



DUCT TYPE SPLIT AIR CONDITIONER SERVICE MANUAL

**T1/R410A/50Hz
(GC201303-I)**

GREE ELECTRIC APPLIANCES, INC.OF ZHUHAI

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PRODUCT

PRODUCT

1 MODELS LIST

Units Series	Model Name		Product Code	Capacity (kW/Ton)		Ref	Appearance	
				Cooling	Heating		Outdoor	Indoor
Duct Type	FGR20/BNa-M	FGR20/BNa-M(O)	CF015W1011	20/5.6	22/6.16	R410A		
		FGR20/BNa-M(O)	CF015W1010					
		FGR20/BNa-M(I)	CF015N1010					
	FG20/BNa-M	/	/	20/5.6	/			
	FGR25/CNa-M	FGR25/CNa-M(O)	CF010W0720	24.5/6.86	27.5/7.7	R410A		
		FGR25/CNa-M(I)	CF010N0720					
	FG25/CNa-M	/	/	24.5/6.86	/			
	FGR30/BNa-M	FGR30/BNa-M(O)	CF010W0521	30/8.4	33/9.24	R410A		
		FGR30/BNa-M(O)	CF010W0522					
		FGR30/BNa-M(I)	CF010N0521					
	FG30/BNa-M	/	/	30/8.4	/			
	FGR40/BNa-M	FGR40/BNa-M(O)	CF015W1020	39.5/11.06	42/11.76	R410A		
		FGR40/BNa-M(I)	CF015N1020					
	FG40/BNa-M	/	/	39.5/11.06	/			

Note: 1Ton = 12000Btu/h = 3.517kW

2 NOMENCLATURE

FG ☐ ☐ ☐ ☐ ☐ / ☐ ☐ ☐ ☐ ☐

1 2 3 4 5 6 7 8 9 10 11

No.	Description	Options
1	FG	Air-duct air supply
2	Unit type	Cooling only type-Default Heat pump auxiliary electric heat type-R Auxiliary hot water plate and pipe type-W
3	Cooling Capacity	Nominal cooling capacity (kW)
4	Static pressure type	Common type-omitted High static pressure-H The outdoor unit is not expressed
5	Frequency conversion system	Default-Fixed frequency P-Frequency conversion
6	Control method	Default-Routine Y-Remote monitoring
7	Design No.	Arranged based on A, B, C
8	Refrigerant	R22-Default R407-N R410a-Na Others to be applied for when they are used
9	Production method	Default-Self-control
10	Power type	M: 380-415V~3Ph~50Hz (The unit to be exported must be expressed)
11	Indoor and outdoor unit code	O-Outdoor unit I-Indoor unit The entire unit is not expressed.

3 FUNCTION

3.1 Features-outdoor units

Features	Description
Quality condenser coil	The coil is constructed of golden aluminum sheet and inner groove copper pipe.
Coil protected	Coils are protected from damage by a metal grill.
Protected compressor	High/low pressure protection, discharge high temperature protection, overload protection, reverse (open) phase protection, sensor malfunction alarm.
Resisting corrosion	Cabinet is made of pre-painted steel. The pre-treated flat galvanized steel provides a better paint to steel bond, which resists corrosion and rust creep. Special primer formulas ensure minimal fading when exposed to sunlight.
Low operating sound level	Low noise fan and low noise compressor with isolator.
Low maintenance	Quality compressor and motor are used.
Factory tested	All units are factory tested prior to dispatch to verify system operation and control functioning before shipment.

3.2 Features-indoor units

features	Description
Flexible installation	Condensing water tube and refrigerant tube are in same direction, it's better for installation.
Long-distance duct air supply	It adopts high static pressure design, so air is centralized handling in the indoor unit and implant long-distance duct air supply.
The capacity range	The capacity range is 20kW to 40kW.
Convenient operation	Simple controller and intelligent remote controller make unit more convenient operation.
Good indoor air quality	It can connect many supply-air outlet to the duct, so that it can make the temperature and humidity of the whole room equality, meanwhile, it can lead in fresh air, makes well indoor unit air quality. All units are provided with filters that are easily accessible from the rear of the unit.
Microcomputer control	The controls provide for compressor delay protection, Remote control function, temperature setting, fan function, sleep function, memory function, self-diagnosis with alarm function.
Quality evaporator	Evaporator coils are constructed of inner groove copper tube and hydrophilic aluminum sheet.
Low operating sound	The fan motors are resilient mounted to minimize vibration and noise.

4 PRODUCT DATA

4.1 Product Data at Rated Condition

Models				Indoor Unit	FGR/BNa-M(I)	FGR/CNa-M(I)	FG/BNa-M(I)	FG/CNa-M(I)
					20	25	20	25
				Outdoor Unit	FGR/BNa-M(O)	FGR/CNa-M(O)	FGR/BNa-M(O)	FGR/CNa-M(O)
					20	25	20	25
Nominal Capacity At Rated ESP	Cooling	Btu/h	68000	83598	68000	83598		
		kW	20	24.5	20	24.5		
	Heating	Btu/h	75000	93834	/	/		
		kW	22	27.5	/	/		
Power Supply		V/Ph/Hz	380-415/3/50		380-415/3/50			
Power Consumption	Cooling	kW	8.4	9.8	8.4	9.8		
	Heating		7	9.0	/	/		
Running Current	Cooling	A	15.3	19.2	15.3	19.2		
	Heating		13.2	17.7	/	/		
Refrigerant Type			R410a		R410a			
Refrigerant Charge		kg	5.3	6.7	5.3	6.7		
Indoor Unit	Power Supply		V/Ph/Hz	380-415/3/50		380-415/3/50		
	Fan	Type		Centrifugal / Belt Drive		Centrifugal / Belt Drive		
		Air flow	CFM	2380	2825	2380	2825	
			m³/h	4000	4800	4000	4800	
		Input Power	W	1100	1500	1100	1500	
		Running Current	A	2	3.4	2	3.4	
		Rated ESP	in.wg	0.8	0.44	0.8	0.44	
			Pa	200	110	200	110	
		Fan Motor Protection	-	Overload protection		Overload protection		
	Sound Pressure Level (H/M/L/SL)	dB(A)	56	54	56	54		
	Coil	Tube	Material	-	Inner Groove Copper Tube		Inner Groove Copper Tube	
			Diameter	mm	7	7.94	7	7.94
		Fin	Material	-	Aluminum		Aluminum	
			No.of Rows/ FPI	-	3/16	3/16	3/16	3/16
	Coil Area		Sqm	0.766	0.63	0.766	0.63	
	Dimensions (Outline/ Package)	Height	mm	389/400	500/673	389/470	500/673	
		Width		1463/1540	1500/1840	1463/1540	1500/1840	
		Depth		799/880	1000/1200	799/880	1000/1200	
	Weight(Net/Gross)		kg	86/109	150/200	86/109	150/200	
	System Operation Control		-	Wired Control with LED Display + Wireless Controller		Wired Control with LED Display + Wireless Controller		
	Condensate Drainage(O.D)		mm	25.4		25.4		
	Air Filter		-	Standard Washable and Synthetic		Standard Washable and Synthetic		

To be continued

Models			Indoor Unit	FGR/BNa-M(I)	FGR/CNa-M(I)	FG/BNa-M(I)	FG/CNa-M(I)
				20	25	20	25
			Outdoor Unit	FGR/BNa-M(O)	FGR/CNa-M(O)	FGR/BNa-M(O)	FGR/CNa-M(O)
				20	25	20	25
Outdoor Unit	Power Supply		V/Ph/Hz	380-415/3/50		380-415/3/50	
	Compressor	Compressor Type		Scroll		Scroll	
		Nominal Current	A	12.87	16.4	12.87	16.4
		L.R.A		98	142	98	142
		Vibration Isolator		Rubber		Rubber	
		Protection Device		Auto Reset Thermal Overload		Auto Reset Thermal Overload	
	Fan	Fan Type/Drive		Inner Groove Copper Tube		Inner Groove Copper Tube	
		Fan Speed	rpm	850±30	850	850±30	850
		Blade Material		Plastic		Plastic	
		Diameter	mm	524	524	524	524
	Coil	Tube Material		Inner Groove Copper Tube		Inner Groove Copper Tube	
		Fin	Material	Aluminum		Aluminum	
			No.of Rows/FPI	2/14.1	2/15	2/14.1	2/15
	Coil Area		Sqm	1.32	1.52	1.32	1.52
	Sound Pressure Level		dB(A)	65	66	65	66
	Dimension (Outline/Package)	Height	mm	1350/1370	1600/1715	1350/1370	1600/1715
		Width		1150/1300	1150/1305	1150/1300	1150/1305
		Depth		460/500	360/502	460/500	360/502
	Weight(Net/Gross)		kg	158/174	200/230	158/174	200/230
	Pipe sizes	Suction	Inch	"3/4	"1	"3/4	"1
		Liquid		"3/8	"3/8	"3/8	"3/8

Models			Indoor Unit	FGR/BNa-M(I)		FG/BNa-M(I)		
				30	40	30	40	
			Outdoor Unit	FGR/BNa-M(O)		FGR/BNa-M(O)		
30	40	30		40				
Nominal Capacity At Rated ESP	Cooling	Btu/h	102000	134780	102000	134780		
		kW	30	39.5	30	39.5		
	Heating	Btu/h	112500	143310	/	/		
		kW	33	42	/	/		
Power Supply		V/Ph/Hz	380-415/3/50		380-415/3/50			
Power Consumption	Cooling	kW	11	15.8	11	15.8		
	Heating		9	14	/	/		
Running Current	Cooling	A	20.7	30	20.7	30		
	Heating		18	26.6	/	/		
Refrigerant Type			R410a		R410a			
Refrigerant Charge		kg	9.5	10.5	9.5	10.5		
Indoor Unit	Power Supply		V/Ph/Hz	380-415/3/50		380-415/3/50		
	Fan	Type		Centrifugal / Belt Drive		Centrifugal / Belt Drive		
		Air flow	CFM	3230	4120	3230	4120	
			m³/h	5500	7000	5500	7000	
		Input Power	W	1500	2200	1500	2200	
		Running Current	A	3.7	4.2	3.7	4.2	
		Rated ESP	in.wg	0.8	0.6	0.8	0.6	
			Pa	200	150	200	150	
		Fan Motor Protection	-	Overload protection		Overload protection		
	Sound Pressure Level (H/M/L/SL)	dB(A)	57	58	57	58		
	Coil	Tube	Material	-	Inner Groove Copper Tube		Inner Groove Copper Tube	
			Diameter	mm	9.52	9.52	9.52	9.52
		Fin	Material	-	Aluminum		Aluminum	
			No.of Rows/ FPI	-	4/16	3/16	4/16	3/16
	Coil Area		Sqm	0.672	0.86	0.672	0.86	
	Dimensions (Outline/ Package)	Height	mm	500/673	650/835	500/673	650/835	
		Width		1500/1840	1700/1890	1500/1840	1700/1890	
		Depth		1000/1200	1100/1460	1000/1200	1100/1460	
	Weight(Net/Gross)		kg	156/206	215/265	156/206	215/265	
	System Operation Control		-	Wired Control with LED Display + Wireless Controller		Wired Control with LED Display + Wireless Controller		
	Condensate Drainage(O.D)		mm	25.4		25.4		
	Air Filter		-	Standard Washable and Synthetic		Standard Washable and Synthetic		

To be continued

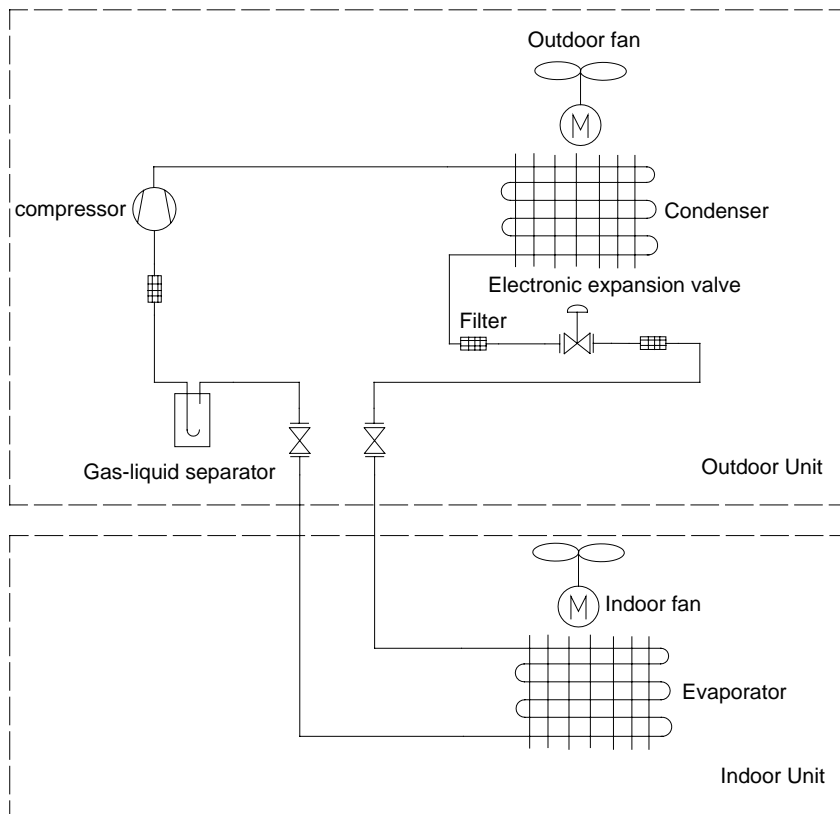
Models			Indoor Unit	FGR/BNa-M(I)		FG/BNa-M(I)	
				30	40	30	40
			Outdoor Unit	FGR/BNa-M(O)		FGR/BNa-M(O)	
				30	40	30	40
Outdoor Unit	Power Supply		V/Ph/Hz	380-415/3/50		380-415/3/50	
	Compressor	Compressor Type		Scroll		Scroll	
		Nominal Current	A	16.93	27.6	16.93	27.6
		L.R.A		142	197	142	197
		Vibration Isolator		Rubber		Rubber	
		Protection Device		Auto Reset Thermal Overload		Auto Reset Thermal Overload	
	Fan	Fan Type/Drive		Inner Groove Copper Tube		Inner Groove Copper Tube	
		Fan Speed	rpm	660	730	660	730
		Blade Material		Plastic		Plastic	
		Diameter	mm	750	750	750	750
	Coil	Tube Material		Inner Groove Copper Tube		Inner Groove Copper Tube	
		Fin	Material	Aluminum		Aluminum	
			No.of Rows/FPI	2/14.1	2/15	2/14.1	2/15
	Coil Area		Sqm	2.23	2.79	2.23	2.79
	Sound Pressure Level		dB(A)	67	69	67	69
	Dimension (Outline/Package)	Height	mm	1190/1772	1772/1950	1190/1772	1772/1950
		Width		974/990	1290/1370	974/990	1290/1370
		Depth		556/880	880/980	556/880	880/980
	Weight(Net/Gross)		kg	216/266	200/230	216/266	200/230
	Pipe sizes	Suction	Inch	"9/8	"9/8	"9/8	"9/8
		Liquid		"1/2	"5/8	"1/2	"5/8

4.2 Operation Range

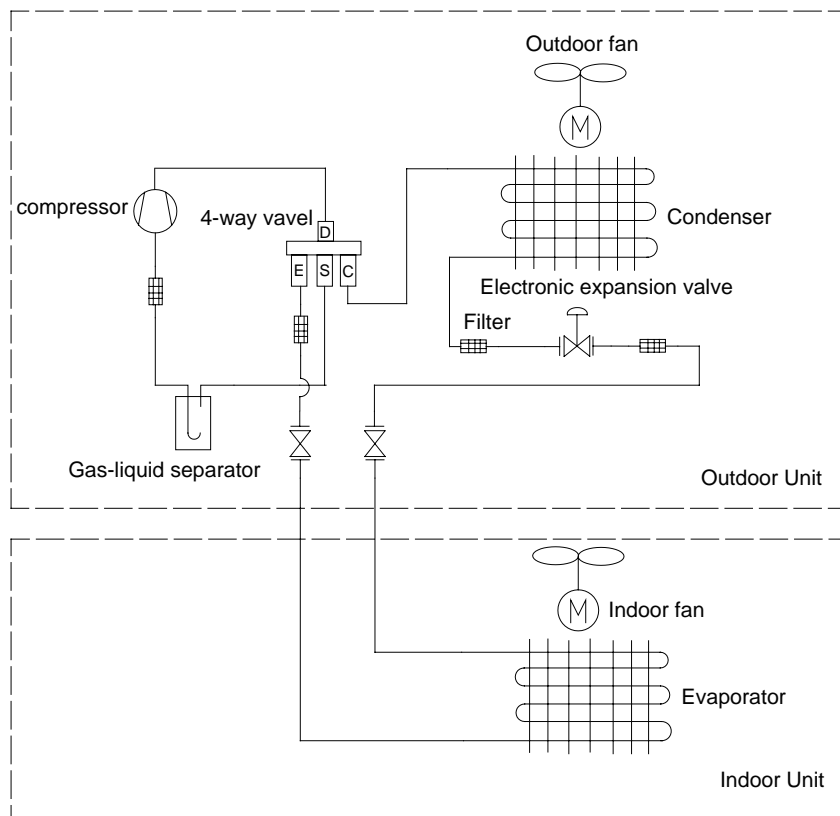
Test condition	Indoor side		Outdoor side	
	DB(°C)	WB(°C)	DB(°C)	WB(°C)
Nominal cooling	27	19	35	24
Nominal heating	20	--	7	6
Rated cooling	32	23	43	26
Low temp cooling	21	15	18(-10)	--
Rated heating	27	--	24	18
Low temp heating	20	--	-7	-8

5 PIPING DIAGRAM

5.1 Cooling Only



5.2 Heat Pump



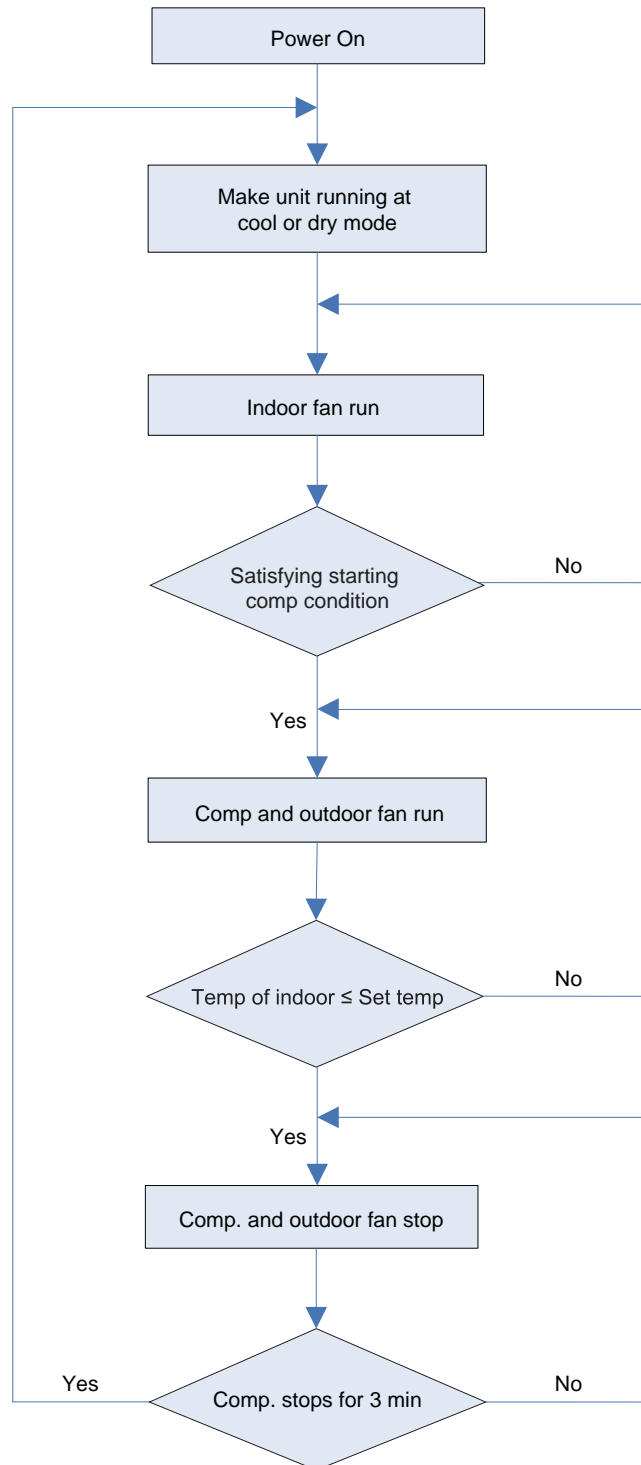


CONTROL

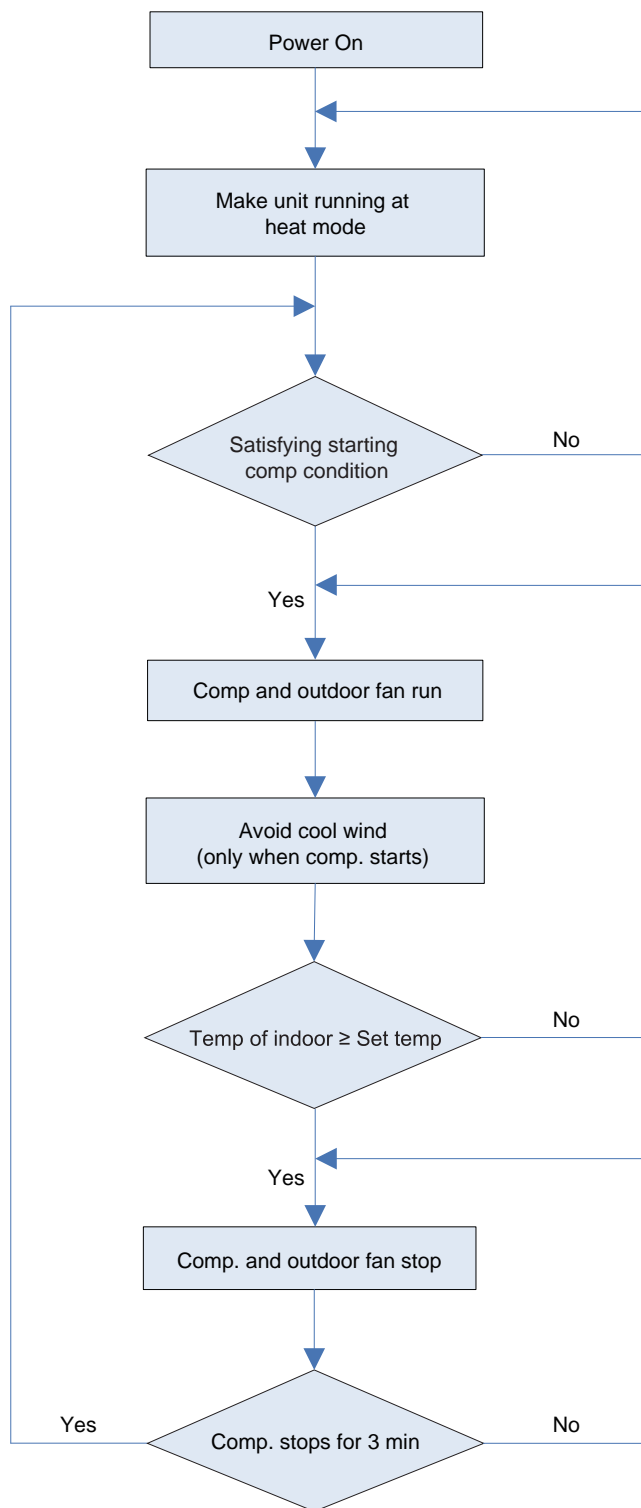
CONTROL

1 OPERATION FLOWCHART

1.1 Cooling/Dry Operation



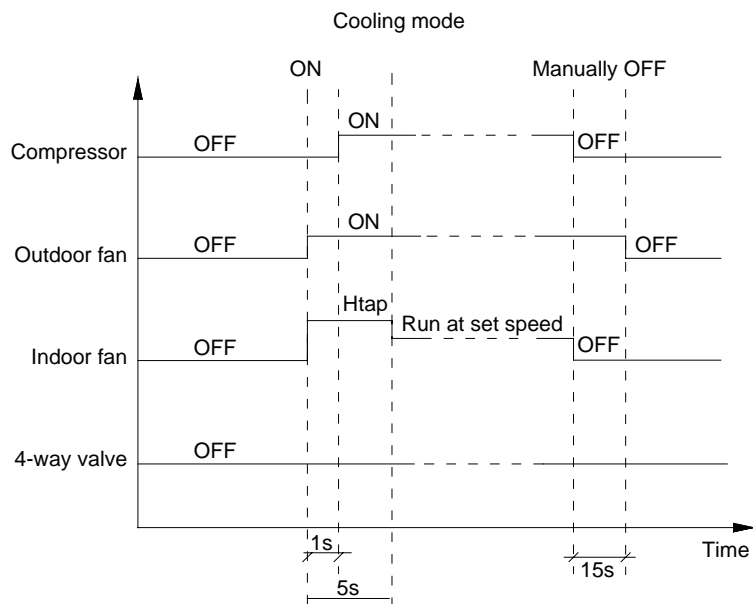
1.2 Heating Operation



2 MAIN LOGIC

The followings are for FG(R)20/BNa-M, FG(R)30/BNa-M

2.1 Cooling

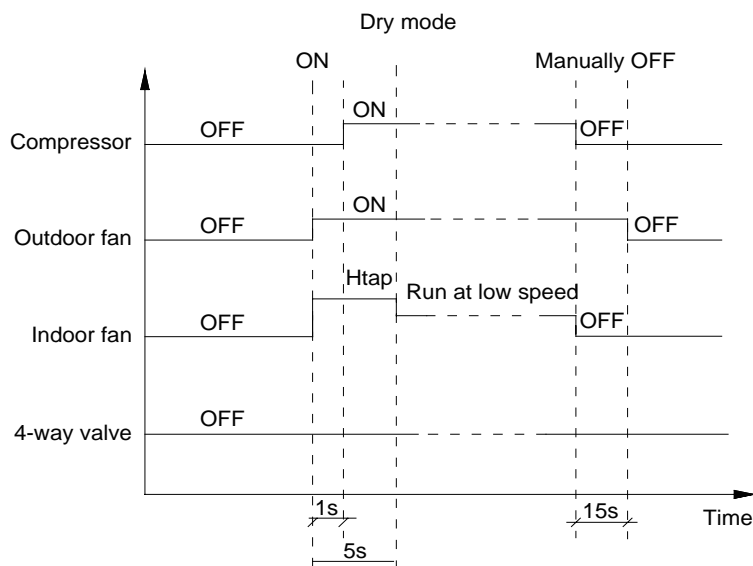


When $T_{\text{ambient}} \geq T_{\text{set}} + 1^{\circ}\text{C}$, the unit will run in cooling mode. In this case, compressor and outdoor fan run; Indoor fan runs at setting speed.

When $T_{\text{ambient}} \leq T_{\text{set}} - 1^{\circ}\text{C}$, the unit will stop running in cooling mode. In this case, compressor and outdoor fan stop running; Indoor fan runs at setting speed.

When $T_{\text{set}} - 1^{\circ}\text{C} < T_{\text{ambient}} \leq T_{\text{set}} + 1^{\circ}\text{C}$, the unit will keep its previous running state.

2.2 Dry Mode

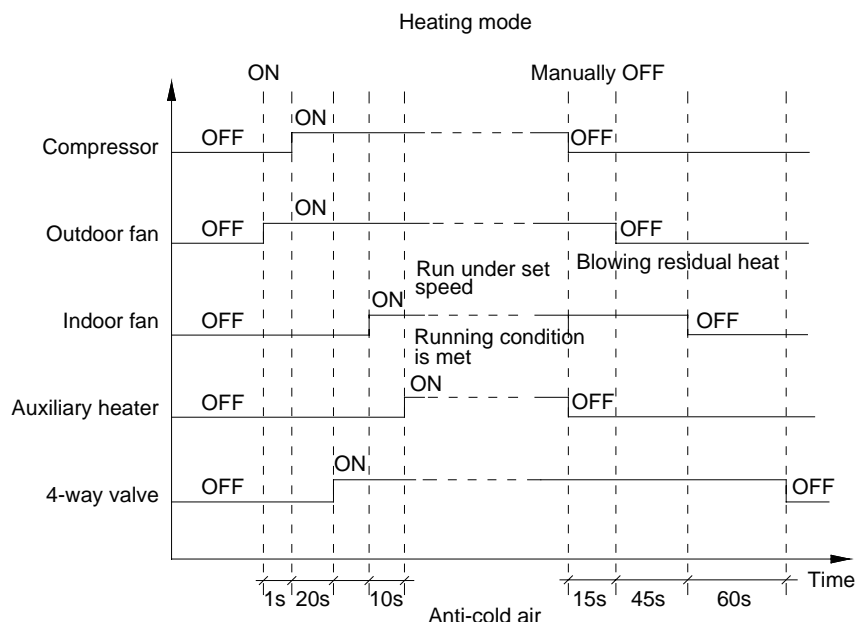


When $T_{\text{ambient}} \geq T_{\text{set}} + 2^{\circ}\text{C}$, the unit will run in cooling mode. In this case, compressor and outdoor fan run; Indoor fan runs at low speed.

When $T_{\text{ambient}} \leq T_{\text{set}} - 2^{\circ}\text{C}$, the unit will stop running in cooling mode. In this case, compressor and outdoor fan stop running.

