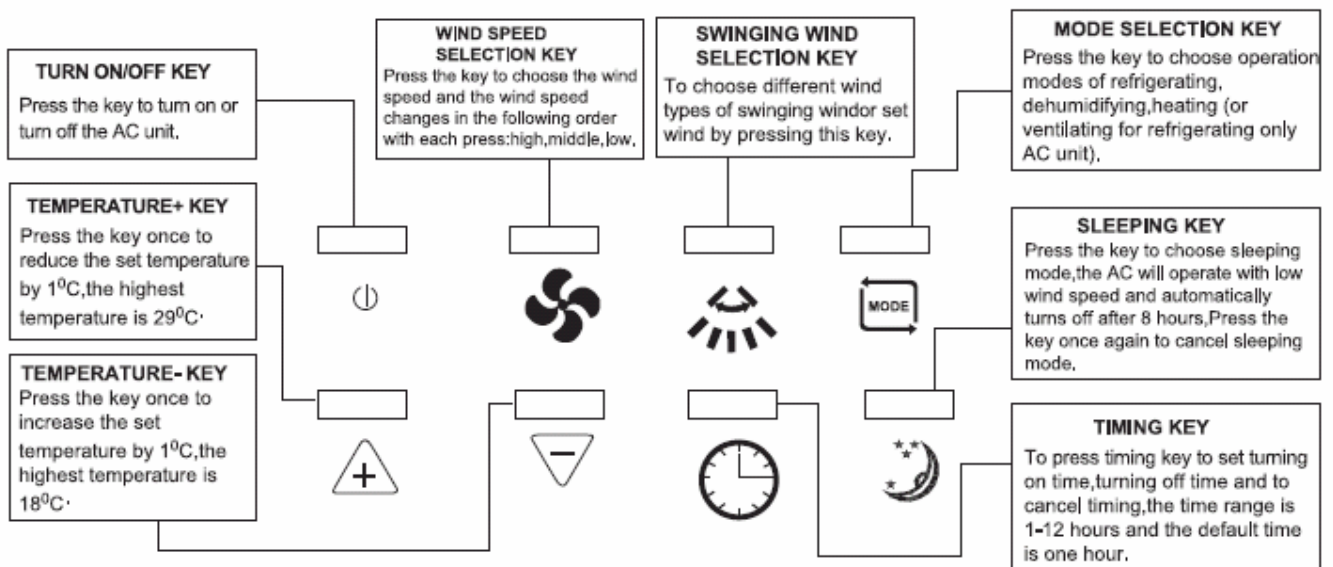
(1)





**(2)**

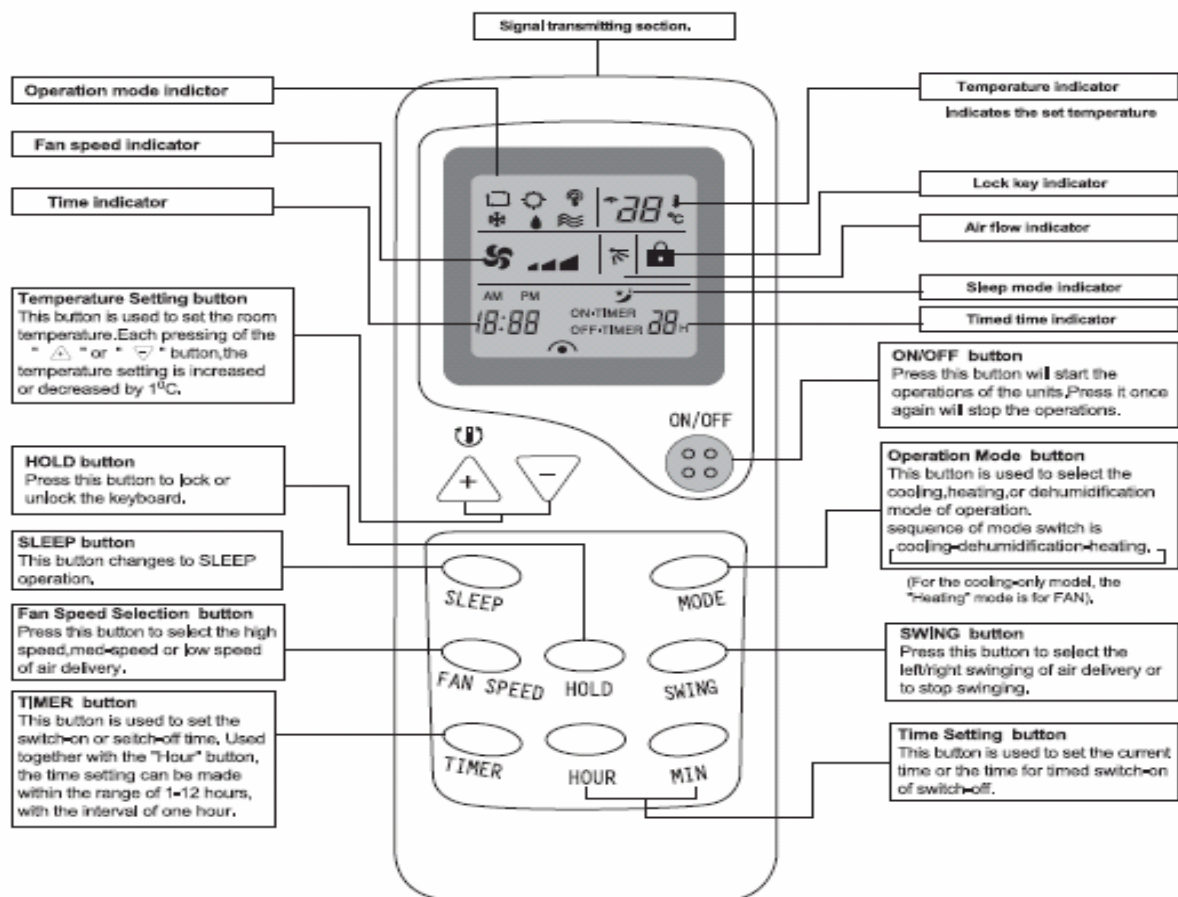




**Specification:**

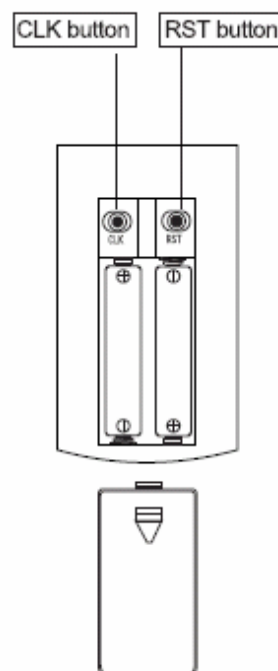
- ◆ Usually, the display screen shows only the function mode and operation status you choose.
- ◆ When room temperature equals to or is lower than 18°C, the function of dehumidifying cannot be used.
- ◆ When room temperature equals to or is lower than set temperature, the AC unit stops for a period of time to save energy.
- ◆ The AC unit is equipped with automatic defrosting function and the defrosting operation display on the display screen is bright when the machine defrosts.
- ◆ The AC unit with heat pump has auxiliary electric heating function, which will automatically turn on or off according to room temperature during heating operation to achieve the best heating result.
- ◆ If you turn on the machine immediately after it is turned off, the machine with time-lapse starting function will automatically turn on the machine after 3 minutes to protect it.

**use of remote controller**



## Operating Machine In selected modes

1. Point the remote controller at the unit,press the "MODE" button,select the needed mode cooling,heating (ventilating for cooling-only model) and dry.
2. Press the temperature setting button to increase or decrease the readings until the needed temperature is displayed;
  - In cooling/heating operations,the temperature difference of 5<sup>o</sup>C between the selected temperature and the ambiend temperature is most suitable for your health.
3. Press the air volume selection button to choose the air volume you want;
4. Press the air direction button or swinging air selection button to choose the left/right air direction you want,



## PRESENT TIME SETTING PROCEDURE

**When cells are inserted,the present is automatically set to AM 12:00.**

**Ex: set to AM 10:30.**

1. Unload the back cover push the lock button with the tip of a ball pen,etc.The time indicator is flickering and can set the present time.
- 2.Press the Hour button,(Set to AM 10:)
- 3.Press the MIN button.(set to 30)
4. Press the CLK button again, then reattach the back cover.

NOTE: The timer is set on the basis of the present time,So set the present time correctly.

## SLEEP OPERATION PROCEDURE

Use this mode to reduce operation sound when sleeping,etc.

Press the SLEEP button,the air flow sound from the indoor unit is decreased.

Press the SLEEP button again can release the mode,

and the air conditioner will be stopped automatically in 8 hours.

NOTE:

- Use the sleep mode when you are going to bed,If this mode is used in the day,the capacity is reduced since the ambient temperature is too high.(COOL MODE).
- During the operation of cooling,the room temperature will be raised by 1<sup>o</sup>C higher than the setting after the machine begins to operate in the sleeping mode.
- During the operation of heating mode,the room temperature will be dropped 2<sup>o</sup>C lower than the setting after the inachine begins to operate in the sleeding mode.

## TIMER OPERATION PRODEDURE

### Timed switch-off

- 1.Duing the operation of the air conditioner,press the TIMER button and the air conditioner will enter the timed switch-off mode,
2. Press the HOUR button to set the needed time.Every the button is pressed,indication change is the following sequence.  
1 → 2 → ..... → 12→1
- 3.After the setting,the digits shown on the display screen will go down by 1 for every elapsed hour.

### Timed switch-on

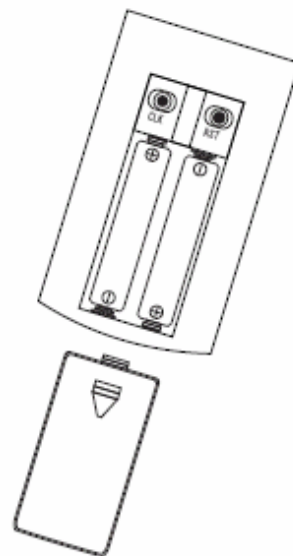
1. When the air conditioner is in the standby mode, press the TIMER button and the air conditioner will enter the timed switch-on mode.
2. Press the HOUR button to set the needed time, The timer can make the setting in the range from 1-12 hours.
3. After the setting, the digits shown on the display screen will go down by 1 for every elapsed hour.

### Releasing procedure

Press the TIMER button again to release the mode.

## REPLACEMENT OF BATTERIES

- When the signal from the remote controller become weak and the indoor unit can not receive it properly; or the indications on the display screen becomes blurred, please replace with two new batteries.
- The positive and negative poles must match the installation positions.
- The positive and negative poles must match the installation positions.
- New batteries of the same type have to be used for replacement.
- If the remote controller is not to be used for long time, take out the batteries so as to prevent the leakage of the electrolyte from damaging the controller.



### NOTE:

1. Do not use an old battery with together with a new one.
2. The life of cell made in conformity to JIS or IEC is 6 to 12 months in normal use, if it is used longer or an unspecified cell is used, a liquid leaks from the cell, causing the remote controller inoperative.
3. Guideline of the life time is printed on the battery. The battery life may be shorter than of air conditioner depending on the date of manufacture, However, the battery may be alive ever after the nominal life time expired.

### Setting of Present Time

This remote controller has the clock function and time setting is available: 1 Remove the back cover of remote controller and press "CLOCK" button, and it displays "0: 00", Press "HOUR" button once to increase 1 hour, After setting the hour, press "MIN" button once to increase 1 minute, After setting, press "CLOCK" button again to complete setting. To set again, repeat the above steps. When the remote controller doesn't work, press "RESET" button to cancel the display.

## Set SLEEP Mode with Remote Control

Use this mode for quiet environment. In running of air conditioner, operate as the following: Press SLEEP button  
The air noise from the indoor unit will be lower,

In the SLEEP mode, press SLEEP button again to cancel the sleep mode.

Note:

After setting the SLEEP mode, if the air conditioner is in COOL or DEHUMIDIFY mode, the set temperature will automatically increase 1 °C after 1 hours, If the air conditioner is in HEAT mode while setting SLEEP mode, the set temperature will decrease 2°C after 1 hour,

Timing OFF operation: Set the OFF time and the air conditioner will automatically stop at the set time,

While the air conditioner is running, press the TIMING button, and the air conditioner enters timing OFF state, and "TIMING OFF" and "TIMING" lamps will be on.

Press + or - button to set the desired timing OFF time. The set time ranges from 1 to 12 hours. The green lamps on the display area show the set OFF time, that is, the time left to turn the unit off. The number of green lamps will decrease 1 hour every hour, and the rest lamps indicate the left hours.

To cancel the setting, press the TIMING button again. Under standby state, only TIMING OFF function can be set.

Timing ON operation: Set the ON time and the air conditioner will automatically start at the set time.

While the air conditioner is at standby state, press TIMING button, and the air conditioner enters timing ON state, and "TIMING ON" and "TIMING" lamps will be on.

Press + or - button to set the desired timing ON time. The set time ranges from 1 to 12 hours. The green lamps on the display area show the set ON time, that is, the time left to turn the unit off. The number of green lamps will decrease 1 hour every hour, and the rest lamps indicate the left hours.

To cancel the setting, press the TIMING button again. Under standby state, only TIMING OFF function can be set.

### Before installation:

Selection of installation positions for indoor unit

To be installed at the position where the air delivered from the unit can reach every corner of the room

Avoid to blockage the air inlet or outlet of the indoor unit

To avoid too much oil smoke or steam

Avoid possible generation, inflow, lingering or leakage of flammable gas

Avoid high-frequency facilities (such as high frequency arc welders, etc.)

Not to install a fire alarm near the air outlet.

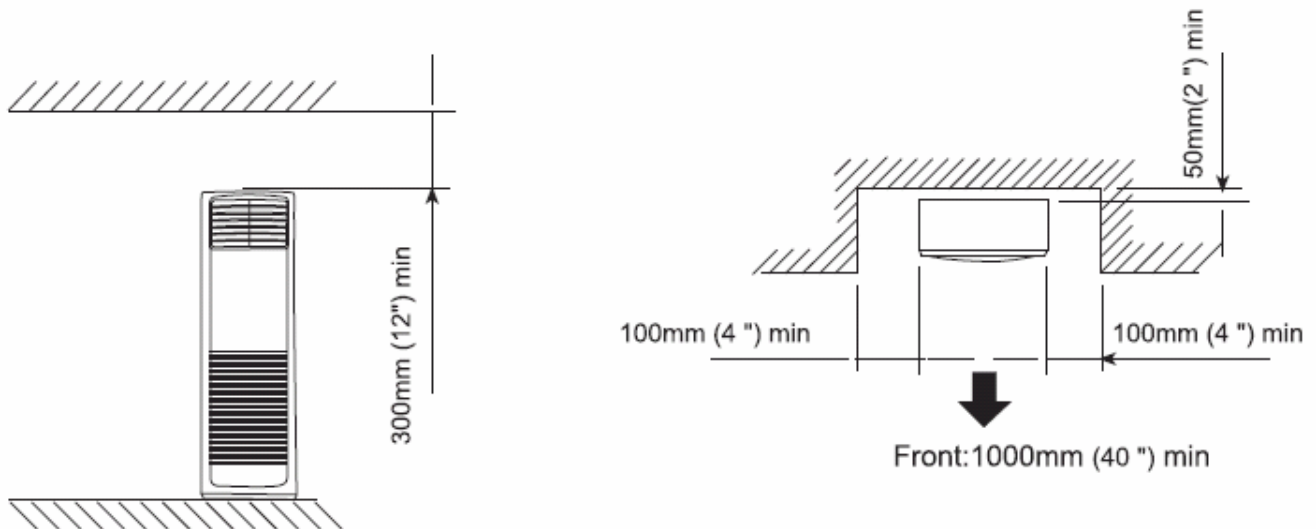
To avoid the places where acid solutions are frequently used

## 【Selection of installation positions for indoor unit】

- To be installed at the position where the air delivered from the unit can reach every corner of the room;
- To avoid being affected by the outdoor air;
- To avoid blockage to the air inlet or outlet of the unit;
- To avoid too much oil smoke or steam;
- To avoid possible generation, inflow, lingering or leakage of flammable gases;
- To avoid high-frequency facilities (such as high frequency arc welders, etc.);
- To avoid the places where acid solutions are frequently used;
- To avoid the places where some special sprayers (sulfides) are frequently used.
- Not to install a fire alarming device near the air outlet of the unit (during operation, the fire alarm device might be erroneously triggered by the warm air from the unit);

### ■ Make sure of enough space for installation and maintenance.

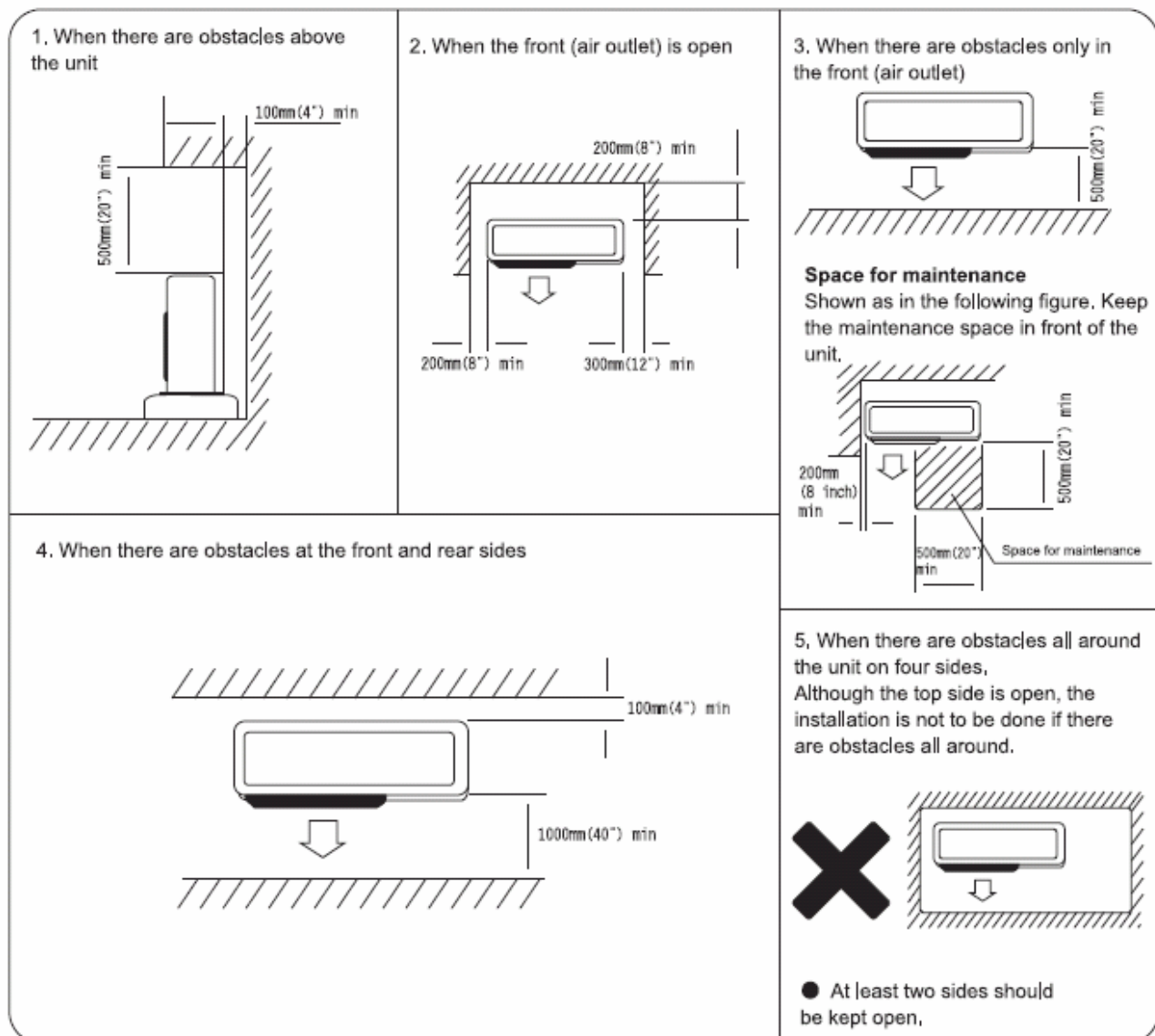
- To take into consideration the operational convenience and safety in installation, it is recommended to ensure enough space between the unit and the walls.



## 【Selection of installation positions for outdoor unit】

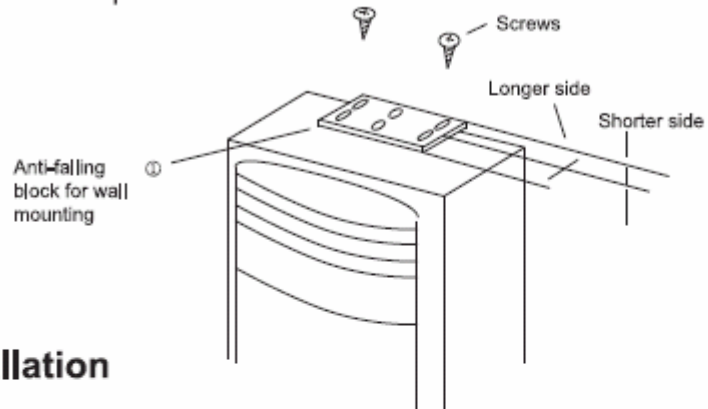
- To install the outdoor unit at the places which can stand the load of the machine weight and will not cause big vibrations and noises;
- To install the unit at the places not to be exposed to rain or direct sunshine, and the places with good ventilation;
- When installing by the sea or at the site with strong air, to ensure the fan can operate normally, the air conditioner need be installed close to a wall and use baffle plate.
- The noises generated from the unit will not affect the neighboring places;
- Do not install the unit on non-metal frame.
- Not to install the unit at the places where there might occur the generation, inflow, stay or leakage of inflammable gases;
- Pay attention to the drainage of the condensed water from the base plate during operations;
- To avoid the air outlet being directly against the wind.

## Detailed space requirements around the outdoor unit



## 【Installation fixture of indoor unit】

As the gravity center of the unit is rather high, you have to make sure that anti-falling measures are taken after the installation position is determined so as to ensure safety.

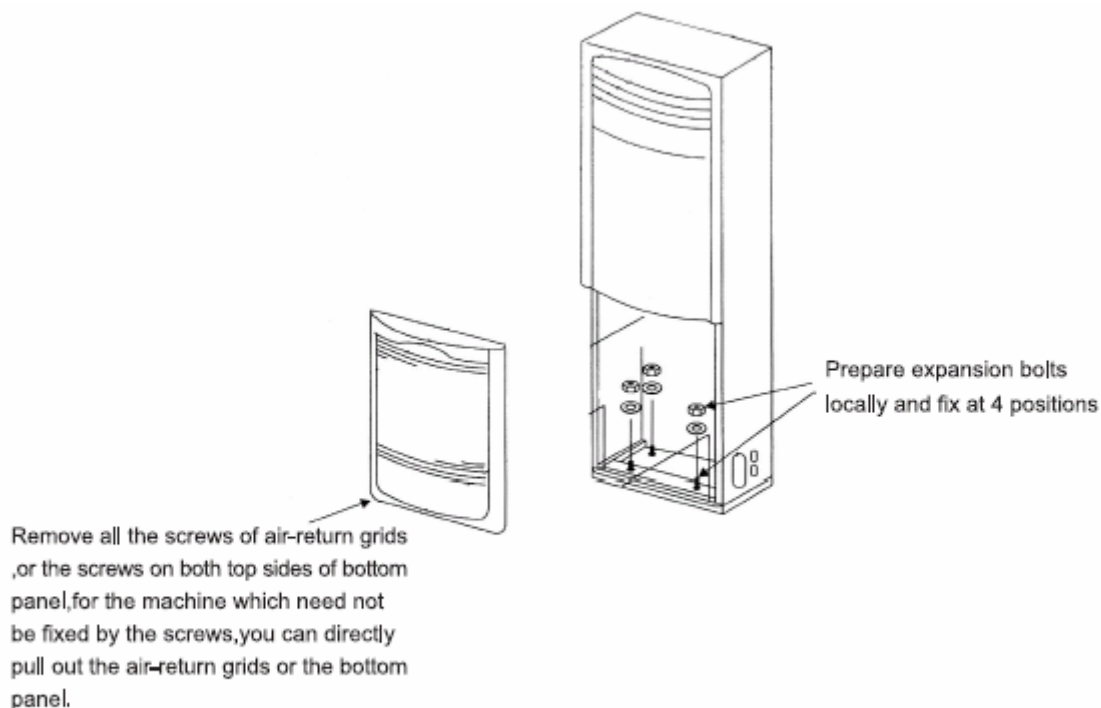


## ■ Anti-falling blocks Installation

- The anti-falling block (1) is to be preset on top of the unit. When installing, loosen the screws and remove it from the unit. Turn the block upside down, aligning it to the corresponding dimension on the wall and fix it firmly.
- If the top cover of the indoor unit is made of plastics, please insert the longer side of the anti-falling block into the gap between the top board and the unit body, while fixing the shorter side to the wall.

## ■ Indoor floor fixing (optional procedure)

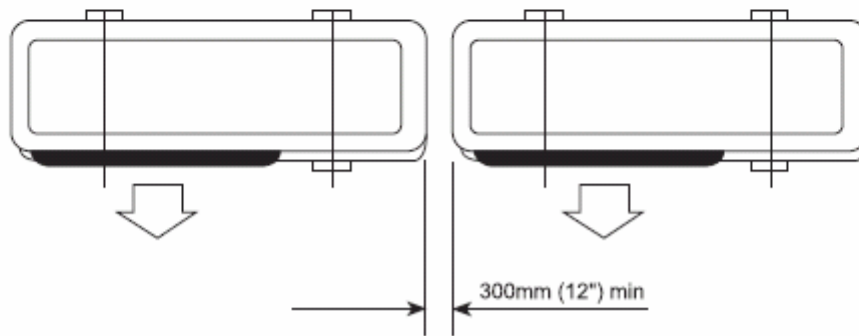
Remove the air-return grids, drill holes on the base for floor fixing. Use expansion bolts on the floor for fixing. (You have to prepare the needed expansion bolts locally).



When the walls and floor are made of materials other than wood boards, please use M8 x 60 expansion bolts for fixing.

## 【Installation fixture of outdoor unit】

- Try to ship the product to the installation location in its original package;
- As the gravity center of the unit is not at the installation center, special caution should be taken when using hoisting cables to lift it up;
- During shipping, the outdoor unit must not be slanted to over 45 degrees (Do not store the unit in a horizontal way).
- Use expansion bolts to fix the mounting supports on the wall;
- Use bolts and nuts to fix the outdoor unit firmly on the supports and keep on the same level;
- If the unit is installed on the wall or at the rooftop, the supports have to be firmly fixed so as to resist earthquake or strong wind.



## 【Installation of refrigerant pipe and drainage tube】

- In some special cases, it is needed to buy thermal insulation materials with a thickness of 12mm minimum and the thermal sheath with good property so as to prevent from dew-dropping.
- When the installation of the drainage tube passes the indoor space, thermal-keeping measures should be taken to prevent from dew-dropping.
- Our Co. accessories for piping lines are recommended in general.

### I Dimensions of refrigerant pipe and drainage tube (outer diameter)

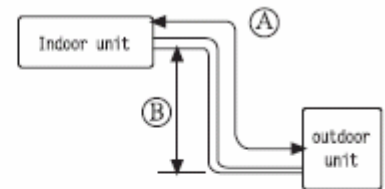
In the case that there is the need to purchase additional refrigerant pipe or drainage tube, please refer to the following table: (unit: mm)

Item		Cooling capacity	4100~5100W	6000~7500W	10000~14500W
Refrigerant pipe	Liquid pipe		∅ 6.35 (1/4")	∅ 9.52 (3/8")	∅ 9.52 (3/8") / ∅ 12.7 (1/2")
	Gas pipe		∅ 12.7 (1/2")	∅ 15.88 (5/8")	∅ 19.05 (3/4")
Drainage tube		PVC tubes ...VP-20 [Outer diameter 26(1")]			

### II High differences of the indoor and outdoor units, length limits to the refrigerant piping lines

Cooling capacity	A, Length of Piping Line (one-way)	B, Height Differences
4100~5100W	10m(32'10")max.	5m(16'5")max.
6000~7500W	15m(49'2")max.	5m(16'5")max.
10000~14500W	20m(65'7")max.	5m(16'5")max.

- Either the indoor unit or the outdoor unit can be higher, but the height difference must comply the above-stated requirements.
- Try to reduce the bending of the piping line as much as possible so as to avoid possible negative impacts upon the performances of the units.



### III Refrigerant pipes installation

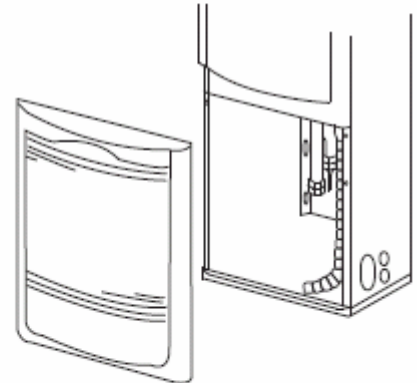
#### ■ Prior to connect the refrigerant pipes

1.Remove all the screws on the handle of the air-return grids ,or the screws on both top sides of bottom panel,for the machine which need not be fixed by the screws,you can directly pull out the air-return grids or the bottom panel.

#### ■ Connect the refrigerant pipes

1.Keep the stop-valve or ball-valve of the outdoor unit in the original closed state .Remove the screws nuts,dust-resistance caps and pipe end screw blocks from the indoor and outdoor pipes.

2.Do the bell-mouth connections quickly,connect all the refrigerant pipes.



#### ■ Schematic diagram for the installation of the outdoor unit refrigerant piping system

Fig 1

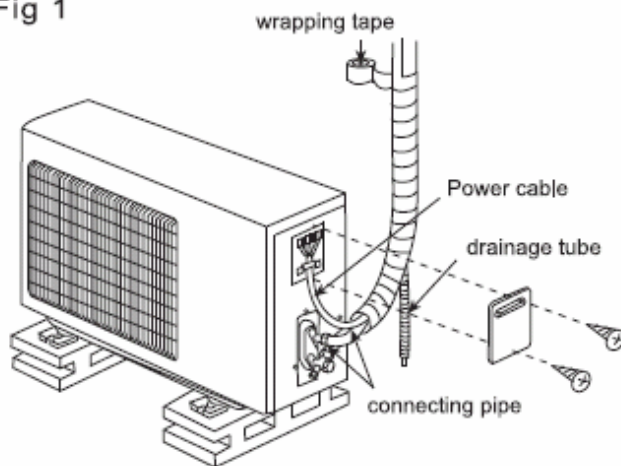
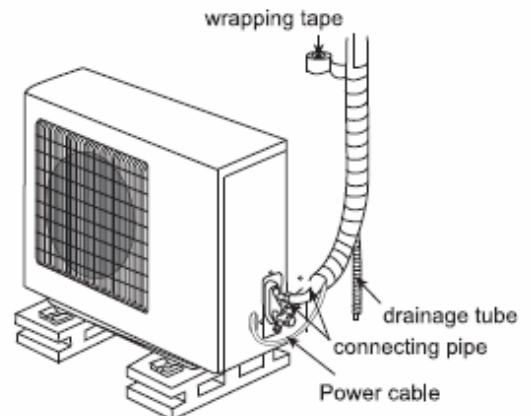


Fig 2



#### Note:

- 1.Connect the indoor pipes first,then the outdoor pipes.
- 2.When bending the equipped pipes,please be careful not to damage the connection pipes.
- 3.Before tightening the bell-mouth nuts,a thin layer of anti-freezing grease should be placed on the surface of the connection between the pipe and the join.
- 4.Do not screw the connector nut too tightly,or it is possible to cause leakage.

