

# Service Manual

Bottom Freezer Refrigerator

Model:VEFFD3620RISL

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## Technician SAFETY Precautions

**Please observe the following safety precautions in order to use safely and correctly the refrigerator and to prevent accident and danger during repair**

- To avoid electrical shock, disconnect power cord from wall outlet and wait for more than three minutes before handling electronic components or capacitors.
- Disconnect power cord from wall outlet before replacing or repairing electric components.
- After unplugging the refrigerator, wait at least 5 minutes before plugging it back.
- Position the power cord in a manner to prevent damage when moving the refrigerator back into position.
- Do not plug a damaged power cord into the electrical outlet.
- Advise the consumer when the refrigerator is not on a dedicated electrical circuit as overloading may cause fire.
- Do not plug the refrigerator into a receptacle that is not properly grounded or not properly polarized or has incorrect voltage level.
- Advise the consumer when any of the installation requirements are not met.
- Use only factory authorized parts and repair procedures.
- Advise the consumer to only perform procedures listed in the owner's manual.
- When evidence of moisture is present in or on any electrical component or circuit, unplug the refrigerator Completely dry or replace the component, determine the cause and take proper steps to prevent reoccurrence.
- To prevent physical injury, do not touch moving parts such as fan blade or icemaker rake.
- Follow all safety precautions listed in the owner's manual and advise the consumer as needed.
- Remove any objects on top of the refrigerator, and any open containers inside the refrigerator before moving the refrigerator.
- When scrapping any refrigerator or freezer, remove the door/drawer gaskets to prevent children from suffocation.
- This refrigerator contains flammable refrigerant. Follow all relative company, federal, and local safety guidelines

To avoid risk of electrical shock that can cause death or severe personal injury, disconnect unit from power before servicing unless tests require power.





## Technician R600a Sealed System Repair Guide

The following is in addition to or serves as a reminder of the established and prescribed company service procedures for R600a sealed system diagnosis & repair.

1. This refrigerator contains flammable refrigerant. Follow all relative company, federal, and local safety guidelines.
2. No torch or heat gun is to be used on or near any product charged with flammable refrigerant.
3. When the service request indicates a possible sealed system issue, the product and service area must be tested for combustible vapor using an approved combustible gas detector prior to and during servicing the sealed system.
4. Communicate with consumer concerning flammable refrigerant precautions.
5. Do not apply power to the compressor terminals with the protective cover removed.
6. Unless a technician is certified and equipped for R600a sealed system repair, the sealed system must be diagnosed without system entry or access.
7. All sealed system connection points (joints) must be analyzed before ordering parts to ensure that all connections can be completed.
8. Dry-powder class C fire extinguisher is nearby and accessible.
9. The service area must be well ventilated.
10. The product is grounded during repair to prevent static electrical spark.
11. Using proper equipment, temporarily recover the system to the deepest level possible while shaking the compressor periodically.
12. Bring the system vacuum to atmospheric pressure using regulated dry oxygen-free nitrogen or if leak testing is needed, pressurize up the low-side design pressure.
13. If not leak testing and system at atmospheric pressure, purge the system with dry nitrogen following prescribed procedure steps then cut all necessary connections using tubing cutter and cap-tube cutter.
14. Replace all needed sealed system components, leaving the filter-drier replacement for last.
15. Pressure test using dry oxygen-free nitrogen at no greater than low-side design pressure.
16. Safely expel the nitrogen from the system.
17. Complete the deep evacuation process and recharge using virgin R600a refrigerant following the prescribed method.
18. Cap off and test access ports for leakage.
19. Add red color to access ports tubing following AHAM guideline.
20. Vent outdoors the recovered and unused R600a refrigerant following the prescribed method.

## Chapter 1: Product Functional Features

1. Refrigerant R600a and foaming agent are hydrocarbons, which do not damage the ozone layer or produce a greenhouse effect. The freezer automatically defrosts, saving the trouble of manual defrosting;
2. Integrating technologies such as quick freezing, energy conservation, and noise reduction, optimizing the refrigeration system to achieve energy-saving goals and minimize noise;
3. Mouldproof and antibacterial detachable door seal, clean and hygienic, easy to clean;
4. Hidden hinge system, sturdy and beautiful, can achieve automatic door closing and door opening limit;
5. Fully open refrigerated drawer door with three metal slides and self closing function;

