

TECHNICAL SERVICE MANUAL

— **Window Split Type**

GREE ELECTRIC APPLIANCES, INC. OF ZHUHAI

Jinji West Rd. Qianshan Zhuhai

Guangdong China

Introduction

In this technical service manual, you will find rich references to Window Split Type products, including photos, technical specifications, explosive views, spare parts lists and circuit diagrams. Service people and engineers of Gree's customers and distributors would find it a very handy source of technical information of our products.

Technical Support Department
GREE ELECTRIC APPLIANCES, INC. OF ZHUHAI
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Window Split Type

1. Summary



Fig. 1

MODEL

NOTE

KF-20GW/C1
KF-25GW/C1
KF-32GW/C1

CE STANDARD
1Ph 220-230V 50Hz
R22

Window Split Type



Fig. 2

MODEL

KF-45GW/C1

NOTE

CE STANDARD
1Ph 220-230V 50Hz
R22

Window Split Type

2. Technical specifications

Table 1

Model		KF-20GW/C1	KF-25GW/C1
Function		Cooling	Cooling
Power supply		1Ph 220-230V 50Hz	
Capacity (W)		2000	2500
Rated input (W)		730	880
Rated current (A)		3.4	4.1
Air flow (m ³ /h)		420	
Dehumidifying volume (L/h)		0.7	1.2
C.O.P (W/W)		2.74	2.84
Indoor unit	Model	KF-20G/C1	KF-25G/C1
	Motor fan speed(rpm)	910/990/1060	
	Output power(W)	13	
	Fan type/piece	Cross flow fan-1	
	Diameter-length(mm)	φ 97 × 583	
	Evaporator	Aluminum fin-copper tube	
	Row-fin distance(mm)	2-1.6	
	Working area(m ²)	0.14	
	Swing motor	MP24GA	
	Input power(W)	2	
	Fuse(A)	Controller 3.15A Transformer 0.2A	
	Working capacitor(μF)	1	
	Noise(dB(A))	≤ 36	
	Dimension(width-height-depth)(mm)	770 × 180 × 250	
Net weight(kg)	8.5		
Outdoor unit	Model	KF-20W/C1	KF-25W/C1
	Input power(W)	700	850
	Current(A)	3.26	3.96
	L.R.A.(A)	14.5	17.2
	Throttling method	Capillary	
	Compressor	KH122VLHC	2P15S225ANM
	Compressor power (W)	690	785
	Protector	Internal overload protection	
	Starting method	Capacitor starting	
	Working temp.	Exhaust temperature ≤ 115℃	
	Condenser	Aluminum fin-copper	
	Pipe-diameter (mm)	φ 9.52	
	Working area(m ²)	0.14	
	Fan motor speed(rpm)	1100	
	Type-piece	Axial fan-1	
	Diameter(mm)	φ 310	
	Defrosting method	Auto defrost	
	Noise (dB(A))	≤ 60	
Dimension(width-height-depth)(mm)	460 × 390(+60) × 350		
Net weight(kg)	25		
Refrigerant charge (kg)	R22/0.60	R22/0.72	
Connecting pipe	Length (m)	4	
	Outer diameter of connecting pipe	Liquid pipe(mm)	φ 6
		Gas pipe(mm)	φ 9.52
	Max distance	Height(m)	5
		Length(m)	10

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

Window Split Type

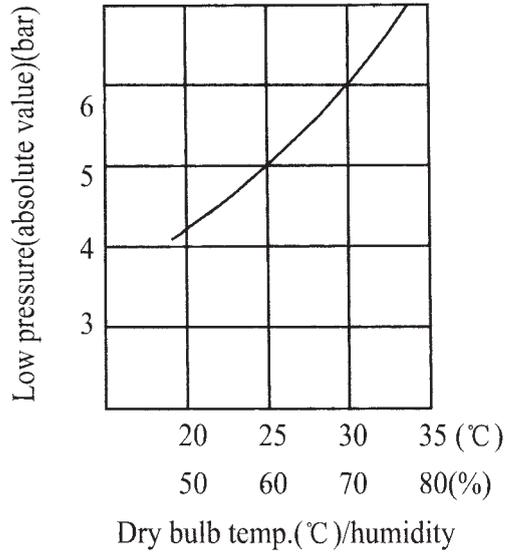
Table 2

Model		KF-32GW/C1	KF-45GW/C1
Function		Cooling	Cooling
Power supply		1Ph 220-230V 50Hz	
Capacity (W)		3200	4500
Rated input (W)		1170	1800
Rated current (A)		5.4	7.8
Air flow (m ³ /h)		460	650
Dehumidifying volume (L/h)		1.4	1.6
C.O.P (W/W)		2.74	2.72
Indoor unit	Model	KF-32G/C1	KF-45G/C1
	Motor fan speed(rpm)	990/1090/1190	1100/1200/1300
	Output power(W)	14	20
	Fan type/piece	Cross flow fan-1	
	Diameter-length(mm)	φ 97 × 583	φ 91 × 616
	Evaporator	Aluminum fin-copper tube	
	Row-fin distance(mm)	2-1.4	
	Working area(m ²)	0.14	
	Swing motor	MP24GA	
	Input power(W)	2	
	Fuse(A)	Controller 3.15A	Transformer 0.2A
	Working capacitor(μF)	1	
	Noise(dB(A))	≤ 39	≤ 42
	Dimension(width-height-depth)(mm)	770 × 180 × 250	830 × 189 × 285
	Net weight(kg)	8.5	15
Outdoor unit	Model	KF-32W/C1	KF-45W/C1
	Input power(W)	1140	1769
	Current(A)	5.26	7.69
	L.R.A.(A)	28	45
	Throttling method	Capillary	
	Compressor	RH207VHKC	SHY33MC4-G
	Compressor power (W)	1160	1735
	Protector	External overload protection	
	Starting method	Capacitor starting	
	Working temp.	Exhaust temperature ≤ 115℃	
	Condenser	Aluminum fin-copper	
	Pipe-diameter (mm)	φ 9.52	
	Working area(m ²)	0.16	0.22
	Fan motor speed(rpm)	1050	960
	Type-piece	Axial fan-1	
	Diameter(mm)	φ 346	φ 390
	Defrosting method	Auto defrost	
	Noise (dB(A))	≤ 62	
	Dimension(width-height-depth)(mm)	557 × 461 × 366	647 × 460 × 422
	Net weight(kg)	35	44
Refrigerant charge (kg)	R22/0.75	R22/1.25	
Connecting pipe	Length (m)		4
	Outer diameter of connecting pipe	Liquid pipe(mm)	φ 6
		Gas pipe(mm)	φ 12
	Max distance	Height(m)	5
Length(m)		10	

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

3. Performance curves

1. Cooling operation: In testing, Indoor unit and outdoor unit have the same work condition.



Cooling performance

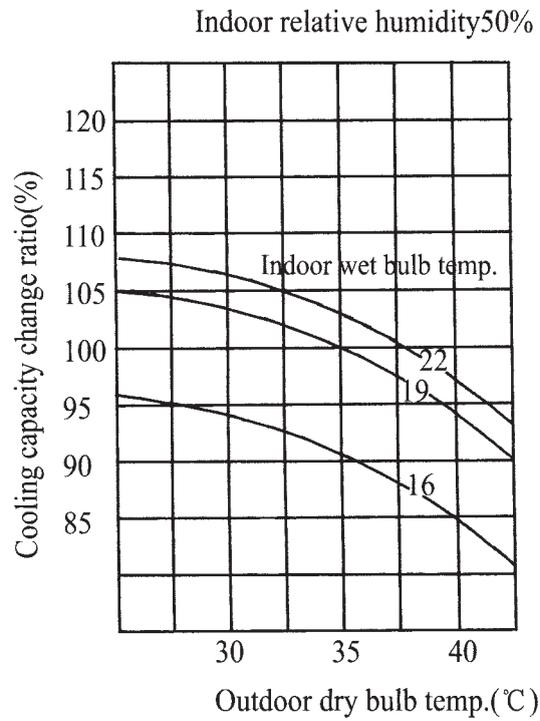
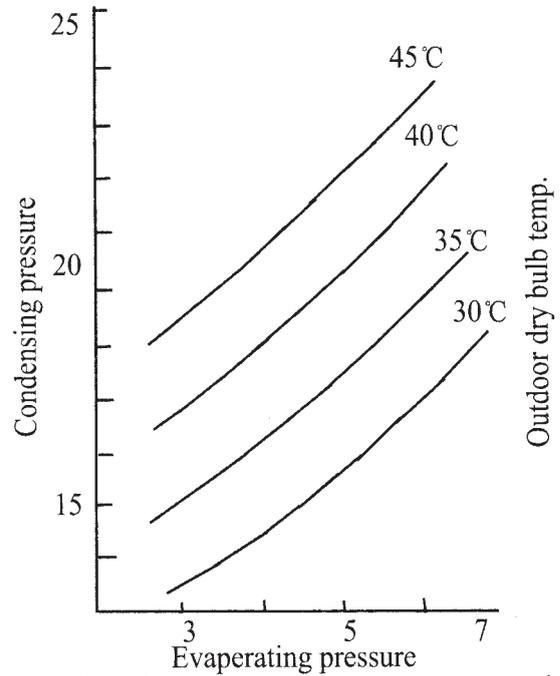
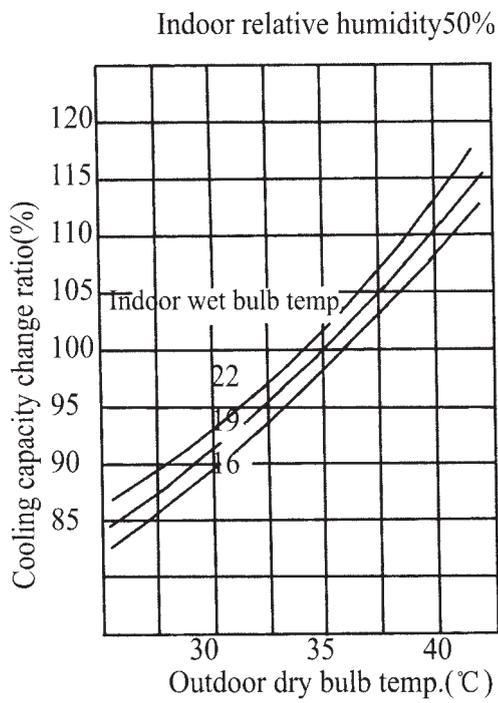