Please refer to the below Table 1 for the related torque

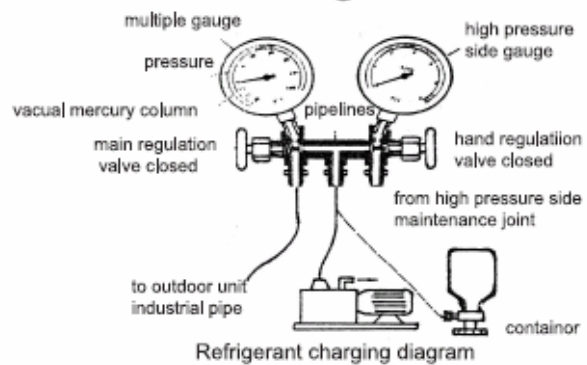
Outer diameter of copper pipe	Tightening torque	Strengthened tightening torque
∅ 6.35 (1/4")	160kgf·cm(63kgf·inch)	200kgf·cm(79kgf·inch)
∅ 9.52 (3/8")	300kgf·cm(118kgf·inch)	350kgf·cm(138kgf·inch)
∅ 12.7 (1/2")	500kgf·cm(197kgf·inch)	550kgf·cm(216kgf·inch)
∅ 15.88 (5/8")	750kgf·cm(295kgf·inch)	800kgf·cm(315kgf·inch)
∅ 19.05 (3/4")	1200kgf·cm(472kgf·inch)	1400kgf·cm(551kgf·inch)

#### IV. Installation of drainage tubes

- The drainage tubes must be slanted downwards to ensure that water is not accumulated;
- There might be condensing water on the surface of the drainage tubes. Please purchase thermal insulation sheath as needed;
- The joints must be firmly adhered together by applying polyvinyl adhesives to prevent from leakage;
- Do not directly insert the drainage tube into the sewer tunnel which might generate sulfate gases or into the places which might generate unpleasant smell.

### 【Exhaust air and leakage detection】

■ If possible, it is better to use pump vacuum to exhaust the air. The procedures must be operated by professional technicians.



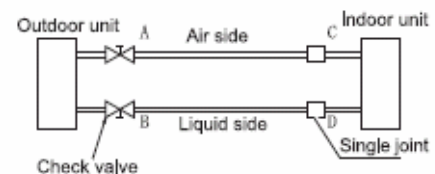
■ If the refrigerant is for R22, you can choose the suitable methods to exhaust air according to following table:

Remark: if have moved the air conditioner unit that have installed and operated to another place, then need refrigerant pot to exhaust the air.

Pipe length	Exhaust air methods	Add refrigerant volume	
<5m(16'5")	Use the refrigerant in outdoor unit	—	
5-10m (16'5"-32'10")	Use refrigerant pot	Liquid pipe diameter ∅6.35(1/4")	(Connecting pipe length-5m)x30g or (Connecting pipe length-16'5")x0,76g
		Liquid pipe diameter:∅9.52(3/8")	(Connecting pipe length-5m)x65g or (Connecting pipe length-16'5")x1,65g
		Liquid pipe diameter:∅12.7(1/2")	(Connecting pipe length-5m)x100g or (Connecting pipe length-16'5")x2,54g

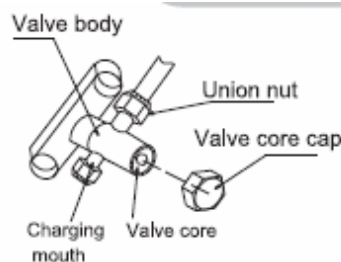
#### ■ use refrigerant in outdoor unit to exhaust the air

1. Tighten the union nut B,C,D with wrenchs according to torque Table 1, then loose half-circle after tightening union nut A
2. Turn the valve core of valve B about 6-7 seconds with an angle of 45 anti-clockwisely to exhaust the air from valve A, then tighten the union nut A.
3. Open the valve core of check valve B and A completely, then tighten the valve core cap of the check valve.



## ■ use refrigerant pot to exhaust the air

1. Tighten the union nut C and D of indoor unit ,also for union nut A of outdoor unit(refer to above torque Table1).
2. Connect the charging hose of refrigerant pot with the charging mouth of valve A
3. Loose the union nut B of outdoor unit slightly.
4. Open the valve of refrigerant pot,charge the refrigerant about 10-15 seconds,then close it completely.
5. Wait until the sound of air flowing in union nut B was decreased obviously,then tighten the union nut B.
6. Remove the charging hose from the charging mouth of valve A,then push the needle valve of charging mouth with the tool like hexagon spanner to outlet the remain refrigerant from the pipe,until no sound of air flowing be heard,then tighten the valve cap of charging mouth.
7. Open the valve core of check valve Band A of outdoor unit completely,then tighten the valve core cap of check valve.



■ After exhaust air have done, should detect leakage according to the possible leakage points during the installation of air conditioner units.

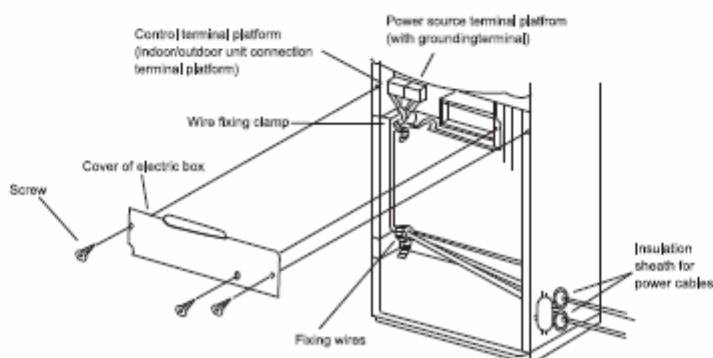
1. To scribble the suds or bubble evenly on the possible leakage points, to see if have bubbles comes out.
2. Use the probe of leakage detection instrument to check the possible leakage points.

## 【Connections of power cables】

- Special purpose power source should be utilized along with proper breaker installation;
- Make sure of the applicable voltage and cables or wires for the specific model to be used, before doing the connections;
- The cable connections must be done in accordance with the requirements specified in the drawings. The screws have to be tightened firmly to prevent from being loose;
- Check carefully the wiring codes at the terminal platform. Both the indoor and outdoor units have wiring codes, which should be matched one by one to avoid wrong connections;
- The wiring terminals of the indoor and outdoor units must not be connected to the 220V power source, otherwise faulty performances or hazards might be incurred.

### **Cable connections for indoor unit**(Please tighten the screws at the terminals firmly)

1. Remove the fixing screws of the electric box and take the box down;
2. Connect the power cables and control cables;
3. Fix the connected cables by clamps;
4. The grounding wire must be connected firmly;
5. If the cables contact the piping lines, there might be dew drops. Please make proper treatment for the wires.

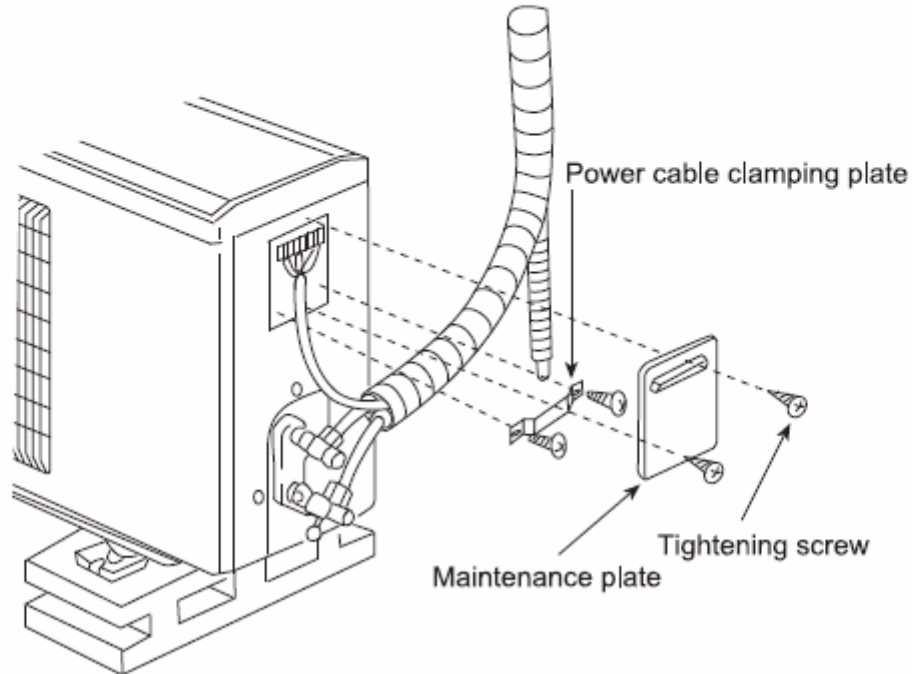


- After the cable connection is completed, the removed parts must be installed back to their original places.

## Cable connections for outdoor unit

### ● Outdoor unit as shown below figure

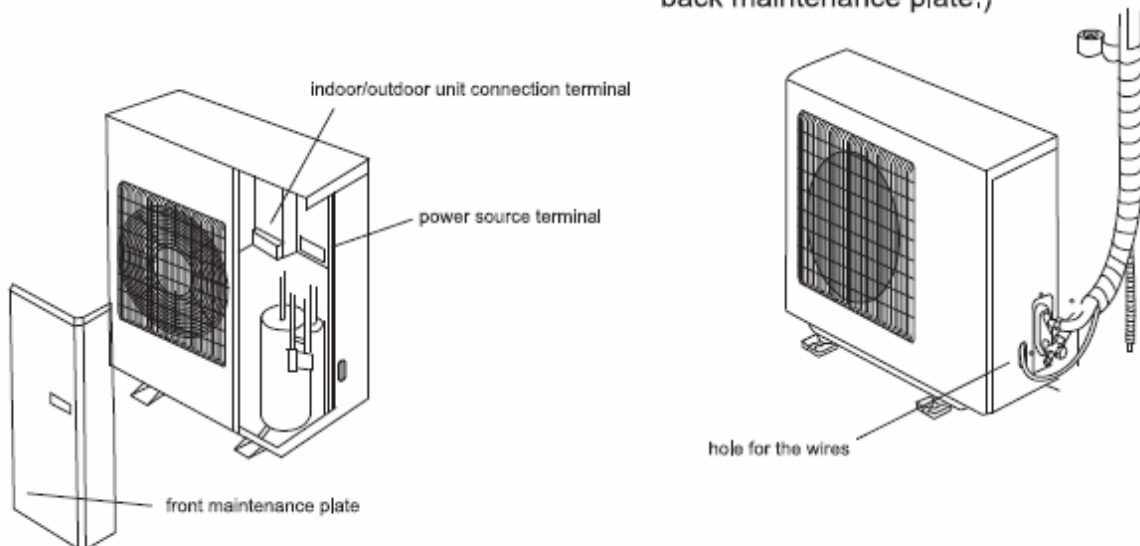
1. Remove the screws of the maintenance plate and take the plate off;
2. Remove the screws of the cable clamping plate to loosen the clamping plate;
3. Connect the power cables and control wires;
4. Install the clamping plate, tighten the cables and wires and then place the maintenance plate back.



### ● Outdoor unit as shown below figure

1. Remove the front maintenance plate

2. Connect the power cables and control wires. (There is a hole for the wires on the back maintenance plate.)



**Note:**Firmly tighten the screws of the terminal platform

## 【Finishing touches】

- wrap the pipelines tightly with ethylene tapes.
- Fix the wrapped pipelines on the exterior wall with clamps.
- Fill in the gaps left over by the pipeline hole and wall hole to prevent rain-water from entering.

## 【Test running】

- Connect to the power source, check if the function selection keys on the remote controller are working properly.
- Check if the room temperature adjustments and timer settings are working properly.
- Check if the drain is smooth.
- Check if there is any abnormal noise or vibration during operation.
- Check if there is leakage of refrigerant.

## 【Is the unit installed correctly?】

### ■ Suitable Installation Position

- Isn't there anything which prevents ventilation or obstructs operation in front of the indoor unit ?

Do not install the unit following place .

- Inflammable gases may leak .
- Oil splashes a lot .
- In case where the unit is used in such places as poisonous or sultry gases are generated or seaside district exposed to sea breezes corrosion may cause malfunction . Consult with your distributor .
- Air conditioner body and remote controller must be 1 m(39-3/4") or more away from a TV or a radio.

Drain the dehumidified water from the indoor unit to a place which drains well .

### ■ Pay attention to operation noise

- When installing the unit , choose a place which can stand the weight of the unit well and does not increase the operation noise or vibration . Especially where there is a possibility that vibration be transmitted to the house , fix the unit by inserting attached vibration -proof pads between the unit and fittings .

- Choose the place where hot air and operation noise from the outlet of the outdoor unit do not annoy the neighborhood .

- Things left near the outlet and inlet of the outdoor unit cause malfunction or increased operation noise . Do not leave obstacles near the outlet and inlet .

- If irregular sound is heard during operation , consult with your distributor .



#### 4.1.2 Spare parts list of indoor unit

Table 1.2-1

No	Description		Part No				Qty
			KF-51L/Ac	KFR-51L/Ac	KF-61L/Ac	KFR-61L/Ac	
1	Air filter left guide way	过滤网左导轨	029991304	029991304	029991304	029991304	1
2	Down panel	下面板	965900035	965900035	392020023	392020023	1
3	Air filter right guide way	过滤网右导轨	029991404	029991404	029991404	029991404	1
4	Air filter	过滤网	100190201	100190201	100190201	100190201	
5	Volute supporting board	蜗壳支撑板	029991002	029991002	029991002	029991002	1
6	Air return cap	回风罩	100150002	100150002	100150002	100150002	1
7	Volute	蜗壳	130020207	130020207	130020207	130020207	1
8	Centrifugal fan	离心风轮	100020010	100020010	100020010	100020010	1
9	Motor	电机	030020187	030020187	320236002	030020146	1
10	Press line plate	压线板	029990406	029990406	029990406	029990406	1
11	Base	底盘	100060201	100060201	100060201	100060201	1
12	Control Connecting wire A	室内外控制连接线 A	342200095	342200095	342200133	342200133	1
13	Control Connecting wire B	室内外控制连接线 B	-----	050020040	-----	050020040	1
14	Power cord	整机电源线	050010008	050010008	050010009	050010009	1
15	Press tube plate	压管板	029991902	029991902	029991902	029991902	1
16	Right panel	右侧板	312030008	312030008	312030008	312030008	
17	Back panel	背板	020170002	020170002	020170002	020170002	1
18	Top panel	顶盖板	392080012	392080012	392080012	392080012	1
19	Left panel	左侧板	990370002	990370002	312020006	312020006	1
20	Water accumulation pan sheathing	积水盘支撑板	029990906	029990906	029990906	029990906	1
21	Water accumulation pan	积水盘	100290002	100290002	100290002	100290002	1
22	Evaporator high pressure tube	蒸发器高压管	070070007	070070007	360630001	360630001	1
23	Indoor unit distributary head	室内机分流头	990135101	990135101	960800052	960800052	1
24	Evaporator low pressure tube	蒸发器低压管	070080006	070080006	070080011	070080011	1
25	Protect plate of copper pipe	铜管护板	109990040	109990040	109990040	109990040	1
26	Evaporator	蒸发器	371200001	371200001	371200001	371200001	1
27	Electric heater protect net	电加热防护网	-----	029992201	-----	029992201	1
28	Tubular electric heating element	电热管	-----	962300001	-----	030040015	2
29	Controller temperature	温控器	-----	030060007	-----	030060007	1
30	Fuse	熔断器	-----	030070004	-----	030070004	1

31	Middle protection plate	中护板	029990802	029990802	029990802	029990802	1
32	Electric box	电器盒	020150005	020150005	020150005	020150005	1
33	PCB board	PCB板	0400201C4	0400201C5	0400201A1	0400201A0	1
34	Capacitor	电容	030010008	030010008	030010009	030010009	
35	Terminal Board	端子台	030090064 030090067	030090018 030090067	030090064 030090067	030090018 030090067	1
36	Transformer	变压器	321620004	321620004	321600001	030180006	
37	Electric box cover	电器盒盖	020160003	020160003	020160003	0201600033	1
38	Electric control box	电控盒	312990003	109990081	109990081	109990081	1
39	Vertical louver connecting rod	竖导风条连杆	100511003	100511003	100511003	100511003	1
40	Vertical louver	竖导风条	100511004	100511004	100511004	100511004	6
41	Up panel	上面板	392040028	392040028	392040034	392040034	1
42	Transverse louver	横导风条	392130123	392130123	100511005	100511005	6
43	Middle panel	中面板	392050047	392050047	392050040	392050040	1

Table 1.2-2

No	Description		Part No				Qty
			KF-70L/B	KFR-70L/B	CF-72C3-G21AS	CF-72A3A-B02AS	
1	Air filter left guide way	过滤网左导轨	029991304	029991304	----	029991304R	1
2	Down panel	下面板	392020028	392020028	392140162	392020023R	1
3	Air filter right guide way	过滤网右导轨	029991404	029991404	----	029991404R	1
4	Air filter	过滤网	100190230	100190230	100190216	100190201R	1
5	Volute supporting board	蜗壳支撑板	029991004	029991004	----	029991002	1
6	Air return cap	回风罩	100150007	100150007	100150007	100150007R	1
7	Volute	蜗壳	130020208	130020208	437200001	437200001R	1
8	Centrifugal fan	离心风轮	100020029	100020029	100020029	100020029R	1
9	Motor	电机	0300201I4	0300201I4	320206012	320205007R	1
10	Press line plate	压线板	029990404	029990404	029990406	029990406R	1
11	Base	底盘	100060223	100060223	392060016	100060201R	1
12	Control Connecting wire A	室内外控制连接线 A	050020047	050020049	050020046	050020082R	1
13	Control Connecting wire B	室内外控制连接线 B	342100008	342100008	----	342300001R	1
14	Power cord	整机电源线	050010033	050010032	050010035	050010076R	1
15	Press tube plate	压管板	029991902	029991902	029991902	029991902R	1
16	Right panel	右侧板	020060031	020060031	312030008	312030008R	1
17	Back panel	背板	020170004	020170004	312010011	312010007R	1
18	Top panel	顶盖板	020080007	020080007	020080003	392080012	1
19	Left panel	左侧板	020050018	020050018	312020006	312020006R	1
20	Water accumulation pan sheathing	积水盘支撑板	029990904	029990904	029990906	029990906R	1
21	Water accumulation pan	积水盘	100290010	100290010	100290002	100290002R	1

22	Evaporator high pressure tube	蒸发器高压管	070070012	070070012	360630011	360630011R	1
23	Indoor unit distributary head	室内机分流头	990070152	990070152	960800192	960800192R	1
24	Evaporator low pressure tube	蒸发器低压管	070080010	070080010	360740002	360740002R	1
25	Protect plate of copper pipe	铜管护板	109990040	109990040	109990040	109990040R	1
26	Evaporator	蒸发器	080020048	080020048	371200011	371200011R	1
27	Electric heater protect net	电加热防护网	----	029992204	----	312240002R	1
28	Tubular electric heating element	电热管	----	320430011	----	320430025R	3/2
29	Controller temperature	温控器	----	320600013	----	320600010R	1
30	Fuse	熔断器	----	030070005	----	030070005R	1
31	Middle protection plate	中护板	029990804	029990804	029990802	029990802R	1
32	Electric box	电器盒	020150005	020150005	020150005	020150005R	1
33	PCB board	PCB板	040020180	332300056	332100001	332300042R	1
34	Capacitor	电容	030010010	030010010	030010010	030010010R	1
35	Terminal Board	端子台	030090124	030090058	030090124	030090058R	1
36	Transformer	变压器	030180006	030180006	321620004	321620004R	1
37	Electric box cover	电器盒盖	020160004	020160004	020160003	020160003R	1
38	Electric control box	电控盒	109990081	109990081	109990081	109990081R	1
39	Vertical louver connecting rod	竖导风条连杆	100512003	100512003	392130034	100511003	1
40	Vertical louver	竖导风条	100512004	100512004	392130008	100511004	6
41	Up panel	上面板	392040039	392040039	392040036	392140158	1
42	Transverse louver	横导风条	392130126	392130126	392130039	100511005	6
43	Middle panel	中面板	392050050 392140168	392050050 392140168	----	392152016R	1

Table 1.2-3

No	Description		Part No				Qty
			KF-75W/B	KFR-75L/B	KF-75L/BS	KFR-75L/BS	
1	Air filter left guide way	过滤网左导轨	029991304	029991304	029991304	029991304	1
2	Down panel	下面板	100147004	100147004	100147004	100147004	1
3	Air filter right guide way	过滤网右导轨	029991404	029991404	029991404	029991404	1
4	Air filter	过滤网	100190230	100190230	100190230	100190230	1
5	Volute supporting board	蜗壳支撑板	029991004	029991004	029991004	029991004	1
6	Air return cap	回风罩	100150007	100150007	100150007	100150007	1
7	Volute	蜗壳	130020208	130020208	130020208	130020208	1
8	Centrifugal fan	离心风轮	100020029	100020029	100020029	100020029	1

9	Motor	电机	320275008	320275008	320275008	320275008	1
10	Press line plate	压线板	029990404	029990404	029990404	029990404	1
11	Base	底盘	100060223	100060223	100060223	100060223	1
12	Control Connecting wire A	室内外控制连接线 A	050020046	342100008	342100008	342100008	1
13	Control Connecting wire B	室内外控制连接线 B	---	050020049	050020047	050020049	1
14	Power cord	整机电源线	050010035	050010034	050010033	050010032	1
15	Press tube plate	压管板	029991902	029991902	029991902	029991902	1
16	Right panel	右侧板	020060031	020060031	020060031	020060031	1
17	Back panel	背板	020170004	020170004	020170004	020170004	1
18	Top panel	顶盖板	020080007	020080007	020080007	020080007	1
19	Left panel	左侧板	020050018	020050018	020050018	020050018	1
20	Water accumulation pan sheathing	积水盘支撑板	029990904	029990904	029990904	029990904	1
21	Water accumulation pan	积水盘	100290010	100290010	100290010	100290010	1
22	Evaporator high pressure tube	蒸发器高压管	070070012	070070012	070070012	070070012	1
23	Indoor unit distributary head	室内机分流头	070090033	070090033	070090033	070090033	1
24	Evaporator low pressure tube	蒸发器低压管	070080010	070080010	070080010	070080010	1
25	Protect plate of copper pipe	铜管护板	029990605	029990605	029990605	029990605	1
26	Evaporator	蒸发器	080020048	080020048	080020048	080020048	
27	Electric heater protect net	电加热防护网	---	029992204	---	029992204	1
28	Tubular electric heating element	电热管	---	320430011	---	320430011	1
29	Controller temperature	温控器	---	030060007	---	030060007	1
30	Fuse	熔断器	---	030070005	---	030070005	1
31	Middle protection plate	中护板	029990804	029990804	029990804	029990804	1
32	Electric box	电器盒	020150008	020150008	020150008	020150008	1
33	PCB board	PCB 板	0400201C8	0400201C7	0400201C8	0400201C7	1
34	Capacitor	电容	030010011	030010011	030010011	030010011	1
35	Terminal Board	端子台	030090124	030090058	030090124	030090058	1
36	Transformer	变压器	030180019	030180019	030180019	030180019	1
37	Electric box cover	电器盒盖	312050003	312050003	312050003	312050003	1
38	Electric control box	电控盒	392100001	392100001	392100001	392100001	1
39	Vertical louver connecting rod	竖导风条连杆	100512003	100512003	100512003	100512003	1
40	Vertical louver	竖导风条	100512004	100512004	100512004	100512004	6
41	Up panel	上面板	100512001	100512001	100512001	100512001	1
42	Transverse louver	横导风条	100512005	100512005	100512005	100512005	6
43	Middle panel	中面板	100177001	100177001	100177001	100177001	1

Table 1.2-4

No	Description		Part No				Qty
			KF-120LW/B	KFR-120LW/B	KT3F-120L/Be	KT3FR-120L/Be	
1	Air filter left guide way	过滤网左导轨	029991303	029991303	029991303	029991303	1
2	Down panel	下面板	100140023	100140023	100140023	100140023	1
3	Air filter right guide way	过滤网右导轨	029991403	029991403	029991403	029991403	1
4	Air filter	过滤网	100190224	100190224	100190224	100190224	1
5	Volute supporting board	蜗壳支撑板	029991003	029991003	029991003	029991003	1
6	Air return cap	回风罩	100150003	100150003	100150003	100150003	1
7	Volute	蜗壳	130020205	130020205	130020205	130020205	1
8	Centrifugal fan	离心风轮	100020012	100020012	100020012	100020012	1
9	Motor	电机	320275026	320275026	320275026	320275026	1
10	Press line plate	压线板	029990403	029990403	029990403	029990403	1
11	Base	底盘	100060234	100060234	100060234	100060234	1
12	Control Connecting wire A	室内外控制连接线 A	050020046	342100008	050020046	342100008	1
13	Control Connecting wire B	室内外控制连接线 B	——	050020024	——	050020024	1
14	Power cord	整机电源线	050010032	341210005	050020229	050020229	1
15	Press tube plate	压管板	029991902	029991902	029991902	029991902	1
16	Right panel	右侧板	020060006	020060006	020060006	020060006	1
17	Back panel	背板	020170003	020170003	020170003	020170003	1
18	Top panel	顶盖板	020080005	020080005	020080005	020080005	1
19	Left panel	左侧板	020050013	020050013	020050013	020050013	1
20	Water accumulation pan sheathing	积水盘支撑板	029990903	029990903	029990903	029990903	1
21	Water accumulation pan	积水盘	100290003	100290003	100290003	100290003	1
22	Evaporator high pressure tube	蒸发器高压管	070070014	070070014	070070014	070070014	1
23	Indoor unit distributary head	室内机分流头	361150002	361150002	070090026	070090026	1
24	Evaporator low pressure tube	蒸发器低压管	070080012	070080012	070080012	070080012	1
25	Protect plate of copper pipe	铜管护板	029990604	029990604	029990604	029990604	1
26	Evaporator	蒸发器	371200003+ 371200004	371200003+ 371200004	080020027	080020026	1
27	Electric heater protect net	电加热防护网	——	029992202	——	029992202	1
28	Tubular electric heating element	电热管	——	030040018	——	030040018	1
29	Controller temperature	温控器	——	030060007	——	030060007	1
30	Fuse	熔断器	——	030070005	——	030070005	1

31	Middle protection plate	中护板	029990803 020150004	029990803 020150004	029990803 020150004	029990803 020150004	1 1
32	Electric box	电器盒					
33	PCB board	PCB板	0400201C6	0400201D2	040020192	0400201D2	1
34	Capacitor	电容	030010011	030010011	030010011	030010011	1
35	Terminal Board	端子台	030090124	030090039	030090124	030090039	1
36	Transformer	变压器	030180019	030180019	030180006	030180019	1
37	Electric box cover	电器盒盖	312050001	312050001	312050001	312050001	1
38	Electric control box	电控盒	100220023	100220023	100220023	100220023	1
39	Vertical louver connecting rod	竖导风条连杆	100513002	100513002	100513002	100513002	1
40	Vertical louver	竖导风条	100513004	100513004	100513004	100513004	6
41	Up panel	上面板	100513001	100513001	392130144	100513001	1
42	Transverse louver	横导风条	100513005	100513005	100513005	100513005	6
43	Middle panel	中面板	100170021	100170021	392050042	100170021	1

Table 1.2-5

No	Description		Part No				Qty
			KT3F-145L/Be	KT3FR-145L/Be			
1	Air filter left guide way	过滤网左导轨	029991303	029991303			1
2	Down panel	下面板	100140023	100140023			1
3	Air filter right guide way	过滤网右导轨	029991403	029991403			1
4	Air filter	过滤网	100190224	100190224			1
5	Volute supporting board	蜗壳支撑板	029991003	029991003			1
6	Air return cap	回风罩	100150003	100150003			1
7	Volute	蜗壳	130020205	130020205			1
8	Centrifugal fan	离心风轮	100020012	100020012			1
9	Motor	电机	320275026	320275026			1
10	Press line plate	压线板	029990403	029990403			1
11	Base	底盘	100060234	100060234			1
12	Control Connecting wire A	室内外控制连接线 A	050020046	342100008			1
13	Control Connecting wire B	室内外控制连接线 B	---	050020024			1
14	Power cord	整机电源线	050020229	050020229			1
15	Press tube plate	压管板	029991902	029991902			1
16	Right panel	右侧板	020060006	020060006			1
17	Back panel	背板	020170003	020170003			1
18	Top panel	顶盖板	020080005	020080005			1
19	Left panel	左侧板	020050013	020050013			1
20	Water accumulation pan sheathing	积水盘支撑板	029990903	029990903			1
21	Water accumulation pan	积水盘	100290003	100290003			1
22	Evaporator high	蒸发器高压管	070070014	070070014			1

	pressure tube						
23	Indoor unit distributary head	室内机分流头	070090026	070090026			1
24	Evaporator low pressure tube	蒸发器低压管	070080012	070080012			1
25	Protect plate of copper pipe	铜管护板	029990604	029990604			1
26	Evaporator	蒸发器	080020026	080020027			1
27	Electric heater protect net	电加热防护网	---	029992202			1
28	Tubular electric heating element	电热管	---	320430005			1
29	Controller temperature	温控器	---	030060007			1
30	Fuse	熔断器	---	030070005			1
31	Middle protection plate	中护板	029990803	029990803			1
32	Electric box	电器盒	020150004	020150004			1
33	PCB board	PCB 板	040020192	040020193			1
34	Capacitor	电容	030010014	030010014			1
35	Terminal Board	端子台	030090124	030090058+ 030090039			1
36	Transformer	变压器	030180006	030180006			1
37	Electric box cover	电器盒盖	312050001	312050001			1
38	Electric control box	电控盒	100220023	100220023			1
39	Vertical louver connecting rod	竖导风条连杆	100513002	100513002			1
40	Vertical louver	竖导风条	100513004	100513004			6
41	Up panel	上面板	100513001	100513001			1
42	Transverse louver	横导风条	100513005	100513005			6
43	Middle panel	中面板	100170021	100170021			1