## Chapter 2: Product Appearance Structure and Component Names

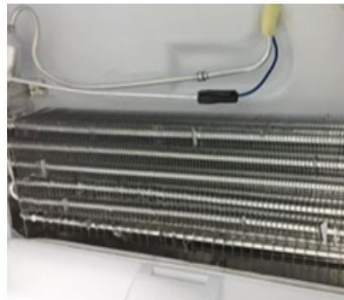
### 1. Product appearance



### 2. Main component



Compressor



Evaporator heater assembly



Freezer motor



Main PCB and display

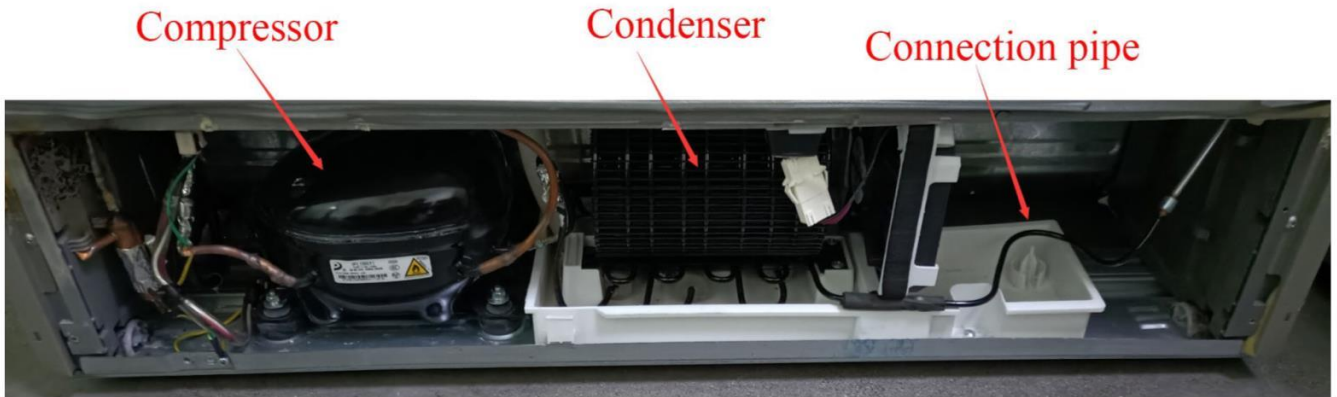


Damper

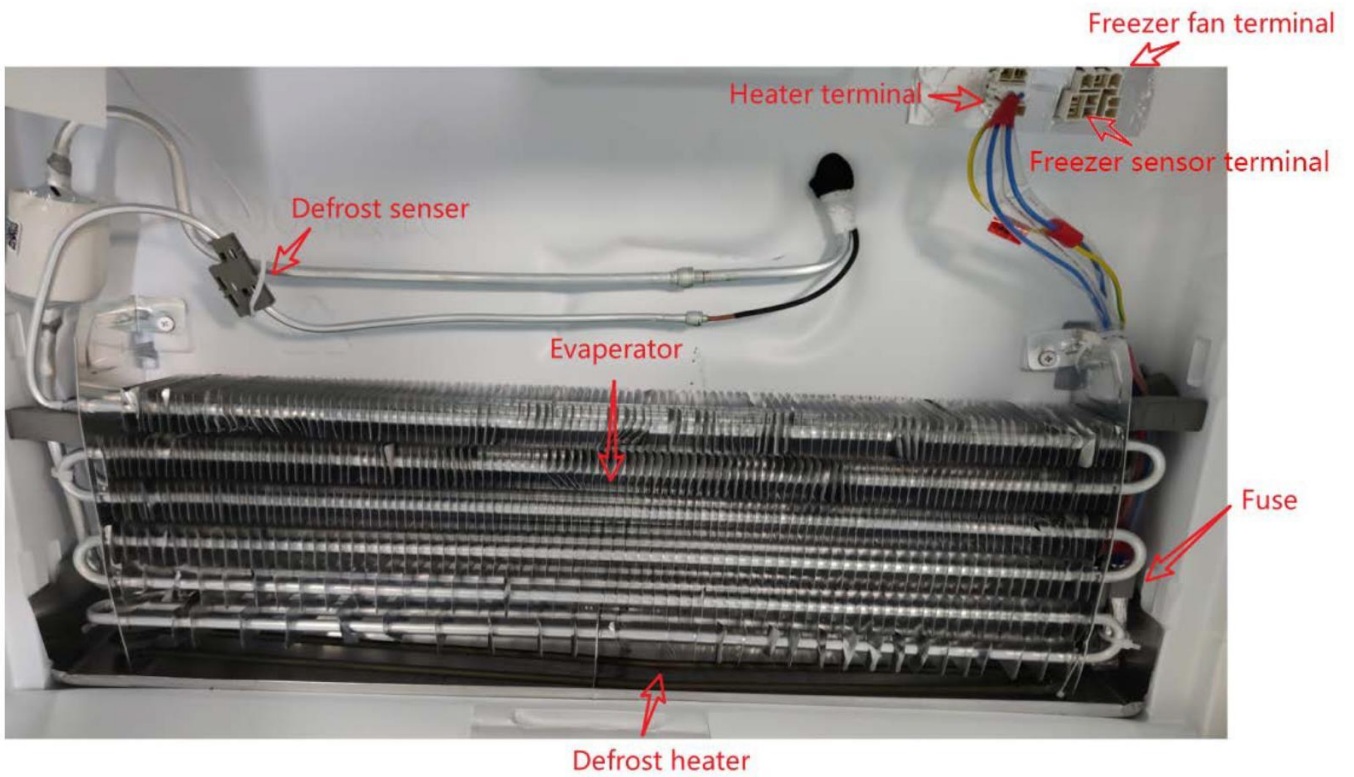


Fridge air duct foaming

Compressor chamber view



Composition of refrigeration evaporator



Air direction view between fridge and freezer



Freezer sensor and fridge sensor location

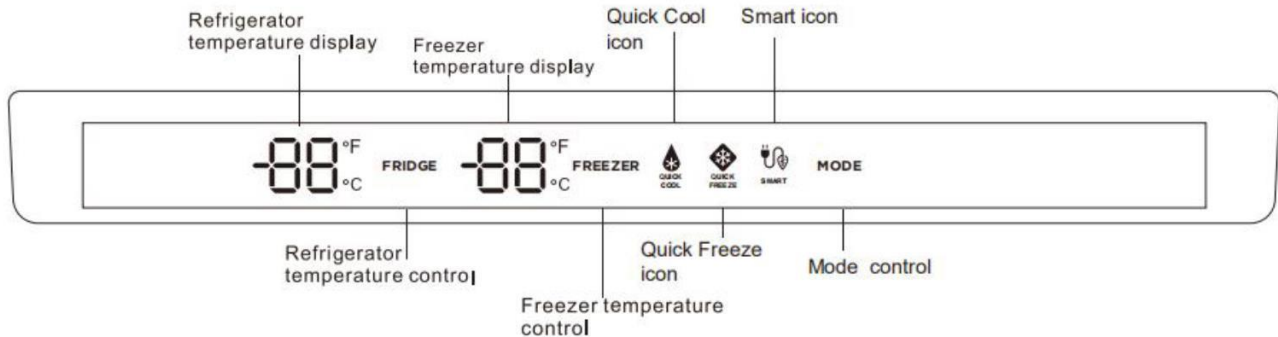


### Chapter 3: Main Technical Parameters of the Product

Rated Voltage / Tension Nominale	115V
Rated Frequency / Fréquence Nominale	60Hz
Rated Current / Courant Nominale	2.7A
Refrigerant / Refrigérant	R600a/75g (2.65 oz)
High Side / Côté Haute Press.	250 psi
Low Side / Côté Basse Press.	60 psi
Defrost Power Puissance De Dégivrage	190 W
Maximum ice maker power/ Puissance maximale de la machine à glaçons:	180W
Insulation Blowing Gas Agent De Mousse	CYCLOPENTANE

Item Name		Complete Appliance Model
Sensor	Defrost-sensor ( FD-Sensor )	In Evaporator Assembly
	Freezer-sensor ( F-Sensor )	In Louver Assembly
	Refrigerator-sensor ( R-Sensor )	In multi flow duct assembly
	Temperature and humidity sensor	Between Top Cabinet and Top Cover Hinge
Motor	Freezer Fan(F-FAN)	12V NIDEC GW12Z12MS3MB
	Condenser Fan(C-FAN)	12V NIDEC Z15I12MS3A5
Damper		DC12V FBZA-1750
Heater	Defrost-Heater	AC110-120V 230W ( Cycles based on temps )
	Flip beam heating wire	DC12V 8W ( Cycles based on temps )
Fuse Temp (Defrost)		AC250V , 10A , 72°C

## Chapter 4: Product Function Operation Instructions



## 1. Display

- When powered on for the first time, sound the startup bell and then enter the normal operation display;
- Normal operation display digital area: When there is a fault, the fault code will be displayed three hours later, and when there is no fault, the set temperature of the corresponding refrigeration room will be displayed; (Press Fridge & Freezer temp buttons simultaneously to reveal a hidden fault)
- When working under normal conditions, there is no door opening action or button operation, and the display screen will turn off after 20 seconds; Every time there is a door opening action or button operation, the display screen returns to normal display; When a fault occurs, the display screen will always light up and display the fault code;

## 2. Locking and unlocking

- In a non locked state, hold down the lock button continuously for 3 seconds to enter the locked state.  
The lock beep sounds and the lock icon displays as locked;
- In the locked state, continue to press and hold the lock button for 3 seconds to enter the non locked state. The unlock beep sound will sound, and the lock icon will display as the unlocked state;

The following key operations must be performed in a non locked state. If operating in a locked state, the lock icon flashes to prompt;

## 2. Temperature setting of each room

Each time the temperature zone selection button is pressed, the icons for the refrigerated and frozen temperature zones will cycle and flash in the following order;

Fridge → Freezer → Fridge

When the icon for the refrigeration/freezing temperature zone flashes, every time the temperature adjustment button is pressed, the integer digit in the digital display area flashes. Repeating this button can adjust the integer digit. When the integer digit flashes, pressing the OK button switches to the decimal digit flashing to set the decimal digit. At this time, pressing the OK button or 5S will automatically complete the temperature setting, and the icon will stop flashing;

The temperature setting range of the refrigeration room is 2.0~8.0 °C/25.6 °F ~46.4; The temperature setting range of the freezer is -23.0~-15.0 °C/-9.4~5 °F ;

## 2.Fridge shutdown function

When the refrigerated temperature zone flashes, press and hold the "Temperature Zone" selection button for 5 seconds to select whether to turn on or off the refrigerated shutdown function. The refrigerated shutdown digital display window displays "OF". When the refrigerated shutdown is turned off and the refrigerated temperature zone flashes, press and hold the "Temperature Zone" selection button for 5 seconds to restore the refrigerated room function;

## 3.Intelligent, quick freezing, and quick cooling modes

Each time the mode key is pressed, the intelligent, quick freezing, quick freezing/quick cooling, quick cooling and no cycle setting will be set. If any mode is set or cancelled, the icon will turn on/off to select/cancel the mode. When setting the intelligent mode, the refrigeration is automatically set to 8 °C/46.4 °F , and the freezer is automatically set to -15 °C/5 °F ; When exiting the intelligent mode, the set temperature of the refrigeration room and freezer will automatically return to the set temperature before the intelligent mode; When setting the quick cooling mode, the refrigeration system will automatically set 2 °C/25.6 °F . When exiting the quick cooling mode, the set temperature in the refrigeration room will automatically return to the set temperature before the quick cooling mode; When setting the quick freezing mode, it will enhance the cooling capacity of the freezer. In the quick freezing state, the temperature setting of the freezer can be selected and modified. In the quick freezing state, the maximum operating time of the refrigerator compressor is 24 hours;

## 4.Refrigerator door opening prompt and alarm

When the refrigerator door remains open for 1 minute without closing, the buzzer will sound three times,

and then three times every 30 seconds until the refrigeration and freezer doors are closed.

#### 5. Power off memory

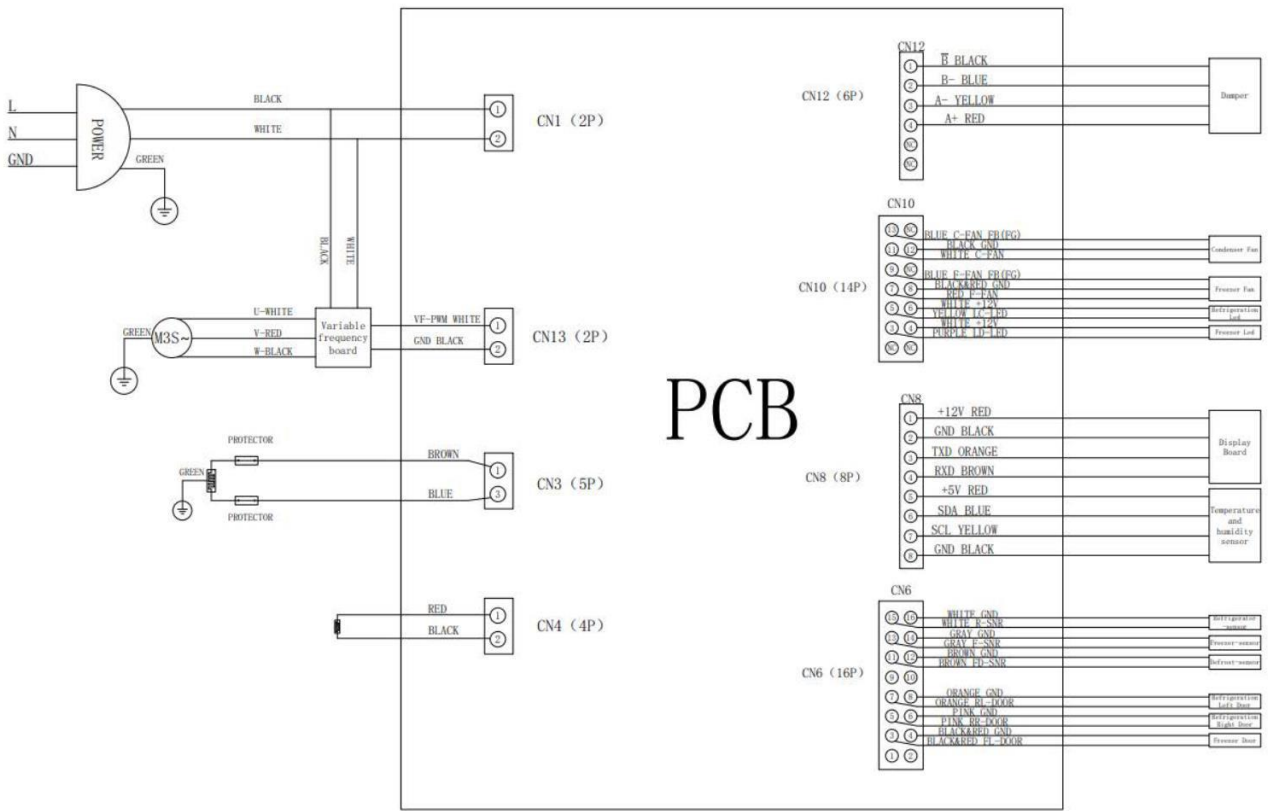
After the refrigerator is powered off, it will still operate according to the set state before the power outage when it is powered on again (memory will start 10 seconds after the set temperature or the mode ends).

#### 6. Fault display

When the digital display window on the refrigerator operation screen displays "FS", "dS", "rS", "dH", "FF", "CO", "CF", "EL" in whole digits, and "E" in decimal digits, it indicates that the refrigerator has malfunctioned. In some cases, the refrigerator can still cool, but it should be repaired as soon as possible to achieve optimal operation of the refrigerator.

