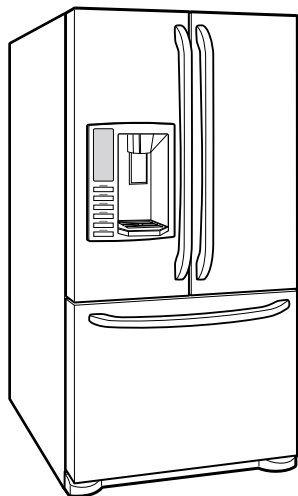




REFRIGERATOR

SERVICE MANUAL

CAUTION
BEFORE SERVICING THE UNIT,
READ THE SAFETY PRECAUTIONS IN THIS MANUAL.



MODEL: LFX25976ST
LFX25976WB
LFX25976SW

COLOR : STAINLESS(ST)
WESTERN BLACK
SUPER WHITE

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SAFETY PRECAUTIONS

Please read the following instructions before servicing your refrigerator.

1. Unplug the power before handling any elctrical componets.
2. Check the rated current, voltage, and capacity.
3. Take caution not to get water near any electrical components.
4. Use exact replacement parts.
5. Remove any objects from the top prior to tilting the product.

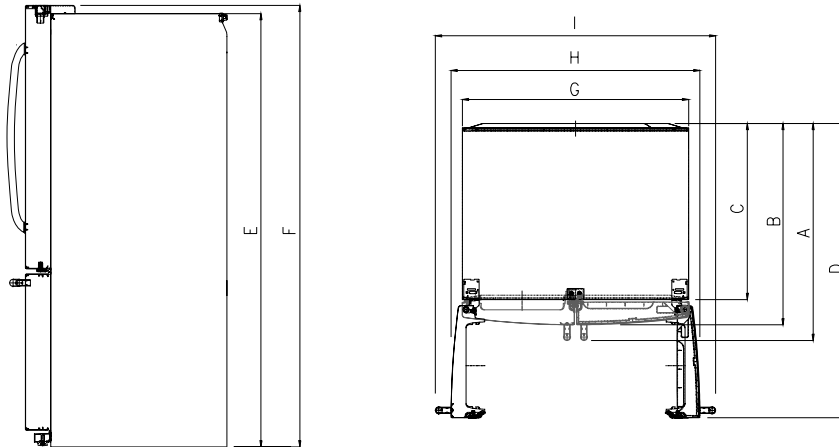
1. SPECIFICATIONS

25 cu. ft.

| ITEMS | SPECIFICATIONS |
|---------------------|--|
| DOOR DESIGN | Side Rounded |
| DIMENSIONS (inches) | 35 3/4 X 34 1/4 X 69 3/4 (WxDxH) 25cu.ft |
| NET WEIGHT (pounds) | 324.18 (25cu.ft) |
| COOLING SYSTEM | Fan Cooling |
| TEMPERATURE CONTROL | Micom Control |
| DEFROSTING SYSTEM | Full Automatic Heater Defrost |
| DOOR FINISH | Embossed Metal, VCM, Stainless |
| HANDLE TYPE | Bar |
| INNER CASE | ABS Resin |
| INSULATION | Polyurethane Foam |