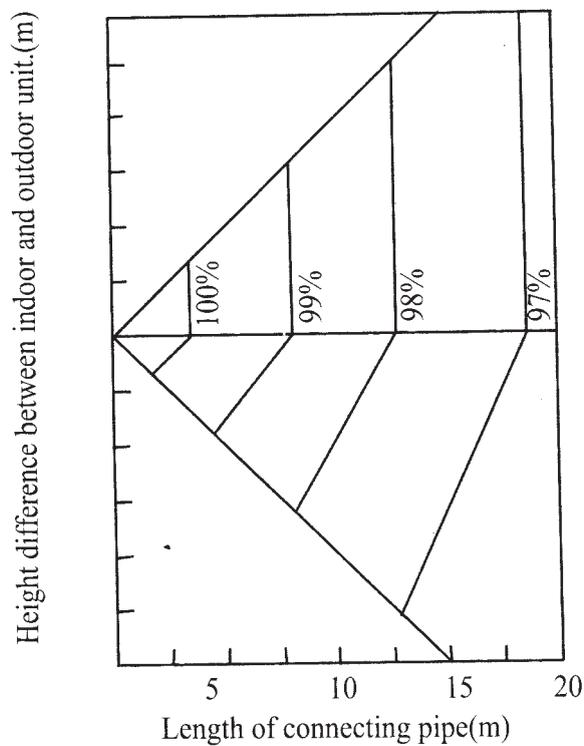
Fig. 3

Window Split Type

Cooling performance



The changing relation between pressure and temp. in cooling work condition (Indoor work condition: Dry bulb 27°C, Wet bulb 19°C)



The changing relation between cooling capacity and length of connecting pipe.

