

Haier

Service Manual

Pharmacy Refrigerator (2~8°C)

Model : HYC-290/390/390F

Picture :



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1. Definition of the Model

H (Haier) Y (Pharmacy) C (Refrigerator) -**290** (Capacity is 290L)

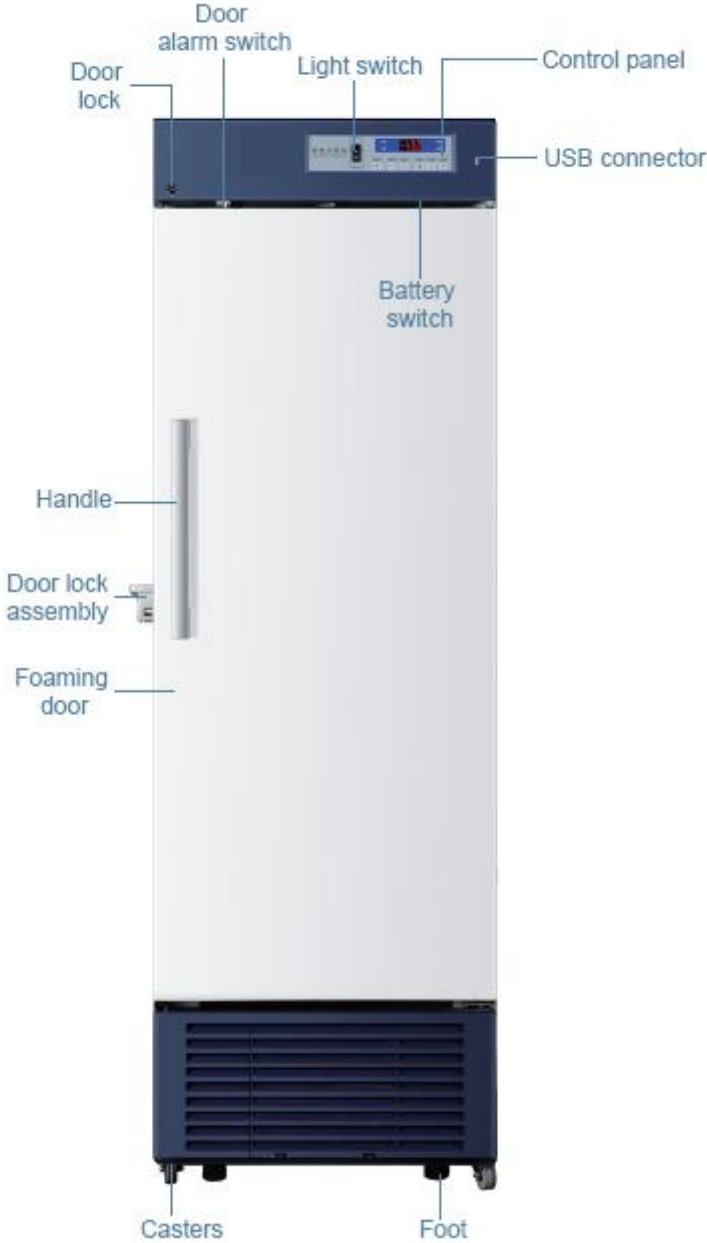
H (Haier) Y (Pharmacy) C (Refrigerator) -**390** (Capacity is 390L)

H (Haier) Y (Pharmacy) C (Refrigerator) -**390 F** (Capacity is 390L,foamingdoor)

2. Appearance and Parts



HYC-290/390



HYC-390F

Haier

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3. Product Technical Parameters

1.HYP-290 :

Model	HYP-290
Type	upright、 glass door、 air-cooling
Climate class	N (10°C~32°C)
Temp. range	2~8°C
Capacity (L)	290L
Interior Dimensions(W×D×H)	530×555×1080
Exterior Dimensions(W×D×H)	665×710×1665
Net /Gross weight(Kg)	105/127
Exterior/Interior Material	SPCC/PS
Power Supply	220V/50Hz
Rated Power/Current	340W/2.2A
Controller	Microprocessor
Qty of sensor	5EA
Alarm type	Buzzer , light , remote
Alarm content	High& low temp. , sensor error , power failed , low battery , door Ajar
Foot and wheel	2 feet & 4 wheels
Test hole	1
Shelf	4shelves+1basket
Data record	USB
Lamp	LED(3W)
Door and lock	Glass door (with heater)+lock
Defrosting	Auto defrosting+ Forced defrosting (no heater)
Safety mode	Sensor failed SM

2.HYC-390:

Model	HYC-390
Type	upright、 glass door、 air-cooling
Climate class	N (10°C~32°C)
Temp. range	2~8°C
Capacity (L)	390L
Interior Dimensions(W×D×H)	530×555×1380
Exterior Dimensions(W×D×H)	665×710×1965
Net /Gross weight(Kg)	116/139
Exterior/Interior Material	SPCC/PS
Power Supply	220V/50Hz
Rated Power/Current	380W/2.4A
Controller	Microprocessor
Qty of sensor	5EA
Alarm type	Buzzer , light , remote
Alarm content	High& low temp. , sensor error , power failed , low battery , door Ajar
Foot and wheel	2 feet & 4 wheels
Test hole	1
Shelf	6 shelves+1 basket
Data record	USB
Lamp	LED(3W)
Door and lock	Glass door (with heater)+lock
Defrosting	Auto defrosting+ Forced defrosting (with heater)
Safety mode	Sensor failed SM

3.HYC-390 F:

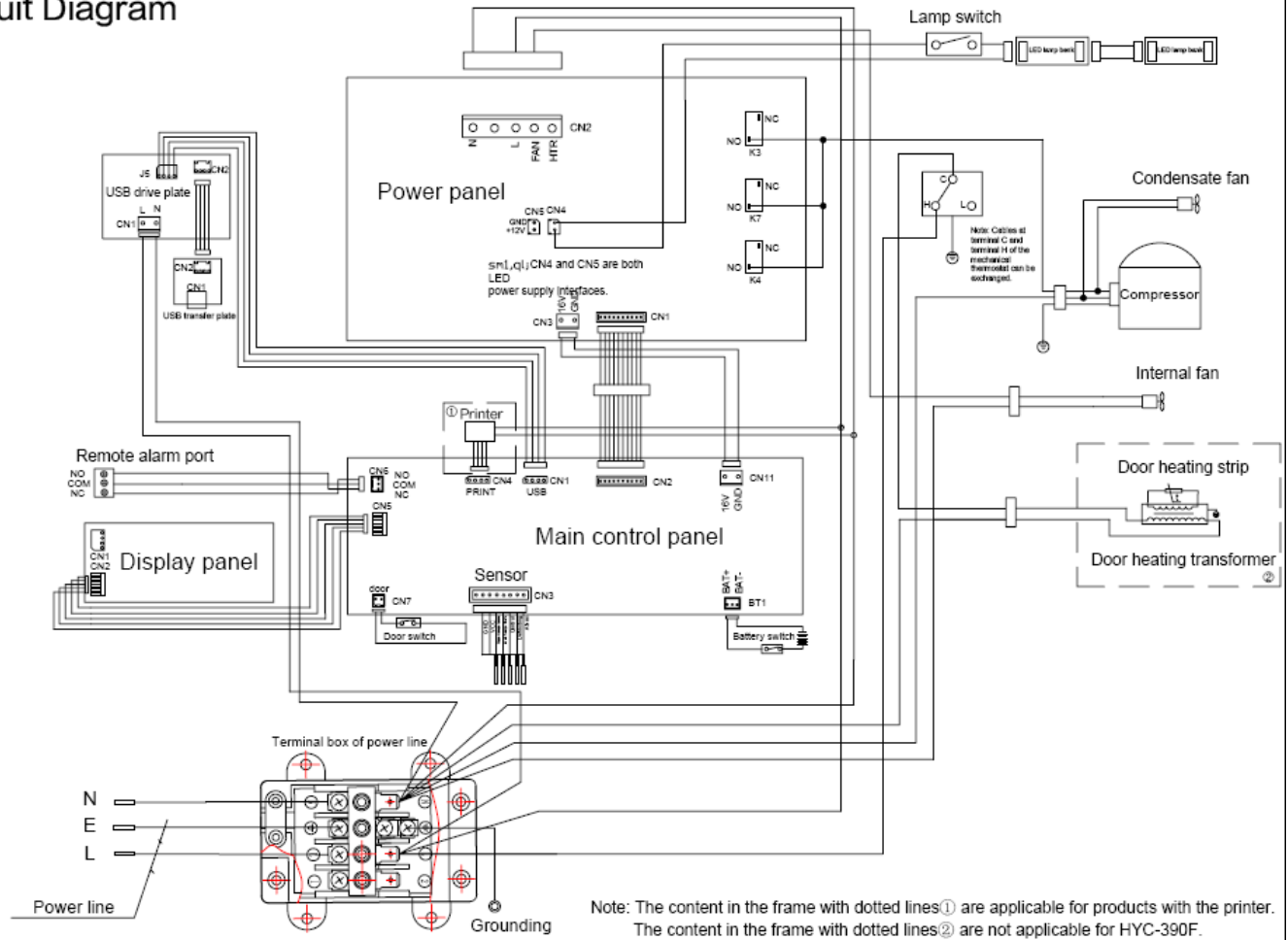
Model	HYC-390 (F)
Type	upright、 foaming door、 air-cooling
Climate class	N (10°C~32°C)
Temp. range	2~8°C
Capacity (L)	390L
Interior Dimensions(W×D×H)	530×555×1380
Exterior Dimensions(W×D×H)	665×710×1965
Net /Gross weight(Kg)	106/129
Exterior/Interior Material	SPCC/PS
Power Supply	220V/50Hz

Rated Power/Current	300W/2.4A
Controller	Microprocessor
Qty of sensor	5EA
Alarm type	Buzzer , light , remote
Alarm content	High& low temp. , sensor error , power failed , low battery , door Ajar
Foot and wheel	2 feet & 4 wheels
Test hole	1
Shelf	6 shelves+1 basket
Data record	USB
Lamp	LED(3W)
Door and lock	Foaming door +lock
Defrosting	Auto defrosting+ Forced defrosting (with heater)
Safety mode	Sensor failed SM

4. Electrical parts and circuit diagram

No.	Part code	Name	QTY	Specification	Applicable models
1	0074090955	Display board	1		
2	0074091548	Control board	1		290/390
3	0074091548A	Control board	1		390 (F)
4	0074091549	Power board	1		
5	0271800064	USB board	1	10years	
6	0271800037	USB port	1		
7	0074091430A	Battery	1	12V/3W	
8	0074091590	LED light	2		
9	0074000186	Transformer for door heater	1	AC/55V	290/390
10	0270801266	Glass door with heater	1	AC/55V/70W	290
11	0270801265	Glass door with heater	1	AC/55V/80W	390
12	0074090305B	Evaporator fan motor and blade	1	EBM fan -motor/30W+blade(Φ200/28°/suction)	
13	0075030020A	Condenser fan-motor	1	EBM fan-motor/30W	
14	0074000313	Condenser fan-blade	1	Blade (Φ200/28°/SUCTION)	