When $T_{\text{set}} - 2^{\circ}\text{C} < T_{\text{ambient}} \leq T_{\text{set}} + 2^{\circ}\text{C}$, the unit will be in the state that the compressor runs for 6min and stops for 4min in cycle. Indoor fan runs at low speed.

2.3 Heating Mode

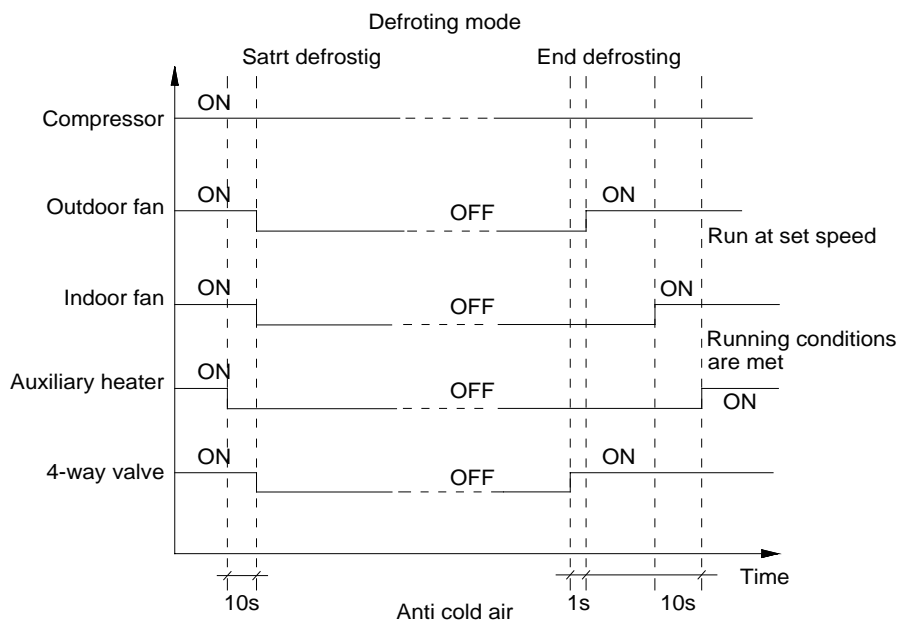


When $T_{\text{ambient}} \leq T_{\text{set}} - 1^{\circ}\text{C}$, the unit will run in heating mode. In this case, compressor and outdoor fan run; Indoor fan runs at setting speed and under the condition of anti-cold air.

When $T_{\text{ambient}} \geq T_{\text{set}} + 1^{\circ}\text{C}$, compressor and outdoor fan stop running, the 4-way valve is still energized and indoor fan runs under the condition of blowing residual heat.

When $T_{\text{set}} - 1^{\circ}\text{C} < T_{\text{ambient}} < T_{\text{set}} + 1^{\circ}\text{C}$, the unit will keep its previous running state.

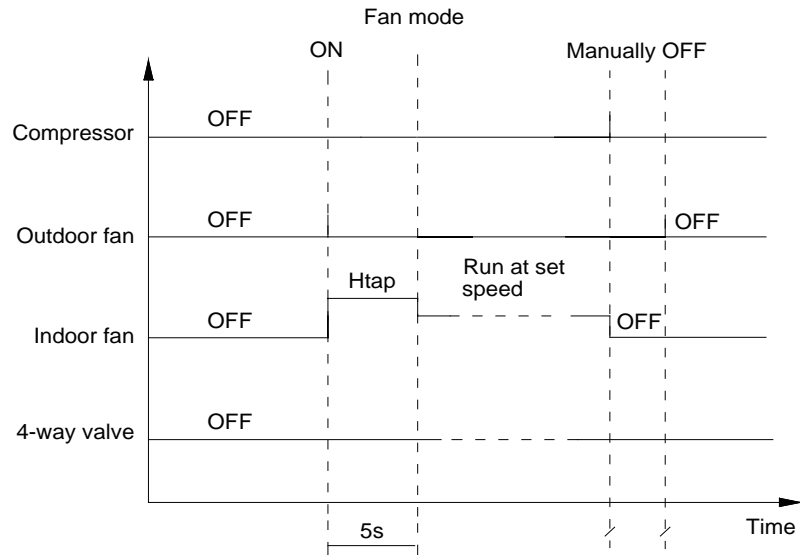
2.4 Defrosting



Defrosting start condition: If the unit heats for 44min accumulatively, the compressor continuously runs for 4min and 50s, and $T_{\text{condensate}} \leq -5^{\circ}\text{C}$, defrosting will start. If there is auxiliary heater, it will stop firstly and then the 4-way valve, indoor fan and outdoor fan will stop in 10s and the compressor will compulsively run.

Defrosting end condition: If the unit defrosts for 10min or $T_{\text{condensate}} \geq 10^{\circ}\text{C}$, defrosting will end, 4-way valve will start running, outdoor fan will run, and compressor compulsively run. Indoor fan will run under the anti-cold air condition.

2.5 Fan Mode

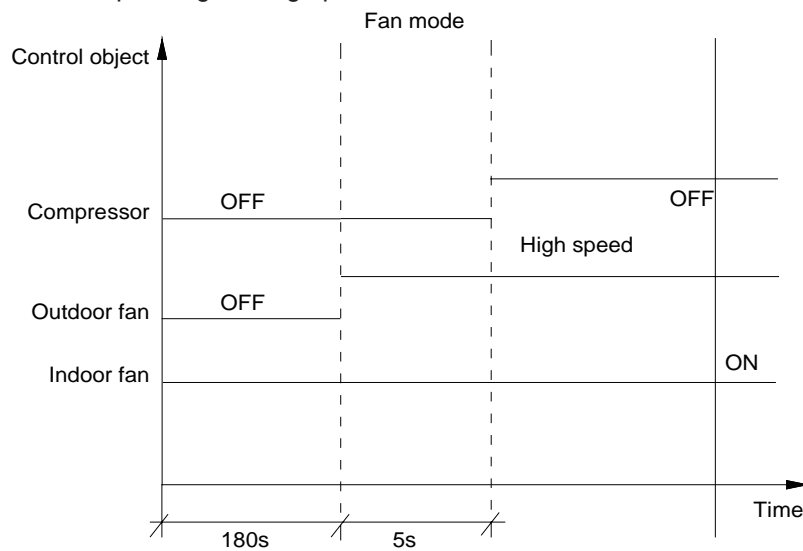


Indoor fan will run at high speed for 5s and then at setting speed.

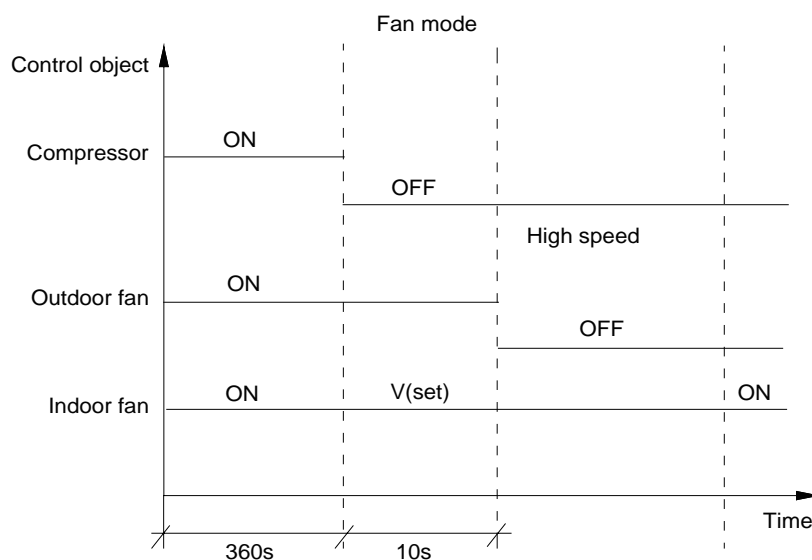
The followings are for FG(R)25/CNa-M, FG(R)40/BNa-M

2.6 Cooling mode

Sequence chart of unit stop during cooling operation



Sequence chart of unit start during cooling operation



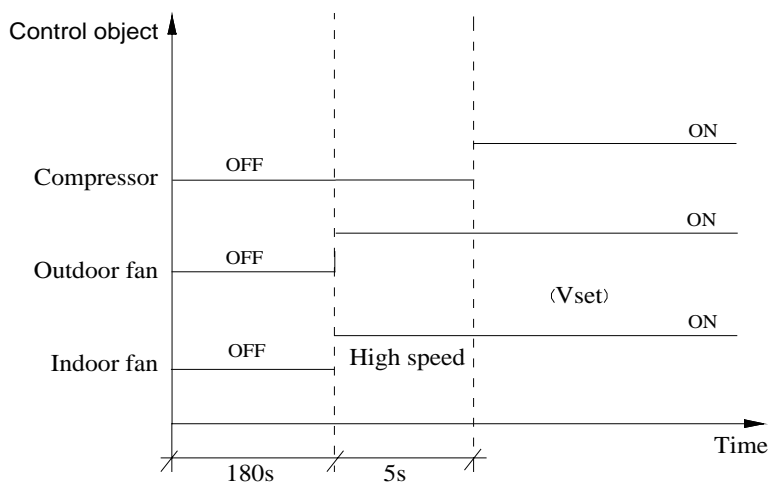
When $T_{\text{ambient}} \geq T_{\text{set}} + 1^{\circ}\text{C}$, the unit will run in cooling mode. In this case, compressor and outdoor fan run; Indoor fan runs at setting speed.

When $T_{\text{ambient}} \leq T_{\text{set}} - 1^{\circ}\text{C}$, the unit will stop running in cooling mode. In this case, compressor and outdoor fan stop running; Indoor fan runs at setting speed.

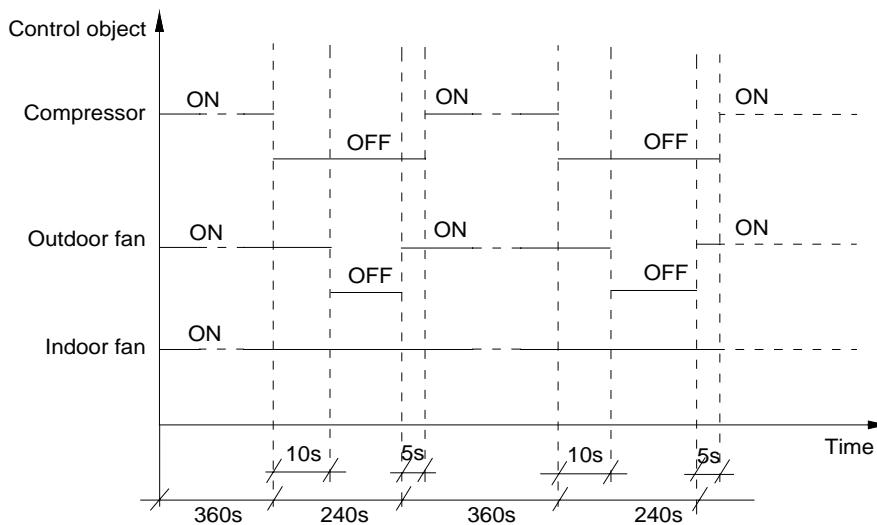
When $T_{\text{set}} - 1^{\circ}\text{C} < T_{\text{ambient}} \leq T_{\text{set}} + 1^{\circ}\text{C}$, the unit will keep its previous running state.

2.7 Dry mode

Normally on mode during dry operation



Start for 6min and stop for 4min during dry operation



Room temperature is set to be 16-30℃ and 24℃ is default.

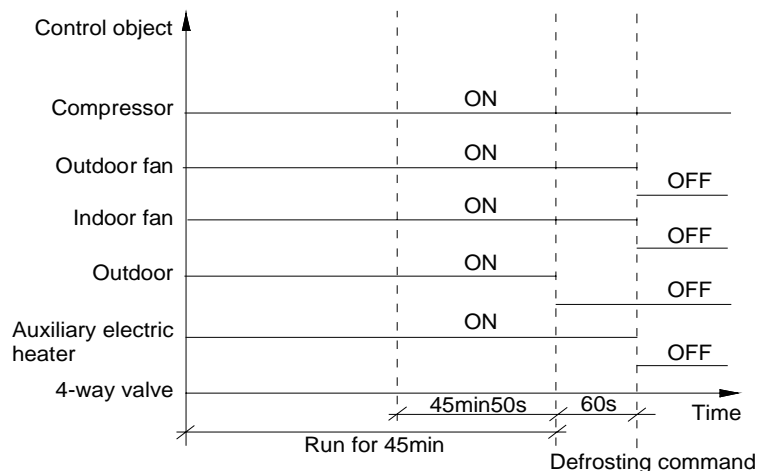
When $T_{\text{ambient}} \geq T_{\text{set}} + 2^{\circ}\text{C}$, the unit will run in cooling mode. In this case, compressor and outdoor fan run; Indoor fan runs at low speed.

When $T_{\text{ambient}} \leq T_{\text{set}} - 2^{\circ}\text{C}$, the unit will stop running in cooling mode. In this case, compressor and outdoor fan stop running.

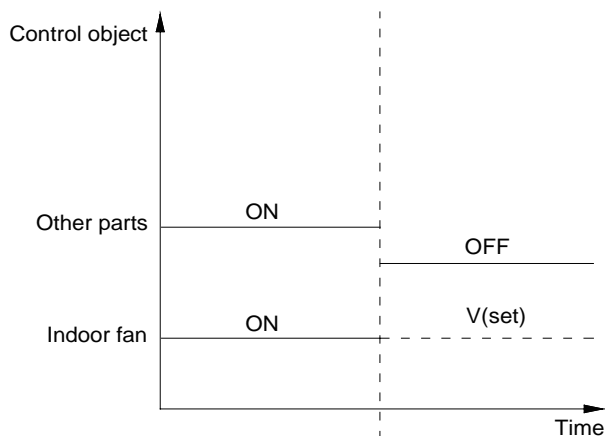
When $T_{\text{set}} - 2^{\circ}\text{C} < T_{\text{ambient}} \leq T_{\text{set}} + 2^{\circ}\text{C}$, the unit will be in the state that the compressor runs for 6min and stops for 4min in cycle. Indoor fan runs at low speed.

2.8 Fan mode

Sequence chart during fan operation

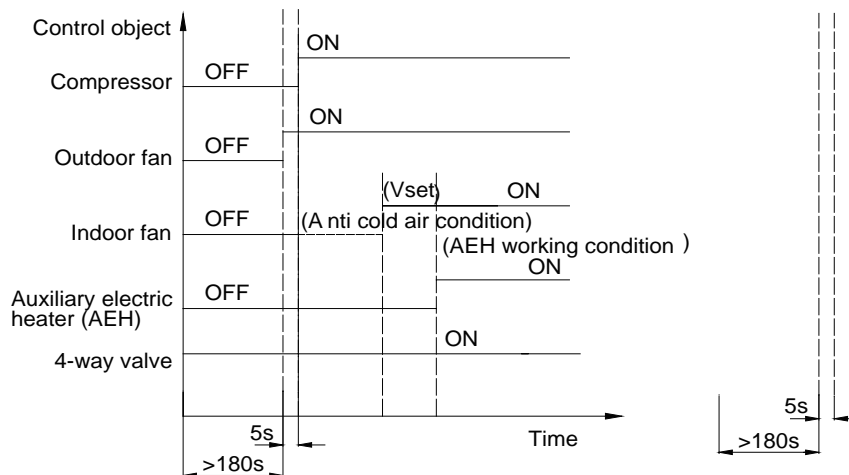


When fan mode is set, the unit will run in fan mode.

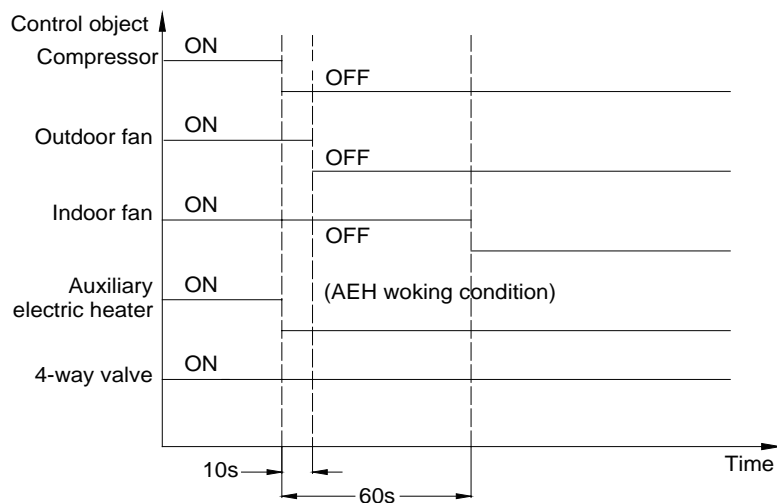


2.9 Heating mode

Sequence chart of unit start during heating operation



Sequence chart of unit stop during heating operation



Room temperature is set to be 16-30°C and 24°C is default.

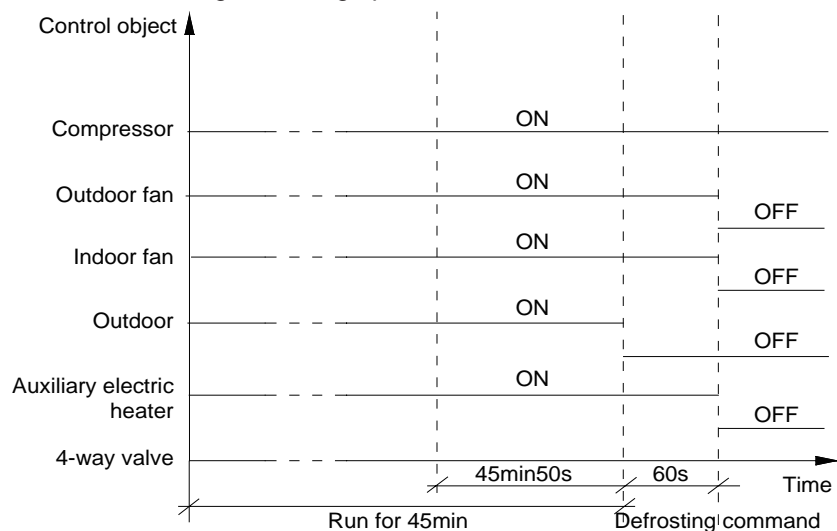
When $T_{\text{ambient}} \leq T_{\text{set}} - 1^\circ\text{C}$, the unit will run in heating mode. In this case, compressor and outdoor fan run; Indoor fan runs at setting speed and under the condition of anti-cold air.

When $T_{\text{ambient}} \geq T_{\text{set}} + 1^\circ\text{C}$, compressor and outdoor fan stop running, the 4-way valve is still energized and indoor fan runs under the condition of blowing residual heat.

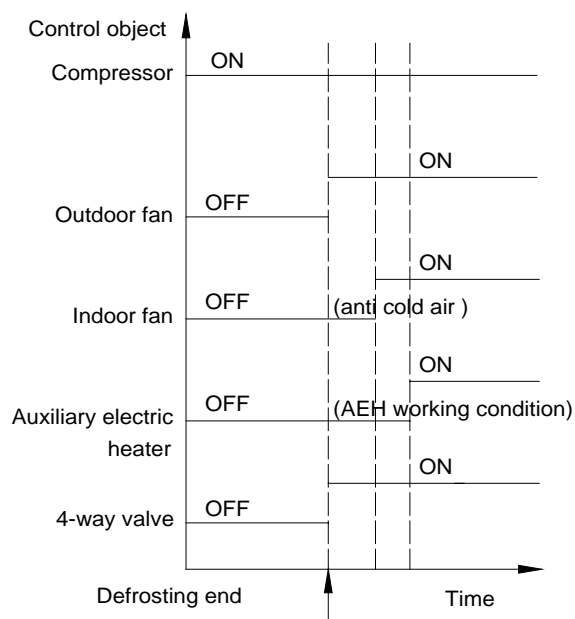
When $T_{\text{set}} - 1^\circ\text{C} < T_{\text{ambient}} < T_{\text{set}} + 1^\circ\text{C}$, the unit will keep its previous running state.

2.10 Defrosting mode

Sequence chart of unit start during defrosting operation



Sequence chart of unit stop during defrosting operation



If the unit heats for 45min accumulatively, the compressor continuously runs for 4min and 50s, and T condensate $\leq -5^{\circ}\text{C}$ for 1s, defrosting will start.

If the unit defrosts for 10min or T condensate $\geq 10^{\circ}\text{C}$, defrosting will end.

3.WIRED REMOTE CONTROLLER

3.1 Displaying Part



Fig.3.1 Outline of wired controller

3.1.1 LCD Display of Wired Controller



Fig.3.2 LCD display

3.1.2 Instruction to LCD Display

Table 3.1

No.	Description	Instruction to Displaying Contents
1	Swing *	Swing function
2	Air *	Air exchange function
3	Sleep	Sleeping states
4	Running mode	Each kind of running mode of indoor unit (auto mode)
5	Cooling	Cooling mode
6	Dry	Dry mode
7	Fan	Fan mode
8	Heating	Heating mode
9	Defrost	Defrosting state
10	Gate-control card *	Gate control
11	Lock	Lock state
12	Shield	Shielding state (buttons, temperature, on/off, mode or save is shielded by long-distance monitoring)
13	Turbo	Turbo function state
14	Memory	Memory state (Indoor unit resumes original setting state after power failure and then power recovery)
15	Twinkle	Flicking when unit is on without operation of buttons
16	Save	Energy-saving state
17	Temperature	Ambient/setting temperature value
18	E-Heater *	E-HEATER display means electric-heater is available
19	Blow	Blow mark
20	Timer	Timer-displayed location
21	Quiet	Quiet state(two types: quiet and auto quiet)

Notes: The functions with * are reserved for other models and are not applicable for the models listed in this manual.

3.2 Buttons

3.2.1 Silk Screen of Buttons



Fig. 3.3Silk screen of buttons

3.2.2 Instruction to Function of Buttons

Table 3.2

No.	Description	Function of Button
1	Enter/cancel	(1) Function selection and canceling; (2) Press it for 5s to enquiry the outdoor ambient temperature.
2	▲	(1) Running temperature setting of indoor unit, range :16 ~ 30°C. (2) Timer setting, range:0.5-24hr. (3) Switchover between quiet/auto quiet .
6	▼	
3	Fan	Setting of high/middle/low/auto fan speed.
4	Mode	Setting of cooling/heating/fan/dry mode of indoor unit.
5	Function	Switchover among these functions of air/sleep/turbo/save/e-heater/blow/quite.
7	Timer	Timer setting.
8	On/off	Turn on/off indoor unit.
4 Mode and 2 ▲	Memory function	Press Mode and ▲ for 5s under off state of the unit to enter/cancel key memory function (If memory is set, indoor unit will resumer original setting state after power failure and then power recovery. If not, indoor unit is defaulted to be off after power recovery. Memory function is defaulted to be off before outgoing.)
2 ▲ and 6 ▼	Lock	Upon startup of the unit without malfunction or under off state of the unit, press ▲ ▼ key at the same time for 5s in to lock state. In this case, any other buttons won't respond the press. Repress ▲ ▼ key for 5s to quit lock state.
4 Mode and 5 Function	Enquiry and setting of address of wired controller	Under the off-state of the unit, press Mode/Function button for 5 seconds to set the address.
5 Function And 7Timer	Setting Ambient Temperature Sensor and three Grades of Speed for Indoor Fan	Under off state of the unit, press Function and Timer buttons continuously for 5s to go to the debugging menu. Press Mode button to adjust the setting items and ▲ or ▼ button to set the actual value.
5 Function and 6 ▼	Enquiry of Historical Errors	Continuously press Function and ▼ buttons for 5s to go to the enquiry state. In this state, press Enter/Cancel button to quit, or it will automatically quit after there is not any operation of button in 30min.

3.3 Installation of Wired Controller and Project Debugging

3.3.1 Installation of Wired Controller

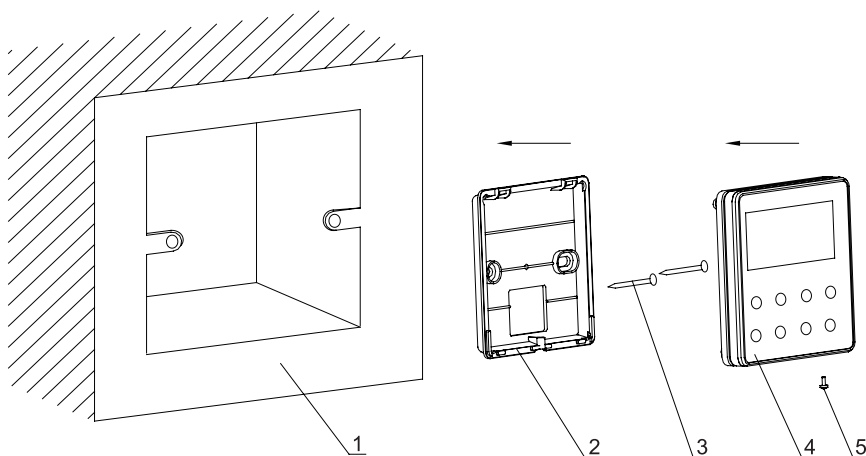


Fig.3.4: Sketch for Installation of Wired Controller

No.	1	2	3	4	5
Description	Socket's base box installed in the wall	Soleplate of controller	Screw M4X25	Front panel of controller	Screw ST2.2X6.5

Fig.3.4: Sketch for Installation of Wired Controller. Pay attention to the following items during installation of wired controller:

- 1). Cut off power supply of heavy-current wire embedded in mounting hole in the wall before installation. It is prohibited to perform the whole procedure with electricity.

- 2). Pull out 4-core twisted pair line in mounting hole and then make it through the rectangle hole at the back of controller's soleplate.
- 3). Joint the controller's soleplate on wall face and then fix it in mounting hole with screws M4X25.
- 4). Insert the 4-core twisted pair line through rectangle hole into controller's slot and buckle the front panel and soleplate of controller together.
- 5). At last, fix the controller's front panel and soleplate with screws ST2.2X6.5.



Caution:

During connection of wirings, pay special attention to the following items to avoid interference of electromagnetism to unit and even failure of it.

a. To ensure normal communication of the unit, signal line and wiring (communication) of wired controller should be separate from power cord and indoor/outdoor connection lines. The distance between them should be kept 20cm in min.

b. If the unit is installed at the place where there is interference of electromagnetism, signal line and wiring (communication) of wired controller must be shielded by twisted pair lines.

3.3.2 Project Debugging

Enquiry of wired controller's address: Press **Function** and **Mode** buttons at the same time for 5s under off state of the unit, and then LCD displays wired controller's address number.

Setting of wired controller's address: Press **Function** and **Mode** buttons at the same time for 5s. In this case, LCD displays address number. Then press ▲ or ▼ button to adjust address (address no.:1-16). After that, press **Enter/Cancel** button to confirm.

Addresses of the wired controller are used for centralized control of wired controller. Enquiry and setting of wired controller's address is shown as Fig.3.5 below:

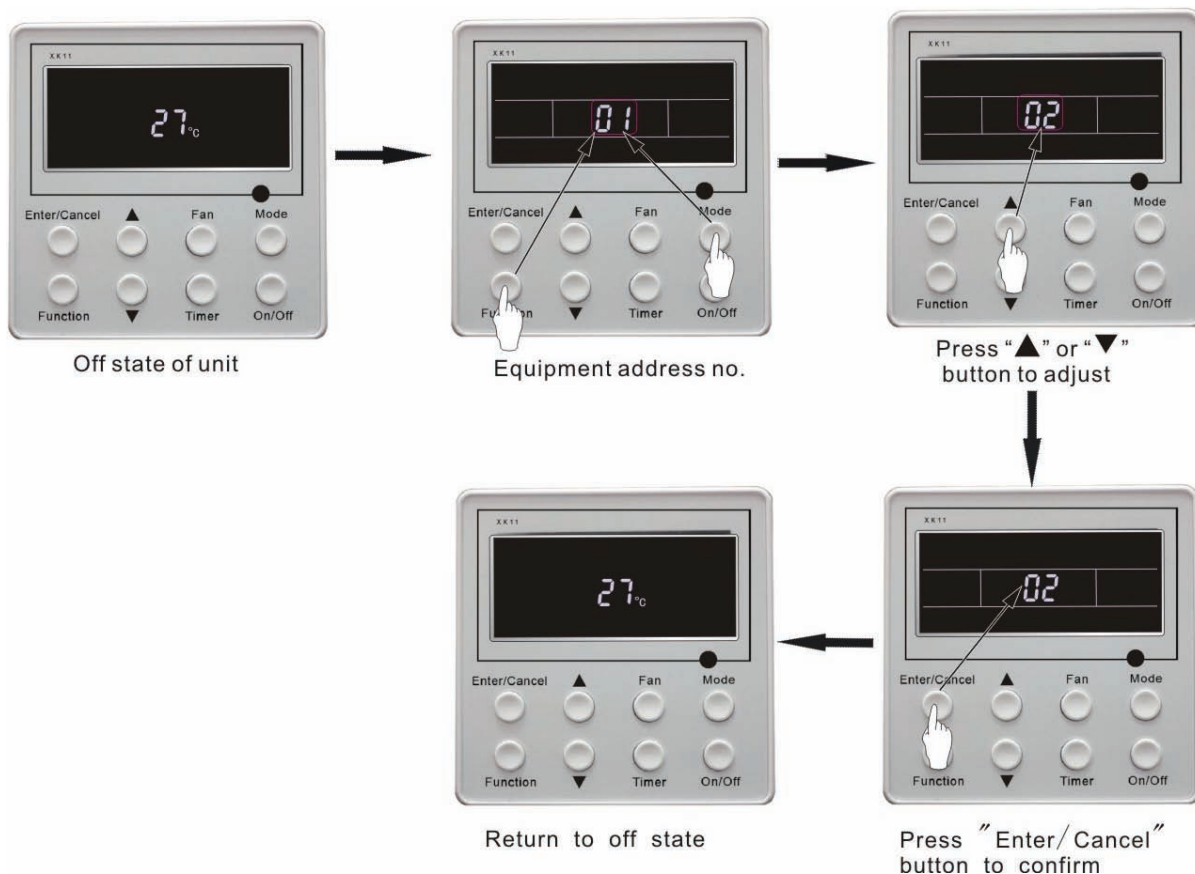


Fig.3.5: Enquiry and Setting of Wired Controller's Address

3.4 Instruction to Operation

3.4.1 On/Off

Press On/Off button to turn on the unit.

