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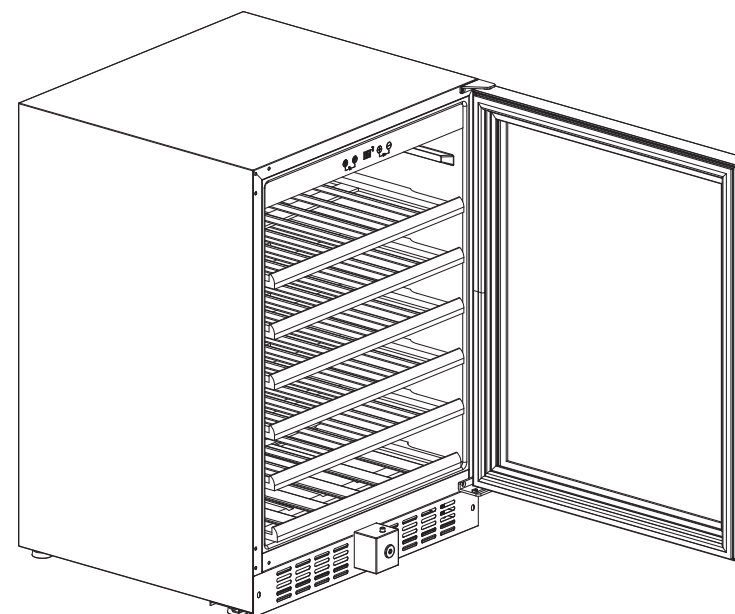
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## De'Longhi Single Zone Cabinet

Model  
DELWC46S Wine Cabinet  
DELWC166S Wine Cabinet  
DELBC178 Beverage Cabinet



## SERVICE MANUAL

Please read this service manual carefully and retain for future reference

## Contents

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**WARNING:** Unplug the appliance before cleaning, maintenance or servicing. Failure to do so can result in electrical shock or death.

### **Tools you will need**

1. Combination Plier
2. Phillips/Slotted Screwdriver
3. Multi-meter
4. Clamp Meter (5A)
5. Soldering Iron
6. Wire Strippers
7. Pinch Off Plier & Hairdryer
8. Mill File

### **Material you will need**

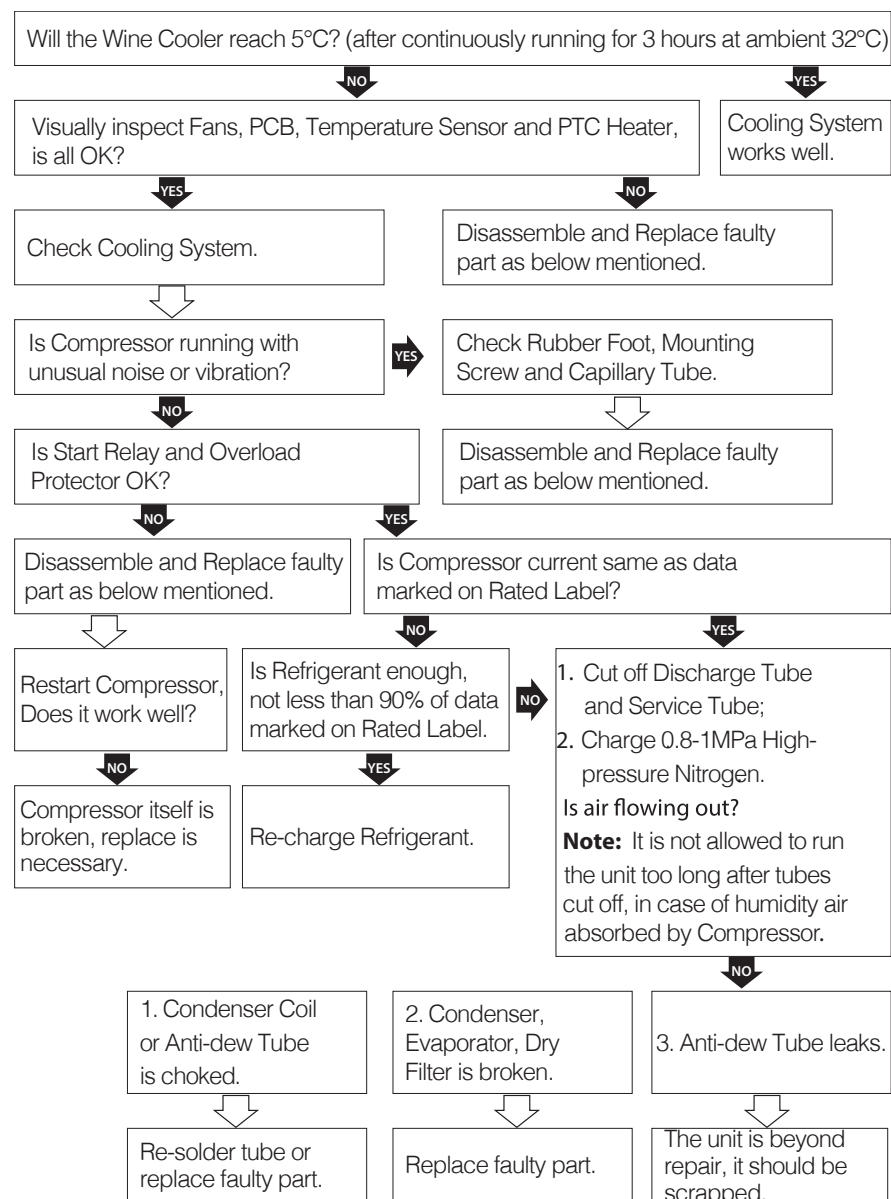
1. Processing Tube (Φ6mm)
2. Shock Absorbing Clay

### **Device you will need**

1. Vacuum Pump
2. Welding Machine
3. Gas Meter
4. Temperature Meter

# Cooling System Fault

## ■ Troubleshooting



## ■ How to Re-charge the Refrigerant



**DANGER WARNING:** All the following operations can only be done under an open area with good ventilation to avoid any explosion of the refrigerant.