Chapter 5: Electrical Schematic and Wiring Diagram

1. Electrical schematic diagram



CN1(POWER)

Item	Pin No	Plugged in	Un-plugged	Remarks
POWER	1, 3	110-120V/AC	0	/

CN3(DEFROST-HEATER)

Item	Pin No		off	Remarks
Defrost heater	1, 3	Cycles based on temps	/	/

CN4(Flip beam heater)

Item	Pin No		off	Remarks
Flip beam heater	1, 2	12VDC, 8W、Cycles based on temps	/	/

CN6 (Sensor&Switch)

Item	Pin No	Open(Voltage)	Close(off)	Remarks
R-SNR	15, 16	5V DC	/	Sensor Table1
F-SNR	13, 14	5V DC	/	Sensor Table2
FD-SNR	11, 12	5V DC	/	Sensor Table1
RL-Door	7, 8	5V DC	/	/
RR-Door	5, 6	5V DC	/	/
FL-Door	3, 4	5V DC	/	/

Sensor Table1: Fridge & Defrost sensors

Name: <b>AT5061G3839G</b>	Specification	Page: 1/4
Series: <b>AT TYPE</b>	Resisitance: R(5) 5.06	Kohm ± 2.00%
date: 2005.06.29	B constant: B(5/25) 3839.0	K ± 2.00%

Temp. (°F)	R(min)	R(cent)	R(max)	DR(min)	DR(max)
-22	33.324	35.353	37.489	-5.7%	6.0%
20.2	31.344	33.210	35.173	-5.6%	5.9%
-18.4	29.494	31.212	33.016	-5.5%	5.8%
-16.6	27.766	29.347	31.005	-5.4%	5.6%
-14.8	26.151	27.606	29.130	-5.3%	5.5%
-13	24.641	25.980	27.381	-5.2%	5.4%
-11.2	23.228	24.461	25.749	-5.0%	5.3%
-9.4	21.906	23.041	24.225	-4.9%	5.1%
-7.6	20.668	21.713	22.802	-4.8%	5.0%
-5.8	19.507	20.470	21.471	-4.7%	4.9%
-4	18.420	19.306	20.227	-4.6%	4.8%
-2.2	17.400	18.216	19.063	-4.5%	4.6%
-0.4	16.444	17.195	17.973	-4.4%	4.5%
1.4	15.546	16.237	16.953	-4.3%	4.4%
3.2	14.703	15.340	15.997	-4.1%	4.3%
5	13.911	14.497	15.102	-4.0%	4.2%
6.8	13.167	13.706	14.262	-3.9%	4.1%
8.6	12.468	12.964	13.474	-3.8%	3.9%
10.4	11.810	12.266	12.735	-3.7%	3.8%
12.2	11.191	11.610	12.041	-3.6%	3.7%
14	10.608	10.994	11.389	-3.5%	3.6%
15.8	10.059	10.414	10.777	-3.4%	3.5%
17.6	9.543	9.868	10.201	-3.3%	3.4%
19.4	9.056	9.355	9.660	-3.2%	3.3%
21.2	8.596	8.871	9.151	-3.1%	3.2%
23	8.163	8.415	8.671	-3.0%	3.0%
24.8	7.755	7.986	8.220	-2.9%	2.9%
26.6	7.369	7.581	7.795	-2.8%	2.8%
28.4	7.005	7.199	7.395	-2.7%	2.7%
30.2	6.661	6.838	7.017	-2.6%	2.6%
32	6.337	6.498	6.662	-2.5%	2.5%

Name: AT5061G3839G	Specification	Page: 2/4
Series: AT TYPE	Resistance: R(5) 5.06	Kohm $\pm 2.00\%$
date: 2005.06.29	B constant: B(5/25) 3839.0	K $\pm 2.00\%$

## R-T TABLE

Temp. (°F)	R(min)	R(cent)	R(max)	DR(min)	DR(max)
33.8	6.029	6.177	6.326	-2.4%	2.4%
35.6	5.739	5.874	6.009	-2.3%	2.3%
37.4	5.465	5.587	5.710	-2.2%	2.2%
39.2	5.205	5.316	5.428	-2.1%	2.1%
41	4.959	5.060	5.161	-2.0%	2.0%
42.8	4.717	4.818	4.919	-2.1%	2.1%
44.6	4.488	4.588	4.689	-2.2%	2.2%
46.4	4.271	4.371	4.472	-2.3%	2.3%
48.2	4.067	4.166	4.266	-2.4%	2.4%
50	3.873	3.971	4.070	-2.5%	2.5%
51.8	3.690	3.787	3.885	-2.6%	2.6%
53.6	3.516	3.612	3.709	-2.7%	2.7%
55.4	3.352	3.446	3.542	-2.7%	2.8%
57.2	3.196	3.289	3.384	-2.8%	2.9%
59	3.048	3.140	3.234	-2.9%	3.0%
60.8	2.908	2.999	3.091	-3.0%	3.1%
62.6	2.775	2.864	2.955	-3.1%	3.2%
64.4	2.649	2.737	2.826	-3.2%	3.3%
66.2	2.530	2.616	2.703	-3.3%	3.4%
68	2.416	2.501	2.587	-3.4%	3.4%
69.8	2.309	2.391	2.476	-3.5%	3.5%
71.6	2.206	2.287	2.370	-3.5%	3.6%
73.4	2.109	2.188	2.270	-3.6%	3.7%
75.2	2.016	2.094	2.174	-3.7%	3.8%
77	1.929	2.005	2.083	-3.8%	3.9%
78.8	1.845	1.920	1.996	-3.9%	4.0%
80.6	1.766	1.838	1.914	-4.0%	4.1%
82.4	1.690	1.761	1.835	-4.0%	4.2%
84.2	1.618	1.688	1.760	-4.1%	4.3%
86	1.549	1.618	1.688	-4.2%	4.4%
87.8	1.484	1.551	1.620	-4.3%	4.4%
89.6	1.422	1.487	1.554	-4.4%	4.5%
914.	1.363	1.426	1.492	-4.5%	4.6%
93.2	1.306	1.368	1.433	-4.5%	4.7%
95	1.253	1.313	1.376	-4.6%	4.8%
96.8	1.201	1.260	1.322	-4.7%	4.9%
98.6	1.152	1.210	1.270	-4.8%	5.0%
100.4	1.106	1.162	1.221	-4.8%	5.0%
102.2	1.061	1.116	1.173	-4.9%	5.1%
104	1.019	1.072	1.128	-5.0%	5.2%
105.8	0.978	1.030	1.085	-5.1%	5.3%
107.6	0.939	0.990	1.044	-5.1%	5.4%
109.4	0.902	0.952	1.004	-5.2%	5.5%
111.2	0.867	0.915	0.966	-5.3%	5.5%
113	0.833	0.880	0.930	-5.4%	5.6%
114.8	0.801	0.847	0.895	-5.4%	5.7%
116.6	0.770	0.815	0.862	-5.5%	5.8%
118.4	0.740	0.784	0.830	-5.6%	5.9%
120.2	0.712	0.755	0.800	-5.7%	6.0%
122	0.685	0.727	0.770	-5.7%	6.0%

Name: AT5061G3839G	Specification	Page: 3/4
Series: AT TYPE	Resistance: R(5) 5.06	Kohm $\pm 2.00\%$
date: 2005.06.29	B constant: B(5/25) 3839.0	K $\pm 2.00\%$

R-T TABLE

Temp. (°F)	R(min)	R(cent)	R(max)	DR(min)	DR(max)
123.8	0.659	0.700	0.742	-5.8%	6.1%
125.6	0.634	0.674	0.716	-5.9%	6.2%
127.4	0.611	0.649	0.690	-5.9%	6.3%
129.2	0.588	0.625	0.665	-6.0%	6.4%
131	0.566	0.603	0.642	-6.1%	6.4%
132.8	0.545	0.581	0.619	-6.2%	6.5%
134.6	0.525	0.560	0.597	-6.2%	6.6%
136.8	0.506	0.540	0.576	-6.3%	6.7%
138.2	0.488	0.521	0.556	-6.4%	6.7%
140	0.470	0.502	0.537	-6.4%	6.8%
141.8	0.453	0.485	0.518	-6.5%	6.9%
143.6	0.437	0.468	0.500	-6.6%	7.0%
145.4	0.421	0.451	0.483	-6.6%	7.1%
147.2	0.407	0.436	0.467	-6.7%	7.1%
149	0.392	0.421	0.451	-6.8%	7.2%
150.8	0.379	0.406	0.436	-6.8%	7.3%
152.6	0.365	0.392	0.421	-6.9%	7.4%
154.4	0.353	0.379	0.407	-7.0%	7.4%
156.2	0.340	0.366	0.394	-7.0%	7.5%
158	0.329	0.354	0.381	-7.1%	7.6%
159.8	0.318	0.342	0.368	-7.1%	7.6%
161.6	0.307	0.331	0.356	-7.2%	7.7%
163.4	0.296	0.320	0.344	-7.3%	7.8%
165.2	0.286	0.309	0.333	-7.3%	7.9%
167	0.277	0.299	0.323	-7.4%	7.9%
168.8	0.267	0.289	0.312	-7.5%	8.0%
170.6	0.259	0.280	0.302	-7.5%	8.1%
172.4	0.250	0.271	0.293	-7.6%	8.2%
174.2	0.242	0.262	0.283	-7.6%	8.2%
176	0.234	0.253	0.274	-7.7%	8.3%
177.8	0.226	0.245	0.266	-7.8%	8.4%
179.6	0.219	0.237	0.258	-7.8%	8.4%
181.4	0.212	0.230	0.250	-7.9%	8.5%
183.2	0.205	0.223	0.242	-7.9%	8.6%
185	0.198	0.216	0.234	-8.0%	8.6%
186.8	0.192	0.209	0.227	-8.1%	8.7%
188.6	0.186	0.202	0.220	-8.1%	8.8%
190.4	0.180	0.196	0.214	-8.2%	8.9%
192.2	0.174	0.190	0.207	-8.2%	8.9%
194	0.169	0.184	0.201	-8.3%	9.0%
195.8	0.164	0.179	0.195	-8.3%	9.1%
197.6	0.159	0.173	0.189	-8.4%	9.1%
199.4	0.154	0.168	0.183	-8.5%	9.2%
201.2	0.149	0.163	0.178	-8.5%	9.3%
203	0.144	0.158	0.173	-8.6%	9.3%
204.8	0.140	0.153	0.168	-8.6%	9.4%
206.6	0.136	0.149	0.163	-8.7%	9.5%
208.4	0.132	0.144	0.158	-8.7%	9.5%
210.2	0.128	0.140	0.153	-8.8%	9.6%
212	0.124	0.136	0.149	-8.8%	9.7%

Name: AT5061G3839G	Specification	Page: 4/4
Series: AT TYPE	Resistance: R(5) 5.06	Kohm $\pm 2.00\%$
date: 2005.06.29	B constant: B(5/25) 3839.0	K $\pm 2.00\%$