Repress this button to turn off the unit.

Note: The state shown in Fig.3.6 indicates off-state of the unit after energization.
The state shown in Fig.3.7 indicates on-state of the unit after energization.



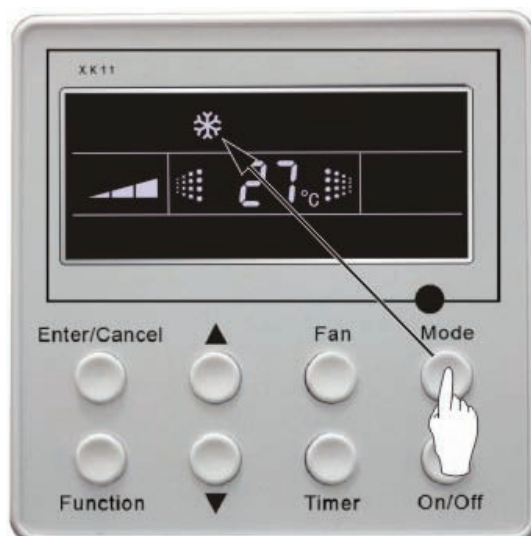
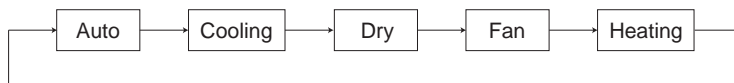
Fig.3.6 Off state of the unit



Fig.3.7 On state of the unit

3.4.2 Mode Setting

Under on-state of the unit, press **Mode** button to switch the operation modes as the following sequence:



3.4.3 Temperature Setting

Press ▲ or ▼ button to increase or decrease of setting temperature under on-state of the unit. If press either of them continuously, temperature will be increased or decreased by 1°C every 0.5s.

In Cooling, Dry, Fan and Heating mode, temperature setting range is 16°C ~ 30°C.

In Auto mode, the setting temperature is un-adjustable.

As shown in Fig3.8.

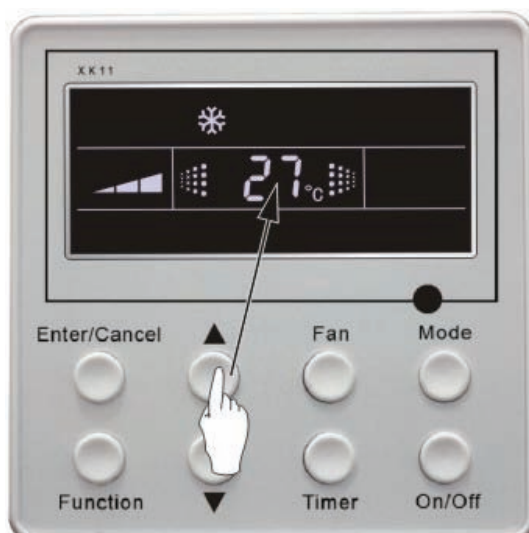


Fig 3.8

3.4.4 Fan Speed Setting

Press **Fan** button, fan speed of indoor unit will change as below:
As shown in Fig.3.9.

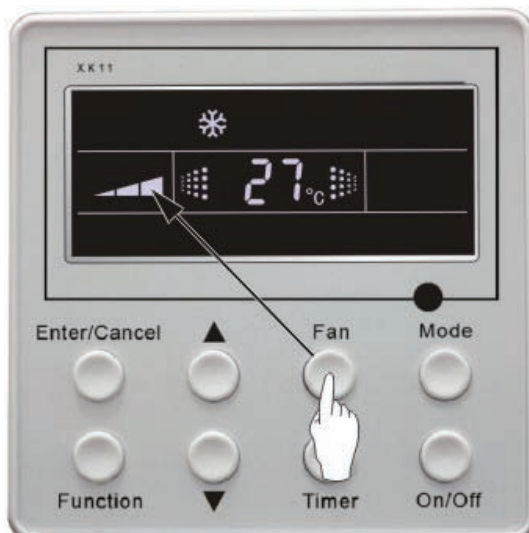
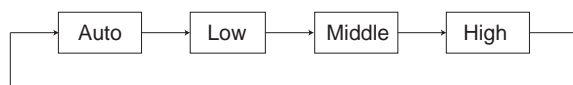


Fig.3.9

3.4.5 Swing Control Function *

Under on-state of unit, press **Function** button till the unit enters swing control function and then press **Enter/cancel** button to turn on swing control function.

During swing function, press **Function** button till the unit enters swing control function and then press **Enter/cancel** button to cancel swing control function.

Swing control function setting is shown in Fig 3.10.

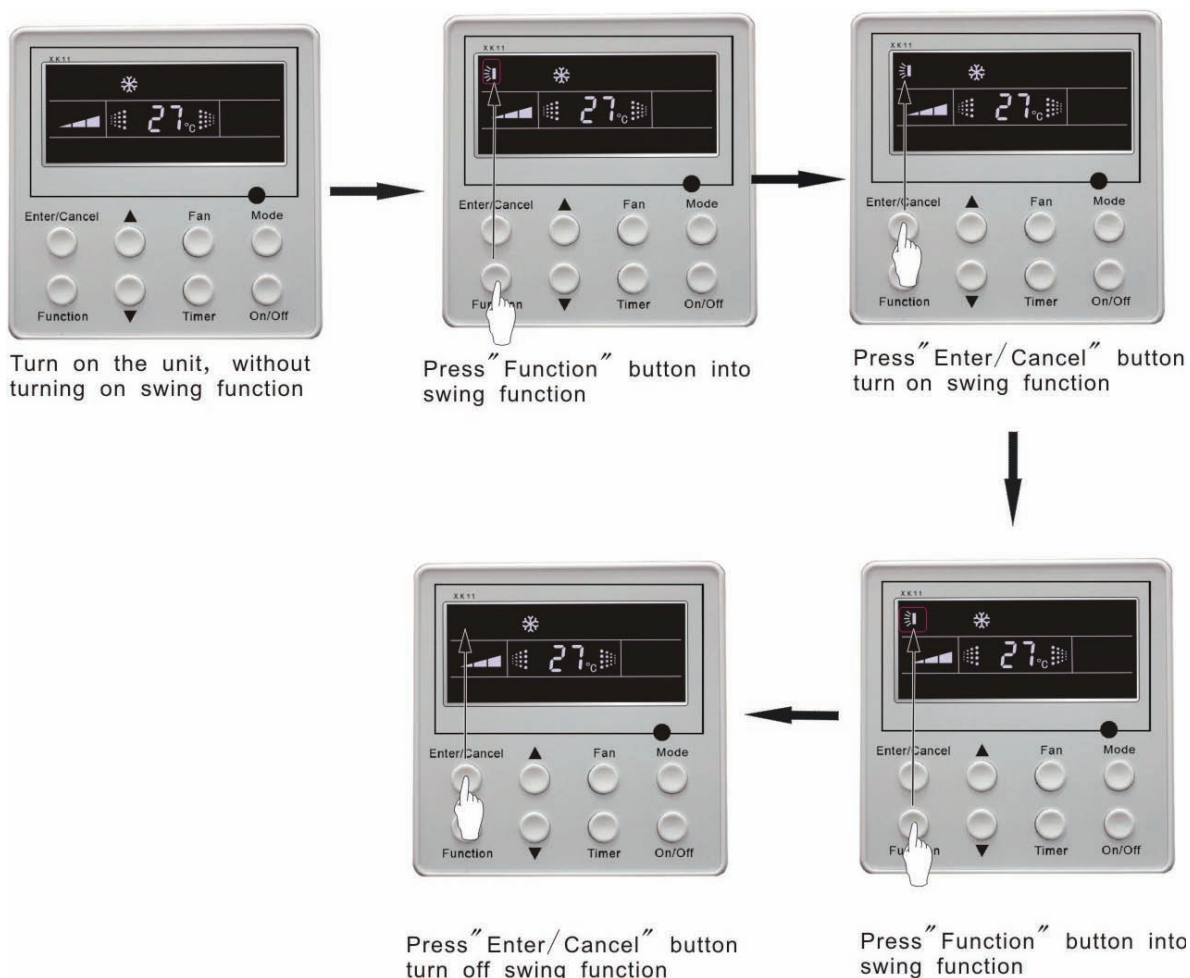


Fig.3.10

3.4.6 Timer Setting

Press **Timer** button to set timer off of the unit. Under off-state of the unit, press **Timer** button to set timer on of the unit in the same way.

Timer on setting: Under off-state of the unit without timer setting, if **Timer** button is pressed, LCD will display **xx. Hour**, with **ON** blinking. In this case, press **▲** or **▼** button to adjust timer on and then press **Timer** to confirm. If **Mode** button is pressed before pressing **Timer** button to confirm, timer mode will be switched to timer off setting mode. In this case, LCD displays **xx. Hour**, with **OFF** blinking. In this case, press **▲** or **▼** button to adjust timer off and then press **Timer** to confirm. When LCD displays **xx. Hour On Off**, **xx. Hour** means time of timer on, but time of timer off won't be displayed.

Timer off setting: Under on-state of the unit without timer setting, if **Timer** button is pressed, LCD will display **xx. Hour**, with **OFF** blinking. In this case, press **▲** or **▼** button to adjust timer on and then press **Timer** to confirm. If **Mode** button is pressed before pressing **Timer** button to confirm, timer mode will be switched to timer on setting mode. In this case, LCD displays **xx. Hour**, with **ON** blinking. In this case, press **▲** or **▼** button to adjust timer on and then press **Timer** button to confirm. When LCD displays **xx. Hour On Off**, **xx. Hour** means time of timer off, but time of timer on won't be displayed.

Cancel timer: After setting of timer, if **Timer** button is pressed, LCD won't display **xx. Hour** so that timer setting is canceled.

Timer off setting under **on-state** of the unit is shown as Fig.3.11.

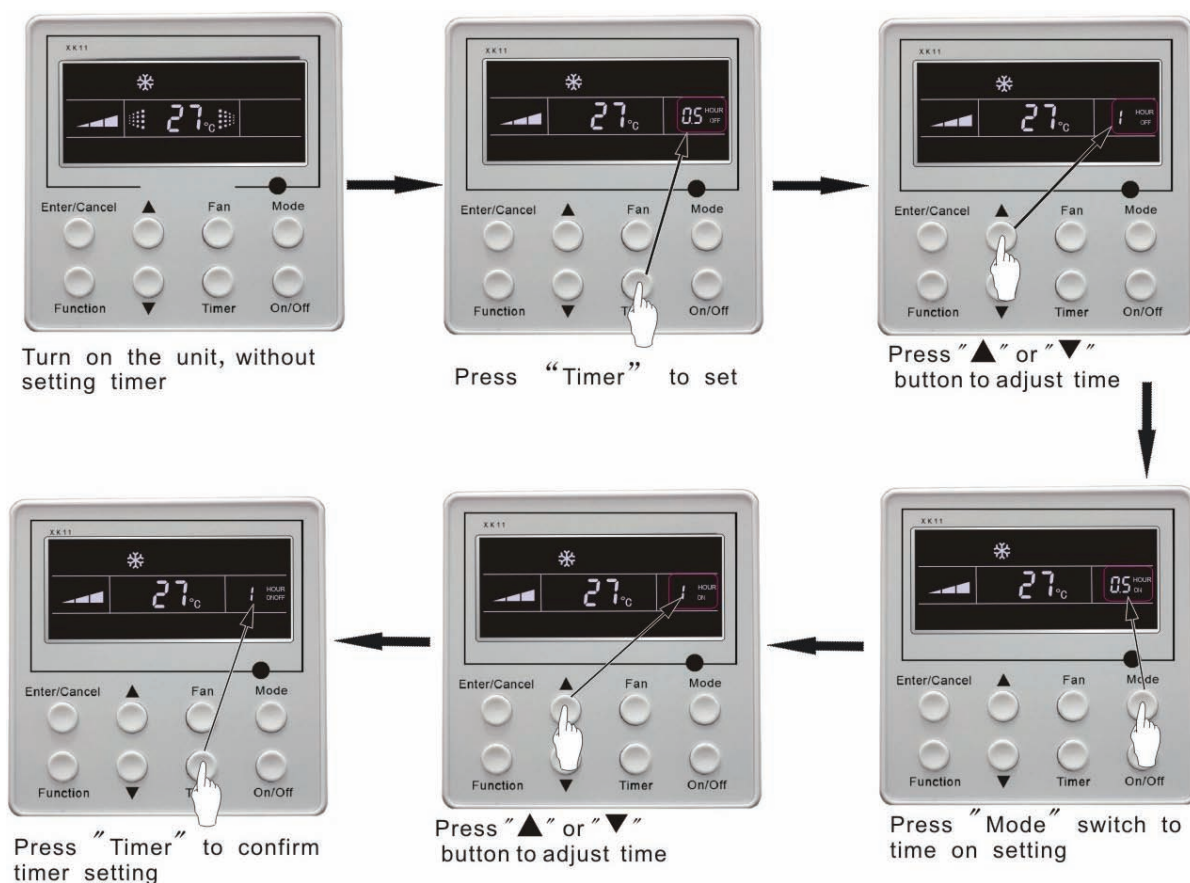


Fig. 3.11 Timer setting under on state of the unit

Timer range: 0.5-24hr. Every press of ▲ or ▼ button will make setting time increased or decreased by 0.5hr. If press either of them continuously, setting time will automatically increase/ decrease by 0.5hr every 0.5s.

Note:

- If both timer on and timer off are set in unit on interface, the wired controller only display time of time off. If both of them are set in unit off-state, only time of timer on is displayed.
- Timer on in unit on-state is timed from the time of unit off and timer off in unit off-state is timed from the time of unit on.

3.4.7 Air Exchange Setting *

Turn on air Exchange function:

Under on-state of the unit, press **Function** button to go to the this function setting (**AIR** mark blinks). **AIR 1** displayed at the ambient temperature-displayed location (888) is defaulted (the last type of **AIR** will be displayed after adjustment). Press ▲ or ▼ button to adjust air type. Press **Enter/Cancel** button to turn on/off air function. After turning on this function, the air mark shows.

There are 10 types of AIR, but only 1-2 types are for remote control. Refer to the following details:

- 1—The unit continuously runs for 60min, and fresh air valve runs for 6 min.
- 2—The unit continuously runs for 60min, and fresh air valve runs for 12 min.
- 3—The unit continuously runs for 60min, and fresh air valve runs for 18 min.
- 4—The unit continuously runs for 60min, and fresh air valve runs for 24 min.
- 5—The unit continuously runs for 60min, and fresh air valve runs for 30 min.
- 6—The unit continuously runs for 60min, and fresh air valve runs for 36 min.
- 7—The unit continuously runs for 60min, and fresh air valve runs for 42 min.
- 8—The unit continuously runs for 60min, and fresh air valve runs for 48 min.
- 9—The unit continuously runs for 60min, and fresh air valve runs for 54 min.
- 10—The unit continuously runs for 60min, and fresh air valve always runs.

Turn off air Exchange function: During Air function, press **Function** button to go to the Air function. In this case, air mark is blinking, and then press **Enter/Cancel** button to turn off this function. Air mark will subsequently

disappear.

Air Exchange setting is shown as in fig.3.12.

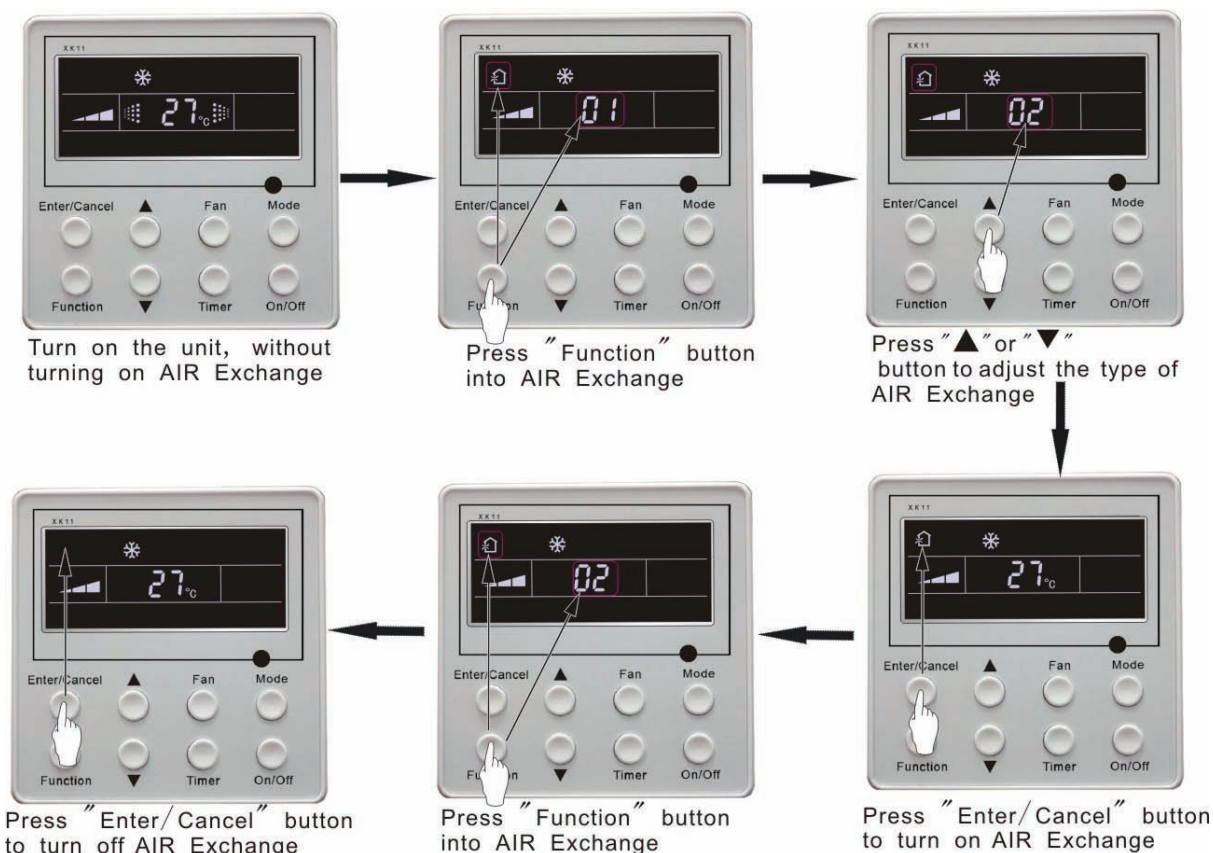


Fig.3.12 Air exchange device

Note: In air exchange mode, press Function button or there is not any operation within 5s after the last button operation, the system will be quit from air exchange setting and current energy-saving data won't be memorized.

3.4.8 Sleep Setting

Sleep on: Press **Function** button under on-state of the unit into sleep function and then press **Enter/Cancel** button to turn on sleeping function.

Sleep off: During sleep on-state, press **Function** button to go to the sleep function and then press **Enter/Cancel** button to turn off this function.

Sleep setting is shown as Fig3.13.

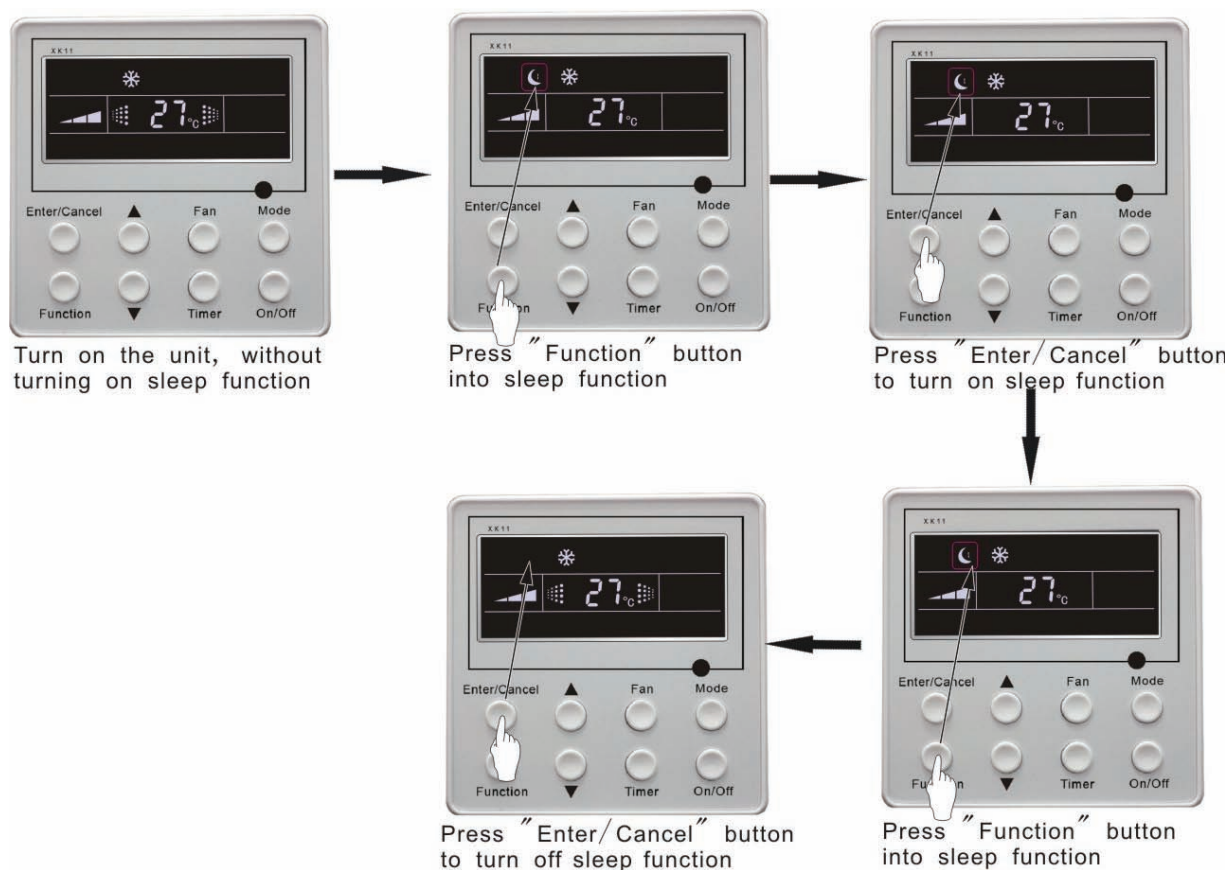


Fig.3.13 Sleep setting

Sleep setting is clear after power failure and then power recovery. There is not sleep function in fan and auto mode.

Note: In cooling and dry mode, if the unit with sleep function has run for 1 hour, the preset temperature will be increased by 1°C and 1°C in another 1 hour. After that, the unit will run at this temperature. In heating mode, if the unit with sleep function has run for 1 hour, the preset temperature will be decreased by 1°C and 1°C in another 1 hour. After that, the unit will run at this temperature.

3.4.9 Turbo Function Setting

TURBO function: The unit at high fan speed can realize quick cooling or heating so that room temperature can quickly approach setting temperature.

In cooling or heating mode, press **Function** button till the unit enters **TURBO** function and then press **Enter/Cancel** button to turn on **TURBO** function.

During **TURBO** function, press **Function** button till the unit enters **TURBO** function and then press **Enter/Cancel** button to cancel **TURBO** function.

TURBO function setting is shown in Fig3.14.

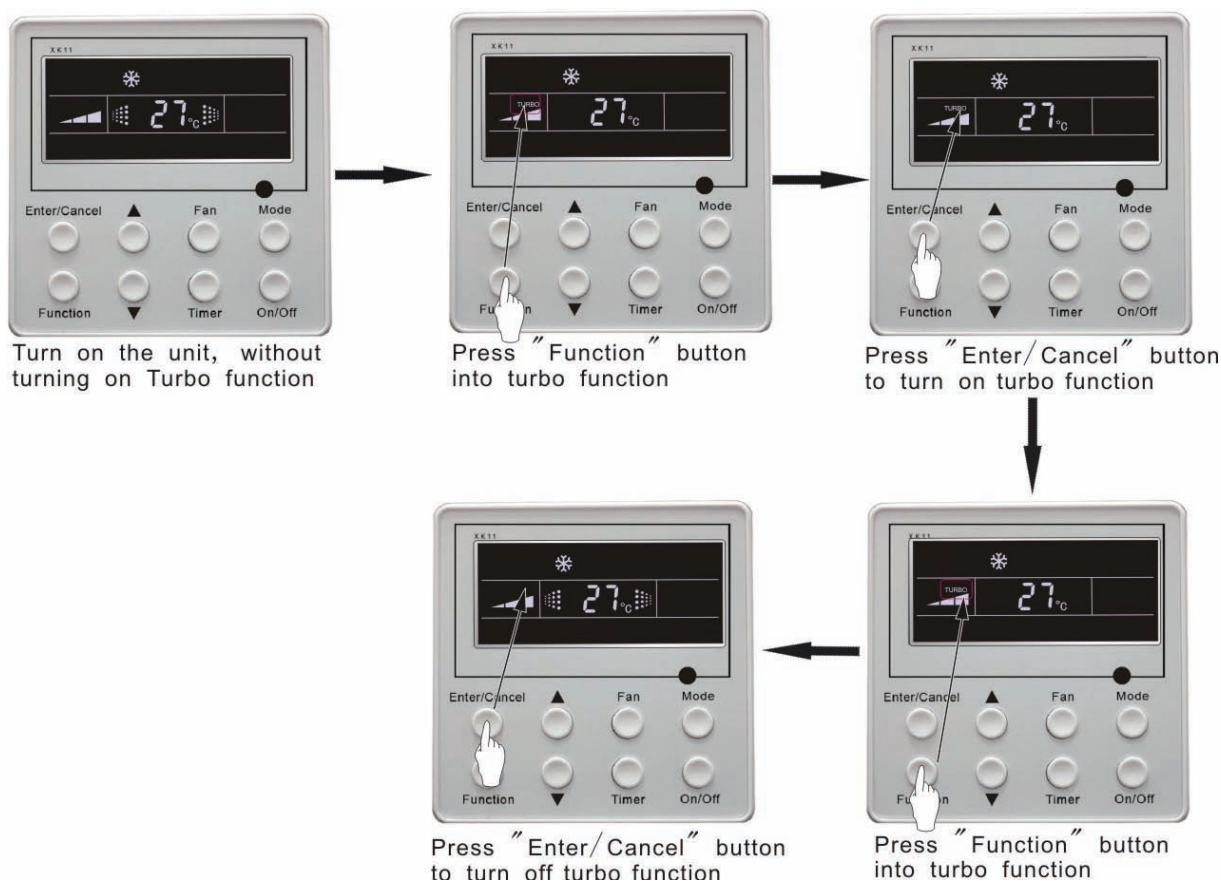


Fig.3.14Turbo Function Setting

Note:

- a. TURBO function will be turned off after power failure and then recovery. In dry, fan and auto mode, TURBO function can not be set and TURBO mark won't be displayed.
- b. TURBO function will be automatically canceled after setting of quiet function.

3.4.10 SAVE Function Setting

Energy Saving Function: Energy saving can make the air conditioner runs in a smaller temperature range by setting lower limited value of setting temperature in cooling or dry mode and upper limited value in heating mode.

Energy Saving Setting for Cooling

Under on-state and in cooling or dry mode of the unit, press **Function** button into energy saving function, with **SAVE** blinking .Press **▲** or **▼** button to adjust lower limited value of setting temperature in cooling mode. After that press **Enter/Cancel** button to turn on energy saving function for cooling.

Energy Saving Setting for Heating

Under on state and in heating mode of the unit, press **Function** button into energy saving function, with **SAVE** blinking. Press **Mode** button into energy saving function for heating and then press **▲** or **▼** button to adjust upper limited value of setting temperature in heating mode. After that, press **Enter/Cancel** button to turn on energy saving function for heating.

After energy saving function is turned on, press **Function** button into energy saving function and press **Enter/Cancel** to cancel this function.

The energy saving setting is shown in the fig.3.15.