Please refer to page 9-12 for all the location of tubes and the solder joints.

1. Cut off the two Processing Tubes to discharge the flammable refrigerant clearly.
2. Melt and take out the rest part of the Processing Tubes & the Dry Filter with a welding torch. Make sure the Capillary Tube is carefully cut well.
3. Solder with new Process Tubes and Dry Filter. Charge with Hi-purity Nitrogen (N<sub>2</sub>, not less than 1.5Mpa) to ensure 100% leak tightness (should no N<sub>2</sub> leak out).
4. Vacuum the compressor and the whole sealed system with a vacuum pump. Make the vacuum degree not lower than 100Pa. It takes about 20 minutes to vacuum well in this procedure.
5. Charge into the sealed system with the Rated Refrigerant (marked on the Rating Label of the unit), and close off the two ends of sealed system (on the two Process Tubes) with a welding torch and soldering iron.

## Test After Repairing

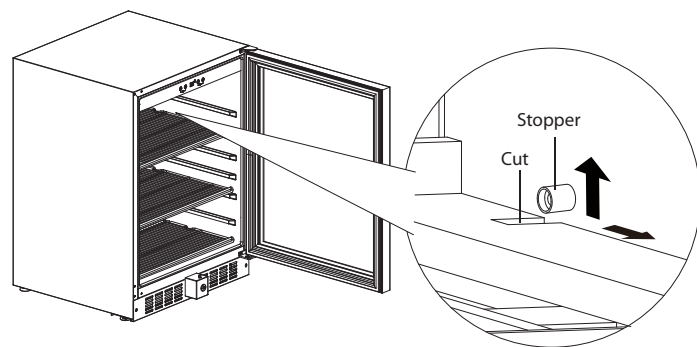
After repairing, let the unit runs for 3 hours at 32°C ambient. The cooling system can be confirmed working well if

1. the unit can reach the set temperature and
2. the compressor stops running when the unit reaches a temperature of 2.5°C lower than the set temperature and
3. the compressor restarts running when the unit reaches a temperature of 2.5°C higher than the set temperature.

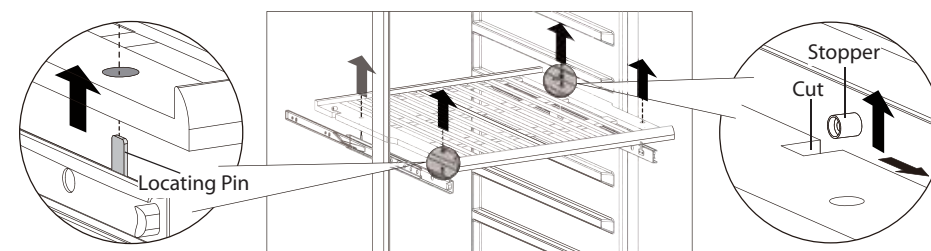
## ■ Baffle Board Disassembly

### Step 1: Take out the Shelves

- For DELBC178:
  - Remove all the bottles on the Shelves;
  - Pull the Shelves outwards slowly, and keep the left & right Cut of Shelf exactly below the left & right Stopper;
  - Lift the Shelves upwards horizontally to take out the Shelf one by one;



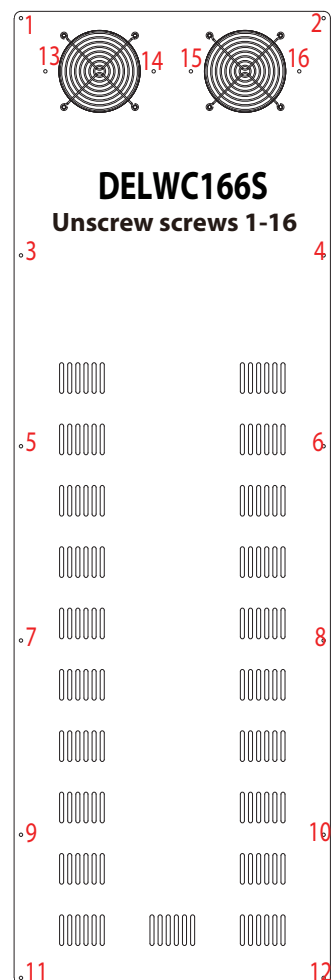
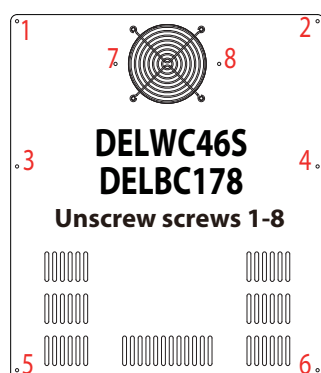
- For DELWC46S and DELWC166S:
  - Remove all the bottles on the Shelves ;
  - Pull the Shelves outwards slowly, and keep the left & right Cut of Shelf exactly below the left & right Stopper;
  - Lift the Shelves upwards horizontally to take it out one by one.