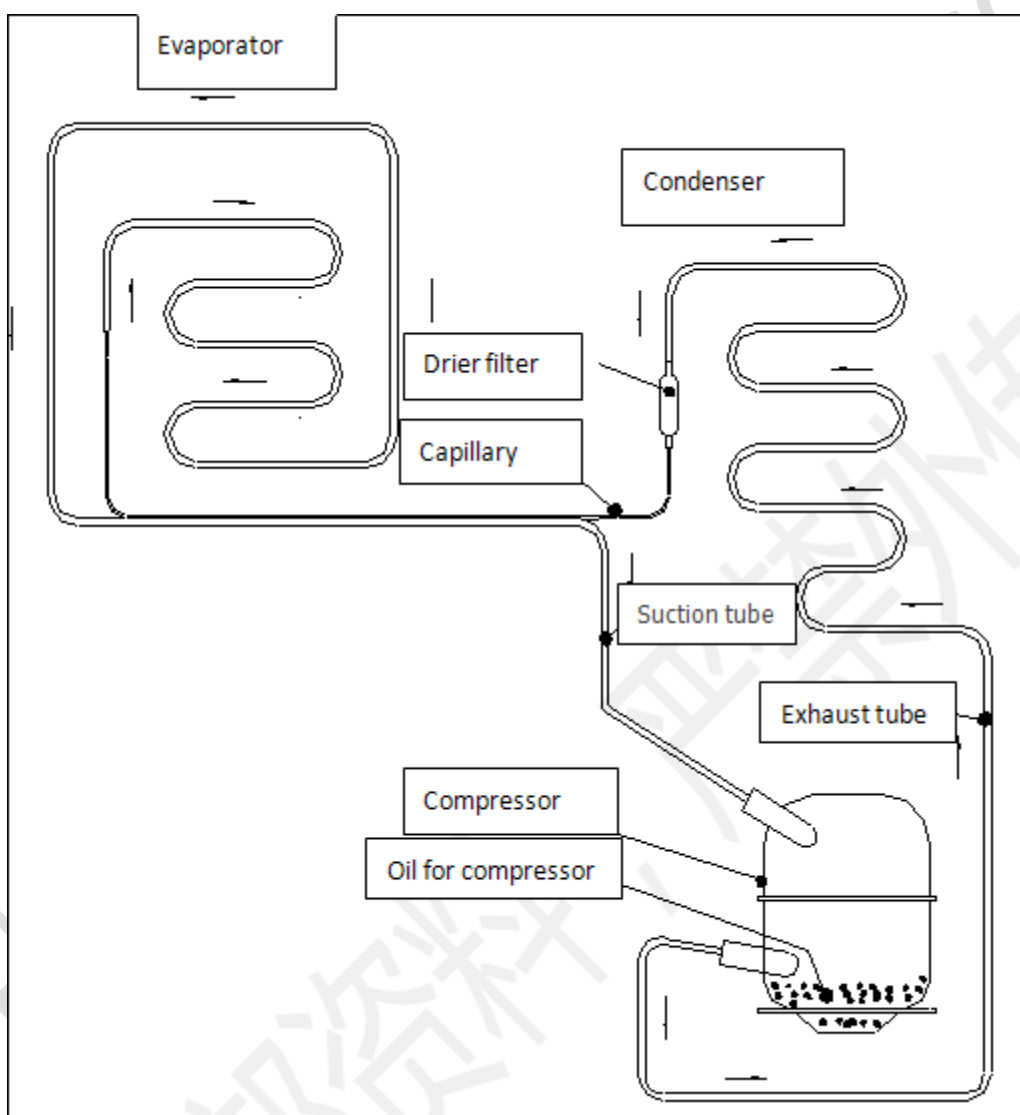
Circuit Diagram



Haier internal

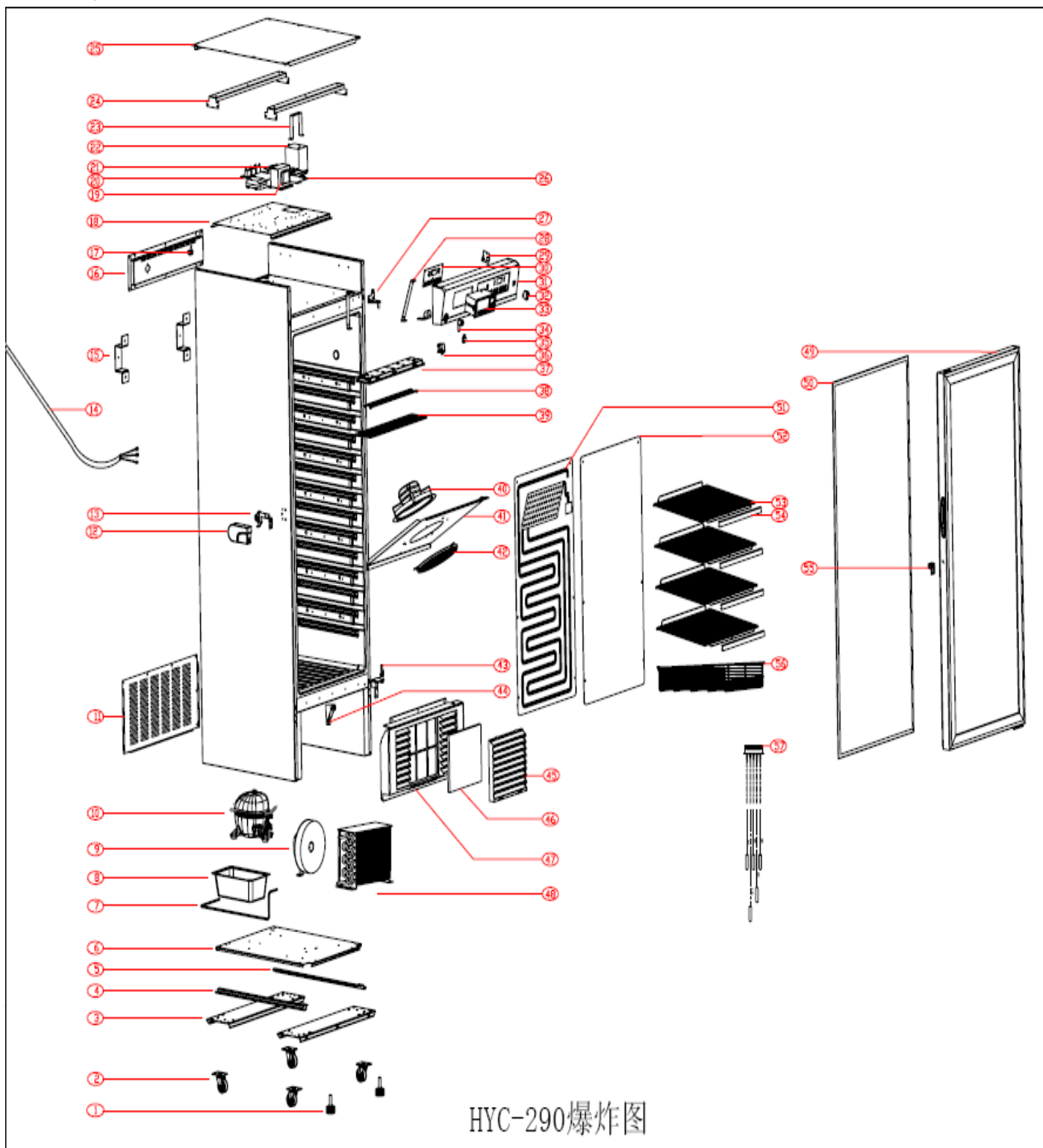
5. Spare parts of cooling system

No.	Part Code	Name	QTY	Specification	Remark
1	0070701306	Compressor	1	NL7.3MF	
2	0270700296	evaporator	1		390/390F
3	0270700245	evaporator	1		290
4	0070701981	Condenser	1		
5	0074180002A	Drier filter	1		
6	0073010002A	R134a	-	Qty : R134a 300g	290
7	0073010002A	R134a	-	Qty : R134a 305g	390/390F