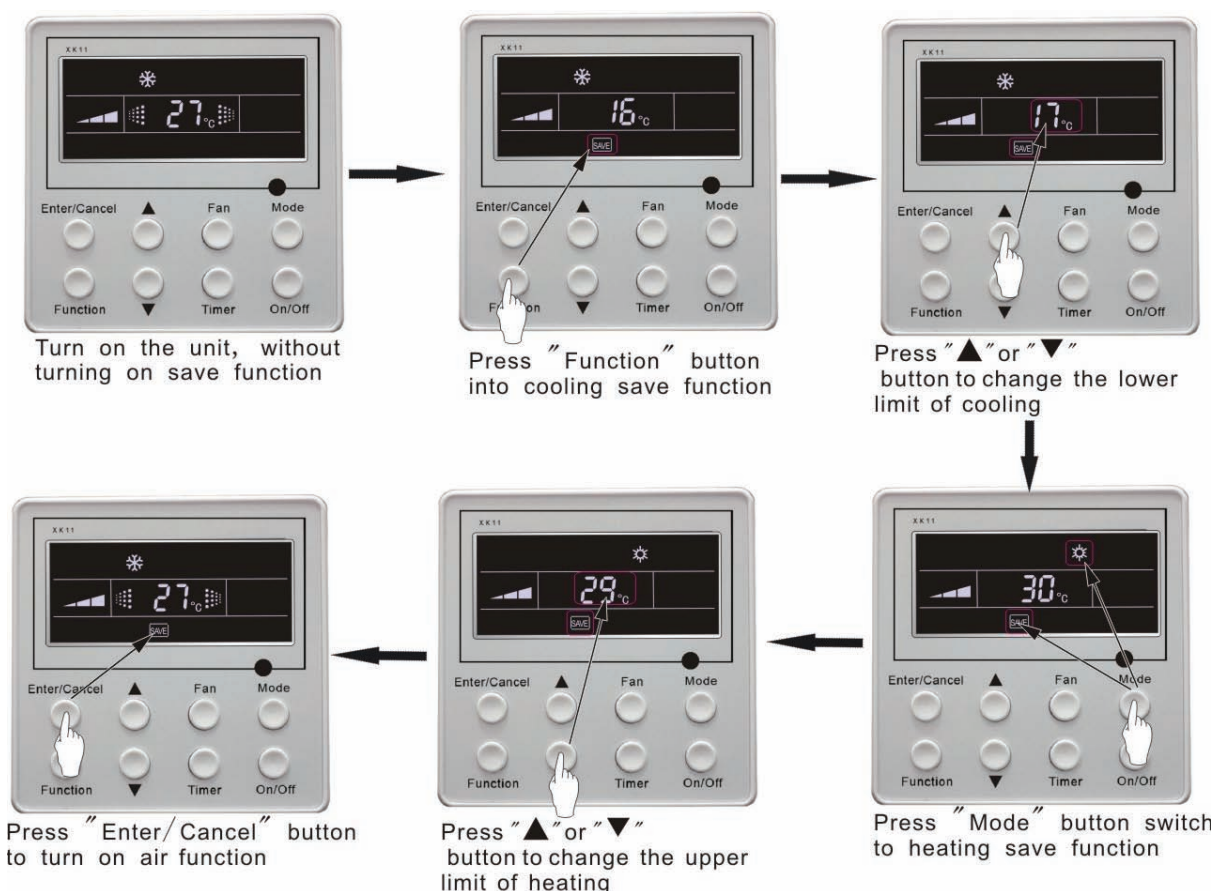


Fig.3.15Energy Saving Setting

Note:

- In Auto running mode with save function on, the unit will be forcibly quit Auto running Mode and change to current operation mode, After setting of save, sleep function will be canceled.
- In save mode, if Function button is pressed or there is not any operation within 5s after the last button operation, the system will be quit from save function setting and current data won't be memorized.
- After power failure and then recovery, save function setting will be memorized.
- The lower limited value in cooling mode is 16°C and the upper limited value in heating mode is 30°C.
- After save setting, if the setting temperature is out of the range in the mode, the limited value will prevail.

3.4.11 E-HEATER Setting *

E-HEATER: In the heating mode, E-heater is allowed to be turned on for improvement of efficiency.

If heating mode is turned on by button operation, auxiliary electric heating function will be automatically turned on.

Press **Function** button in heating mode to go to the auxiliary electric heating function, the **E-HEATER** blinking, and press **Enter/Cancel** button to turn on this function. In this case, the **E-HEATER** will be displayed, which means E-heater is allowed to be turned on.

If auxiliary electric heating function is on, press **Function** button to confirm or press **Enter/Cancel** button to cancel. In this case, **E-HEATER** won't be displayed, which means E-heater is prohibited to be turned on.

The setting of this function is shown as Fig3.16 below:

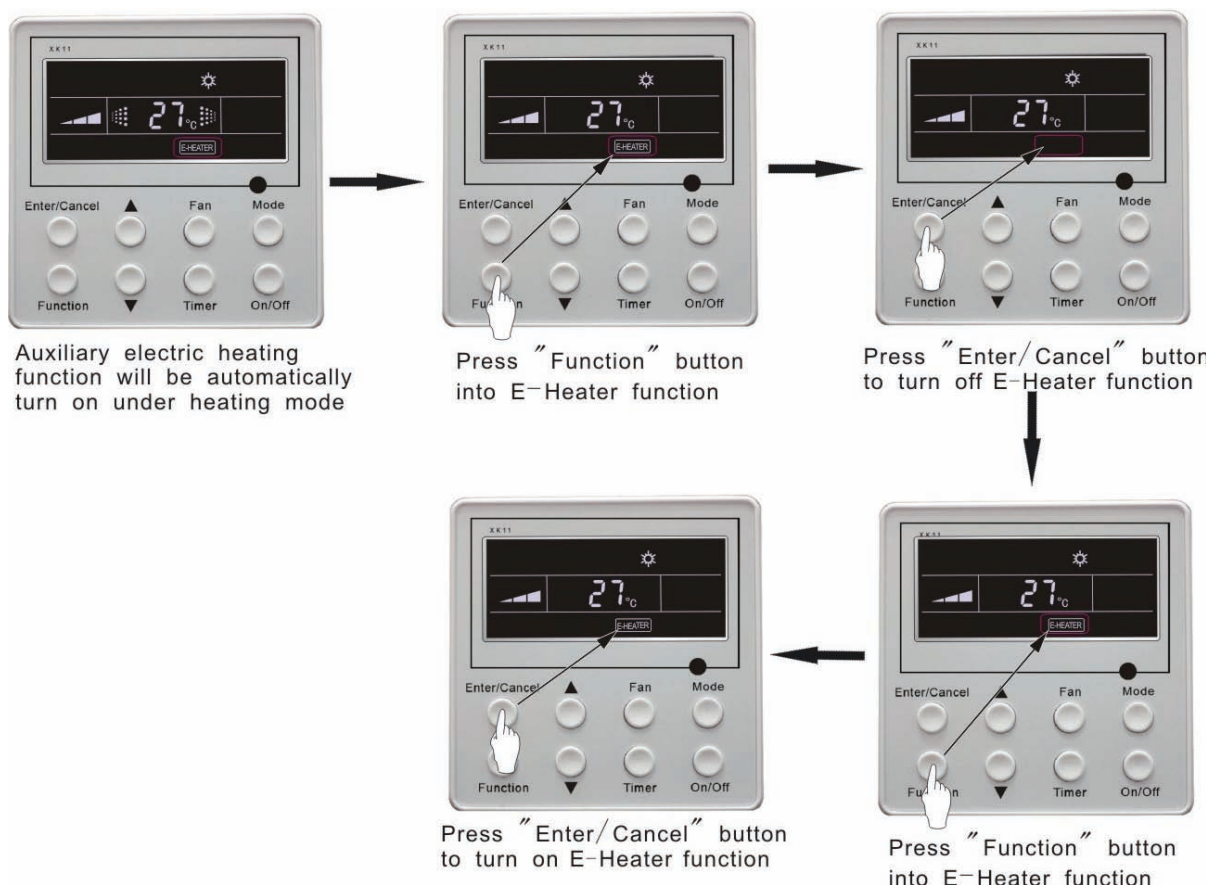


Fig. 3.16 Auxiliary Electric Heating Function Setting

Note:

E-HEATER can not be set in cooling, dry and fan mode, E-HEATER mark won't be displayed. The setting is shown in Fig.3.16.

3.4.12 Blow Function Setting

BLOW function: After the unit is turned off, water in evaporator of indoor unit will be automatically evaporated to avoid mildew.

In cooling and dry mode, press **Function** button till the unit enters **BLOW** function, with **BLOW** blinking, and then press **Enter/Cancel** button to turn on this function.

In BLOW mode, press **Function** button till the unit enters **BLOW** function and then press **Enter/Cancel** button to cancel this function.

BLOW function setting is shown in Fig3.17.

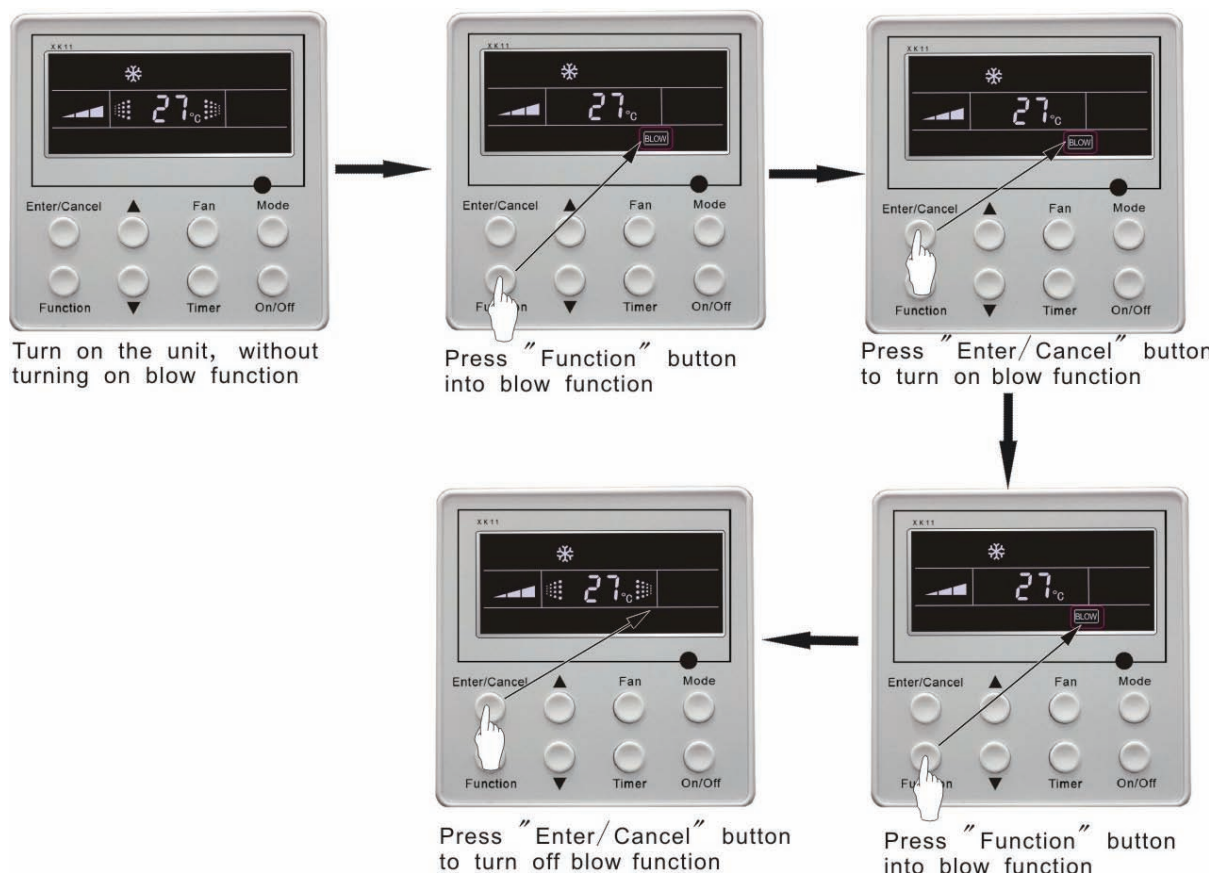


Fig. 3.17 Blow function setting

Note:

- After setting BLOW function, turn off the unit by pressing **On/Off** button on remote controller, indoor fan will run at low fan speed for 10 min. (**BLOW** shows). Meanwhile, if **BLOW** function is canceled indoor fan will be turned off directly.
- There is not BLOW function in fan or heating mode.

3.4.13 Quiet Function Setting

Quiet function consists of two kinds: QUIET and AUTO QUIET.

Press **Function** button till the unit enters quiet function setting state, **Quiet** or **Auto Quiet** mark blinks. In this case, press **▲** or **▼** button to switch between **Quiet** and **Auto Quiet** and then press **Enter/Cancel** button to turn on this function.

In quiet mode, press **Function** button till the unit enters quiet function. In this case, **Quiet** or **Auto Quiet** icon blinks and then press **Enter/Cancel** button to cancel this function.

Quiet function setting is shown in Fig3.18.

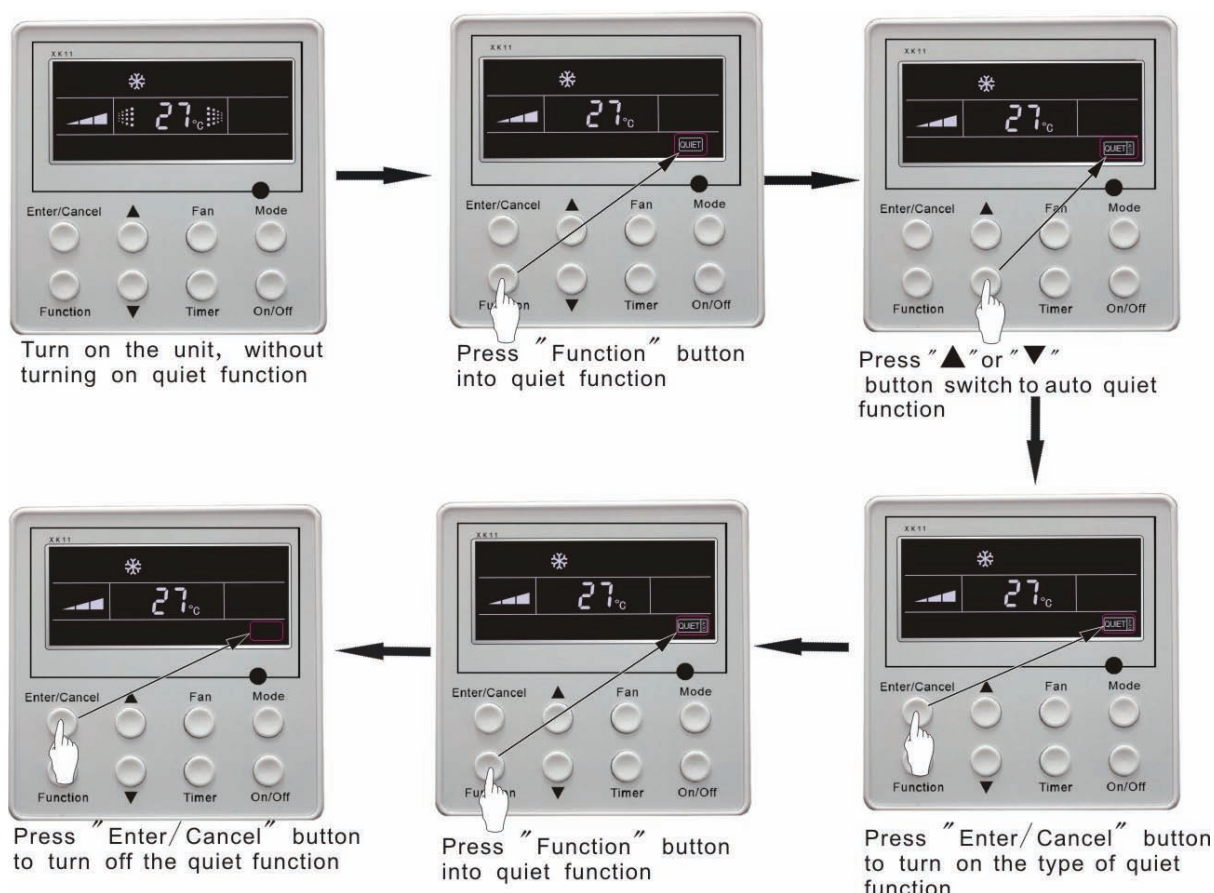


Fig. 3.18 Quiet function setting

Note:

- During quiet function, fan speed is un-adjustable.
- When turning on auto quiet function, the unit will enter quiet running state according to temperature difference between room temperature and setting temperature. In this case, fan speed is adjustable. If temperature difference between room temperature and setting temperature $\geq 4^{\circ}\text{C}$, fan will keep its current speed; if $2^{\circ}\text{C} \leq$ temperature difference $\leq 3^{\circ}\text{C}$; fan speed will be reduced by one grade, but if it is at minimum grade, it is un-adjustable.; if temperature difference $\leq 1^{\circ}\text{C}$, fan speed will be at minimum grade.
- In auto quiet mode, fan speed can not be raised but reduced. If high fan speed is manually adjusted, auto quiet mode will quit.
- There is not auto quiet function in fan or dry mode. Quiet off is default after power failure and then power recovery.
- If quiet function is set, turbo function will be canceled.

3.4.14 Field Functions

Under off-state of the unit, press **Function** and **Timer** buttons continuously for 5s to go to the debugging menu. Press **Mode** button to adjust the setting items and **▲** or **▼** button to set the actual value.

3.4.14.1 Ambient Temperature Sensor Setting

In field setting mode, press **Mode** button to adjust the temperature displayed location displaying 00, and press **▲** or **▼** button to adjust setting state at timer displayed location. There are 3 types for selection:

Indoor ambient temperature is that at return air inlet (01 is displayed at timer displayed location)

Indoor ambient temperature is that at the place of screen (02 is displayed at timer displayed location)

Return air inlet temperature sensor shall be selected for cooling, dry and fan modes and wired controller temperature sensor (03 is displayed at timer displayed location) shall be selected for heating and auto modes.

3.4.14.2 Three Grades of Speed for Indoor Fan

In field setting mode, press **Mode** button to adjust the temperature displayed location displaying 01 and press **▲** or **▼** button to adjust setting state at timer displayed location. There are 2 types for selection:

3 low grades (LCD displays 01)


3 high grades (LCD displays 02)

Three low grades indicate high, medium and low grades and 3 high grades indicate super-high, high and medium grades.

Press **Enter/Cancel** button to save the setting and quit after setting. If there is not any operation within 20s after the system responds to the last button operation in this interface, the system will quit this menu and display normal off-state; meanwhile, current setting won't be saved.

3.4.15 Other Functions

3.4.15.1 Lock Function

Upon startup of the unit without malfunction or under off-state of the unit, press **▲** and **▼** buttons at the same time for 5s till the wired controller enters lock state. In this case, LCD displays . After that, repress these two buttons at the same time for 5s to quit lock state.

Under lock state, any other buttons won't give any response to the press.

3.4.15.2 Memory Function

Memory switchover: Under off-state of the unit, press **Mode** and **▲** buttons at the same time for 5s to switch memory modes. During setting memory mode, **Memory** will be displayed. If this function is not set, the unit will be under off state after power failure and then power recovery.

Memory recovery: If memory mode has been set for wired controller, the wired controller after power failure will resume its original running state upon power recovery.

Note:

It will take about 5 seconds to save all the information, therefore, please do not cut down the power at this time, or it may fails.

3.4.15.3 Enquiry of Outdoor Ambient Temperature

Under on or off state of the unit, press **Enter/Cancel** button for 5s, outdoor ambient temperature will be displayed at temperature displaying location after a sound of click. This enquiry state will quit by pressing any button. If there is not any operation for 20s, it will automatically quit.

Note:

This function will be shielded after energization of 12hr for some models of the units without outdoor ambient sensors. Please refer to Instruction for details.

If malfunction of outdoor ambient sensor occurs, this function will be shielded in 12hr.

3.4.15.4 Enquiry of Historical Errors

Continuously press **Function** and **▼** buttons without lock for 5s into enquiry state. In this state, press **Enter/Cancel** button to quit, or it will automatically quit after there is not any operation of button in 30min. In enquiry state, press **Mode** button to adjust temperature displayed location displaying 00-04 and press **▲** or **▼** button to make timer displayed location display error code. If 2E1 is displayed in timer displayed location, it means high pressure protection of the system 2.

3.4.15.5 Selection of Centigrade and Fahrenheit

Under off-state of the unit, press **Mode** and **▼** at the same time for 5s, the displayer panel will switch between Centigrade and Fahrenheit.

3.5 Error Display

If there is malfunction during running of the system, LCD will display error code at temperature–displayed location. Once there is more than one malfunction, error codes will be displayed circularly. If there are multiple circuit systems, the system number of failed system will be displayed before the colon (not for single system).

If malfunction occurs, turn off the unit and contact nearest dealer for help.

As shown in Fig.3.19 it means high pressure protection of system 2 under unit on.



Fig.3.19

Error code meaning:

Error code	Malfunction
E1	High pressure protection of compressor
E2	Indoor anti-freezing protection
E3	Low pressure protection of compressor
E4	High discharge temperature protection of compressor
E5	Compressor overload protection
E6	Communication malfunction
E9	Water overflow protection
F0	Indoor unit ambient sensor malfunction at air return opening
F1	Evaporator sensor malfunction
F2	Condenser sensor malfunction
F3	Outdoor unit ambient temperature sensor mal
F4	Discharge temperature sensor malfunction
F5	Ambient sensor malfunction on Displayer (or LED board)

3.6 Setting of Indoor Room Sensor and Checking of Outdoor Ambient Temperature

3.6.1 Setting of Double Indoor Room Sensors

This series of ducted air-conditioning unit has two indoor room sensors. One is located at the air intake of the indoor unit and the other one is located inside the wired controller.

User can select one from the two indoor room sensors on the basis of the engineering requirement.(Refer to the section of wire controller instructions for detailed operation.)

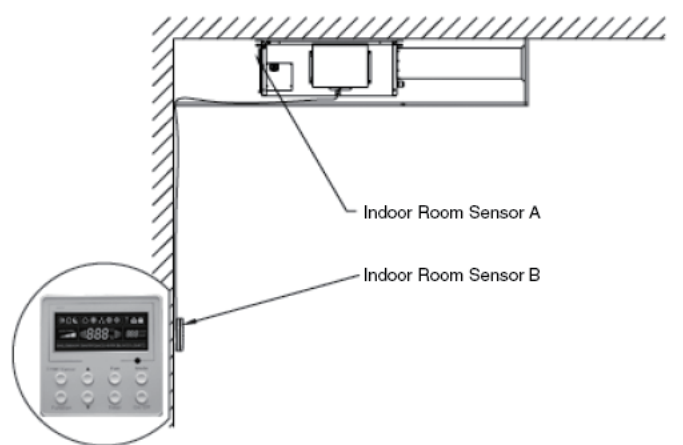


Fig3.20

3.6.2 Checking of Outdoor Ambient Temperature

The outdoor ambient temperature can be checked on the wire controller for the convenience of users without going out. (Refer to the section of wire controller instructions for detailed operation.)

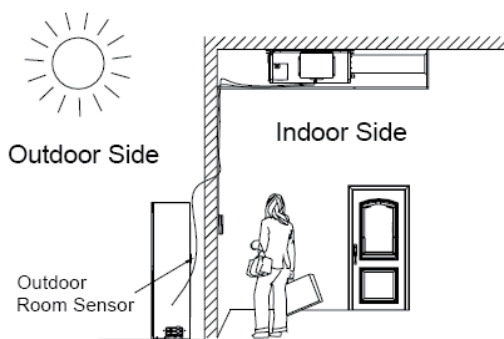


Fig3.21

3.6.3 Fresh Air Control *

11-level control can be realized for the amount of fresh air taken in. The function not only facilitates the health of users, but also controls the electricity consumption loss due to taking fresh air in. This kind of control can be carried out through the wired controller. The function can be set and go into effect at any time, and features very simple operation. (Refer to the section of wired controller instructions for detailed operation.)

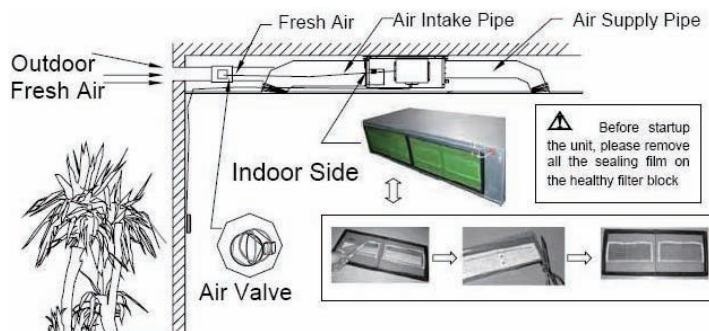


Fig 3.22

3.6.4 Position and Method of Installing Wired Remote Controller

One end of the control wire of the wired remote controller is connected to main board in the electric box of indoor unit, it should be tightened by wire clamps, while the other end should be connected to the wired controller. The special control wire be used between the indoor unit and wired remote controller, of which the length is 8 meters.

The material to be adopted for the control wire should be metallic substance. The wired controller could not be disassembled and the control wire to be used for the wired controller should not be changed by users

optionally. The installation and maintenance should be carried out by the installer.

Firstly select an installation position. According to the size of the control wire for the wired remote controller, leave a recess or a embedded wire hole to bury the communication line.

If the control wire between the wired remote controller and the indoor unit is surface-mounted, use 1# metallic pipe and make matching recess in the wall (refer to Figure 3.23); If concealed installation is adopted, 1# metallic pipe can be used (Refer to Figure 3.24).

No matter if surface mounting or concealed mounting is selected, it is required to drill 2 holes (in the same level) between which the distance shall be the same as the distance (60mm) of installation holes in the bottom plate of the wired controller. Then insert a wood plug into each hole, fix the bottom plate of the wire controller to the way through these two holes, plug the control wire onto the control panel, and lastly install the panel of the wire controller.(Refer to Figure 3.3.1)

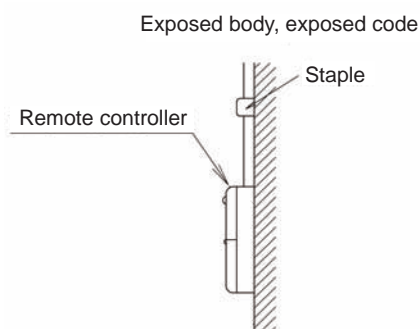


Fig.3.23

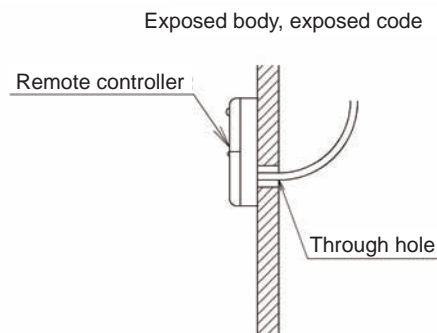


Fig.3.24


⚠ Caution:

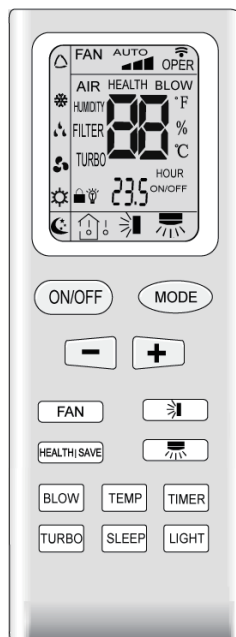
During the installation of the bottom plate of the wired controller, pay attention to the direction of the bottom plate. The plate's side with two notches must be at the lower position, otherwise the panel of the wired controller cannot be correctly installed.

⚠ Caution:

- The communication distance between the main board and the wired controller can be as far as 20m (The standard distance is 8m).
- The wired controller shall not be installed in a place where there is water drop or large amount of water vapor.

4 Wireless Remote Controller

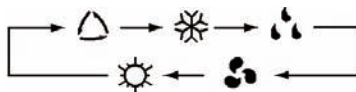
Notes: This remote control is universal. It could be used for many units. Some buttons such as are not  available in this unit will not be described below.



1. "ON/OFF" button

After powering the unit, when the unit is off state, press the "ON/OFF" button to start the unit. AND when the unit is on state, press the button ,it will be off.

2. "Mode" button



Press this button , the unit will be run in the mode which you want. Press this button once, the mode will be changed in a regular as AUTO –COOL –DRY –FAN – HEAT.

AUTO COOL DRY FAN HEAT

3. "+" "-" button

Press the "+" or "-" button to set your desired temperature. The temperature range is from 16℃ to 30℃ .It is not necessary at AUTO mode. AND when you are setting the timing hours, press the "+" or "-" button once, the timing hours will increase or decrease 0.5 hour.

4. "FAN" button

Press the "FAN" button to set fan speed. The AUTO FAN .LOW.MID.HIGH could be selected.

5. button

There is no this function for this unit. If press this key, the main unit will click, but it also runs under original status.

6. "SLEEP" button

Press this button to set the sleep mode. Once the sleep mode is set , the temperature will increase 1℃ after 1 hour, and still increase another 1℃ after 2 hours in the COOL mode. While in HEAT mode , the temperature will decrease 1℃ after 1 hour, and still decrease another 1℃ after 2 hours .

7. "TIMER" button

Press the button to set the timing function. When the timing function is on, press this button to cancel the function. When the timing function is off, press this button once, words Hour on(off) will appear and flicker. In this case, press +/- button to adjust time (press +/- button continuously to change timing value quickly),the setting time range is from 0.5 to 24 hr; press this key once again to fix the time, then remote controller will send out the signal immediately and hour on/off will stop flickering. If the time of that no press timer button under flicking status is above 5s, the timer setting will quit. If the timer has been set, press this button once again to quit it.

