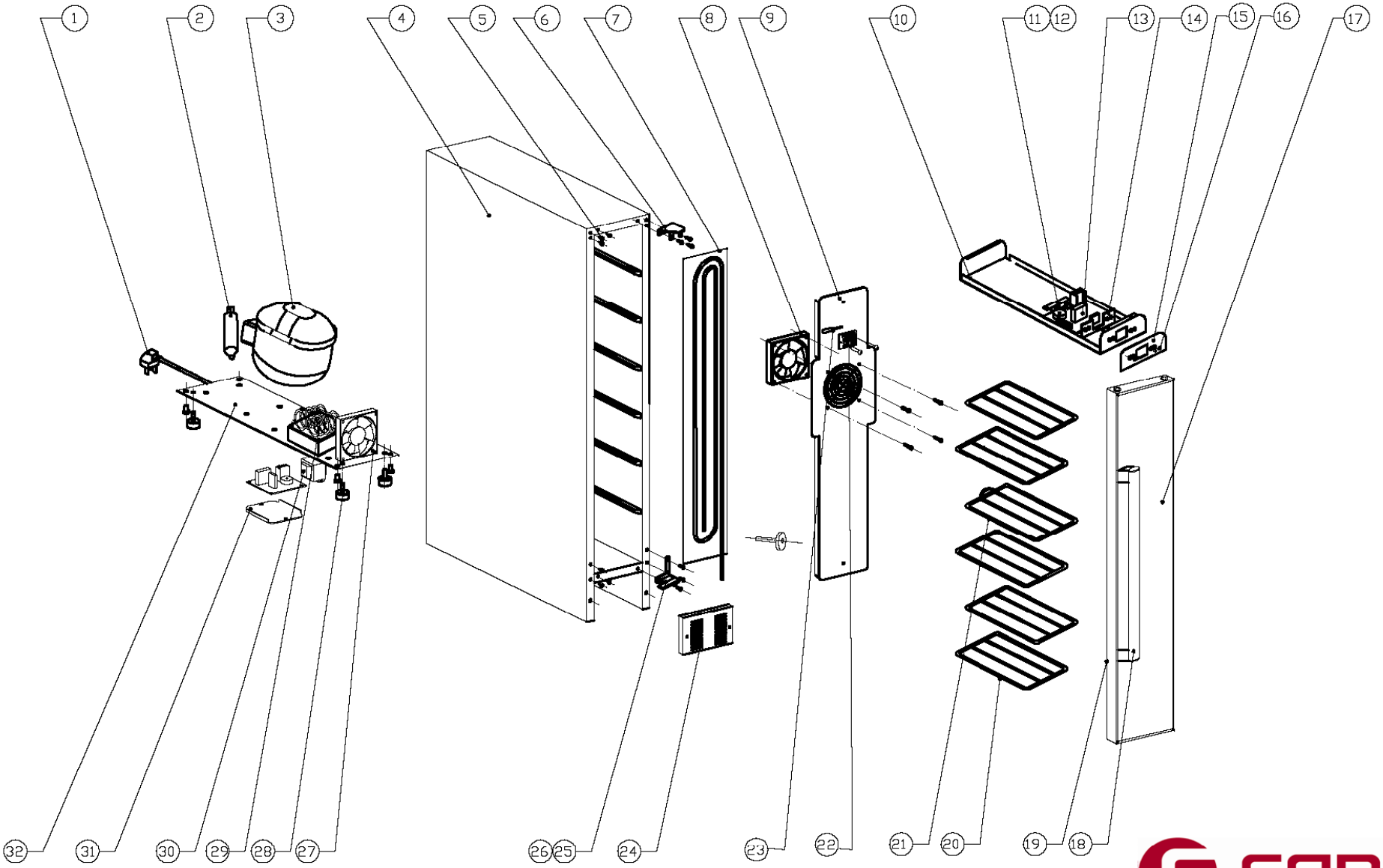
WI152

Caple 15cm wine cabinet

Technical information



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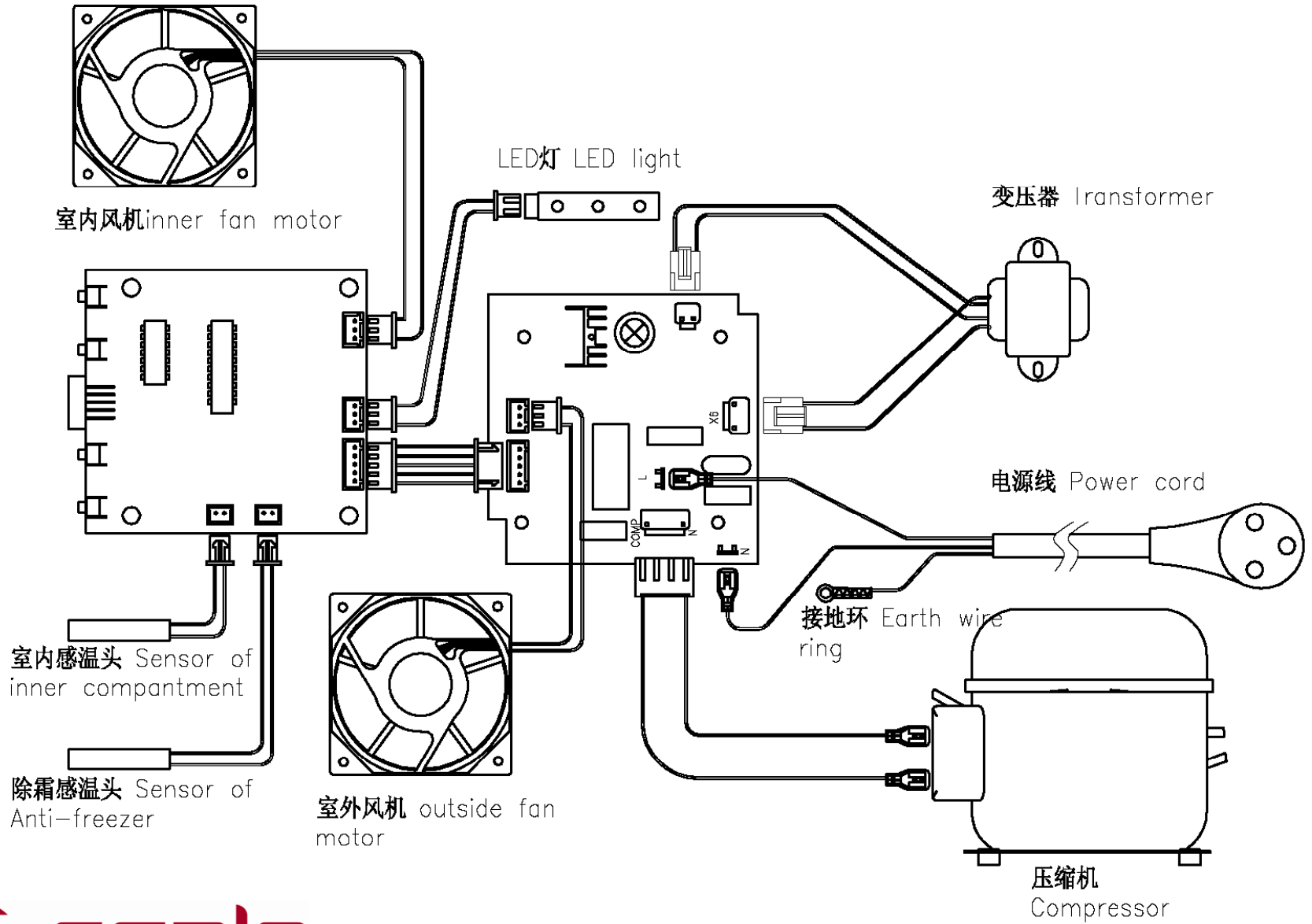
Item	Part Code	Description	Qty
1	DG2-14	Power cord	1
2	DG11-4	Dry filter	1
3	DG1-58	Compressor	1
4	DG26-84	Cabinet	1
5	DG13-8	Decorative nail	3
6	DG14-154-BR	Top hinge module right	1
	DG14-154-BL	Top hinge module left	1
7	DG12-77	Evaporator	1
8	DG7-41-BH	Evaporator fan(Upper)	1
	DG17-144-1		1
9	DG22-397	Air duct board	1
10	DG22-396	Electrical box	1
11	DG3-41-W	LED light	1
12	DG13-127	LED Light Cover	1
13	DG3-42	PCB board	1
14	DG13-348	Button gasket	1
15	DG20-258	Display panel	1
16	DG13-130-S	Button	4
17	DG23-157	Cabinet door	1
18	DG22-3027	cylinder knop	1
19	M184-027	Gasket	1
20	DG15-139	Shelf	5
21	DG15-146	Shelf	1
22	DG8-7-W	Senser	1
	DG8-7-R	Senser	1
23	DG13-511	Senser cover	1
24	DG22-386-B	Decorative frame	1
25	DG14-167-BR	Lower hinge module right	1
	DG14-167-BL	Lower hinge module left	1
26	DG14-116	Lower hinge	1
27	DG7-22-BH	Condenser fan	1
	DG17-145-2		1
28	DG13-6-15	Cabinet leg, type BC50	4
29	DG12-78	Condenser	1
30	DG6-2	Transformer	1
31	DG22-410	Electrical board box	1
32	DG22-409	Compressor bracket	1