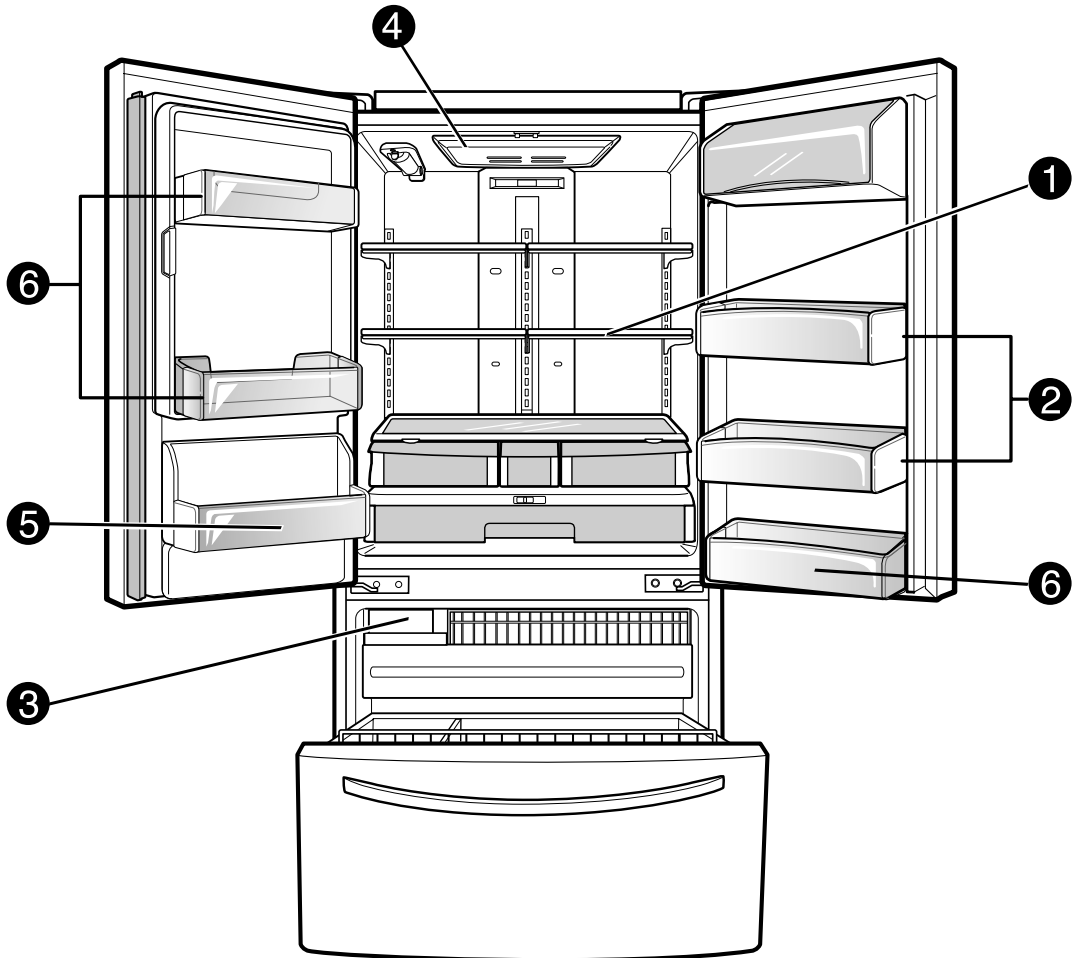
| ITEMS | SPECIFICATIONS | |
|-------------------|--------------------|----------------|
| VEGETABLE TRAY | Opaque Drawer Type | |
| COMPRESSOR | Linear | |
| EVAPORATOR | Fin Tube Type | |
| CONDENSER | Spiral Condenser | |
| REFRIGERANT | R-134a (140 g) | |
| LUBRICATING OIL | ISO10 (280 ml) | |
| DEFROSTING DEVICE | SHEATH HEATER | |
| LAMP | REFRIGERATOR | LED Module(27) |
| | FREEZER | Bulb Lamp |

DIMENSIONS



| Description | | LFX25976 |
|--------------------------------------|---|------------|
| Depth w/ Handles | A | 34 1/4 in. |
| Depth w/o Handles | B | 31 3/4 in. |
| Depth w/o Door | C | 27 7/8 in. |
| Depth (Total with Door Open) | D | 46 1/2 in. |
| Height to Top of Case | E | 68 3/8 in. |
| Height to Top of Door Hinge | F | 69 3/4 in. |
| Width | G | 35 3/4 in. |
| Width (door open 90 deg. w/o handle) | H | 39 1/4 in. |
| Width (door open 90 deg. w/ handle) | I | 44 1/4 in. |

2. PARTS IDENTIFICATION



1 ADJUSTABLE REFRIGERATOR SHELVING

The refrigerator compartment shelves are adjustable to allow flexibility for storage needs.

2 GALLON STORAGE BINS

Three interchangeable bins can be arranged to suit your storage needs.

3 REMOVABLE ICE STORAGE BIN

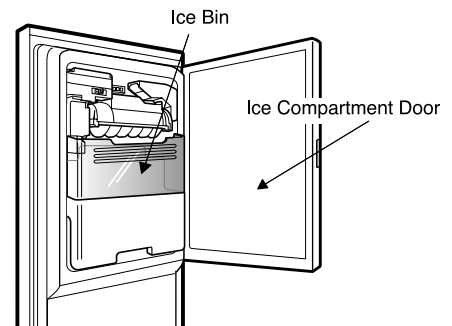
The ice storage bin can be removed to fill ice buckets, coolers, or pitchers.