8. "TURBO" button

Set turbo on or off(the characters of turbo will appear of disappear) by pressing this key under cooling or heating mode. Once energized, the unit will be defaulted to be turbo off. This function can not be set under auto, dehumidify or fan mode, and characters of turbo won't appear.

9. "BLOW" button

Set Blow on or off (the characters of Blow will appear of disappear) by pressing this key under cooling or dehumidify mode. Once energized, the unit will be defaulted to be Blow off. Set E-Heater on or off (the characters of E-Heater will appear of disappear) by pressing this key under heat mode. Once energized, the unit will be defaulted to be E-Heater off. Blow and E-Heater function can not be set under auto or fan mode, and characters of Blow won't appear.

10. "Light" button

There is no this function for this unit. If press this key, the main unit will click, but it also runs under original status.

11. "Temp" button

There is no this function for this unit. If press this key, the main unit will click, but it also runs under original status.

12. "HEALTH |SAVE" button

There is no this function for this unit. If press this key, the main unit will click, but it also runs under original status.

About AUTO RUN:


When AUTO RUN mode is selected, the setting temperature will not be displayed on the LCD. The unit will be accordance with the room temp, automatically to select the suitable running mode and to make ambient comfortable.

About turbo function:

If start this function, the unit will run at super-high speed to cool or heat quickly so that the ambient temp


approaches the preset temp as soon as possible.

About LOCK:

Press “+” and “-” simultaneously to lock or unlock the keyboard. If the remote control is locked, the icon  will be displayed on the LCD, in which case, press any button, the mark will flicker for three times. If the keyboard is unlocked, the mark will disappear.

About switch between Fahrenheit and Centigrade:

Under status of unit off, press MODE and – buttons simultaneously to switch °C and °F Changing batteries and notices:

- 1). Slightly to press the place with  along the arrowhead direction to push the back cover of remote controller.(As show in Fig 4.1)

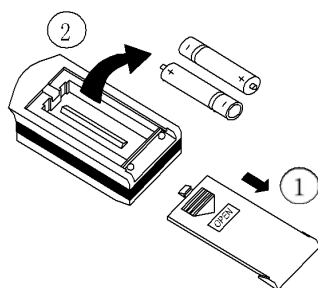


Fig4.1

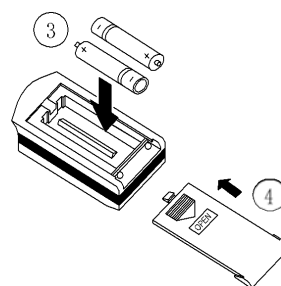




Fig4.2

- 2). Take out the old batteries, insert two AAA alkaline cells  (As show in Fig 4.2.)
- 3). Attach the back cover of remote control.

NOTE:

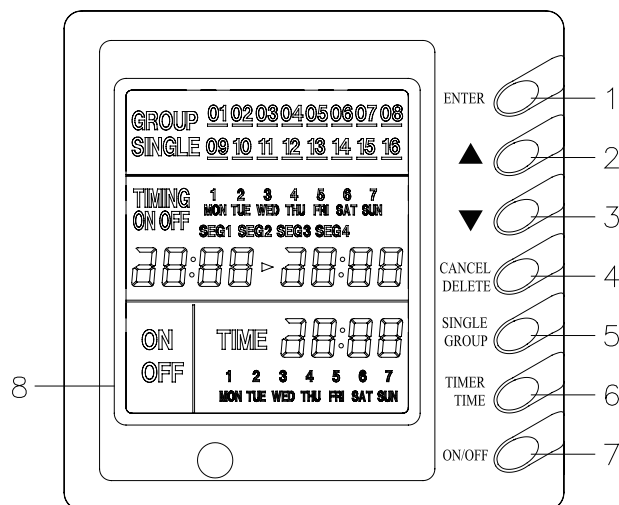
- a. When changing the batteries, do not use the old or different batteries, otherwise, it can cause the malfunction of the wireless remote control.
- b. If the wireless remote control will not be used for a long time, please take them out. and do not let the leakage liquid damage the wireless remote control .
- c. The operation should be in its receiving rang.
- d. It should be placed where is 1m away from the TV set or stereo sound sets.
- e. If the remote control cannot operate normally, please take the batteries out, and then reinsert it 30s later; if it is also abnormal, please replace the batteries.
- f. If the main unit needs to be remote controlled, please aim remote controller at the receiver of main unit in order to improve the receiving sensitivity of the main unit.
- g. When the remote controller sends out single, a make  will flicker for about 1s. The bell will ring if the main unit receives effect signal.

5 Centralized Controller-week timer

5.1 Function

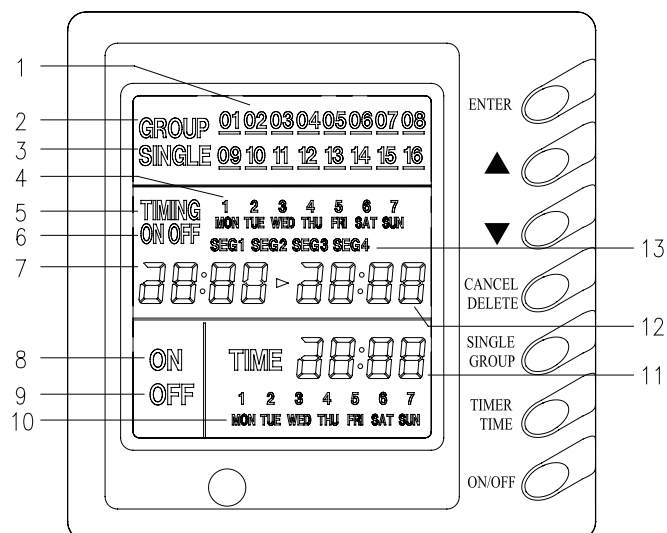
Centralized Control and Week Timer Functions: The centralized controller and the weekly timer are integrated in the same wire controller. The system has both the centralized control and the week timing functions. Up to 16 sets of units can be controlled simultaneously by the centralized controller (weekly timer). The weekly timer has the function of invalidating the lower unit. The weekly timing function is able to realized four timing ON/ OFF periods for any unit every day, so as to achieve fully automatic operation. No timing control can be set for holidays. On and off of every duct type unit can be done through the Timer On / Off of this WEEKLY TIMER, it can not set other functions except on-off function of units.

5.2 Operation View



NO.	Name	Function description
1	ENTER button	when "enter" is pressed the setting is validate.
2	Increasing button	Press "▲" and selected the unit or a certain day in one week or specific value. Press "▲" can set week part of time.
3	Decreasing button	Press "▼" and selected the unit or a certain day in one week or specific value. Press "▼" can set week part of time.
4	CANCEL/DELETE Button	short-press "cancel/delete" to back to default page or last process, long-press "cancel/delete" to cancel timer of a certain time period in a certain day.
5	SINGLLE/GROU Button	short-press "single/group" to enter single control setting. "SINGLE" displayed. long-press "single/group" to enter group control setting. "GROUP" displayed.
6	TIMER/TIME Button	Short-press "timer/time" to enter timer setting. Long-press "timer/time" under default page can begin time setting.
7	On/off button	Control unit run or stop
8	LCD display	Display unit information

5.3 Display View

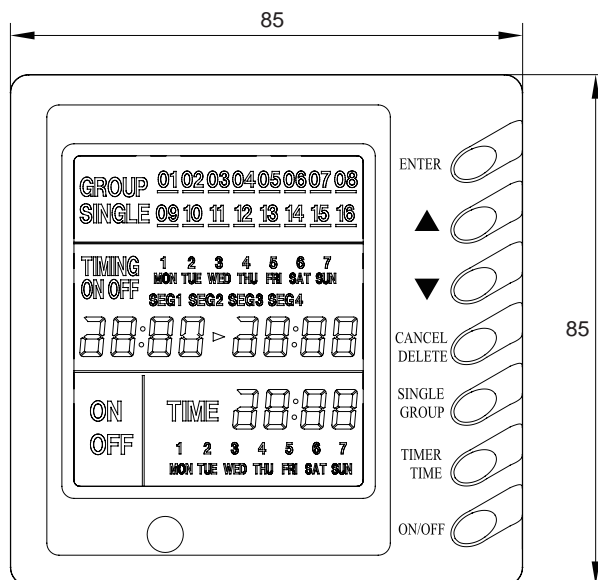


NO.	Name	Function description
1	unit's no. displays	Display unit's numbers
2	Group control displays	when group controls, it will display
3	Single control displays	when single unit controls, it will display
4	Timer time in week displays	Display time in week
5	Timer displays	Display time
6	timer state displays	"on": when set unit on, "on" will display "off": when set unit off, "off" will display
7	timer on time displays	Display starts time
8	on control displays	When set unit or group on, it will display
9	off control displays	When set unit or group off, it will display
10	present time in week display	Display present time of week
11	present time in Hr:Min displays	Display time of hour and minute now
12	timer off time displays	Display over time
13	timer period displays	Set to different time segment

Note:

Please read corresponding manual of weekly timer controller to be familiar with it.

5.4 Dimensions





INSTALLATION

INSTALLATION

1 INDOOR UNIT INSTALLATION

1.1 Before Installation

The preparation of all pipes (connecting pipes and drainage pipes) and cables (connecting lines of wired controller, indoor unit and outdoor unit) must be ready before the installation, so as to achieve smooth installation.

Drill an opening on the ceiling. Maybe it is required to support the ceiling to ensure the evenness of it and avoid the vibration of it. Consult with the user or a construction company for details.

In case the strength of ceiling is not enough, use angle iron sections to set up a beam support. Place the unit at the beam and fix it.

1.2 Installation Site

Ensure the top hanging piece has strong strength to withstand the weight of the unit.

The drainage pipe has convenient flow of water.

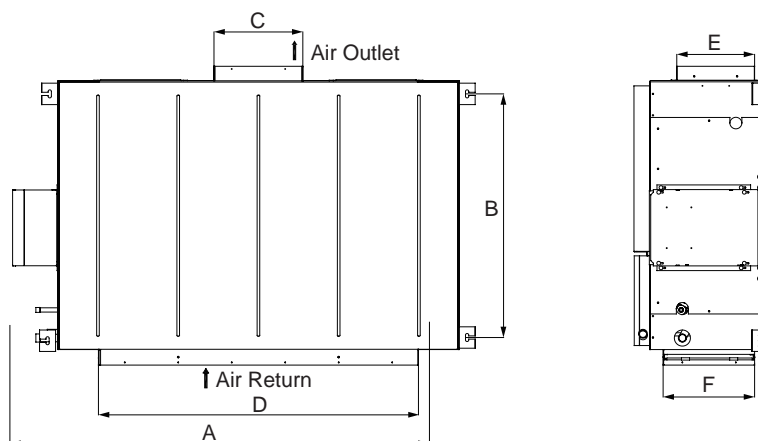
There is no obstacle blocking the air intake and exhaust outlet, so as to ensure sound air circulation.

The installation spaces required by the drawing must be ensured, so as to provide enough space for the service and maintenance.

The installation site must be far away from heat source, leakage of inflammable gas or smoke.

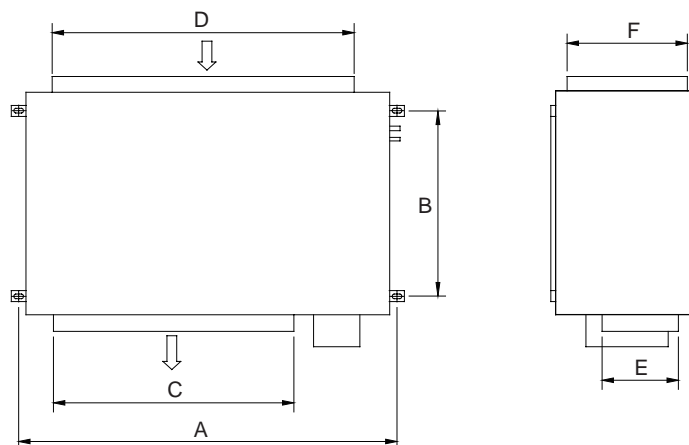
The indoor unit is of ceiling mount (indoor unit is hidden inside the ceiling).

1.3 Dimension Data



Unit: mm

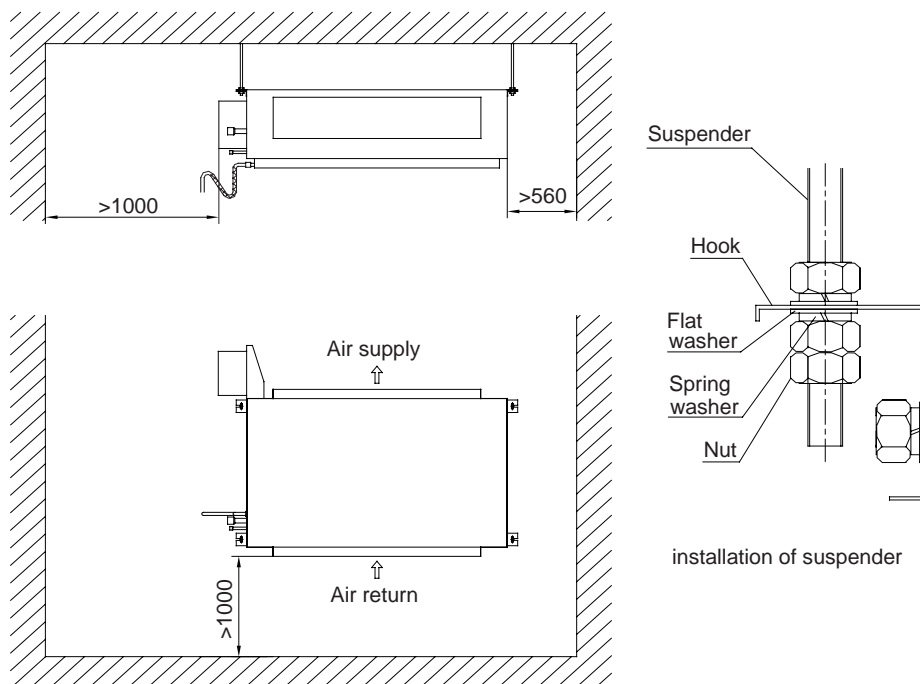
Models	A	B	C	D	E	F
FG20/BNa-M, FGR20/BNa-M	1463	632	992	1150	192	343
FG25/CNa-M, FGR25/CNa-M	1560	910	332	1194	292	342
FG30/BNa-M, FGR30/BNa-M	1560	910	1194	1194	292	342



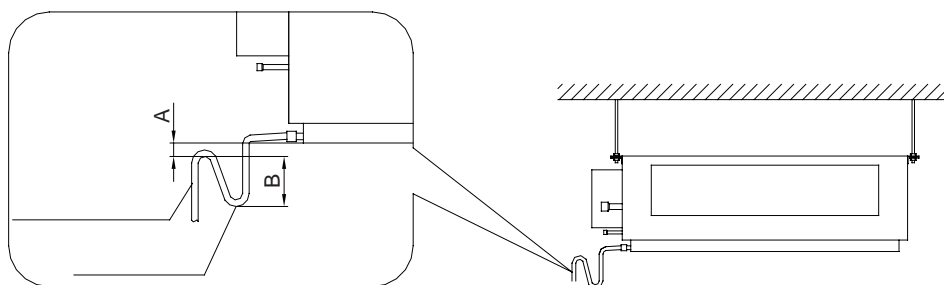
Unit: mm

Models	A	B	C	D	E	F
FG40/BNa-M, FGR40/BNa-M	1780	1040	868	1450	347	555

1.4 Installation Clearance Data



1.5 Drain Piping Work



For easy drainage of the condensation water, It should be installed with a downward gradient. To avoid ployed as shown above and the height of the water seal could be determined by the pressure of the drain hose.

Drain hose is in negative pressure state: $A = B \geq P/10 + 20$ (mm).

Drain hose is in positive pressure state: $A \geq 30\text{mm}$, $B \geq P/10 + 20$ (mm).

2 OUTDOOR UNIT INSTALLATION

2.1 Before Installation

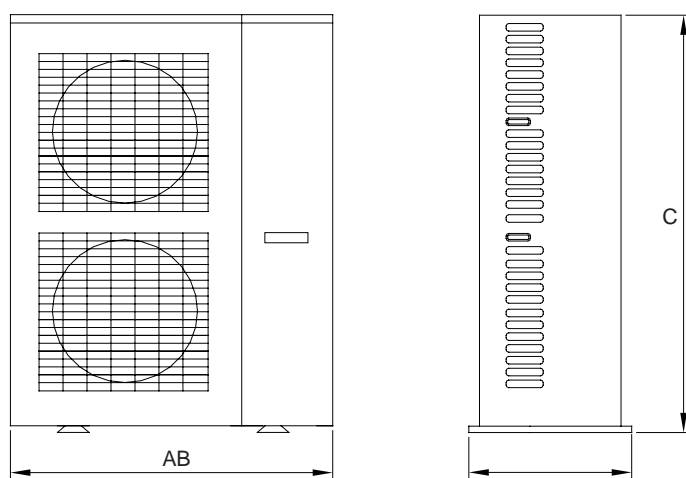
- 1). After receipt of the unit, please check the unit for damage during transport. If there is external or internal damage, please notify the company by written form.
- 2). After receipt of the unit, check and inspect the unit and accessories according to package list for models, damage of unit body and specification and quantity of accessories.
- 3). Confirm conveying route and method of the unit to avoid damage to the unit and possible injuries. For protection and safety of the unit, it is recommended to convey the unit together with the packing container, even in special conditions.
- 4). Check the installation foundation for firmness. If the unit is installed on the metal place, ensure electric insulation and conformability to relative criteria.
- 5). Ensure installation site away from the storage area with inflammable and explosive materials to avoid explosion or fire.

2.2 Installation Site

- 1). Outdoor unit should be installed in a steady and stable place.
- 2). To reduce the length of the refrigerant pipe and bend number, make sure the indoor unit and outdoor unit be close to each other.
- 3). Ensure the operation noise do not disturb neighbors and passerby.
- 4). Do not install the unit where it will be exposed to direct sunlight or other radiation heat source, or the awning or a rainproof cloth should be utilized.
- 5). The inlet and outlet port should not be blocked.
- 6). Make sure the well air circulation.
- 7). Selection a location that is far away from combustible or explosive material, dust, fog or moist.

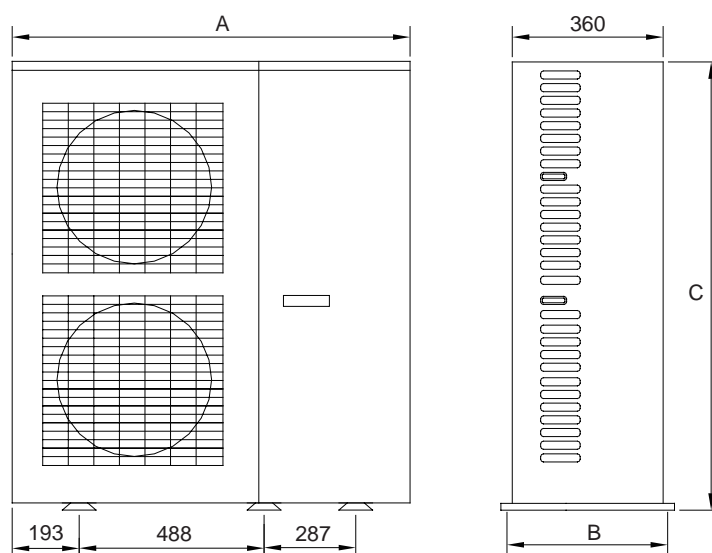
Don't connect any air leading duct to the outdoor unit, at neither the air inlet nor the air outlet. The outdoor unit will drop condensate while running at heat mode. If the temp is minus, it will form ice. Don't let the rain proof interfere the ventilation of outdoor unit.

2.3 Dimension Data



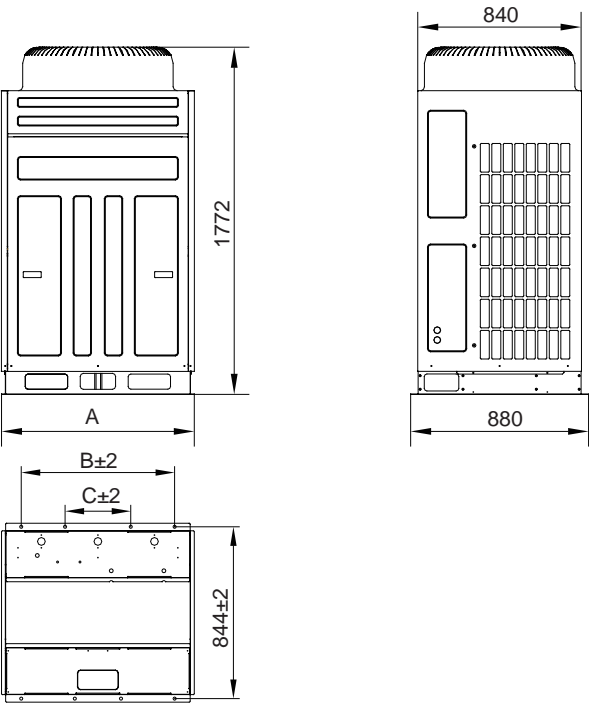
Unit: mm

Model	A	B	C
FG(R)20/BNa-M(O)	1150	460	1350



Unit: mm

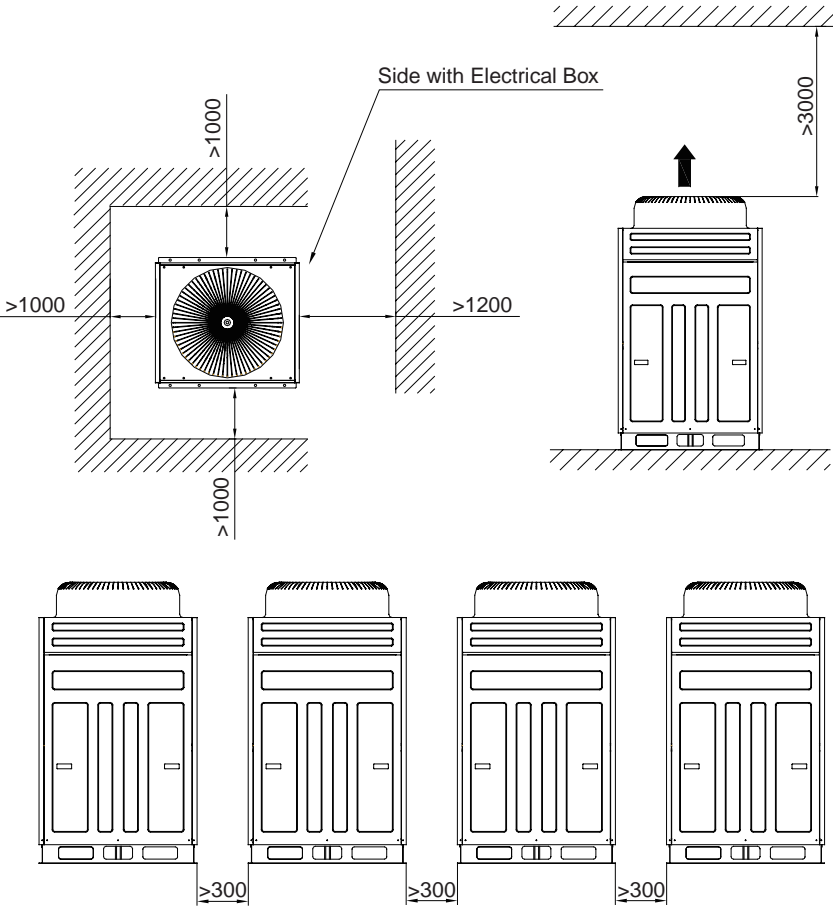
Model	A	B	C
FG(R)25/CNa-M(O)	1150	422	1600



Unit: mm

Model	A	B	C
FG(R)30/BNa-M(O)	990	787	387
FG(R)40/BNa-M(O)	1290	1160	850

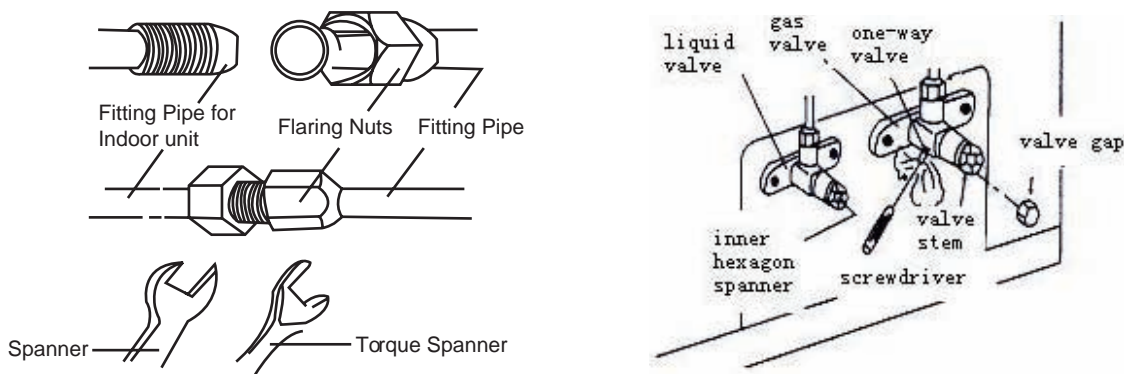
2.4 Installation Clearance Data



3 REFRIGERATION PIPING WORK

3.1 Refrigeration Piping Work Procedures

- 1). Align the flared end of the copper pipe with the center of the thread joint. Manually tighten the flared end nut.
- 2). Use torque spanner to tighten the flared end nut until the spanner clatters.



3.2 Caution in Connecting Pipes

Note: Do not loosen the cap of the pipes when connecting the pipes between the indoor unit and the outdoor unit. Connecting the pipes as soon as possible after loosening the cap of the pipes to avoid the entering of water and dust. A metal pipe should be utilized if a pipe should be installed through a wall.

- 1). The connection of the pipes should confirm to the following principles:
- 2). Make sure to lessen the length of connecting pipe, the height difference between the indoor and outdoor unit, and the number of bends, and enlarge the diameter of bends.

The permitted maximum value of each case

Height difference between the indoor and outdoor unit	< 30m
90° Number of bends	< 12
Length of connecting pipes	< 50m

The pipe meld type could be employed for the connection of the pipes between the indoor and outdoor units.

The pipe joint should be tightly connected when a pipe joint is employed between two pipes. It is better to use only one connecting pipe if the distance is not far.

The pipes should not be shriveled when the pipes are connecting. The bend diameter should be longer than 200 millimeter. The connecting pipes should not be extended or curved frequently and the curving process should not be larger than 3 times in the same bending position.

3.3 Specification of Connection Pipe

Model	External Diameter		Maximum Length of Connection Pipe (m)	Maximum Difference in Height between Outdoor and Indoor Unit (m)	Max.No. of elbows. (90°)	Additional Charge of Refrigerant (g/m)
	Gas Pipe (Inch)	Liquid Pipe (Inch)				
FG20/BNa-M	3/4"	3/8"	50	30	12	60
FGR20/BNa-M						
FG25/CNa-M	1"	3/8"	50	30	12	60
FGR25/CNa-M						
FG30/BNa-M	9/8"	1/2"	50	30	12	120
FGR30/BNa-M						
FG40/BNa-M	9/8"	5/8"	50	30	12	170
FGR40/BNa-M						

4 ELECTRIC WIRING WORK

4.1 Wiring Principle

All of the supplied components, material, and electric operation should be accorded with the local principles.

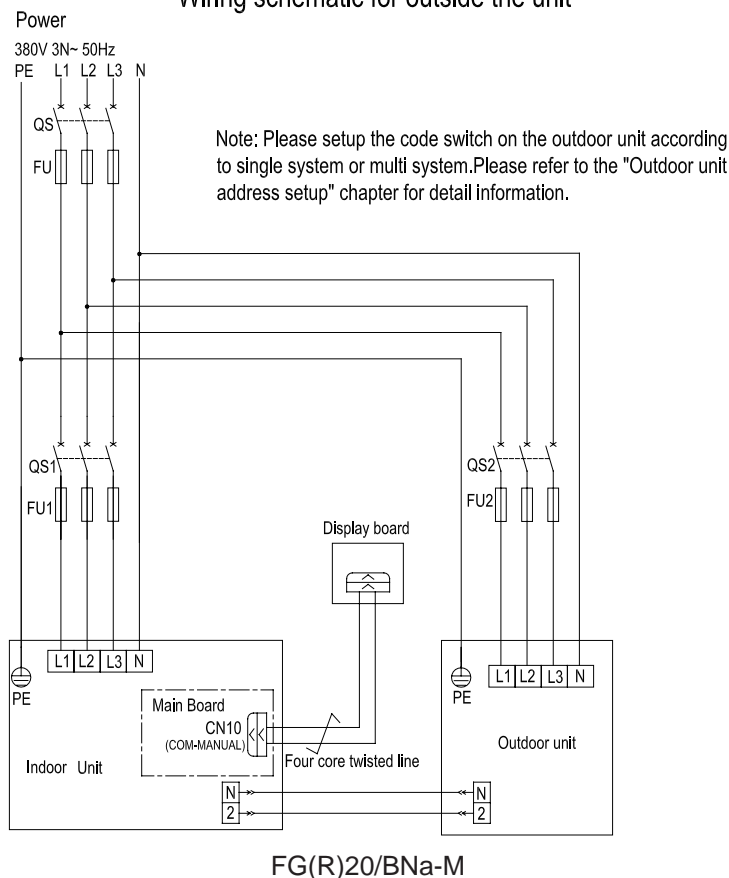
- 1). The power supply should adopt the rated voltage and special circuit for the ducted air-conditioning unit.
- 2). About the electric working, please refer to the "circuit diagram" adhering to the unit.
- 3). All the connection of the circuit should be carried out by the qualified electrician.
- 4). A circuit breaker that can cut all the power supply of the system should be installed. Wiring diagram of the ducted air-conditioning unit is shown in Fig. 32.
- 5). The units should be well earthing to the ground by professionals.
- 6). Install a central switch which can cut all the power switch and air switch of the system.
- 7). The air switch should have hot and magnetic auto-turn-off function to protect the system from overloading or short power.
- 8). Please accord to electrical diagram on the unit when connecting the wires.