## Step 2: Disassemble Baffle Board

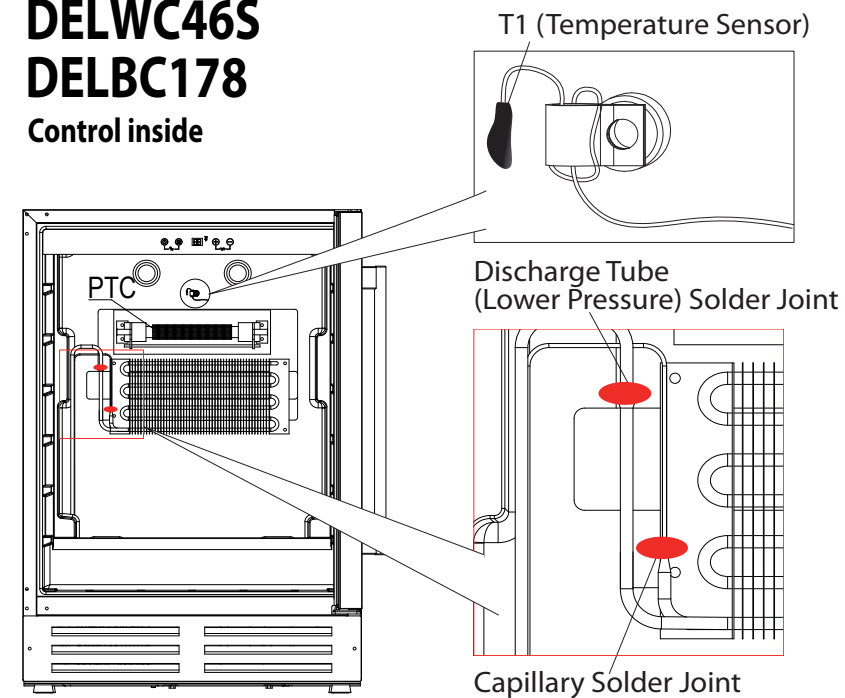
- Unscrew the following screws for different models, and remove the Baffle Board slightly;

**Noted:** The Evaporator Fan is located on back of Baffle Board, which is linked with Control PCB by a Fan Connector, **unplug the Fan Connector carefully** before removing the Baffle Board.

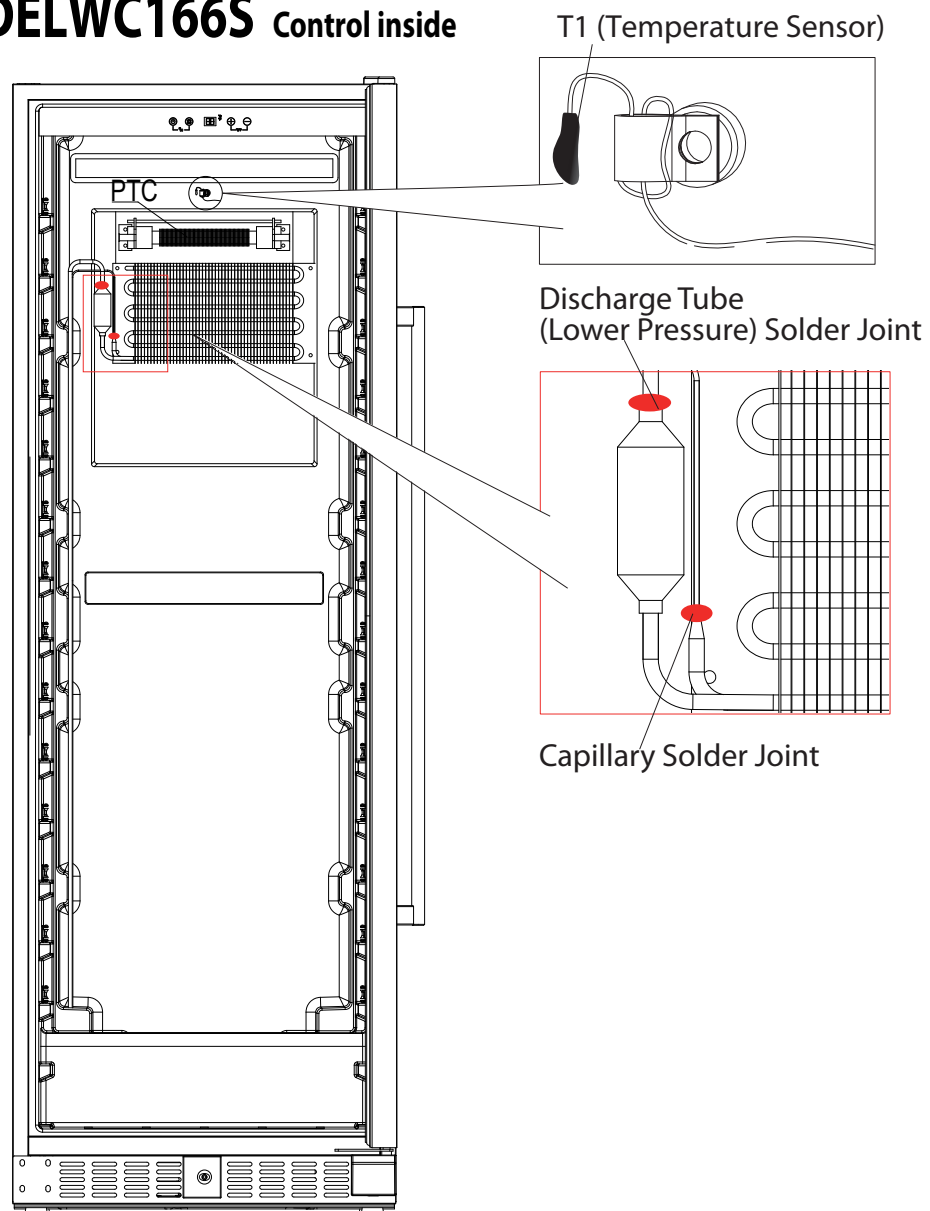


- The following is inside view after the Baffle Board removed for each model.