4 LED INTERIOR LAMPS

Refrigerator interior is lit by the LED array.

5 CAN STORAGE BIN

6 FIXED DOOR BINS



3. DISASSEMBLY

3-1 REMOVING AND REPLACING REFRIGERATOR DOORS

● Removing Refrigerator Door

▲ **CAUTION:** Before you begin, unplug the refrigerator. Remove food and bins from doors.

▶ Left Door -FIG. 2

1. Disconnect water supply tube by pushing back on the disconnect ring (3).-FIG. 1
2. Open door. Loosen top hinge cover screw (1).
- Use flat tip screwdriver to pry back hooks on front underside of cover (2). Lift up cover.
3. Disconnect door switch wire harness. Remove cover.
4. Pull out the tube.
5. Disconnect the three wire harnesses (4). Remove the grounding screw (5).
6. Rotate hinge lever (6) counterclockwise. Lift top hinge (7) free of hinge lever latch (8).

▲ **CAUTION:** When lifting hinge free of latch, be careful that door does not fall forward.

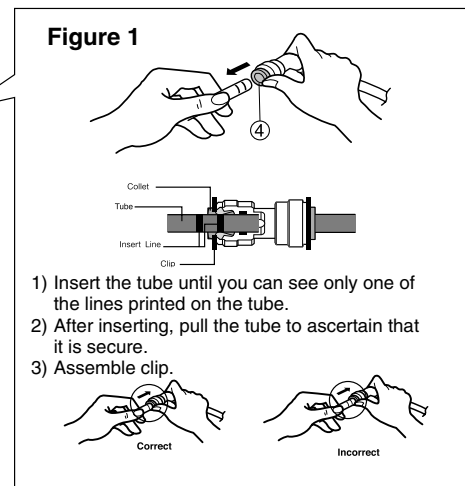
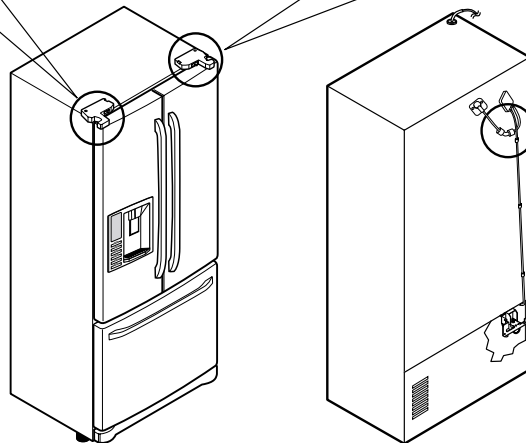
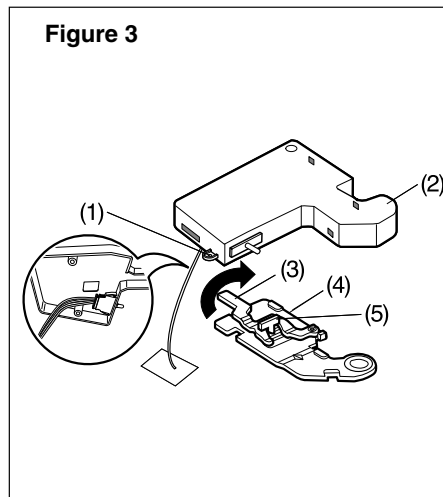
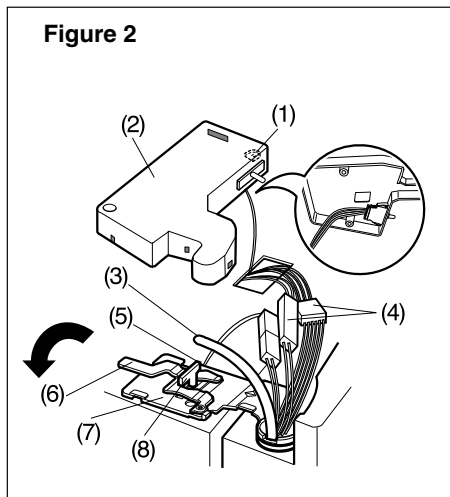
7. Lift door from middle hinge pin and remove door.
8. Place door, inside facing up, down onto a non-scratching surface.