Open indoor electric box and outdoor electric box respectively and put the wires cross the electric boxes. Please choose the specification of the power cables according to the power capacity and the installation conditions of the unit. Fix the wires with wire clamp and assemble the electric cover after confirmation.

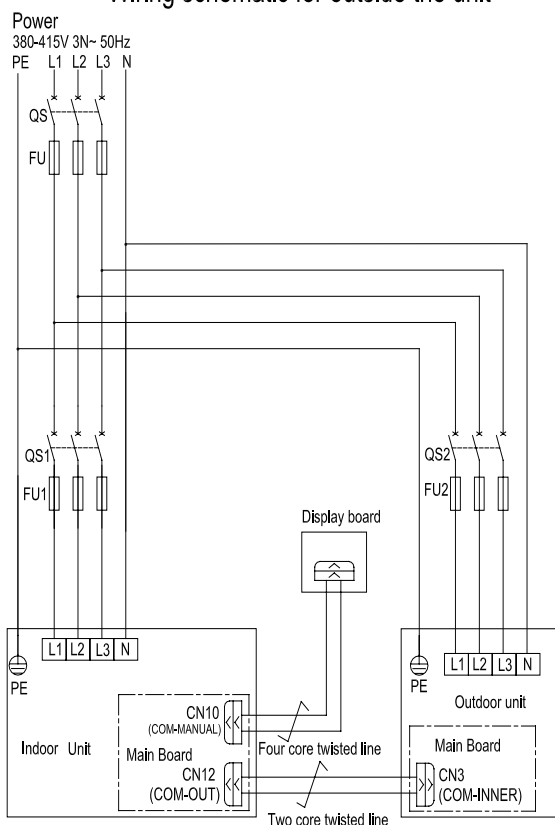
The wiring schematic of the outdoor and indoor unit, please refer to inferior Fig, while the power cord standard and air-switch type, please refer to recommending table.

4.2 Electric Wiring Design

Wiring schematic for outside the unit

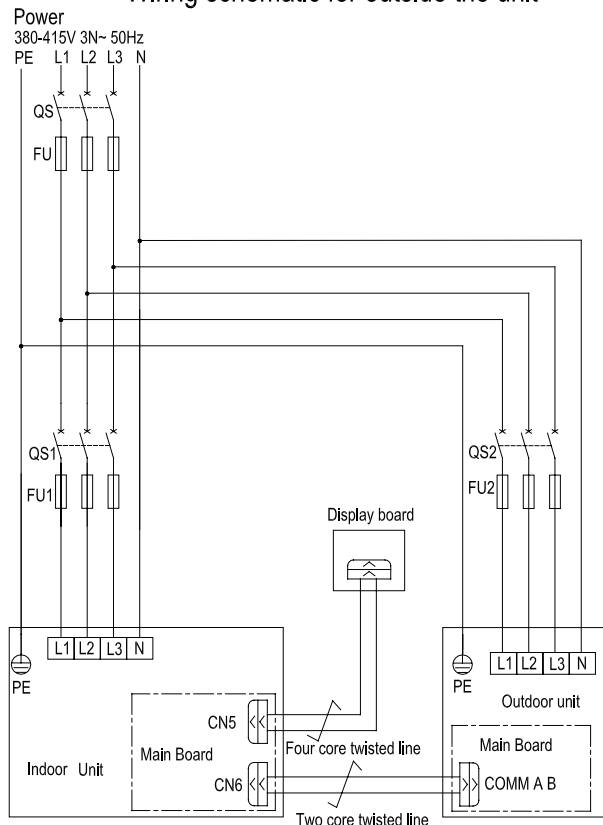


Wiring schematic for outside the unit



FG(R)30/BNa-M

Wiring schematic for outside the unit



FG(R)25/CNa-M, FG(R)40/BNa-M

4.3 Specification of Power Supply Wire and Air Switch

Model	Power Supply	Air Switch (A)	Earthing section(mm ²)	Permit Min section (mm ²)
FGR20/BNa-M(I)	380-415V 3N~ 50Hz	10	H05VV-F 1.5	H05VV-F 1.5
FGR25/CNa-M(I)	380-415V 3N~ 50Hz	10	H05VV-F 1.5	H05VV-F 1.5
FGR30/BNa-M(I)	380-415V 3N~ 50Hz	10	H05VV-F 1.5	H05VV-F 1.5
FGR40/BNa-M(I)	380-415V 3N~ 50Hz	10	H05VV-F 1.5	H05VV-F 1.5
FG20/BNa-M (I)	380-415V 3N~ 50Hz	10	H05VV-F 1.5	H05VV-F 1.5
FG25/CNa-M (I)	380-415V 3N~ 50Hz	10	H05VV-F 1.5	H05VV-F 1.5
FG30/BNa-M (I)	380-415V 3N~ 50Hz	10	H05VV-F 1.5	H05VV-F 1.5
FG40/BNa-M (I)	380-415V 3N~ 50Hz	10	H05VV-F 1.5	H05VV-F 1.5
FG(R)20/BNa-M (O)	380-415V 3N~ 50Hz	25	H05RN-F 4.0	H05RN-F 4.0
FG(R)25/CNa-M (O)	380-415V 3N~ 50Hz	32	H05RN-F 6.0	H05RN-F 6.0
FG(R)30/BNa-M (O)	380-415V 3N~ 50Hz	40	H05RN-F 10.0	H05RN-F 10.0
FG(R)40/BNa-M (O)	380-415V 3N~ 50Hz	40	H05RN-F 10.0	H05RN-F 10.0



MAINTENANCE

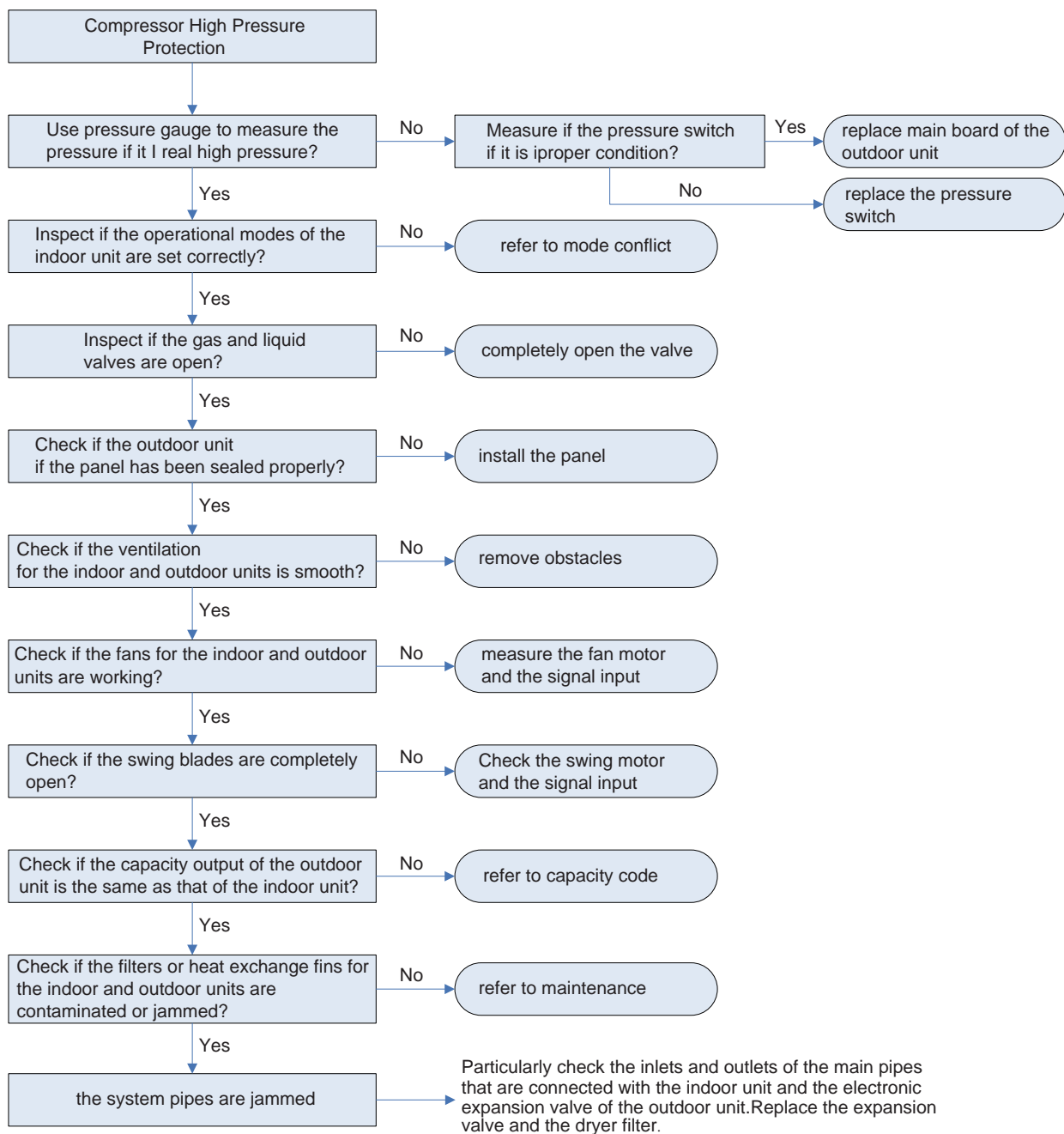
MAINTENANCE

1 TROUBLE TABLE

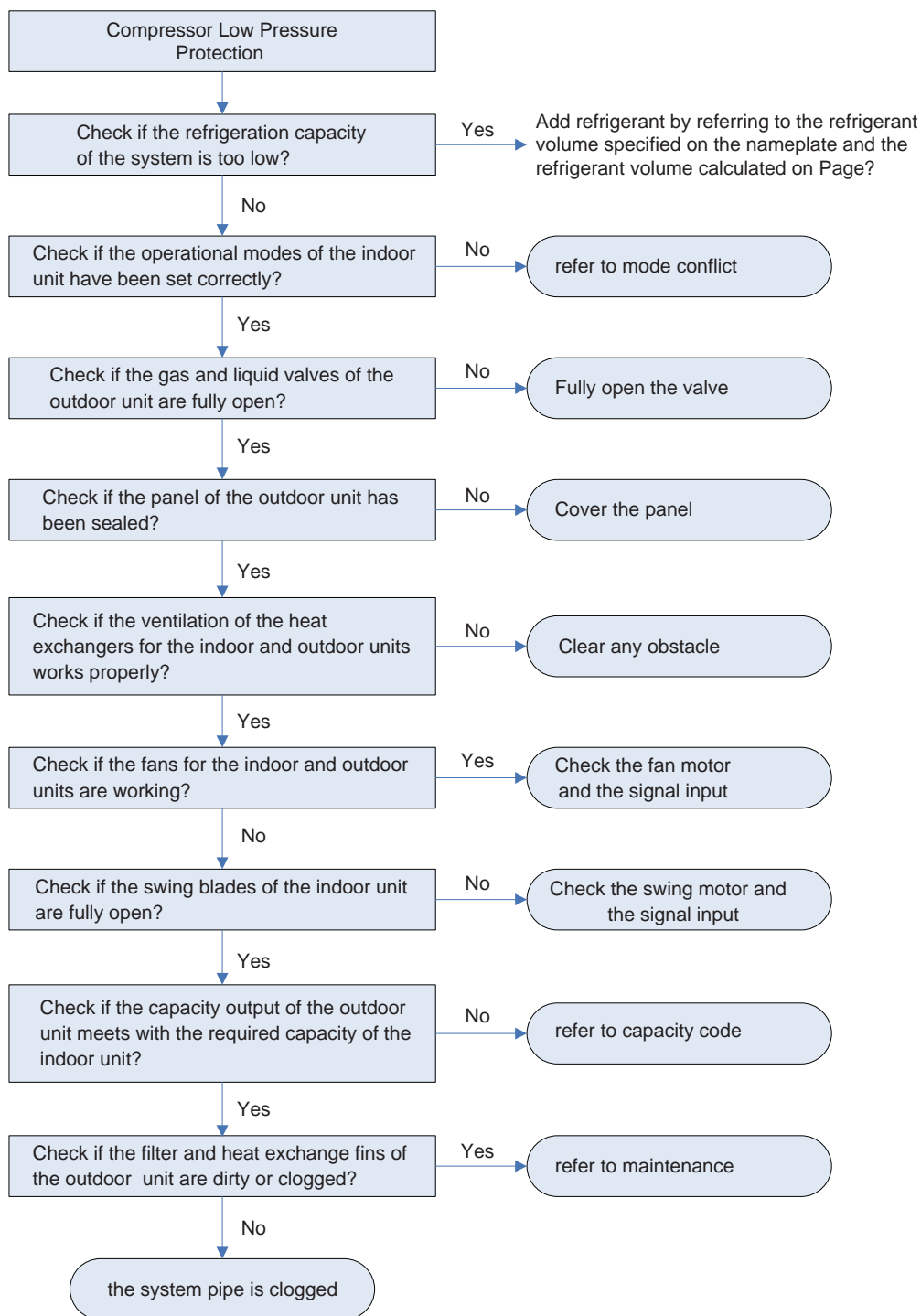
Trouble Code	Trouble Name	Origin of Trouble Signal	Control Description
E1	Compressor High Pressure Protection	High Pressure Switch	When high pressure protection has been detected in continuously 3 seconds, shut off all loadings and shield all buttons and remote control signals. LED blinks and displays E1. The unit cannot recover automatically. Turn off the unit by pressing ON/OFF, clearing "E1" and turning off the LED.
E3	Compressor low pressure protection	Low pressure switch	After 3min running of compressor, detect signal from low pressure switch. If detect that low pressure switch is cut off in continuously 30s, the complete unit will stop and display "E3" while LED blinks. 3min later, if the error has cleared, the complete unit resume running; If the low pressure switch protection has been detected for 3 times during 30min, the LED will blinks and displays "E3". The unit cannot recover automatically which requires pressing ON/OFF, and then clear error code and turn off LED.
E4	Compressor discharge temp. protection	Compressor discharge temp. sensor.	After the running of compressor, if detect that discharge temp. is higher than 130 °C in continuously 30s, it is believed that there is high temp. protection of discharge pipes of compressor. Turn off compressor, external fan and inner fan. LED blinks and displays corresponding error code "E4". After 3min stop of compressor, if detect that the discharge temp. is lower than 90 °C for continuously 5s, the compressor will resume running. Since the first error detected, if detect that there is 3 times of high temp. protection for compressor discharge pipes in 30min, turn off compressor, external fan and inner fan. LED blinks and displays corresponding error code "E4". The unit cannot recover automatically which requires pressing ON/OFF, and then clearing error code and turning off LED.
E5	Overloading Protection of Compressor	Overcurrent Protector	If it is detected that overloading switch is cut off for continuously 3 seconds, it is believed that compressor is in the condition of overloading protection. Turn off compressor and external fan and the LED blinks and displays the corresponding error code E5. After 3 min stop of compressor, if the error has disappeared, the compressor will restart. From the first error detected, if overloading protection of compressor has been detected in 3 times in 30 min, turn off all loads (except for 4-way valve) and shield all buttons and remote control signal except for ON/OFF button. Then LED will blink and display the corresponding error code E5 and the complete unit cannot be automatically recovered After turning off the unit by press ON/OFF button, if the error disappears, clear the error code and turn off the LED.
E6	Communication malfunction	Terminal COM	After energization, if outdoor unit continuously shows that there is not any feedback from indoor unit's mainboard, communication malfunction occurs. In this case, compressor will be stop and E6 will be displayed. After that, outdoor fan stops. If heating, the 4 way valve will stop after the compressor stops for adequate time. If the indoor unit hasn't received information from outdoor unit for a period of time, communication malfunction occurs. In this case, indoor unit stop (during heating, E-heater stopped firstly and the indoor fan blows residual heat). If the display board hasn't received information from indoor unit for a period of time, communication malfunction occurs. In this case, malfunction code is displayed and the unit won't act.
E9	Indoor fan protection	Fan's motor switch or thermal relay	After startup of indoor fan if overloading information of fan breaks for a period of time, all loads will stop and E9 will be displayed.
F0	Indoor ambient temp. sensor error	Indoor ambient temp. sensor	If detect that AD value exceeds 250(short circuit with corresponding temp. 160 °C) or less than 5 (open circuit with corresponding temp about -45 °C), it is believed that there is error of temp. sensor.
F1	Temp. sensor error of indoor evaporator	Temp. sensor of indoor evaporator	If detect that AD value exceeds 250(short circuit with corresponding temp. 160 °C) or less than 5 (open circuit with corresponding temp about -45 °C), it is believed that there is error of temp. sensor.
F2	Tube sensor error for outdoor condensator	Tube sensor for outdoor condensator	If detect that AD value exceeds 250(short circuit with corresponding temp. 160 °C) or less than 5 (open circuit with corresponding temp about -45 °C), it is believed that there is error of temp. sensor.
F3	Outdoor ambient temp. sensor error	Outdoor ambient temp. sensor	If detect that AD value exceeds 250(short circuit with corresponding temp. 160 °C) or less than 5 (open circuit with corresponding temp about -45 °C), it is believed that there is error of temp. sensor.
F4	Discharge temp. sensor error	Discharge temp. sensor	If detect that AD value exceeds 250(short circuit with corresponding temp. 160 °C) or less than 5 (open circuit with corresponding temp -45 °C), it is believed that there is error of temp. sensor.

2 FLOW CHART OF TROUBLESHOOTING

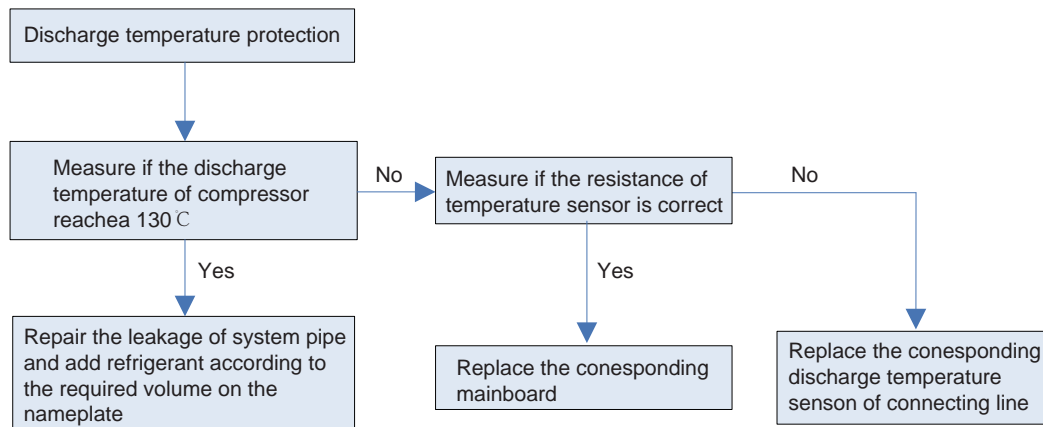
2.1 High Pressure Protection



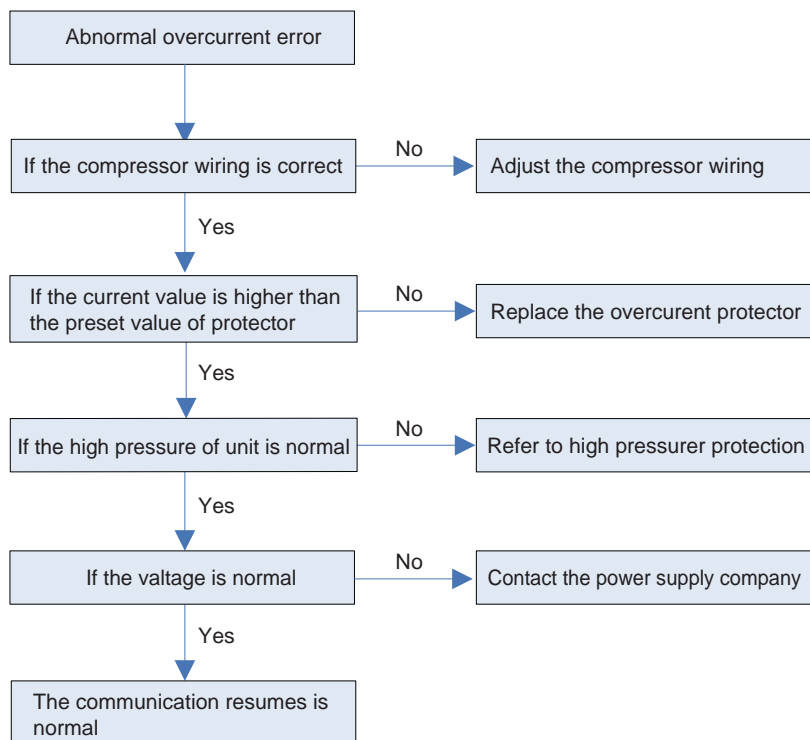
2.2 Low Pressure Protection



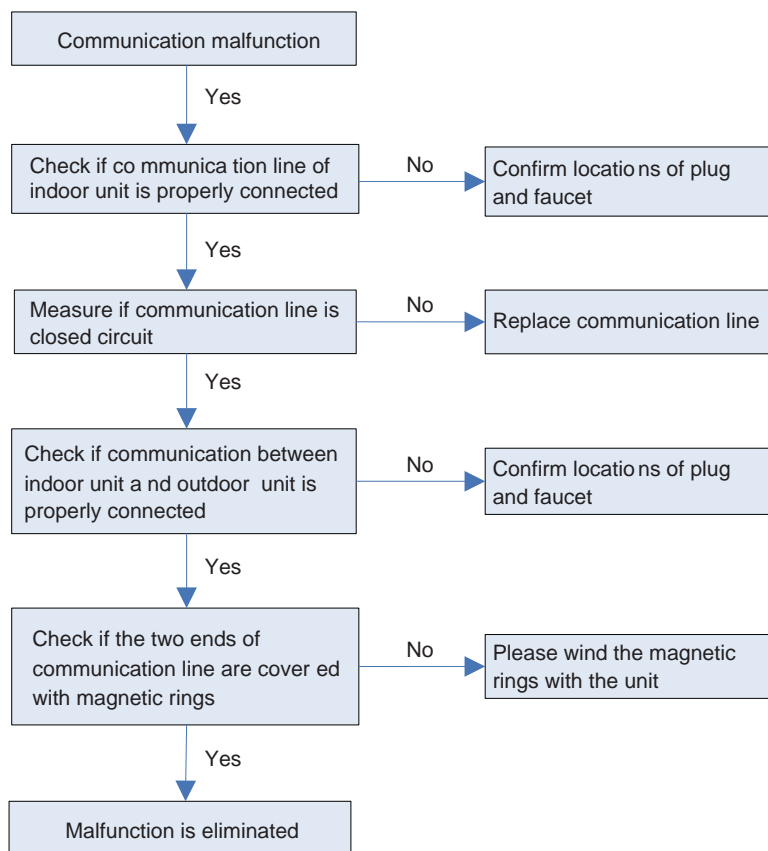
2.3 Discharge protection



2.4 Overcurrent Protection



2.5 Communication Malfunction

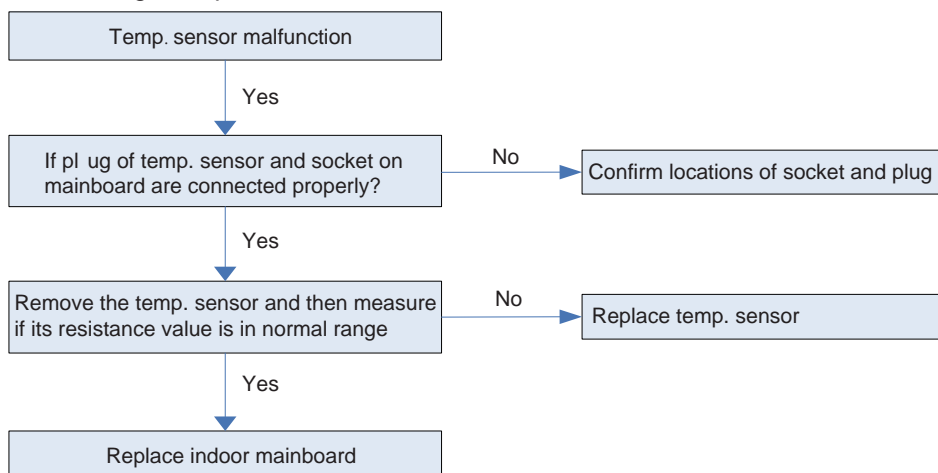


2.6 Temperature sensor malfunction

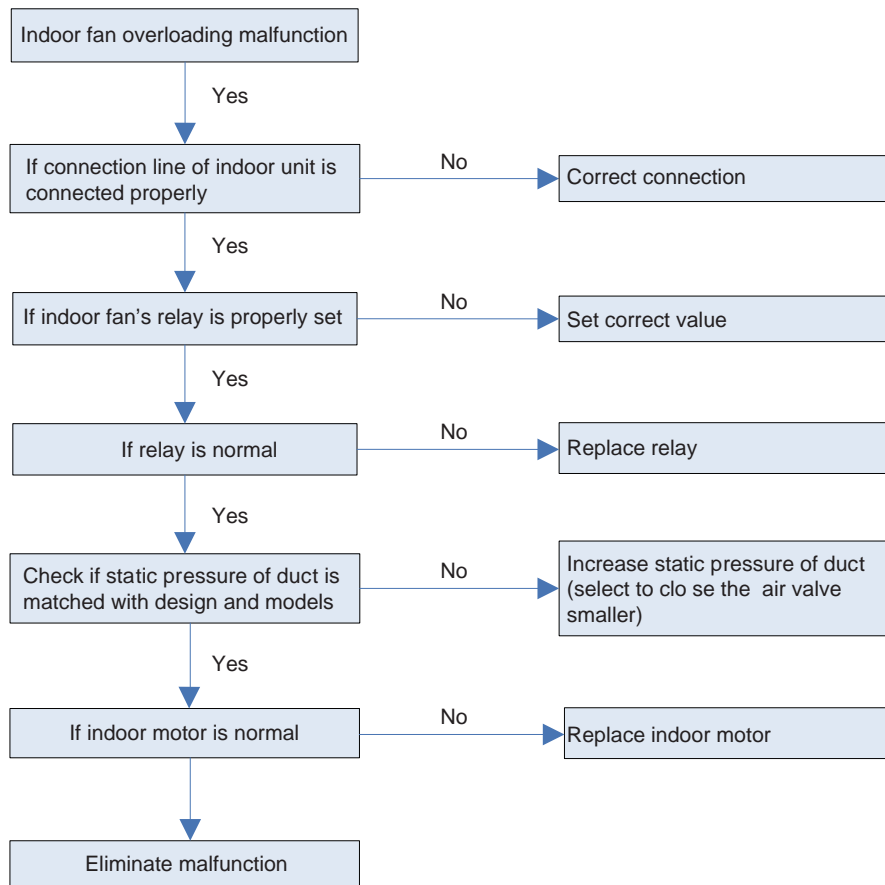
F2 condenser temperature sensor malfunction

F3 outdoor temperature sensor malfunction

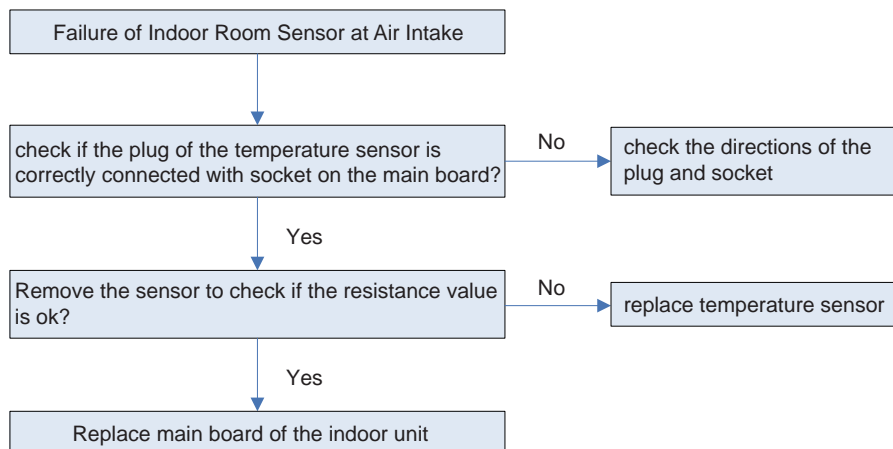
F4 discharge temperature sensor malfunction