**R-T TABLE**

Temp. (°F)	R(min)	R(cent)	R(max)	DR(min)	DR(max)
213.8	0.120	0.132	0.145	-8.9%	9.7%
215.6	0.117	0.128	0.141	-8.9%	9.8%
217.4	0.113	0.124	0.137	-9.0%	9.8%
219.2	0.110	0.121	0.133	-9.1%	9.9%
221	0.107	0.117	0.129	-9.1%	10.0%
222.8	0.104	0.114	0.125	-9.2%	10.0%
224.6	0.101	0.111	0.122	-9.2%	10.1%
226.4	0.098	0.108	0.119	-9.3%	10.2%
228.2	0.095	0.105	0.115	-9.3%	10.2%
230	0.092	0.102	0.112	-9.4%	10.3%
231.8	0.089	0.099	0.109	-9.4%	10.4%
233.6	0.087	0.096	0.106	-9.5%	10.4%
235.4	0.084	0.093	0.103	-9.5%	10.5%
237.2	0.082	0.091	0.100	-9.6%	10.5%
239	0.080	0.088	0.098	-9.6%	10.6%
240.8	0.078	0.086	0.095	-9.7%	10.7%
242.6	0.075	0.083	0.092	-9.7%	10.7%
244.4	0.073	0.081	0.090	-9.8%	10.8%
246.2	0.071	0.079	0.088	-9.8%	10.8%
248	0.069	0.077	0.085	-9.9%	10.9%

## Sensor Table 2: Freezer sensor

Name: <b>AT1692G3771G</b>	Specification	Page: 1/4
Series: <b>AT TYPE</b>	Resisitance: R(-18) <b>16.90</b>	<b>Kohm</b> $\pm 2.00\%$
date: <b>2005.06.29</b>	B constant: B(-18/25) <b>3771.0</b>	<b>K</b> $\pm 2.00\%$

**R-T TABLE**

Temp. (°F)	R(min)	R(cent)	R(max)	DR(min)	DR(max)
-40	61.392	64.342	67.408	-4.6%	4.8%
-38.2	57.582	60.270	63.059	-4.5%	4.6%
-36.4	54.034	56.483	59.020	-4.3%	4.5%
-34.6	50.727	52.959	55.266	-4.2%	4.4%
-32.8	47.645	49.677	51.776	-4.1%	4.2%
-31	44.770	46.621	48.528	-4.0%	4.1%
-29.2	42.088	43.772	45.505	-3.8%	4.0%
-27.4	39.583	41.115	42.690	-3.7%	3.8%
-25.6	37.243	38.637	40.067	-3.6%	3.7%
-23.8	35.057	36.324	37.622	-3.5%	3.6%
-22	33.013	34.164	35.342	-3.4%	3.4%
-20.2	31.101	32.147	33.214	-3.3%	3.3%
-18.4	29.312	30.261	31.228	-3.1%	3.2%
-16.6	27.637	28.497	29.373	-3.0%	3.1%
-14.8	26.068	26.848	27.639	-2.9%	2.9%
-13	24.598	25.304	26.019	-2.8%	2.8%
-11.2	23.220	23.858	24.504	-2.7%	2.7%
-9.4	21.928	22.504	23.086	-2.6%	2.6%
-7.6	20.716	21.235	21.759	-2.4%	2.5%
-5.8	19.578	20.046	20.516	-2.3%	2.3%
-4	18.509	18.930	19.352	-2.2%	2.2%
-2.2	17.505	17.883	18.261	-2.1%	2.1%
-0.4	16.562	16.900	17.238	-2.0%	2.0%
1.4	15.640	15.977	16.315	-2.1%	2.1%
3.2	14.775	15.110	15.447	-2.2%	2.2%
5	13.963	14.295	14.630	-2.3%	2.3%
6.8	13.200	13.529	13.861	-2.4%	2.5%
8.6	12.483	12.809	13.138	-2.5%	2.6%
10.4	11.810	12.131	12.456	-2.6%	2.7%
12.2	11.176	11.493	11.813	-2.8%	2.8%
14	10.581	10.892	11.208	-2.9%	2.9%
15.8	10.020	10.326	10.637	-3.0%	3.0%
17.6	9.492	9.793	10.098	-3.1%	3.1%
19.4	8.996	9.290	9.590	-3.2%	3.2%
21.2	8.528	8.816	9.110	-3.3%	3.3%
23	8.087	8.369	8.657	-3.4%	3.4%
24.8	7.671	7.947	8.229	-3.5%	3.6%
26.6	7.279	7.548	7.824	-3.6%	3.7%
28.4	6.909	7.172	7.442	-3.7%	3.8%
30.2	6.560	6.817	7.080	-3.8%	3.9%
32	6.231	6.481	6.739	-3.9%	4.0%

Name: AT1692G3771G	Specification	Page: 2/4
Series: AT TYPE	Resistance: R(-18) 16.90	Kohm $\pm 2.00\%$
date: 2005.06.29	B constant: B(-18/25) 3771.0	K $\pm 2.00\%$

## R-T TABLE

Temp. (°F)	R(min)	R(cent)	R(max)	DR(min)	DR(max)
33.8	5.920	6.164	6.415	-4.0%	4.1%
35.6	5.626	5.864	6.109	-4.1%	4.2%
37.4	5.348	5.580	5.819	-4.1%	4.3%
39.2	5.086	5.311	5.544	-4.2%	4.4%
41	4.838	5.057	5.284	-4.3%	4.5%
42.8	4.603	4.816	5.038	-4.4%	4.6%
44.6	4.381	4.588	4.804	-4.5%	4.7%
46.4	4.171	4.372	4.582	-4.6%	4.8%
48.2	3.972	4.168	4.372	-4.7%	4.9%
50	3.783	3.974	4.172	-4.8%	5.0%
51.8	3.605	3.790	3.983	-4.9%	5.1%
53.6	3.436	3.616	3.803	-5.0%	5.2%
55.4	3.275	3.450	3.633	-5.1%	5.3%
57.2	3.123	3.293	3.471	-5.2%	5.4%
59	2.979	3.144	3.317	-5.2%	5.5%
60.8	2.842	3.002	3.170	-5.3%	5.6%
62.6	2.713	2.868	3.031	-5.4%	5.7%
64.4	2.589	2.740	2.898	-5.5%	5.8%
66.2	2.472	2.619	2.773	-5.6%	5.9%
68	2.361	2.503	2.653	-5.7%	6.0%
69.8	2.256	2.393	2.539	-5.8%	6.1%
71.6	2.155	2.289	2.430	-5.8%	6.2%
73.4	2.060	2.190	2.327	-5.9%	6.3%
75.2	1.969	2.095	2.228	-6.0%	6.3%
77	1.883	2.005	2.134	-6.1%	6.4%
78.8	1.801	1.920	2.045	-6.2%	6.5%
80.6	1.723	1.838	1.960	-6.3%	6.6%
82.4	1.649	1.760	1.879	-6.3%	6.7%
84.2	1.578	1.686	1.801	-6.4%	6.8%
86	1.511	1.616	1.727	-6.5%	6.9%
87.8	1.447	1.548	1.657	-6.6%	7.0%
89.6	1.385	1.484	1.589	-6.7%	7.1%
91.4	1.327	1.423	1.525	-6.7%	7.2%
93.2	1.272	1.365	1.464	-6.8%	7.3%
95	1.219	1.309	1.405	-6.9%	7.4%
96.8	1.168	1.256	1.349	-7.0%	7.4%
98.6	1.120	1.205	1.296	-7.0%	7.5%
100.4	1.074	1.156	1.245	-7.1%	7.6%
102.2	1.030	1.110	1.196	-7.2%	7.7%
104	0.988	1.066	1.149	-7.3%	7.8%
105.8	0.948	1.024	1.104	-7.3%	7.9%
107.6	0.910	0.983	1.062	-7.4%	8.0%
109.4	0.874	0.945	1.021	-7.5%	8.1%
111.2	0.839	0.908	0.982	-7.6%	8.1%
113	0.806	0.872	0.944	-7.6%	8.2%
114.8	0.774	0.839	0.908	-7.7%	8.3%
116.6	0.743	0.806	0.874	-7.8%	8.4%
118.4	0.714	0.775	0.841	-7.9%	8.5%
120.2	0.687	0.746	0.810	-7.9%	8.6%
122	0.660	0.717	0.779	-8.0%	8.7%

Name: <b>AT1692G3771G</b>	Specification	Page: 3/4
Series: <b>AT TYPE</b>	Resistance: R(-18) <b>16.90</b>	<b>Kohm</b> $\pm 2.00\%$
date: <b>2005.06.29</b>	B constant: B(-18/25) <b>3771.0</b>	<b>K</b> $\pm 2.00\%$