## DELWC46S DELBC178 Control inside



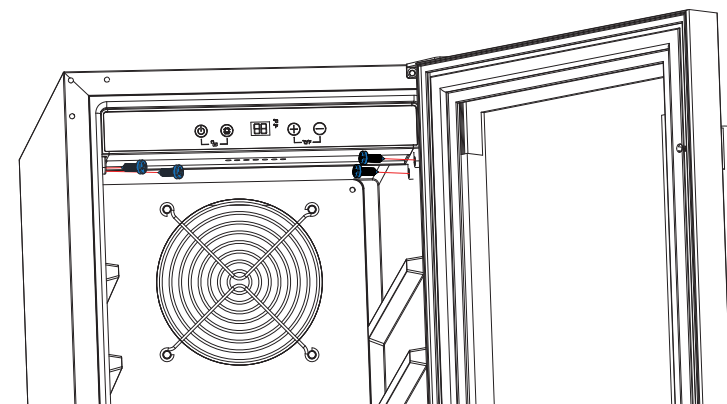
## DELWC166S Control inside



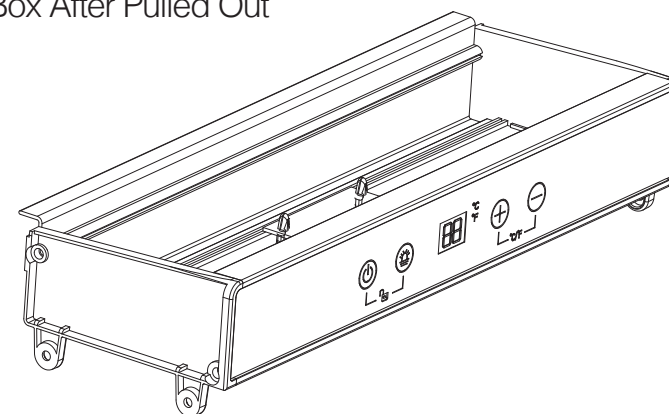
## Control Box Disassembly

### DELWC46S / DELWC166S / DELBC178

- Unscrew the 4 screws on left and right side.
- Pull Control Box out (about 30mm away) in Horizontal direction, and unplug terminals of Power PCB carefully. Take Control Box out.



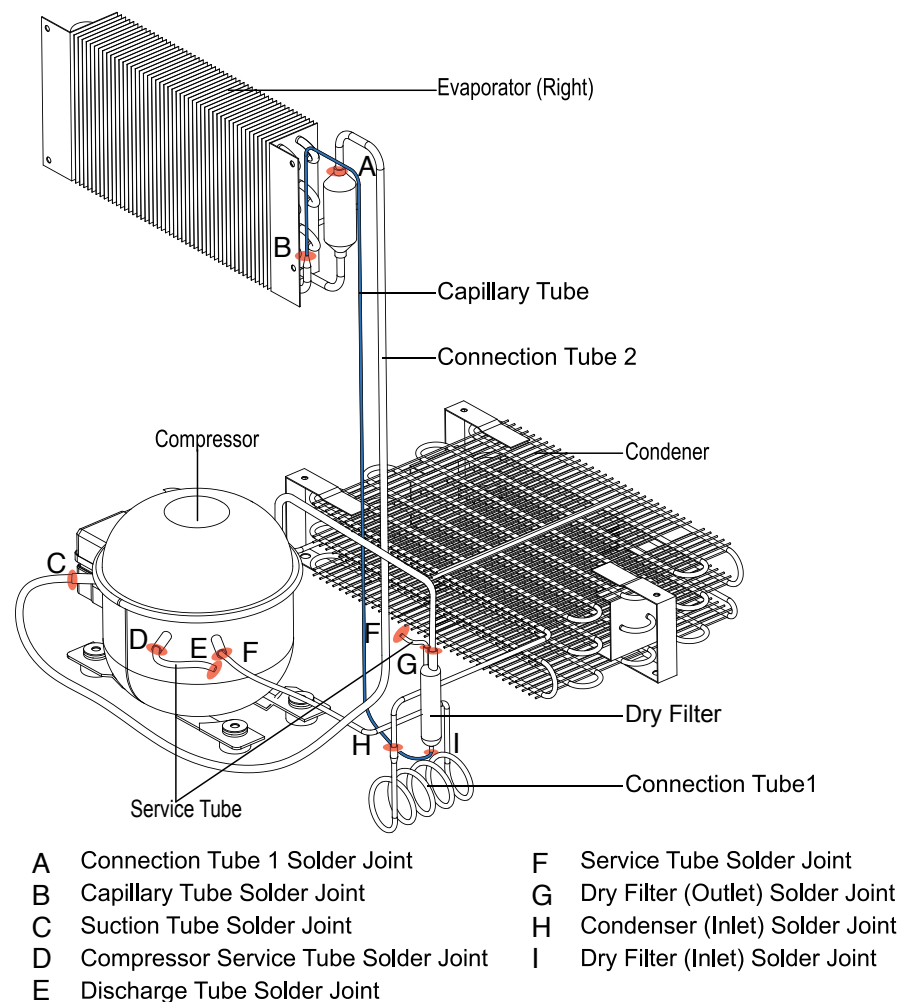
- Control Box After Pulled Out



## Noise Problem

### Solder Joints Position

DELWC46S / DELWC166S / DELBC178



### Compressor Noise

Remarks: It is normal for compressor running under 42dB.

Problem: If it sounds like loud grinding, clicking and ticking, etc., it may indicate a fault happened, a proper repair or replacement is necessary.

Solutions:

1. Check Shock Absorbing Rubber Foot, which will become too hard and brittle over time, replace it with new one. (P22-23)
2. Check Mounting Screw, too tight or loose will cause noise, adjust it to a right condition. (P22-23)

### Fan Noise

Remarks: It is normal for compressor running under 32dB.

Problem: If it sounds too loud, it may indicate a fault happened caused by following reasons:

- a. Fan Shaft is broken;
- b. Fan running unstable due to part abased badly over time.