Fig. 4

4. Outlines and dimensions of indoor unit

Model: KF-20G/C1 KF-25G/C1 KF-32G/C1

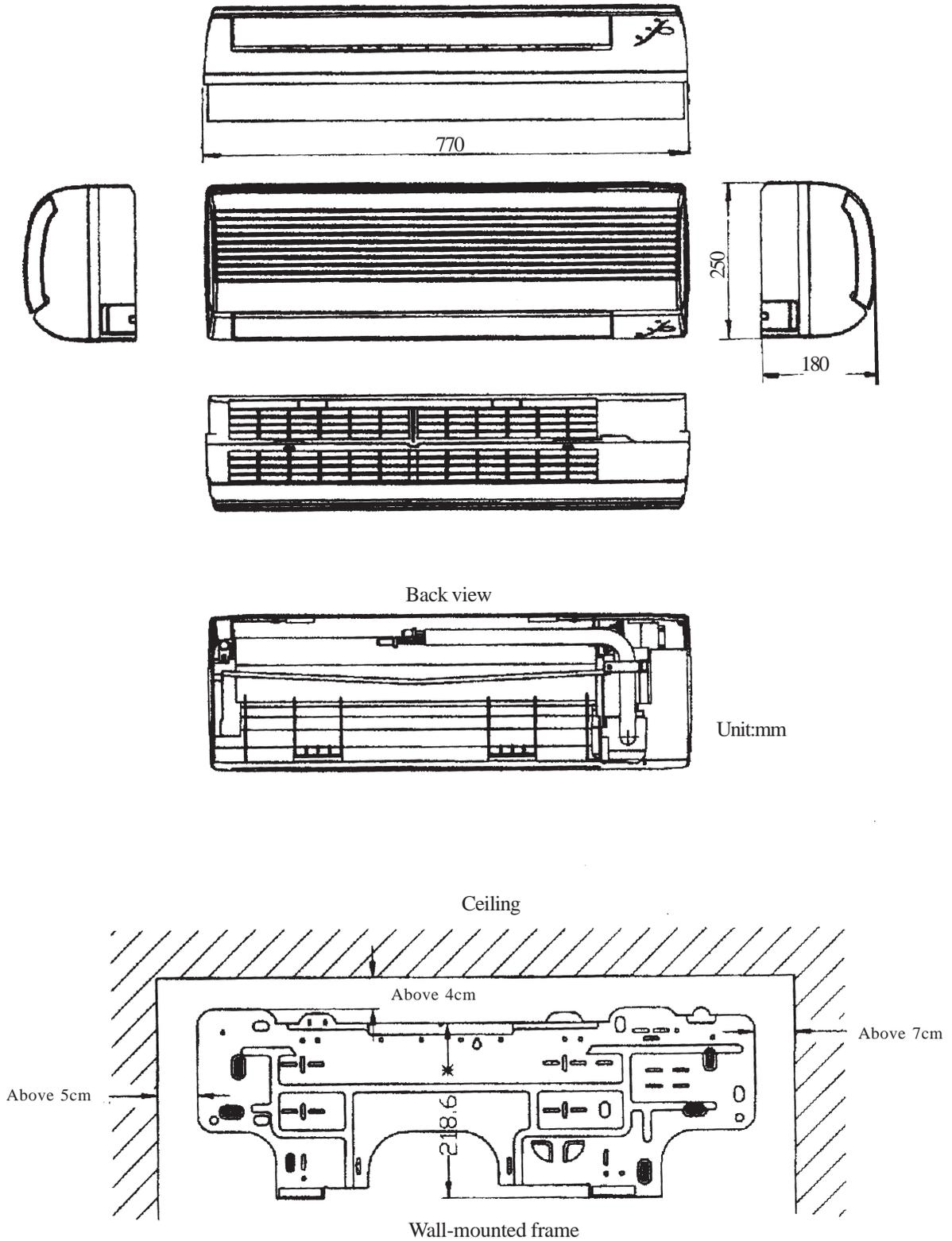


Fig. 5

Window Split Type

Model: KF-45G/C1

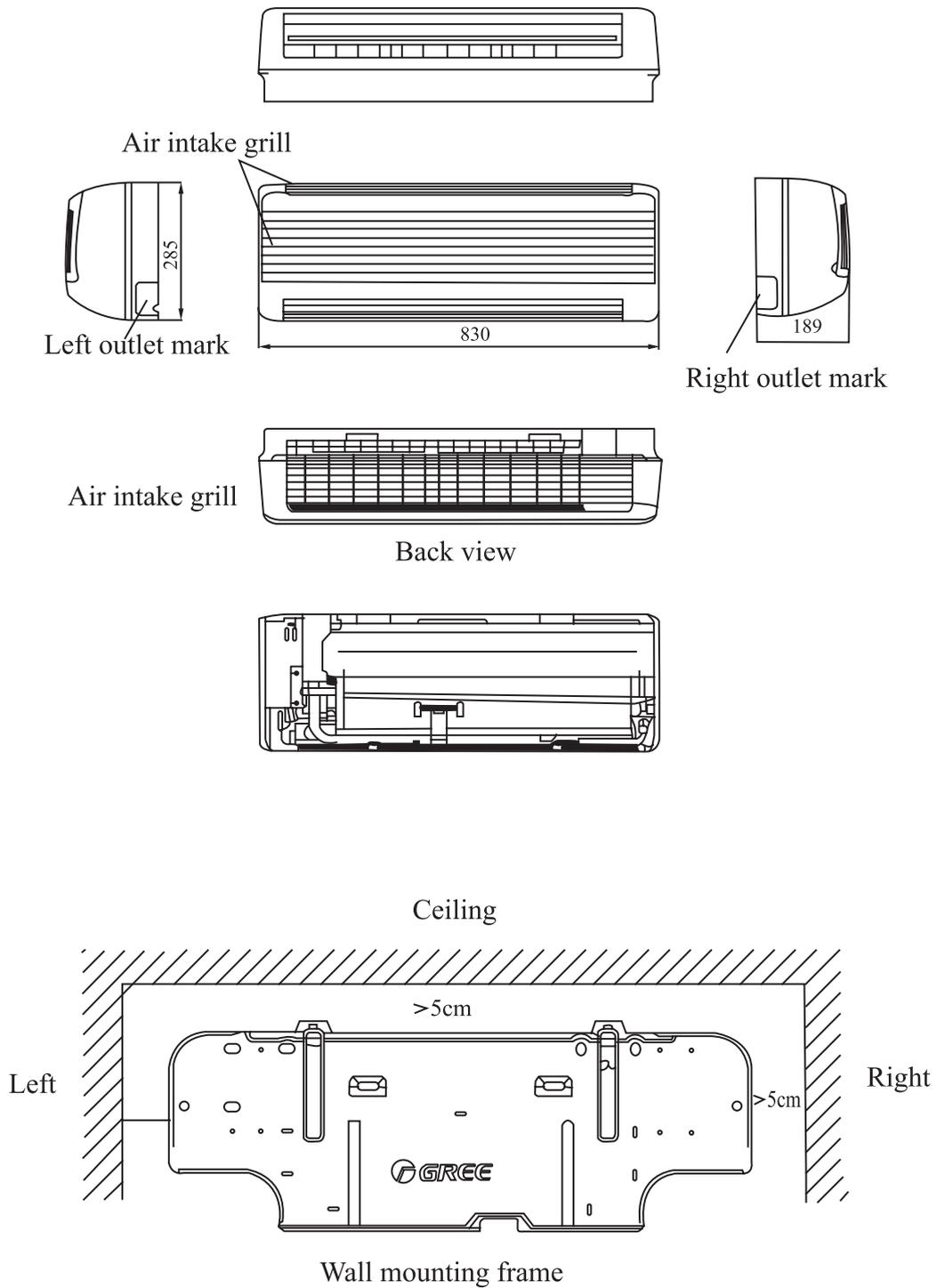


Fig. 6

5. Outlines and dimensions of outdoor unit

Model: KF-20W/C1 KF-25W/C1

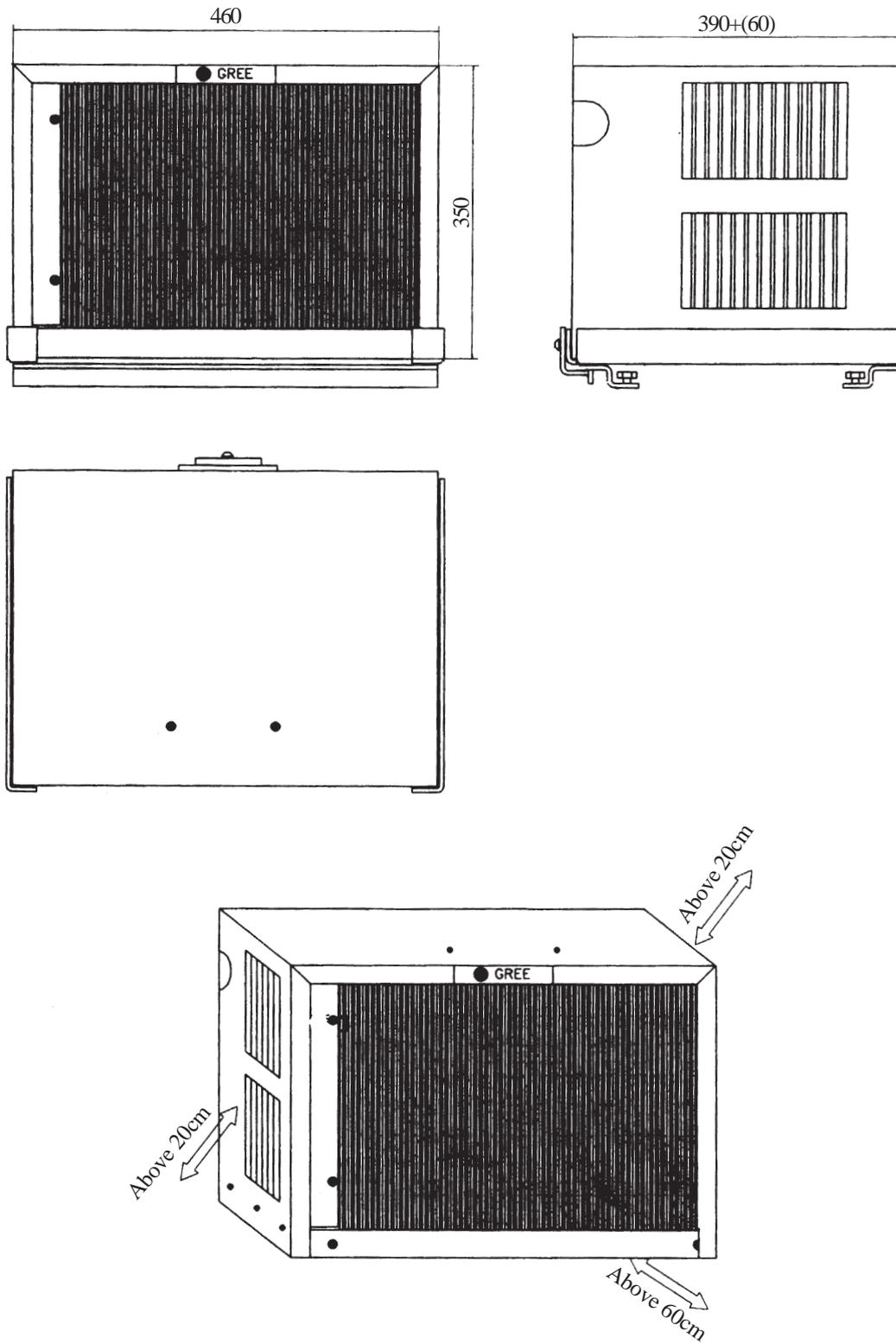


Fig. 7

Window Split Type

Model: KF-32W/C1

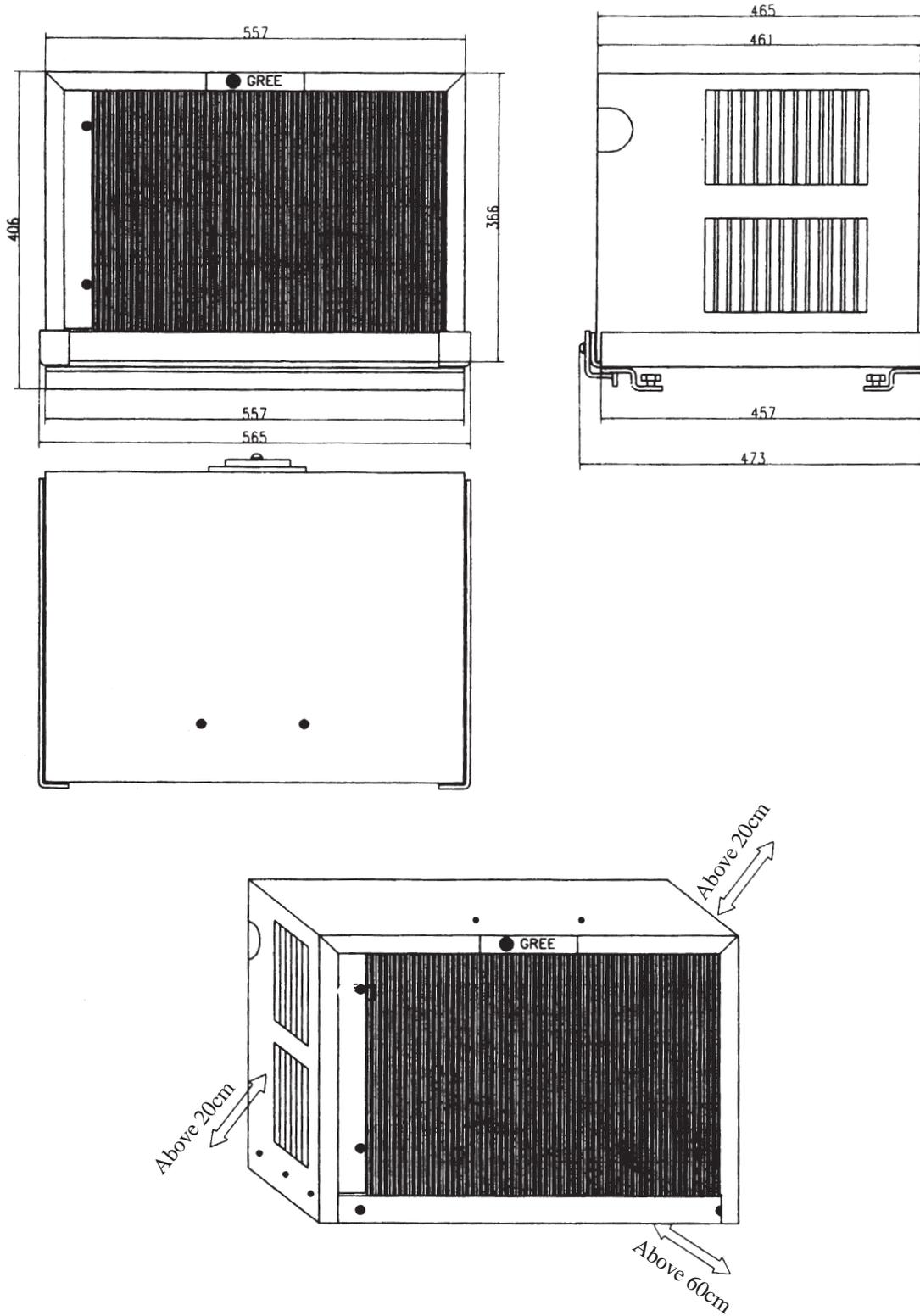


Fig. 8

Window Split Type

Model: KF-45W/C1

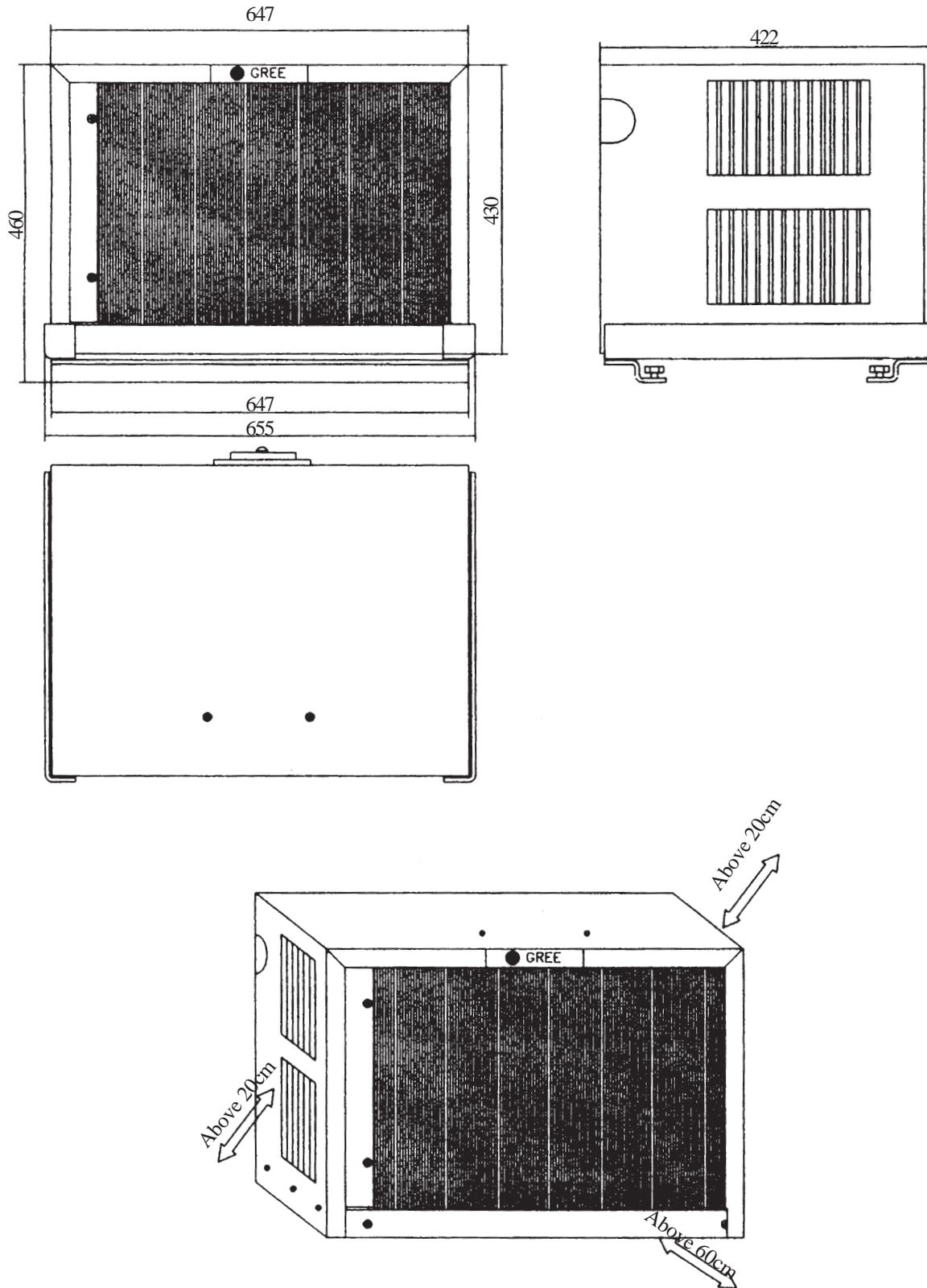


Fig. 9

6. Explosive view and spare parts list of indoor unit

Model: KF-20G/C1 KF-25G/C1 KF-32G/C1

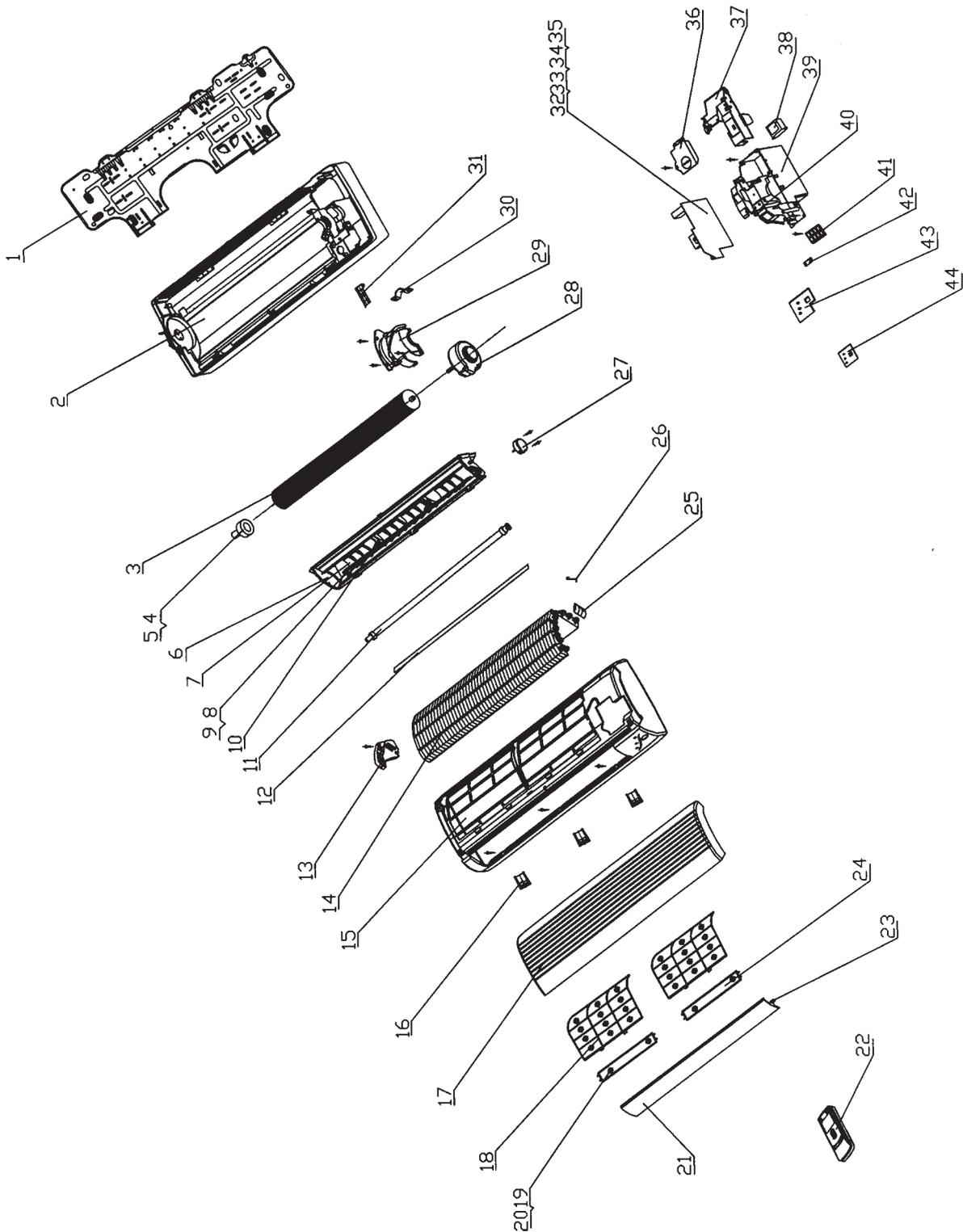


Fig. 10

Window Split Type

Table 3

No.	Description		Part No.			Qty
			KF-20G/C1	KF-25G/C1	KF-32G/C1	
1	Wall-Mounting Frame	壁挂板	01252438	01252438	01252438	1
2	Rear Case	底壳	22202001	22202001	22202001	1
3	Cross Flow Fan	贯流风叶	10352001	10352001	10352001	1
4	Fan Bearing	风扇轴承	76512210	76512210	76512210	1
5	Ring of Bearing	贯流风叶轴承胶圈	76512203	76512203	76512203	1
6	Water Tray	接水盘	20182006	20182006	20182006	1
7	Swing Louver	扫风叶片	10512002	10512002	10512002	12
8	Connecting Lever 1	扫风连杆 1	10582002	10582002	10582002	1
9	Connecting Lever 2	扫风连杆 2	10582003	10582003	10582003	1
10	Manual Lever	拔杆	10582001	10582001	10582001	2
11	Drainage Pipe	排水管	05232411	05232411	05232411	1
12	Evaporator Gate	蒸发器引水板	01094001	01094001	01094001	1
13	Evaporator Supporter	蒸发器角形架	24212001	24212001	24212001	1
14	Evaporator Assy	蒸发器部件	01002048	01002042	01002073	1
15	Front Case Assy	面板体部件	20002114	20002114	20002114	1
16	Screw Cover	螺钉盖	24252001	24252001	24252001	3
17	Front Panel	面板	20002001	20002001	20002001	1