▶ Right Door -FIG. 3

1. Open door. Loosen top hinge cover screw (1). Lift up cover (2).
2. Disconnect door switch wire harness. Remove cover.
3. Rotate hinge lever (3) clockwise. Lift top hinge (4) free of hinge lever latch (5).
4. Lift door from middle hinge pin and remove door.

▲ **CAUTION:** When lifting hinge free of latch, be careful that door does not fall forward.

5. Place door, inside facing up, down onto a non-scratching surface.



3-2 DOOR

● Pillar Removal

1. Remove 2 screws.



2. Lift pillar up carefully.



3. Disconnect wire harness.



● Door Gasket Removal

1. Remove gasket

Pull gasket free from gasket channel on the four remaining sides of door.

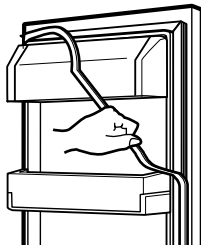


Figure 3

● Door Gasket Replacement

1. Insert gasket into channel

Press gasket into channels on the four remaining sides of door.

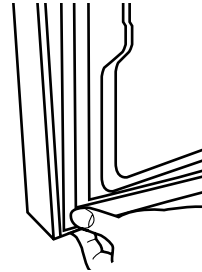


Figure 6

● Pillar Replacement

1. Connect wire harness.

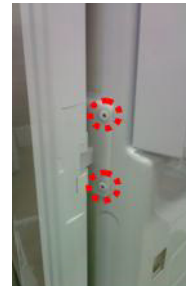


2. Insert pillar into channel.

Inserting pillar assy' into bracket, door



3. Assemble 2 screws.



3-3 Door Alignment

If the space between your doors is uneven, follow the instructions below to align the doors:
 Remove the Base Grille. Turn the leveling legs (CCW) to raise or (CW) to lower the height of the front of the refrigerator by using flat blade screw driver or 11/32" wrench. Use the wrench (Included with the User Manual) to adjust the bolt in the door hinge to adjust the height. (CCW to raise or CW to lower the height.)

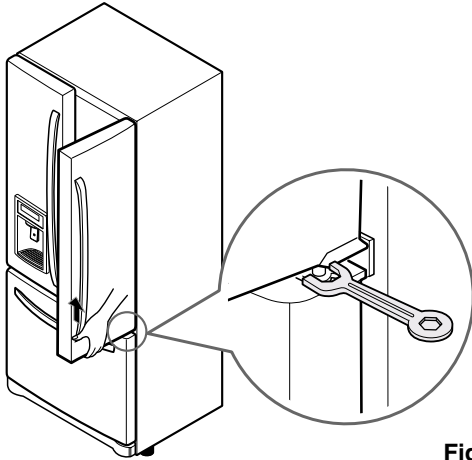


Figure 8

3-4 FAN AND FAN MOTOR(EVAPORATOR)

1. Remove the freezer shelf. (If your refrigerator has an icemaker, remove the icemaker first)
2. Remove the plastic guide for slides on left side by unscrewing phillips head screws.
3. Remove the grille by removing one screw and pulling the grille forward.
4. Remove the Fan Motor assembly by loosening 2 screws and disassembling the shroud.
5. Pull out the fan and separate the Fan Motor and Bracket.

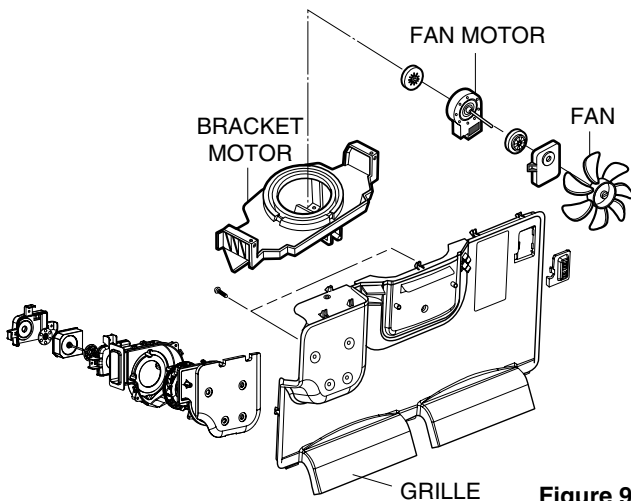


Figure 9

CAUTION
 DO NOT ATTEMPT TO REMOVE THE MULLION :
 REFRIGERANT LINES!