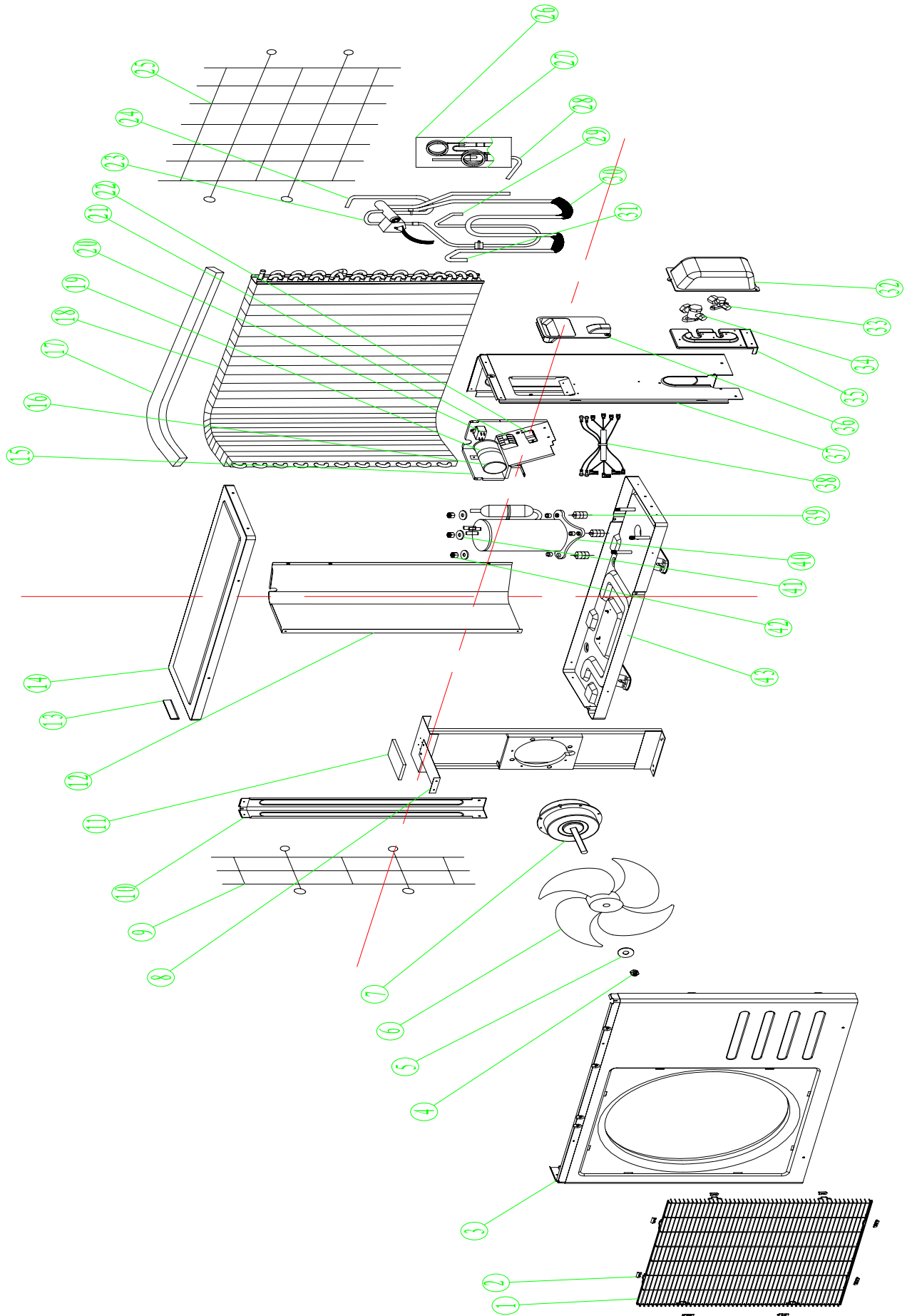


#### 4.2.2 Spare parts list of outdoor unit

No	Description		Part No				Qty
			KF-51W/Ac	KFR-51W/Ac			
1	Front Grill	前网罩	020120015	020120015			1
2	Grill Clip	前网扣	393990022	393990022			8
3	Front Plate	面板	020070056	020070056			1
4	Small handle	小抽手	100050021	100050021			1
5	Nut	螺 母	150020003	150020003			1
6	Gasket	垫 片	---	---			1
7	Axial flow fan	轴流风轮	393010015	393010015			1
8	Motor	电机	320222014	320222014			1
9	Motor support	电机支架	020040045	020040045			1
10	PE Sponge	PE 保温棉	382100010	382100010			1
11	Base	底盘	313011091	313011091			1
12	Anti-vibration pad for the compressor	压缩机减震脚	010010980	010010980			3
13	Compressor	压缩机	301109007	301109007			1
14	Gasket	垫片	150030010	150030010			3
15	Nut	螺母	150020003	150020003			3
16	Top panel	顶盖板	020080002	020080002			1
17	Partition board	中隔板	313030027	313030027			1
18	PU Sponge	中隔板密封条	090020027	090020027			1
19	Electric installation board	电器安装板	313120025	313120025			1
20	Compressor Capacitor	压缩机电容	030010020	030010020			1
21	Capacitor Clamp	电容夹	020140010	020140010			1
22	Terminal Board	端子台	321000025	030090025			1
23	Fan Capacitor	风机电容	030010007	030010007			1
24	Wire Clip	压线扣	321100013	321100013			1
25	PU Sponge	冷凝器上密封条	----	----			
26	Rear Grill	背网	020110002	020110002			1
27	Span Pipe	跨管	----	----			
28	Span Pipe	跨管	----	----			
29	3-way Pipe	三通管	361730002	070130108			1
30	Condenser	冷凝器	372200065	372100070			1
31	4-way Valve	四通阀组件	----	973500052			1
32	Intake pipe for the condenser	冷凝器进气管	360420007 070030296 360420006	360420008 360420009 360450012			1
33	Capillary Assy	毛细管组件	960800189	960800150			1
34	Damping rubber	阻尼胶	110030017	110030017			1
35	Filter	过滤器	070190034	070190034			1
36	Right panel	右侧板	020060009	020060009			1
37	Large handle	大抽手	100040002	100040002			1
38	Valve installation plate	阀座板	020020002	020020002			1
39	High-pressure valve	高压阀	060020092	060020092			1

40	Low-pressure valve	低压阀	060020088	060020088			1
41	Screw	螺钉	150010048	150010048			4
42	Drainpipe for the condensor	冷凝器出液管	070040114	070040114			1
43	Discharge pipe	排气管	360230125	360230092			1
44	Damping block	减震块	110030023	10030023			2
45	Suction pipe	吸气管	360130144	360130126			
46	Damping rubber	阻尼胶	110030017	110030023			1
47	Connecting Wire	室外部分连接线	345200225 345200020 050040062 345100010	345200225 345200020 050040062 345100010			1

### 4.3.1 Explosive view of outdoor unit for 2P

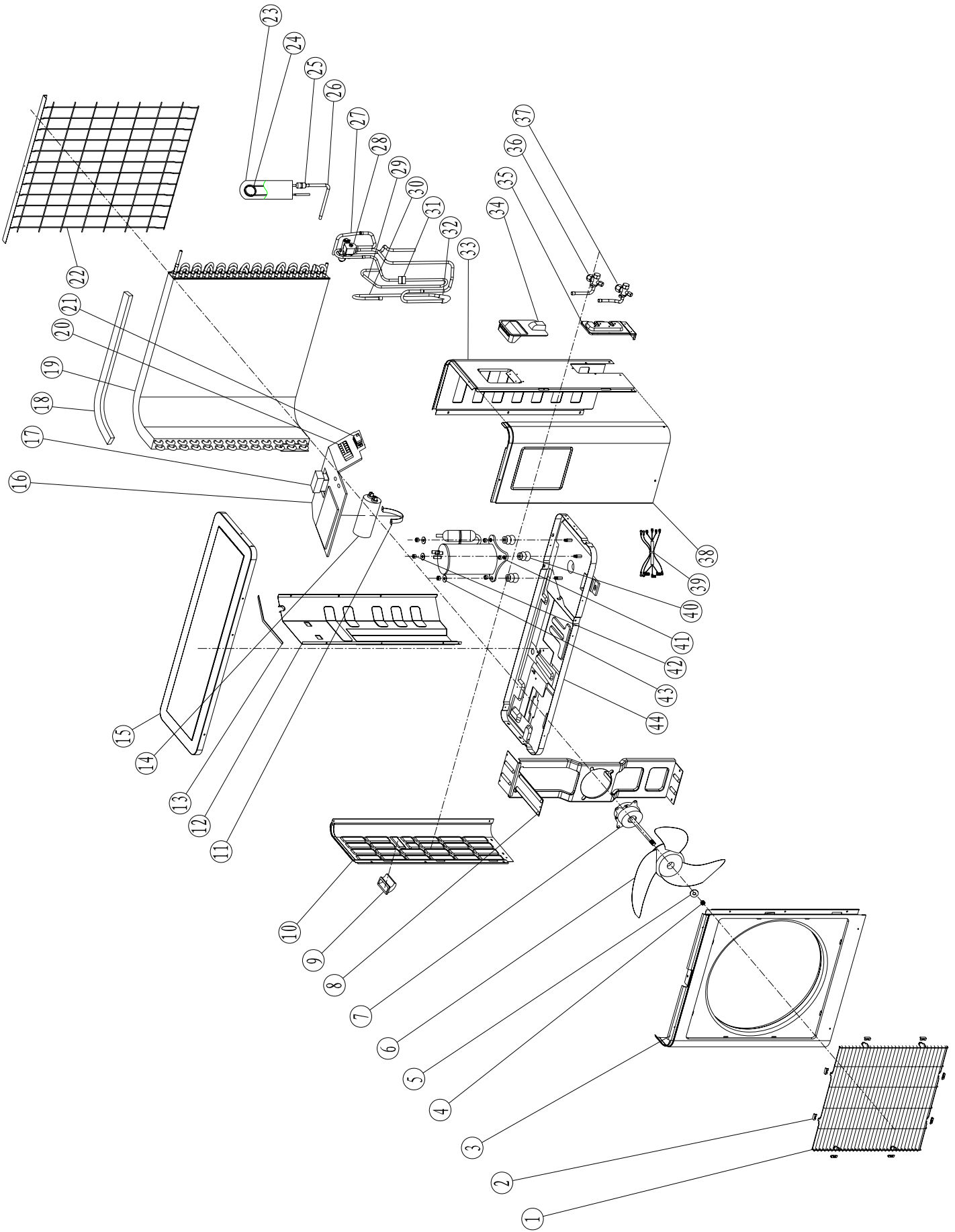


### 4.3.2 Spare parts list of outdoor unit

No	Description		Part No			Qty
			KF-51W/Ac	KFR-51W/Ac		
1	Front Grill	前网罩	313110001	313110001		1
2	Grill Clip	前网扣	393990022	393990022		8
3	Front Plate	面 板	313070009	313070009		1
4	Nut	螺 母	150020019	150020019		1
5	Gasket	垫 片	150030007	150030007		
6	Axial flow fan	轴流风轮	100030005	100030005		1
7	Motor	电 机	320220004	320220004		1
8	Motor support	电机支架	313040005	313040005		1
9	Left protect net	左护网	313990020	313990020		1
10	Pillar	立 柱	313990005	313990005		2
11	PE Sponge	PE 保温棉	313230013	313230013		1
12	Partition board	中隔板	313030028	313030028		1
13	Small handle	小抽手	100050018	100050018		1
14	Top panel	顶盖板	313080002	313080002		1
15	Electric box	电器盒	313990007	313990007		1
16	Compressor Capacitor	压缩机电容	030010022	030010022		1
17	PU Sponge	冷凝器上密封条	090020150	090020150		
18	Condenser	冷凝器	372100007	372100007		1
19	Capacitor clamp	电容夹	020140039	020140039		1
20	Fan Capacitor	风机电容	030010008	030010008		1
21	Terminal Board	端子台	321000025	030090025		1
22	Wire Clip	压线扣	321100003	321100003		1
23	Four-way valve assembly	四通阀组件	----	990085101		1
24	Intake pipe for the condensor	冷凝器进气管	990055101	990055101		1
25	Rear Grill	背 网	313100005	313100005		1
26	Damping rubber for capillary	阻尼胶	110030017	110030017		1
27	Capillary Assy	毛细管组件	960800185	960800185		1
28	Drainpipe for the condensor	冷凝器出液管	990060001	990060001		1
29	Discharge pipe	排气管	360230139	360230139		1
30	Damping rubber	阻尼胶	110030014	110030014		2
31	Suction pipe	吸气管	36013008 0700200431	360130081 070020043		1
32	Valve cover	阀门盖	----	----		
33	High-pressure valve	高压阀	060020093	060020093		1
34	Low-pressure valve	低压阀	060020089	060020089		1
35	Valve installation plate	阀座板	313020001	313020001		1
36	Large handle	大抽手	100040004	100040004		1
37	Right panel	右侧板	313060007	313060007		1
38	Power cord	电源线	345200020 050040064 345100010	345200020 050040064 345100010		1
39	Anti-vibration pad for the	压缩机减震脚	010011189	010011189		3

	compressor						
40	Compressor	压缩机	301111006	301111006			1
41	Gasket	垫片	150030010	150030010			3
42	Nut	螺母	150020003	150020003			3
43	Base	底盘	313012006	313012006			1

#### 4.4.1 Explosive view of outdoor unit for Small 3P



#### 4.4.2 Spare parts list of outdoor unit

Table 4.4-1

No	Description		Part No				Qty
			KF-61W/A	KFR-61W/A	KF-70LW/B	KFR-70LW/B	
1	Front Grill	前网罩	020120001	020120001	020120001	020120001	1
2	Grill Clip	前网扣	393990022	393990022	393990022	393990022	8
3	Front Plate	面板	020070004	020070004	020070004	020070004	1
4	Nut	螺母	150020031	150020031	150020031	150020031	1
5	Gasket	垫片	150030217	150030217	150030217	150030217	1
6	Axial flow fan	轴流风轮	100030008	100030008	100030008	100030008	1
7	Motor	电机	320222018	320220013	320220013	320220013	1
8	Motor support	电机支架	313040007	313040007	313040007	313040007	1
9	Small handle	小抽手	100050003	100050003	100050003	100050003	1
10	Left panel	左侧板	020050003	020050003	020050003	020050003	1
11	Capacitor clamp	电容夹	020140022	020140022	020140022	020140022	1
12	Partition board	中隔板	020030007	020030007	020030007	020030007	1
13	PU Sponge	中隔板密封棉	090010033	090010033	090010033	090010033	1
14	Compressor Capacitor	压缩机电容	030010020	030010020	030010020	030010020	1
15	Top panel	顶盖板	020080035	020080035	020080035	020080035	1
16	Electric installation board	电器安装板	020130003	020130003	020130003	020130003	1
17	Fan Capacitor	风机电容	030010010	030010010	0300100100	030010010	1
18	PU Sponge	冷凝器上密封条	090020150	090020150	090020150	090020150	1
19	Condenser	冷凝器	372200019	372200022	372200067	372200067	1
20	Terminal Board	端子台	030090016	030090018	030090144	030090144	1
21	Wire Clip	压线扣	321100003	321100003	321100013	321100013	1
22	Rear Grill	背网	020110003	020110003	020110003	020110003	1
23	Damping rubber for capillary tube	阻尼胶	110030015	110030015	110030015	110030015	1
24	Capillary Assy	毛细管组件	960800053	960800068	960800164	960800164	1
25	Filter	过滤器	070190022	070190023	070190222	070190222	1
26	Drainpipe for the condenser	冷凝器出液管	070040030	360540010	070040007	070040007	1
27	Intake pipe for the condenser	冷凝器进气管	360440009	070030235	070030104	070030104	1
28	4-way valve Assy	四通阀	-----	990080103	-----	990087002	1
29	Discharge pipe	排气管	360230015 360230016	360230022	360230096	360230096	1
30	Suction pipe	吸气管	070020028 070170014	070020222 360160007	360160044	360160044	1
31	Anti-vibration pad	减震块	110020036	110020036	110020036	110020036	1
32	Anti-vibration damping rubber	阻尼胶	110030023	110020019	110030023	110030023	2
33	Right panel	右侧板	020050003	020050003	020050003	020050003	1
34	Large handle	大抽手	100040004	100040004	100040004	100040004	1
35	Valve installation plate	阀座板	020020007	020020007	020020007	020020007	1
36	Low-pressure valve	低压阀	060020108	060020108	060020108	060020108	1

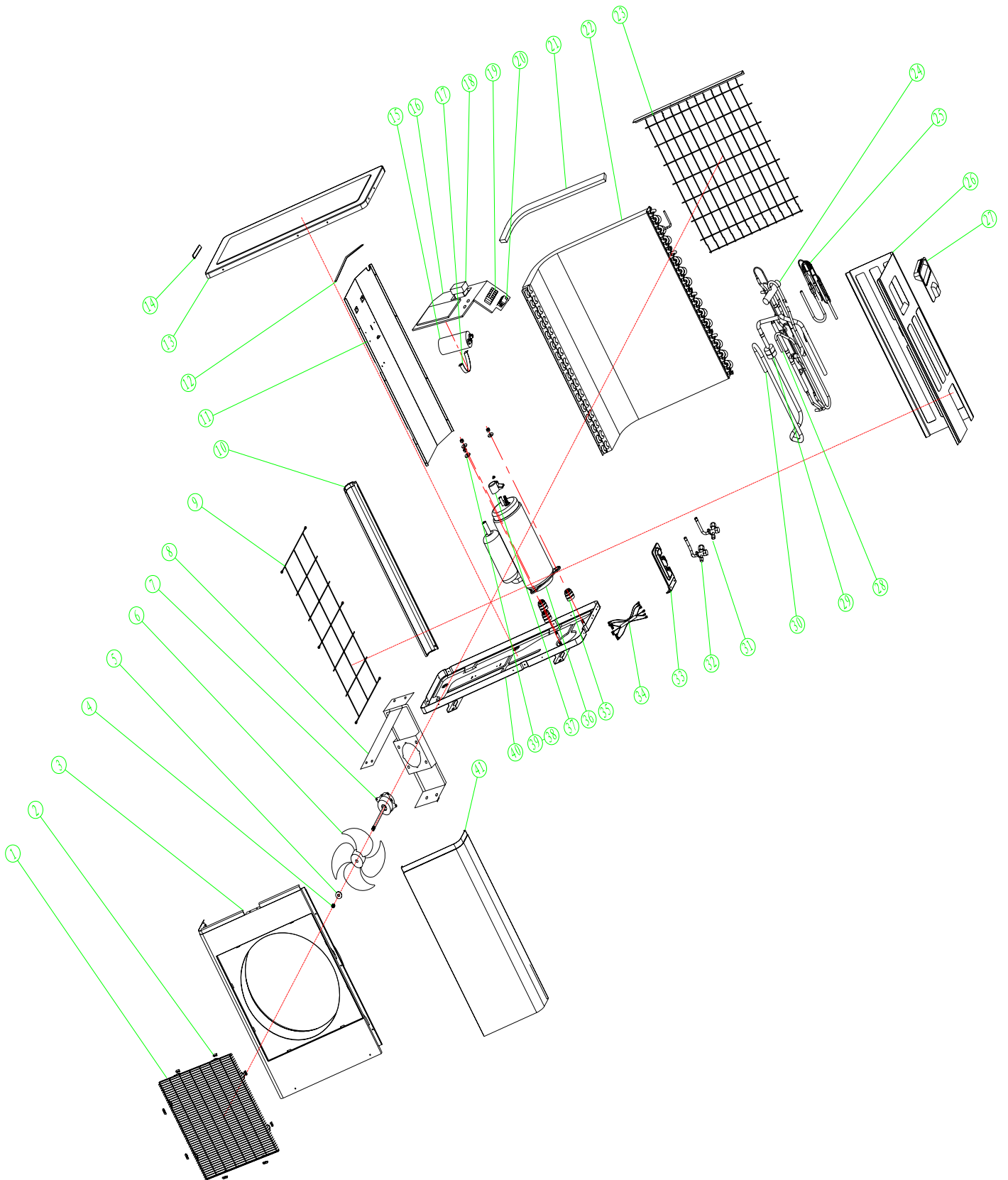
37	High-pressure valve	高压阀	060020102	060020102	060020102	060020102	1
38	Maintenance plate	维修板	020090001	020090001	020090001	020090001	1
39	Compressor power cord	连接线	050040064	050040064	050040064	050040064	1
			050040043	050040043	050040043	050040043	
			050040046	050040046	050040046	050040046	
			050040015	050040015	050040015	050040015	
40	Anti-vibration pad for the compressor	压缩机减震胶脚	010011490	0100114A1	010011496	010011496	3
41	Compressor	压缩机	301114027	301114007	301114031	301114031	1
42	Nut	螺母	150020003	150020003	150020003	150020003	3
43	Gasket	垫片	150030011	150030011	150030011	150030011	3
44	Base	底盘	020010228	313012002	020010228	020010228	1

Table 4.4-2

No	Description		Part No				Qty
			CF-72C3	CF-72A3			
1	Front Grill	前网罩	020120001	020120001			1
2	Grill Clip	前网扣	393990022	393990022			8
3	Front Plate	面板	020070004	020070004			1
4	Nut	螺母	150020031	150020031			1
5	Gasket	垫片	150030217	150030217			1
6	Axial flow fan	轴流风轮	100030008	100030008			1
7	Motor	电机	320220013	320220013			1
8	Motor support	电机支架	313040007	313040007			1
9	Small handle	小抽手	100050003	100050003			1
10	Left panel	左侧板	020050003	020050003			1
11	Capacitor clamp	电容夹	020140035	020140035			1
12	Partition board	中隔板	020030007	020030007			1
13	PU Sponge	中隔板密封棉	090010033	090010033			1
14	Compressor Capacitor	压缩机电容	030010022	030010022			1
15	Top panel	顶盖板	020080035	020080035			1
16	Electric installation board	电器安装板	020130003	020130003			1
17	Fan Capacitor	风机电容	030010010	030010010			1
18	PU Sponge	冷凝器上密封条	090020150	090020150			1
19	Condenser	冷凝器	372100170	372100136			1
20	Terminal Board	端子台	030090144	030090144			1
21	Wire Clip	压线扣	321100013	321100013			1
22	Rear Grill	背网	020110003	020110003			1
23	Damping rubber for capillary tube	阻尼胶	110030015	110030015			1
24	Capillary Assy	毛细管组件	990340004	960800190			1
25	Filter	过滤器	070190034	070190222			1
26	Drainpipe for the condensor	冷凝器出液管	070040114	360540050			1
27	Intake pipe for the condensor	冷凝器进气管	360430019	360430019			1

28	4-way valve Assy	四通阀	-----	961300028			1
29	Discharge pipe	排气管	360230186	070010308			1
30	Suction pipe	吸气管	360160063	360160051			1
31	Anti-vibration pad	减震块	110020036	110020036			1
32	Anti-vibration damping rubber	阻尼胶	110030023	110030014			2
33	Right panel	右侧板	020050003	020050003			1
34	Large handle	大抽手	100040004	100040004			1
35	Valve installation plate	阀座板	020020007	020020007			1
36	Low-pressure valve	低压阀	060020108	060020108			1
37	High-pressure valve	高压阀	060020102	060020102			1
38	Maintenance plate	维修板	020090001	020090001			1
39	Compressor power cord	连接线	050040064 050040043 050040046 050040015	050040064 050040043 050040046 050040015			1
40	Anti-vibration pad for the compressor	压缩机减震胶脚	306091001	306091001			3
41	Compressor	压缩机	301109005	301109005			1
42	Nut	螺母	150020003	150020003			3
43	Gasket	垫片	150030011	150030011			3
44	Base	底盘	313012015	313012015			1

### 4.5.1 Explosive view of outdoor unit for 3P



## 4.5.2 Spare parts list of outdoor unit

Table 4.5-1

No	Description		Part No				Qty
			KF-61W/A	KFR-61W/A	KF-70W/B	KF-70W/B	
1	Front Grill	前网罩	020120001	020120001	020120001	020120001	1
2	Grill Clip	前网扣	393990022	393990022	393990022	393990022	1
3	Front Plate	面 板	020070036	020070036	020070036	020070036	1
4	Nut	螺 母	150020003	150020003	150020003	150020003	1
5	Gasket	垫 片	150030011	150030011	150030011	150030011	1
6	Axial flow fan	轴流风轮	100030008	100030008	100030008	100030008	1
7	Motor	电机	320220013	320220013	320220013	320220013	1
8	Motor support	电机支架	020040013	020040013	020040013	020040013	1
9	Left protect net	左护网	313990018	313990018	313990018	313990018	1
10	Pillar	立 柱	----	----	----	----	
11	Partition board	中隔板	020030017	020030017	020030017	020030017	1
12	PU Sponge	中隔板密封条	090010594	090010594	090010594	090010594	1
			090020310	090020310	090020310	090020310	
13	Top panel	顶盖板	020080032	020080032	020080032	020080032	1
14	Small handle	小抽手	100050018	100050018	100050018	100050018	1
15	Fan Capacitor	压缩机电容	030010020	030010020	030010020	030010020	1
16	Electric installation board	电器安装板	020130035	020130035	020130035	020130035	1
17	Cpacitor clamp	电容夹	020140010	020140022	020140022	020140022	1
18	Fan Capacitor	风机电容	030010010	030010010	030010010	030010010	1
19	Terminal Board	端子台	030090205	030090018	030090144	030090038	1
20	Wire Clip	压线扣	321100003	321100003	321100013	321100004	1
21	PU Sponge	冷凝器上密封条	090020311	090020311	090020311	090020311	1
22	Condenser	冷凝器	372200021	372200022	372200016	372100040	1
23	Rear Grill	背 网	313100003	313100003	313100003	313100003	1
24	4-way valve Assy	四通阀组件	-----	990080103	-----	030130022	1
25	Capillary Assy	毛细管组件	960800073	960800068	960800094	960800093	1
26	Right panel	右侧板	020060025	020060025	020060025	020060025	1
27	Large handle	大抽手	100040004	100040004	100040004	100040004	1
28	Discharge pipe	排气管	360230021	360230022	360230043	360230042	1
29	Anti-vibration pad	减震块	110020019	110020019	110020019	110020019	1
30	Suction pipe	吸气管	360160006	360160007	360160016	360160015	1
31	Low-pressure valve	低压阀	060020145	060020145	060020145	060020145	1
32	High-pressure valve	高压阀	060020102	060020102	060020102	060020102	1
33	Valve installation plate	阀座板	020020007	020020007	020020007	020020007	1
34	Compressor power cord	连接线	050040046	050040046	345200032	050040048	1
			050040015	050040015	345200027	345200052	
			050040064	050040064	348600011	345200048	
			050040063	050040063	345200029	345200047	
			050040062	050040062	345200031	345200049	
			050040043	050040043	345200028	345200051	
				345200335	345200046		

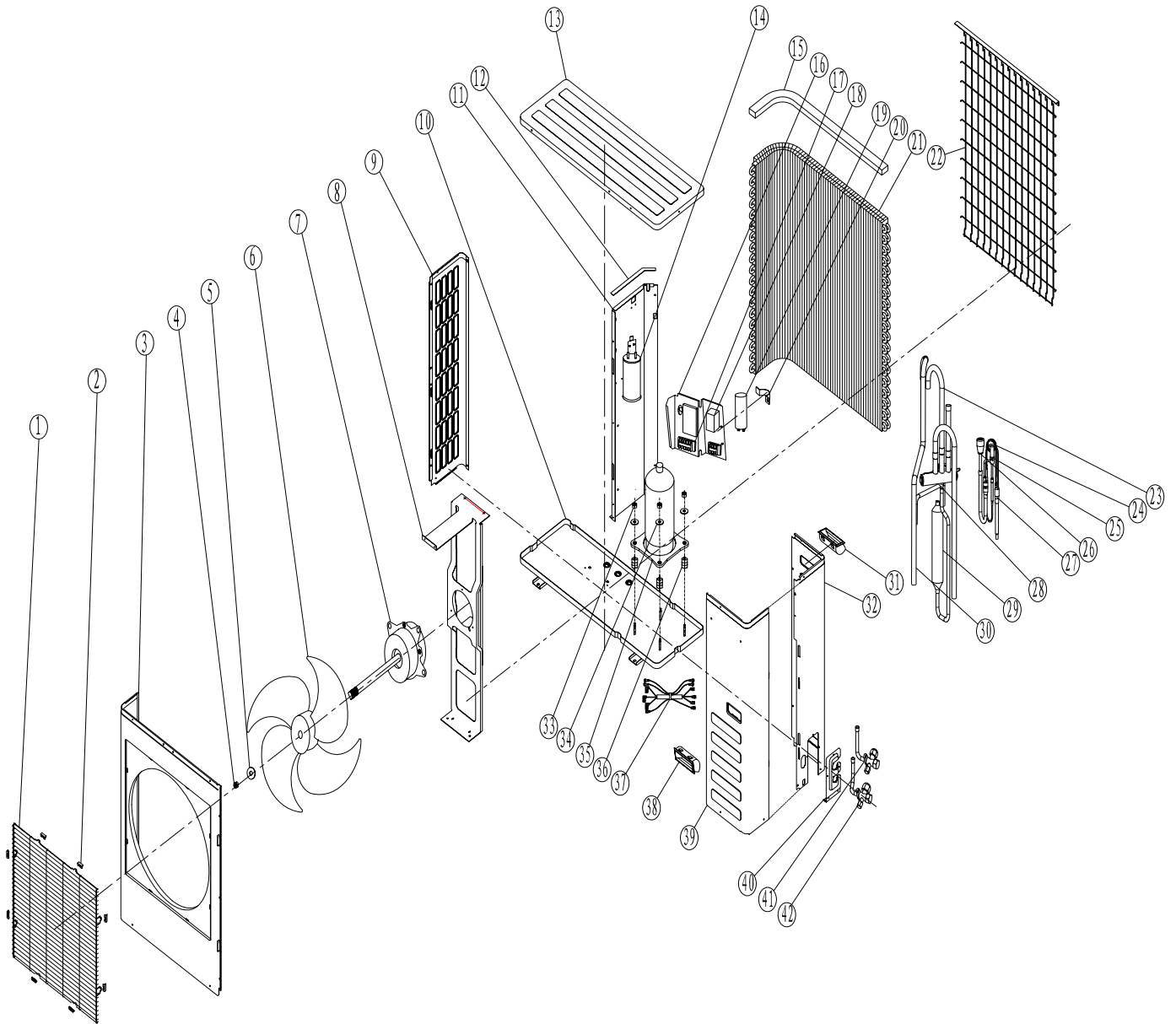
35	Anti-vibration pad for the compressor	压缩机减震胶脚	0100114A1	0100114A1	0100114A1	0100114A1	1
36	Compressor	压缩机	301114007	301114007	010011414	010011414	1
37	Compressor terminal cover	压缩机保护器盖	305147007	305147007	0100114A0	0100114A0	1
38	Nut	螺 母	150020003	150020003	150020003	150020003	3
39	Gasket	垫 片	150030010	150030010	150030010	150030010	3
40	Base	底 盘	313012002	313012002	020010264	020010264	1
41	Maintenance plate	维修板	020090008	020090008	020090008	020090008	1

Table 4.5-2

No	Description		Part No				Qty
			KF-75LW/B	KFR-75LW/B			
1	Front Grill	前网罩	020120001	020120001			1
2	Grill Clip	前网扣	393990022	393990022			1
3	Front Plate	面 板	020070036	020070036			1
4	Nut	螺 母	150020003	150020003			1
5	Gasket	垫 片	150030011	150030011			1
6	Axial flow fan	轴流风轮	100030008	100030008			1
7	Motor	电机	320220013	320220013			1
8	Motor support	电机支架	020040013	020040013			1
9	Left protect net	左护网	313990018	313990018			1
10	Pillar	立 柱	----	-----			
11	Partition board	中隔板	020030017	020030017			1
12	PU Sponge	中隔板密封条	090010594 090020310	090010594 090020310			1
13	Top panel	顶盖板	020080032	020080032			1
14	Small handle	小抽手	100050018	100050018			1
15	Fan Capacitor	压缩机电容	030010021	030010022			1
16	Electric installation board	电器安装板	020130035	020130035			1
17	Cpacitor clamp	电容夹	020140022	020140035			1
18	Fan Capacitor	风机电容	030010010	030010010			1
19	Terminal Board	端子台	030090144	030090038			1
20	Wire Clip	压线扣	321100004	030010010			1
21	PU Sponge	冷凝器上密封条	090020311	090020311			1
22	Condenser	冷凝器	372200016	372100012			1
23	Rear Grill	背 网	313100003	313100003			1
24	4-way valve Assy	四通阀组件	-----	990080103			1
25	Capillary Assy	毛细管组件	960800085	990070170			1
26	Right panel	右侧板	020060025	020060025			1
27	Large handle	大抽手	100040004	100040004			1
28	Discharge pipe	排气管	070010509	070010518			1
29	Anti-vibration pad	减震块	110020019	110020019			1
30	Suction pipe	吸气管	070020225	070020221			1
31	Low-pressure valve	低压阀	060020145	060020145			1