Solutions:

Replace faulty Fan as following steps:

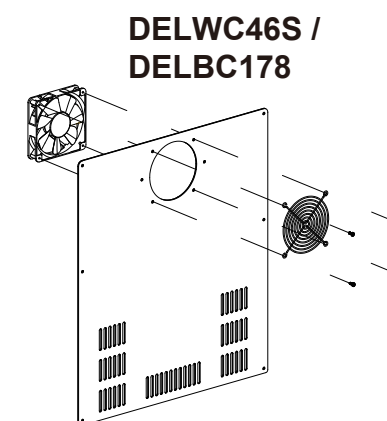
#### • Evaporator Cooling Fan replace

Step 1: Take out all Shelves;

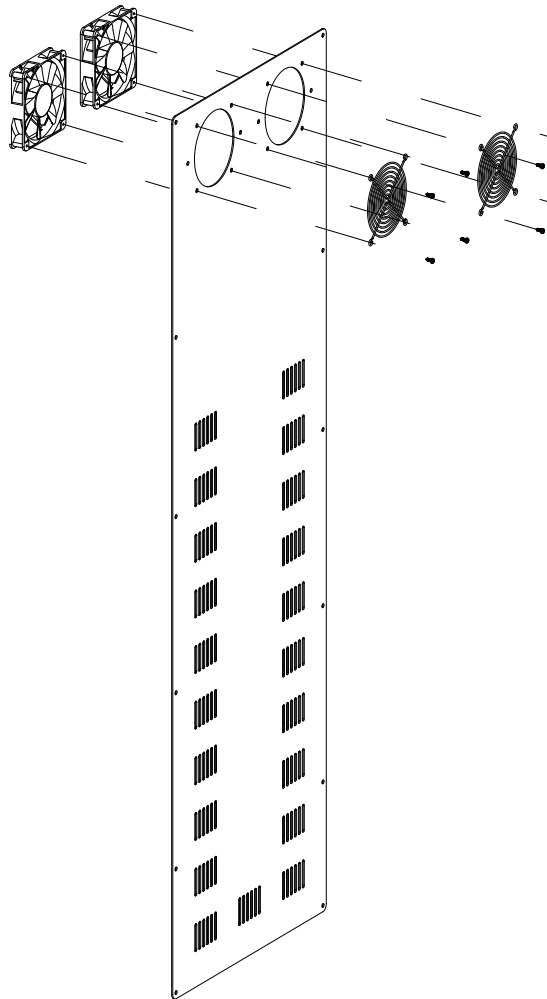
Step 2: Remove Baffle Board;

Step 3: Unplug Fan Terminal;

Step 4: Unscrew all Fan Screws (4pcs) and replace broken Fan with new one.



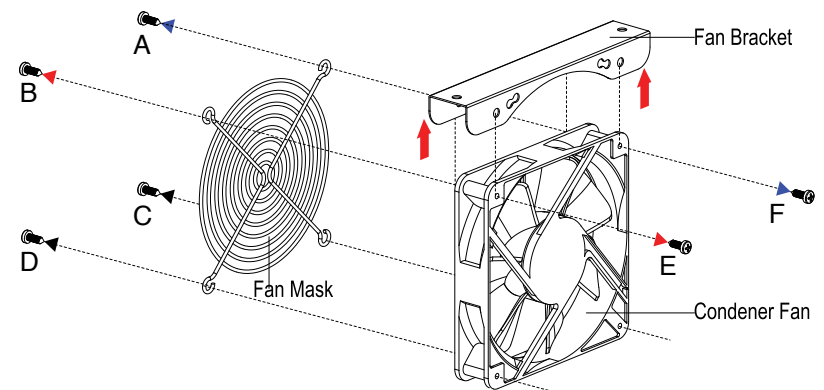
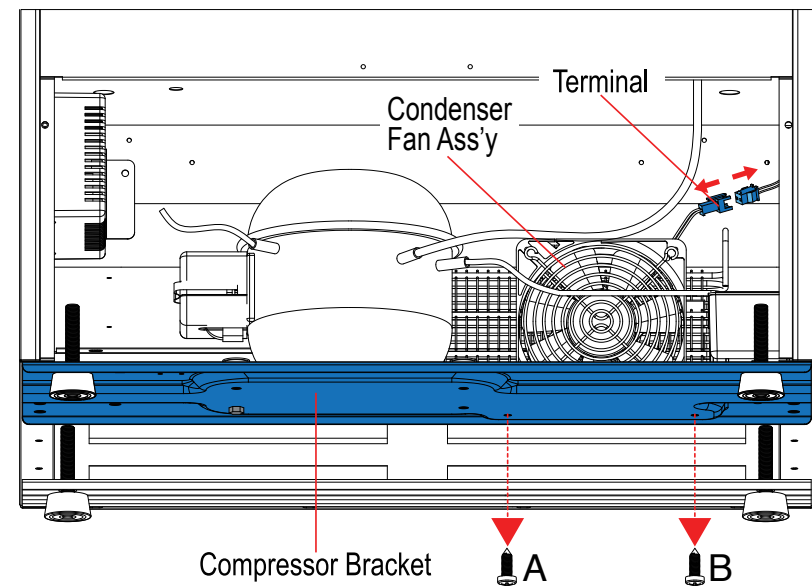
## DELWC166S



## • Condenser Cooling Fan replace DELWC46S / DELWC166S / DELBC178

Step 1: Unplug Fan Terminal;

Step 2: Unscrew all Fan screws (2pcs) and replace broken Fan with new one.