* Ice Fan Scroll Assembly Replacement

- 1) Remove the plastic guide for slides on left side by unscrewing phillips head screws.
- 2) Pull the grille forward as shown in the second picture.
- 3) Disconnect wire harness of the grille.
- 4) Remove the scroll assembly by loosening all screws.



(1)



(2)



(3)



(4)

3-5 DEFROST CONTROL ASSEMBLY

Defrost Control assembly consists of Defrost Sensor and FUSE-M.

The Defrost Sensor works to defrost automatically. It is attached to the metal side of the Evaporator and senses its temperature. At 46°F (8°C), it turns the Defrost Heater off. Fuse-M is a safety device for preventing over-heating of the Heater when defrosting.

1. Pull out the grille assembly. (Figure 10)
2. Separate the connector with the Defrost Control assembly and replace the Defrost Control assembly after cutting the Tie Wrap. (Figure 11)

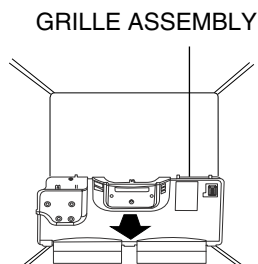


Figure 10

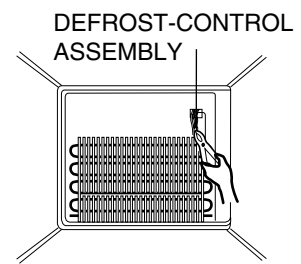


Figure 11

CAUTION
 DO NOT ATTEMPT TO REMOVE THE MULLION :
 REFRIGERANT LINES!

3-6 LAMP

Unplug Refrigerator, or disconnect power at the circuit breaker.

If necessary, remove top shelf or shelves.

3-6-1 Refrigerator Compartment Lamp

- 1) Release 2 screws.
- 2) Hold both ends with your both hands and pull it downward to remove it.

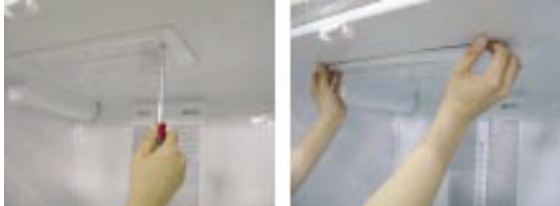


Figure 12

- 3) Use a flat tool as shown below to remove the cover lamp.

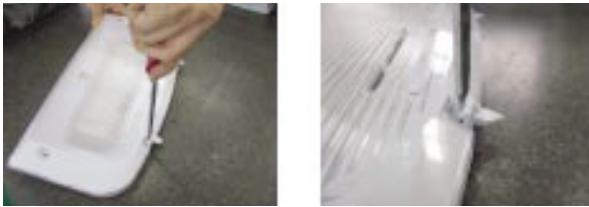


Figure 13

- 4) As shown below, use a flat tool to remove the cover lamp.

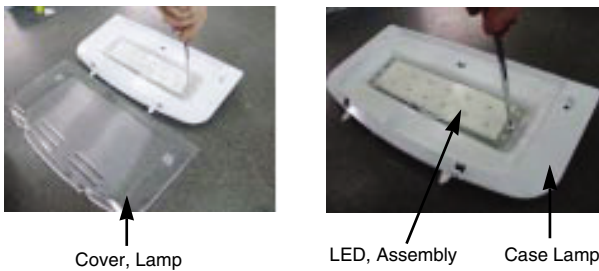


Figure 14

3-6-2 Freezer Compartment Lamp

1. Unplug refrigerator power cord form outlet.
2. Remove screw with direver.
3. Grasp the cover Lamp,pull the cover downward.

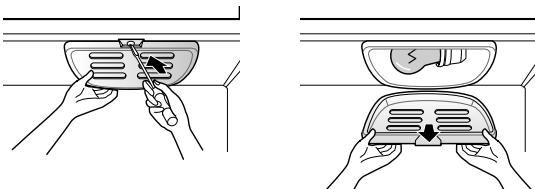


Figure 15

3-7 MULTI DUCT

1. Remove the upper and lower Caps by using a flat screwdriver, and remove 2 screws. (Figure 16)
2. Disconnect the lead wire on the bottom position.