6. Spare part list and exploded view

HYC-290exploded view

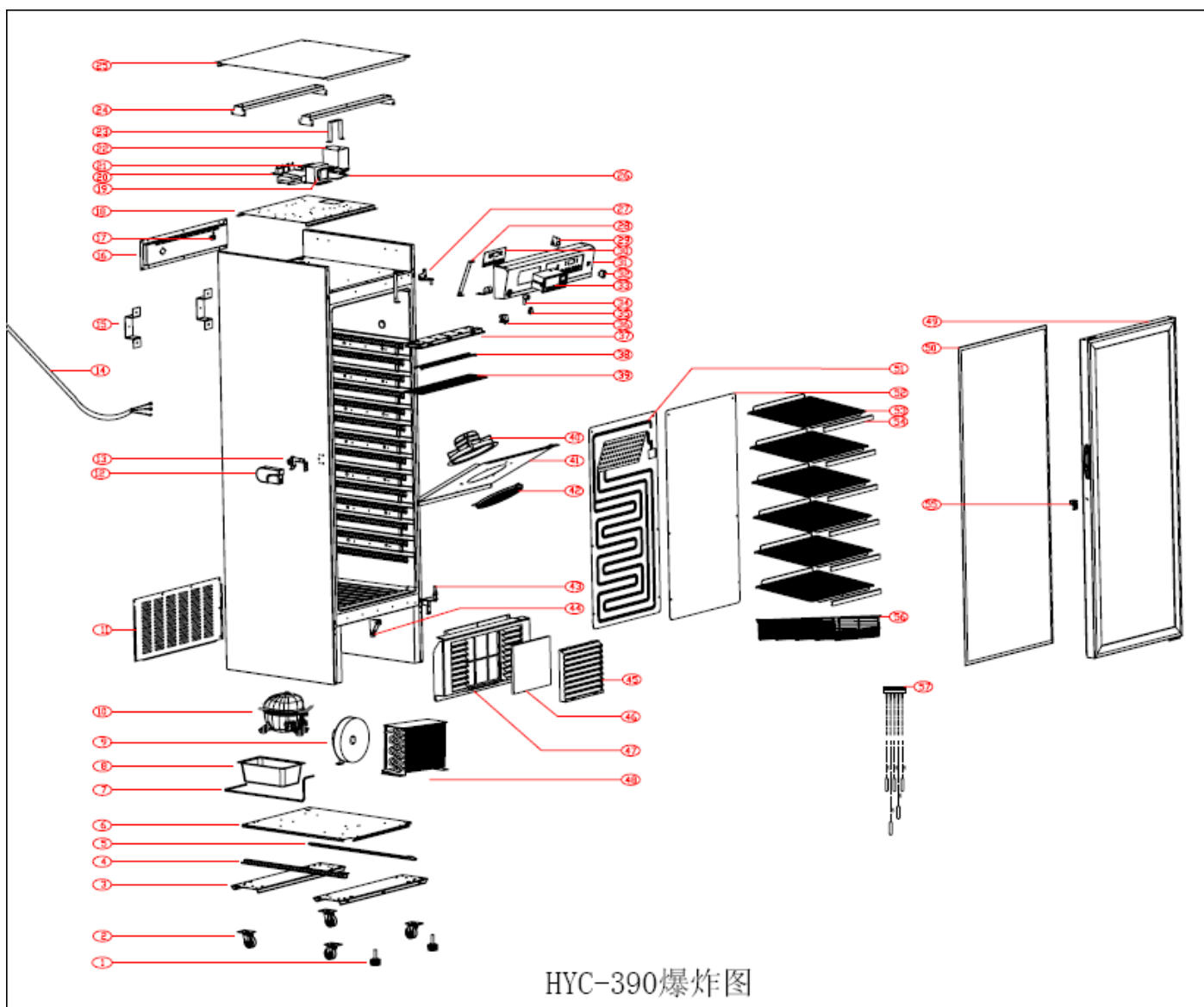


HYC-290 Spare part list

No	Code	Name	QTY	No	Code	Name	QTY
1	00609380509	Foot	2	30	0074090955	Display board	1
2	0070106918B	Caster	4	31	0270200620	Front cover	1
3	0270101428	Caster fix board	2	32	0070401235	Light switch	1
4	0270101429	Compressor fix board support(Left)	1	33	0270200629	Cap of front cover	1
5	0270101430	Compressor fix board support(Right)	1	34	0270101174	Lock	1
6	0270101427	Compressor fix board	1	35	0074000074	Battery switch	1
7	0270700228	Connecting pipe	1	36	0074090530	Door alarm switch	1
8	0070106989	Water collecting box	1	37	0270200632	Lamp socket	1
9	0075030020A	Condenser fan motor	1	38	0074091590	Light	2
10	0070701306	Compressor	1	39	0270200631	Light cover	1
11	0270101431	Back cover of cabin	1	40	0074090305B	Inner fan-motor	1
12	0270200560	Lock cover	1	41	0270101532	Inner fan support	1
13	0270801061	Lock	1	42	0070103974	Inner fan net	1
14	0070401721	Power cord	1	43	0270101618	Hinge	1
15	0070102180	Back support	2	44	0070106170	Door support	1
16	0270101531	Back cap of electric box	1	45	0270200618	Lower grilling	1
17	0274300008	Remote alarm terminal	1	46	0270200619	Filter net	1
18	0270101433	Electrical support	1	47	0270200617	Lower cabin cover	1
19	0074000186	Transformer	1	48	0070701981	Condenser	1
20	0074091549	Power board	1	49	0270801266	Glass door with heater	1
21	0074091548	Control board	1	50	0270200621	Door seal	1
22	0074091430A	Battery	1	51	0270700245	Evaporator	1
23	0270101434	Battery clip	1	52	0270101448A	Air-guide board	1
24	0270101445	Beam	2	53	0270101449	Shelf	4
25	0270101432	Top cover of electric box	1	54	0070202625	Price bar	4
26	0271800064	USB board	1	55	0270801356	Lock ring	1
27	0270101423	Upper hinge	1	56	0270101450	Basket	1
28	0270101446A	Front cover support	1	57	0270400357	Sensor cable	1

29	0271800037	USB Port	1	57	0270400358A	Sensor probe	1
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HYC-390Exploded view