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Computer Controlled Wine Cellar

Wi152 Wi153

Service Manual

Here below we listed various faults while using the wine cellar, and the method of check-up and solve these default, and find the information of the correspondent page.

Statement: (Fig.4) shows the reference figure Fig4

(→6.1.6) shows the reference item 6.1.6.

Warning: before attempting any cleaning or maintenance this unit MUST be disconnected from the electrical supply, to prevent electrical shock

▲Preparation before maintenance

○ Tools

1．Pliers　　2．Phillips head screwdrivers

3．Process pipe　　4．Electrical Multi meter

5．Amp meter (5A) (caliper cable type)　　6．Electrical soldering iron

7．Wire strippers　　8．Seal pliers

○Equipment

1．Vacuum pump　　2．Soldering iron for copper pipes　　3. Refrigerant meter

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1. Safety rules on operation of repairing (Rules must be obeyed).

To avoid the accident during maintain the wine cooler, and make sure the product is safety, rules must be obeyed list below.

○ Below we list the symbols and explain the danger if ignore it.

	Danger	This symbol means that the instance may have the chance to suffer death or a serious wound.
	Warning	This symbol means that the instance may have the chance to suffer death or a serious wound.’
	Notice	This symbol means that the instance may have the chance to suffer a wound.’

○Below symbols’ distinguish and rules should be obeyed.

	This symbol means the instance hope to be noticed		This symbol means the instance must be done forcibly

 禁止	This symbol means the instance forbidden		

Danger	
	·Please make sure to discharge the rest refrigerant in the parts. ·When discharging refrigerant, make sure that it never go to the fire place and drain to outdoors. Tell the customers that they never close to the discharge place and the fire is forbidden. ·Take apart the pipe by cutter. Never take apart the part by soldering, otherwise it will fire the rest refrigerant in the systems and cause blast. ·Exhaust the rest refrigerant in the systems before welding. ·After filling the refrigerant the sealing should be done by using smithing welding nozzle. Using the welding machine will fire the refrigerant and blast. ·Since the R600a is heavier than the air, please let the R600a on the ground go especially for the hypogeum. ·The operation on the servicing refrigerant bottle should be done in place without fire and outdoors. ·Use the refrigerant warner please， as the rest refrigerant will cause the fire.
 禁止	·Don’t use fire in the place with rest refrigerant. ·Don’t place the default compressor in indoor.

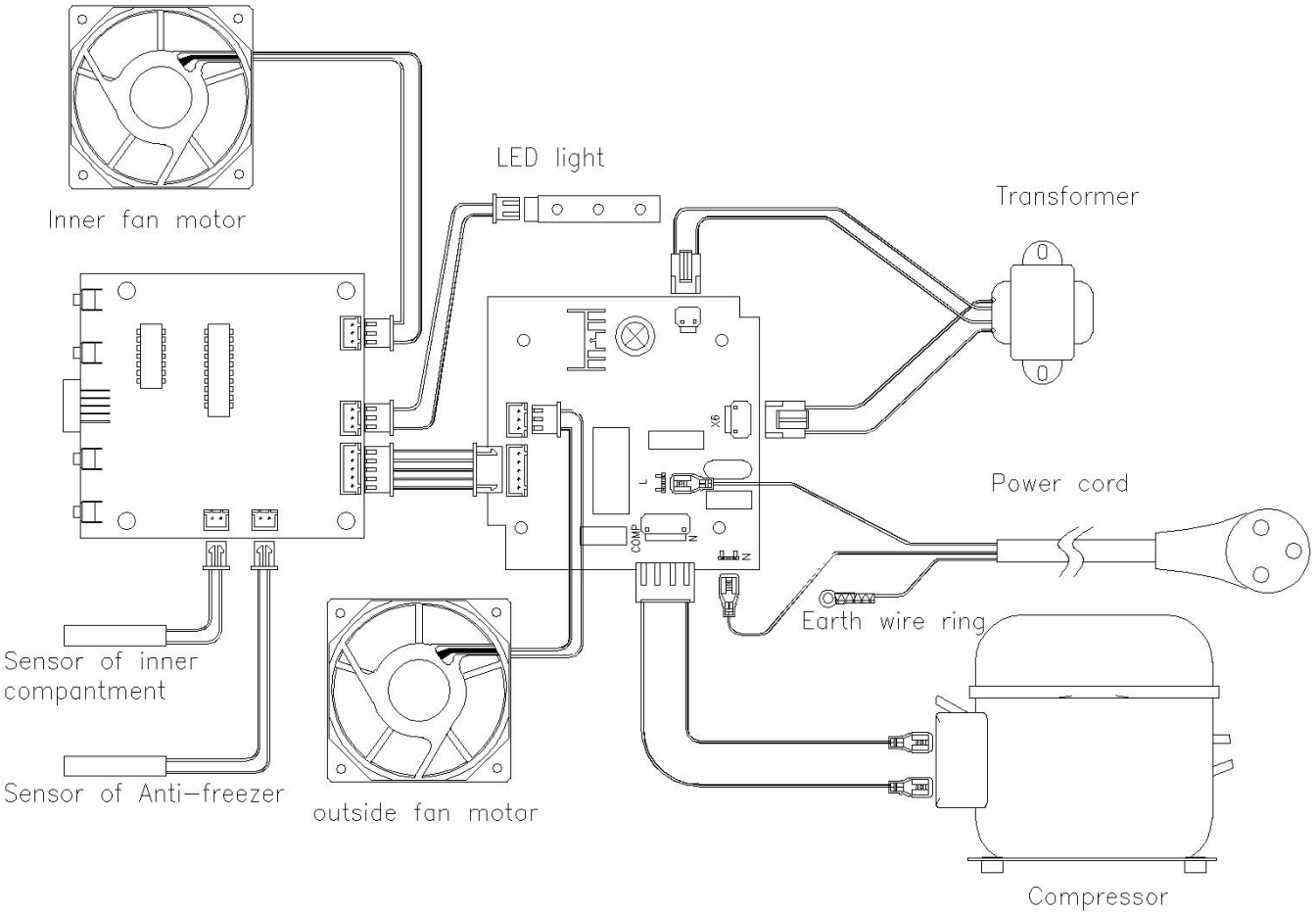
Danger	
 拔掉电源插头	·During repairing, the power plug should be disconnected. Before remove, install, replace parts disconnect the power plug.
 小心触电	·Attention don't get electric shock. When checking current, voltage or charging never touch the connectors. When changing the parts, don't touch the charged parts within three minutes after disconnect the plug. The capacitor will discharge for some time.
 禁止	·Don't damage the cooling pipe, sine the refrigerant is flammable, the damage will cause the fire or blast. ·Don't smoking in the service car.
	·Discharge the refrigerant entirely in the place without fire before disusing the refrigerant bottle. ·Don't touch the wine cooler when the cooling pipe damaged, don't fie inside the wine cooler, keep the windows open to exchange the air. ·Disusing the default compressor should be done outdoor without fire. ·The maximum weight of the refrigerant bottle loaded in the vehicle should be comply to stated, the bottle should be place upright, the maximum leaning angle is 40°. ·Do use the appointed part, otherwise it have chance to smoke fire or default. ·Please put the default compressor into plastic bag and seal the peristome, then pack it with strip, as the rest compressor oil may leak in the vehicle and cause fire or blast. ·Check if all the snails, parts, wiring are install in it's place, if the area around the