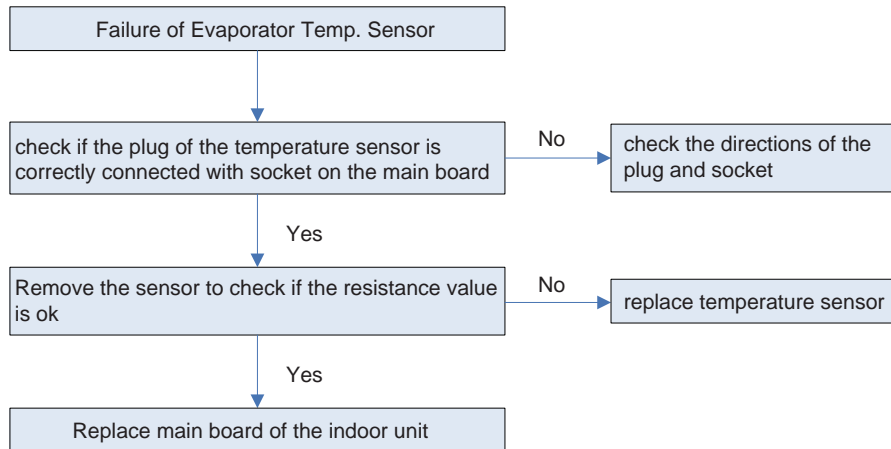
2.7 Indoor Fan Overloading Protection



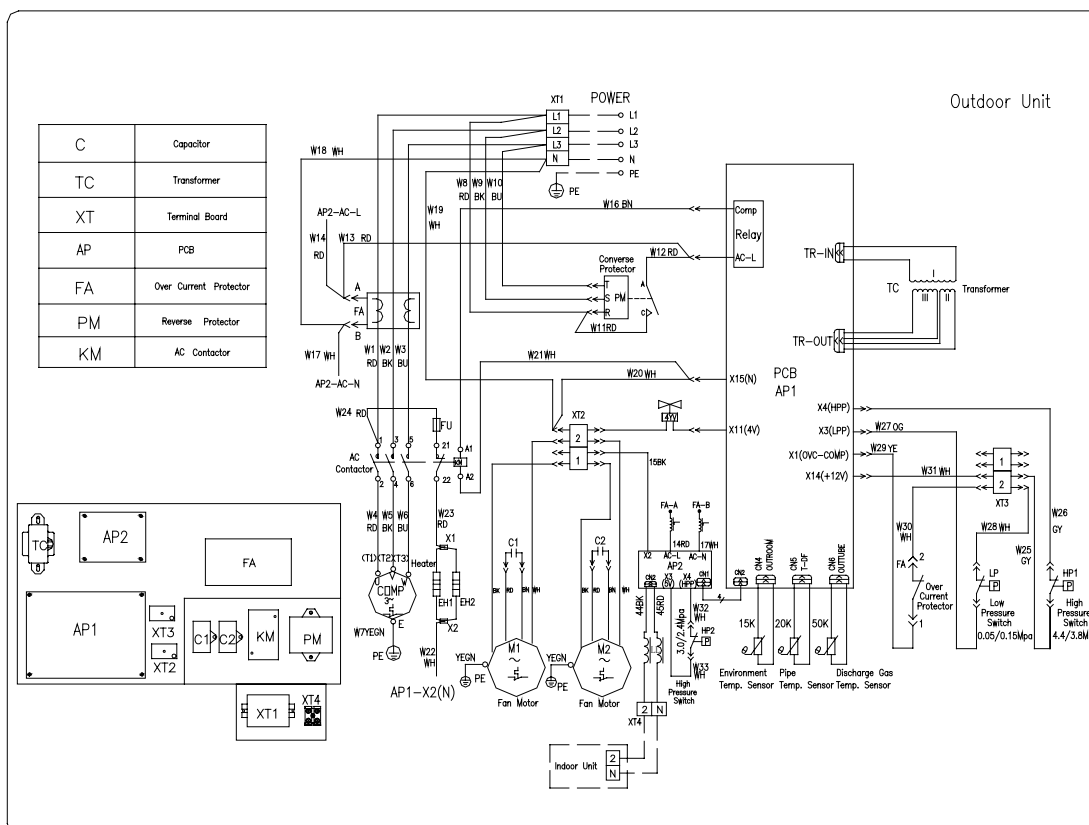
2.8 F0 Failure of Indoor Room Sensor at Air Intake



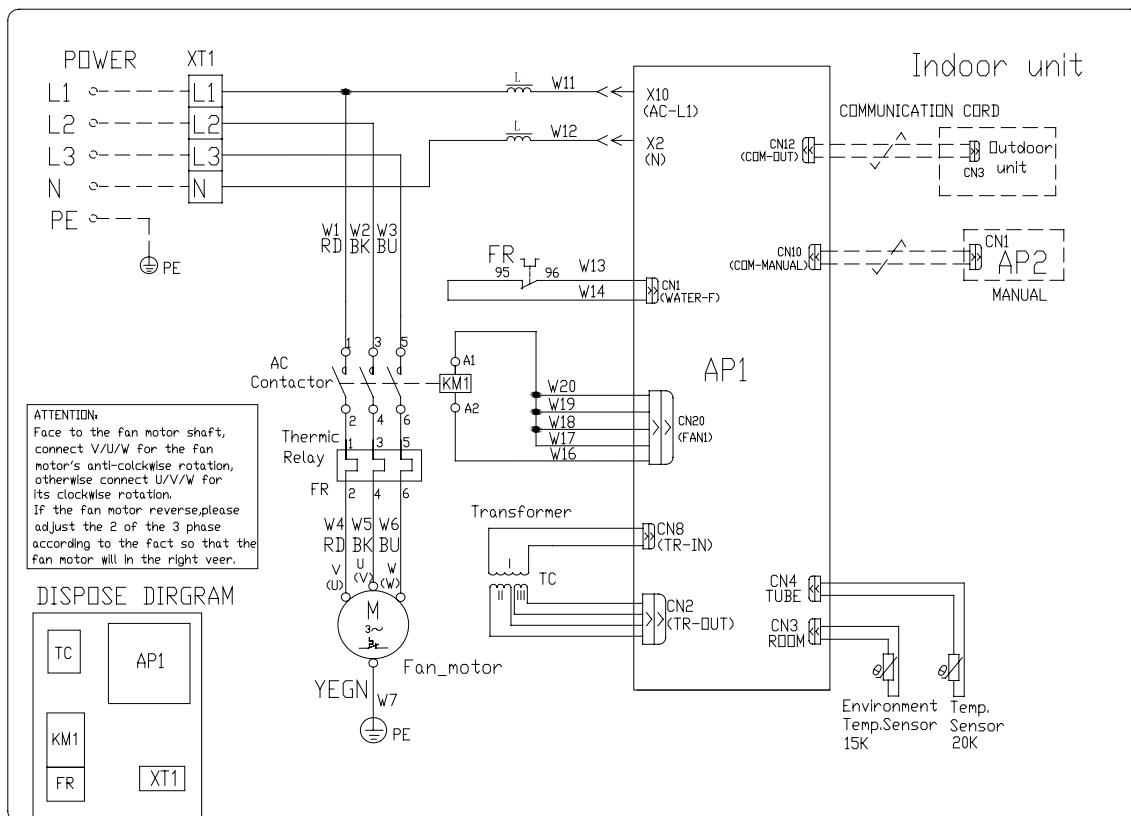
2.9 F1 Failure of Evaporator Temp. Sensor



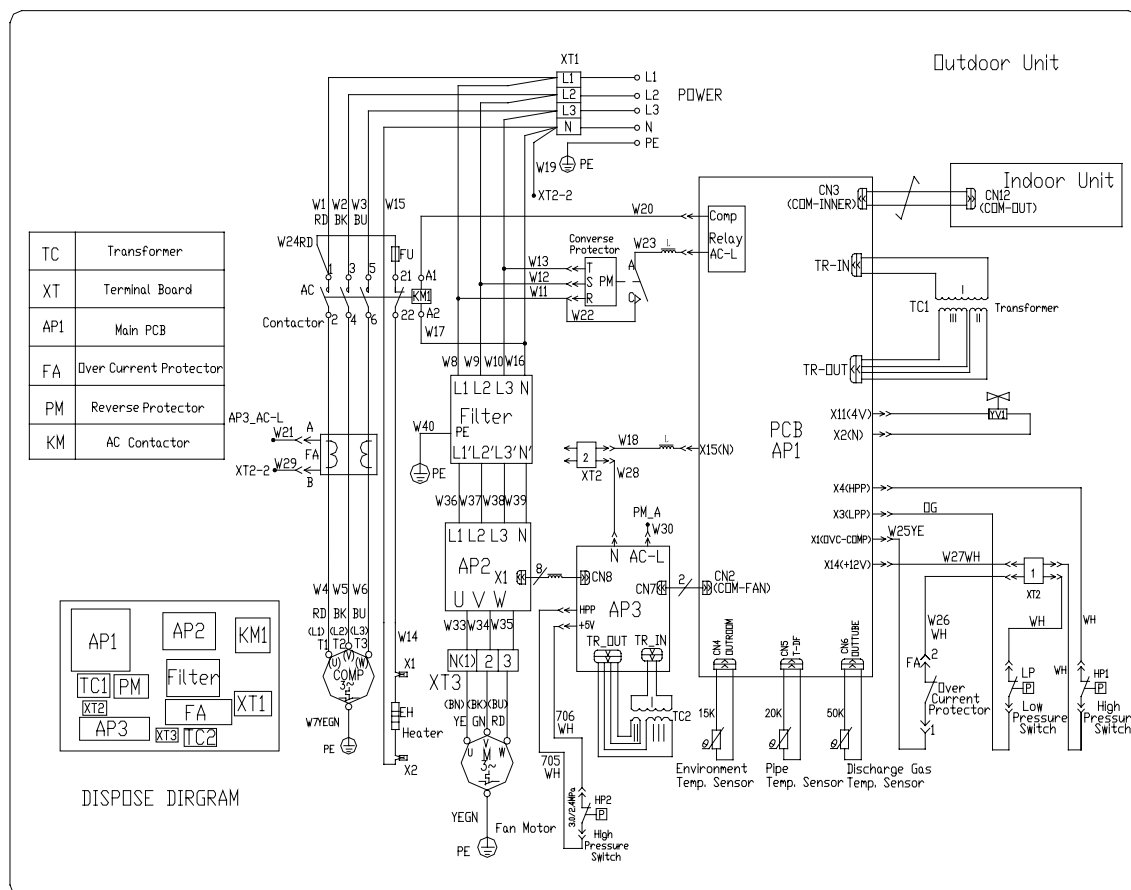
FGR20/BNa-M(I)



FGR30/BNa-M(I)


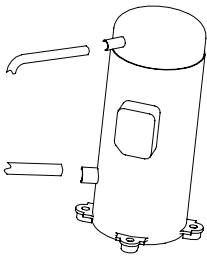
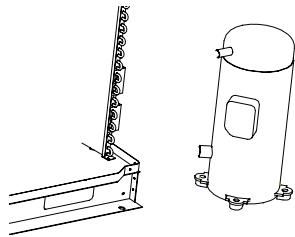
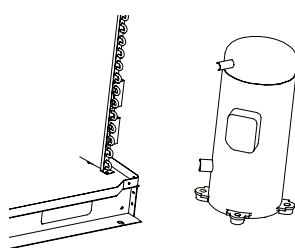
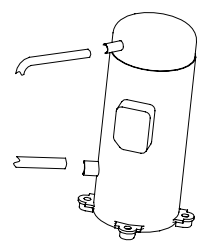
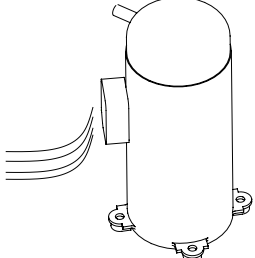


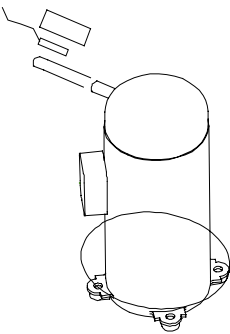
FGR30/BNa-M(O)

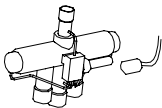
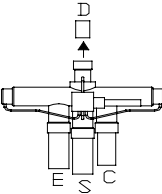
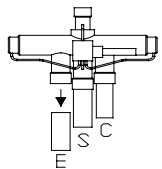
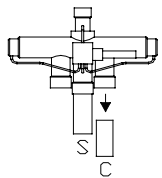
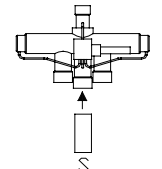
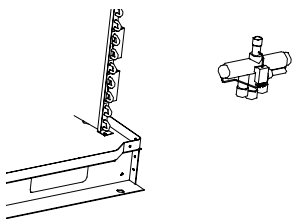


4 DISASSEMBLY AND ASSEMBLY PROCEDURE OF MAIN PARTS

Introduction to Main Parts

Disassembly and Assembly of Compressor		
Remark: Make sure that there isn't any refrigerant in pipe system and the power supply is cut off before removal of the compressor.		
Step	Illustration	Handling Instruction
1. Disconnect the power cord	 <p>Earmark the colour of wire corresponding to the terminal</p>	<p>① Unscrew the retaining screw of power cord with screwdriver. ② Unplug the power cord.</p> <p>Note: Earmark the colour of wire corresponding to the terminal when Removing the wire, and the mixture can be avoided when recovering the wire connection.</p>
2. Cut off the connection between compressor and pipes	 <p>Don't leave the welding slag inside pipes.</p>	
3. Remove the compressor from the chassis	 <p>Hold it tightly to avoid accident.</p>	<p>① Unscrew retaining nuts of the footing of compressor. ② Remove the compressor from the chassis.</p>
4. Fix the new compressor on chassis	 <p>Hold it tightly to avoid accident.</p>	<p>① Place the new compressor on chassis. ② Fix retaining nuts of compressor footing.</p>
5. Connect the compressor with system pipes	 <p>Don't block it by welding.</p>	
6. Connect the power cord of compressor	 <p>Note: Earmark the colour of wire corresponding to the terminal when connecting the wire, and the mixture can be avoided.</p>	

7. Recover the electric heating tape of compressor and discharge temperature sensor,etc.		Enwind the bottom of compressor with electric heating tape and fix it.
8. Check if the compressor rotates in reverse and if lubricant have leaked		Check if the wiring is correct with reference to circuit diagram and check if there is any leakage after welding.

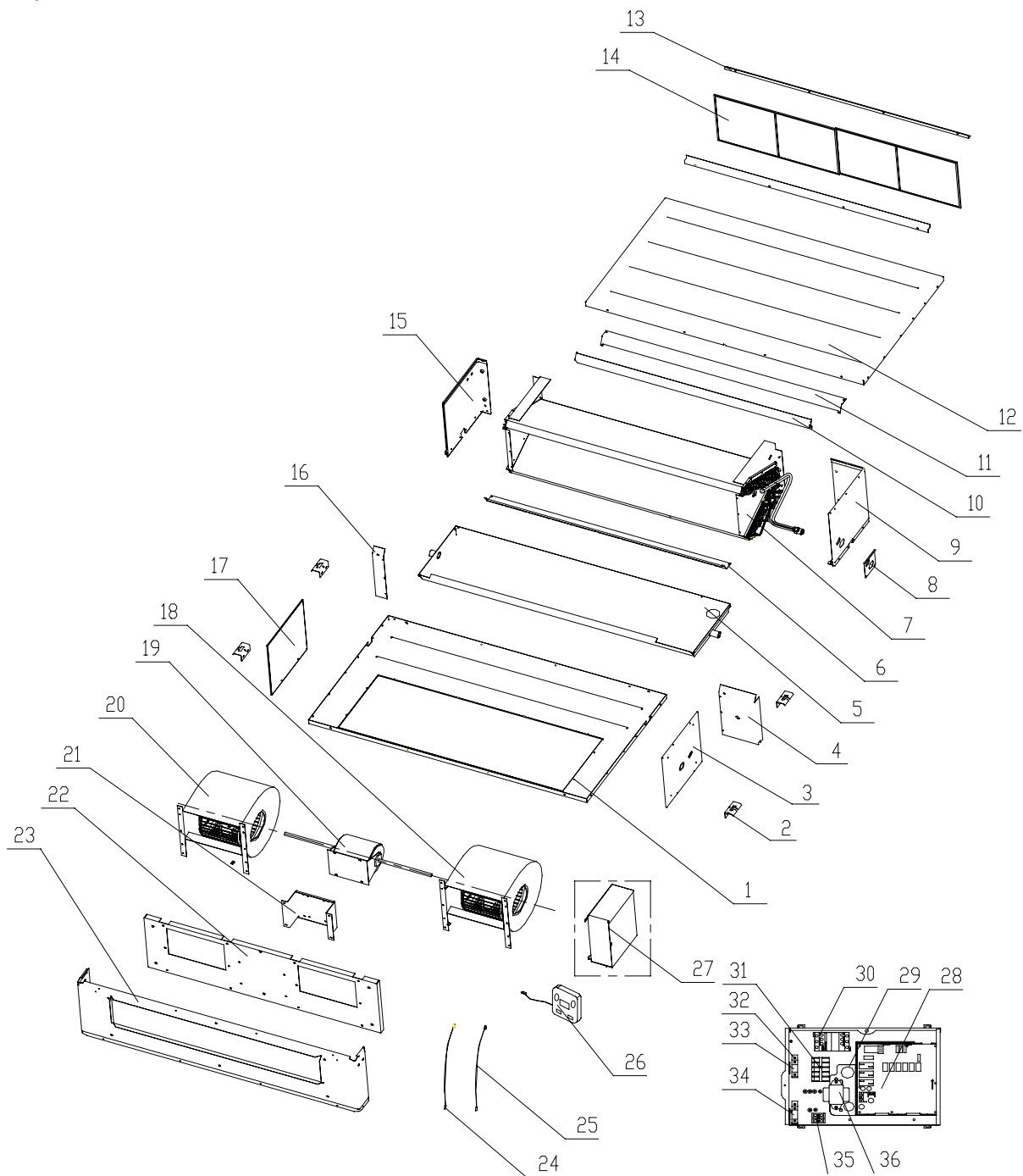
Disassembly and Assembly of 4-way valve		
Remark: Make sure that there isn't any refrigerant in pipe system and the power supply is cut off before removal of 4-way valve.		
Step	Illustration	Handling Instruction
Remove electric coils of 4-way valve		Place electric coils far away from the 4-way valve to prevent the connecting line of 4-way valve from burning when succeeding welding.
Disconnect the pipe (site D in illustration) of 4-way valve and ischarge pipe		Don't leave welding slag inside pipes.
Disconnect the pipe (site E in illustration) of 4-way valve and connecting pipe		Don't leave welding slag inside pipes.
Disconnect the pipe (site C in illustration) of 4-valve and connecting pipe		Don't leave welding slag inside pipes.
Disconnect the pipe (site S in illustration) of 4-way valve and connecting pipe		Don't leave welding slag inside pipes.
Remove the 4-way valve		Remove 4-way valve after it is cooled.
Install new 4-way valve in reversed order and wrap it with wet cloth before welding.		

5 EXPLODED VIEWS AND PART LIST

5.1 Indoor Unit

1) Model: FGR20/BNa-M(I)

Exploded View:

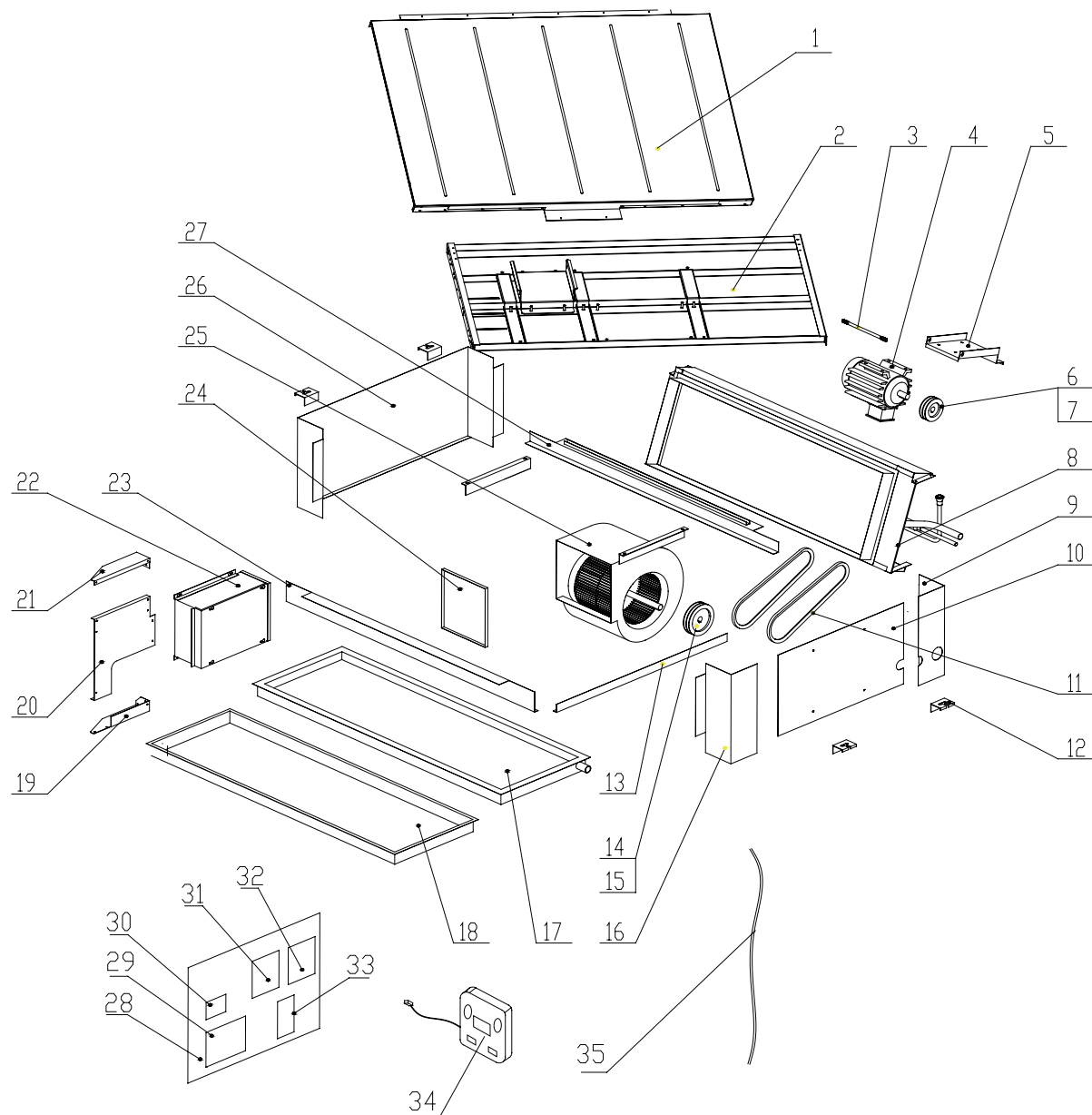


Parts List:

No.	Names	Material code	Qty.
1	Bottom Cover Assy	01265357	1
2	Hook	02112466	4
3	Right Side Plate 1	01315378	1
4	airproof Panel 1	01345218	1
5	Water Tray Panel Assy	01285283	1
6	Evaporator Bottom side	01095271	1
7	Evaporator Assy	01025356	1
8	Seal of Connection Pipe Plate	01495241	1
9	Right Side Plate 2	01315370	1
10	Evaporator top side	01095270	1
11	Evaporator Back side	01095272	1
12	Top Cover Assy	01265359	1
13	air filter Panel	02285220	2
14	air filter	11725211	2
15	Left Side Plate 2	01315367	1
16	airproof Panel 2	01345219	1
17	Left Side Plate 1	01315376	1
18	Fan (left) SYP-250/190J-1	15705306	1
19	Motor FG1200A	15705229	1
20	Fan (right) SYP-250/190J-1	15705307	1
21	Motor support Plate	01805381	1
22	Fan Fixed Plate	01325325	1
23	Front Side Plate	01315373	1
24	temp.sensor (15K)	3900012123	1
25	temp.sensor (20K)	3900012121	1
26	Display board Z4E351A	30294219	1
27	Electric Box	01395679	1
28	Main PCB Z4E35A	30224056	1
29	Original PCB Mounting Plate Sub-Assy	01845221	1
30	AC Contactor LC1D12M7C	44010232	1
31	Terminal Board (5 unit)	42010194	1
32	Isolation Washer	70410503	2
33	Wire Clamp	71010102	1
34	Wire Clamp	02141009	1
35	Terminal Board (2 unit)	420101851	1
36	Transformer 54X25C	43110239	1

2) Model: FGR25/CNa-M(I)

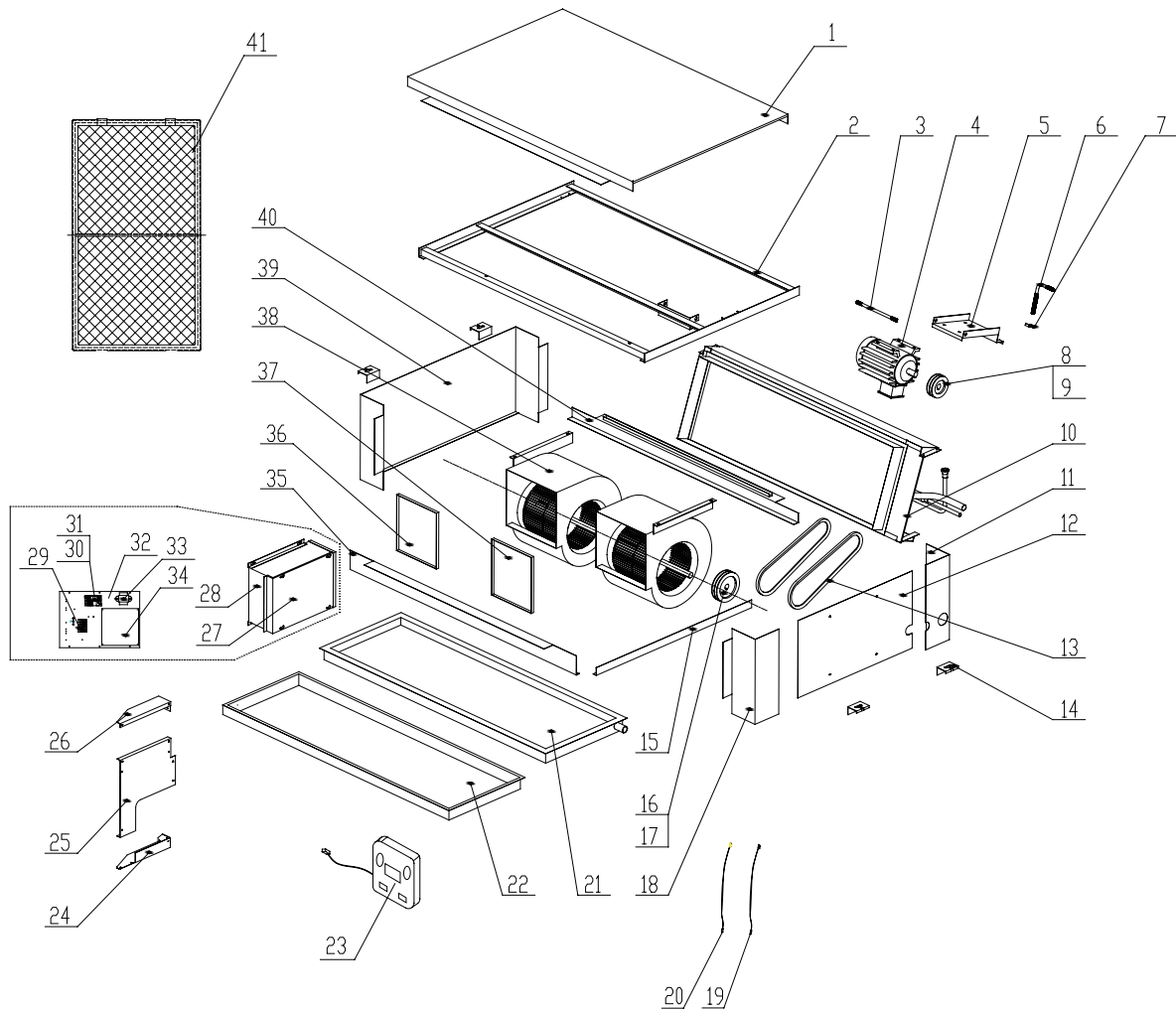
Exploded View:



No.	Names	Material code	Qty.
1	Top Cover Sub-Assy	01265352	1
2	SupportSteelBar	01805367	1
3	rotate axletree	10549057	1
4	Fan Motor for indoor unit	1501861102	1
5	Motor Fixed Board	01845223	1
6	Belt Pulley	10548150	1
7	Taper Sleeve	10548213	1
8	Condenser assy and evaporator assy	01025344	1
9	Right Side Plate Sub-Assy 1	01315319	1
10	overhauling side	01545322	1
11	Belt SPA	76318341	2
12	Hook	02205302	4
13	Side beam sub-assy	01874179	1
14	Belt Pulley	10548156	1
15	Taper Sleeve	10548218	1
16	Right Side Plate 2	01315350	1
17	FrontPanel_OutsideMachine	01284142	1
18	MetalBase	01194136	1
19	Electric Box fixity 3	01749058	1
20	Electric Box fixity 2	01749057	1
21	Electric Box fixity 1	01749056	1
22	Electric Box	01394921	1
23	back girder	01875330	1
24	place with a draught of Connection board	1375225	2
25	Fan Motor Sub-assy	15705225	1
26	Left Side Plate Sub-Assy	1315383	1
27	front girder	01779106	1
28	Electric Fixed Plate	01339099	1
29	Main Board	30224217	1
30	Terminal Board	42011257	1
31	AC Contactor	44010232	1
32	Thermorelay	44020362	1
33	Wired controller	30294219	1
34	Transformer	43110239	1
35	Twin Pair Signal Cable	40010232	1