R-T TABLE

Temp. (°F)	R(min)	R(cent)	R(max)	DR(min)	DR(max)
123.8	0.634	0.690	0.750	-8.1%	8.7%
125.6	0.610	0.664	0.723	-8.1%	8.8%
127.4	0.587	0.639	0.696	-8.2%	8.9%
129.2	0.564	0.615	0.671	-8.3%	9.0%
131	0.543	0.593	0.646	-8.4%	9.1%
132.8	0.523	0.571	0.623	-8.4%	9.2%
134.6	0.503	0.550	0.600	-8.5%	9.2%
136.8	0.484	0.529	0.579	-8.6%	9.3%
138.2	0.466	0.510	0.558	-8.6%	9.4%
140	0.449	0.492	0.538	-8.7%	9.5%
141.8	0.432	0.474	0.519	-8.8%	9.6%
143.6	0.416	0.457	0.501	-8.8%	9.6%
145.4	0.401	0.440	0.483	-8.9%	9.7%
147.2	0.387	0.425	0.466	-9.0%	9.8%
149	0.373	0.410	0.450	-9.0%	9.9%
150.8	0.359	0.395	0.434	-9.1%	10.0%
152.6	0.346	0.381	0.419	-9.2%	10.0%
154.4	0.334	0.368	0.405	-9.2%	10.1%
156.2	0.322	0.355	0.391	-9.3%	10.2%
158	0.310	0.343	0.378	-9.4%	10.3%
159.8	0.300	0.331	0.365	-9.4%	10.3%
161.6	0.289	0.319	0.353	-9.5%	10.4%
163.4	0.279	0.308	0.341	-9.5%	10.5%
165.2	0.269	0.298	0.329	-9.6%	10.6%
167	0.260	0.288	0.318	-9.7%	10.7%
168.8	0.251	0.278	0.308	-9.7%	10.7%
170.6	0.242	0.268	0.297	-9.8%	10.8%
172.4	0.234	0.259	0.288	-9.9%	10.9%
174.2	0.226	0.251	0.278	-9.9%	11.0%
176	0.218	0.242	0.269	-10.0%	11.0%
177.8	0.211	0.234	0.260	-10.0%	11.1%
179.6	0.204	0.226	0.252	-10.1%	11.2%
181.4	0.197	0.219	0.244	-10.2%	11.3%
183.2	0.190	0.212	0.236	-10.2%	11.3%
185	0.184	0.205	0.228	-10.3%	11.4%
186.8	0.178	0.198	0.221	-10.3%	11.5%
188.6	0.172	0.192	0.214	-10.4%	11.6%
190.4	0.166	0.186	0.207	-10.5%	11.6%
192.2	0.161	0.180	0.201	-10.5%	11.7%
194	0.155	0.174	0.194	-10.6%	11.8%
195.8	0.150	0.168	0.188	-10.6%	11.9%
197.6	0.145	0.163	0.182	-10.7%	11.9%
199.4	0.141	0.158	0.177	-10.7%	12.0%
201.2	0.136	0.153	0.171	-10.8%	12.1%
203	0.132	0.148	0.166	-10.9%	12.1%
204.8	0.128	0.143	0.161	-10.9%	12.2%
206.6	0.124	0.139	0.156	-11.0%	12.3%
208.4	0.120	0.134	0.151	-11.0%	12.4%
210.2	0.116	0.130	0.146	-11.1%	12.4%
212	0.112	0.126	0.142	-11.1%	12.5%

Name: <b>AT1692G3771G</b>	Specification	Page: 4/4
Series: <b>AT TYPE</b>	Resistance: R(-18) <b>16.90</b>	<b>Kohm</b> ± 2.00%
date: <b>2005.06.29</b>	B constant: B(-18/25) <b>3771.0</b>	<b>K</b> ± 2.00%

**R-T TABLE**

Temp. (°F)	R(min)	R(cent)	R(max)	DR(min)	DR(max)
213.8	0.109	0.122	0.138	-11.2%	12.6%
215.6	0.105	0.119	0.134	-11.3%	12.6%
217.4	0.102	0.115	0.130	-11.3%	12.7%
219.2	0.099	0.111	0.126	-11.4%	12.8%
221	0.096	0.108	0.122	-11.4%	12.8%
222.8	0.093	0.105	0.118	-11.5%	12.9%
224.6	0.090	0.102	0.115	-11.5%	13.0%
226.4	0.087	0.099	0.111	-11.6%	13.1%
228.2	0.085	0.096	0.108	-11.6%	13.1%
230	0.082	0.093	0.105	-11.7%	13.2%
231.8	0.079	0.090	0.102	-11.7%	13.3%
233.6	0.077	0.087	0.099	-11.8%	13.3%
235.4	0.075	0.085	0.096	-11.8%	13.4%
237.2	0.073	0.082	0.093	-11.9%	13.5%
239	0.070	0.080	0.091	-12.0%	13.5%
240.8	0.068	0.078	0.088	-12.0%	13.6%
242.6	0.066	0.075	0.086	-12.1%	13.7%
244.4	0.064	0.073	0.083	-12.1%	13.7%
246.2	0.062	0.071	0.081	-12.2%	13.8%
248	0.061	0.069	0.079	-12.2%	13.9%

CN8 (Display Board& Temperature and humidity sensor)

Item	Pin No	Open(on)	Remarks
Display Board	+12V DC	1	Always on
	GND	2	/
	TXD	3	/
	RXD	4	/
Temperature and humidity sensor	+5V DC	5	Always
	SCL	6	/
	SDA	7	/
	GND	8	/

CN10 (Fan Motor& Led)

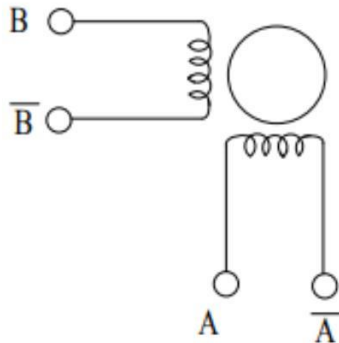
Item	Pin No	On (Voltage)	off (Voltage)	Remarks
C-FAN	11, 12	12V DC	<6V	1 speed
C-FAN FB(FG)	13	5V DC	0	/
F-FAN	7, 8	7.8/ 9.2/ 12V DC	<6V	3 speeds
F-FAN FB(FG)	9	5V DC	0	/
LC-LED	5, 6	12V DC	0	/
LD-LED	3, 4	12V DC	0	/

CN12 (Damper)

Item	Pin No	On(Voltage)	(Voltage)	Remarks
Step Motor	1, 2, 3, 4	12V DC	/	/

Winding resistance (at25°C) : A→A- 415±10%Ω

B→B- 415±10%Ω

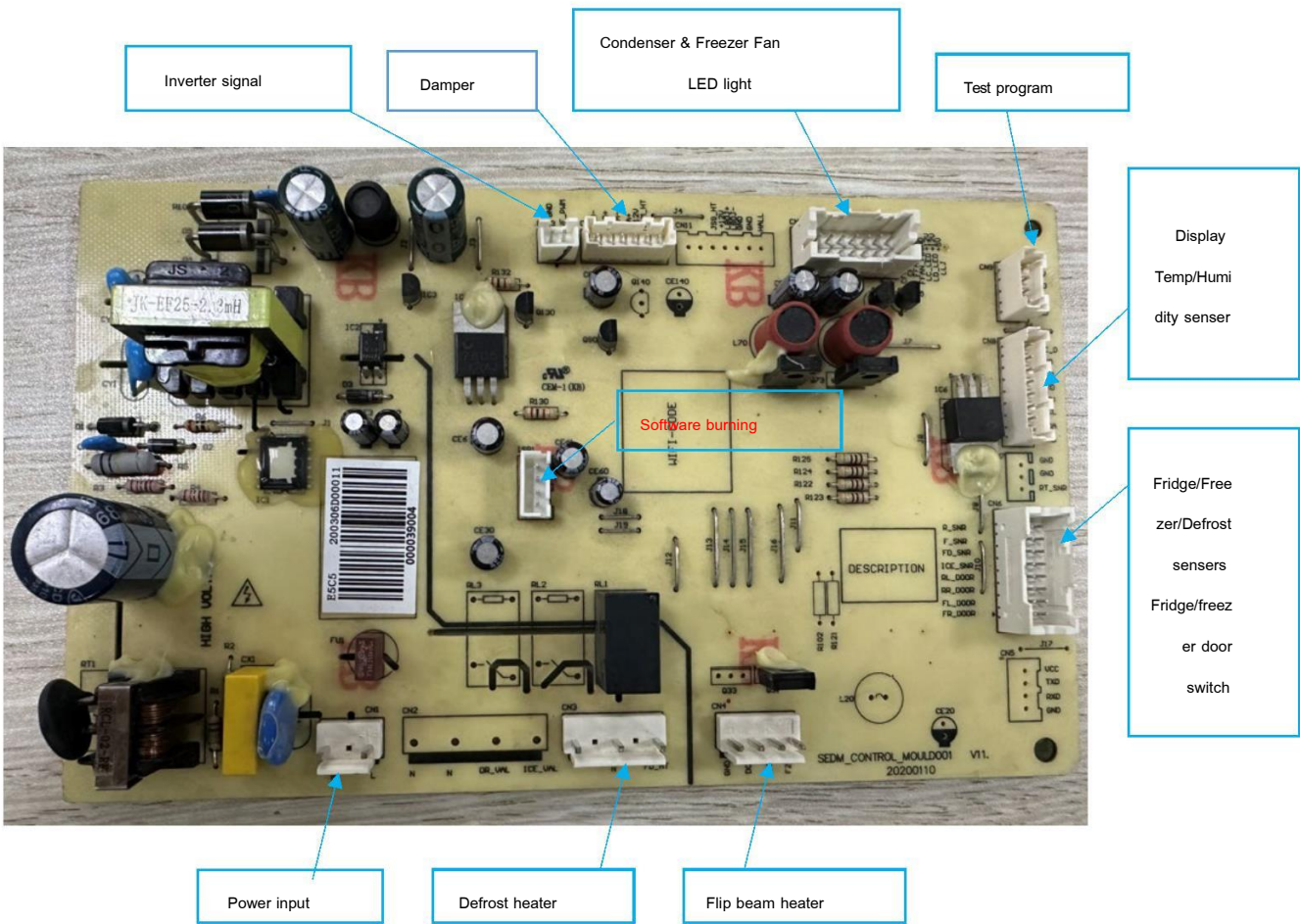


CW Rotation				
Houling No COLOR	STEP			
4--Blue	+	-	-	+
1--Red	+	+	-	-
3--White	-	+	+	-
2--Yellow	-	-	+	+

Following is the correct pin for PCB and step motor pin:

- PCB Pin 1 (Black) = Step Motor Pin 4 (Blue) - A
- PCB Pin 2 (Blue) = Step Motor Pin 3 (White) - A-
- PCB Pin 3 (Yellow) = Step Motor Pin 1 (Red) - B
- PCB Pin 4 (Red) = Step Motor Pin 2 (Yellow) - B-

2. Physical diagram of the main control board and definition of interface terminals



## Chapter 6: Control Principles, Parameters, and Detection Methods

### 1. Introduction to Refrigerator Control

- 1) Refrigeration room control: When the refrigeration temperature zone flashes, long press and hold the "Temperature Zone" selection button for 5s to select whether to turn on or off the refrigeration shutdown function. The refrigeration shutdown digital display window displays "OF". When the refrigeration is turned off and the refrigeration temperature zone flashes, long press and hold the "Temperature Zone" selection button for 5s to restore the refrigeration room function;
- 2) Freezing room control: When the freezing temperature zone icon flashes, every time the temperature adjustment button is pressed, the integer digit in the digital display area flashes. Repeating this button can adjust the integer digit. When the integer digit flashes, pressing the OK button switches to the decimal digit flashing to set the decimal digit. At this time, pressing the OK button or 5S will automatically complete the temperature setting, and the icon will stop flashing;
- 3) Quick freezing control: Press the mode button to cycle through intelligent, quick freezing, quick freezing/quick cooling, quick cooling, and no mode. No button operation takes effect for 10 seconds;
- 4) Quick cooling control: Press the mode button to cycle through the selection of intelligent, quick freezing, quick freezing/quick cooling, quick cooling, and no mode. It takes 10 seconds for no button operation to take effect;
- 5) Intelligent control: Press the mode button to cycle through the selection of intelligent, quick freezing, quick freezing/cooling, quick cooling, and no mode. The operation takes effect for 10 seconds after no button is pressed;
- 6) Door opening alarm: When the refrigerator door is opened for 60 seconds, the display panel buzzer sounds three times every 30 seconds.
- 7) Refrigeration lighting control: When the refrigeration room door is opened, the refrigeration room lighting lights up; Close the door of the refrigeration room, turn off the lighting in the refrigeration room, and the refrigeration light is the same as above;
- 8) Fan control:
  - 8.1 If one of the following conditions is met, the refrigeration room fan motor is turned on:
    - a. (When the compressor is turned on in a non defrosting state) AND (the doors of the refrigeration

room and freezer are closed);

b. (When the compressor is turned off in a non defrosting state and refrigeration is requested) AND

(when the doors of the refrigeration room and freezer are closed).