	service part worsen. When measuring the grounding resistance make sure that the test range is more than 1MΩ. Make sure the power cord and plug never be pinched on rear of the wine cooler. Exchange the power cord when it damaged. Clean the flake of the plug when it dirty.

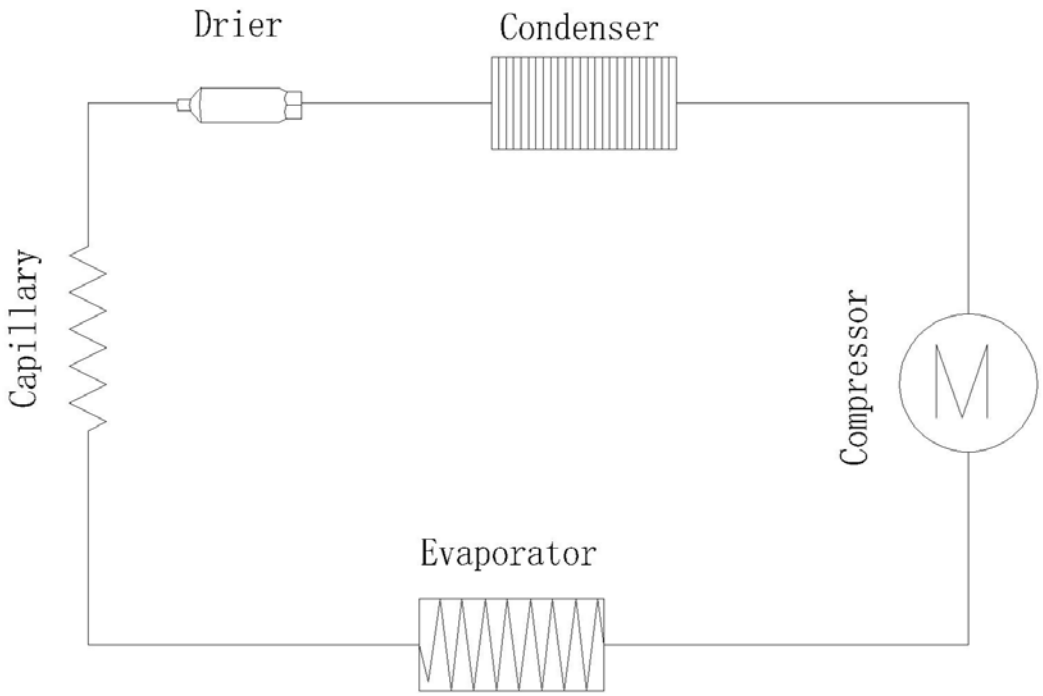
Notice

 注意高温	·Attention the hot. The running or just stop compressor and the pipe sometimes are very hot. And the heating or just stop heater is very hot. The hot will cause scald. ·Attention the hot parts of the pipe after the welding.
	·Attention the refrigerant during charge and discharge it, as it will frostbite the skin when touch it. ·Attention the burr. The burr on the metal or plastic part may hurt the hand. ·Attention the fins of the evaporator. The fins of the evaporator may hurt the hand.
	·Drive up the wine cooler when moving it. Pushing it may damage the floor. Cover a protector board on the easy damage floor.

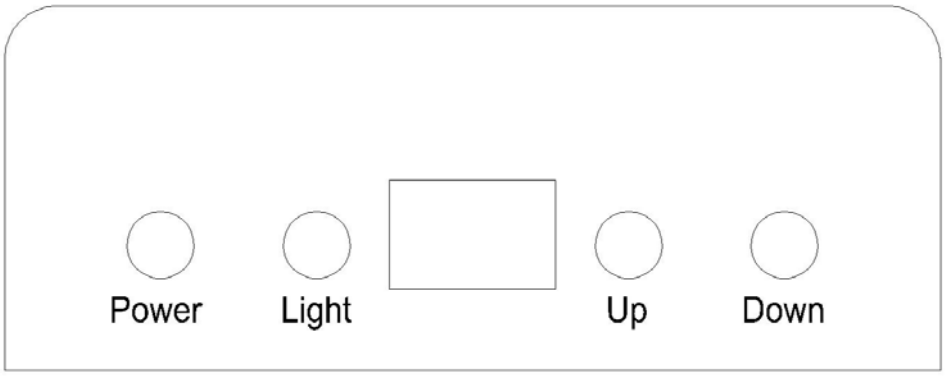
2. Electrical circuit diagram.



3. Cooling system diagram.



4. Name and function on control panel.



- **LIGHT**
  Press one time, the light on, press again, the light off.
- **POWER**
  Press it and hold on for three seconds, the power on or off.
- **"UP" BUTTON**

  Press '**UP**' , the setting temp will raise up in 1.

- **"DOWN" BUTTON**
  Press '**DOWN**', the setting temp will lower down in 1.

5. How to diagnose the fault.

5.1 Fault finding by the self-check mode.

The wine cooler is controlled by computer, in order to maintain the wine cooler easily, there is a self-check function in the control PCB.

If you suspect that the control system fault, you can star the self-check mode by following below:

1 > .Press the 'UP' and 'DOWN' at the same time and holding, power on, two beeps will sound, the systems

enter self-check mode.

2 > . The function as below:

a. Not any react when press any button.

b. The readout show "━ ━".

c. The compressor keep running.

d. The inner fan and outer fan running.

e. The light switch control the light at normal.