3) Model: FGR30/BNa-M(I)

Exploded View:

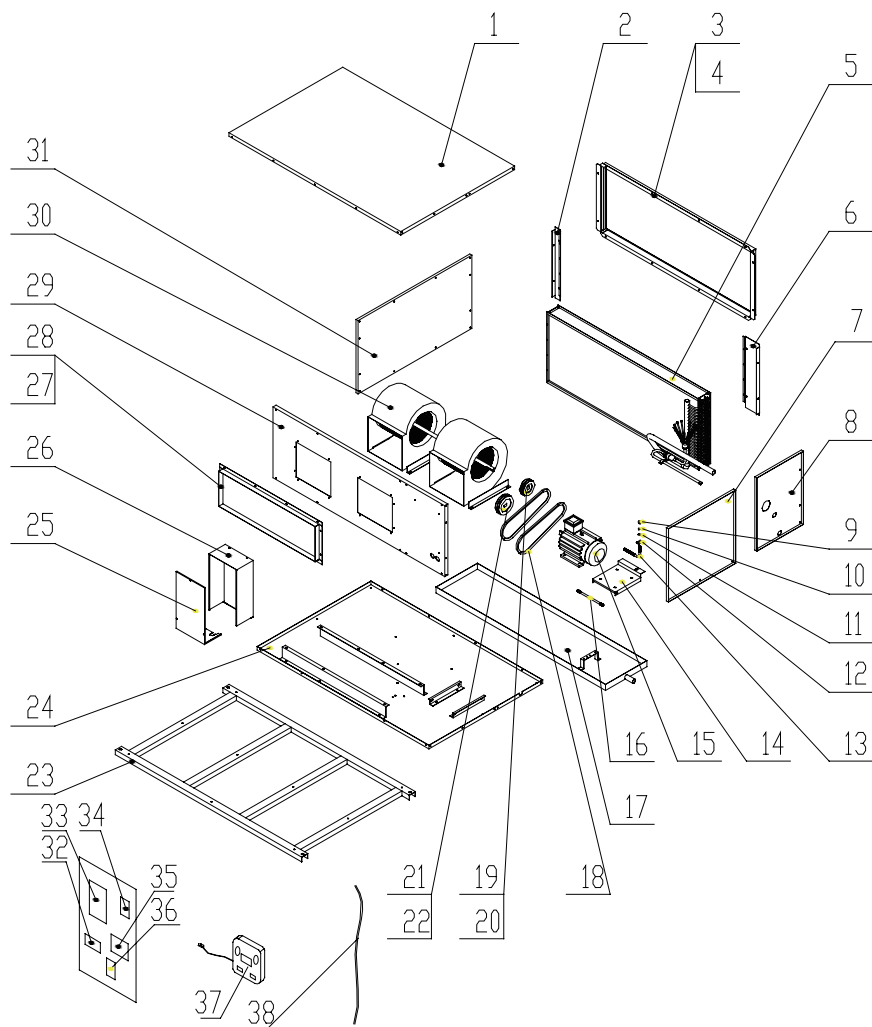


Parts List:

No.	Names	Material code	Qty.
1	Top Cover	01259106	1
2	suspending rack	01729165	1
3	rotate axletree	10549057	1
4	Motor SW1500A	15018303	1
5	Fan Fixed Plate	01845309	1
6	measure staff	02169050	1
7	Hook	02139056	1
8	strap wheel 2-SPA112	10548152	1
9	cone sheath 1610-24	10548211	1
10	Evaporator Assy	01025208	1
11	Right Side Plate	01315319	1
12	overhauling side	01539148	1
13	strap	76318317	2
14	Hook	02205302	4
15	Side girder	01875301	1
16	strap wheel 2-SPA140	10548156	1
17	cone sheath 2012-25	10548218	1
18	Right Side Plate	01309105	1
19	temp.sensor (15K)	390001913	1
20	temp.sensor (20K)	3900020720	1
21	Water Tray	01285309	1
22	Metal Base	01285312	1
23	Display Board	30294219	1
24	Electric Box fixity1	01749056	1
25	Electric Box fixity2	01749057	1
26	Electric Box fixity3	01749058	1
27	cover of the Electric Box	01419141	1
28	Electric Box Sub-Assy	01399145	1
29	Terminal Board	42010194	1
30	Overcheater Protector	44020347	1
31	AC Contactor	44010232	1
32	Electric Fixed Plate	01325321	1
33	Transformer 54X25C	43110239	1
34	Main PCB Z4E35A	30224056	1
35	back girder	01779108	1
36	place with a draught of Connection board 1	01389077	1
37	place with a draught of Connection board 2	01389079	1
38	Fan SYT10-10L2	15009059	1
39	Right Side Plate	01315312	1
40	front girder	01779106	1
41	Filter Sub-Assy	11129070	2

4) Model: FGR40/BNa-M(I)

Exploded View:



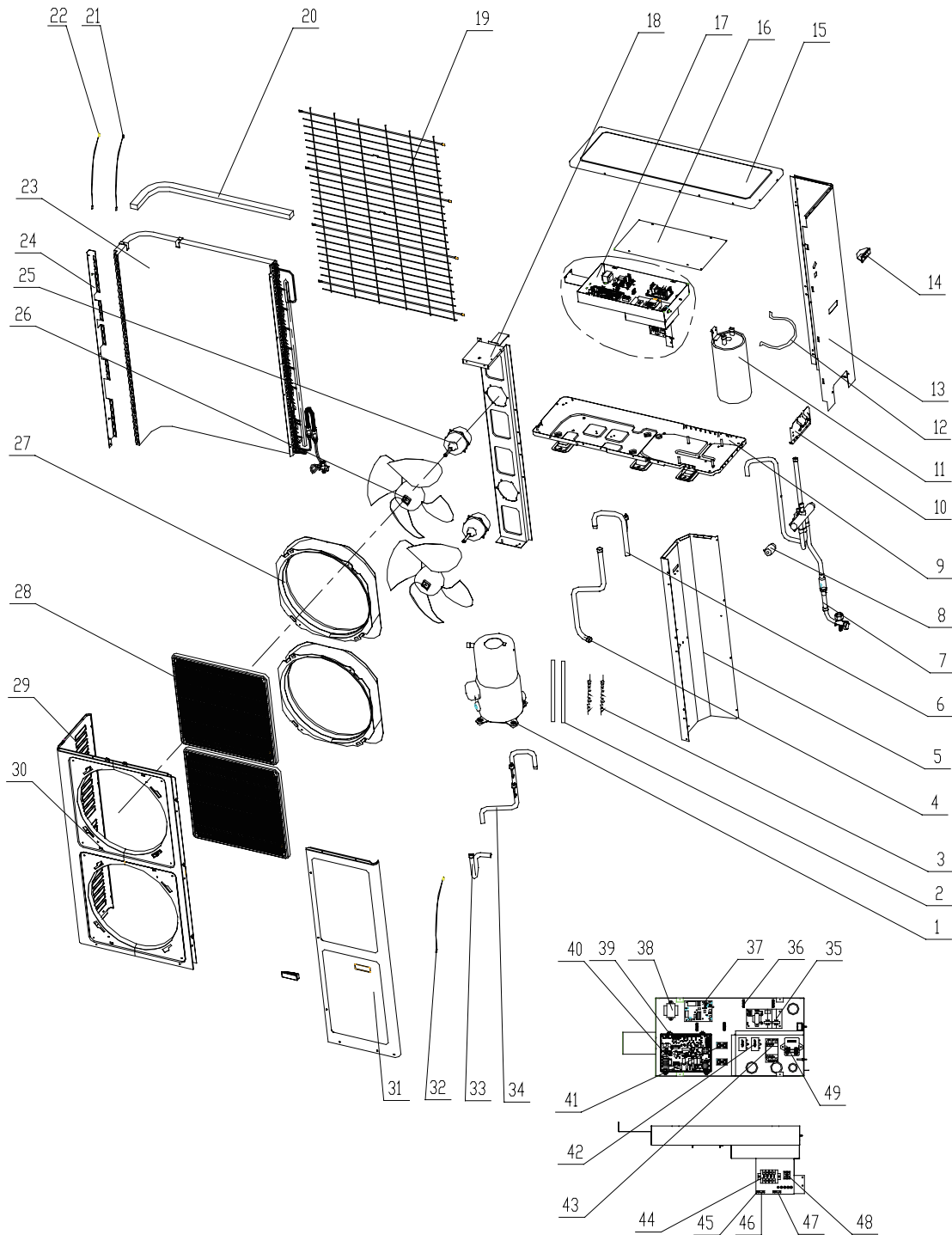
Parts List:

No.	Names	Product Code	Qty.
1	Top Cover Sub-Assy	01265209	1
2	Retaining Plate Sub-Assy	01845205	1
3	Return Air Frame Sub-Assy	01375208P	2
4	Return Air Frame Sub-Assy	01875208P	2
5	Evaporator Assy	01025362	1
6	Retaining Plate Sub-Assy	01845207	1
7	Side Panel Sub-Assy	01545212	1
8	Side Panel Sub-Assy	01545210	1
9	Nut	70310116	6
10	Washer	70410309	6
11	Washer	70410312	4
12	Hook	02139056	1
13	Sheet Metal Piece	02169050	1
14	Retaining Plate	01845319	1
15	Fan Motor	15014805	1
16	rotate axletree	10549057	1
17	Water Collecting Tray Sub-Assy	01285220P	1
18	Belt SPA	76318309	2
19	Belt Pulley	10548149	1
20	Taper Sleeve 1610-28	10548213	1
21	Belt Pulley	10548155	1
22	Taper Sleeve	10548218	1
23	Sheet Metal Piece	01805212P	1
24	Base Plate Sub-Assy	01285222P	1
25	Electric Box Cover Plate	01425304P	1
26	Electric Box Sub-Assy	01395346	1
27	Air Outlet Frame	01375210P	2
28	Air Outlet Side Board	01375209P	2
29	Frame Plate Sub-Assy	01545213	1
30	Fan Motor Sub-assy	15705214	1
31	Side Panel Sub-Assy	01545208	1
32	Terminal Board	42011043	1
33	Main Board	30224217	1
34	Transformer	43110239	1
35	Thermal Overload Relay	44020362	1
36	AC contactor	44010232	1
37	Display Board	30294219	1
38	Twin Pair Signal Cable	4011014008	1

5.2 Outdoor Unit

1) Model: FGR20/BNa-M(O)

Exploded View:



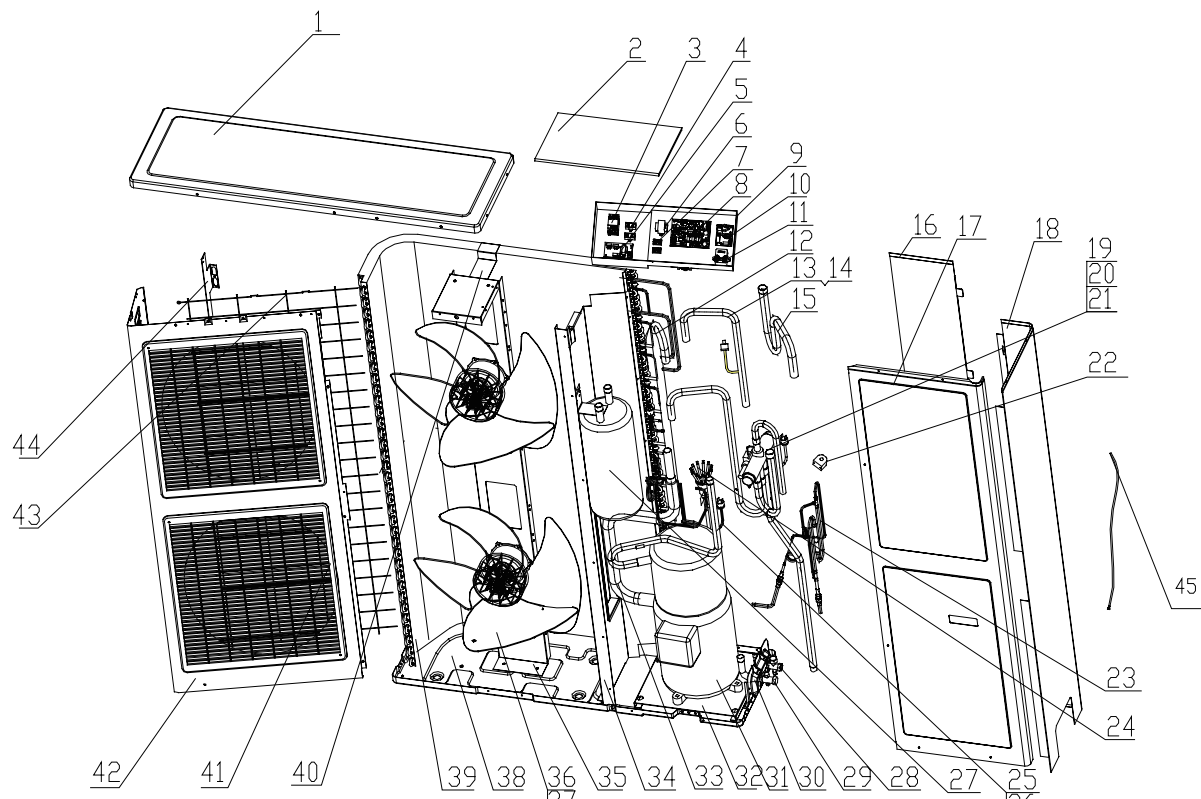
Parts List:

No.	Names	Material code	Qty.
1	Compressor SH090A4ALB	00205243	1
2	electricity calefaction strip	76515211	2
3	spring	73028761	2
4	Inhalation Tube Sub	04655491	1

5	Isolation Plate	01245248	1
6	Inhalation Tube Sub-Assy	04675410	1
7	4-way Valve Sub-Assy	04145324	1
8	electromagnetism loop	430004008	1
9	Chassis Sub-assy	01195239P	1
10	Valve Support	01715001	1
11	Gas-liquid Separator	07228767	1
12	Gas-liquid Separator nip	02264107	1
13	Back Side Plate Sub-Assy	01314207P	1
14	Handle	26235253	2
15	Top Cover	01258730	1
16	Electric Box Cover	01264157	1
17	Electric Box	01395676	1
18	Motor support Plate	01804174	1
19	Protection Grill	01574101	1
20	sponge	12204705	1
21	temp.sensor (20K)	390001923	1
22	temp.sensor (15K)	390002063	1
23	Condenser Sub-Assy	01125354	1
24	fixation Plate	01845227	1
25	Motor LW92E	15705701	2
26	Axial Flow Fan	10338701	2
27	Streamlined Dome 2	26904120	2
28	Grill	26904119	2
29	Left Side Plate	01314163P	1
30	Front Plate	01514101P	1
31	Front Side Plate	01314205P	1
32	temp.sensor (50K)	3900012129	1
33	Discharge Tube Sub-Assy 1	04635732	1
34	Discharge Tube Sub-Assy	04635409	1
35	Over Current Protector UO-10-16A/16A	46020103	1
36	Plastic nip	71011021	4
37	Main PCB ZS401D	30224211	1
38	Transformer SC28B2	43110171	1
39	Original PCB Mounting Plate Sub-Assy	01845323	1
40	Main PCB WZ4E35	30224058	1
41	Terminal Board (2 unit)	42011103	2
42	Capcator CBB61 4uF 500V	33010013	2
43	AC Contactor LC1D25M7C	44010213	1
44	Terminal Board T480C	42011043	1
45	Isolation Washer	70410503	2
46	Wire Clamp	71010102	1
47	Wire Clamp	02141009	1
48	Terminal Board (2 unit)	420101851	1
49	Phase Reverse Protector (380V)	46020052	1

2) Model: FGR25/CNa-M(O)

Exploded View:



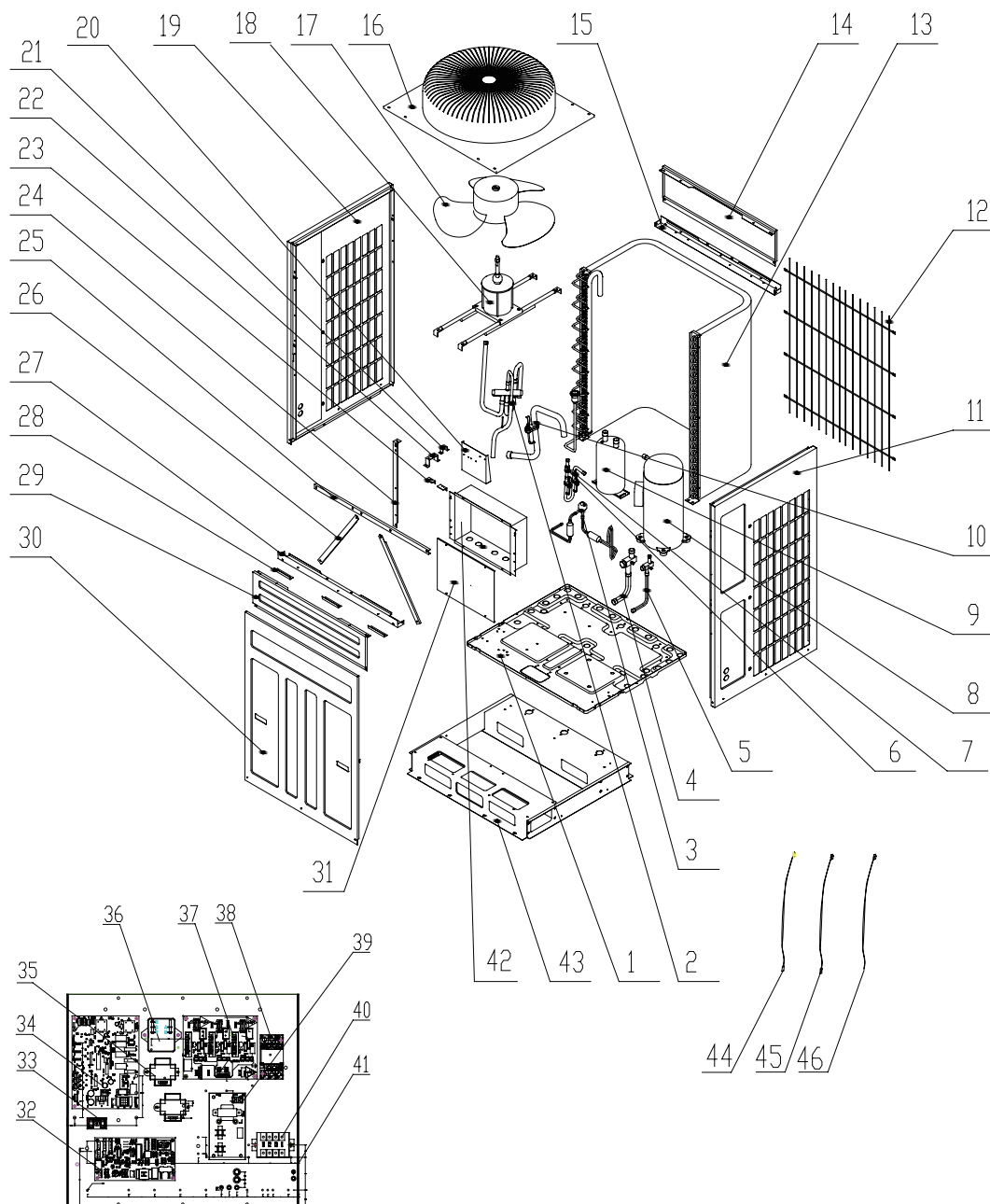
Parts List:

No.	Names	Material code	Qty.
1	top cover	01258730	1
2	electric box cover	01424002	1
3	AC contactor	44010213	1
4	capacitance	33010013	1
5	over current protector	46020114	1
6	transformer	4311023302	1
7	terminal board	42011043	1
8	main board	30224309	1
9	electric box assy	01395796	1
10	main board	30224211	1
11	phase reverse protector	46020052	1
12	collecting gas pipe sub-assy	04675386	1
13	inhalation tube sub-assy	04675388	1
14	low pressure switch	460200157	1
15	connection pipe sub-assy	05025619	1
16	rear side plate sub-assy	01315359P	1
17	front side plate	01308730	1
18	rear side plate sub-assy	01315358P	1
19	4-way valve sub-assy	04145316	1

20	4-way valve	43000413	1
21	4-way valve fittings	4300040043	1
22	pressure protect switch	460200156	1
23	capillary sub-assy	04105332	1
24	collecting liquid pipe sub-assy	04325563	1
25	discharge tube sub-assy	04635380	1
26	pressure protect switch	4602001547	1
27	gas-liquid separator	07424141	1
28	cut-off valve	07130212	1
29	cut-off valve	07130209	1
30	valve support sub-assy	01715402	1
31	compressor	00205238	1
32	retaining plate sub-assy	01845224P	1
33	inhalation tube sub-assy	04675387	1
34	clapboard sub-assy	01245238	1
35	motor support sub-assy	01805368	1
36	axial flow fan	10338701	2
37	fan motor	15705701	2
38	base plate sub-assy	01195235P	1
39	condenser assy	01125336	1
40	motor support	01895233	1
41	front grill	26904119	2
42	front plate	01438707	1
43	reticulation plate	01575203	1
44	condenser support plate	01895232	1
45	wiring	4011014008	1

3) Model: FGR30/BNa-M(O)

Exploded View:



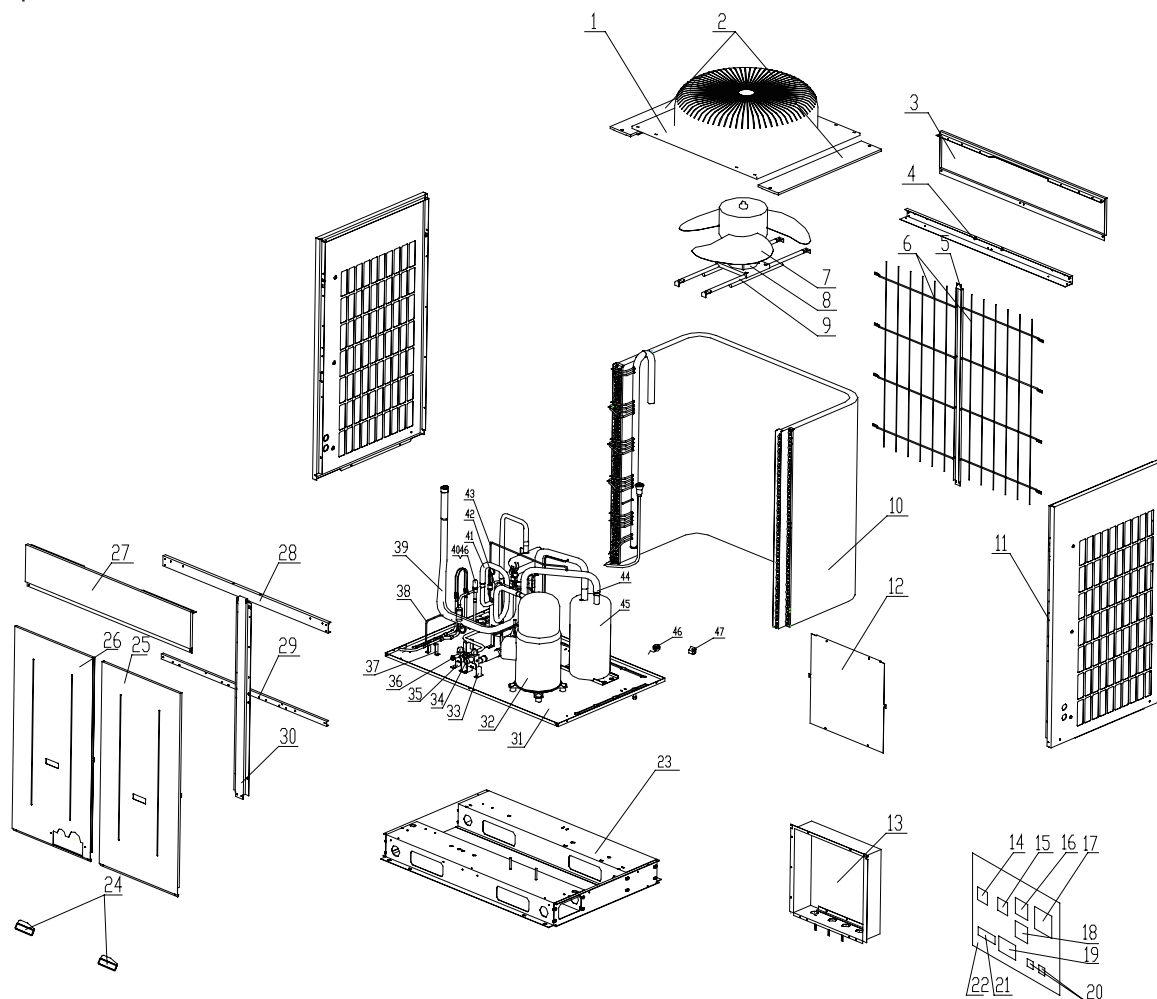
Parts List:

No.	Names	Material code	Qty.
1	Chassis Sub-assy	01195703P	1
2	4-way Valve Sub-Assy	04145336	1
3	Capillary Sub-Assy	04105219	1
4	Gas Valve Sub-Assy	07305208	1
5	Liquid Valve Sub-Assy	07305207	1
6	One way Valve NRV19S	07335210	1
7	Discharge Tube Sub-Assy	04635429	1
8	Compressor SH120A4ALB	00205213	1

9	Gas-liquid Separator	07425215	1
10	Inhalation Tube Sub-Assy	04675426	1
11	Right Side Plate	01318759	1
12	Front Grill	01238740	1
13	Condenser Sub-Assy	01125211	1
14	Rear Cover Plate	01258737	1
15	Back scaleboard	02225205P	1
16	Streamlined Dome	22265801	1
17	Axial Flow Fan	10355801	1
18	Motor Assy	15018761	1
19	Left Side Plate Sub-Assy	01314301P	1
20	Supporter1	01804632	1
21	Tube Clip	021400051	1
22	Filter Supporter	01729161	1
23	Supporter3	01804634	1
24	Supporting board□Electric Box□	01894602	1
25	Supporting Strip1	01894607	1
26	Supporting board3	01798797	2
27	support sub-assy1	01894605	1
28	Supporting Strip□Front Panel□	01798808	3
29	Front Panel1	01538736	1
30	Front Panel2	01538734	1
31	Electric Box Cover	01425319P	1
32	Main Board2 ZS501E	30225055	1
33	Terminal Board □2part□	42011103	1
34	Main Board WZ4E35	3022405	1
35	Transformer 48X26G	43110233	2
36	Phase Reverse Protector□380V□	46020052	1
37	Main Board1 ZS501	30225007	1
38	AC Contactor	44010214	1
39	Over Current Protector26.4A/UO-10-26	46020113	1
40	Terminal Board T480C	42011043	1
41	Original PCB Mounting Plate Sub-Assy	01325297	1
42	Electric Box	01425320	1
43	Base Frame Sub-Assy	01284609	1
44	Temp.Sensor (15K)	390002063	1
45	Temp.Sensor (20K)	390001923	1
46	Temp.Sensor (50K)	3900012129	1

4) Model: FGR40/BNa-M(O)


Exploded View:



Parts List:

No.	Names	Product Code	Qty.
1	Streamlined Dome	22265801	1
2	Top Cover Plate	01264110P	1
3	Rear Panel	01544104P	1
4	Rear Lining Board Sub-Assy	01264113P	1
5	Rear Strengthen Girder	01854102P	1
6	Rear isolation sheet	22414101	1
7	Fan Blade	10355801	1
8	Motor SW650A	15704601	1
9	Motor Assy	15404601	1
10	Condenser Assy	01125385	1
11	Right Side Plate	01315344P	1
12	Electric box cover 1	01424108P	1
13	Electric Box Assy	01395818	1
14	AC Contactor	44010240	1

15	Terminal Board	42011103	1
16	Phase Reverse Protector	46020052	1
17	Main Board	30224309	1
18	Transformer	4311024001	1
19	Over current protector	46020121	1
20	Terminal Board	42011113	1
21	Terminal Board	42011051	1
22	Original PCB Mounting Plate Sub-Assy	01325334	1
23	Base Frame Sub-Assy	01285278	1
24	Handle	26235253	2
25	Front Panel	01544101P	1
26	Front Panel	01544102P	1
27	Front Panel	01544103P	1
28	Front Lining Board Sub-Assy	01264111P	1
29	Support plate	01894101P	1
30	Front vertical prop sub-assy	01854103P	1
31	Base Plate Sub-Assy	01285279P	1
32	Compressor	00205244	1
33	Valve Rack	01805399	1
34	Cut-off valve	07138799	1
35	Valve Rack	01805359	1
36	Cut-off valve	07130128	1
37	Rack	0180521501	3
38	Liquid by-pass sub-assy	04325634	1
39	4-way Valve Sub-Assy	04145346	1
40	Electric Expansion Valve Sub-Assy	07335265	1
41	Discharge Tube Sub-Assy	04635442	1
42	Oil Separator	07423202	1
43	Oil Return Tube Sub-Assy	04325746	1
44	Inhalation Tube Sub-Assy	04675434	1
45	Gas-liquid Separator	07424148	1
46	Electric expand valve fitting	43000110	1
47	Magnet Coil	4300008302	1



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