32	High-pressure valve	高压阀	060020102	060020102			1
33	Valve installation plate	阀座板	020020007	020020007			1
34	Compressor power cord	连接线	345200023 345200024 345200025 345200026 345200027 345200028 345200029 345200030 050040022	345200096 345200097 345200098 345200099 345200100 345200101 345200102 345200103 050040022			1
35	Anti-vibration pad for the compressor	压缩机减震胶脚	010011496	010011506			1
36	Compressor	压缩机	010011452	010011542			1
37	Compressor terminal cover	压缩机保护器盖	010011497	010011502			1
38	Nut	螺 母	150020003	150020003			3
39	Gasket	垫 片	150030010	150030010			3
40	Base	底 盘	020010264	020010266			1
41	Maintenance plate	维修板	020090008	020090008			1

#### 4.6.1 Explosive view of outdoor unit for Small 5P



#### 4.6.1 Spare parts list of outdoor unit

Table 4.6-1

No	Description		Part No				Qty
			KF-120W/B	KFR-120W/B	KT3F-120W/Be	KT3FR-120W/Be	
1	Front Grill	前网罩	020120003	020120003	020120003	020120003	1
2	Grill Clip	前网扣	109990256	109990256	109990256	109990256	8
3	face panel	面 板	020070007	020070007	020070007	020070007	1
4	screw nut	螺 母	150020008	150020008	150020008	150020008	1
5	Gasket	垫 片	150030013	150030013	150030013	150030013	1
6	Axial flow fan	轴流风轮	100030010	100030010	100030010	100030010	1
7	Motor	电 机	030240006	030240004	030020267	030020267	1
8	motor support	电机支架	020040011	020040011	020040011	020040011	1
9	left panel	左侧板	020050006	020050006	020050006	020050006	1
10	Base	底 盘	020010227	020010227	020010269	020010269	1
11	partition board	中隔板	313030007	313030007	313030007	313030007	1

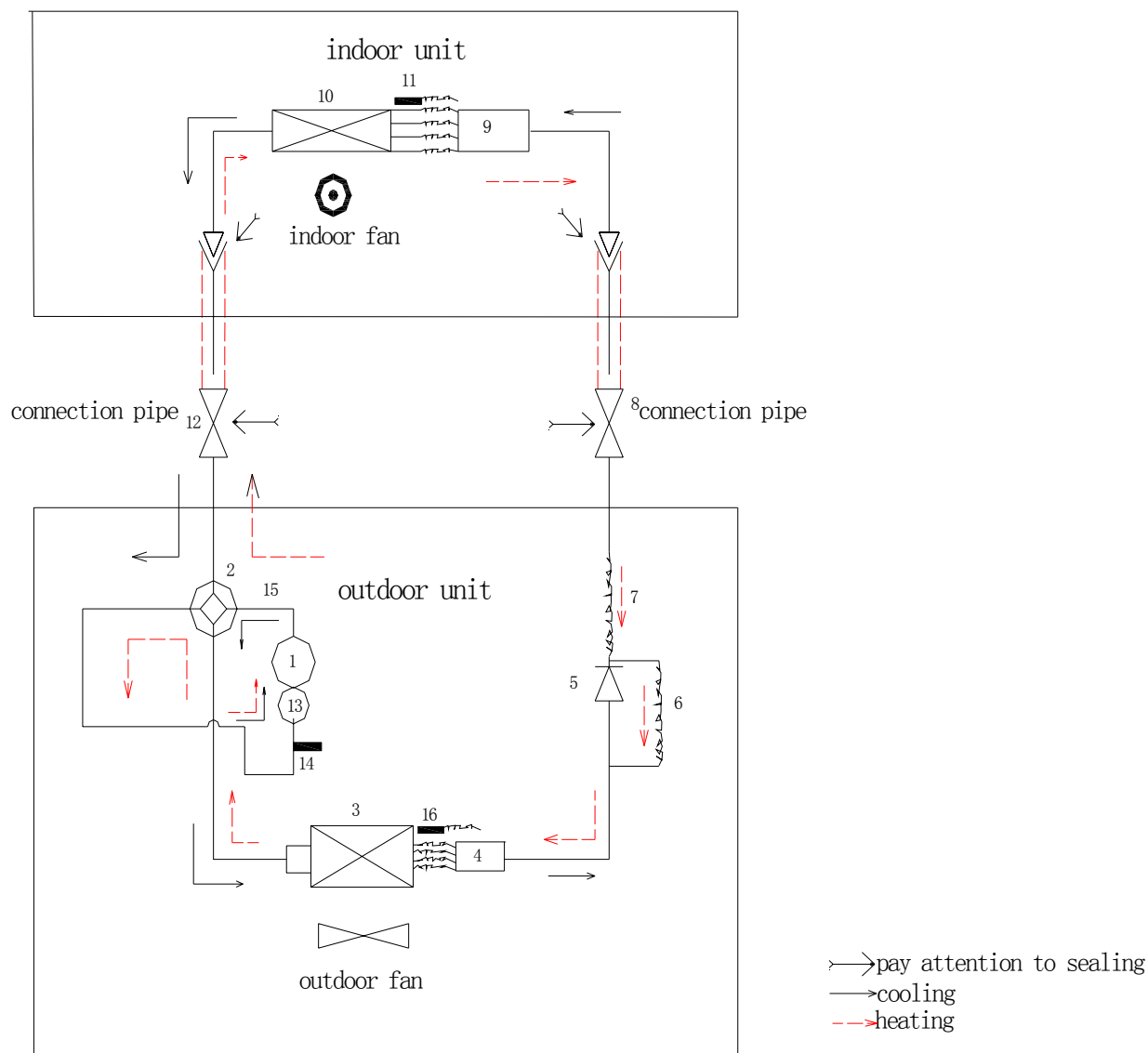
12	PU Sponge	中隔板密封条	090020240+ 090020241	090020241+ 090020240	090020330+ 090020240	090020330+ 090020240	1
13	Top panel	顶盖板	020080023	020080023	020080023	020080023	1
14	accumulator	贮液罐	070150006	070150006	—	—	1
15	PU Sponge	冷凝器上密封条	090020239	090020239	090020239	090020239	1
16	Electric installation board	电器安装板	020130004	020130004	313120013	020130004	1
17	Terminal block	端子台	030090036	030090071	030090123+ 030090036	030090071+ 030090036	1
18	Fan capacitor	风机电容	030010013	030010013	030010013	030010013	1
19	Compressor capacitor	压缩机电容	—	—	—	—	1
20	Capacitor clamp	电容夹	—	—	—	—	1
21	condenser	冷凝器	372100005	080010154	080010213	080010154	1
22	back net	背网	020110004	020110004	020110004	020110004	1
23	Intake pipe for the condenser	冷凝器进气管	360440005 360440004	070030054 070030092	070030052 070030053	070030057 070030092	1
24	Capillary assembly	毛细管组件	960800036	960800038	990078861	971900106	1
25	Unloading valve	卸荷阀	060030002	060030002	—	—	1
26	Multiplexor	分流器	—	070090013	—	070090013	1
27	Filter	过滤器	070190023	070190045	070190004	361910001	1
28	four-way valve	四通阀	—	030130005	—	030130005	1
29	Noise reduction	消音器	079990247	—	369900016	079990262	1
30	Suction pipe	吸气管	360170010 360170011	360170011 360170010	070020485 070020484	070020485 070020484	1
31	small handle	小抽手	100050022	100050022	100050022	100050022	1
32	right panel	右侧板	020060007	020060007	020060007	020060007	1
33	screw nut	螺母	150020019	150020019	150020019	150020019	4
34	Gasket	垫片	150030009	150030009	150030009	150030009	4
35	compressor	压缩机	010010810	010010810	301404004	301404004	1
36	Anti-vibration pad for the compressor	压缩机减震胶脚	010010895	010010895	305044004	305044004	4
37	Connecting wire	连接线	050040005 050040004	050040018 050040005	050040004 345100002	050040018 345100002	
38	small handle	小抽手	100050022	100050022	100050022	100050022	
39	Maintenance plate	维修板	020090003	020090003	020090003	020090003	1
40	Valve installation plate	阀座板	020020006	020020006	020020006	020020006	1
41	Low-pressure valve	低压阀	060020103	060020103	060020103	060020103	1
42	High-pressure valve	高压阀	060020102	060020102	060020236	060020236	1

Table 4.6-2

No	Description		Part No				Qty
			KT3F-145W/Be	KT3FR-145W/Be			
1	Front Grill	前网罩	020120003	020120003			1
2	Grill Clip	前网扣	109990256	109990256			8
3	face panel	面板	020070007	020070007			1
4	screw nut	螺母	150020008	150020008			1

5	Gasket	垫片	150030013	150030013		1
6	Axial flow fan	轴流风轮	100030010	100030010		1
7	Motor	电机	030020267	030020267		1
8	motor support	电机支架	020040011	020040011		1
9	left panel	左侧板	020050006	020050006		1
10	Base	底盘	020010269	020010269		1
11	partition board	中隔板	313030007	313030007		1
12	PU Sponge	中隔板密封条	090020241+ 090020240	090020241+ 090020240		1
13	Top panel	顶盖板	020080023	020080023		1
14	accumulator	贮液罐	—	—		1
15	PU Sponge	冷凝器上密封条	090020761	090020761		1
16	Electric installation board	电器安装板	020130004	020130004		1
17	Terminal block	端子台	030090036	030090071+ 030090036		1
18	Fan capacitor	风机电容	030010013	030010013		1
19	Compressor capacitor	压缩机电容	—	—		1
20	Capacitor clamp	电容夹	—	—		1
21	condenser	冷凝器	372200058	080010154		1
22	back net	背网	020110004	020110004		1
23	Intake pipe for the condenser	冷凝器进气管	070030317 070030315	070030054 070030093 070030092		1
24	Capillary assembly	毛细管组件	971900035	971900037		1
25	Unloading valve	卸荷阀	—	—		1
26	Multiplexor	分流器	----	070090013		1
27	Filter	过滤器	070190004	361910001		1
28	four-way valve	四通阀	—	030130005		1
29	Noise reduction	消音器	369900016	079990262		1
30	Suction pipe	吸气管	070020496	070020484+ 070020485		1
31	small handle	小抽手	100050022	100050022		1
32	right panel	右侧板	020060007	020060007		1
33	screw nut	螺母	150020019	150020019		4
34	Gasket	垫片	150030009	150030009		4
35	compressor	压缩机	301404001	301404001		1
36	Anti-vibration pad for the compressor	压缩机减震胶脚	305044004	305044004		4
37	Connecting wire	连接线	050040004+ 345100002	050040018+ 345100002		
38	small handle	小抽手	100050022	100050022		
39	Maintenance plate	维修板	020090003	020090003		1
40	Valve installation plate	阀座板	020020006	020020006		1
41	Low-pressure valve	低压阀	060020103	060020103		1
42	High-pressure valve	高压阀	060020236	060020236		1

## 5. Operation principle



1.compressor 2. 4-way valve 3.condenser 4.flow divider for condenser 5.Non-return valve 6.auxiliary capillary 7.cooling capillary  
 8.high-pressure valve 9.flow divider for evaporator 10.evaporator 11. pipe temp. sensor for evaporator 12.low-pressure valve  
 13.Vapor liquid separator 14.low-pressure switch 15. high-pressure switch 16. pipe temp. sensor for condenser

Cooling cyclcy : compressor→4-way valve→condenser→flow divider for condenser→Non-return valve→cooling capillary→high-pressure valve→flow divider for evaporator→evaporator→low-pressure valve→4-way valve→Vapor liquid separator→compressor.

Heating cyclcy: compressor→4-way valve→low-pressure valve→evaporator→flow divider for evaporator→high-pressure valve→cooling capillary→auxiliary capillary→flow divider for condenser→condenser→4-way valve→Vapor liquid separator→compressor.

Note: To the model of RF or LF beginning, use outdoor unit model to express the whole unit.

## 6.Parameter (Performance parameter)

Table 6-1

Model			KF-51LW/Ac	KFR-51LW/Ac	KF-61LW/Ac	KFR-61LW/A
pattern		NO.				
Power supply		Ph-V-H z	220-240	220-240	220-240	220-240
Cooling	Capacity	W	5100	5100	6100	6100
	Input	W	1895	1895	2270	2270
	Rated current	A	8. 9	8. 9	10. 6	1. 6

		EER	w/w.	2. 69	2. 69	2. 69	2. 69	
Heating		Capacity	w	/	7010	/	8110	
		Input	W	/	3100	/	3690	
		Rated current	A	/	14. 4	/	18. 1	
		COP	w/w	/	3. 3	/	2. 93	
Additional electrical heater power input		W		/	1400	/	1400	
Additional electrical heater current input		A		/	6. 4	/	6. 4	
Max. input consumption		W		2500	2500	2900	4350	
Max. current		A		13. 4	18. 7	15. 7	19. 8	
Compressor		Model		TS33VDEC	TS33VDEC	PH420X3CS-8KU C1	PH420X3CS-8KU C1	
		Type		ROTAAY	ROTAAY	ROTAAY	ROTAAY	
		Brand		mitsubishi	mitsubishi	TOSHIBA	TOSHIBA	
		Capacity	W	5790/5820±7.5 %	5790/5820±7.5 %	7396	7396	
		Input	W	1800/1880	1800/1880	2330	2330	
		Start electric current	A	/	/	61	61	
		Rated current(RLA)/Locked rotor Amp(LRA)	A	8.3/41	8.3/41	11.2/66	11.2/66	
		Thermal protector		CS01D353H29 In sets	CS01D353H29 In sets	UP14RE5245 OR HPD-862 OR EPUIVALENT\ In sets	UP14RE5245 OR HPD-862 OR EPUIVALENT\ In sets	
		Capacitor	uF	50	50	50	50	
		Refrigerant oil	ml	Naphthene/520	Naphthene/520	UNISO 4GSD/ATMOS NM56EP\950	UNISO 4GSD/ATMOS NM56EP\950	
Indoor unit	Fan motor			YDK-25-8A	YDK-25-8A	YDK-25-8 1	YDK-25-8 1	
			Brand	W	25	25	25	25
			Capacitor	uF	3	3	3.5	3.5
			Speed (hi/mi/lo)	r/min	480 / 400 / 320	480 / 400 / 320	542 / 468 / 368	542 / 468 / 368
	Fan motor	diameter×height	mm	Φ 300×130	Φ 300×130	Φ 300×130	Φ 300×130	
	Evaporator		Number of rows×Number of circuits × Number of circuits		2×24×8	2×24×8	2×24×8	2×24×8
			Tube pitch × row pitch × Fin spacing	mm	25×21.65×1.58	25×21.65×1.58	25×21.65×1.58	25×21.65×1.58
			Fin type (code)		Hydrophile foil karat window finned	Hydrophile foil karat window finned	Hydrophile foil karat window finned	Hydrophile foil karat window finned
		Tube outside dia. and type	mm	φ 7/ inner groove copper pipe	φ 7/ inner groove copper pipe	φ 7/ inner groove copper pipe	φ 7/ inner groove copper pipe	

		Coil length x height x width	mm	374×600	374×600	374×600	374×600
	Air flow		m3/h	800	800	800	800
	Noise level		dB(A)	39-49	39-49	41-48	41-48
	Dimension (W*H*D)		mm	480×230×1652	480×230×1652	480×230×1652	480×230×1652
	Packing (W*H*D)		mm	1812×380×635	1812×380×635	1812×380×635	1812×380×635
	Net/Gross weight		Kg	38/43	39/44	38/43	39/44
Outdoor unit	Fan motor	Model		YDK-38-6B	YDK-38-6B	YDK-60A-6F	YDK-60A-6F
		Input	W	38	38	60	60
		Capacitor	uF	2.5	2.5	4	4
		Speed	r/min	903	903	853	853
	Fan motor	diameter×height	mm	Φ401×115	Φ401×115	Φ460×180	Φ460×180
	Condenser	Number of rows × Number of circuits × Number of circuits		2×24×4	2×24×4	1.7×26×4	2×26×4
		Tube pitch×row pitch×Fin spacing	mm	21×13.37×1.6	21×13.37×1.6	25×21.65×1.8	25×22×1.8
		Fin type (code)		Hydrophile foil karat window finned	Hydrophile foil karat window finned	Light foil karat window finned	Hydrophile foil karat window finned
		Tube outside dia. and type	mm	Φ7/ inner groove copper pipe	Φ7/ inner groove copper pipe	Φ9.52/ inner groove copper pipe	Φ9.52/ inner groove copper pipe
		Coil length x height x width	mm	757×504×26.74	757×504×26.74	635.5×650×43.3	745×650×44
	Air flow		m3/h	/	/	/	/
	Noise level		dB(A)	54	54	51	57
	Dimension (W*H*D)		mm	795×255×540	795×255×540	870×310×700	870×310×700
	Packing (W*H*D)		mm	920×335×595	920×335×595	990×410×780	990×410×780
	Net/Gross weight		Kg	40/43	42/45	56-60	58-62
	Refrigerant type		g	R22/1030g	R22/1150g	R22/1400g	R22/1500g
	Design pressure		MPa	2.7/0.7	2.7/0.7	2.7/0.7	2.7/0.7
	Qty' per 40' HQ		set	108	108	78	78
	use temperature range		°C- °C	/	/	/	/
setting temperature range		°C- °C	/	/	/	/	
connecting pipe/cable	Liquid pipe/ gas pipe dia./length	mm	Φ6.35+ Φ12.7×4000	Φ6.35+ Φ12.7×4000	Φ9.52+ Φ15.88×5000	Φ9.52+ Φ15.88×5000	
	Max pipe length/ Max pipe high	m	4	4	4	4	
	cable spec. (dia./quantity/length)	mm/ /m	3×1.5mm2×5500mm	3×1.5mm2×5500mm	3×2.5mm2×5500mm	3×2.5mm2×5500m	
Electric fittings	PCB model		ZKF-51LW/(Ya)02A	ZKFR-51LW/(Ya)02A	ZKF-51LW/(Ya)02A	ZKFR-51LW 22/A	

		Transformer model		TB-BYQ-B04-10.5 c	TB-BYQ-B04-10.5 c	EI-48(550mA)	EI-48(550mA)
		Fuse model/fuse current	A	250VAC/6.3A	50VAC/6.3A	50VAC/6.3A	50VAC/6.3A
function	Remote controller type			ZC/JG-03	ZH/JG-03	ZC/LW-07	ZH/LW-07
	Display mode			Blue screen	Blue screen	Blue screen	Blue screen
	swing	horizontal (auto/manual)		/	/	/	/
		vertical (auto/manual)		/	/	/	/
	Health function (anion/cold catalyst/light cataly/Plasma/air cleaner)			/	/	/	/
	Special function (soft start/power cut memory/hard start/other)			/	/	/	/

Table 6-2

Model			KF-70LW/B	KFR-70LW/B	KF-75LW/Bc	KFR-75LW/BS
pattern		NO.				
Power supply		Ph-V-Hz	220V50Hz	220V50Hz	220V50Hz	380V50Hz
Cooling	Capacity	W	7000	7000	7500	7500
	Input	W	2600	2600	2895	2895
	Rated current	A	12.2	12.2	12.7	6.0
	EER	w/w.	2.69	2.69	2.59	2.59
Heating	Capacity	w	/	9800	/	10300
	Input	W	/	4560	/	4800
	Rated current	A	/	21.1	/	15.3
	COP	w/w	/	3.13	/	3.04
Additional electrical heater power input		W	/	2100	/	2100
Additional electrical heater current input		A	/	9.6	/	9.6
Moisture Removal		Kg/h	/	/	/	/
Max. input consumption		W	3400	5500	3800	5400
Max. current		A	18.2	29.4	20.3	24.2
Compressor	Model		PH420X3CS-8M UC3	PH460X3CS-8M UC1	PH480X3CS-4M U1	YH480X3CS-4MU C1
	Type		ROTAAY	ROTAAY	ROTAAY	ROTAAY
	Brand		TOSHIBA	TOSHIBA	TOSHIBA	TOSHIBA
	Capacity	W	7400	8110	8460/8520	8460/8520
	Input	W	2370	2610	2730/2890	2730/2890
	Start electric current	A	61	60.8	63.0	63.0
	Rated current(RLA)/Locked rotor Amp(LRA)	A	11.2/66	12.5	13.0	13.0

		Thermal protector		UP14RE5245 In sets	UP14SE5145 In sets	UP14SE5145OR EQUIVALENT In sets	UP14SE5145OR EQUIVALENT In sets
		Capacitor	uF	50	55	55	55
		Refrigerant oil	ml	USNISO 4GSD/ATMOS NM56EP。 950	SUNISO 4GSD 1100	SUNISO 4GSD/ATMOS NM56EP。 1100	SUNISO 4GSD/ATMOS NM56EP。 1100
Indoor unit	Fan motor	Model		YDK-45-8A 1	YDK-45-8A	YDK-45-8B 1	YDK-45-8A 1
		Brand	W	45	45	45	45
		Capacitor	uF	5	4	4	5
		Speed(hi/mi/lo)	r/min	500 / 450 / 400	440 / 400 / 360	480 / 442 /390	490 / 458 / 408
	Fan motor	diameter×height	mm	φ 350 X 154	φ 350 X 154	φ 350 X 154	φ 350 X 154
	Evaporator	Number of rows×Number of circuits × Number of circuits		2 X 28 X 4	2 X 28 X 4	2 X 28 X 4	2 X 28 X 4
		Tube pitch × row pitch × Fin spacing	mm	25 X 22 X 1. 4	25 X 22 X 1. 4	25 X 22 X 1. 4	25 X 22 X 1. 4
		Fin type (code)		Persian blinds hydrophile membrane	Persian blinds hydrophile membrane	Persian blinds hydrophile membrane	Persian blinds hydrophile membrane
		Tube outside dia. and type	mm	φ 9.52/ inner groove copper pipe	φ 9.52/ inner groove copper pipe	φ 9.52/ inner groove copper pipe	φ 9.52/ inner groove copper pipe
		Coil length x height x width	mm	402 X 700	402 X 700	402 X 700	402 X 700
	Air flow		m3/h	1050	1050	1150	1150
	Noise level		dB(A)	42-48	42-48	43-49	43-49
	Dimension (W*H*D)		mm	520×225×1725	520×225×1725	520×225×1725	520×225×1725
	Packing (W*H*D)		mm	1870×420×675	1870×420×675	1870×420×675	1870×420×675
	Net/Gross weight		Kg	39-45	41-47	39-45	41-47
Outdoor unit	Fan motor	Model		YDK-60A-6F	YDK-60A-6F	YDK-60C-6F	YDK-60A-6F
		Input	W	60	60	60	60
		Capacitor	uF	4	4	4	4
		Speed	r/min	850	850	850	850
	Fan motor	diameter×height	mm	460×180	460×180	460×180	460×180
	Condenser	Number of rows × Number of circuits × Number of circuits		1×13×1	2×26×4	2×32×4	2×32×4
		Tube pitch× row pitch×Fin spacing	mm	25×22×1.4	25×22×1.8	25×22×1.82	25×22×1.82
Fin type (code)			Persian blinds	Persian blinds	Karat window poece	Karat window poece	

	Tube outside dia. and type	mm	φ 9.52/ inner groove copper pipe	φ 9.52/ inner groove copper pipe	φ 9.52/ inner groove copper pipe	φ 9.52/ inner groove copper pipe
	Coil length x height x width	mm	772×650×44	745×650×44	764×800×44	764×800×44
	Air flow	m3/h	/	/	/	/
	Noise level	dB(A)	57	57	59	59
	Dimension (W*H*D)	mm	870×310×700	870×310×700	900×330×835	900×330×835
	Packing (W*H*D)	mm	990×410×780	990×410×780	1030×440×960	1030×440×960
	Net/Gross weight	g	R22/1230g	R22/2020g	R22/1580g	R22/2600g
	Refrigerant type	Kg	56-60	58-62	65-70	67-72
	Design pressure	MPa	2.7/0.7	2.7/0.7	2.7/0.7	2.7/0.7
Qty' per 40' HQ	set	78	78	70	70	
use temperature range	°C- °C	/	/	/	/	
setting temperature range	°C- °C	/	/	/	/	
connecting pipe/cable	Liquid pipe/ gas pipe dia./length	mm	φ 9.52 + φ 16× 5000	φ 9.52 + φ 16× 5000	φ 9.52 + φ 16× 5000	φ 9.52 + φ 16× 5000
	Max pipe length/ Max pipe high	m	5	5	5	5
	cable spec. (dia./quantity/length)	mm/ /m	5×0.75mm2×6000 mm	3×1.5mm2×6300 mm	5×1.0mm2×6000 mm	5×1.0mm2×6000m m
Electric fittings	PCB model		ZKF-70LW 22/A	ZKFR-70LW 21	ZKF-70LW/B 02A	ZKFR-70LW 22/A1
	Transformer model		EI-48 (800mA)	EI-48(800mA)	EI-48(800mA)	EI-48(800mA)
	Fuse model/fuse current	A	250VAC/6.3A	250VAC/6.3A	250VAC/6.3A	250VAC/6.3A
function	Remote controller type		ZC/JG-02	ZH/SB-02	ZC/LW-07	ZH/JG-02
	Display mode		Blue screen	Blue screen	Blue screen	Blue screen
	swing	horizontal (auto/manual)	/	/	/	/
		vertical (auto/manual)	/	/	/	/
	Health function (anion/cold catalyst/light cataly/Plasma/air cleaner)		/	/	/	/
	Special function(soft start/power cut memory/hard start/other)		/	/	/	/

Table 6-3

Model		KF-120LW/B	KFR-120LW/B	KT3F-120LW/Bc	KT3FR-120LW/Bc
pattern	NO.				

Power supply		Ph-V-H z	380	380	380	380	
Cooling	Capacity	W	12000	12000	12000	12000	
	Input	W	5000	5000	5000	4750	
	Rated current	A	8.9	8.9	8.4	8.1	
	EER	w/w.	2.4	2.4	2.4	2.5	
Heating	Capacity	w	/	13200	/	13000	
	Input	W	/	4850	/	4450	
	Rated current	A	/	8.7	/	7.7	
	COP	w/w	/	2.7	/	2.9	
Additional electrical heater power input		W	/	2500	/	/	
Additional electrical heater current input		A	/	11.4	/	/	
Moisture Removal		Kg/h	/	/	/	/	
Max. input consumption		W	6200	8700	6545	6545	
Max. current		A	9.6	21	11.8	11.8	
Compressor	Model		503DH-80C2	503DH-80C2	H23A623DBEA	H23A623DBEA	
	Type		Vortex type	Vortex type	Plunger type	Plunger type	
	Brand		Hitachi	Hitachi	bristolforum	bristolforum	
	Capacity	W	14900	14900	16291	16291	
	Input	W	4400	4400	5390	5390	
	Start electric current	A	/	/	15.3	15.3	
	Rated current(RLA)/Locked rotor Amp(LRA)	A	8.1/60	8.1/60	30/124	30/124	
	Thermal protector		/	/	SUNISO3GS 1480	SUNISO3GS 1480	
	Capacitor	uF	/	/	/	/	
	Refrigerant oil	ml	SUNISO 4GSD/1400ml	SUNISO 4GSD/1400ml	/	/	
Indoor unit	Fan motor	Model		YDK-90-10	YDK-90-10	YDK-90-10	
		Brand	W	90	90	90	
		Capacitor	uF	5	5	5	
		Speed(hi/mi/lo)	r/min	443 / 356 / 288	443 / 356 / 288	443 / 356 / 288	443 / 356 / 288
	Fan motor	diameter×height	mm	φ 380×180	φ 380×180	φ 380×180	
	Evaporator	Number of rows×Number of circuits×Number of circuits		2×36×8	2×36×8	2×36×8	2×36×8
		Tube pitch × row pitch×Fin spacing	mm	25×22×1.42	25×22×1.42	25×22×1.42	25×22×1.42
		Fin type (code)		Persian blinds	Persian blinds	Persian blinds	Persian blinds
		Tube outside dia.and type	mm	φ 9.52/ inner groove copper pipe	φ 9.52/ inner groove copper pipe	φ 9.52/ inner groove copper pipe	φ 9.52/ inner groove copper pipe

		Coil length x height x width	mm	480×900	480×900	480×900	480×900	
		Air flow	m3/h	1860	1860	1860	1800	
		Noise level	dB(A)	50-57	50-57	50-57	46-54	
		Dimension (W*H*D)	mm	600×313×1868	600×313×1868	600×313×1868	600×313×1868	
		Packing (W*H*D)	mm	2010×460×670	2010×460×670	2010×460×670	2010×460×670	
		Net/Gross weight	Kg	70-75	72-77	70-75	72-77	
Outdoor unit	Fan motor	Model		YDK-200-6	YDK-200-6	YDK-200-6	YDK-200-6	
		Input	W	200	200	200	200	
		Capacitor	uF	10	10	10	10	
		Speed	r/min	819	819	819	819	
	Fan motor	diameter×height	mm	φ 556×167	φ 556×167	φ 556×167	φ 556×167	
	Condenser	Number of rows × Number of circuits× Number of circuits			1×19×3	2×36×6	1×19×3	2×36×6
		Tube pitch× row pitch×Fin spacing	mm		25×22×1.4	25×22×1.8	25×22×1.4	25×22×1.8
		Fin type (code)			Persian blinds	Karat window poece	Persian blinds	Karat window poece
		Tube outside dia. and type	mm		φ 9.52/ inner groove copper pipe	φ 9.52/ inner groove copper pipe	φ 9.52/ inner groove copper pipe	φ 9.52/ inner groove copper pipe
		Coil length x height x width	mm		890×950×44	863×950×44	890×950×44	863×950×44
		Air flow	m3/h	/	/	/	/	
		Noise level	dB(A)	65	65	65	62	
		Dimension (W*H*D)	mm	1000×350×990	1000×350×990	1000×350×990	1000×350×990	
		Packing (W*H*D)	mm	1145×475×1120	1145×475×1120	1145×475×1120	1145×475×1120	
		Net/Gross weight	Kg	98-106	102-110	98-106	102-110	
		Refrigerant type	g	R22/2000g	R22/2800g	R22/1780g	R22/2680g	
		Design pressure	MPa	2.7/0.7	2.7/0.7	4.0/1.0	4.0/1.0	
	Qty' per 40' HQ	set	48	48	48	48		
	use temperature range	°C- °C	/	/	/	/		
	setting temperature range	°C- °C	/	/	/	/		
connecting pipe/cable	Liquid pipe/ gas pipe dia. /length	mm	φ 9.52+ φ 19.05 ×5000	φ 9.52+ φ 19.05 ×5000	φ 12.7+ φ 19× 5000	φ 12.7+ φ 19× 5000		
	Max pipe length/ Max pipe high	m	5	5	5	5		
	cable spec. (dia. /quantity /length)	mm/ /m	5×1.0mm2×6280	5×0.75mm2×6200	5×1.0mm2×6280	5×0.75mm2×6200		
Electric fittings	PCB model		ZKF-75LW 02A	ZKFR-120LW 22/A1	ZKF-75LW 02A	ZKFR-120LW/BD 02A		
	Transformer model		B01-04A	B01-04A02	B01-04A	B01-04D		
	Fuse model/fuse current	A	250VAC/6.3A	250VAC/6.3A	250VAC/6.3A	250VAC/6.3A		
c t	Remote controller type			ZC/JG-02	ZH/JG-02	ZC/JG-03	ZH/JG-03	