3 > . If all items a~e tally with above description, the parts are normal. If any part fail, check the failed part and the corresponding wiring and connection, if the wiring and connection is in good condition, replace the part and check again, if it still failed, the default should be the control PCB, replace it with same model. (Fig.4 & Fig.5 & Fig.8 & Fig.9)

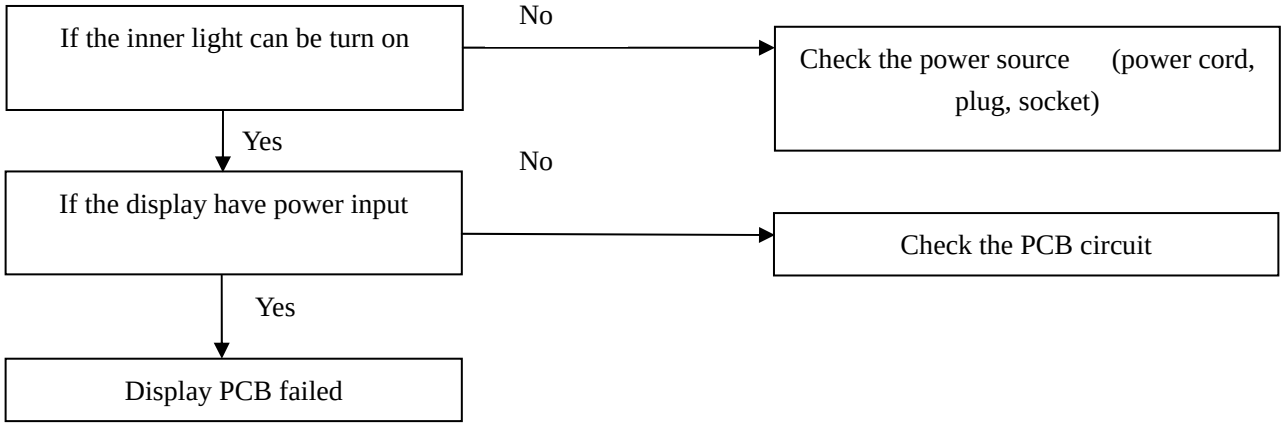
4 > . The self-check can be quit only disconnect the power plug.

5.2 Err code

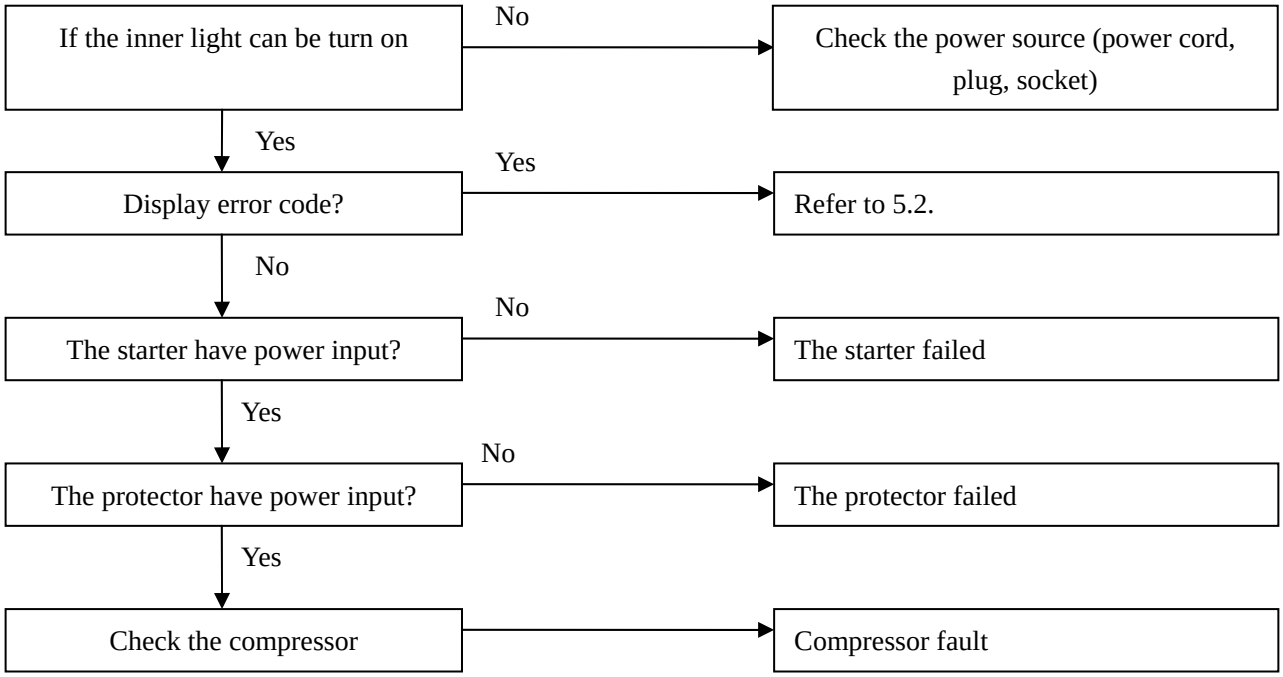
Symbol	Representation	Checking point	Solution
E1	Inner sensor open circuit.	Check the wiring and connection between PCB and sensor, if it open circuit.	If the connection and wiring is normal, replace the sensor please.
E2	Inner sensor short circuit.	Check the wiring and connection between PCB and sensor, if it short circuit.	If the connection and wiring is normal, replace the sensor
E3	Anti-frost sensor open circuit.	Check the wiring and connection between PCB and sensor, if it open circuit.	If the connection and wiring is normal, replace the sensor
E4	Anti-frost sensor open circuit.	Check the wiring and connection between PCB and sensor, if it short circuit.	If the connection and wiring is normal, replace the sensor

5.3 Diagnose the default

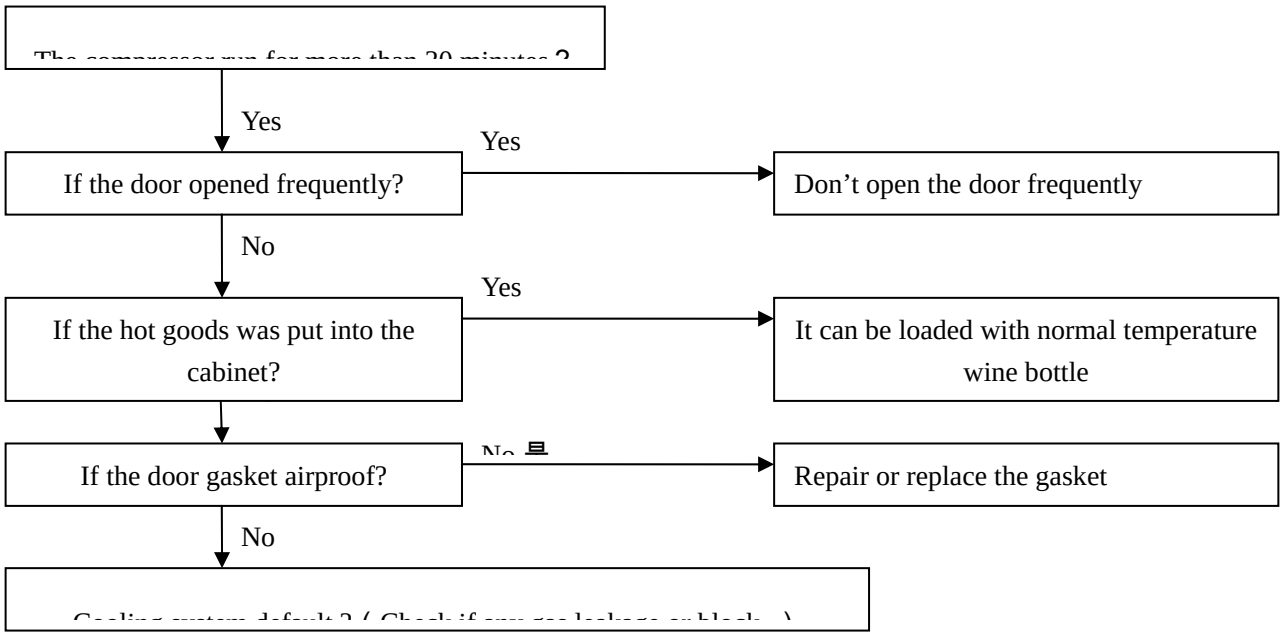
- **There isn't any display on the display PCB.**



- **Not cooling (the compressor stop)**



- **Not cooling (the compressor running)**



6. Gist on disassembly.

Warning: Disconnect the power plug before maintain the wine cooler.