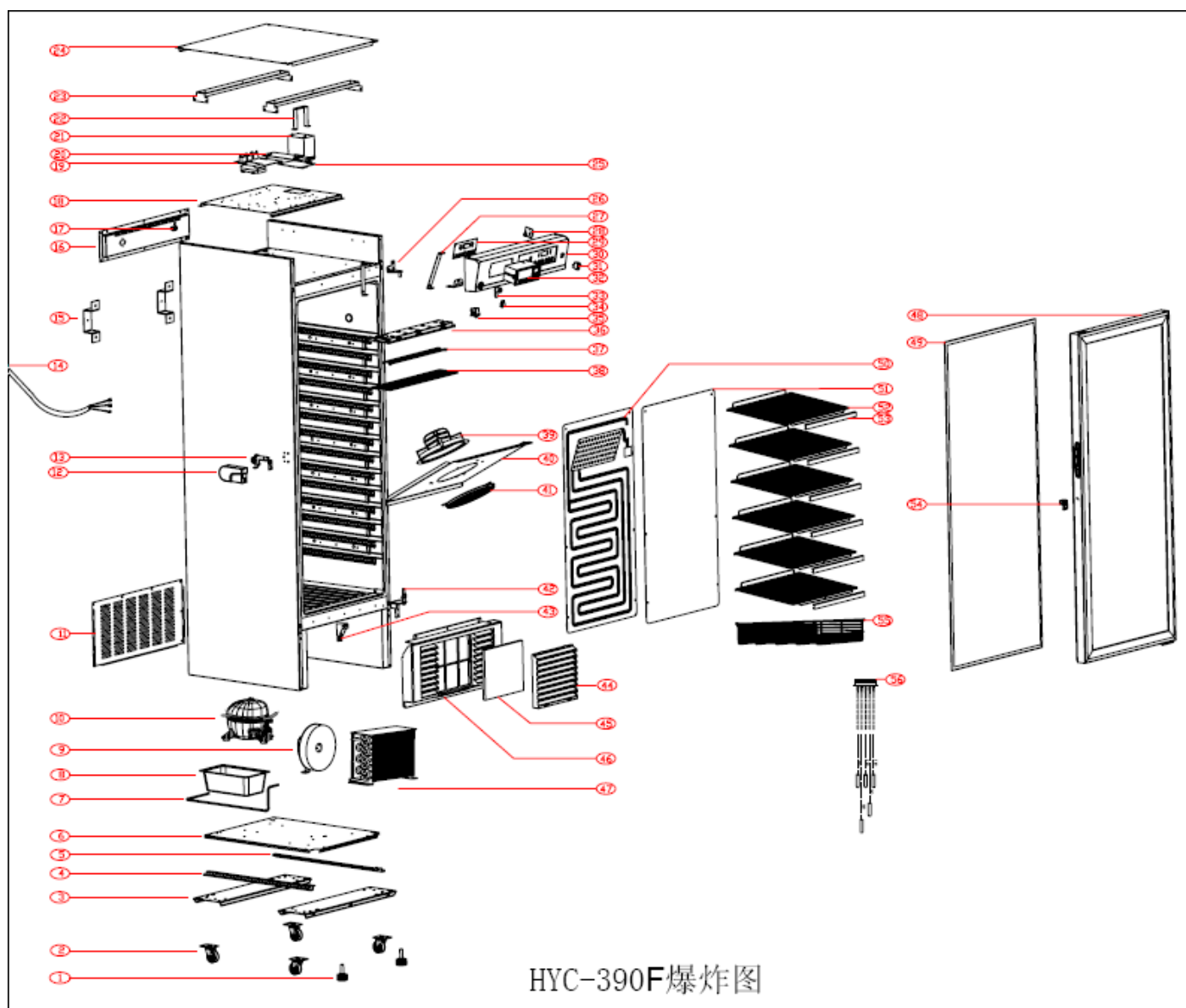


HYC-390 Spare part list

No	Code	Name	QTY	No	Code	Name	QTY
1	00609380509	Foot	2	30	0074090955	Display board	1
2	0070106918B	Caster	4	31	0270200620	Front cover	1
3	0270101428	Caster fix board	2	32	0070401235	Light switch	1
4	0270101429	Compressor fix board support(Left)	1	33	0270200629	Cap of front cover	1
5	0270101430	Compressor fix board support(Right)	1	34	0270101174	Lock	1

6	0270101427	Compressor fix board	1	35	0074000074	Battery switch	1
7	0270700228	Connecting pipe	1	36	0074090530	Door alarm switch	1
8	0070106989	Water collecting box	1	37	0270200632	Lamp socket	1
9	0075030020A	Condenser fan motor	1	38	0074091590	Light	2
10	0070701306	Compressor	1	39	0270200631	Light cover	1
11	0270101431	Back cover of cabin	1	40	0074090305B	Inner fan-motor	1
12	0270200560	Lock cover	1	41	0270101532	Inner fan support	1
13	0270801061	Lock	1	42	0070103974	Inner fan net	1
14	0070401721	Power cord	1	43	0270101618	Hinge	1
15	0070102180	Back support	2	44	0070106170	Door support	1
16	0270101531	Back cap of electric box	1	45	0270200618	Lower grilling	1
17	0274300008	Remote alarm terminal	1	46	0270200619	Filter net	1
18	0270101433	Electrical support	1	47	0270200617	Lower cabin cover	1
19	0074000186	Transformer	1	48	0070701981	Condenser	1
20	0074091549	Power board	1	49	0270801265	Glass door with heater	1
21	0074091548	Control board	1	50	0270200616	Door seal	1
22	0074091430A	Battery	1	51	0270700296	Evaporator	1
23	0270101434	Battery clip	1	52	0270101466	Air-guide board	1
24	0270101445	Beam	2	53	0270101449	Shelf	6
25	0270101432	Top cover of electric box	1	54	0070202625	Price bar	6
26	0271800064	USB board	1	55	0270801356	Lock ring	1
27	0270101423	Upper hinge	1	56	0270101450	Basket	1
28	0270101446A	Front cover support	1	57	0270400357	Sensor cable	1
29	0271800037	USB Port	1	57	0270400358A	Sensor probe	1

HYC-390F exploded view :



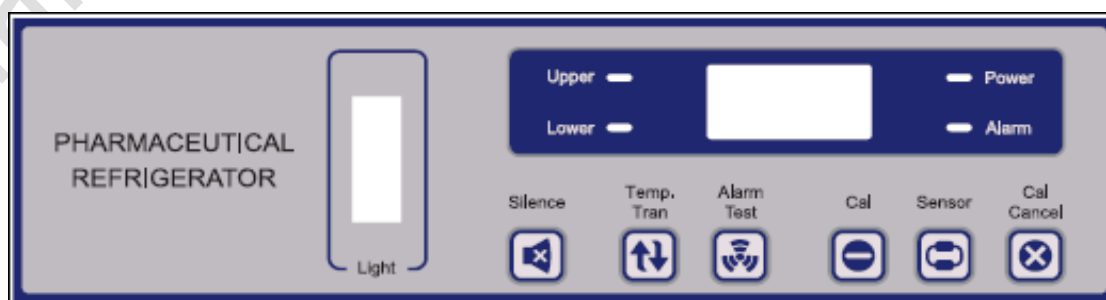
HYC-390F Spare part list:

No	Code	Name	QTY	No	Code	Name	QTY
1	00609380509	Foot	2	30	0270200620	Front cover	1
2	0070106918B	Caster	4	31	0070401235	Light switch	1
3	0270101428	Caster fix board	2	32	0270200629	Cap of front cover	1
4	0270101429	Compressor fix board support(Left)	1	33	0270101174	Lock	1
5	0270101430	Compressor fix board support(Right)	1	34	0074000074	Battery switch	1

6	0270101427	Compressor fix board	1	35	0074090530	Door alarm switch	1
7	0270700228	Connecting pipe	1	36	0270200632	Lamp socket	1
8	0070106989	Water collecting box	1	37	0074091590	Light	2
9	0074000313	Condenser fan motor	1	38	0270200631	Light cover	1
10	0070701306	Compressor	1	39	0074090305B	Inner fan-motor	1
11	0270101431	Back cover of cabin	1	40	0270101532	Inner fan support	1
12	0270200560	Lock cover	1	41	0070103974	Inner fan net	1
13	0270801061	Lock	1	42	0270101618	Hinge	1
14	0270400241	Power cord	1	43	0070106170	Door support	1
15	0070102180	Back support	2	44	0270200618	Lower grilling	1
16	0270101531	Back cap of electric box	1	45	0270200619	Filter net	1
17	0274300008	Remote alarm terminal	1	46	0270200617	Lower cabin cover	1
18	0270101433	Electrical support	1	47	0070701981	Condenser	1
19	0074091549	Power board	1	48	0270803084	Foaming door	1
20	0074091548A	Control board	1	49	0270200538H	Door seal	1
21	0074091430A	Battery	1	50	0074010035	Evaporator	1
22	0270101434	Battery clip	1	51	0270101466	Air-guide board	1
23	0270101445	Beam	2	52	0270101449	Shelf	6
24	0270101432	Top cover of electric box	1	53	0070202625	Price bar	6
25	0271800064	USB board	1	54	0270801356	Lock ring	1
26	0270101423	Upper hinge	1	55	0270101450	Basket	1
27	0270101446A	Front cover support	1	56	0270400357	Sensor cable	1
28	0271800037	USB Port	1	56	0270400358A	Sensor probe	1
29	0074090955	Display board	1				

7. Instruction of operation

Display panel



Definition :

Light : the switch of light which is in the cabinet.