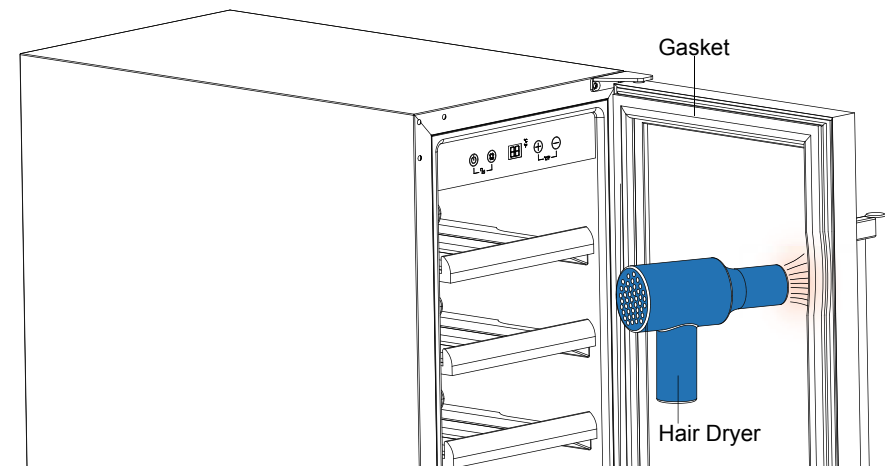
## Evaporator ice - up

### Noise From Capillary Tube

**Remarks:** When Refrigerant (R600a) flows in Capillary Tube, it will bring tube a slight vibration and make a very small noise, it is normal phenomenon, except the following problems happened.

Problem	Possible Cause	Solutions
1. A hissing noise sounds like water-spraying.	1. Capillary Tube has sharp burrs around opening edge.	1. Use an oxygen welding machine to heat up Capillary Solder Joint, and remove Capillary Tube from Evaporator. (P12 "Solder Joints Position") 2. Use a small Mill File to smooth all burrs around opening edge. <b>Caution: Do not allow any metal particles dropped into Capillary Tube.</b>
	2. Capillary Tube was inserted into Evaporator too far.	1. Re-Insert Capillary Tube into Evaporator with depth less than 15mm, Re-solder it and wrap it with Shock-absorbing Clay . 2. Re-do vacuum extraction and re-charge Refrigerant. (Page 5)
2. A loud noise sounds like vibrating and clicking.	Capillary touched Baffle Board and other parts.	1. Adjust position of Capillary to keep a proper distance from Baffle Board or other parts. 2. Wrap tube with Shock-absorbing Clay.
3. A low and deep noise sounds like gurgling.	The unit was not upright during moving, loading/unloading, transportation, compressor oil flowed into tube, which caused tube jam.	1. Clean tubes; 2. Re-do vacuum extraction; 3. Re-charge Refrigerant. (Page 5)

Problem	Possible Cause	Solutions
1. Ice is built-up on evaporator.	1. Door is damaged or left open too long, too much warmer/cooler air rushes into inner cabinet from outside;	1. If Door is damaged, replace it with new one; 2. Always close door tightly immediately after opened;
	1. Gasket is damaged or distorted a little, too much warmer/cooler air rushes into inner cabinet from outside;	1. If Gasket is damaged, replace it with new one; 2. If Gasket is just a little distorted, please use a Hair dryer to heat distorted area up gently until all gaps disappeared.
2. Fan will be blocked, even broken if Ice too much.	Ice too much inside.	Replace Fan with new one. (Page 15)



# Temperature Unstable & Control System Faults

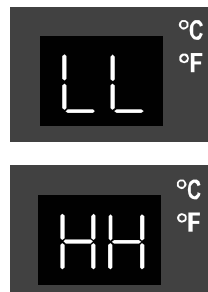
## Temperature unstable

Problem	Possible Cause	Solutions
Temperature Unstable.	Cooling Fan does not work, it is damaged or broken.	Replace Fan with new one (Page 13-15)

## Control system faults

### ■ Temperature Sensor Faults

- After plugged, please check if temperature displayed is same as actual temperature detected in inner cabinet, if not, please disassemble Sensor (Page 7-11) and check if Sensor Connector is loose. If not, that indicate Sensor is broken, please replace it with new one.
- If fault Code "LL" shown on display window, it indicates open circuit happened, please replace the Sensor with new one.
- If fault Code "HH" shown on display window, it indicates short circuit happened, please replace the Sensor with new one.



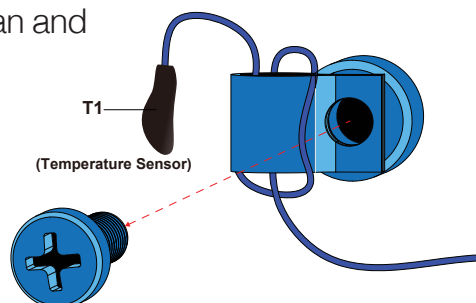
### ■ Temperature Sensor Replace

Step 1: Remove all Shelves

Step 2: Remove Baffle Board and Control Box;

Step 3: Unplug all Terminal of Fan and Temperature Sensor ;

Step 4 : Unscrew Screws of Temperature Sensor, Remove Temperature Sensor and Replace it with new one.



### ■ Display Error of LED Light

It is caused by Control PCB fault, remove and replace it with new one.