18	Filter	过滤网	11122002	11122002	11122002	2
19	Air Cleaner holder	净化器支架	24222001	24222001	24222001	2
20	Air Cleaner A	净化器滤网 A	11012002	11012002	11012002	1
21	Guide Louver	导风板	10512001	10512001	10512001	1
22	Remote Controller	遥控器	30515001	30515001	30515001	1
23	Guide Louver Bearing	导风板轴套	10542011	10542011	10542011	3
24	Air Cleaner B	净化器滤网 B	11012003	11012003	11012003	1
25	Evaporator Pipe Cover	蒸发器接水槽	06122001	06122001	06122001	1
26	Sensor Insert	感温头插件 B	42020063	42020063	42020063	1
27	Stepping Motor MP24GA	步进电机 MP24GA	15212102	15212102	15212102	1
28	Motor FN13B	电机 FN13B	/	15012038	/	1
	Motor FN8G	电机 FN8G	15012037	/	/	1
	Motor FN14A	电机 FN14A	/	/	15012108	1
29	Motor Clamp	电机压板	26112014	26112014	26112014	1
30	Wire Clamp	电线夹	71010103	71010103	71010103	1
31	Pipe Clamp	连接管压板	24242001	24242001	24242001	1
32	PCB5K512	控制器 5K512	30025507	30025507	30025507	1
33	Tube Sensor	管温感温包	39000165	39000165	39000165	1
34	Room Sensor	室温感温包	39000043	39000043	39000043	1
35	Fuse 3.15A 250VAC	保险管	46010014	46010014	46010014	1
36	Electric Box Cover 2	电器盒顶盖 2	01412007	01412007	01412007	1
37	Electric Box Cover	电器盒顶盖	20102433	20102433	20102433	1
38	Transformer	电源变压器	43110170	43110170	43110170	1
39	Electric Box	电器盒	20102001	20102001	20102001	1
40	Cable Clamp	压线槽	70482001	70482001	70482001	1
41	Terminal Board T4A3A7377	接线板 T4A3A7377	42010183	42010183	42010183	1
42	Wire Clip	压线片	70482401	42012415	42012415	1
43	LED Holder	指示灯架	24212005	24212005	24212005	1
44	LED Board	接收板	30046015	30046015	30046015	1
45	Connecting Cable	电源连接线	40020402	40020402	40020403	1
46	Power Cord	电源线组件 3X1.0	40020202	40020202	/	1
	Power Cord	电源线组件 3X1.5	/	/	40020203	1

The data are subject to change without notice.

