

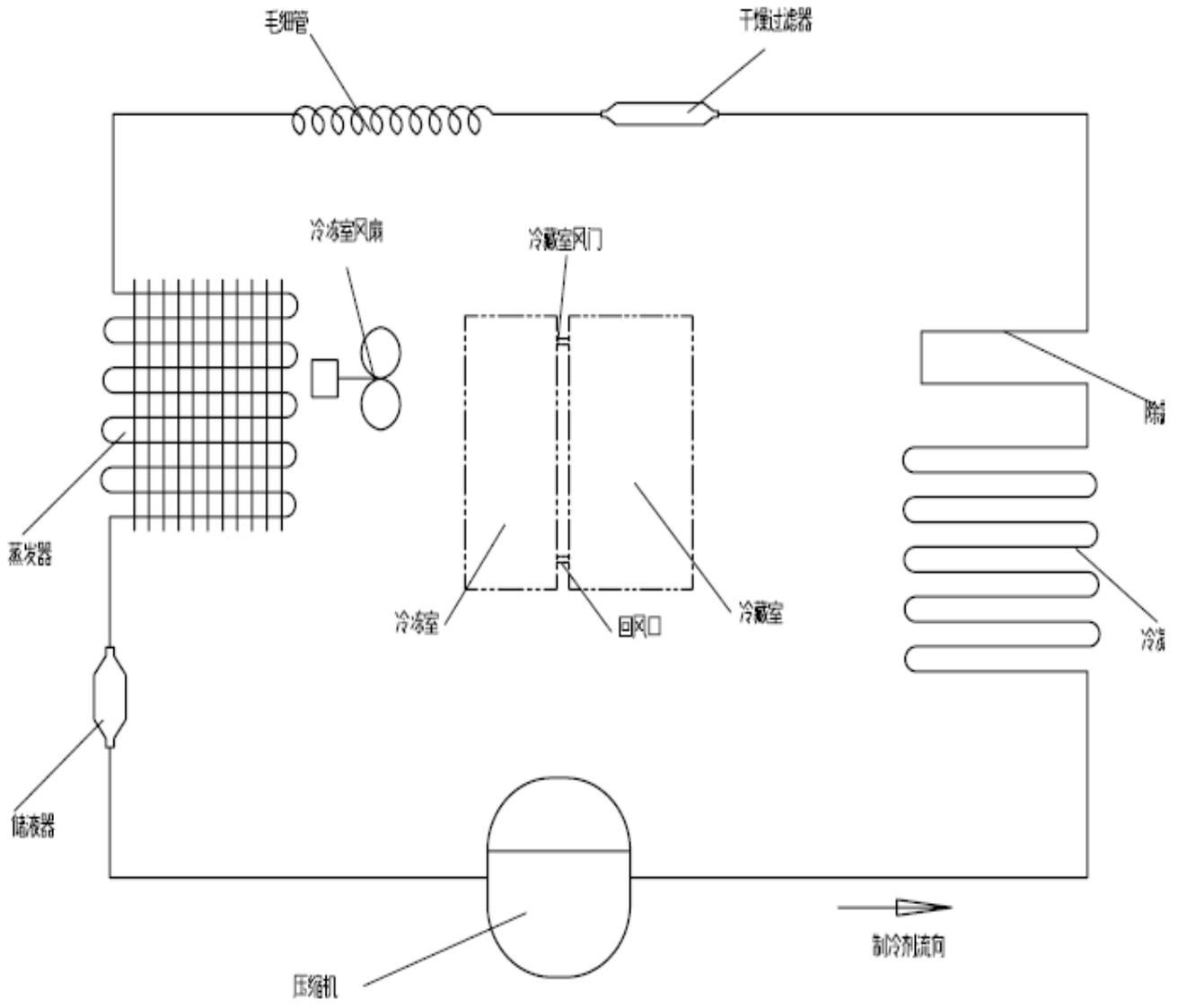
# Service Manual

Models: FRN-SH23BVS

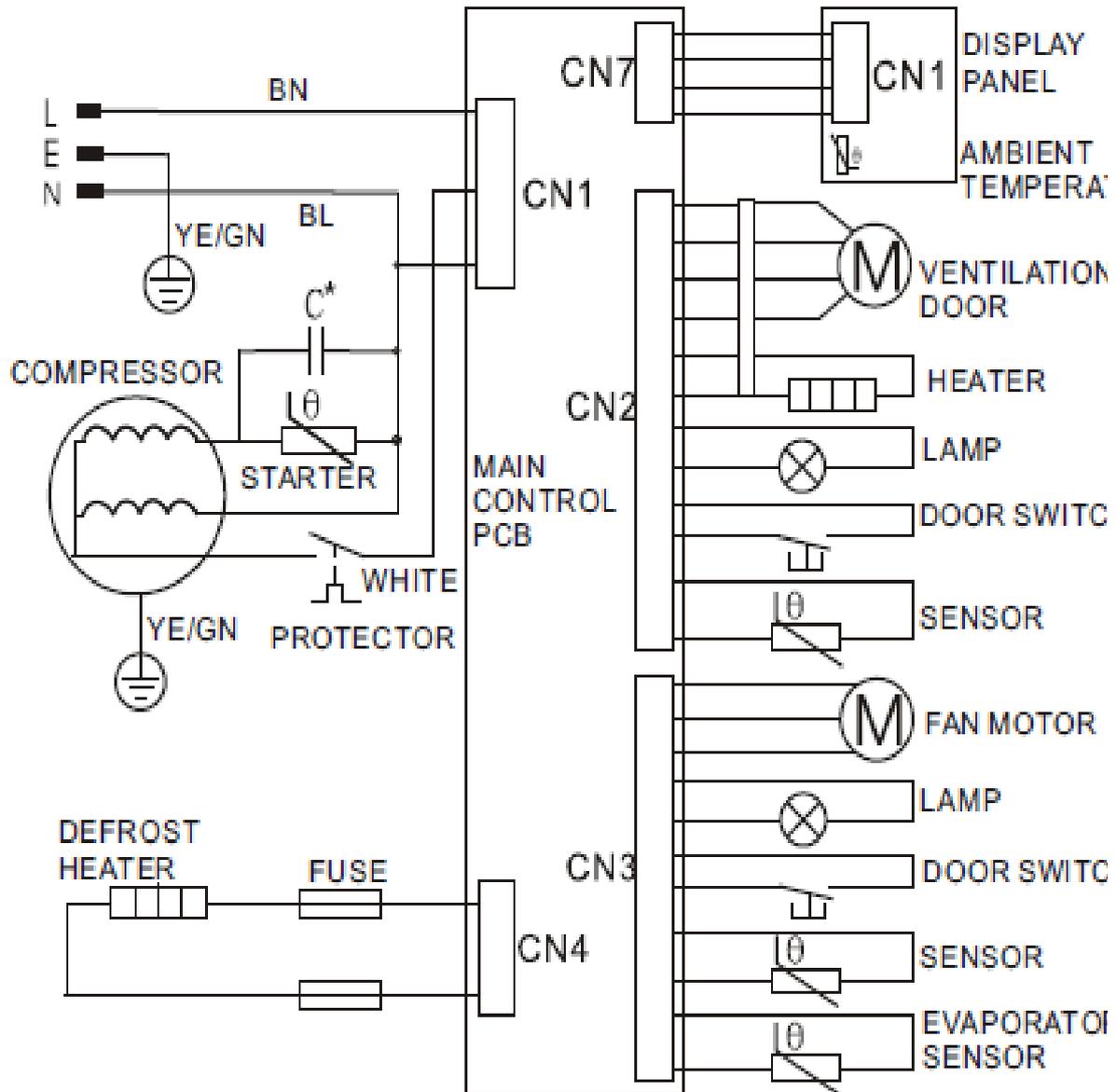
## Features

- Energy efficiency
- Micro foam technology
- Low noise operation
- Thick insulation for energy efficiency
- Latest No. 2 micro-biological technology