Indicator light for upper and lower temp. (green) : distinguish upper and lower temp. (Upper and lower temp. light together means the average value of the temperature) ;

Power indicator light (Red) : light means power on , flash means main power failed ;

Alarm indicator light (Red) : light flashing means alarm happened ;

Silence : suspend current sound alarm, but this operation cannot cancel remote alarm ;

Temp. Tran. : alternate the value between upper and lower temp. ;

Alarm test : check whether it has alarm or not ;

Cal. & sensor& Cal. cancel : auxiliary button for other operation.

Definition Of Combination Key :

“Sensor”+“Cal. cancel” : setup the temperature (press at least for 5s)

“Temp. tran.” + “Cal.” : calibrate the value of the five sensors (Press at least for 10s)

“Silence” + “Alarm test” : Factory reset (Press at least for 10s)

“Cal.” : a. During the U-disk was inserted in , press“Cal.”to query the status of data exporting ;

b. Press“Cal.”at least for 10s , to set up the system time of USB board ;

c. After exporting the data from USB port ,press“Cal.”for 10s to save and exit ,the display panel will show the temperature of the cabinet.

(1) a. Instructions of Parameter adjustment

Content	Operating steps	Display
Alarm test	After turning on the power , shortly press “Alarm test“button The buzzer rings 3times , and the alarm light flash 3 times, it means normal ;	If it displays E5 , it means low battery or the battery switch is off
Setup temp.	1.Press“sensor”+“Cal. cancel”for 5s	Display the set value of temp. and flashing
	2.pres“Cal. cancel”to rise the value , or press“sensor”to reduce the value	
	3.After setup the vale , no operation , parameters will be saved and exit setting after 5s.	
Ordinary parameters	1.Press “sensor”+“Cal. cancel”for 5s	Display the set value of temp. and flashing
	2.Follow the first step(under displaying the set value of temp. and flashing status) in3s ,	Display : SEH

	press“Cal.” For 10s	
	3.When it shows SEH , In4 seconds , press“Cal. Cancel”or“sensor” , to choose the current parameter , and show the value of the current parameter.	Display SEH’s value
	4.If no any operation , auto jump to next parameter after 4 seconds.	Display next Code
	5.After showing all the parameter , If no operation for 10s,system will save and exit to standby status	
Calibrate the parameters	1.Under standby, press “temp. tran.”+“Cal.”for 10 s	Display D1
	2.Press“Sensor”to show the D-value;	D1-D2-D3-D4-D5-D1
	3.Press“Cal. cancel”to choose the current D-value;	Display the value of the sensor
	4.Press“Alarm test” , to show the adjustment range	Display the adjust range of the sensor
	5. Press“cal. cancel”or“sensor“ to adjust the calibrate the D value	
	6.After calibration ,press“Cal”or wait for 5s will back to D-value list	D1~D5
	7.After calibrating all D-values , within 5s no operation, it will save the parameter and back to standby.	

b. Parameter definition

b.1 Ordinary parameter list

No.	Parameter	Name	Adjust range	Default value	Remark
				HYC-290/390	
1	SEH	Upper limit of setting temp.	Upper limit ; 20	8	
2	SEL	Lower limit of setting temp.	Lower limit : -5	2	
3	AOF	Temp. different control of compressor (set value+0.5) ±AOF	0.5~3.0	1.0	
4	ALH	Alarm for high temp.	Upper limit:20	10	
5	ALL	Alarm for low temp.	Lower limit:-5	2	

b.2 Adjustment list of temperature sensor value

NO.	Parameter	Name	Adjust range	Default value	Remark
				HYC-290/390	
1	D1	Upper temperature sensor	-2.0~+2.0	-0.5	
2	D2	Lower temperature sensor	-2.0~+2.0	1	
3	D3	Control temperature sensor	-2.0~+2.0	-1	
4	D4	Defrosting temperature sensor	-2.0~+2.0	-1	
5	D5	Alarm temperature sensor	-2.0~+2.0	0	

c. Special function

c.1 Defrosting function

Auto defrosting : inner fan motor is working , compressor stop , then start defrosting function.

Forced defrost:

Start conditions : in stably status , before the compressor start ,inspect the temp of defrosting sensor, if the temperature is lower than -0.25°C, the forced defrosting function will work.

Defrosting status : Inner fan motor and compressor stopped.

Exit conditions : Meet any conditions as follows:

- (a) Upper or lower display temp $\geq 5.6^{\circ}\text{C}$
- (b) Defrosting for 20min.
- (c) Temperature of Control sensor or alarm sensor $\geq 7^{\circ}\text{C}$

Notice: twice defrosting time is 24hours,After forced defrosting, compressor start working ,delay 3min the inner fan-motor begin to work.

C.2 Safety mode for failed sensor

If the control sensor is damage , the compressor will work for 5 min and stop for 5min.

C.3 USB storage function

content	Operation steps	Display
Data export	1.plug the usb flash disk into the usb port	USb means exporting
	2.press 'cal'to query the status	ALL-done
Set time	1.press“cal”for at least 10s	Show 1P
	2.press“sensor”or“cal cancel”to change the parameter	1P-2P-3P-4P-5P-1P
	3.press“cal”choose the current parameter and display the value	Show the value of parameter
	4.press“sensor”or“cal cancel”to rise or decrease the value t until proper	
	5.press“cal”save and back	1P~5P
	6.set all the parameter , press“cal” for at least 5s,or no operation for 10s save and exit.	

Notice: 1P to 5P means year, month , day, hour, minute.

C.4 Self-inspection for alarm function

Press “alarm test” button to simulate all alarm functions, make sure the buzzer ,light and remote contacts work fine.

d.The alarm Code

Alarm	Code	Name	Alarm type	Troubleshooting
Sensor error	E1	Upper sensor failed	Buzzer &light &code	Inspect upper sensor
	E2	Lower sensor failed	Buzzer &light &code	Inspect lower sensor
	E3	Control sensor failed	Buzzer &light &code	Inspect control sensor
	E4	Defrosting sensor failed	Buzzer &light &code	Inspect defrost sensor
Door open	N/A	Door open for 10min	Buzzer &light	Inspect door switch or close door
High or low temp.	N/A	The upper or lower temp. beyond the range	Buzzer &light	
Power failure	N/A	Power failed	Power light &buzzer & alternate display temp.	Inspect power
Battery	E5	Low battery or switch is off	Buzzer &light &code	Inspect battery or switch
Remote alarm	N/A	Above all will trigger the remote alarm.]	-	-

Notice: For the low battery alarm, please check it by manual, Press “Alarm test” button, if the display panel show E5, it means the battery is poor or damaged.

e.Special considerations for installation

1. If the freezer includes USB board , Please adjust the system time of the USB board ;
2. If the freezer includes printer, Please adjust the system time of the printer;
3. The blood bank freezer is Air cooling freezer, when put the goods into the freezer, not too dense, make sure

the airflow can go through the shelves ;