		Display mode	Blue screen	Blue screen	Blue screen	Blue screen
	swing	horizontal (auto/manual)	/	/	/	/
		vertical (auto/manual)	/	/	/	/
		Health function (anion/cold catalyst/light cataly/Plasma/air cleaner)	/	/	/	/
		Special function (soft start/power cut memory/hard start/other)	/	/	/	/

Table 6-4

Model		KT3F-145LW/Be	KT3FR-145LW/Be
pattern		NO.	
Power supply		Ph-V-Hz	220V/3 φ /60Hz
Cooling	Capacity	W	14500
	Input	W	5930
	Rated current	A	17.0
	EER	w/w.	2.45
Heating	Capacity	w	/
	Input	W	/
	Rated current	A	/
	COP	w/w	/
Additional electrical heater power input		W	2500
Additional electrical heater current input		A	11.4
Moisture Removal		Kg/h	/
Max. input consumption		W	6930
Max. current		A	22
Compressor	Model		H23A563DBLA
	Type		Plunger type
	Brand		bristolforum
	Capacity	W	16291
	Input	W	5390
	Start electric current	A	/
	Rated current(RLA)/Locked rotor Amp(LRA)	A	15.3/124
	Thermal protector		32HM35-112 内置
Capacitor	uF	/	

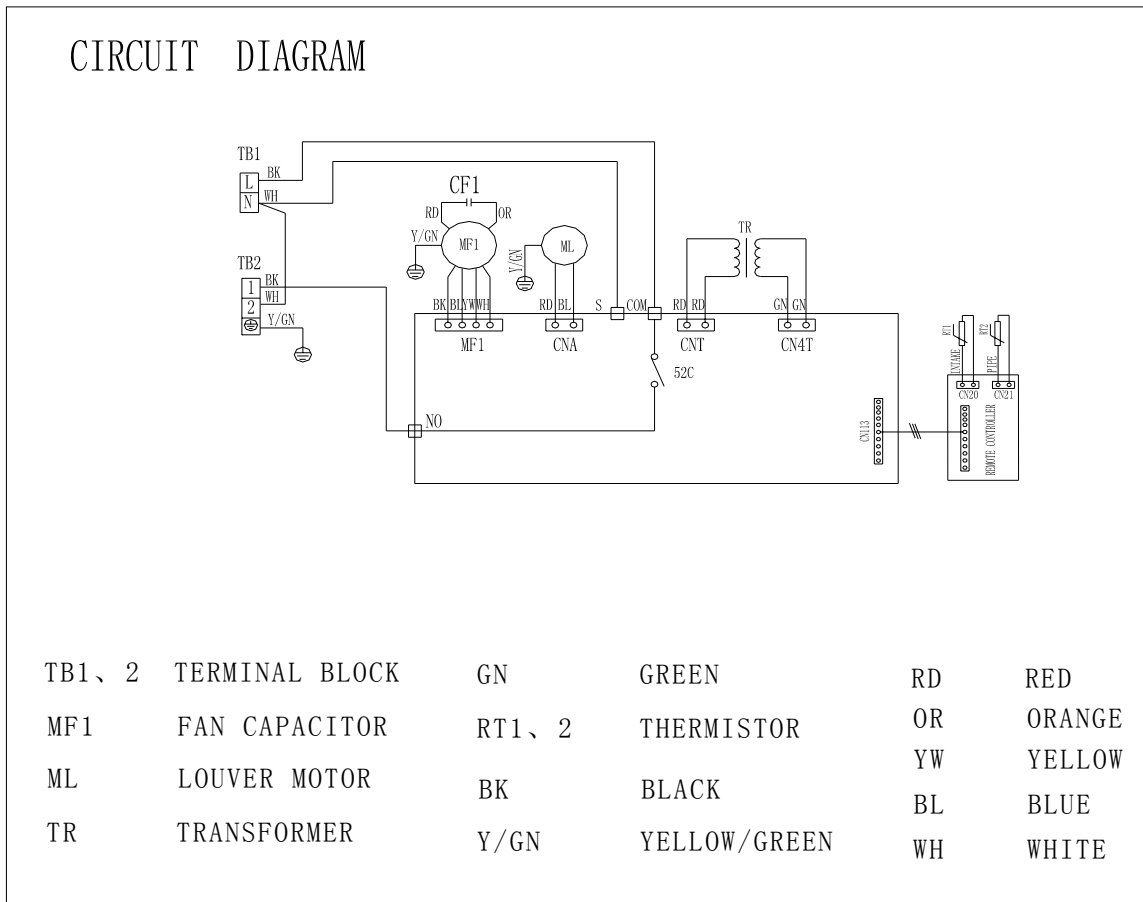
		Refrigerant oil	ml	SUNISO3GS 1480CC	SUNISO3GS 1480CC	
Indoor unit	Fan motor	Model		YDK-100-10C	YDK-100-10C	
		Brand	W	100	100	
		Capacitor	uF	6	6	
		Speed(hi/mi/lo)	r/min	480 / 400 / 300	480 / 400 / 300	
	Fan motor	diameter×height	mm	φ 380×180	φ 380×180	
	Evaporator	Number of rows×Number of circuits×Number of circuits			2×36×8	2×36×8
		Tube pitch × row pitch×Fin spacing	mm		25×22×1.42	25×22×1.42
		Fin type (code)			Opens the window piece	Opens the window piece
		Tube outside dia. and type	mm		φ 9.52/ inner groove copper pipe	φ 9.52/ inner groove copper pipe
		Coil length x height x width	mm		480×900	480×900
		Air flow	m3/h		1870	1780
		Noise level	dB(A)		52-58	52-58
		Dimension (W*H*D)	mm		600×313×1868	600×313×1868
		Packing (W*H*D)	mm		2010×460×760	2010×460×760
	Net/Gross weight	Kg		70-75	72-77	
Outdoor unit	Fan motor	Model		YDK-200-8CF	YDK-200-8C F	
		Input	W	200	200	
		Capacitor	uF	10	10	
		Speed	r/min	800	800	
	Fan motor	diameter×height	mm		φ 556×167	φ 556×167
	Condenser	Number of rows × Number of circuits× Number of circuits			2×36×4	2×36×4
		Tube pitch× row pitch×Fin spacing	mm		25×22×1.9	25×22×1.9
		Fin type (code)			Light foil Louver	Light foil Louver
		Tube outside dia. and type	mm		φ 9.52/ inner groove copper pipe	φ 9.52/ inner groove copper pipe
		Coil length x height x width	mm		863×900×44	863×950×44
		Air flow	m3/h		/	/
		Noise level	dB(A)		67	67
		Dimension (W*H*D)	mm		1000×350×990	1000×350×990
		Packing (W*H*D)	mm		1145×475×1120	1145×475×1120
	Net/Gross weight	Kg		98-106	102-110	

	Refrigerant type	g	R22/2800g	R22/2930g
	Design pressure	MPa	4.0/1.0	4.0/1.0
	Qty' per 40' HQ	set	48	48
	use temperature range	°C- °C	/	/
	setting temperature range	°C- °C	/	/
connecting pipe/cable	Liquid pipe/ gas pipe dia. /length	mm	φ 12.7+ φ 19× 5000	φ 12.7+ φ 19× 5000
	Max pipe length/ Max pipe high	m	5	5
	cable spec. (dia. /quantity /length)	mm/ /m	5×1.0 mm2×6200	5×0.75 mm2×6300
Electric fittings	PCB model		ZKF-75LW 22/A	ZKFR-120LW 22/A
	Transformer model		EI-48	EI-48
	Fuse model/fuse current	A	250VAC/6.3A	250VAC/6.3A
function	Remote controller type		ZC/JG-02	ZH/SB-02
	swing	Display mode	Blue screen	Blue screen
		horizontal (au to/manual)	/	/
		vertical (auto /manual)	/	/
	Health function (anion/cold catalyst/light cataly/Plasma/air cleaner)		/	/
	Special function(soft start/power cut memory/hard start/other)		/	/

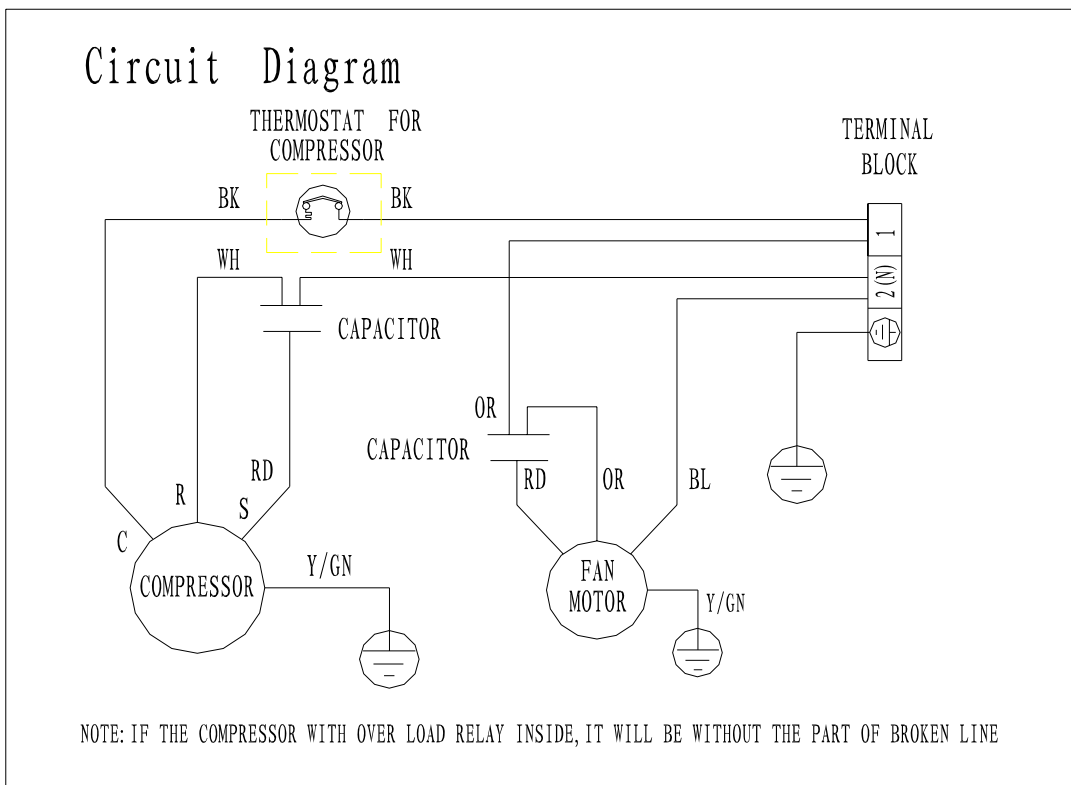
# 7. Wiring diagrams

## 7.1 KF-51LW/Ac

Indoor unit:

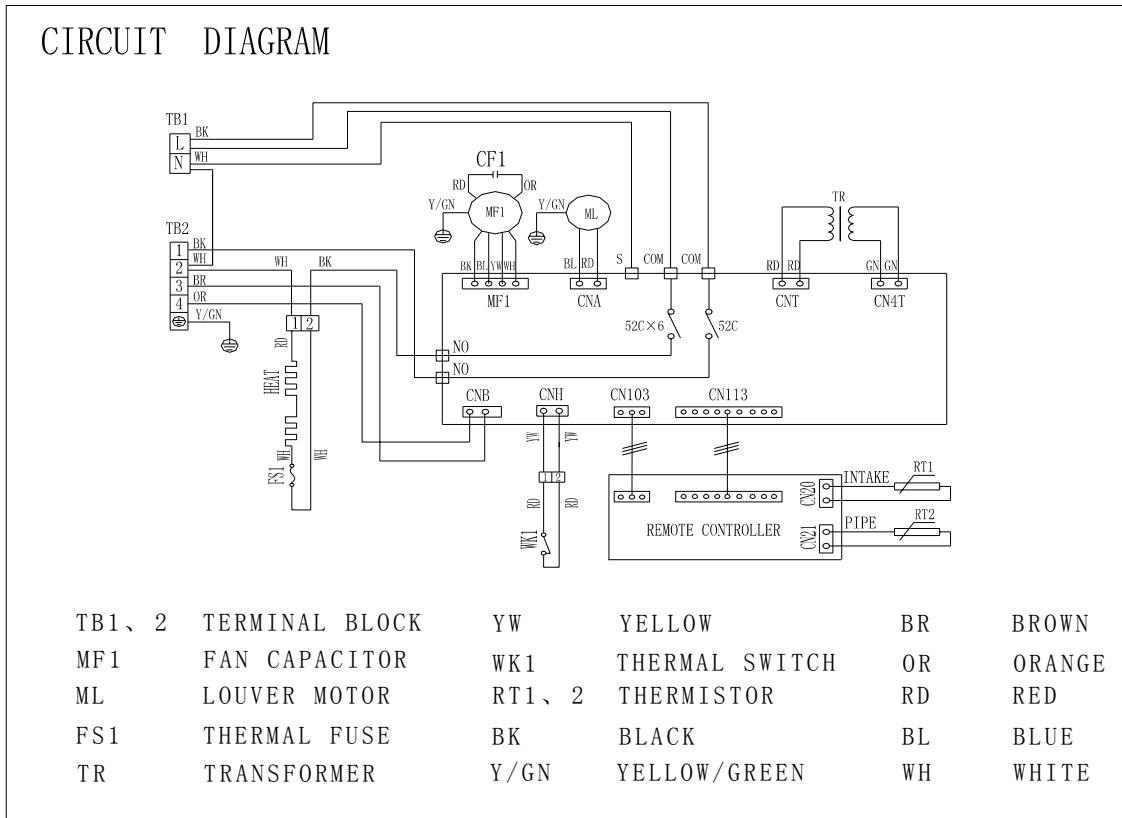


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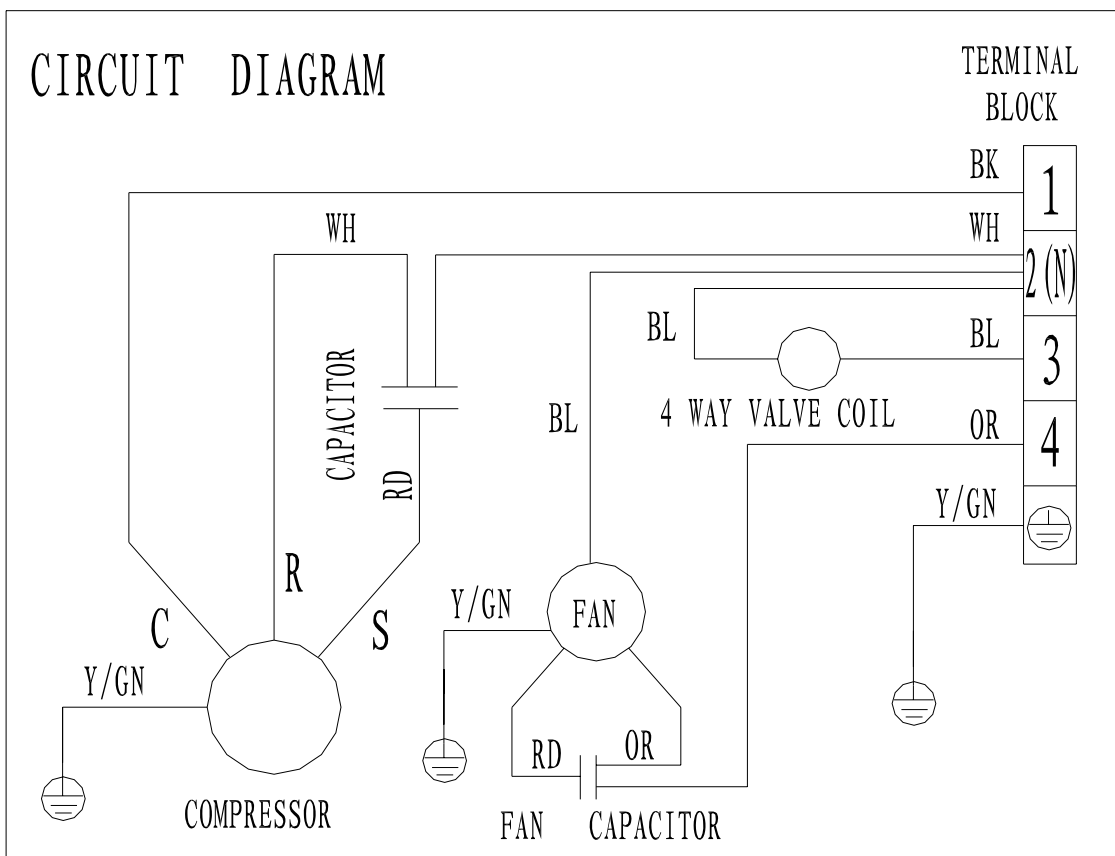


## 7.2 KFR-51LW

Indoor unit:

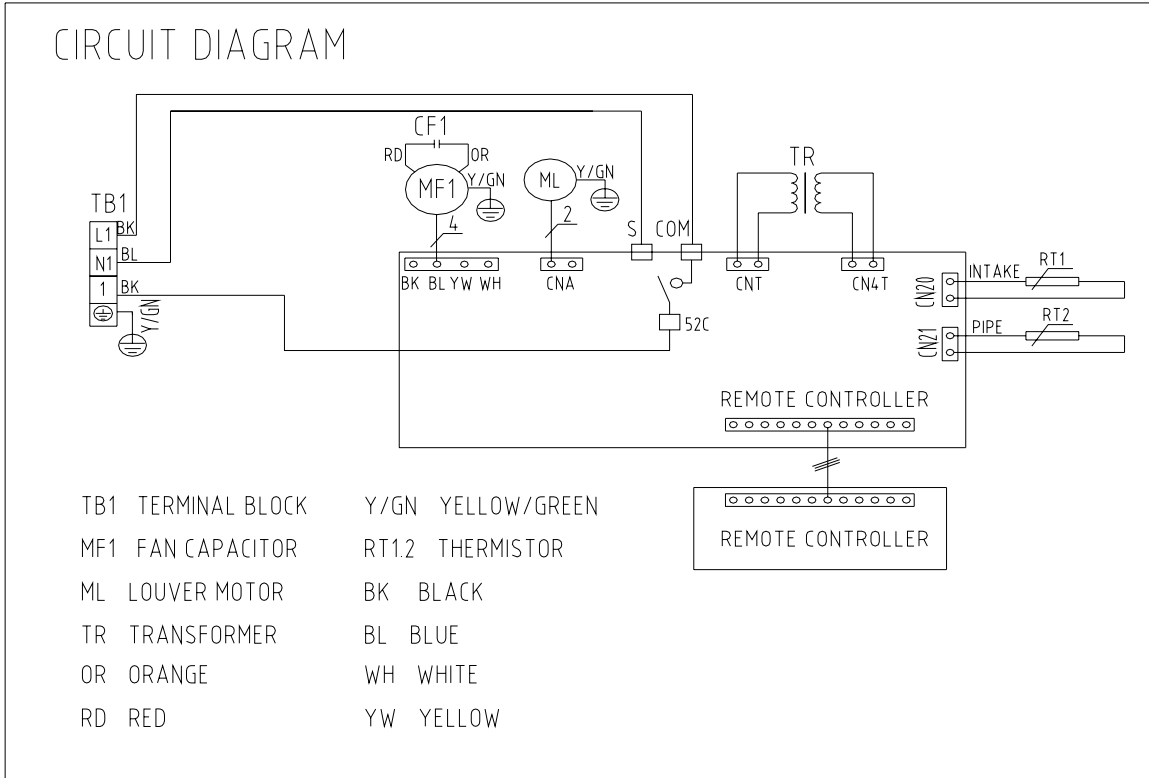


outdoor unit:

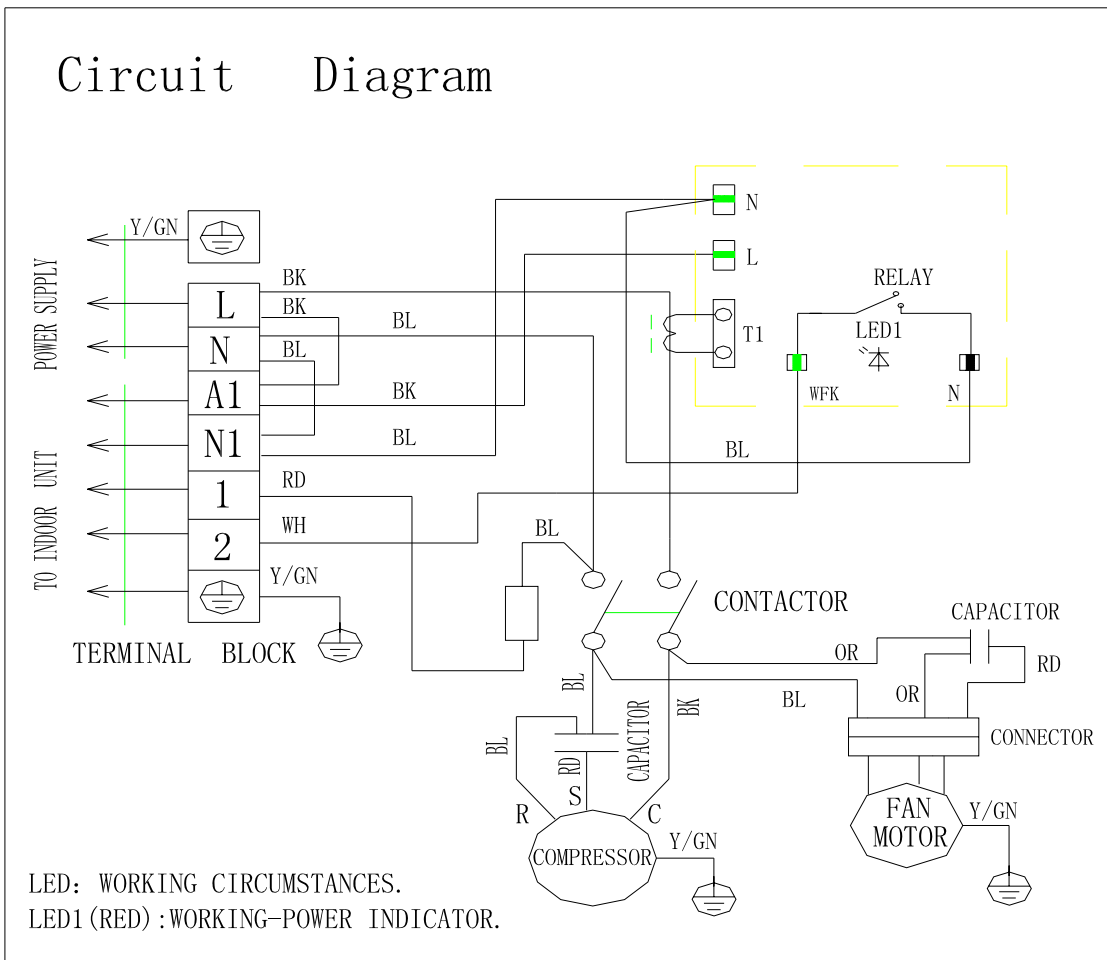


7.3 KF-61LW/A、 KF-70LW/A

Indoor unit:

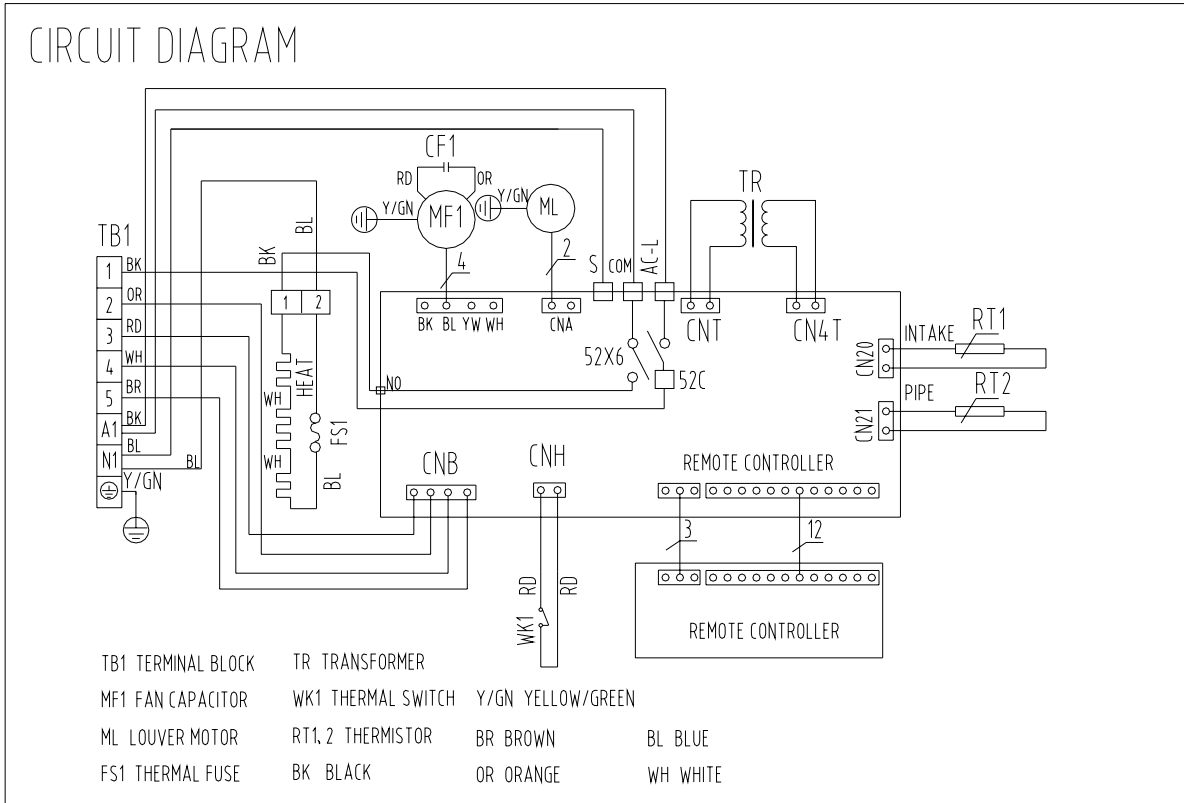


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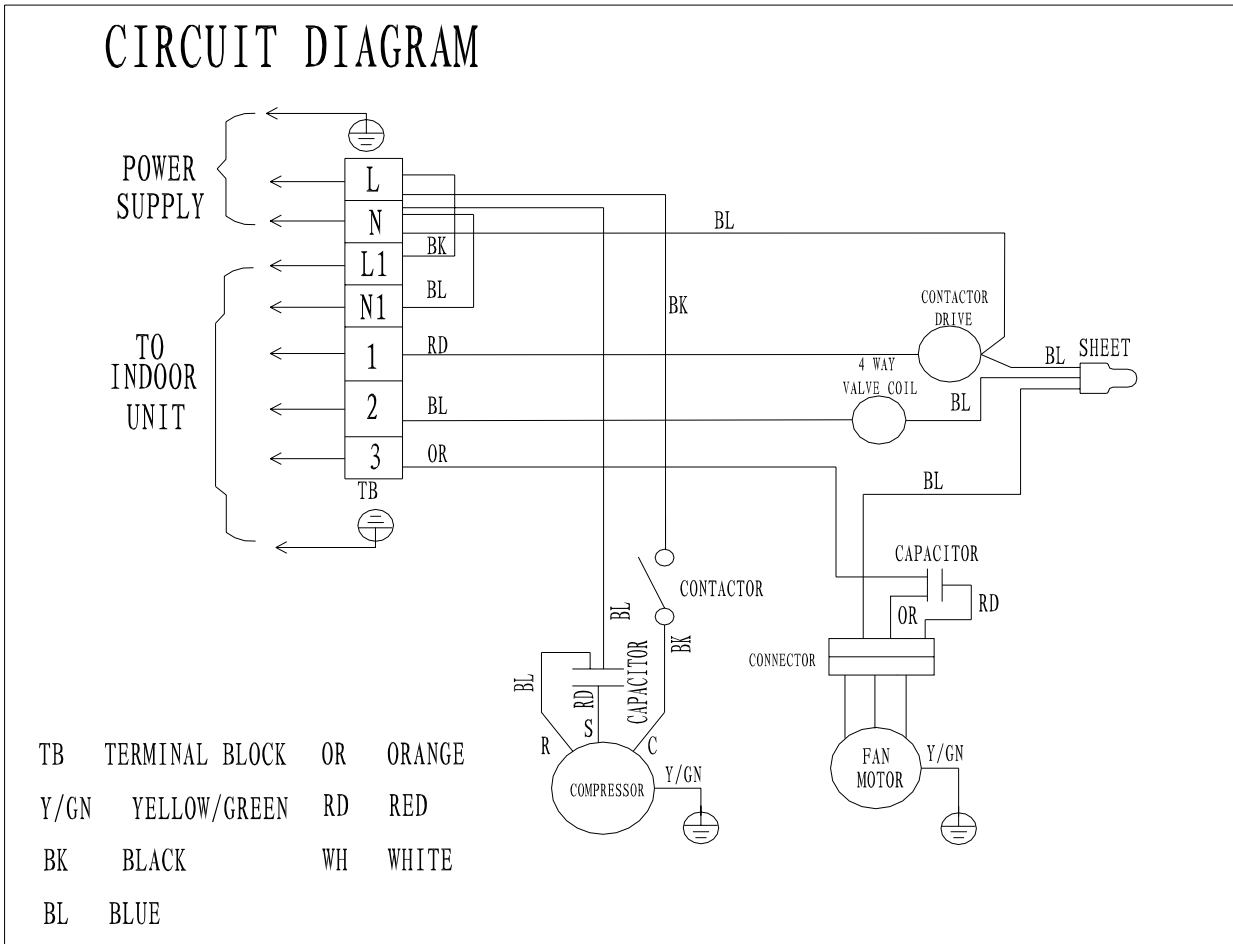


7.4 KFR-61LW/A、KFR-70LW/A

Indoor unit:

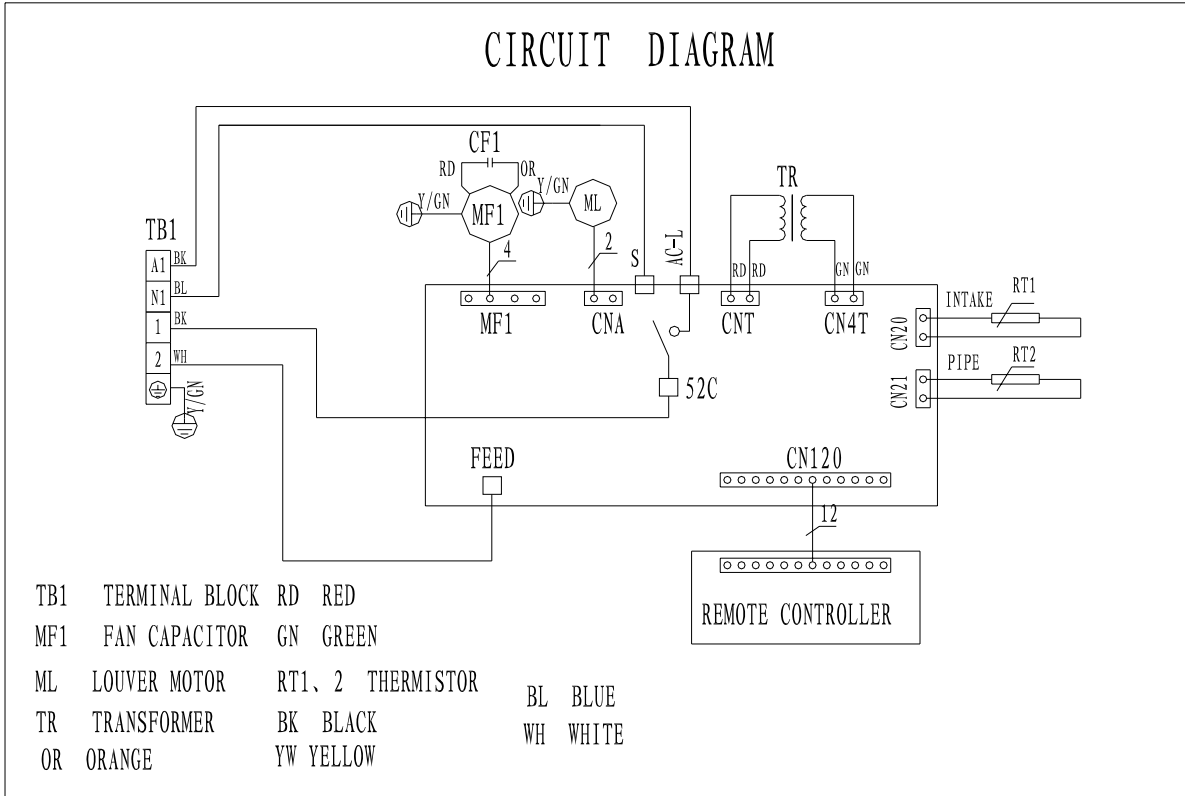


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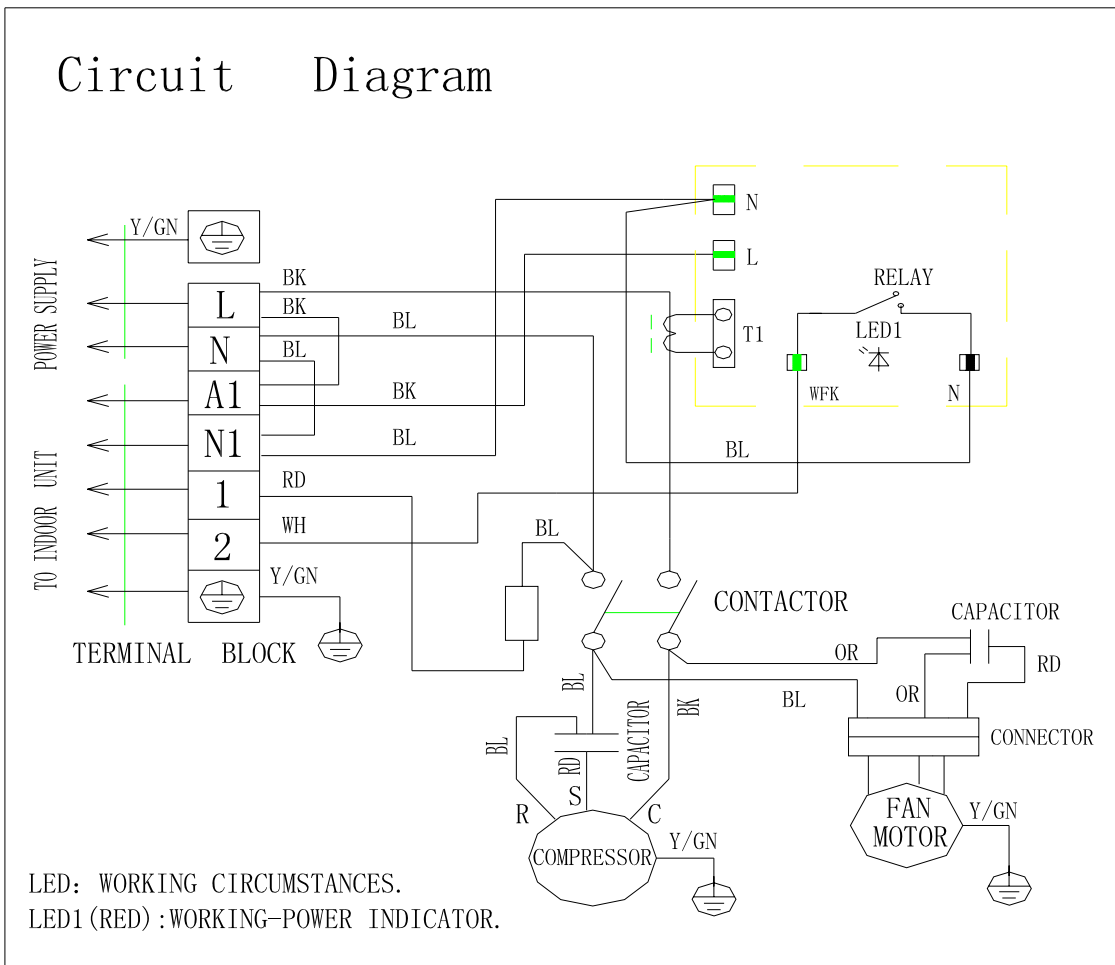


7.5KF-75LW/Bc

Indoor unit:

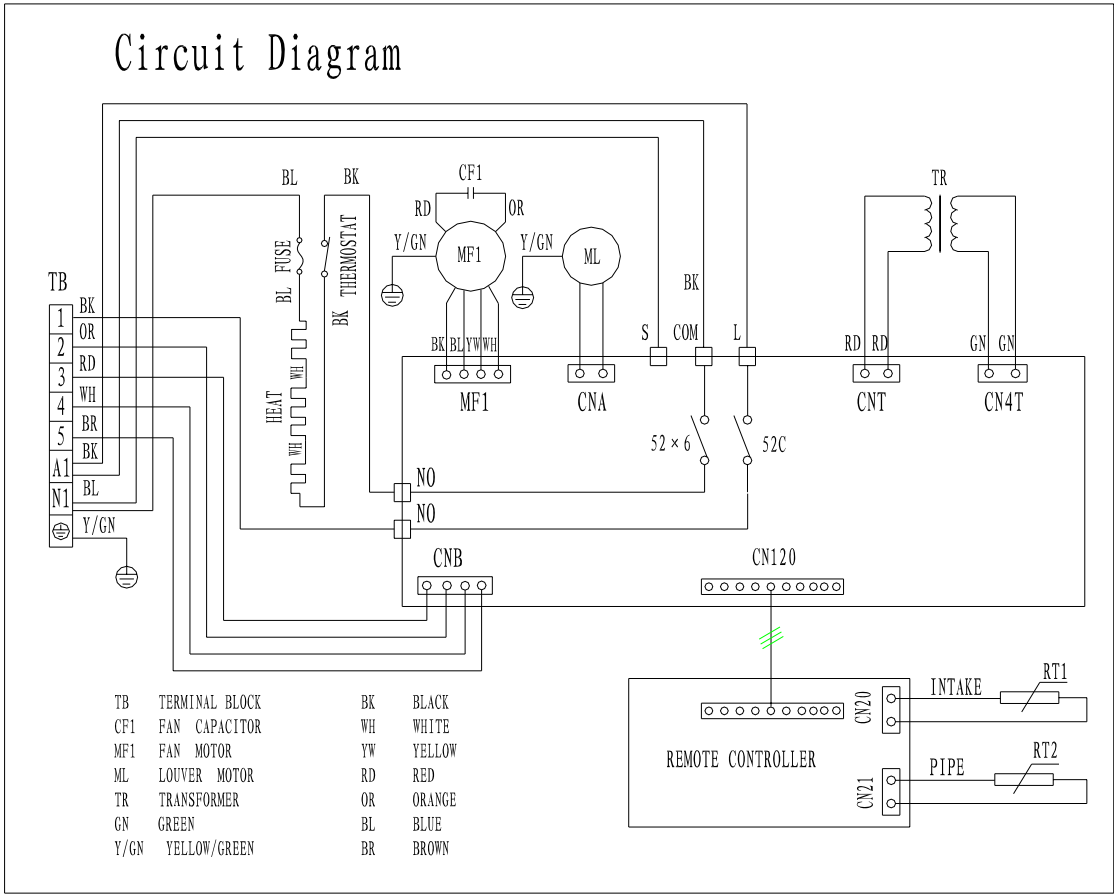


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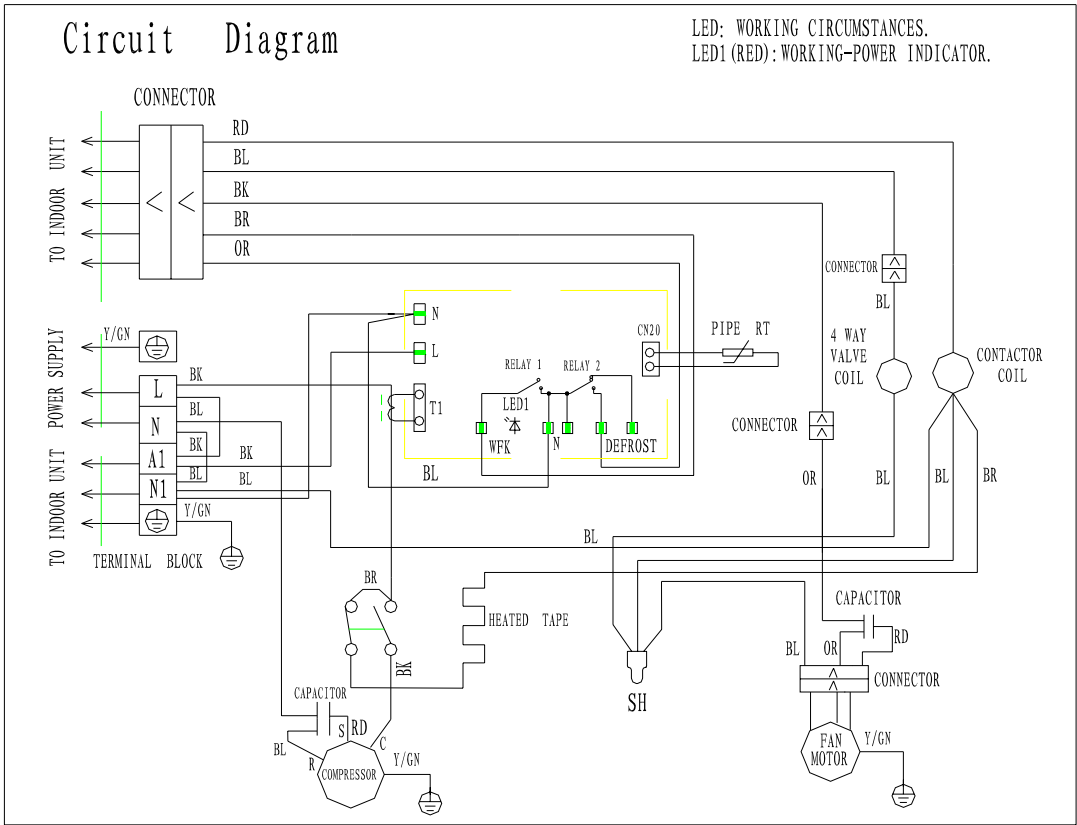


7.6 KFR-75LW/BS

Indoor unit:

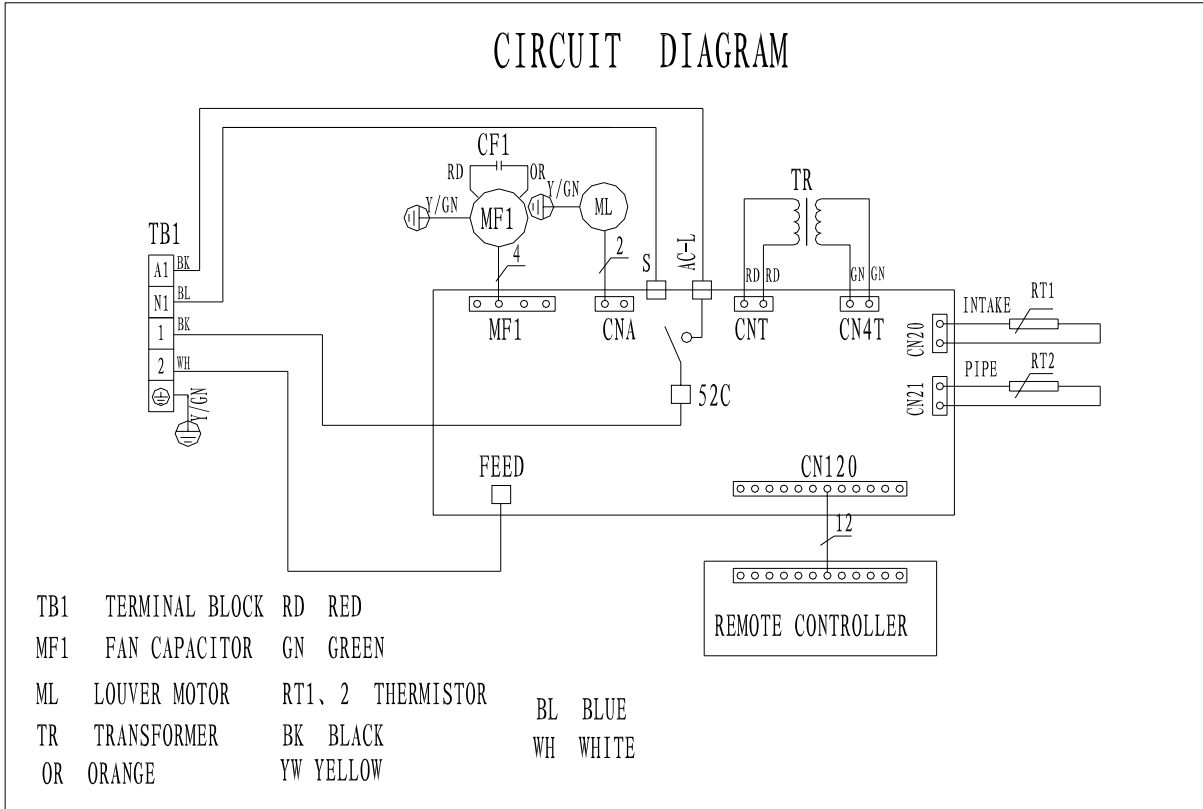


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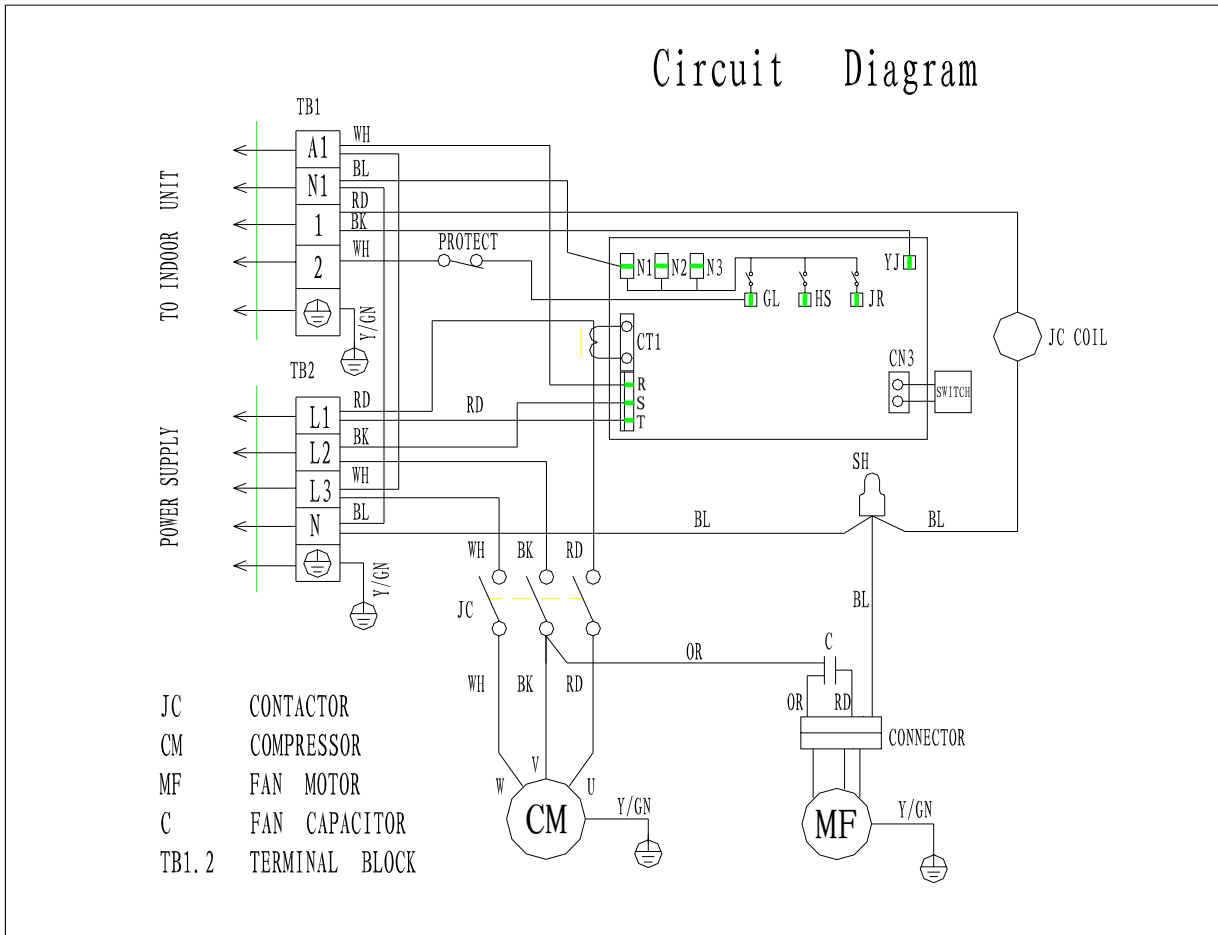


7.7 KF-120LW/ Bc、KT3F-120LW/ Bc

Indoor unit:

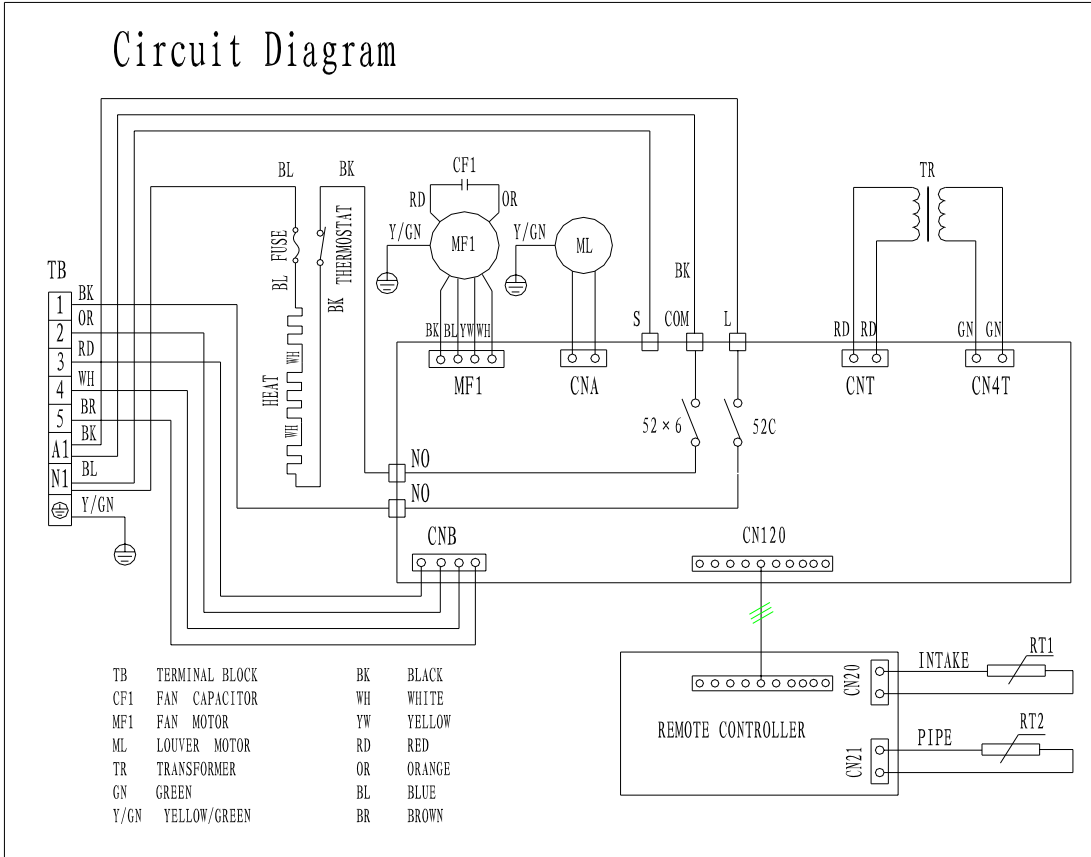


outdoor unit:

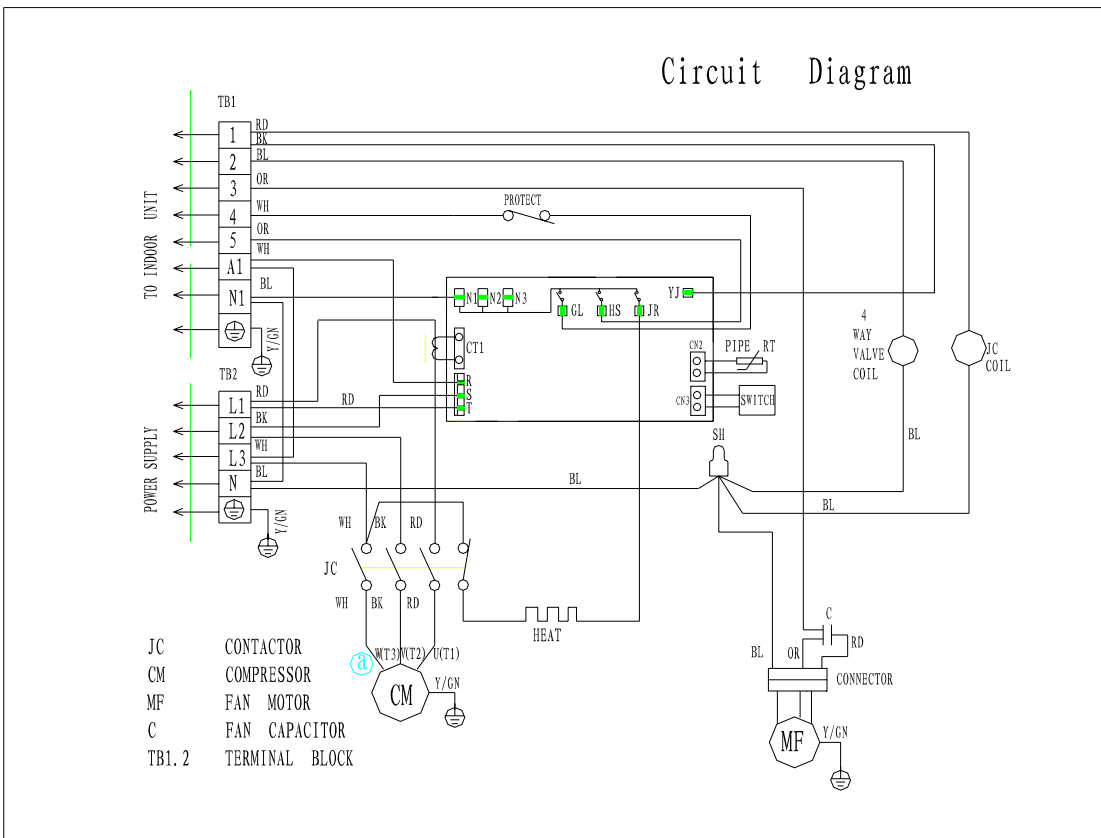


7.8 KFR-120LW/Bc, KT3FR-120LW/Bc

Indoor unit:

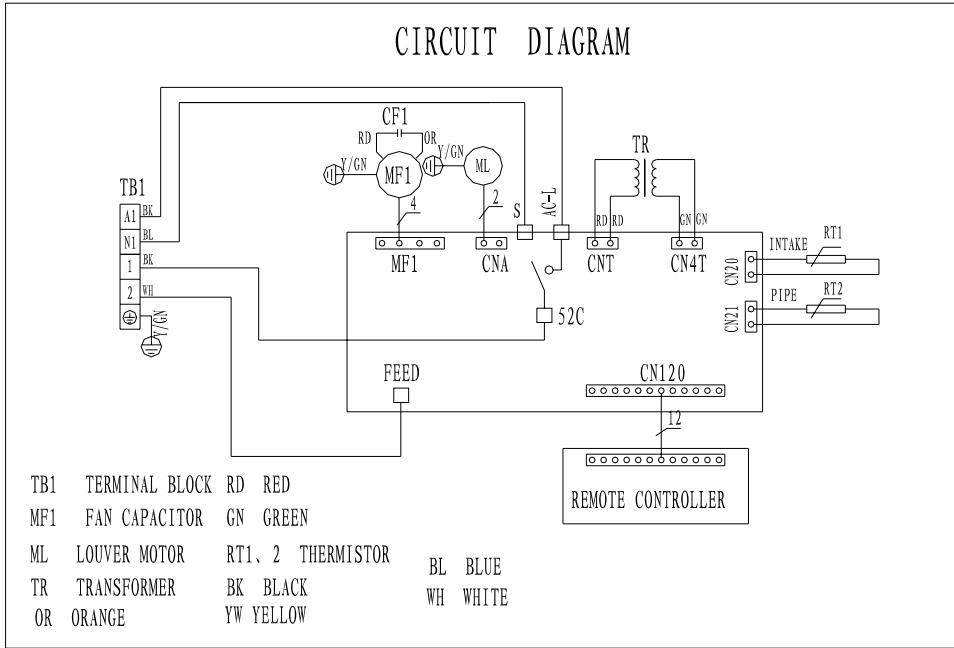


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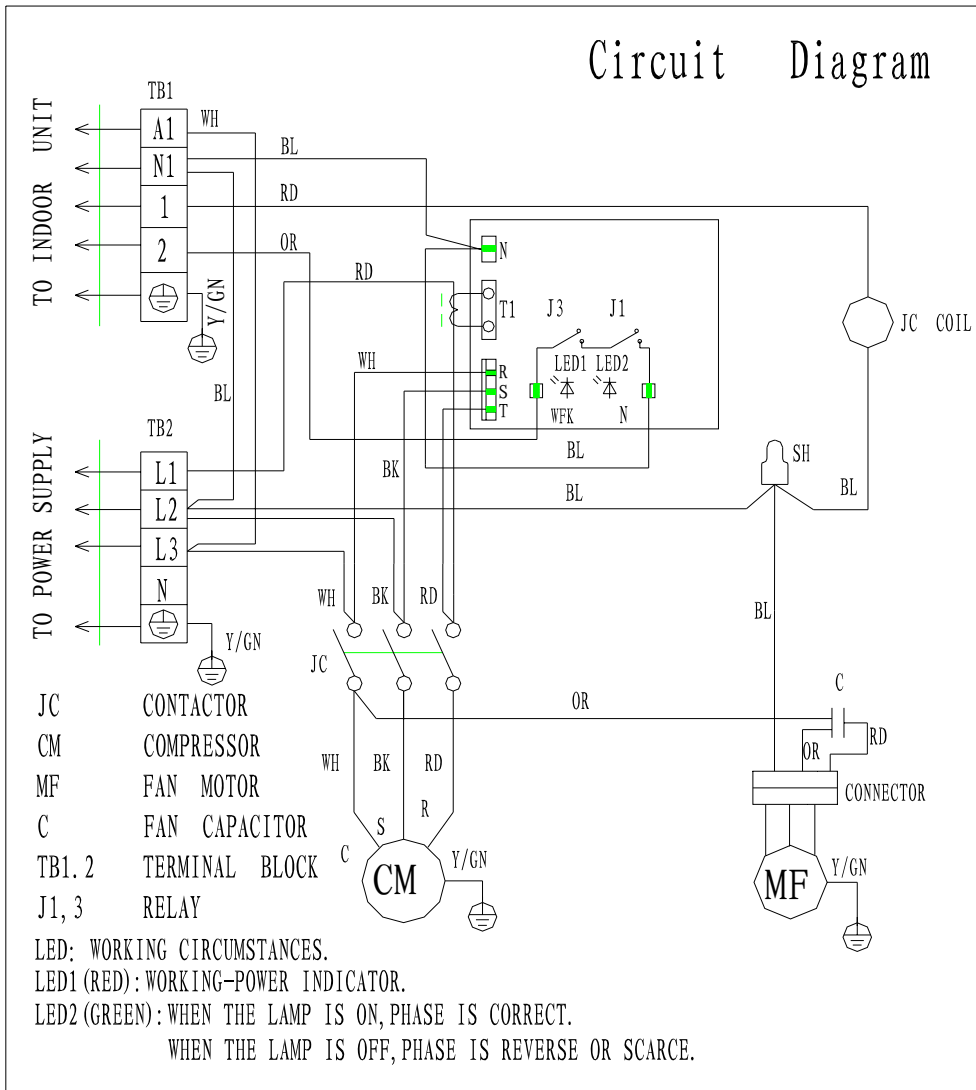


7.9KT3F-145LW/Be

Indoor unit:

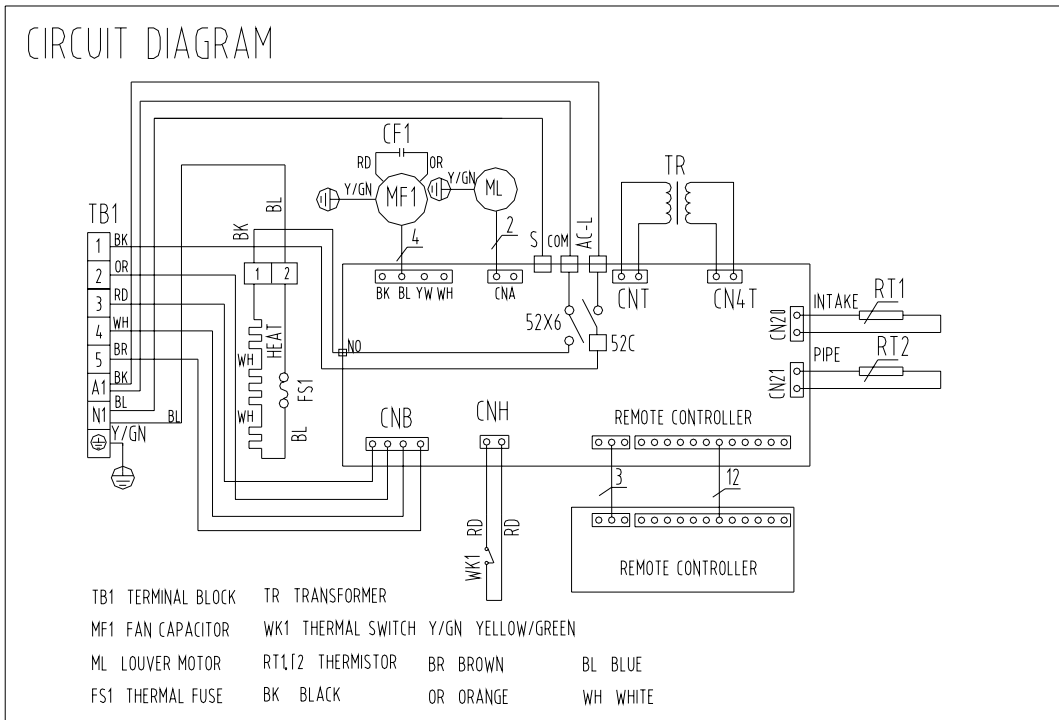


outdoor unit:

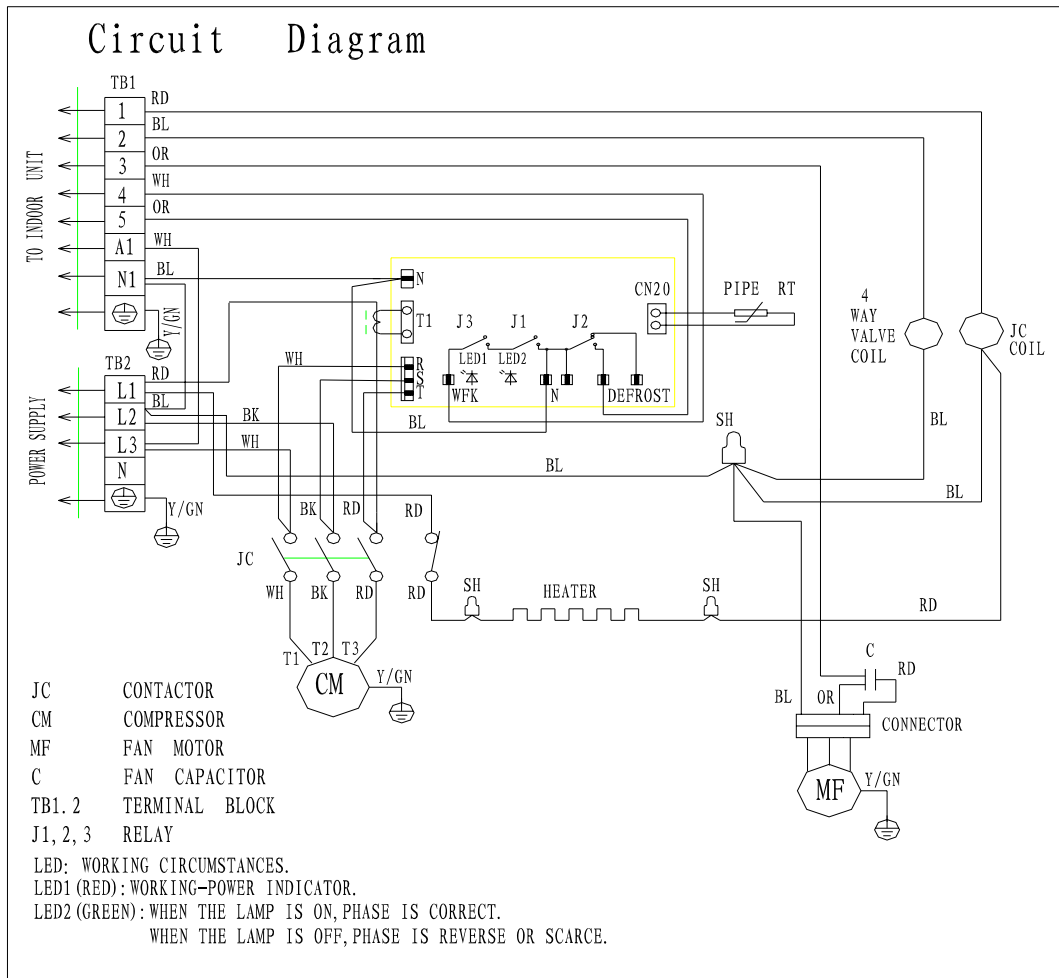


7.10 KT3FR-145LW/Be

Indoor unit:

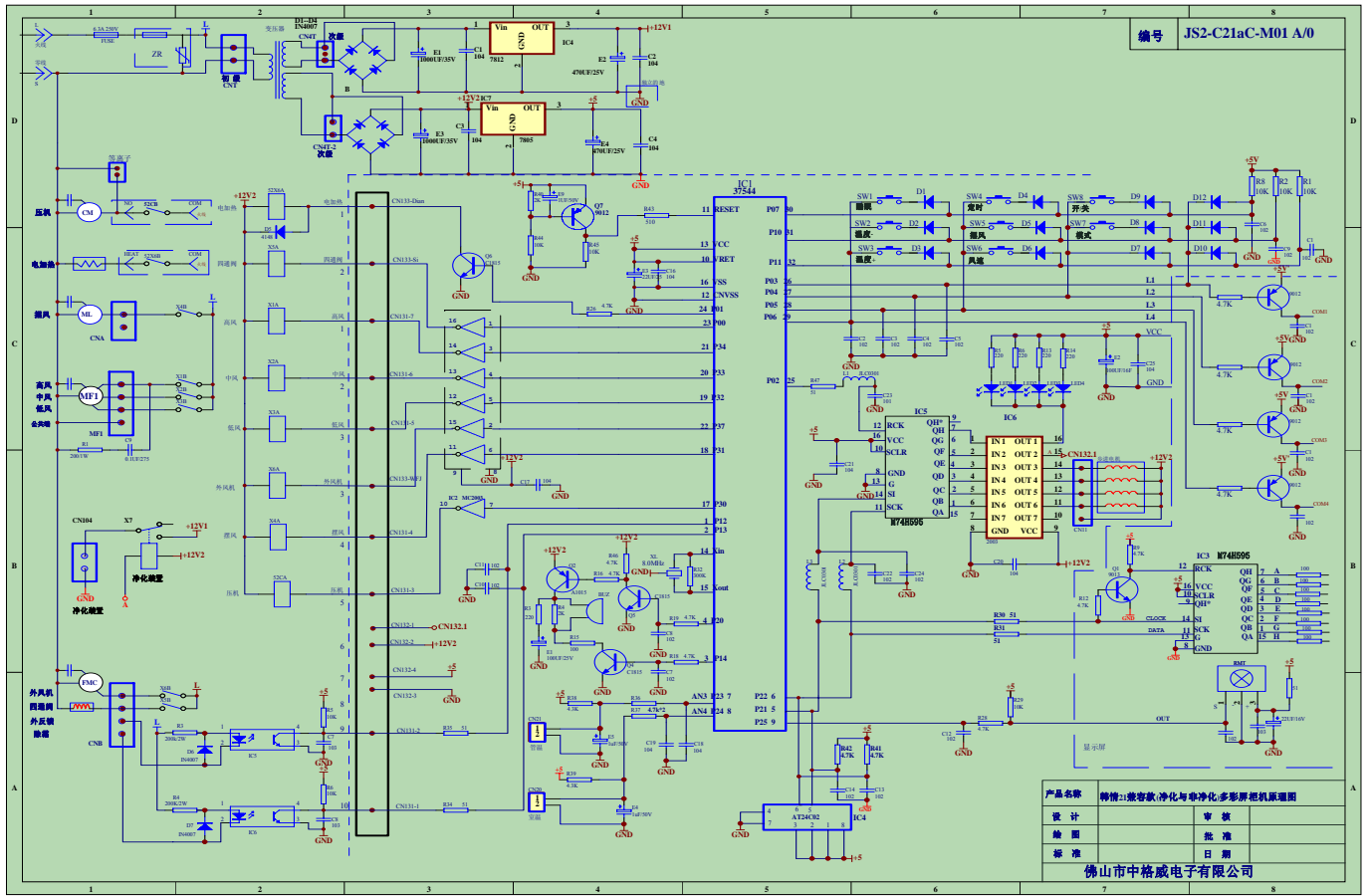


outdoor unit:

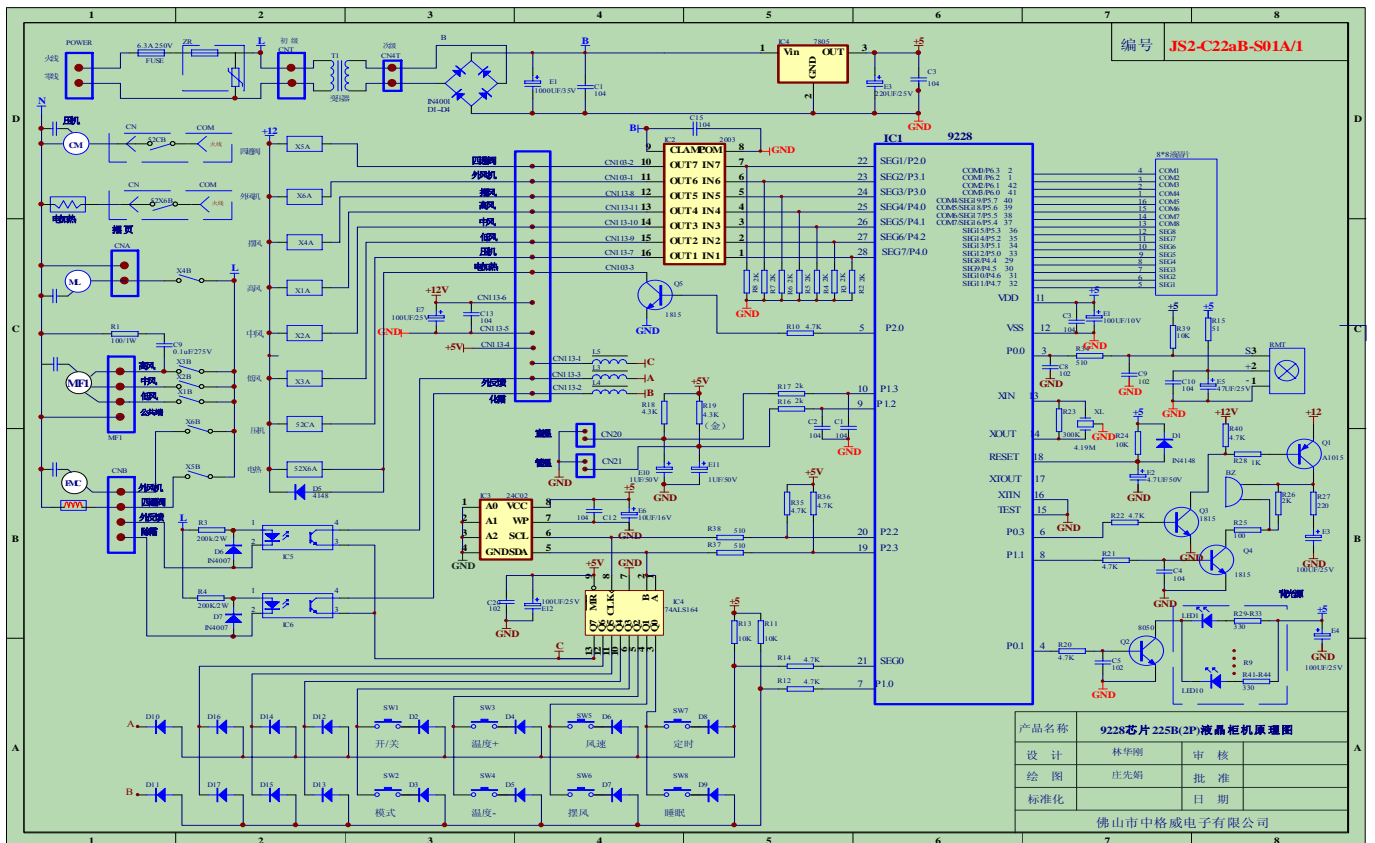


# 8、PCB principle chart

## 21style PCB principle chart



## 22style PCB principle chart



## 9、Part list of PCB

### 21 style PCB material listing

No.	Part code	Part name	model	Q'ty	description	remark
A01	0107200200	IC	MC7805CT	1	IC7	
A02	0107700201	diode	IN4007	4	D15-D18	
A03	0101200503	R oxidation film	220Ω RY-1W	2	R1、R2	
A04	0104601311	capacitor	104	2	C3、C4	
A05	0104300301	capacitor	0.1uF/275VAC	1	C9	
A06	0104300201	capacitor	0.047uF/275VAC	1	C10	
A07	0104101102	capacitor	1000uF/35V	1	E3	
A08	0104101202	capacitor	470uF/25V	1	E4	
A09	2903300103	jumper	Φ0.5×10mm	5	J1、J3、J5—J7	
A10	1501200600	relay	JQC-3FF 240VAC5A	4	X1-X4	
A11	9803010500	safety	ZGAY-B 621-10-126	1	ZR	
A12	0116100200	fuse	6.3A/250V Φ5× 20mm	1	FUSE	
A13	2104000100	fuse	Φ5×20mm	2	FUSE	
A14	1902200100	safety	Φ5×20mm	1	FUSE	
A15	0701200701	connector	VH-7A	1	MF1	
A16	0701200302	connector	VH-3A	1	CNA	
A17	0701200301	connector	VH-3A	1	CNT	
A18	0701100201	connector	XH-2A	1	CN4T-2	
A19	1303000213	Transformer	B01-04A02	1	CNT、CN4T-2	
A20	1303000908		B04-02A	1	CNT、CN4T、CN4T-2	
A21	0701100303	connector	XH-3A	1	CN123	
A22	0701100401	connector	XH-4A	1	CN123	
A23	2101000510	radiator	4-008112	1		
A24	2102100700	Screw	MB3X6 (HO)	1		
A25	0304200500	pin	AMP250A(6.3mm KET)	1	S	
A26	1102700140	PCB	218GCMP4-B	1	190mm*100mm	
B01	1501300400	relay	JQX-15F 30A 240VAC	1	52C	
B02	0701100701	connector	XH-7A	1	CN113	
C01	2903300103	jumper	Φ0.5×10mm	2	J2、J4	
C02	1501200600	relay	JQC-3FF 240VAC5A	2	X5 (HXF)、X6(WFAN)	
C03	1501300400	relay	JQX-15F30A 240VAC	1	52C	
C04	0107701301	diode	IN4148	1	D5	
C05	1501300600	relay	HF2160-1A-12DE	1	52X6	
C06	0701100301	connector	XH-3A	1	CN103	
C07	0701100701	connector	XH-7A	1	CN113	
C08	0701200703	connector	VH-7A	1	CNB	
D01	0107500600	IC	NEC2501	1	IC5	

D02	0107700201	diode	IN4007	1	D6	
D03	0101702601	R carbon film	10 RT-1/4W	1	R5	
D04	0101201504	R oxidation film	200K RY-2W	1	R3	
D05	0104601111	capacitor	103	1	C7	
D06	1501200600	relay	JQC-3FF 240VAC5A	1	52C-1	
D07	0701100701	connector	XH-7A	1	CN113	
D08	0304200500	pin	AMP250A 6.3mmKET	3	NO、L、FEED	
E01	0107500600	IC	NEC2501	2	IC5、IC6	
E02	2903300103	jumper	Φ0.5×10mm	2	J2、J4	
E03	0107700201	diode	IN4007	2	D6、D7	
E04	0101702601	R carbon film	10KRT-1/4W	2	R5、R6	
E05	0101201504	R oxidation film	200KRY-2W	2	R3、R4	
E06	0104601111	capacitor	103	2	C7、C8	
E07	1501200600	relay	JQC-3FF 240VAC5A	3	X5、X6、52C-1	
E08	1501300600	relay	HF2160-1A-12DE	1	52X6	
E09	0107701301	diode	IN4148	1	D5	
E10	0701100301	connector	XH-3A	1	CN103	
E11	0701100701	connector	XH-7A	1	CN113	
E12	0701200703	connector	VH-7A 红色	1	CNB	
E13	0304200500	pin	AMP250A 6.3mmKET	2	NO、L	
F01	0107200100	IC	MC7812CT	1	IC4	
F02	0107700201	diode	IN4007	4	D1-D4	
F03	0104601311	capacitor	104	2	C1、C2	
F04	0104101102	capacitor	1000uF/35V	1	E1	
F05	0104101202	capacitor	470uF/25V	1	E2	
F06	2903300103	jumper	Φ0.5×10mm	1	J10	
F07	2903300103	jumper	Φ0.5×10mm	1	J8	
F08	1501200600	relay	JQC-3FF 240VAC5A	1	X7 (GY)	
F09	0302002800	Connect line	LL-034	1	CN104	
F10	0701100303	connector	XH-3A 红色	1	CN4T	
F11	2101000510	radiator	4-008112	1		
F12	2102100700	Screw	MB3X6 (HO)	1		
G01	0701200303	connector	VH-3A 红色	1	CN1	
H01	0701100203	connector	XH-2A 红色	1	CNH	
H02	2903300103	jumper	Φ0.5×10mm	1	J9	

21 style PCB material listing

No.	Part code	Part name	model	Q'ty	description	remark
A01	0107601800	IC	S3P9228AZZ	1	IC1	
	0107601801		S3C9228A38			
A02	0107502402	IC	SN74HC164N	1	IC4	
A03	0107503558	IC	ULN2003	1	IC2	
A04	0107701301	diode	IN4148	9	D1-D9	
A05	0107100901	audion	8050	1	Q2	
A06	0107100401	audion	C1815	3	Q3-Q5	
A07	0107100501	audion	A1015	1	Q1	
A08	0113200501	resonator	4.19M	1	XL	
A09	0122100500	resonator	PT-1520P-A	1	BZ	
A10	0502001600	sensor	LT (3274) -016	1	CN21	
A11	0502001806	sensor	LT (3274) -037	1	CN20	
A12	0101701001	R carbon film	220 Ω RT-1/4W	1	R27	
A13	0101700801	R carbon film	51 Ω RT-1/4W	1	R15	
A14	0101700901	R carbon film	100 Ω RT-1/4W	1	R25	
A15	0101701401	R carbon film 阻	510 Ω RT-1/4W	3	R34、R37、R38	
A16	0101701601	R carbon film	1K RT-1/4W	1	R28	
A17	0101701901	R carbon film	2K RT-1/4W	10	R2-R8、R16、R17、R26	
A18	0101102201	R aurum film	4.3k RJ-1/4W	2	R18、R19	
A19	0101702201	R carbon film	4.7k RT-1/4W	9	R10、R20-R22、R35、R36、R40、R12、R14	
A20	0101702601	R carbon film	10K RT-1/4W	4	R11、R13、R24、R39	
A21	0125300200	inductance	JLC0301	2	L1-L2	
A22	0101703401	R carbon film	300K RT-1/4W	1	R23	
A23	0104100202	capacitor	4.7 μ F/50V	1	E2	
A24	0104100900	capacitor	100 μ F/10V	1	E1	
A25	0104100903	capacitor	100 μ F/25V	5	E3、E4、E7、E8、E12	
A26	0104100703	capacitor	47 μ F/25V	2	E5、E9	
A27	0104100112	capacitor	1 μ F/50V	2	E10、E11	
A28	0104600811	capacitor	102	4	C5、C8、C9、C20	
A29	0104601311	capacitor	104	10	C1-C4、C10、C11、C13-C16	
A30	0119200301	button	5.0mm	8	SW1-SW8	
A31	2903300103	jumper	Φ0.5×10mm	19	J1-J19	
A32	9801000900	Be in a poor light fountain	CTTL-0502W-120×53 ZG	1	BGY	
A33	1705101280	Show screen	CSL-50676APM	1	LCD	
A34	0110201100	Incept	HS0038A	1	RMT	
A35	2903300200	Sponge mat	5mm (11×10×5)	2	RMT	

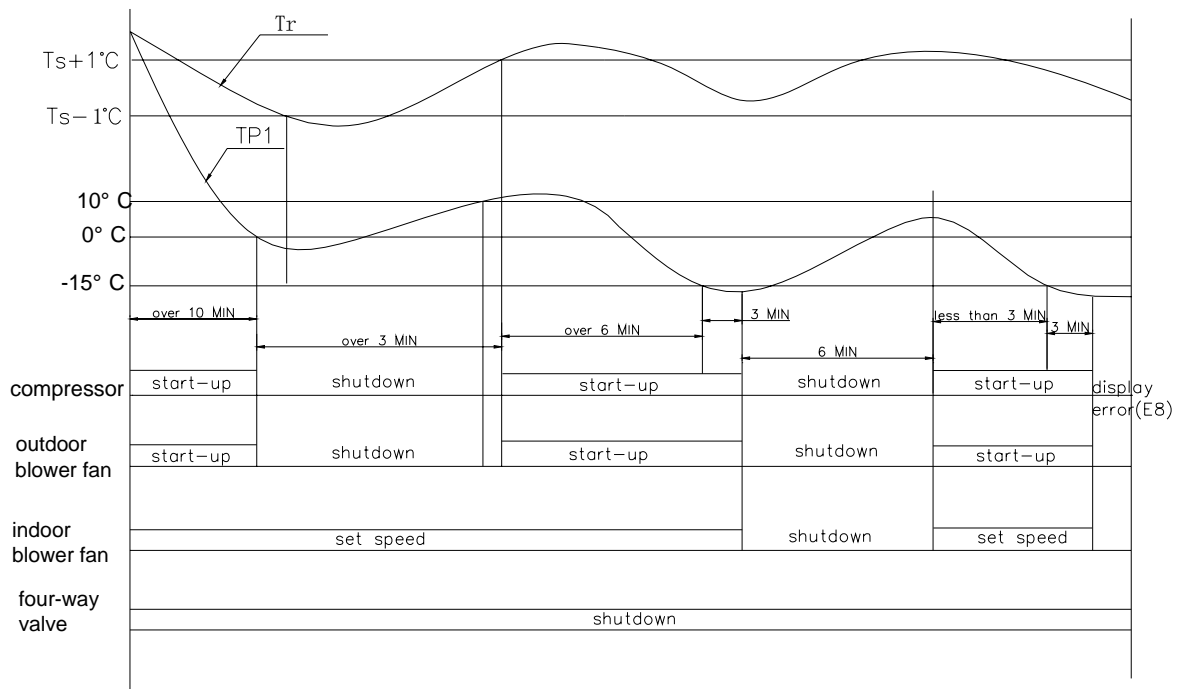
A36	0302003780	Connect line	LL-078	1	CN113	
A37	2102100900	PCB Screw	ST3*8	8		
A37	2102101200	Screw	ST4*10	6		
A39	1901420050 1901420051	Plastic piece		1		
A40	1102700129	PCB	LS222aX012-Z	1	154.5mm*298.5mm	
B01	0107701301	diode	IN4148	1	D12	
C01	0107701301	diode	IN4148	4	D12-D15	
C02	0302000600	Connect line	LL-006	1	CN103	
D01	0107701301	diode	IN4148	1	D10	
D02	0125300200	inductance	JLC0301	2	L3、L5	
E01	0107701301	diode	IN4148	3	D10、D11、D13	
E02	0125300200	inductance	JLC0301	3	L3-L5	
E03	0302000600	Connect line	LL-006	1	CN103	
F01	0107501000	IC	24C02	1	IC3	
F02	0104100401	capacitor	10 $\mu$ F/16V	1	E6	
F03	0104601311	capacitor	104	1	C12	

## 10. PCB function:

**NOTE:** Ts is the set temperature, Tr is indoor room temperature, TP1 is indoor coil pipe temperature, TP2 is outdoor coil pipe temperature.

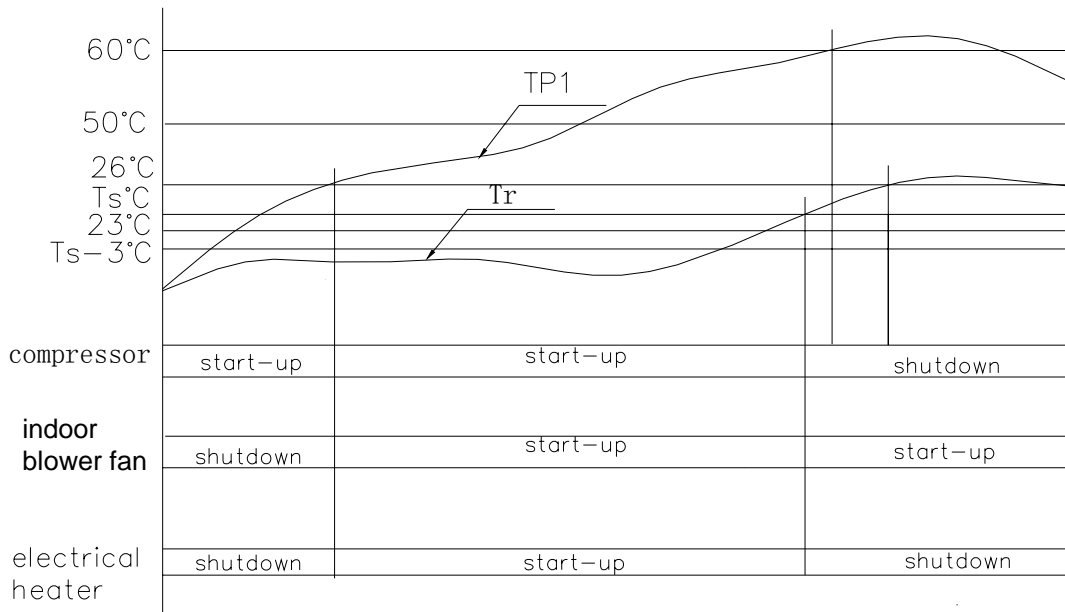
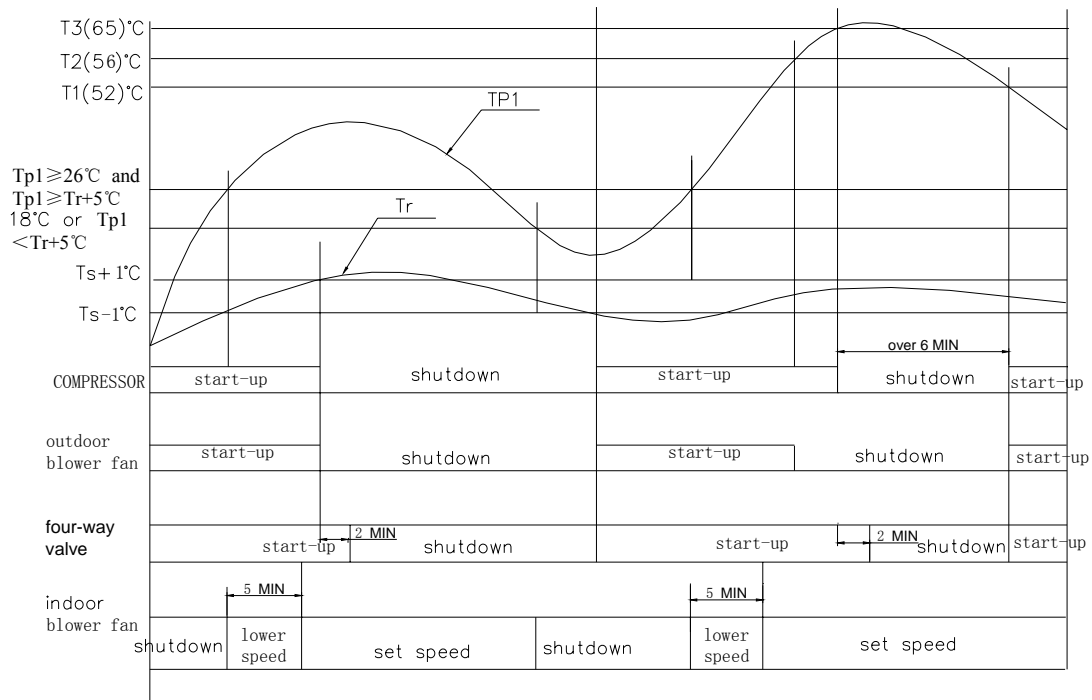
### Cooling

- Start up the compressor: when the room temperature is more than or equal to  $T_s+1^{\circ}\text{C}$ , compressor  $\rightarrow$  start-up
- Shut down the compressor: when the room temperature is equal to or less than the set temperature  $T_s-1^{\circ}\text{C}$ , compressor  $\rightarrow$  shutdown
- When the temperature of coil pipe of the indoor units is less than or equal to  $0^{\circ}\text{C}$  and the compressor has continuous run for more than ten minutes, the compressor and outdoor blower fan shut down through the electric control board and the indoor blower fan is running at set speed.
- When the temperature of coil pipe of the indoor units is more than  $10^{\circ}\text{C}$  or room temperature less than or equal to set temperature and the compressor has shutdown for more than three minutes, the compressor and outdoor blower fan start to run and the indoor blower fan is running at set speed.
- When the temperature of coil pipe of the indoor units is equal to or less than  $-15^{\circ}\text{C}$  for three minutes in the compressor has continuous run for six minutes, the compressor, indoor and outdoor blower fans and swinging wind shut down. Restart up six minutes later; if the above situations appear again within six minutes, all the outputs are shut down through the electric control board and the display failure.



### Heating (only applicable to dual temperature units)

- Start up the compressor: when the room temperature is less than or equal to  $T_s-1^\circ\text{C}$ , compressor → start-up
- Shut down the compressor: when the room temperature is more than or equal to the set temperature  $T_s+1^\circ\text{C}$ , compressor → shutdown
- The electric heating start-up in the heating mode shall meet the following conditions: ① start up the compressor for three minutes and indoor blower fan ②  $T_r \leq T_s-3^\circ\text{C}$  ③  $TP1 < 46^\circ\text{C}$  ④  $T_r \leq 23^\circ\text{C}$ .
- The electric heating shutdown in the heating mode shall meet one of the following conditions: ① shutdown the indoor blower fan ②  $T_r \geq 26^\circ\text{C}$  ③  $TP1 \geq 50^\circ\text{C}$  ④ change mode.
- When the temperature of coil pipe of indoor units is more than or equal to  $56^\circ\text{C}$ , the outdoor blower fan shuts down and it enters the overload protection; when the temperature of coil pipe of indoor units is less than or equal to  $52^\circ\text{C}$ , the outdoor blower fan starts up and it exit the overload protection.
- When the temperature of coil pipe of indoor units rises to  $65^\circ\text{C}$ , the compressor and outdoor blower fan are closed and two minutes later, the change valve is closed. The indoor blower fan is running at the set speed. Restart up six minutes later; if the above situations appear again within ten minutes, all the outputs are shut down through the electric control board and the display failure.



## Defrosting (only applicable to the heating mode)

### 1. the intelligent defrost

In the heating mode, the electric control board checks and compares the temperature of indoor room and indoor coil pipe after the compressor works for a while; judge whether the outdoor heat exchanger part is frosted or not according to conditions such as the change of indoor coil pipe temperature; if it is judged as frosted, it automatically enters defrosting process. When defrosting, close the indoor and outdoor blower fan and four-way valve.

### 2. Outdoor PCB for defrost.

In the heating mode, the unit defrost by outdoor control board:

①unit start defrost shall all meet the following conditions:

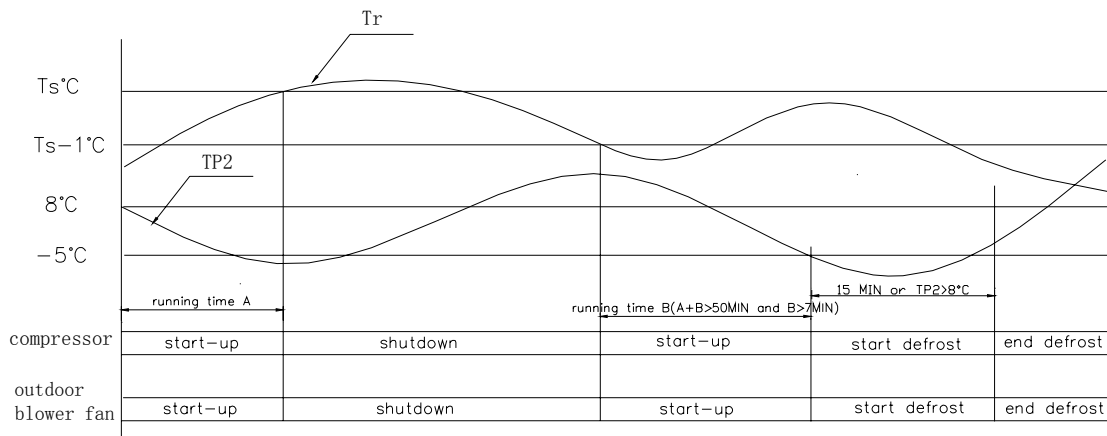
- a、compressor continuous running over 7 minutes;
- b、defrost relay shut off; ( $-5^{\circ}\text{C}$ )
- c、compressor cumulate running time over 50 minutes.;

②first defrost interval time is 50 minutes, later defrost interval time decided by last defrost time.