# The cooling system



## The electrical diagram



## Trouble shooting guide

No	Problem	Possible Cause	What To Do
1	Fan no work,Freezer room temperature no enough cold and refrigerator room temperature Ok and compressor running, but no air in freezer air outlet.	the the fan motor is failure and replace it with a new one	open the cover board of air duct in freezer room, check the fan if it no running, then measure the voltage between the red wire and black wire of fan, if the voltage is 12V,the the fan motor is failure and replace it with a new one
		the failure of the inner wire to fan connector	measure the voltage between the CN2 red and black wire of PCB, if the voltage is 12V, then check from the inner wire to fan connector
		the PCB failure and change a new PCB	measure the voltage between the CN2 red and black wire of PCB,if the voltage is zero, then the PCB failure and change a new PCB.
2	No defrost.Freezer room temperature no enough cold and refrigerator room OK and open the cover board of are duct and find ice formation on evaporator	the drainpipe contain impurity	disconnect power, and let the ice defrost and inspect the water if it is flow through the drainpipe, if could not flow out, check if it contain impurity and clean the drainpipe
		the sensor failure or PCB failure	check the fuse if it is melt or not. If the fuse is melt, it mean that the sensor failure or PCB failure, need change the sensor or PCB.
			inspecting the CN4 defrost heater

		the defrost heater is break or PCB failure	two connector.If the heater is OK then it must be PCB failure and change the PCB.
3	the temperature of freezer and refrigerator are no enough cold and the temperature no change by adjusting the potentiometer (thermostat)	the potentiometer failure	inspect the potentiometer (thermostat), and measure the resistance value by adjusting the potentiometer (thermostat), if the resistance value no change by adjusting the potentiometer (thermostat)
		the sensor failure	When the sensor failure and the compressor will be running like this—if the potentiometer (thermostat) setting below 3 position, the compressor will be running 20 minutes and then stop 30 minutes, if the potentiometer (thermostat) setting more than 3 position, the compressor will be running 30 minutes and then stop 20 minutes. If find the compressor work like above situation, it mean the sensor failure and need open the back of refrigerator and change sensor of refrigerator evaporator
4	LED no light	the led failure	Open the refrigerator door and measure the voltage of CN3 in PCB, if the voltage is zero then it mean the connecting wire failure and if the voltage is 12V, it mean the led failure

		the switch circuit is failure	If the CN3 voltage no 12 V and then check the CN4 voltage, if the voltage CN4 no change by close and pen door, it mean the switch circuit is failure.
5	Compressor no starting	no problem	the time between two starting is shorter than 12min; or refrigerator room temperature is lower than the setting temperature, in this case, it is no problem. You need waiting more time.
		PCB failure	PCB had automatic self-examination: open the cover of PCB at the back of product, plug in power and push the SW101 switch 3 seconds and the PCB begin automatic self-examination program, then the led and compressor and fan and defrost heater all work two second and then stop, all wore one time and then quit automatic self-examination program, and the program will return the original setting. If the automatic self-examination program no work, it mean the PCB failure and need change it
		ompressor wire not right or compressor damage	measure the voltage of compressor input connector, if it is OK then check the starting and relay of compressor, also check the wire if it is OK

6	product no any work	the PCB failure	check the power by multimeter, if the input voltage is 220V-240, but the led, compressor, fan, defrost heater are all no work, it mean the PCB failure and need change a new PCB
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## Error codes of FF2-66

If any errors happen, related codes will be showed on the display. Details as below:

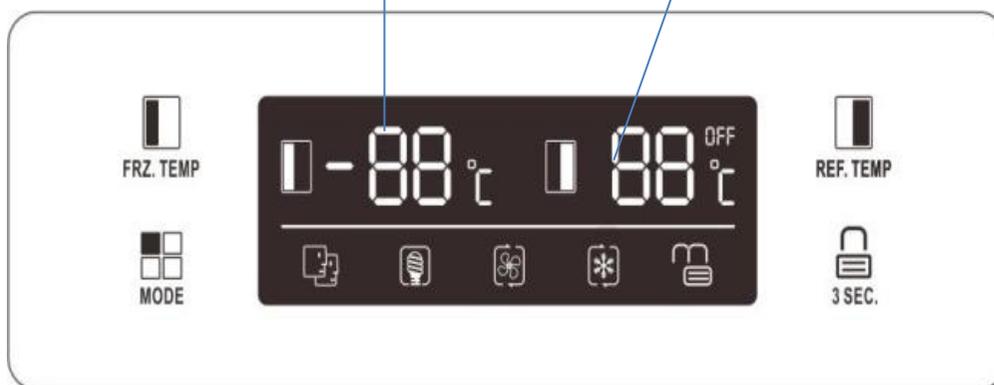
Which parts with errors	Codes	Place of code
Temperature sensor of fridge compartment(right side)	E1	Displays on right LED
Temperature sensor of freezer compartment(right side)	E2	Displays on left LED
Defrost temperature sensor on freezer evaporator	E3	Alternatively display E3 and freezer setting temperature on left LED
Fan motor in evaporator room of freezer compartment	E4	Displayed by left LED
Signal transmission between control board and main board. Probably defects of harness(wire and connectors), main board or control board	E5	Alternatively display E5 and fridge setting temperature on right LED
EEPROM in main board	E6	Alternatively display E6 and fridge setting temperature on right LED
Defrost heater or the fuse connected with heater	E7	Displays on left LED

If there are two or more errors, error codes will be displayed on related LEDs alternatively.

If "E5" is displayed on right LED, probably there are other errors which are not able to be displayed.

Left LED, normally shows setting temperature of freezer compartment.

Right LED, normally shows setting temperature of fridge compartment.

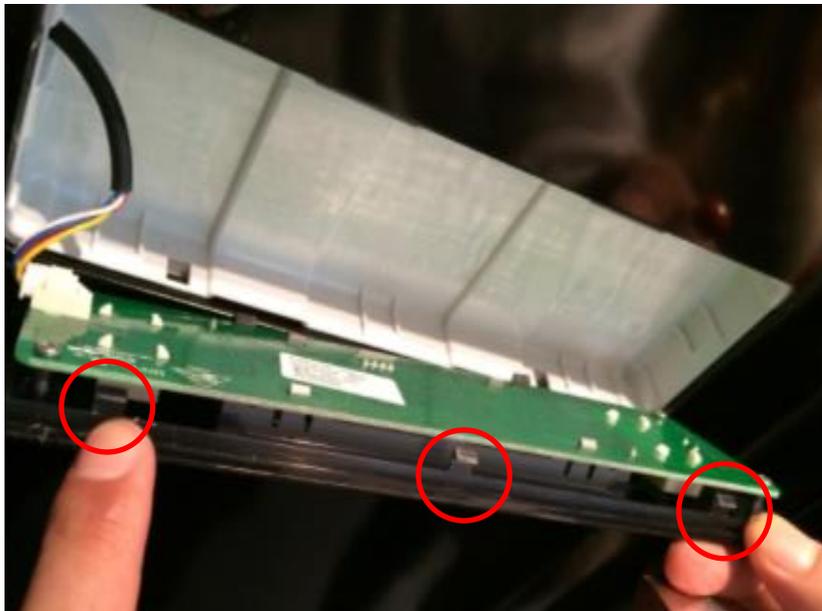


How to replace interface set?

Tools: knife, flat screw drive, tape

Warning: please unplug the appliance before replacement!