4. The freezer has 4 wheels and 2 feet, After installation, make the two feet back to the earth, keep the freezer stably ;

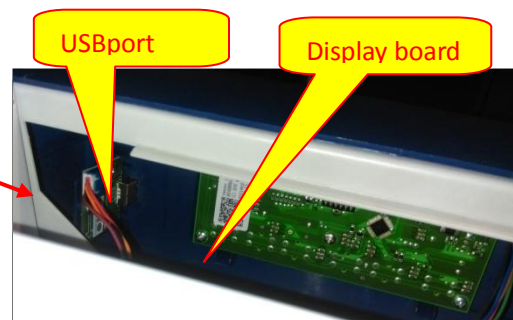
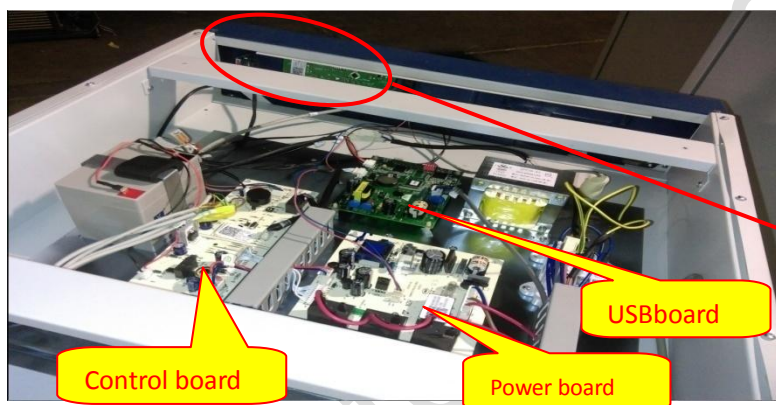
8. Troubleshooting

1. Replace PCB

(a) The PCB is fixed at the top of the cabinet, the display board is behind the front cover.



(b) Remove the screws and open the cover of the electric box, the control board and power board is fixed in the electric box.



2. The position of the sensor

(a) Remove the inner fan cover, the control sensor and alarm sensor is behind the cover.





(b) Remove the fan motor support, we can find the evaporator, the defrosting sensor is behind the evaporator.

(c) Upper and lower temperature probe is put in the measurement box. We can pull out the probe directly.



3. Inspect the heater of glass door

(1) The transformer supplies power to the heater of glass door.



4. Inspect the thermostat

(1) Remove the inner fan cover, will find the thermostat; (2) The fire line connects with pin H, the zero line connect with pin-C.

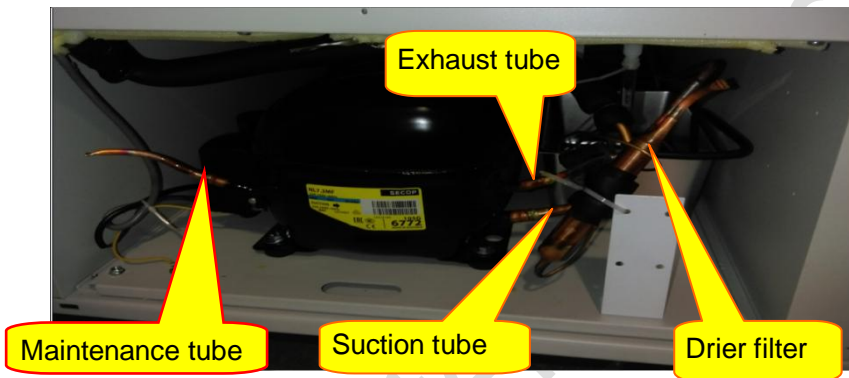


5. Replace compressor

(1) Remove the the screws around the back cover.

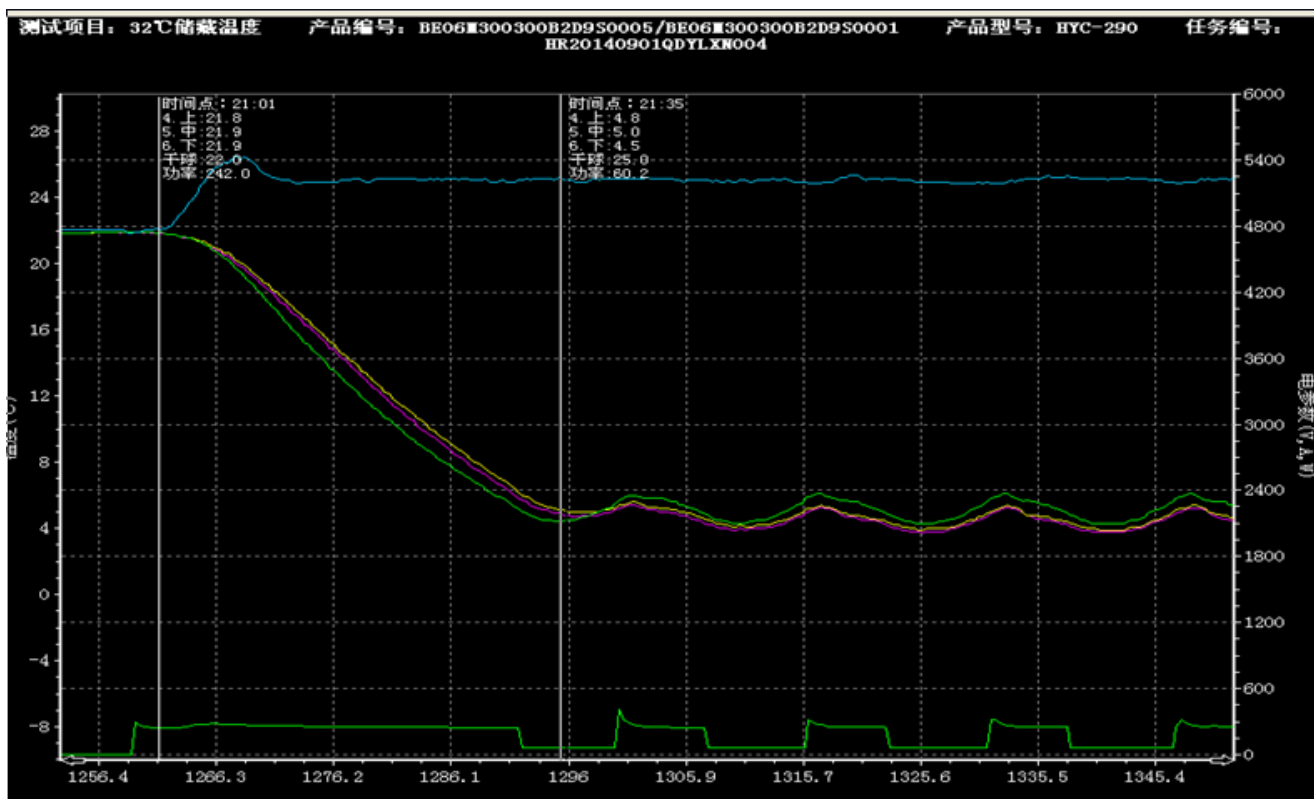


(2) Remove the back cover, will find the compressor, distinguish the tubes around the compressor.