6.1 Gist on disassembling the inner cabinet.

6.1.1. How to remove the shelves.

Revolve the shelf on either side, then pull the shelf out. (Fig.1)

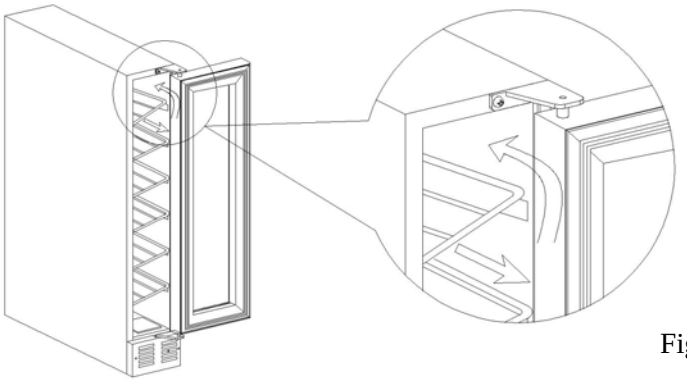


Fig.1

6.1.2. How to remove the air-duct board

The process of removing the air-duct board: Remove all shelves → Remove the air-duct board

Remove two air-duct board fixing screws, and remove the air-duct board, disconnect the fan connector carefully when pulling out the air-duct board. (Fig.2)

Fig.2

6.1.3. How to remove the inner fan.

The process: remove the shelves → remove the air-duct board → remove the fan

After remove the air-duct board, remove four fan fixing screws, and the fan can be removed. (Fig.3)

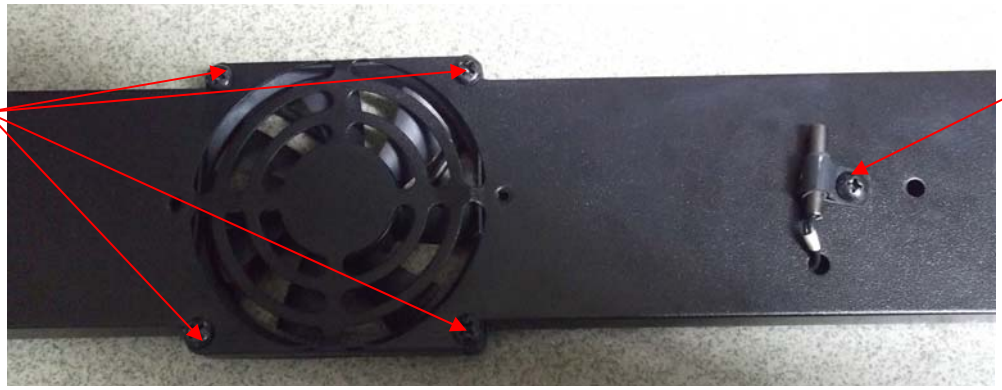


Fig.3

6.1.4. How to remove the sensor

The process: remove the shelves → remove the air-duct board → remove the sensor

After remove the air-duct board, loose the sensor fixing screw, and remove the sensor. (Fig.3)

6.1.5. How to remove the control box.

The process: Remove the shelves → remove the control box.

Remove the screw on the back of the control box, pull out the control panel, disconnect the connectors, remove the control box. (Fig.4)

Fig.4

6.1.6．How to remove the main PCB.

The process: Remove the shelves → remove the control box → remove the main PCB.

After removing the control box, press the nail one by one and pull the PCB upward, remove the main PCB. (Fig.5)

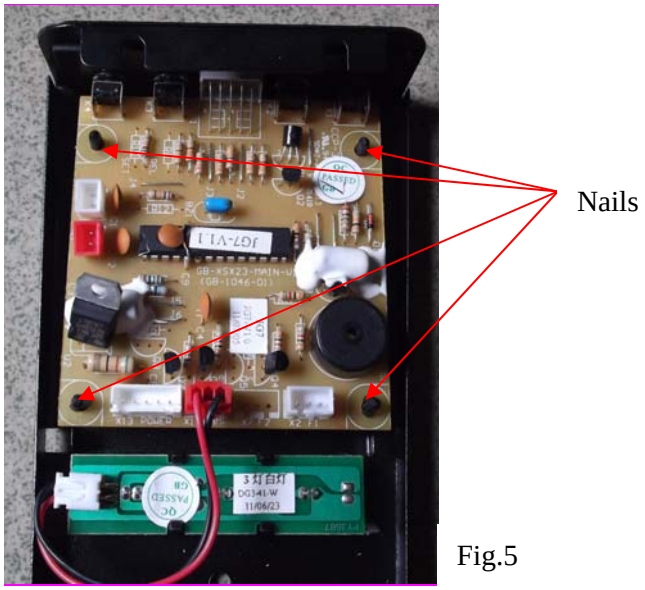


Fig.5

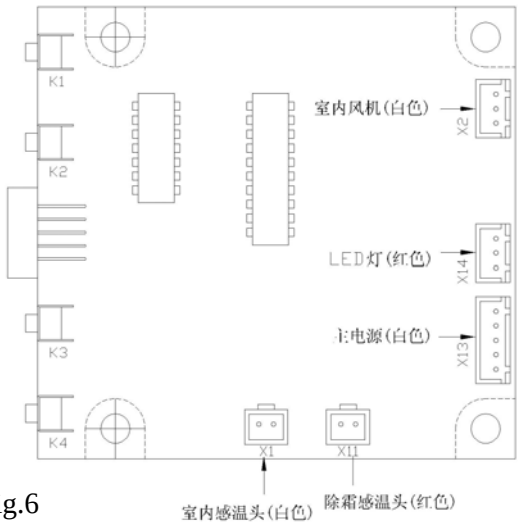


Fig.6

Diagram and explanation of the main PCB (Fig.6)

X1: Inner sensor(white)　　X11: Defrost sensor(red)　　X13: Power PCB (white)
X14: LED light (red)　　X2: Inner fan (white)

6.1.7． How to remove the LED light

The process: Remove the shelves → remove the control box → remove the LED light.