Window Split Type

Model: KF-45G/C1

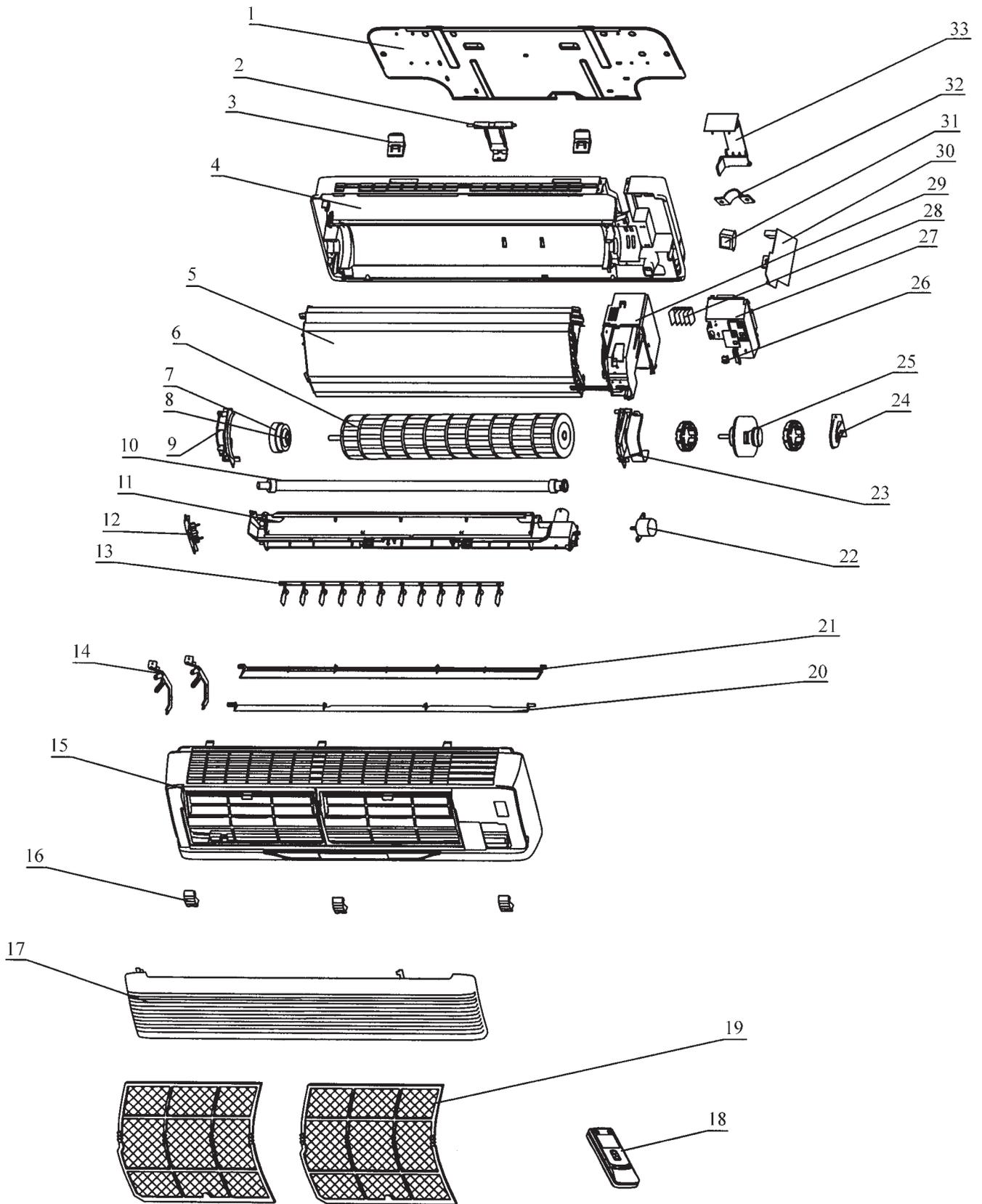


Fig. 11

Window Split Type

Table 4

No.	Description		Part No.	Qty
			KF-45G/C1	
1	Wall-mounting frame	壁挂板(取消GREE字样)	01252381	1
2	Pipe clamp	卡管板	26112425	1
3	Hook	挂板钩	26272421	2
4	Rear case	底壳	222020050	1
5	Evaporator assy	蒸发器部件	01002010	1
6	Cross flow fan	贯流风叶部件	10352405	1
7	Ring of bearing	轴承胶座	76712015	1
8	Fan bearing	风扇轴承	76512210	1
9	Left clamp of motor	电机左卡板	261124281	1
10	Drainage pipe	排水管	05232411	1
11	Water tray	接水盘	20182440	1
12	Stepping motor gear	导风电机齿轮组	10592001	1
13	Swing assy	扫风部件	10102001	1
14	Guide louver holder	导风板支撑架	24212429	2
15	Front case assy	面板体	20002088	1
16	Screw cover	螺钉盖	24252440	3
17	Front panel	面板	20002087	1
18	Remote control	遥控器Y512	30512506	1
19	Filter	过滤网	11122440	2
20	Guide louver	小导风板	10512428	1
21	Guide louver	大导风板	10512427	1
22	Stepping motor MP24GA	步进电机MP24GA	15212102	1
23	Right clamp of motor	电机右卡板	26112429	1
24	Bearing holder	轴承座	26152423	1
25	Motor FN20G-PG	电机FN20G-PG	15012022	1
26	Switching plate	开关拨动片	26272422	1
27	Cover of electric box	电器盒顶盖	222420140	1
28	Terminal board	接线板GT4B3A1	42011030	1
29	Electric box	电器盒	20102058	1
30	PCB 5251JE2	控制器5251JE2	30025579	1
31	Transformer	电源变压器SC28B1	43110170	1
32	Wire clamp A	电线夹(中)	71010103	1
33	Rear clamp	后板卡板	26112430	1
34	Interconnecting cable	电源连接线4G1.5(VDE)	40020240	1
35	Signal cable	信号控制线4×1.0(VDE)	40030325	1
36	room sensor	室温感温包	39000043	1
37	tube sensor	管温感温包	39000159	1

The data are subject to change without notice.