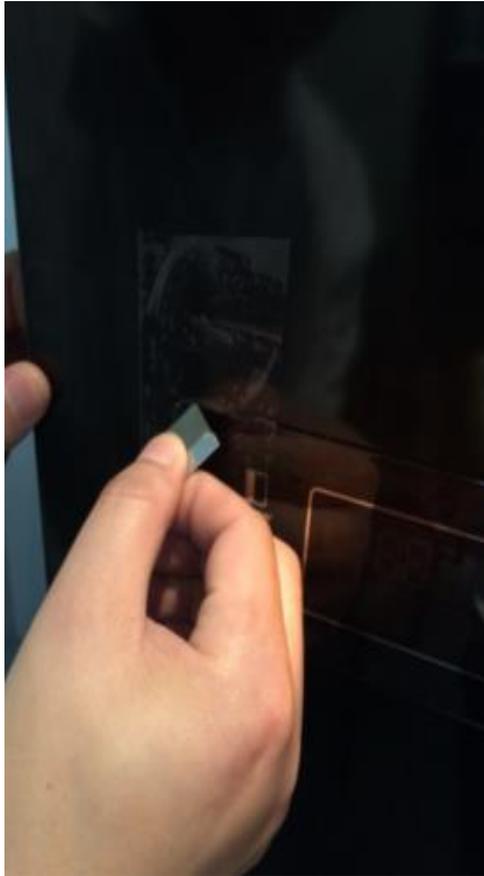
1/Where are snaps of interface



2/Use tape to protect the door panel and avoid damage of painting.



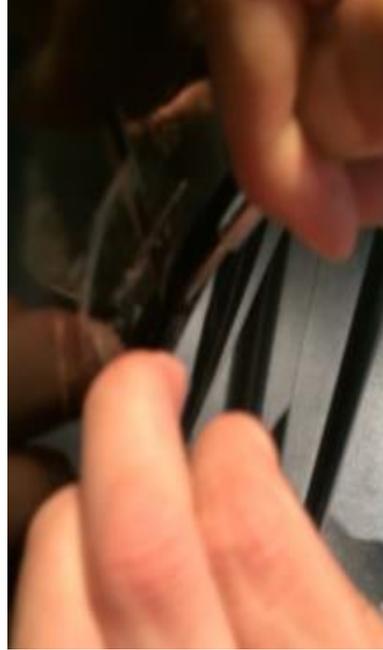
3/ Cut the tape along the border of interface and keep more blank for door panel.



4/ Insert the knife in gap between interface and door panel at the upper left snap to unlock the snap.



5/ Pry the knife toward upper side to release the snap. At same time, use flat screw driver to press on released top of interface and then pull out whole interface.