After removing the control box, disconnect the LED connector, pull the hooks fixing the LED light and remove the LED light. (Fig.7)

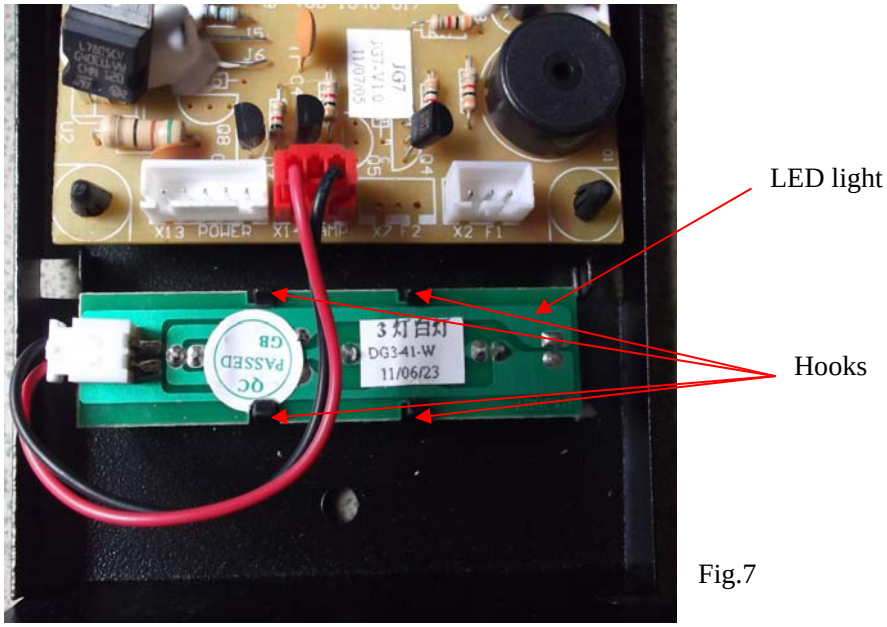


Fig.7

6.2 Gist on disassembly outside the cabinet.

6.2.1．How to remove the power PCB and transformer.

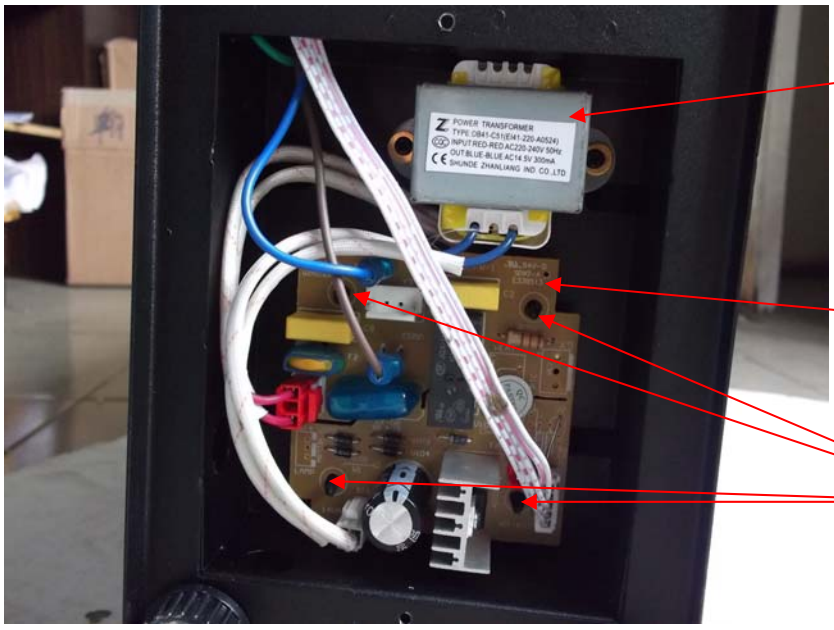
The process of removing the power PCB: remove the power PCB cover → disconnect the connectors → remove the power PCB.

The process of removing the transformer: remove the power PCB cover → disconnect the connectors → remove the transformer.

Lean the cabinet, remove two power PCB cover fixing screws （Fig.8）.disconnect the connectors, and press the nail one by one and pull the power PCB upward at the same time, remove the power PCB, remove the two transformer fixing screws, and the transformer can be removed.(Fig.9)

Power PCB cover

Fig.8



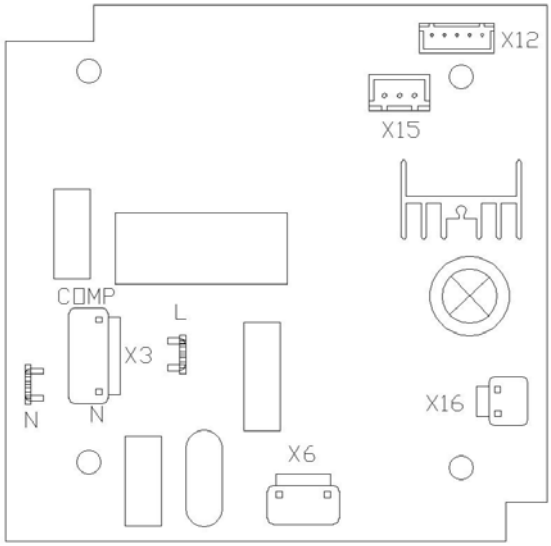
Transformer

Power PCB

Nails

Fig.9

Diagram and explanation of power PCB and connection (Fig.10)



L: Power - L

N: Power - N

X6: Transformer primary
X16: Transformer secondary
X3: Compressor
X15: Outer fan
X12: Main PCB

Fig.10

6.2.2．How to remove the condenser fan.

The process: remove the decorative cover → remove the condenser fan

Remove the two decorative cover fixing screws, take away the decorative cover, and remove two fan fixing screws, the condenser fan can be removed. (Fig.11 & Fig.12)

Fig.12

6.2.3．How to remove the compressor.

The process: separate the solder joints → remove the cabinet legs → remove the compressor fixing screws.

Release the refrigerant by cutting the process pipe C, then heat the suction pipe and separate it by using the plier, heat the filter and condenser joint and separate it by use plier. (Fig.13). Remove four cabinet legs, then remove six compressor supporter fixing screws, take away the whole part. Heat the condenser and compressor solder joint, separate it by using the plier. Remove four compressor fixing screws by using the spanner, remove the compressor. (Fig.14 & Fig.15 所示)。

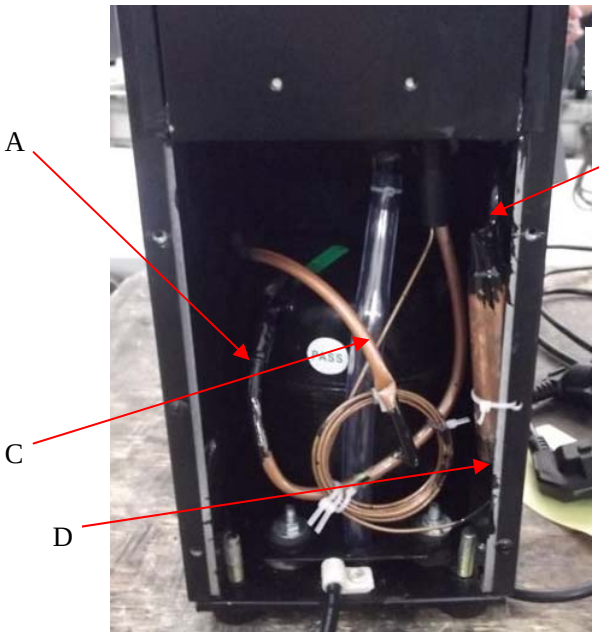


Fig.13

A: Suction pipe solder joint
B: Filter and condenser pipe solder joint
C: Process pipe
D: Filter and capillary solder joint
E: Condenser and compressor solder joint