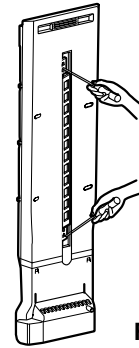


Figure 16

3-8 MAIN PWB

- 1) Loosen the 3 screws on the PWB cover.



- 2) Remove the PWB cover



- 3) Disconnect wire harness and replace the main PWB in the reverse order of removal.

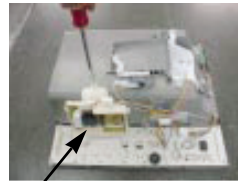


▲ CAUTION: When replacing the dispenser cover in the reverse order of removal, be careful that the lead wire does not come out and the water tube is not pinched by the dispenser.

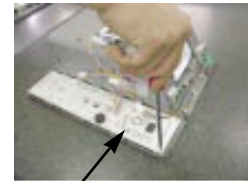


3-10 DISPLAY PCB

As shown below, remove 1 case PCB fixing screw. Remove the display PCB fixing screw.



Case, PCB



Display PCB

3-9 DISPENSER



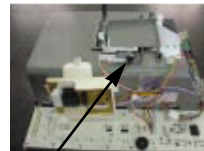
- 1) Pull out the darin



- 2) Hold the inner side of cover dispenser with both hands at the handle side to pull it out forward.

3-11 ICE BUTTON ASSEMBLY

- 1) Remove the screw fixing the button lever.
- 2) Push the spring from the hanging hook to remove it.
- 3) Apply some pressure to the rib in ① direction and lift the button in ② direction.



Button Lever



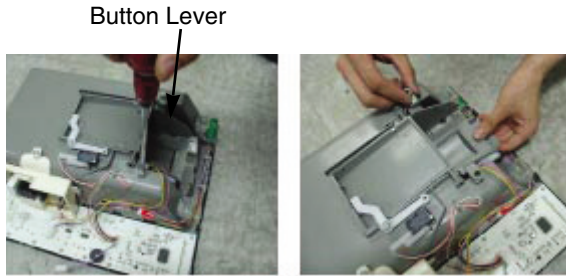
- 3) If nozzle is interfered with button, push and pull out the bottom of button.



- 4) Rmouve the connected part of Lead wire.

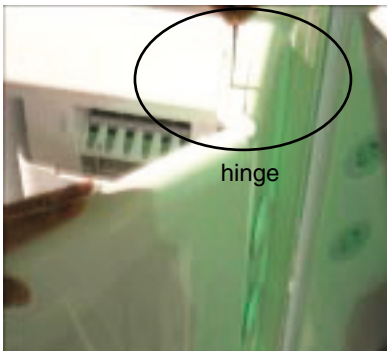
3-12 WATER BUTTON ASSMEBLY

- 1) Romove screws.
- 2) Grasp the Button assembly and lift up.



3-13 ICE CORNER DOOR REPLACEMENT

- 1) Loosen the front screw as shown in the picture.
- 2) Lift up the hinge with one hand.
- 3) Pull out the Ice Corner Door with the other hand.



3-14 ICEMAKER REPLACEMENT

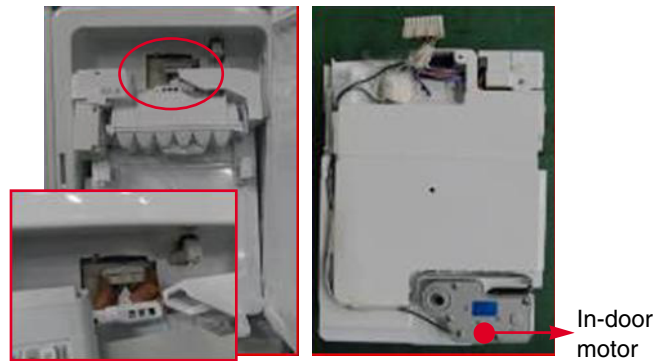
- 1) Remove the stainless screws marked in the picture below.



- 2) Grasp the bottom of motor cover assembly and pull it out slowly.



- 3) Disconnect wire harness from wall of compartment.