7. Explosive view and spare parts list of outdoor unit

Model: KF-20W/C1 KF-25W/C1

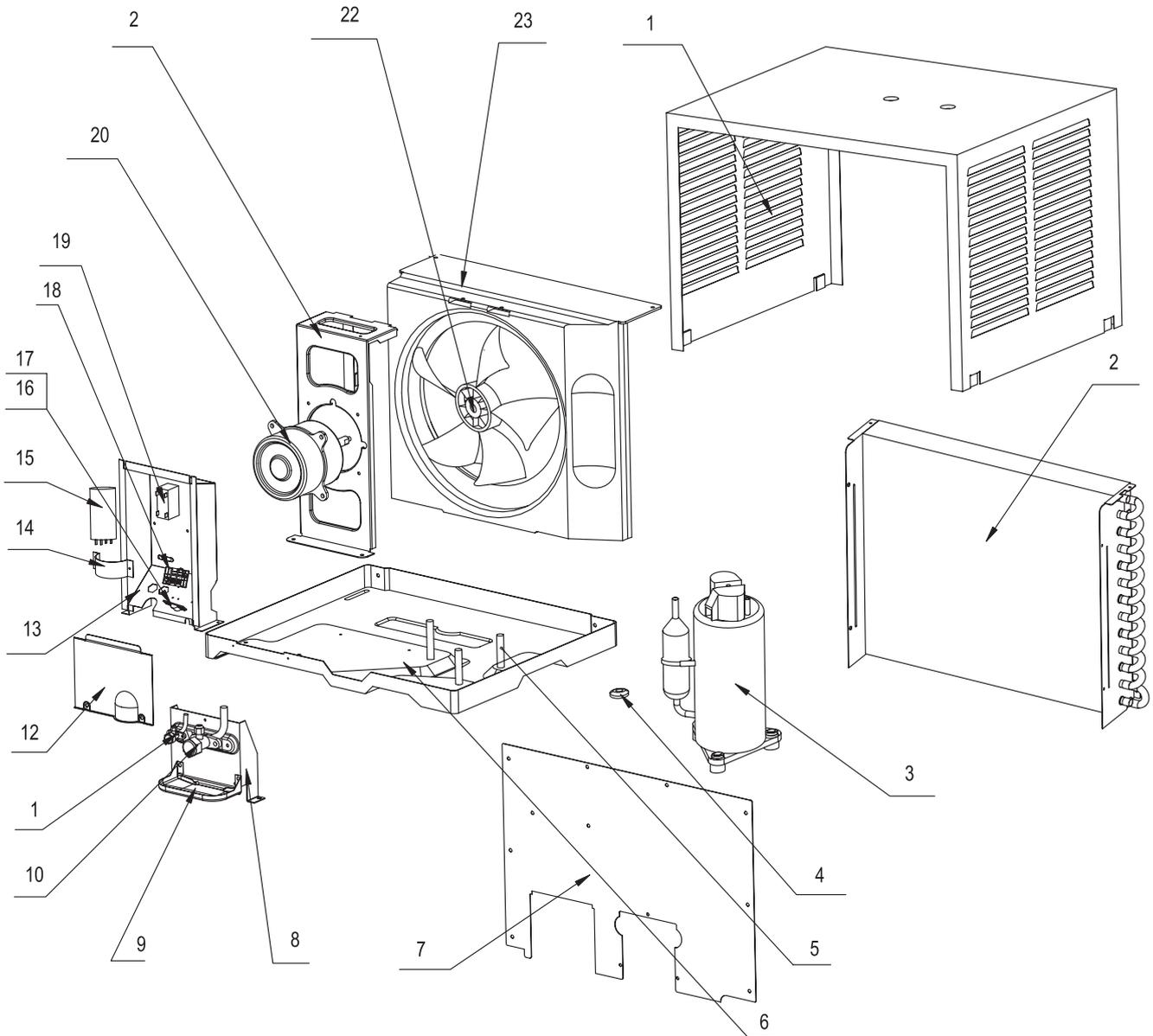


Fig. 12

Window Split Type

Table 5

No.	Description		Part No.		Qty
			KF-20W/C1	KF-25W/C1	
1	Cabinet	外罩	01433301	01433301	1
2	Condensor assy	冷凝器部件	01103304	01103301	1
3	Compressor and fittings	压缩机及配件2P15S225ANM	/	00100269	1
		压缩机及其配件KH122VLHC	00100052	/	1
4	Nut with washer M8	带垫螺母	70310014	70310014	1
5	Compressor bolt	定位螺栓	70211014	70211014	3
6	Metal base	底盘	01213301	01213301	1
7	Black cover plate	后盖板	01253301	01253301	1
8	Valve support	阀门支架	01713301	01713301	1
9	Water tray	接水盘	01273301	01273301	1
10	Gas valve	阀门 3/8"	07103302	07103302	1
11	Liquid valve	阀门 1/4"	07103303	07103303	1
12	Cover of electric box	电器盒盖板	01413302	01413302	1
13	Electric box	电器盒	01413301	01413301	1
14	Capacitor clamp	电容夹	02140001	02143401	1
15	Capacitor CBB65 (17uF/450VAC)	电容 CBB65 (17uF/450VAC)	33000035	/	1
	Capacitor CBB65 (30uF/450VAC)	电容 CBB65 (30uF/450VAC)	/	33000018	1
16	Wire clamp	电线夹	71010103	71010103	1
17	Insulator cushion	绝缘垫片 D	70410525	70410525	1
18	Terminal board	接线板	42011218	42011218	1
19	Capacitor CBB611 (2.0uF/450VAC)	电容 CBB611 (2.0uF/450VAC)	33010008	33010008	1
20	Motor FW22A	室外机电机 FW22A	15013306	15013306	1
21	Motor support	电机支架	01703301	01703301	1
22	Axial fan	轴流风叶	10333301	10333301	1
23	Propeller housing	蜗壳	12103301	12103301	1

The data are subject to change without notice.

Window Split Type

Model: KF-32W/C1 KF-45W/C1

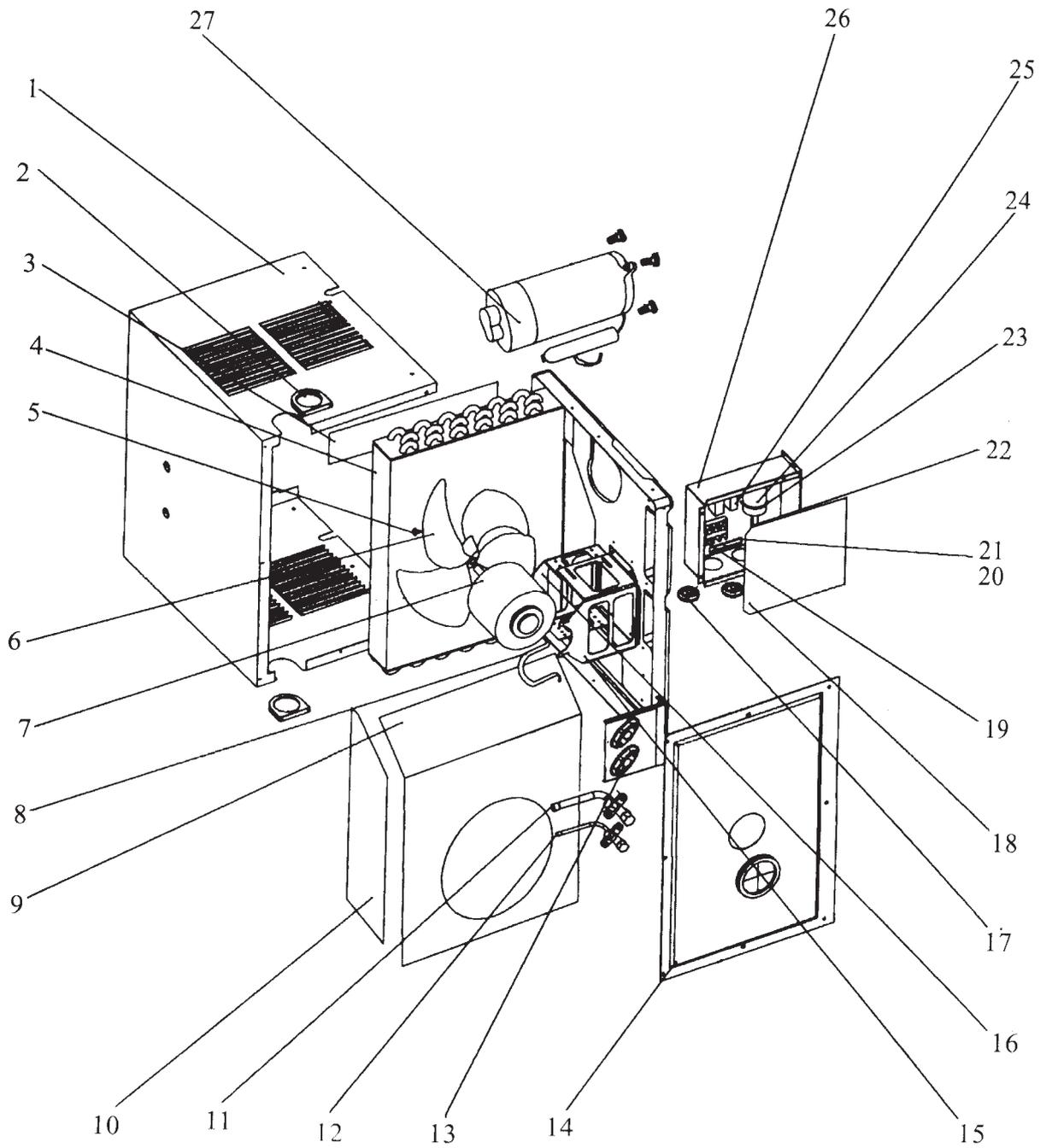


Fig. 13

Window Split Type

Table 6

No.	Description		Part No.		Qty
			KF-32W/C1	KF-45W/C1	
1	Cabinet	外罩	01433412	01433413	1
2	Rubber band of cabinet	外罩胶圈	76513102	76513102	2
3	Side plate	侧板	01303403	/	1
	Right cover of condensor	冷凝器右护板	/	01173310	1
4	Condensor Assy	冷凝器组件	01101004	01103303	1
5	Scew of axial fan	轴流风叶螺钉	70110032	/	1
6	Axial fan	轴流风叶	10331135	10333425	1
7	MotorFW40C	室外机电机(FW40C)	15013307	/	1
	MotorFW70C	室外机电机(FW70C)	/	15013060	1
8	Motor fixing clip	电机固定卡	02113001	02113001	2
9	Rear clapboard	后隔板	01231151	01233302	1
10	Top cover of condensor	冷凝器上盖板	01171139	01173308	1
11	Liquid valve	阀门 1/2"	07103001	07103001	1
12	Gas valve	阀门 1/4"	07103002	07103006	1
13	Valve support	阀门支架	01713301	01713035	1
14	Black cover plate	后盖板	01253431	01253432	1
15	Motor support 1	电机支架 1	01703378	01703303	1
16	Motor support 2	电机支架 2	01703380	01703304	1
17	Rubber band	过线胶圈	76513101	76513101	2
18	Cover of electric box	电器盒盖板	01413420	01413420	1
19	Terminal board A	三位接线板 A	42011131	42011113	1
20	Insulator cushion	绝缘垫片 D	70410525	70410525	1
21	Power clamp	电线夹	71010102	71010102	1
22	Earth copper plate	接地铜板	42010201	42010201	1
23	Capacitor clamp	电容夹	02143401	02143442	1
24	Capacitor 30uF/440(TUV)	电容30uF/440(TUV)	33010742	/	1
	Capacitor CBB65(50uF)/440V	电容 CBB65(50uF)/440V	/	33000001	1
25	Capacitor CBB61(2.5uF)/450V	电容 CBB61(2.5uF)/450V	33010019	33010019	1
26	Electric box	电器盒	01413415	01413303	1
27	Compressor and fittings	压缩机及配件 RH207VHKC	00120082	/	1
		压缩机及其配件 SHY33MC4-G	/	00100135	1

The data are subject to change without notice.

8. Circuit diagram

These circuit diagrams are subject to change.
Please refer to the ones stuck on the machines.