Note: If cooling is called for, the evaporator fan will run after 10 min delay once door is closed.

8.2 If one of the following conditions is met, the **evaporator** fan motor stops:

a. The compressor is shut down and the refrigeration is not in a refrigeration state;

b. Frozen chamber /defrosting status;

c. **Either door is opened** (if the door is opened for more than 4 hours, it will return to its original state)

Note: Evap fan speeds, Low = 7.8V, Med (Normal) = 9.2V, Hi = 12V/ Cond fan single spd = 12V;

9) Damper control

9.1 If one of the following conditions is met, the air door of the refrigeration room is closed:

a. **Refrigeration room is at or below the selected temperature;**

b. During the defrosting process;

c. The refrigeration room is closed;

9.2 When the following conditions are met, the air door of the refrigeration room is opened:

a. (Non defrosting process) AND (Non refrigerated shutdown mode) AND (Tra  $\geq$  Trk);

b. After 17 minutes of defrosting exit, the compressor meets the startup conditions or requests refrigeration for refrigeration;

9.3 Abnormal control of damper status (accumulated 60 minutes only after power on and refrigeration reaches the shutdown point once)

a. Keep the air door open for 60 minutes and reset the air door once;

b. The damper is continuously closed for 60 minutes and the damper is reset once;

9.4 Control of damper heater

a. Within 6 hours of power on, the heating wire of the air door should remain **On**;

b. No door opening action for 6 hours, and the heating wire of the **damper** is closed;

10) Display control: No button operation (last operation shall prevail), lock after 20 seconds, display screen when the refrigerator or freezer door is opened Illuminated (only one door signal is detected at a time)

11) Compressor protection: The **COMPRESSOR** can only be restarted after every 7 minutes of shutdown,  
and **normal control of the compressor can only be entered after the 7-minute delay has ended;**

## 2. Test program

The time accuracy during the self inspection process is not used as a basis for determining whether the software function is qualified or not, in order to detect whether the hardware circuit can work.

When powered on, press and hold the "Temperature"+"Function" buttons 1 time to enter the testing mode, and all refrigeration loads will run;

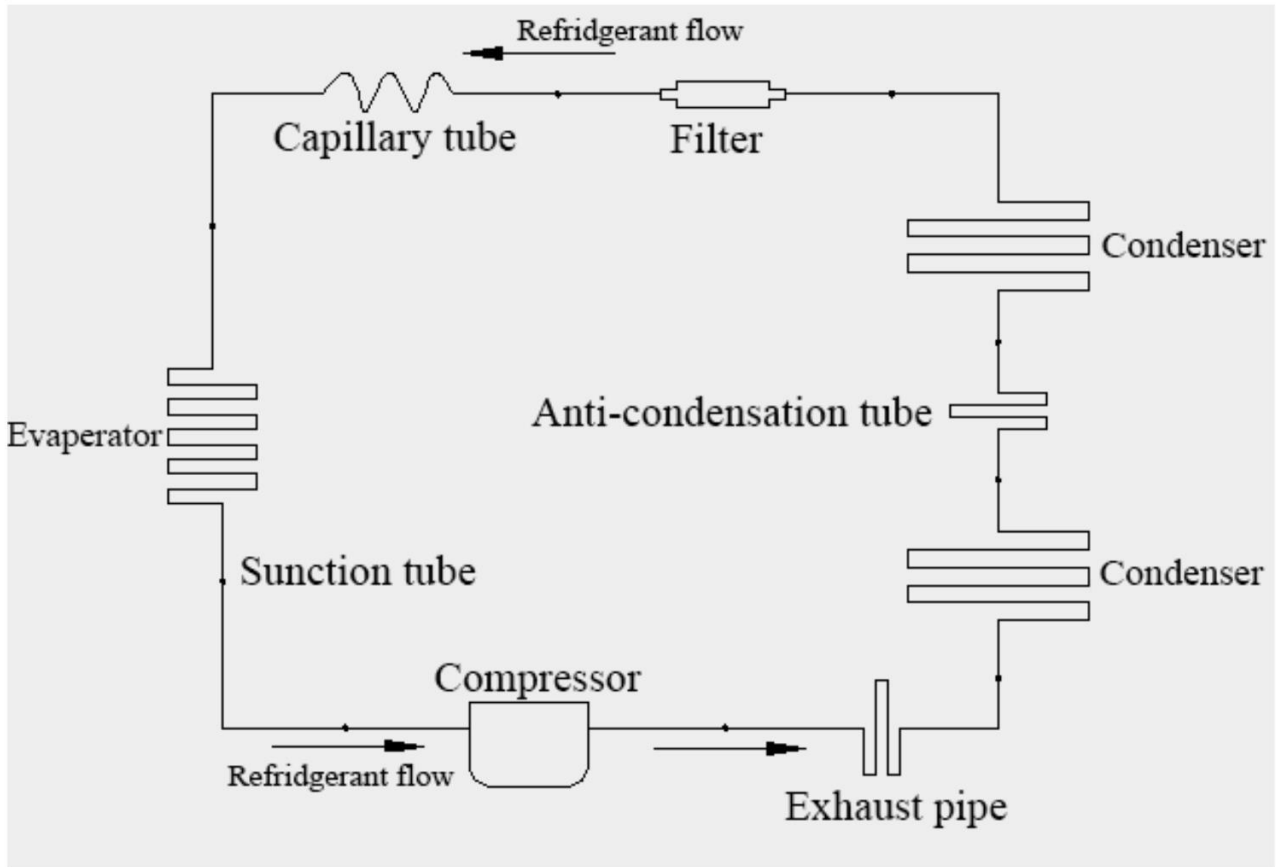
When powered on, press and hold "Temperature"+"Function" 2 times (defrosting sensor temperature below 5 degrees Celsius) to start defrosting operation;

Detect each temperature input port, and if it is abnormal, the temperature display area will cycle to display fault codes;

When powered on, press and hold "Temperature"+"Function" 3 times to return to normal operation mode;