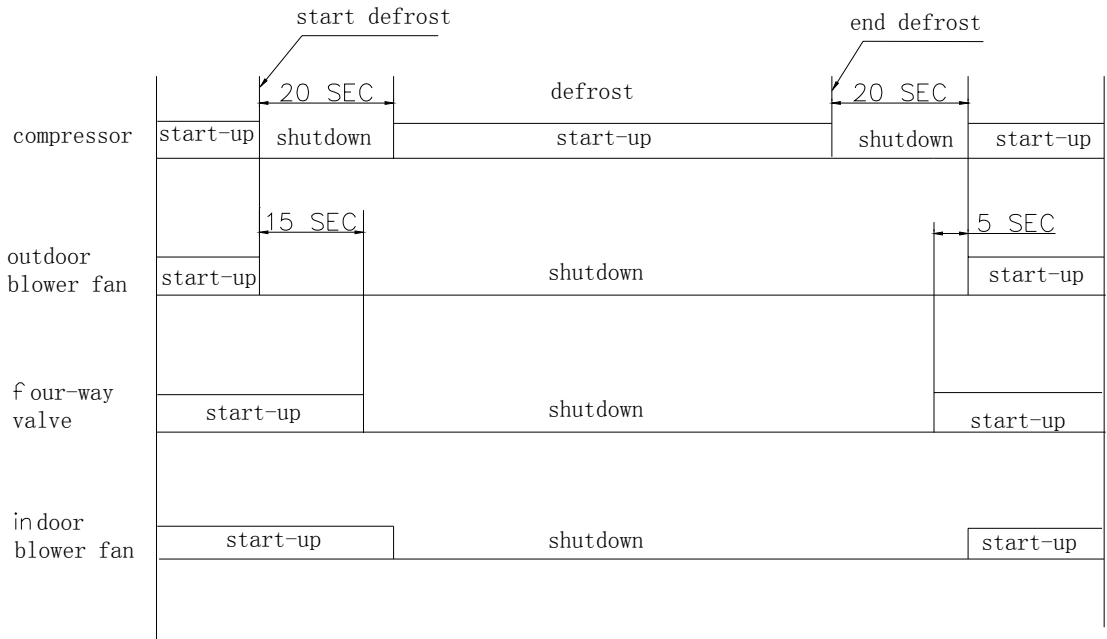
Defrost time(minute)	Next defrost interval time(minute)
15	30
10--15	40
7--10	60
3--7	70
$\leq 3$	80

(2) end defrost condition(meet one of follows)

- a、defrost time have fifteen minutes.
- b、defrost relay turn on; ( $>8^{\circ}\text{C}$ )
- c、press ON/OFF key in defrost process.

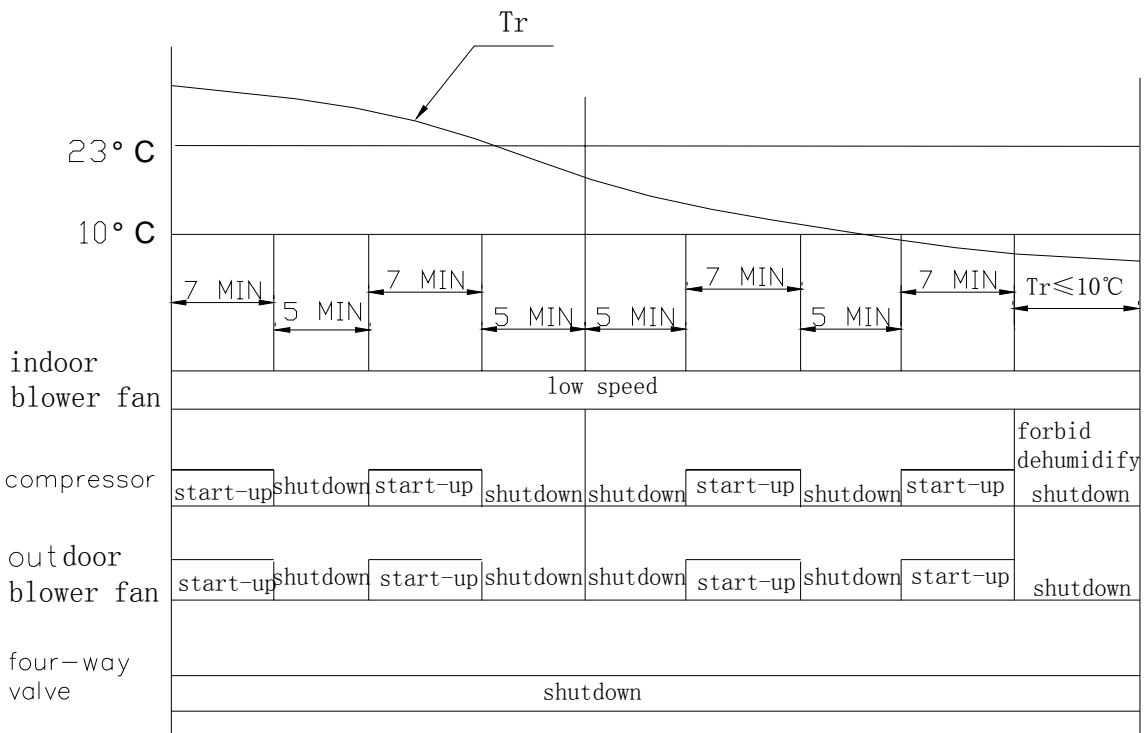


### ■ Sequence chart in defrosting mode



**Dehumidification**

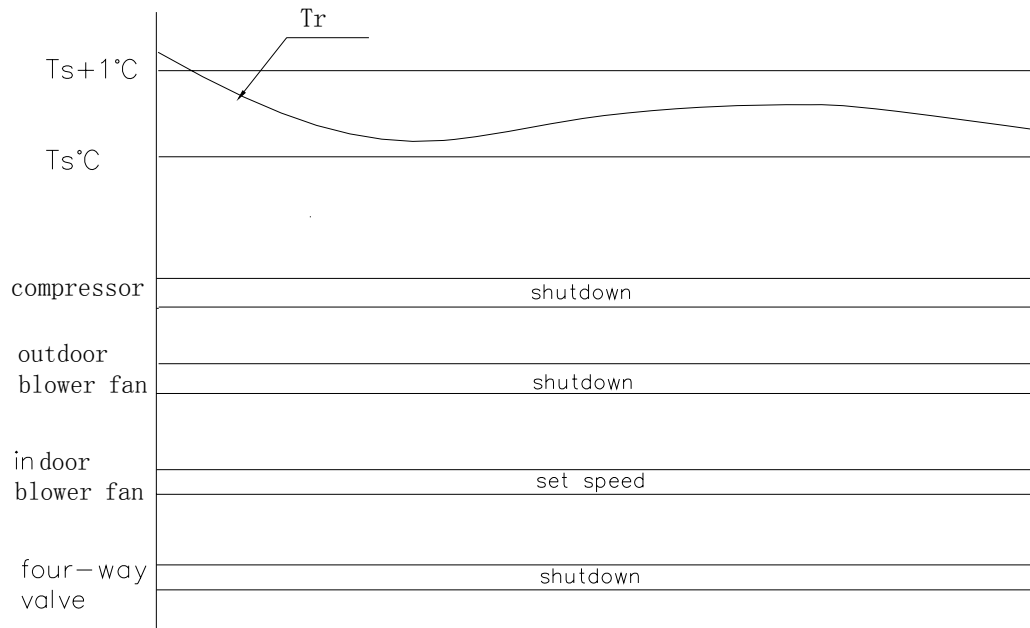
Dehumidification running is to eliminate the water vapor in the air by using the cool circulating capacity, but the dehumidification will not decrease the indoor temperature in great deal. The air conditioner automatically repeats on and off circulation according the room temperature, which is shown in the following figure.



- In the dehumidification mode, the indoor fan is running at the low speed for twenty seconds at first, then it select working mode.

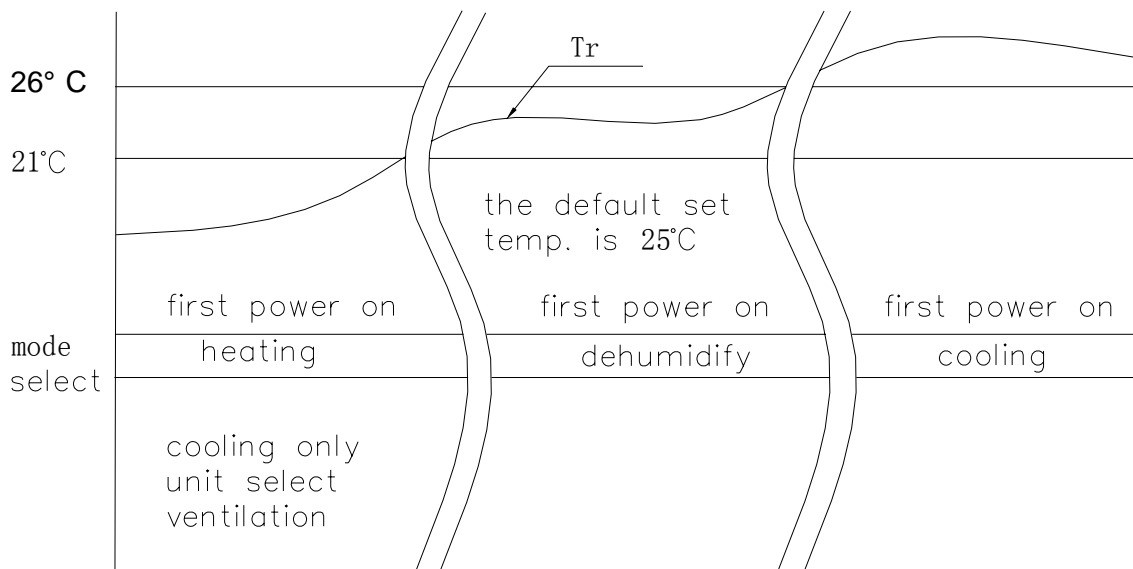
**Ventilation working mode (only applicable to single cooling unit)**

In the ventilation mode, the set temperature range is 17°C~31°C. When ventilating, the compressor, outdoor blower fan, four-way valve and electric heating are all closed and the indoor blower fan is running at the set speed.



### Automatic mode

- Conditions for entering the automatic running mode are: After power-up for the first time or shutdown for two hours, start up and select the automatic operating mode, the working mode depends on Tr and if the working mode had set, it doesn't change by Tr and the default set temperature is 25 °C.



auto mode select at first power on

### Time on and time off

When the time on or time off is used, the clock of remote controller shall be corresponding to the current clock and the timing times is less than or equal to 24 hours, when the timing time is reached, unit will start-up or shutdown.

### **Emergency key function**

There is a forcible execution key on the panel of indoor units and the air conditioner can running by pressing the key when the remote controller is out of work or missing.

When pressing down the forcible execution key, then power up and enter the self-check program.

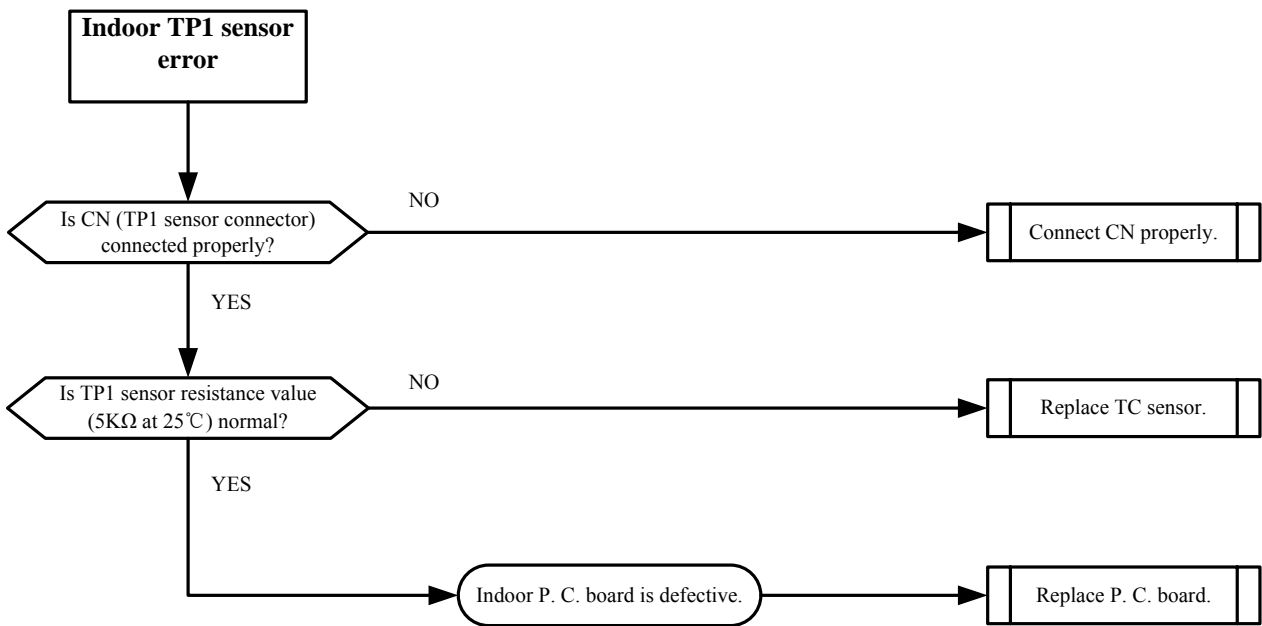
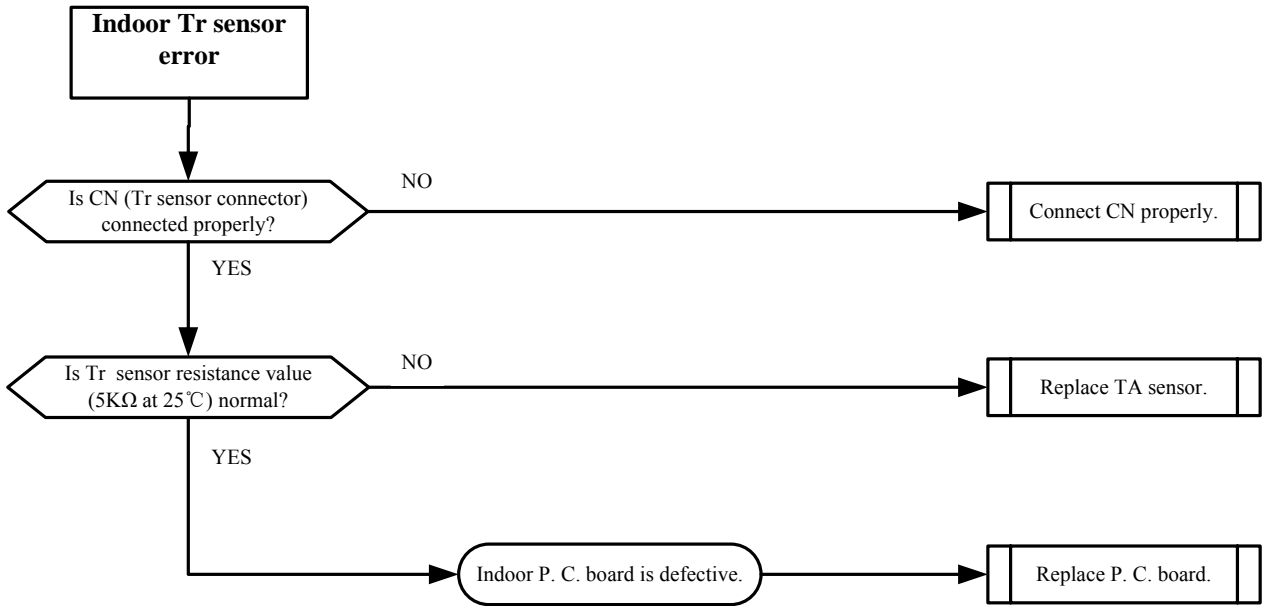
### **low pressure switch control function(for 7.5KW and 12kw unit)**

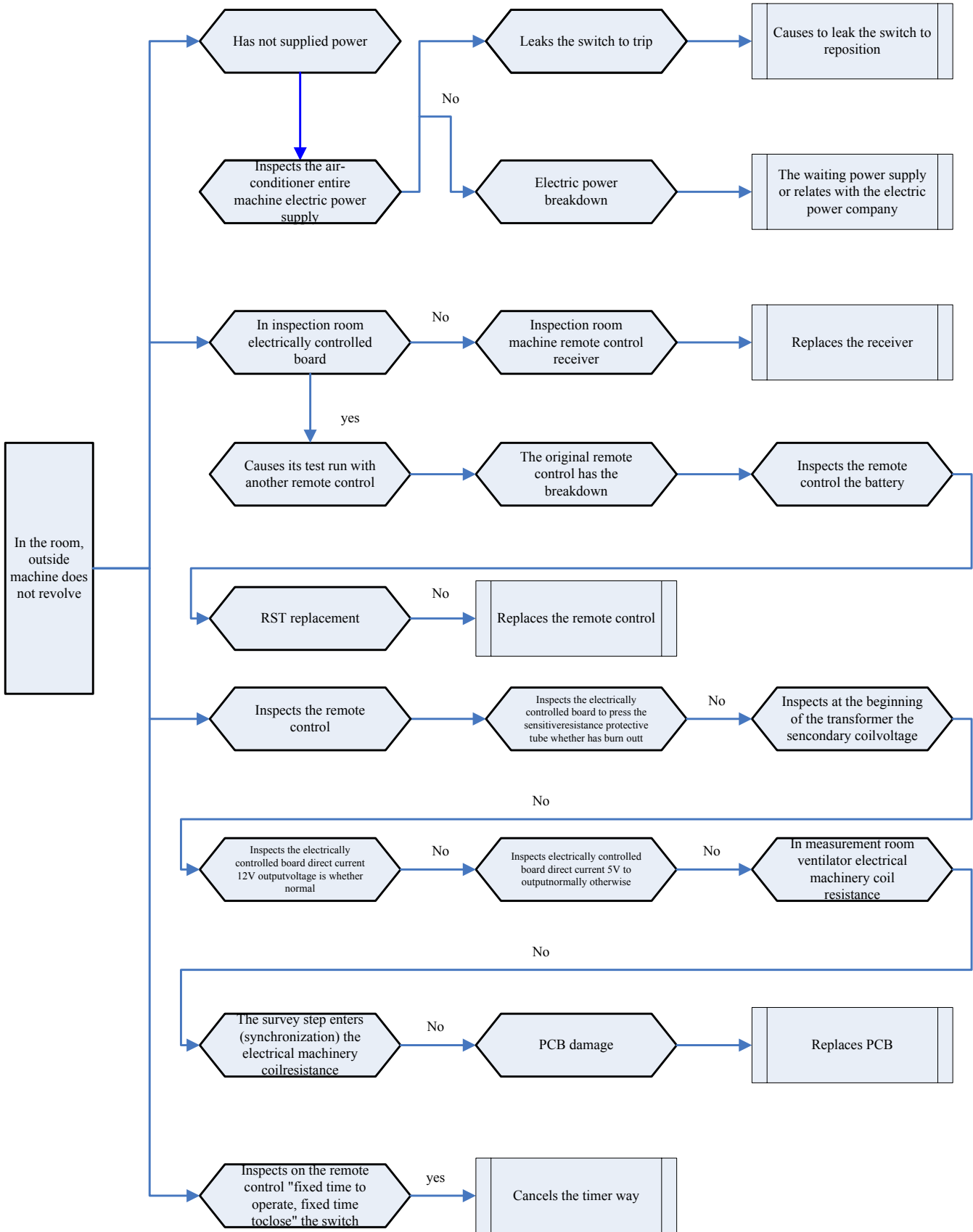
1. low pressure switch didn't detect for three minutes after compressor start up.
2. if low pressure switch continuous act three minutes during compressor start up, unit stop running.
3. if low pressure switch continuous act three minutes in wait state, unit enter protect state.
4. low pressure switch didn't detect during defrost process and within six minutes.

### **Failure display**

failure	display
Power off when open door failure	E0
Low pressure protection	E1
Room TEMP. sensor failure	E2
Indoor coil pipe TEMP. sensor failure	E3
Over current/phase sequence/low voltage protection	E7
Frost/over heat protection	E8

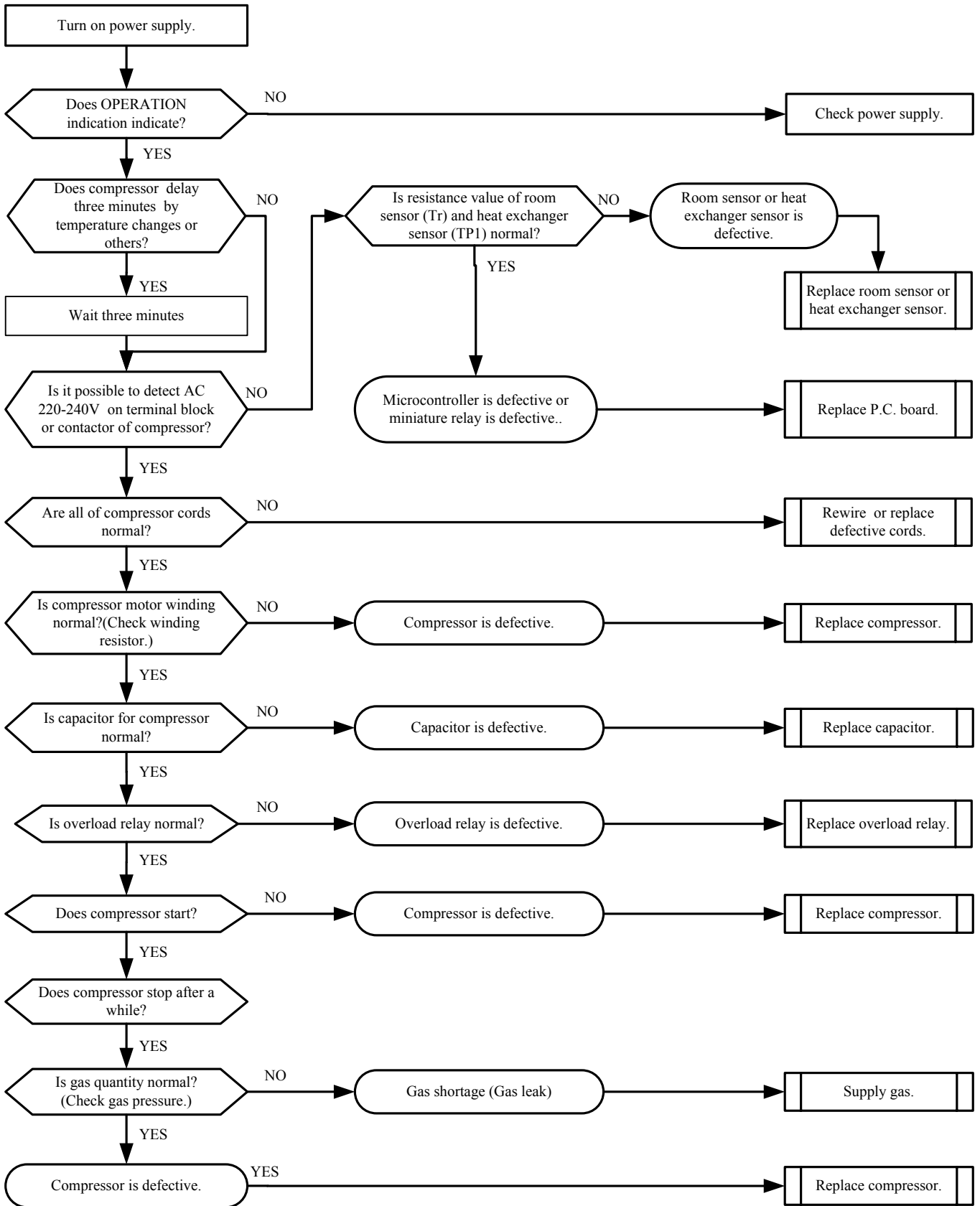
# 11. TROUBLE SHOOTING

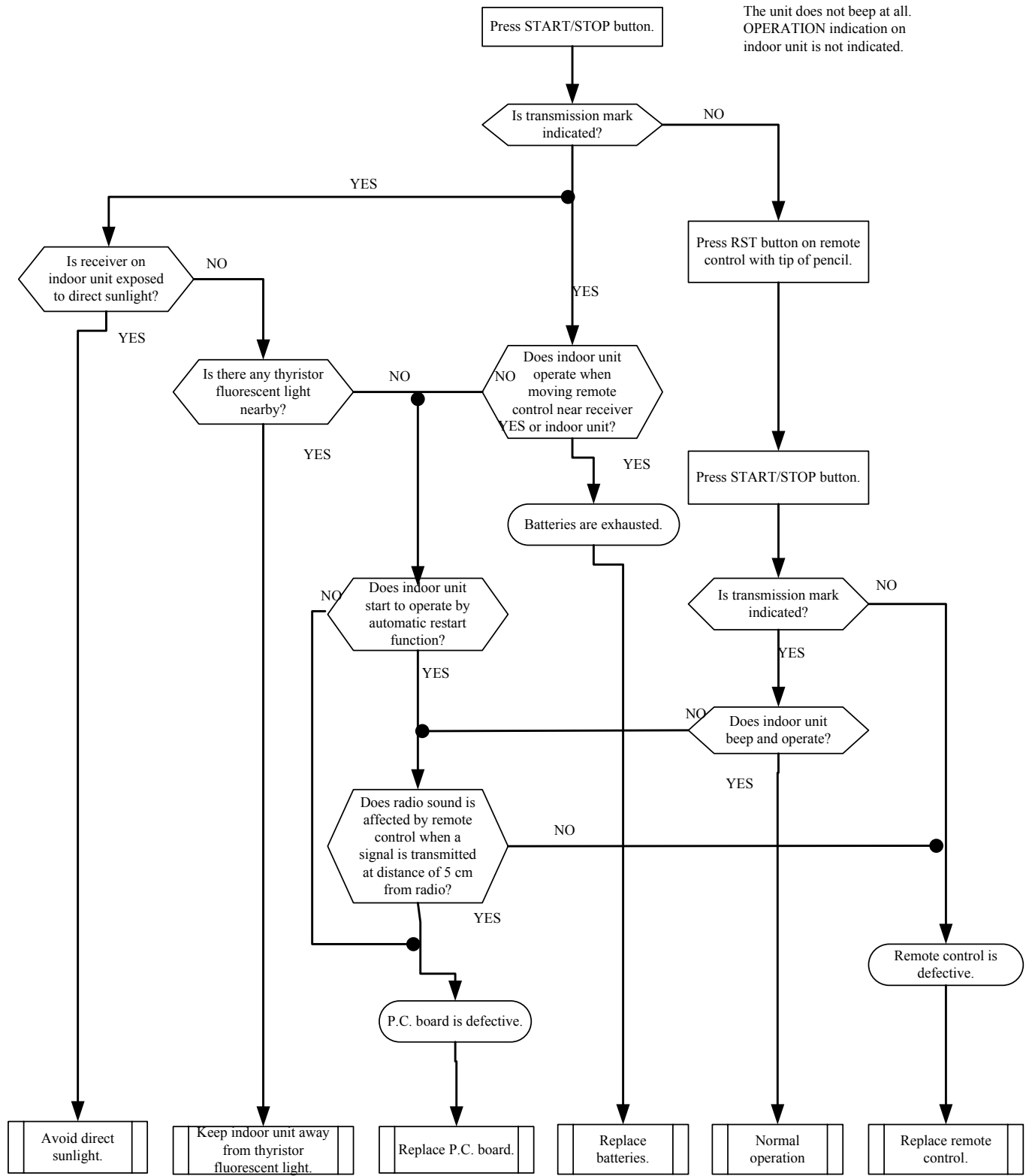


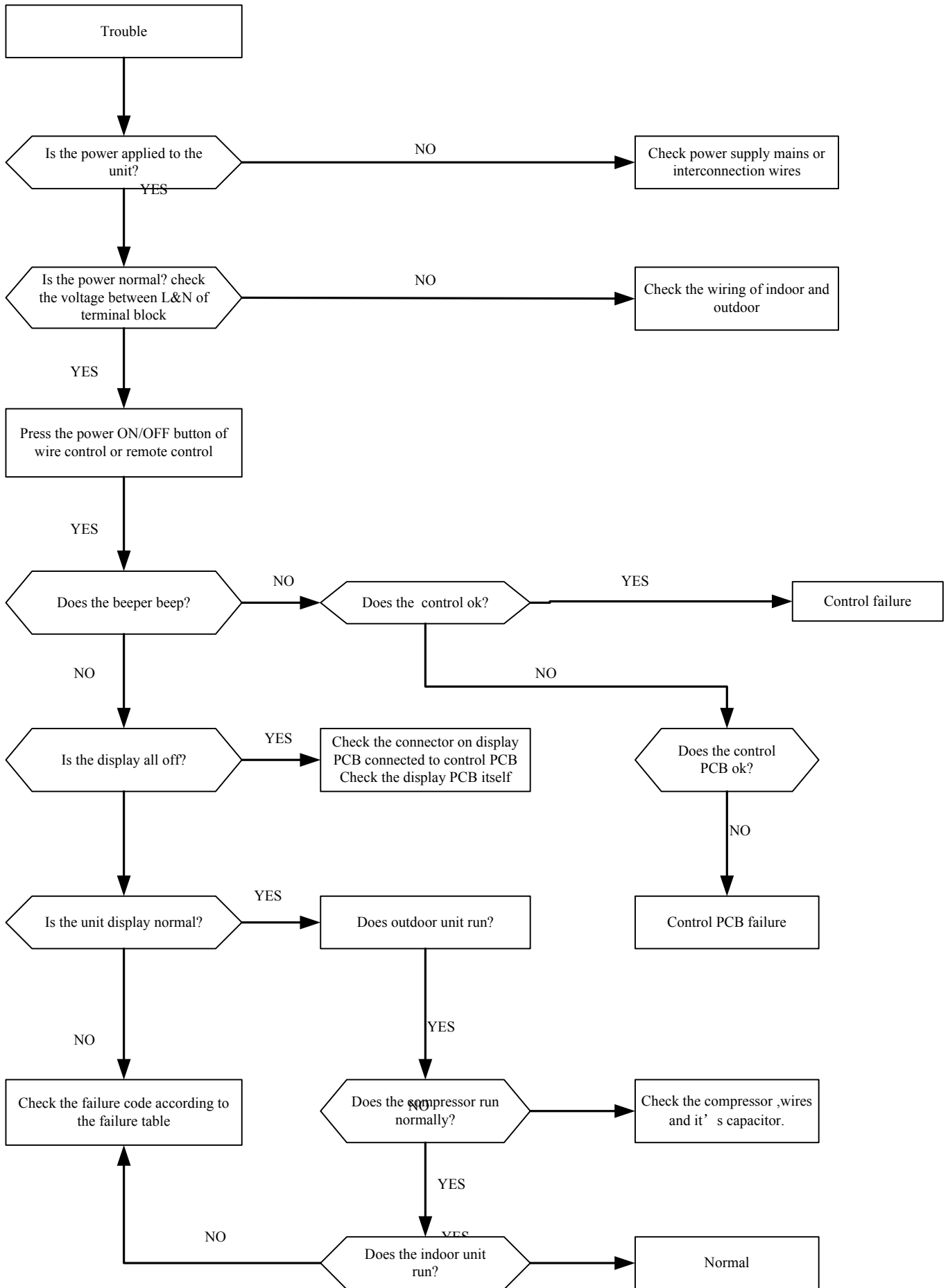


**<Primary check>**

- (1) Is the room temperature higher than the preset temperature in cooling operation?
- (2) Is the crossover cable connected properly?







### Only outdoor unit don't operate