KF-20GW/C1 KF-25GW/C1 KF-32GW/C1

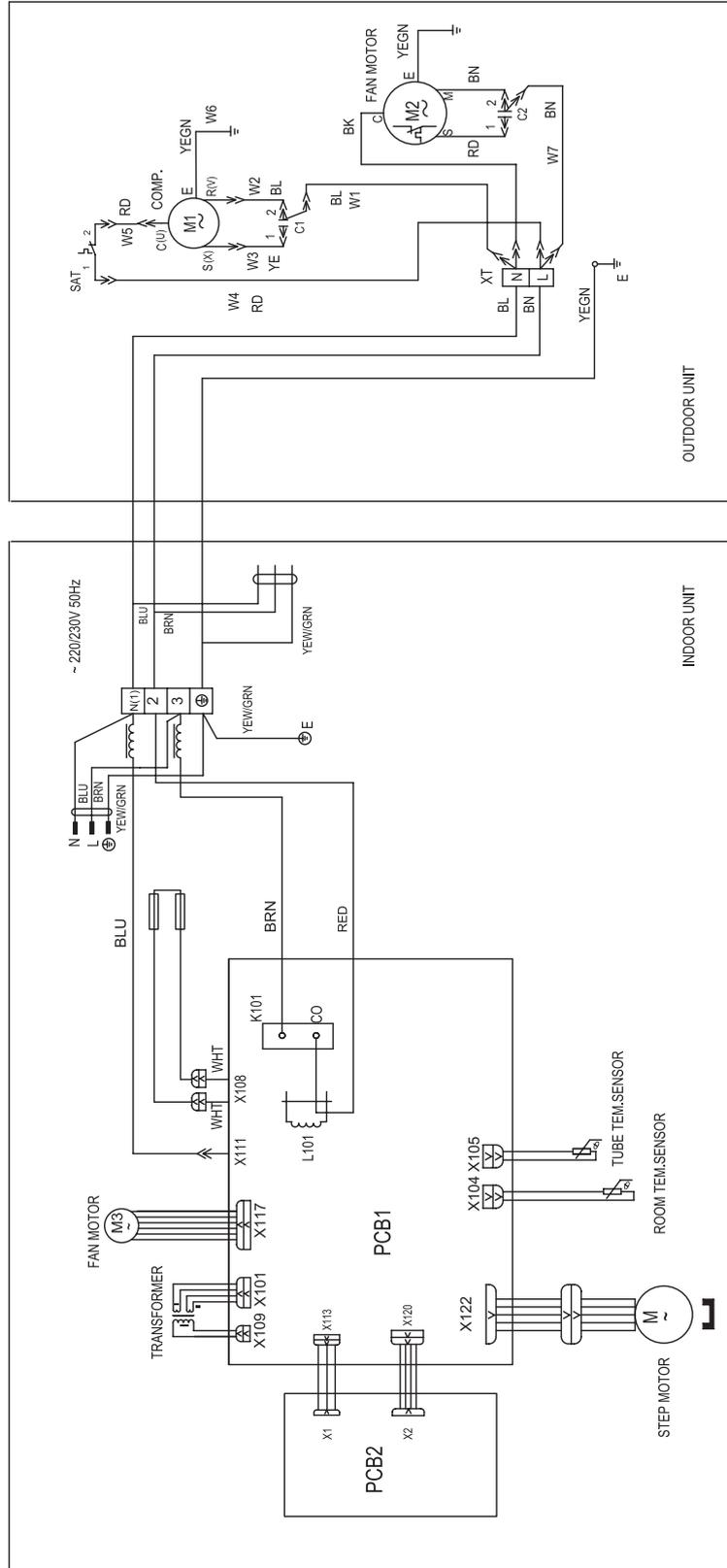


Fig. 14

KF-45GW/C1

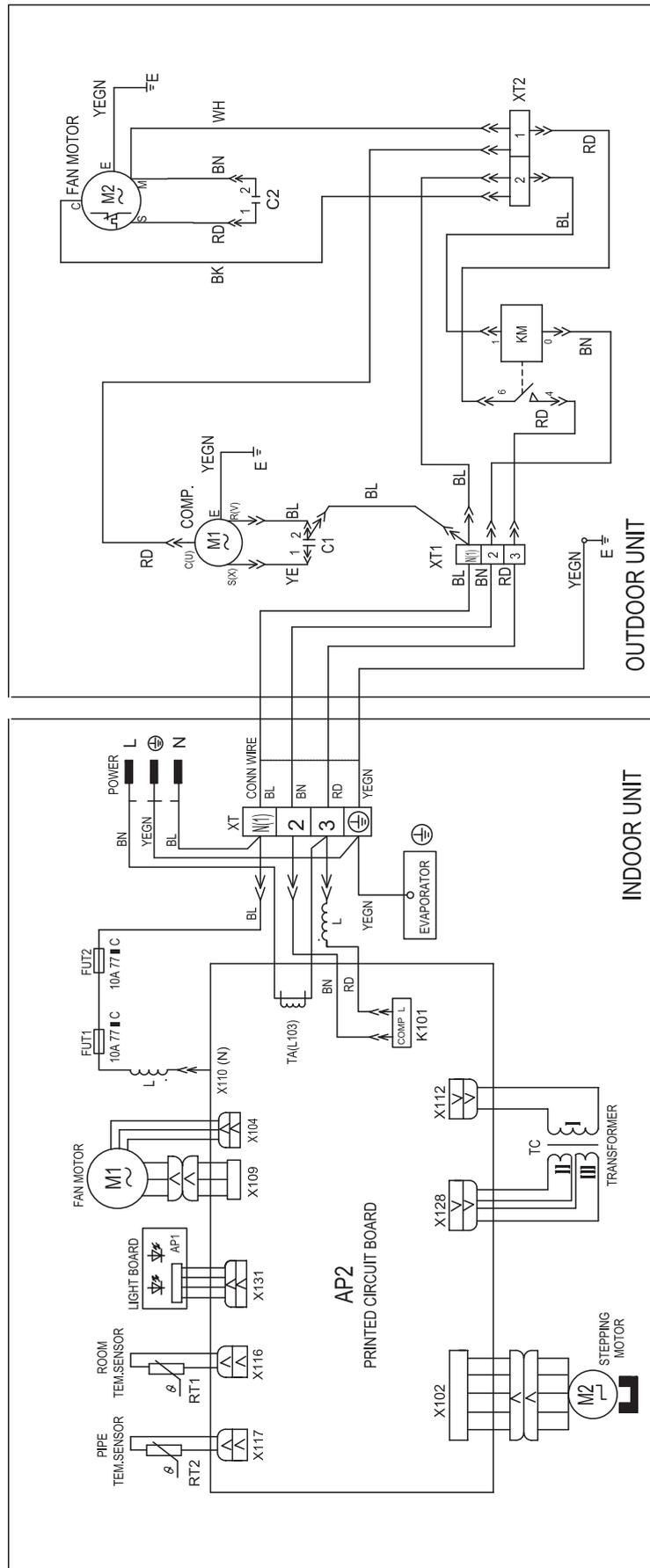


Fig. 15

9. PCB function manual

5 IN I PCB function manual

A. running mode

1. cooling
2. dehumidifying
3. heating
4. fan
5. auto

B. input parameters

1. indoor ambient temp. T_{in}
2. evaporator tube temp. T_{eva}
3. setting temp. T_{set}
4. condenser tube temp. T_{con}
5. outdoor ambient temp. T_{out}

C. targets

1. indoor motor (PG motor)
2. swing motor
3. outdoor motor (two speeds motor)
4. compressor
5. four-way reversing valve
6. electric heater
7. fresh motor
8. air cleaner

D. fundamental functions

1. cooling mode

(1) the running conditions and control measures

- a. If $T_{in} \geq T_{set} + 1^{\circ}\text{C}$, the machine runs at the cooling mode. Compressor runs, outdoor motor runs at low speed , indoor fan runs at the set fan speed.
- b. If $T_{in} \leq T_{set} - 1^{\circ}\text{C}$, the machine stops. Compressor stops first , outdoor motor stops after 15 seconds , indoor motor runs at the set fan speed.
- c. If $T_{set} - 1^{\circ}\text{C} < T_{in} < T_{set} + 1^{\circ}\text{C}$, keep the previous state.

(2) In this mode, the reversing valve is inactive, the temp. setting range is from 16~30°C.

(3) protect function

- a. anti-freezing function.

If compressor have run 6 minutes , and detect $T_{eva} < 0^{\circ}\text{C}$ for continuous 3 minutes, then the compressor , outdoor fan stopped , indoor fan run at the set fan speed. After 3 minutes later, it will run at the original state if $T_{eva} \geq 10^{\circ}\text{C}$.

- b. compressor protection

Window Split Type

Compressor's starting interval should be more than 3 minutes no matter in whatever modes and conditions. If it's plugged in first time, the compressor does not have 3 minutes delay. When compressor is started, it will not stop within 5 minutes unless it is plugged out.

c. overload protection

If it detect the system current surpass the designed 13 A for continuous 3 minutes, the machine go into fan mode, when 3 minutes passed and it detect the current no more than 13 A, it will back to original state. If it detects overloading states for 3 consecutive times within 30 minutes, the machine stops, and must be restarted by remote controller.

d. locked motor protection

If it detects no feedback from the PG motor for continuous 15 seconds , the machine stops, after 3 minutes delay, the machine backs to original state. If the motor be detected locked for 3 consecutive times, the whole machine stops and can not run again automatically.

2. dehumidifying mode

(1) the working conditions and control measures

- a. If $T_{in} > T_{set} + 2^{\circ}\text{C}$, it is in cooling running, the indoor motor speed can be selected ,and outdoor motor run at low speed.
- b. If $T_{set} - 2^{\circ}\text{C} \leq T_{in} \leq T_{set} + 2^{\circ}\text{C}$, it goes into dehumidifying running ,the indoor motor run at the low speed, 6 minutes later the compressor stops, another 15 seconds later the outdoor fan stops and another 30 seconds later, the indoor motor stops, 3 and a half minutes later, compressor and outdoor fan run again ,indoor motor runs at the low speed, then the machine cycle the above procedures repeatedly. outdoor motor runs at the low speed.
- c. If $T_{in} < T_{set} - 2^{\circ}\text{C}$, compressor ,outdoor motor and indoor motor stop.

(2) In this mode, the reversing valve is inactive , the temp. setting range is 16~30°C.

(3) anti-freezing protection

If $T_{in} > T_{set} + 2^{\circ}\text{C}$, it goes into cooling running , anti-freezing function is same with cooling mode, but the compressor must stops for 4 minutes. when it goes into dehumidifying mode, compressor runs 6 minutes , if it detects $T_{eva} < 0^{\circ}\text{C}$,compressor and outdoor motor stop, indoor motor runs at low speed ,after 3 minutes delay ,and $T_{eva} \geq 10^{\circ}\text{C}$, it will be back to its original state.

(4) Overload is same as the one in cooling mode.