Chapter 7: Refrigeration Principle and Pipeline Cycle Diagram

1. Refrigeration system schematic diagram:

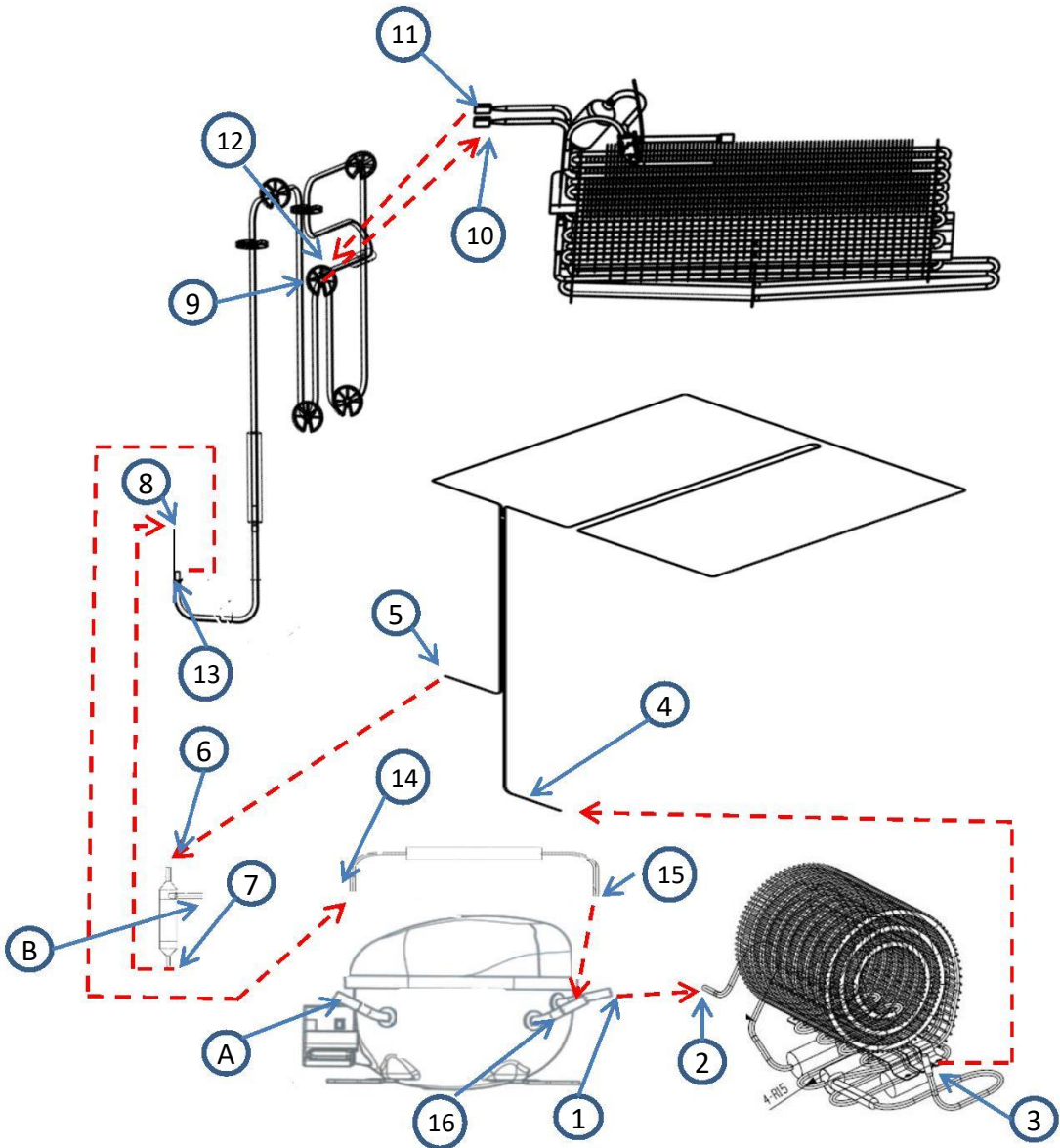


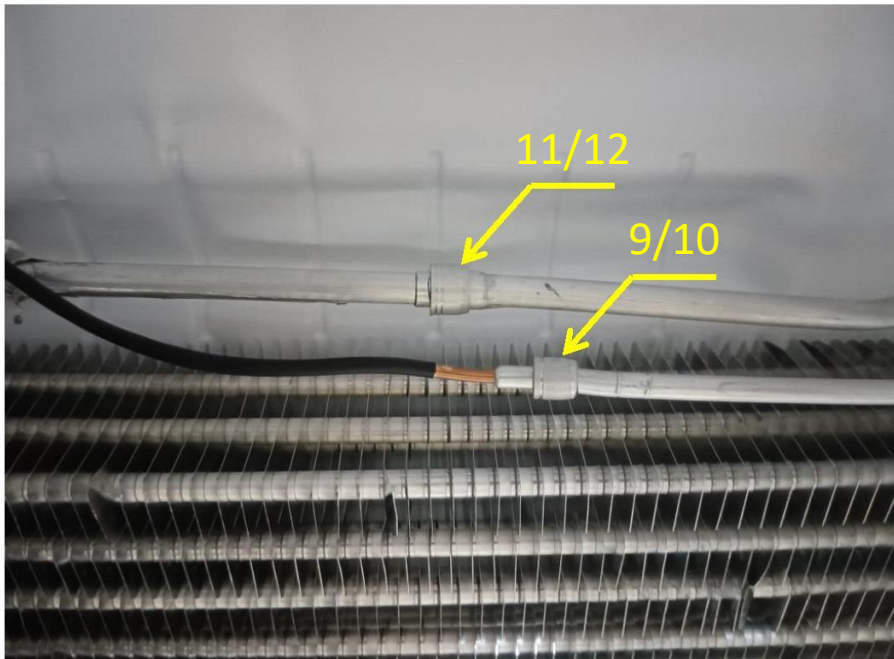
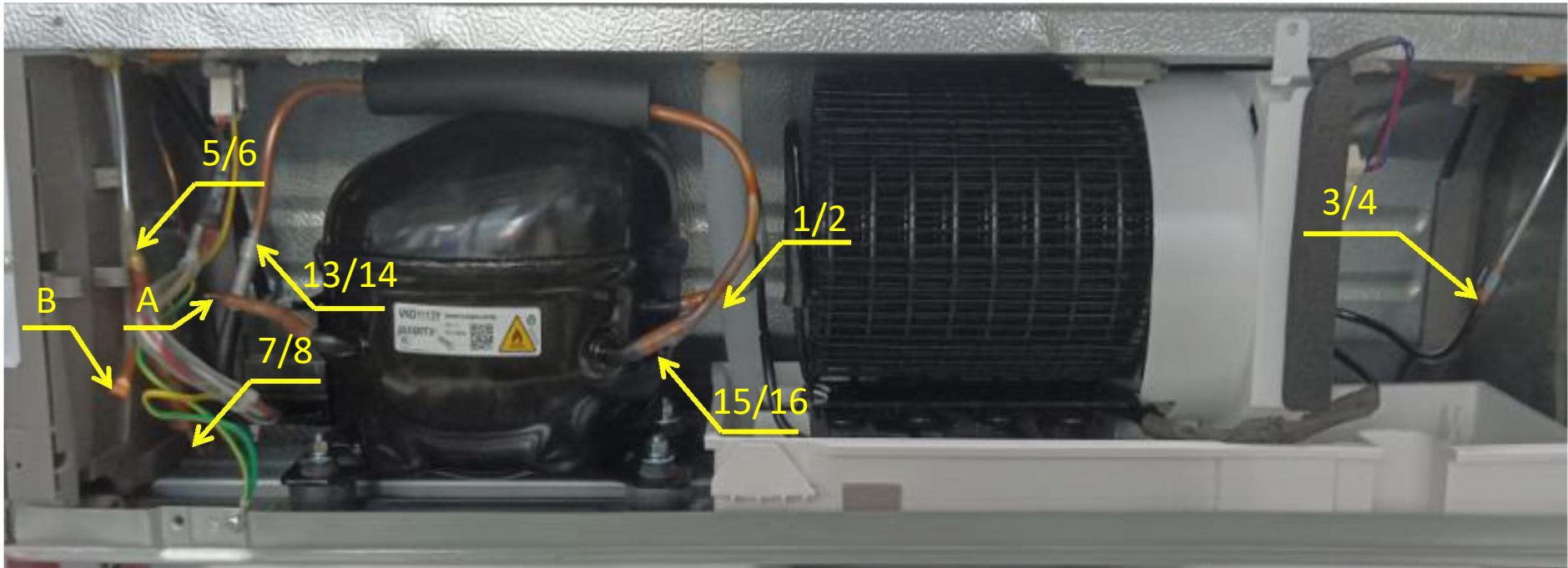
2. Pipeline circulation diagram: solder joint distribution



Compressor - Solder point 1 (brazing) - Exhaust connecting pipe - Solder point 2 (circumferential welding) - Left condenser- Solder point 3 (circumferential welding) - Anti dew pipe - Solder point 4 (circumferential welding)- Right condenser- Solder point 5 (brazing)- Drying filter- Solder point 6 (brazing)- Capillary tube- Return pipe- Solder point 7 (circumferential welding)- Compressor suction pipe - Solder point 8 (brazing)- Compressor

Refrigerant circuit connection





key	Pipe part name	Pipe	φ . mm	thickness	remark
1	comp disch port	Copper	4.9	/	
2	cond inlet		4.76	0.6	
3	cond outlet	Lockring	4.95		
4	anti-cond inlet	Copper	4.76	0.65	
5	anti-cond outlet		4.76		
6	dry filter inlet	Copper	4.9	0.75	
7	dry filter outlet		2.2		
8	capillary inlet	Ring weld	2	/	
9	capillary outlet		2		
10	evaprator inlet	Ring weld	3.15	1.2	
11	evaprator outlet		8.2	0.75	
12	suction inlet	Ring weld	8.2	1	
13	suction outlet		6.2		
14	Over pipe inlet	Copper	6	0.75	
15	Over pipe outlet		6		
16	comp inlet	ultrasonic	6.2	/	
A+B	process pipeline		6	0.75	

## Chapter 8: Disassembly Instructions for Main Components

### 1. Door disassembly

#### 1) Remove the upper hinge cover



- a, Use a simple Phillips screwdriver to remove the upper hinge cover screws;
- b, Unplug the door lamp switch terminal (hold the terminal head with your hand and pull it out as shown in Figure 2);

#### 2) Remove the upper hinge



- a, Remove the upper hinge screws and use a simple ring gun/wrench/6mm internal diameter socket wrench;
- b, Detach the upper hinge from the cabinet;
- c, Lift the door upwards to complete the disassembly of the door.

#### 1. Disassemble display and control board components





- a, Hold the front of the lampshade with your hand, which is one end of the display panel lamination component, and pull it down forcefully to remove the lampshade;
- b, Disconnect the display board connection wire inside the lampshade;
- c, Hold the buckle of the display panel lamination component with your hand, and press firmly inside the box to remove the display panel and the lamination component as a whole from the lampshade;
- d, Similarly, hold the buckle of the display panel lamination component with your hand, and press firmly inside the box to separate the display panel and lamination component;

## 2. Disassemble compressor components



- 1) Disassemble the rear cover plate of the compressor: Use a Phillips screwdriver to remove the screws;
- 2) Disassembling the compressor assembly:

Warning: Refrigerant R600 is a flammable and explosive gas, which requires professional refrigerator maintenance personnel to operate during the maintenance process.



## Technician R600a Sealed System Repair Guide

The following is in addition to or serves as a reminder of the established and prescribed company service procedures for R600a sealed system diagnosis & repair.

1. This refrigerator contains flammable refrigerant. Follow all relative company, federal, and local safety guidelines.
2. No torch or heat gun is to be used on or near any product charged with flammable refrigerant.
3. When the service request indicates a possible sealed system issue, the product and service area must be tested for combustible vapor using an approved combustible gas detector prior to and during servicing the sealed system.
4. Communicate with consumer concerning flammable refrigerant precautions.
5. Do not apply power to the compressor terminals with the protective cover removed.
6. Unless a technician is certified and equipped for R600a sealed system repair, the sealed system must be diagnosed without system entry or access.
7. All sealed system connection points (joints) must be analyzed before ordering parts to ensure that all connections can be completed.
8. Dry-powder class C fire extinguisher is nearby and accessible.
9. The service area must be well ventilated.
10. The product is grounded during repair to prevent static electrical spark.
11. Using proper equipment, temporarily recover the system to the deepest level possible while shaking the compressor periodically.
12. Bring the system vacuum to atmospheric pressure using regulated dry oxygen-free nitrogen or if leak testing is needed, pressurize up the low-side design pressure.
13. If not leak testing and system at atmospheric pressure, purge the system with dry nitrogen following prescribed procedure steps then cut all necessary connections using tubing cutter and cap-tube cutter.
14. Replace all needed sealed system components, leaving the filter-drier replacement for last.
15. Pressure test using dry oxygen-free nitrogen at no greater than low-side design pressure.
16. Safely expel the nitrogen from the system.
17. Complete the deep evacuation process and recharge using virgin R600a refrigerant following the prescribed method.
18. Cap off and test access ports for leakage.
19. Add red color to access ports tubing following AHAM guideline.
20. Vent outdoors the recovered and unused R600a refrigerant following the prescribed method.