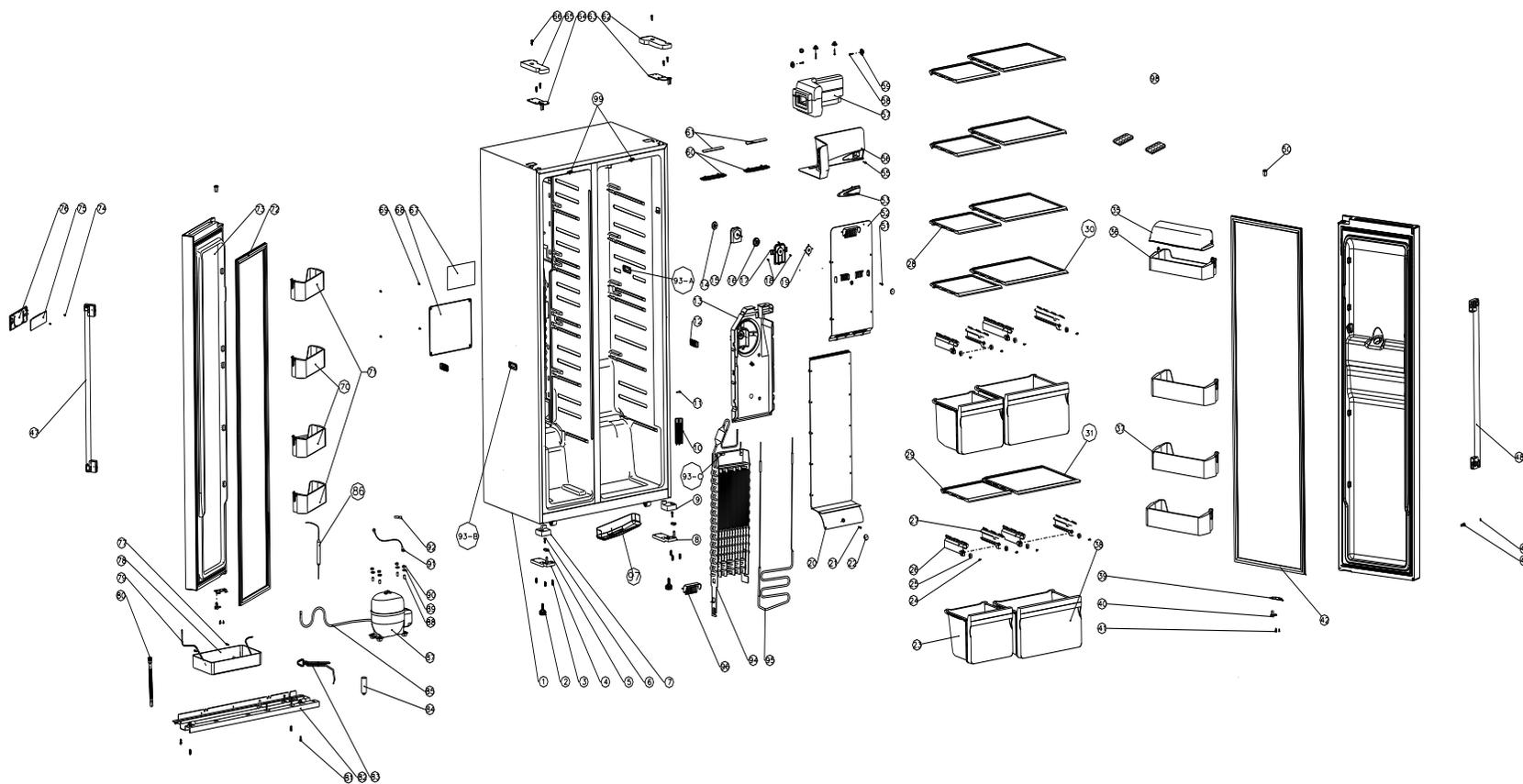


6/ Disconnect the terminal and replace a new interface set



		R- door SWITCH	F- door SWITCH	R-ROOM T.sensor	F-ROOM T. sensor	EVAP T.sensor set point (°C) = 7	TIME for START and STOP	max. TIME duration
COMPRESSOR	ON				$\geq$ set point+1°C		stop time $\geq$ 5min	
	OFF				$\leq$ set point-1°C		stop times $\leq$ 5min	
R- WIND motor	ON	OFF		$\geq$ set point+1°C			defrost finish and temperature reach ON	10min
	OFF	ON		$\leq$ set point-1°C				10min
DEFROST (HEATER)	ON						defrost time $\leq$ compressor accumulative running time $\leq$ defrost time+2 compressor continuous running time $\geq$ 10H	
	OFF					$\geq$ 7°C	defrost time $\geq$ 100min	
FAN motor	ON		OFF				(no defrost and compressor on) AND (freezer door close); or (no defrost and compressor off and refrigerator need cooling AND (freezer door close)	
	OFF		ON				compressor stop and refrigerator no need cooling OR fan close)	

R-LED lamp	ON	ON						
	OFF	OFF						
F-LED lamp	ON		ON					
	OFF		OFF					
R door-ALARM	ON	ON $\geq$ 90s						1Hz ring 5 times, stop 30 seconds
	OFF	OFF						
F door-ALARM	ON		ON $\geq$ 90s					1Hz ring 5 times, stop 30 seconds
	OFF		OFF					
T. Sensor ALARM code				E1	E2	E3		