### ■ Control PCB Replace

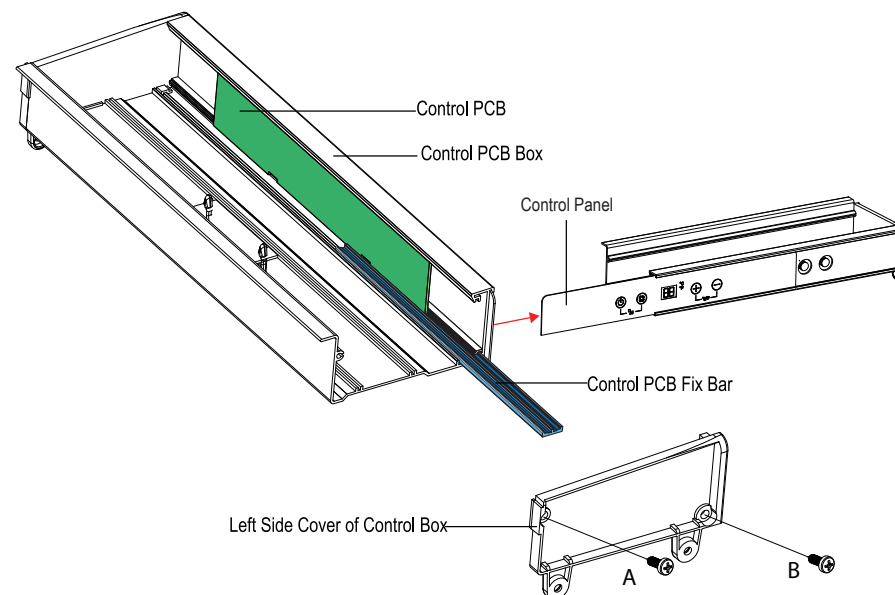
#### DELWC46S / DELWC166S / DELBC178

Step 1: Unplug the unit, remove Control Box (Page 11);

Step 2: Remove Left Side Cover from Control Box by unscrewing the 2 screws;

Step 3: Slide out the Control PCB and replace it with new one;

Step 4: Slide out the Control Panel and replace it with a new one;

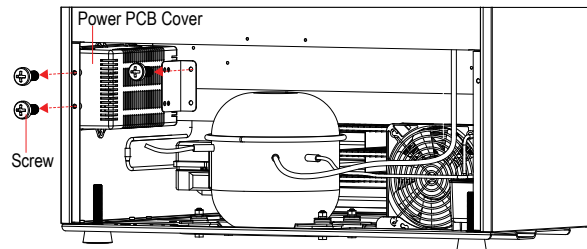


# PCB Connecting Diagram

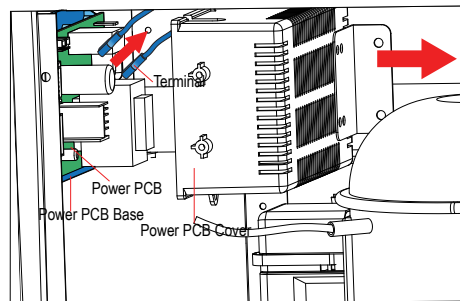
## ■ Power PCB Replace

### DELWC46S / DELWC166S / DELBC178

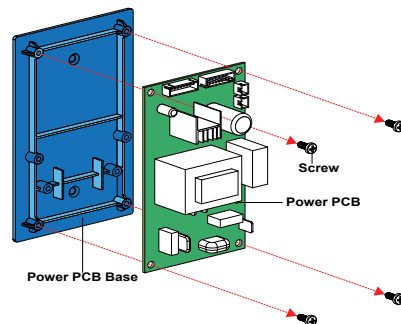
Step 1: Unplug the unit; remove the Power PCB Cover by unscrewing the 3 screws;



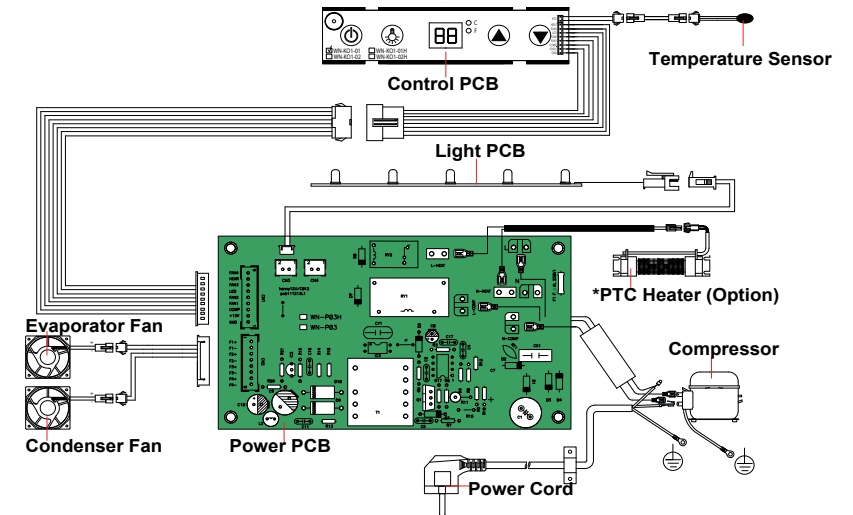
Step 2: Unplug the Terminal, take out the Power PCB and Base;



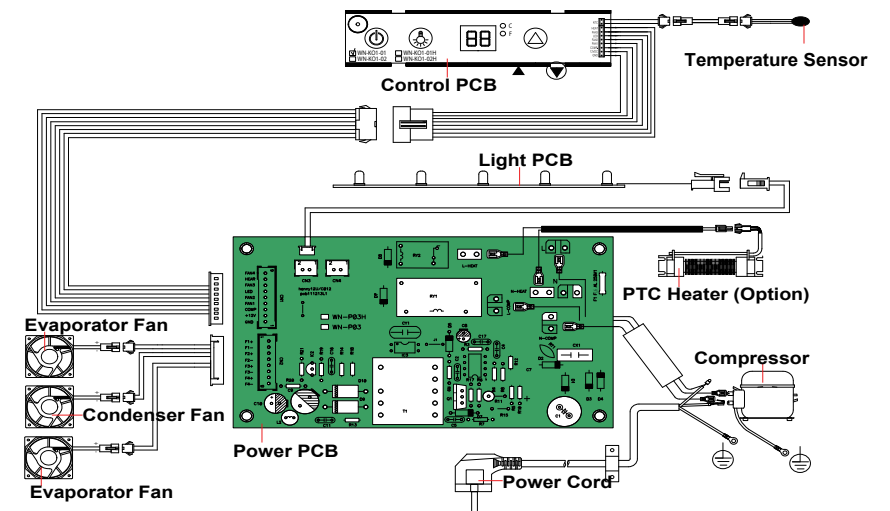
Step 3: Pry up the Power PCB with a Slotted Screwdriver from the Base, remove and replace Power PCB with a new one.