### 3) Removing the compressor



Use a wrench to remove the fixing screws, and remove the remaining 4 in sequence

#### 4) Replacement of inverter product components:

a, The filter interface has a total of 5 interfaces, with L2\N4 being the input terminal for inserting power lines. U1\U3 is the output terminal, and the main control board is powered by plugging in the filter connection line;

b, Among them, L2 and U1 are the live wire, N4 and U3 are sporadic. Please note that the plug-in wires should not be confused, and matching terminals must be inserted according to the color, otherwise a short circuit may occur and the power line may be burned;

c, The plug-in diagram is shown in the following figure



### 3. Disassemble freezer door drawer



1) Manually remove the drawer from the freezer;

2) Manually remove the drawer under the freezer;

3) Use a Phillips screwdriver to remove the screws that secure the door bracket (1 on the left and 1 on the

right);

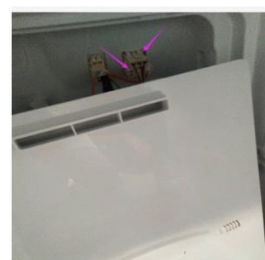
4) Lift up the freezing door from the bottom to remove the door;

#### 4. Freezer drawer slide and guide rail disassembly



Use a Phillips screwdriver or a flat screwdriver to press the protruding buckle of the rail bracket, and at the same time, forcefully pull the metal rail outward to remove it

#### 5. Remove the cover of the freezer air duct



1) Place the suction cup in the lower right corner of the air duct, pull it out with force and hear a "click"

sound, and handle it the same way in the lower left corner;

2) Pull both hands on the air outlet and pull out all the clips on both sides, then move downwards until all the upper clips come off;

3) Press and remove the heater and defrost sensor terminals to remove the air duct;

#### 6. Remove the frame of the fruit and vegetable box



1) Use force on one side to deform the moisturizing cover plate and force downwards to detach one side of the shaft, while using the same method to snap the other end to detach the shaft;

2) Pull out the moisturizing cover plate for about 40mm to remove it;

3) Gently pull out the frame while opening the front stop spring outwards, handle it the same way on the

other side, and then pull out the frame outwards;

7. Remove the support in the fruit and vegetable box



Clamp the front section and lift it up forcefully;

8. Remove the cover of the fridge air duct



1) Pull out the refrigerated atmosphere lamp shade horizontally and forcefully;

2) Use a screwdriver to unscrew the screw;

3) Grab the upper 1/3 of both sides with both hands and apply evenly until the buckle is released. Then pull the right side until all the buckles are released, then pull the left side until all the buckles are released, and finally shake slightly to pull out the upper buckle;

4) Remove the sensor terminal connector to complete the disassembly of the air duct cover plate;

Note: The dismantling of the air duct cover requires first dismantling the frame and middle support of the fruit and vegetable box, and then dismantling them in sequence;

9. Removing the ceiling light of the fridge room



1) Hold the front of the lampshade with your hand, which is one end of the display panel lamination component, and pull it down forcefully to remove the lampshade;

2) Disconnect the connecting wire of the display board inside the lampshade to cancel the top lampshade of the refrigeration room;

## 10. Middle hinge disassembly



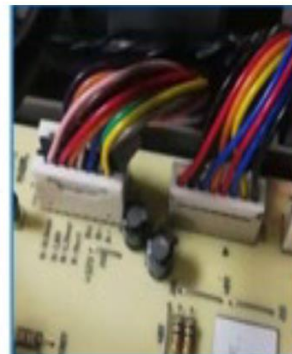
- 1) Use a Torx to remove the screws fixing the middle cross beam and side plate on the middle hinge;
- 2) Use a screw driver to remove the fixing screws of the middle hinge;
- 3) Remove the left and right middle hinges in sequence to complete the disassembly;

## 11. Removing bottle frame



The bottle frame is directly clamped into the limit position in the door liner. Hold both ends of the bottle frame with your hand, hold the bottle frame with one hand and hold it still, while squeezing the bottle frame to one side with the other hand to remove it

## 12. Disassemble the main control board



- 1) Use a Torx to remove the screws on the power box cover of the main control board, and then wear anti-static measures to remove the main control board;
- 2) After wearing anti-static measures, pull the wiring harness terminals inside the box upwards and separate them from the main control board;
- 3) Break the power switch limit claw outward and remove the main control board along the side where it is broken;

## Chapter 9: Typical Fault Diagnosis and Troubleshooting

## 1. Common faults and troubleshooting of refrigeration systems:

Phenomenon	Fault analysis
Refrigerator not cooling	Cause 1: The compressor does not start: check whether the inverter board reports an error and whether the power supply voltage of the main control board is normal
	Reason 2: Frequent compressor trips: Check if the frequency converter board is faulty
	Reason 3: Is there any blockage in the refrigeration system
A certain room in the refrigerator is not cooling	Reason 1: Check whether the connectors of the main control board are loose or have poor contact;
	Reason 2: If the refrigeration room does not cool, check whether the refrigeration fan is running. When checking the refrigeration fan, press the door light switch and check after 5 seconds;
Insufficient refrigeration in the refrigerator	Reason 1: Check for refrigerant leakage;
	Reason 2: Check if each fan is running: Open the door and observe if the air outlet is discharging. When checking the refrigeration fan, press the door light switch and check after 5 seconds.
	Cause 3: Check whether the evaporator in the freezer is severely blocked by frost and whether defrosting is normal.
Abnormal noise	Reason 1: Check if the pipelines collide and if the compressor resonates;
	Reason 2: Check if the exhaust temperature is too high. If the exhaust pipe temperature is too high (it should not exceed $60^{\circ}\text{C}/140^{\circ}\text{F}$ when the ambient temperature is $25^{\circ}\text{C}/77^{\circ}\text{F}$ ), there is a possibility of air mixing in the system, causing abnormal noise;
	Reason 3: Check if the fan blades of the refrigeration room are interfering with other components due to abnormal sound from the fan.

## 2. Common faults and troubleshooting of electronic control system:

Phenomenon	Possible reasons	Maintenance methods
There is no display on the display screen and the lighting is not on	Is the power supply connected, the plug firmly inserted, and the power plug in good contact	Connect the power supply or plug it in or plug in the power plug
	The fuse on the main control board has blown out	Replace the fuse
	Poor contact of the power supply connector on the main control board	Insert the connector properly
No display on the display screen and the lighting is on	Poor contact at the connector on the signal harness connecting the display board and the main control board	Insert the connector properly
	There is a broken wire in the signal connection harness	Repair or replace the wiring harness
	Display and control board failure	Repair or replace
The display screen shows normal compressor not working	Poor contact of compressor plug-in	Insert the connector properly
	Main control board failure	Repair or replace
	The two components of the compressor are faulty	Repair or replace
	Compressor malfunction	Repair or replace
Fridge room not cooling	Electric control board malfunction	Repair or replace
	Electric damper failure	Repair or replace
Freezer room not cooling	The fan blades of the refrigeration room fan motor have fallen off	Reinstall and tighten the fan blades
	Refrigeration room fan motor failure	Check the connectors or replace them

Phenomenon	Possible reasons	Maintenance methods
Fridge/freezer frosting	Blocked return air duct	Clean the return air duct
	Refrigeration/Freezing Room Leakage	Check the seal of the refrigeration/freezing door
	Defrosting heater or sensor malfunction	replace
Severe frost formation in the freezer	The defrosting circuit connector has fallen off	Insert the connector properly
	Defrosting heater or sensor malfunction	replace
Compressor not working	Check whether the compressor harness is connected normally	Show Reconnect
	Electric control board malfunction	Replace the main control board
Button malfunction	Improper assembly of buttons (springs)	Reinstall and adjust the position
	Touch capacitor fault	Repair or replace
	Display and control board failure	Repair or replace

2. Main electrical component failures:

Component	Phenomenon	Test method	Maintenance methods
Defrosting heater/fuse	With defrosting action, without defrosting	Test the resistance of the defrosting heater with a multimeter, with a resistance value of approximately 252 ohms; Test whether the defrosting fuse is in the on state (multimeter diode is on)	Replace the heater due to heater failure; Replace the fuse in case of fuse failure;

Component	Phenomenon	Test method	Maintenance methods
Damper	Fridge not cooling	In non commodity inspection mode, set the temperature of the refrigeration room to 2 °C35.6 °F and manually check whether there is air outlet at the air duct of the refrigeration room	Check whether the harness interface of air door is normal; Replace the main control panel, otherwise replace the damper
Light	The light is not on	1. Check if the connector is properly connected 2. Check whether the lamp on the mainboard is powered normally 3. If all lights are off, check the door light switch and communication line 4. Some lamp beads do not light up, replace the lamp board	
Fan motorS	The cooling in the freezer is slow, and the temperature in the freezer cannot drop	powered on and if the fan is blocked Check if the main board refrigeration fan terminal is	Main board failure, replace the main board, and reinstall the fan due to rotor blockage  Note- When the fridge fan malfunctions, the electric damper closes and the refrigerator does not cool.

4. Fault sign and maintenance

When the following failures appear on the display, it means that the refrigerator is malfunctioning.

In some failures, the refrigerator can still be cooled, but **perform** maintenance as soon as possible to realize the optimal operation of the refrigerator.

	Item	Fault sign		Default details	Remark
		Freezer	Fridge		
1	normal	As per setting		-	Display normally
2	Freezing sensor abnormal	FS	Er	Freezing sensor disconnected or short-circuited	Sensor wiring check  Note- When the fridge, freezer, and defrosting sensors fail, the compressor operates according to a certain start stop ratio.
3	Ambient temperature sensor is abnormal	rH	Er	Ambient temperature sensor disconnected or short-circuited	
4	Cold storage sensor abnormal	rS	Er	Refrigeration sensor disconnected or short-circuited	
5	Defrost sensor abnormal	dS	Er	Defrost sensor is disconnected or short-circuited	
6	Poor defrosting	dH	Er	Start defrosting. After 70 minutes, the defrosting and defrosting sensor is below $5^{\circ}\text{C}41^{\circ}\text{F}$	
7	Communication abnormal	CO	Er	Communication between control board processor and display board processor	Abnormal communication transmission

8	Abnormal freezing motor	FF	Er	When the motor runs for more than 30 seconds and there is no feedback signal	Defects in motor wiring, Drive IC, TR, etc.
9	Condensing motor abnormal	CF	Er	When the motor runs for more than 30 seconds and there is no feedback signal	Defects in motor wiring, Drive IC, TR, etc.