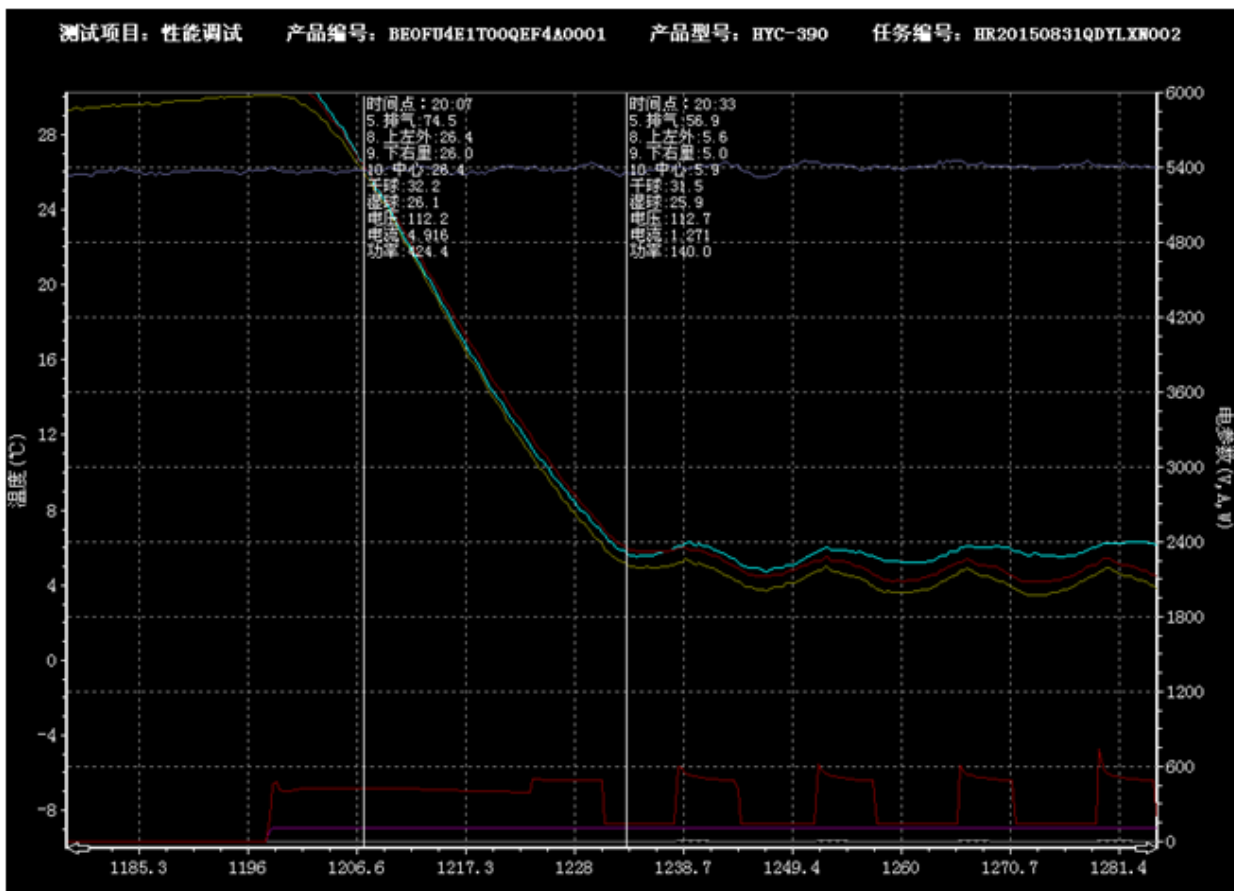
9. Curves

1. HYC-290

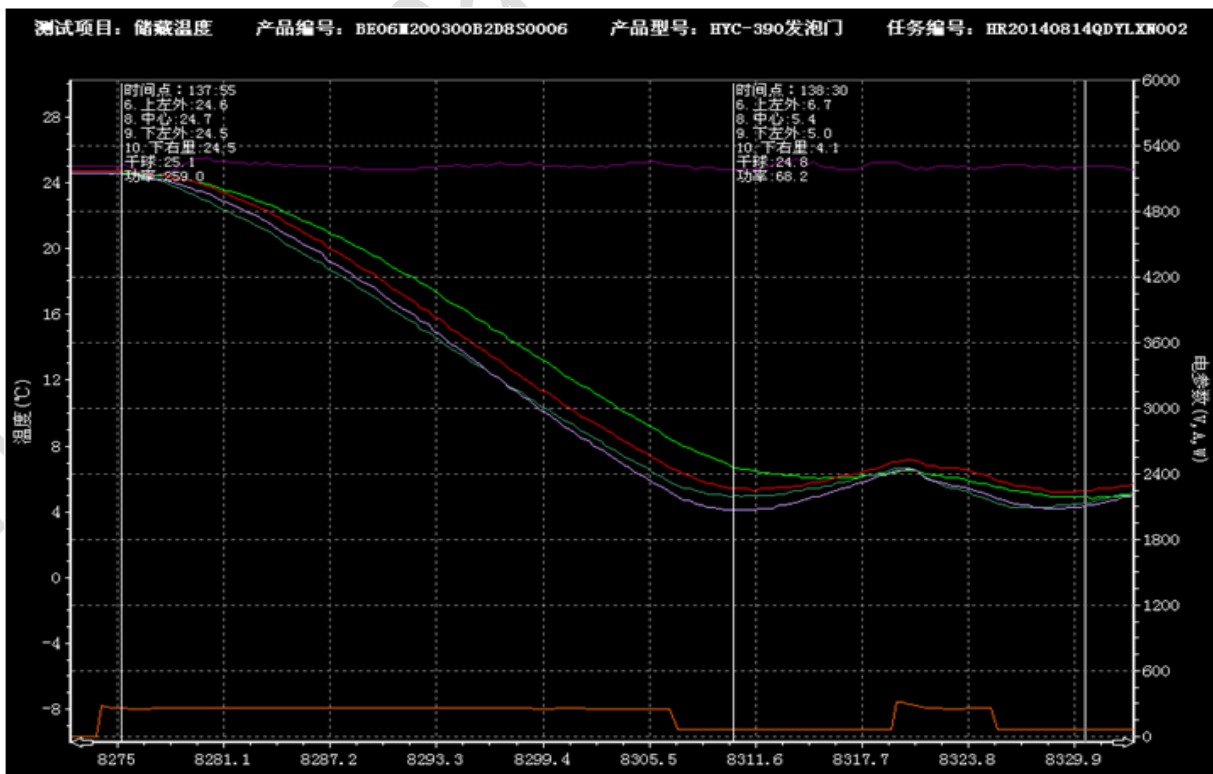


Haier internal use only

2. HYC-390



3. HYC-390F



Haier

Inspired living

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Qingdao China

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