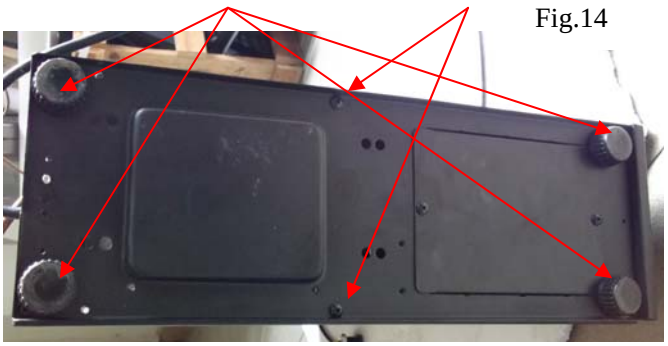


Fig.14

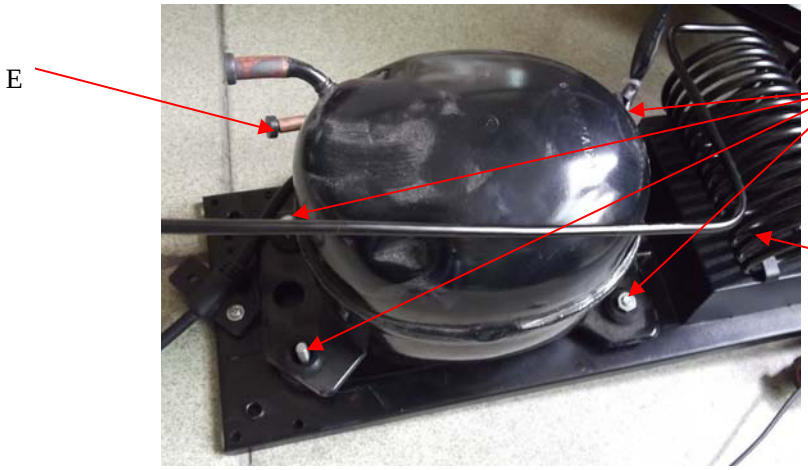


Fig.15

6.2.4 . How to remove the evaporator

The process: remove the shelves → remove the air-duct board → remove the evaporator

After remove the air-duct board, we can see the evaporator (Fig.16) , Heat the solder joint A, D, separate them by using the plier (Fig.13) . Remove the evaporator fixing screws, remove the evaporator. (Fig.16)

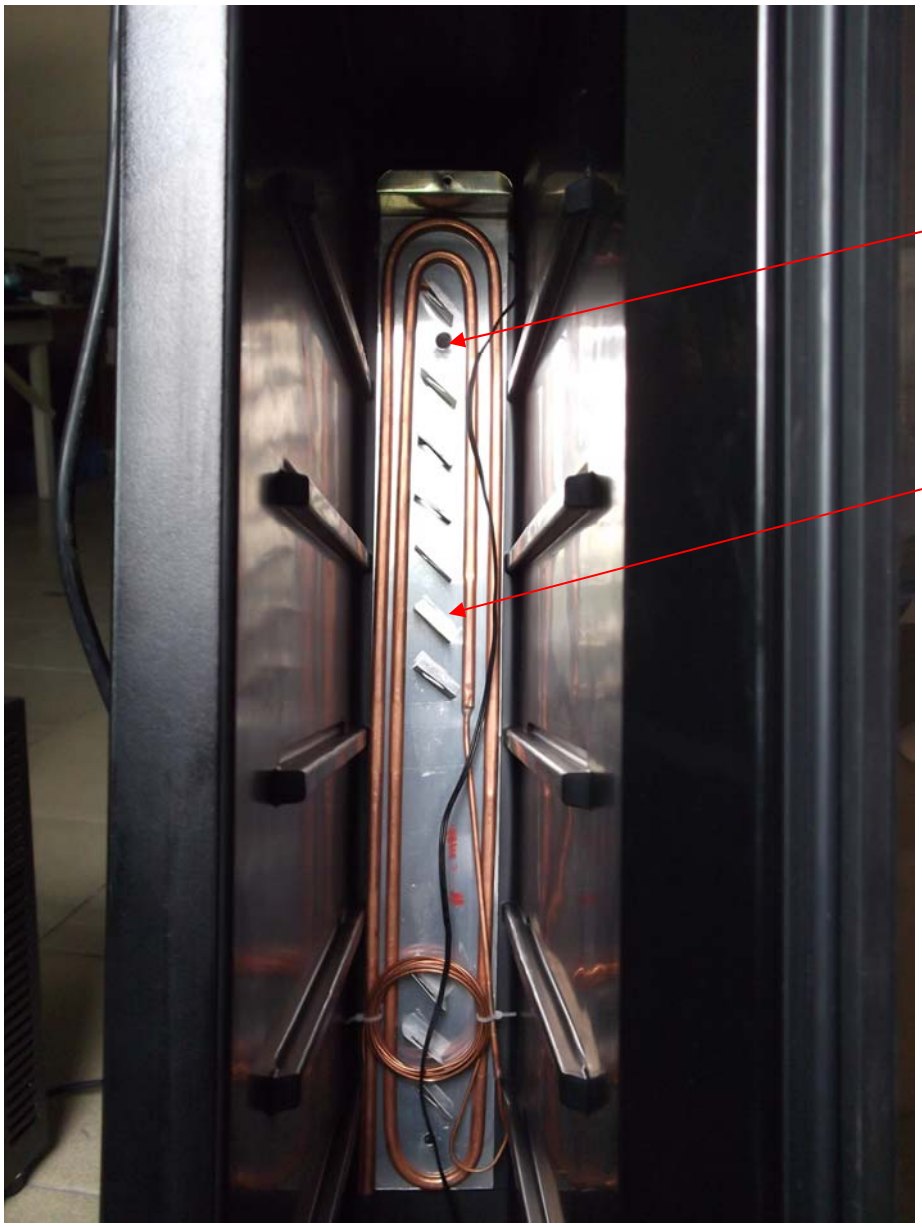


Fig.16

6.2.5 . How to remove the condenser.

The process: separate the solder joints → remove the cabinet legs → remove the compressor supporter → remove the condenser.

Refer to the method of remove the compressor, after remove the whole compressor and it's supporter, separate the compressor and condenser on point E, pull the hooks fixing the condenser by using the plier, we can remove the condenser. (Fig.17)

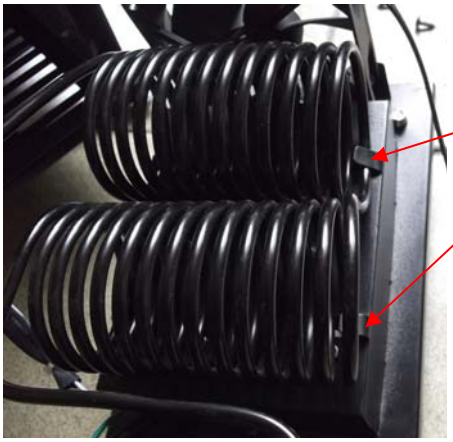


Fig.17

7. How to overhaul the default

It should take approximate 3 hours to reach the lowest setting temperature of about 5℃ for an empty unit (assuming ambient temp of 32 degrees centigrade and continuous operation). If not, check the compressor, cooling fans, controller, and sensors. If all these are working normally, there is probably a cooling pipe fault.

7.1. Check the compressor

If the wine cooler not cooling, check the current with the Amp meter，refer to rating label, if it too high or too low, cut the discharge pipe (Fig.15 item E) and (Fig.15 item C), power on, check the current, and feel the discharge pipe, if the obvious air pressure from compressor, if the current still very high or very low or the discharge pipe with small air pressure, the compressor fault, replace the compressor please.

Notice. After cut the discharge pipe and process pipe, in case of suck the damp, the compressor should ne power on long time (no exceed 15 minutes is best).