### DELWC46S / DELBC178



### DELWC166S



## ■ Compressor Start Relay and Overload Protector Replace



Warning: Unplug the unit from power supply before replacement in case of electrical shock.

### DELWC46S / DELBC178

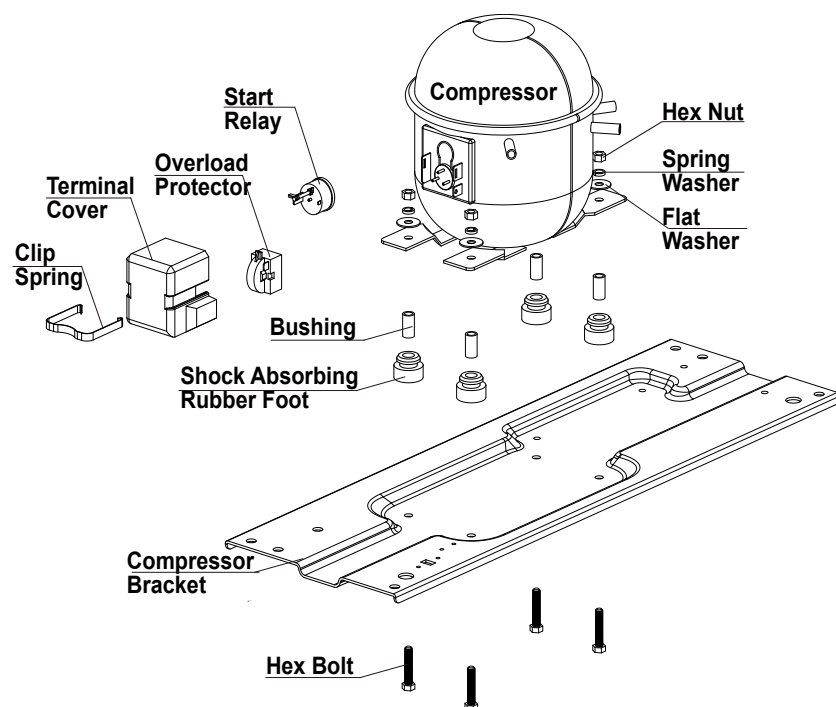
#### Terminal Cover With Clip Spring

Step 1: Unplug the Unit;

Step 2: Press and Remove Clip Spring, pull out Terminal Cover;

Step 3: Pull out Overload Protector and/or Start Relay;

Step 4: Replace it with new one;



### DELWC166S

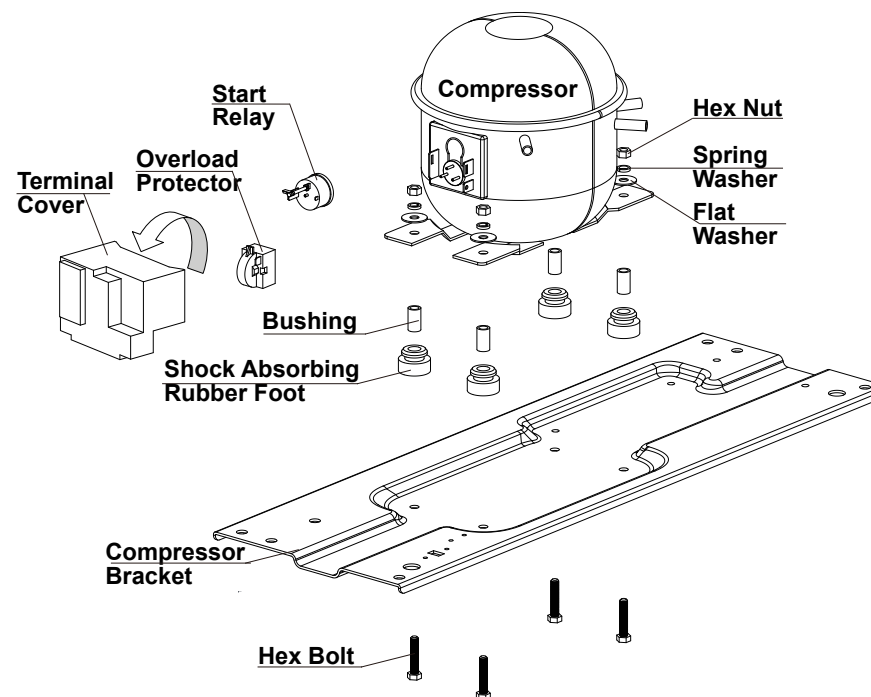
#### Terminal Cover With Clip Spring

Step 1: Unplug the Unit;

Step 2: Press and Remove Clip Spring, pull out Terminal Cover;

Step 3: Pull out Overload Protector and/or Start Relay;

Step 4: Replace it with new one;



## ■ LED Light Replace



Warning: Unplug the unit from power supply before replacement in case of electrical shock.

Step 1: Unplug the unit;

Step 2: Unplug the PCB Terminal;

Step 3: Hold the 2 Plastic Fasteners on Power PCB, and draw upward Light PCB carefully.

Step 4: Replace Light PCB with new one.

### DELWC46S / DELWC166S / DELBC178