## FRN-SH23BVS

No.	Parts code	Description of Spare Part	Quantity
1	2102250008	Cabinet	1
2	20122990593	Adjustable foot assembly	2
3	3060100078	Screw of M6*16	6
4	3031400140	Lower door hinge assembly,left	1
5	2208510016	Block of aid-closer,lower	2
6	3060100074	Screw of M6X16	2
7	2200450003	Cover of left hinge,lower	1
8	3031400138	Lower door hinge assembly,right	1
9	2200450002	Cover of right hinge,lower	1
10	20122990488	Return air respirator	1
11	3060100053	Screw ST4.2X13	1
12	20122990629	Thermal head cover	1
13	20122990491	Fan motor bracket	1
14	3029900265	Back rubber gaske of motor	1
15	3059900028	Fan motor parts with fan	1
16	3080100059	Front rubber gaske of motor	1
17	20122990495	Electrical installation cover	1
18	3060100053	Screw ST4.2X13	1
19	3029900272	Motor fan	1
20	20122990494	Front cover of Freezer wind tunnel parts,lower	1
21	3060100053	Screw ST4.2X13	1
22	20122990493	Screw cap	2
23	20122030507	Lower drawer	1
24	3060100058	Screw ST4.2X9.5	8
25	20122990484	Guide roller	8
26	20122990483	Left guide I	3
27	20122990485	Rjght guide I	3
28	2106100003	Shelf of freezer chamber,upper	4
29	3020500150	Shelf of freezer chamber,lower	1
30	2106100004	Shelf of refrigerator chamber,upper	4
31	3020500152	Shelf of refrigerator chamber,lower	1
35	20122050393	Upper rack cover of refrigerator	1

36	20122050391	Upper rack of refrigerator	1
37	20122050389	Lower rack of refrigerator	3
38	20122040292	Crisper drawer,lower	1
39	3039900184	Limit line iron	2
40	2208510015	Block of aid-closer,upper	2
41	3060100048	Screw ST4.2X13	6
42	3020400232	Door gasket,right	1
43	2100250114I	Door,right	1
44	3060100076	Screw	4
45	3060100083	Screw of M5*8	4
47	3039900292	Handle handle,Left	1
48	3039900292	Handle handle,Right	1
50	2208100018	Collar,upper	2
51	3060100053	Screw ST4.2X13	1
52	20122990492	Front cover of freezer wind tunnel parts,upper	1
53	20122990607	Deodorizer cover	1
55	3060100048	Screw ST4.2X13	1
56	20122990489	Front cover of refrigerator wind tunnel parts	1
57	2107120007	Foaming parts of refrigerator wind	1
57,1	3071000187	Refrigerator wind foam parts,upper	1
57,2	3071000188	Refrigerator wind foam parts,lower	1
57,3	3059900027	Damper motor of refrigerator wind	1
58	3060100055	Screw ST4.2X16	4
59	20122990482	Cover plate of fixed seat	4
60	20122010104	Cover of ceiling light	2
61	3050400018	Ceiling light	2
62	2208200006	Cover of right hinge,upper	1
63	3031400215I	Upper door hinge assembly,right	1
64	3031400214I	Upper door hinge assembly,left	1
65	2208200005I	Cover of left hinge,upper	1
66	3060100017	Screw of M5*16	6
67	3050300027	Control board	1
68	3039900180	Cover of control board	1
69	3060100048	Screw ST4.2X13	4

70	2207500448	Left rack	2
71	20122050395	Left rack	2
72	3020400231	Door gasket,left	1
73	2100250031W	Door,left	1
74	3060100040	Screw of 2.5*9.5	2
75	3050300039	Display circuit board	1
76	3029900334	Display panel	1
77	3060100048	Screw ST4.2X13	2
78	20122990481	Drain pan	1
79	20114010065	Evaporative condenser	1
80	3020600065	Drain pipe	1
81	3060100078	Screw of M6*16	4
82	20120080097	Compressor base support	1
83	3050100093	Power supply cord plug	1
85	20114070026	Connecting tube	1
86	3040500022	Drier filter	1
87	3040100342	Compressor parts	1
88	3060300001	Cowsh	4
89	3060300005	Pad	4
90	3060200002	Nut	4
91	3050200094	Earthing wire of compressor	1
92	3040600005	Process tube	1
93-A	3050200155	Temperature sensor	1
93-B	3050200155	Temperature sensor	1
93-C	3050200155	Temperature sensor	1
94	3040300056	Fin Evaperator	1
95	3050700013	Frost heater & fuse	1
96	3071000186	Foam of Fin Evaperator	1
97	3039900181	Fixed slot of heater	1
99	2501100002	Door switch	2
101	2700103132	Carton	1
		Totally Quantity:	