7.2. Check the cooling system

When it is sure that the compressor is working normally and the cooling system's fault is concentrating on the cooling system pipe. Check following below:

1>.Cut off process pipe and check the refrigerant. If there is not enough refrigerant, the default of the refrigerant system should be caused by the leaking. If the refrigerant is sufficient. it is probably block in the capillary.

2>.If the default is concentrated on the cooling system, the checking procedure is as below.

a. Cut off the discharge pipe (See Fig.13, E) of the compressor, and infuse 0.8-1.5 MP nitrogen per process pipe, and put the hand close to the cut kerf. If there is a little gas leak from the terminal, it means normal, otherwise it is jammed.

b . Make sure the capillary is working normally. Then reconnect the discharge pipe, and infuse 0.8-1.5 MP nitrogen from process pipe, then test the leakage, check with soap water if the cooling system of the soldering point is damaged. Check from the soldering point around the compressor(Fig.13), if it is OK, then check the soldering point of the evaporator(Fig.16), before check please remove the air-duct board, please see the remove method and procedure in (→6.1.2)

c. If all the soldering point in b is not leaking, there are two possibility, one is leakage in the inner condenser (or anti- dew pipe), another is the damage on the spare parts in the cooling system. If it is the inner damage, it can not be repaired, and if the damage on the spare parts, replace them.

3>. Make sure there is no leakage in the cooling system, infuse the refrigerant.

7.3. Refill the refrigerant:

1>.Using the vacuum pump form a vacuum in the system, via the joints of the low-pressure pipe, the low-pressure pipeline is on the process pipe of the compressor (Fig.13, C). Apply the vacuum pump for approximately 20 minutes. Until the vacuum is lower than 100Pa.

2>. Fill Cooling system with refrigerant via the process pipe of the compressor (Fig.13, C). (Regarding refrigerant quantity Please refer to the instruction at back label of wine cellar). Then solder the compressor process pipe after the system is charged with refrigerant.

7.4. Running test:

After the procedures above finish, turn the unit on. To verify the effectiveness of the repair, monitor the unit, the compressor should automatically stop within + or - 2.5 deg centigrade of the set temperature within approx 3 hours (assuming an ambient temperature of 32℃and the unit is empty).

7.5. Noise problem

1 Compressor noise

1>. The working of motor and piston motion will cause noise when compressor working. So if noise is steady and not exceeds 42 dB, it's normal. If noise is not steady or very high, it's compressor fault and it should be maintained or replaced.

2>. If compressor's shock absorption rubber is hardening or damaged, or fixing screw of compressor is too tight or loose, it will cause noise. The settlement is to change new shock absorption rubber or adjust fixing screws. (→6.2.3)

2 Fan noise

1>. The working of motor and piston motion will cause noise when compressor working. So if noise is steady and not exceeds 42 dB, it's normal. If noise is not steady or very high, it's compressor fault and it should be maintained or replaced. (→6.2.3)

2>. If compressor's shock absorption rubber is hardening or damaged, or fixing screw of compressor is too tight or loose, it will cause noise. The settlement is to change new shock absorption rubber or adjust fixing screws. (→6.2.3)(→6.2.2)

7.6. Refrigerant jet noise

Default: There is continuous noise like a water spray from the capillary.
Reason: The end of the capillary is in the wrong position, or there are rough edges on the end of the capillary

Solution:

1>. Remove the evaporator(→6.2.4), heat the soldered joint of the capillary (Fig.3), then remove the capillary from the evaporator and smooth the end with an eraser. (Caution: do not allow any particles into capillary unit).

2>. Replace the capillary into the evaporator, then solder it back into the correct position (not exceeding 15mm in the evaporator) and pack the joint with anti vibration compound

3>. Recharge with refrigerant. (→7.3)

7.7. Capillary vibration noise

Default: high frequency impact noise in capillary Zone.

Caused by either reason below:

1>. The capillary being insert too deep into the evaporator, so when the refrigerant is Jetting, the end of vibrating capillary will hit the inside of the evaporator.

2>. Vibration from the capillary touching the inside of the cabinet or air duct board, then when refrigerant is jetting.

Solutions:

1>. Refer to (→7.6)

2>. If the capillary touch the inner cabinet and the air duct panel, adjust the position of the capillary and add the incabloc plastic.

7.8. Oil jammed noise

Fault: intermittent and deep jet noise coming from inside of the capillary.

Cause: Compressor oil flowing into the cooling system pipe work probably due to the capillary slightly out of alignment during transportation

Solution: Clean the cooling system pipe, vacuumize it and recharge with refrigerant see (→7.3)

7.9. Evaporator freezing.

Because the door seal is not air-proof, or the door is not closed well, cause much water fill in the cabinet, and the water got frozen when it encounter the cold air, sometimes the ice is too thick, and it will block the fan or broken the fan.

The solution:

1 >. Replace the door seal or close the door well. If the door seal is slightly not air-proof, it can be repaired by the heat dryer.

Aiming at the distortion of the seal with the heat dryer, and move up and down until it expand to the normal state. When it is cool, check it with the door closed, if there is any distortion, dry it again until it fix for the door. (Fig.18)

2 >. If the fan is broken, replace the fan.

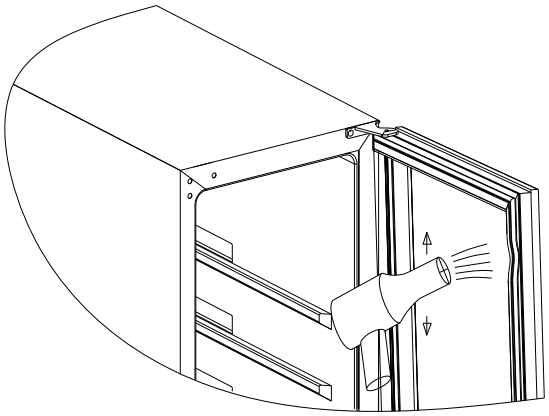


Fig.18

7.10. Unstable temperatures inside the cabinet.

The unstable temperature is caused by the evaporator fans cease, and it can be check by the below method: When the compressor is running, the light “Run” is on, the fan should be running, if the fan stop, check the whether is any fault in the fan or fan connection. If the fan is broken, replace it with the fan of the same model . **(→6.1.3)**

7.11. The digital display’s fault

This malfunction is caused by the display of main PCB default, replace with the same model’s main PCB.**(→ 6.1.6)**

7.12. Sensor default

The process: remove the shelves → remove the control box → remove the air-duct board → remove the sensor (→6.1.4.)

1 > . After turning on the power, if the LED display shows the temperature is similar with the ambient temperature, it is normal, if abnormal or show ‘E1, E2’ , please remove the control box, check the sensor insert whether reliable (Fig.5). If the insert is reliable, it is the sensor’s fault, replace the sensor with the same module. (Fig.1, Fig.2, Fig.3);

2 > . If the LED display show ‘E3, E4’, it is the defrost sensor problem. Remark: The defrost sensor is in the foam body, if the sensor faulty, just place the replace sensor in the control box.
How to replace the sensor:
Cut the sensor, the rest wiring should be long enough to reconnect. Peel off the scarfskin about 12mm, cut the spare sensor and peel off it’s scarfskin about 12 mm, connect the ends, and wrap the ends with insulating tape. Fix the sensor on the original position.

7.13. Explanation of display.

According to requirement there are two different display, one is that the LED display show the setting temperature, the other is that the LED display show the real inner temperature.

Rev:A