3. heating mode

(1) the working conditions and control measures

- a. If $T_{in} \leq T_{set} + 2^{\circ}\text{C}$, it goes into heating mode, reversing valve, compressor and outdoor motor all work in the same time, indoor fan will run at the same procedures with anti cool air function.
- b. If $T_{in} \geq T_{set} + 4^{\circ}\text{C}$, compressor stops first, 15 seconds late, outdoor motor stops ,but reversing valve keeps working, indoor motor run at the procedures of blowing surplus heat.
- c. If $T_{set} + 2^{\circ}\text{C} < T_{in} < T_{set} + 4^{\circ}\text{C}$, keep the previous running state.
- d. If $T_{out} \leq 3^{\circ}\text{C}$, outdoor runs at high speed, if $T_{out} \geq 5^{\circ}\text{C}$, outdoor motor runs at low speed. if $3^{\circ}\text{C} \leq T_{out} \leq 5^{\circ}\text{C}$, keep the previous running state.

(2) In this mode, the temperature setting range is from 16~30°C.

Window Split Type

(3) the working conditions of auxiliary electric heater

In heating mode, when compressor is working, indoor motor runs at high speed and middle speed. If it detects $T_{eva} < 50^{\circ}\text{C}$ for continuous 8 seconds and $T_{in} \leq 25^{\circ}\text{C}$, electric heater will work, if compressor stop or indoor motor runs at low speed or $T_{eva} \geq 54^{\circ}\text{C}$ or $T_{in} \geq 28^{\circ}\text{C}$ or 10 seconds before defrosting, the electric heater will stop.

(4) protections

a. anti cool air

When the machine starts heating and $T_{eva} \geq 22^{\circ}\text{C}$, indoor motor runs at low speed, and swing motor makes the louver at the horizontal position (in Bird line, it will swing to the maximum air volume position), if $T_{eva} \geq 40^{\circ}\text{C}$ or compressor have run 2 minutes, indoor motor and swing motor will run at the set speed.

b. anti high temp.

In heating mode, if it detects $T_{eva} \geq 56^{\circ}\text{C}$ (58°C can be selected), outdoor motor will stop (in this period it will not detect the defrosting temp.). if $T_{eva} \leq 52^{\circ}\text{C}$, outdoor motor will be back running (it will not detect defrosting temp. in the first 5 seconds).

c. blowing surplus heat

In heating mode, when set temp is reached, comp. stops first, 15 seconds later outdoor fan stops, Indoor motor blows 90 seconds (60 seconds can be selected) at low speed, swing motor makes the louver at the horizontal position (in Bird line, it will swing to the maximum air volume position).

d. compressor's protection is same with the one in cooling mode.

e. overload protection

If it detects that the system current surpassed the designed 13 A for continuous 3 seconds, compressor, electric heater and outdoor motor stop, indoor motor runs the same procedures as the blowing surplus heat condition. After 3 minutes and current no more than 13 A, the machine will be back to its original state, indoor motor runs as the anti cool air condition. If it detects overloading state for 3 consecutive times within 30 minutes, the machine stops, and it must be restarted by remote controller.

f. locked motor protection

If it detects no feedback from the PG motor for continuous 15 seconds, compressor, outdoor motor, indoor motor and electric heater will stop, 3 minutes later, the machine will be back to its original state, indoor motor runs as the anti cool air condition. If the motor was locked for 3 consecutive times, the whole machine stops and can not run again automatically.

g. defrosting conditions and procedures

In heating mode, if compressor has run 44 minutes (in its first 6 minutes it will not detect defrosting temp.), and it has detected $T_{con} \leq -4^{\circ}\text{C}$ for continuous 1 minutes, it begins to defrost, electric heater will stop for 10 seconds (even if electric heater is not working), then indoor motor stops, reversing valve becomes inactive in another 2 seconds, another 2 seconds later, outdoor motor stops, when $T_{con} \geq 10^{\circ}\text{C}$ or defrosting lasts for 10 minutes, outdoor motor and reversing valve

Window Split Type

becomes active , indoor motor will run as the anti cool air condition, then it cycles again, recalculates the compressor's running time again. (In this period , if any protection works ,and after the machine is back to work , it will re-start defrosting state. it will not detect outdoor tube temp when compressor's in its first 6 minutes running)

h. noise lowering protection

When you use RUN/STOP button to switch off the machine, reversing valve will become inactive in 2 minutes.

4. AUTO mode

(1) In AUTO mode, standard cooling $T_{set}=25^{\circ}\text{C}$, standard heating $T_{set}=20^{\circ}\text{C}$.

(2) working procedures

- a. If $T_{in} \geq T_{set} + 1^{\circ}\text{C}$, select cooling mode, from this time, the set temp. is 25°C . If $T_{in} \leq T_{set} - 1^{\circ}\text{C}$, compressor and outdoor motor stop, indoor motor runs at the set speed, if $T_{set} - 1^{\circ}\text{C} < T_{in} < T_{set} + 1^{\circ}\text{C}$, keep the original state.
- b. If $T_{in} \leq T_{set} + 2^{\circ}\text{C}$, select heating mode, from this time, the set temp. is 20°C , if $T_{in} \geq T_{set} + 4^{\circ}\text{C}$, compressor stops first, outdoor motor stops 15 seconds later , reversing valve is always active, indoor motor runs as the blowing surplus heat condition. If $T_{set} + 2^{\circ}\text{C} < T_{in} < T_{set} + 4^{\circ}\text{C}$, keeps the original state.

Cooling & heating AUTO mode: in AUTO mode, when the machine is switched from heating mode to the other modes, reversing valve becomes inactive in 90 seconds.

Cooling only AUTO mode: there is no heating function in this mode.

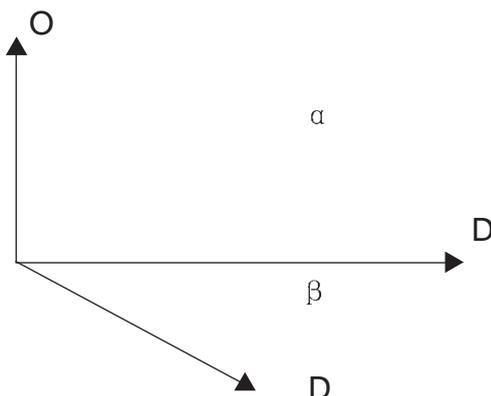
(3) protections

It is same as the one in cooling or heating mode, there is only one exception , the compressor doesn't have at least 5 minutes protection.

E. other controls

1. SWING mode

- a. When it is active, the louver returns to position O, close the air outlet.
- b. When machine works, it turns to the max. Air output position D, then returns back to position L to stand by (position L is the horizontal place mentioned before).
- c. In swing state, the louver swings between position L and position D.
- d. When the machine is switched off, it is back to position O.



Window Split Type

In model KF-45GW/C1, $\alpha = 93, \beta = 45$

In model KF-20GW/C1, KF-25GW/C1, KF-32GW/C1, $\alpha = 80, \beta = 25$

Attention : in model KF-20GW/C1, KF-25GW/C1, KF-32GW/C1, the louver will stop at position D; in model KF-45GW/C1, the louver will stop at position L.

Model KF-20GW/C1, KF-25GW/C1, KF-32GW/C1:

- When it is active, the louver returns to position O, close the air outlet.
- When machine works, it turns 80 degrees to the max. Air output position D and stands by.
- In swing state, the louver swings between position L(25) and position D.
- When the machine is switched off, it is back to position O.

2. beeper

- When PCB becomes active or receives the signal from the remote controller, the beeper will beep.
- If thermostat is open-circuited or short-circuited, when you press the TEST button, the beeper will alarm at the frequency 2HZ.

3. indication lamps

It flashes when defrosting begin.

4. multi-step switch .

- If the switch is in AUTO position, the machine will run at the AUTO mode, if there is a signal from remote controller, it will run according to the signal .
- If the switch is in TEST position, the machine will run at the COOL mode, indoor motor will run at high speed, swing motor will run according to SWING mode. If there is a signal from remote controller, it will run according to the signal .if the thermostat is open-circuited or short-circuited, the beeper will alarm at the frequency 2 HZ .
- If the switch is in RUN position, the machine will run according to the remote signal.
- If the switch is in STOP position, the machine will stop.

5. SLEEP mode.

- In cooling or dehumidifying mode, 1 hour after you set the sleep timer, T_{set} will add 1°C automatically, another 1 hour, another 1°C will be added.
- In heating mode, 1 hour after you set the sleep timer, T_{set} will lower 1°C automatically, another 1 hour, another 1°C will be lowered .

6. Automatic fan speed .

- In cooling mode, if $T_{in} > T_{set} + 4^{\circ}\text{C}$ high speed
 $T_{set} + 2^{\circ}\text{C} \leq T_{in} \leq T_{set} + 4^{\circ}\text{C}$ medium speed
 $T_{in} < T_{set} + 2^{\circ}\text{C}$ low speed
- In heating mode, if $T_{in} \leq T_{set} - 1^{\circ}\text{C}$ high speed
 $T_{set} - 1^{\circ}\text{C} < T_{in} < T_{set} + 1^{\circ}\text{C}$ medium speed

$$T_{in} \geq T_{set} + 2^{\circ}\text{C}$$

low speed

F. fresh air function.

1. there are two fresh air modes .

a. fresh air 2

Fresh air motor will work 1 hour, then rest 1 hour, then cycle again.

b. fresh air 1

Press the button AIR on the remote controller to select fresh air 1 function, the swing motor keeps running till you give a signal to change it.

G. air cleaning

In air cleaning mode, air cleaner works while indoor fan runs and air cleaner stops while indoor fan stops.

The speeds of the wind of all types of the air-conditioner are as below:

000: 900, 850, 800, 700 (RPM);

001: 1000, 900, 850, 700 (RPM);

010: 1050, 950, 900, 700 (RPM);

011: 1100, 1000, 950, 700 (RPM);

100: 1200, 1100, 1000, 700 (RPM);

101: 1250, 1100, 1050, 700 (RPM);

111: 1400, 1200, 1100, 700 (RPM).