※ Caution: Check to see if the housing is stuck to mold and taped. If the housing is not on its original position, it will disturb Cover, motor to be positioned to the unit.



3-15 SUB PWB FOR WORKING DISPENSER

1) Disconnect the wire harness.



2) Loosen the screw on the sub PWB and replace the sub PWB in the reverse order of removal.

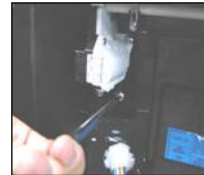


3-16 CAP DUCT MOTOR REPLACEMENT

1) Separate the Housing of the Cap Duct Motor.



2) Unscrew 3 screws to disassemble the motor.



3) When replacing to a new Motor, always check position of the Duct Door and Link to install the Motor.

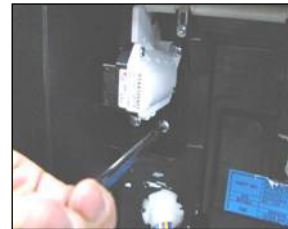


Duct Door
Link
Cap Duct Motor



NG Position

4) Assemble on the screws.

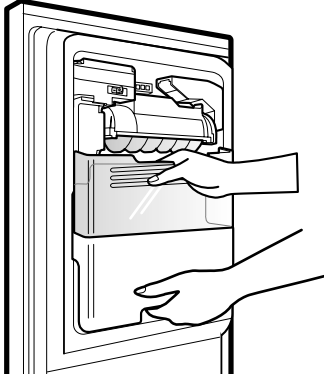


5) Contract the Housing.

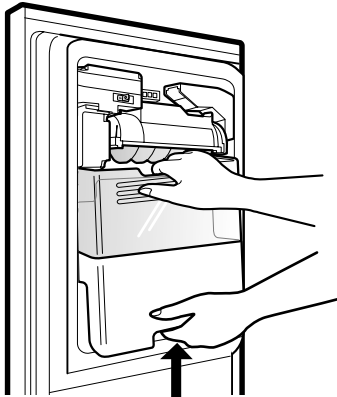


3-17 HOW TO REMOVE A ICE BIN

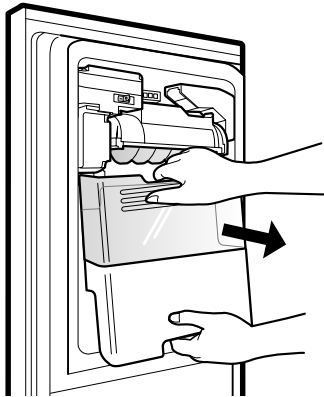
1) Grip the handles, as shown in the picture.



2) Lift the lower part slightly.

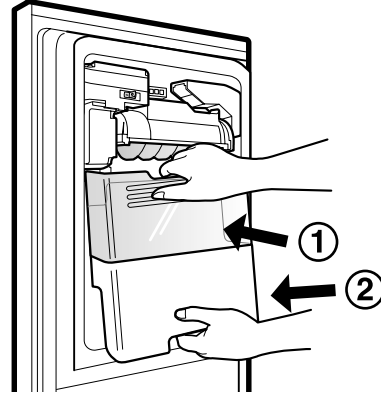


3) Take the Ice Bin out slowly.



3-18 HOW TO INSERT A ICE BIN

1) Insert the Ice Bin, slightly tilting it to avoid touching the Icemaker. (Especially, Ice-Detecting Sensor)



3-19 HOW TO REMOVE AND REINSTALL THE PULLOUT DRAWER

3-19-1 Follow Steps to Remove

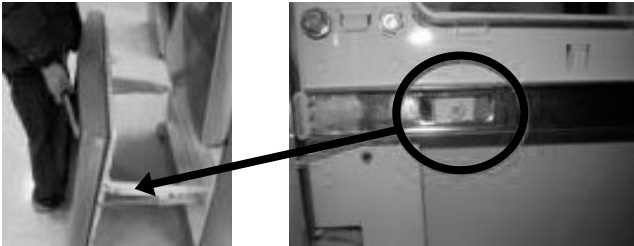
Step 1) Open the freezer door.



Step 2) Remove the lower basket.



Step 3) Remove the two screws from the guide rails (one from each side).



Step 4) Lift the freezer door up to unhook it from the rail support and remove. Pull both rails to full extension.

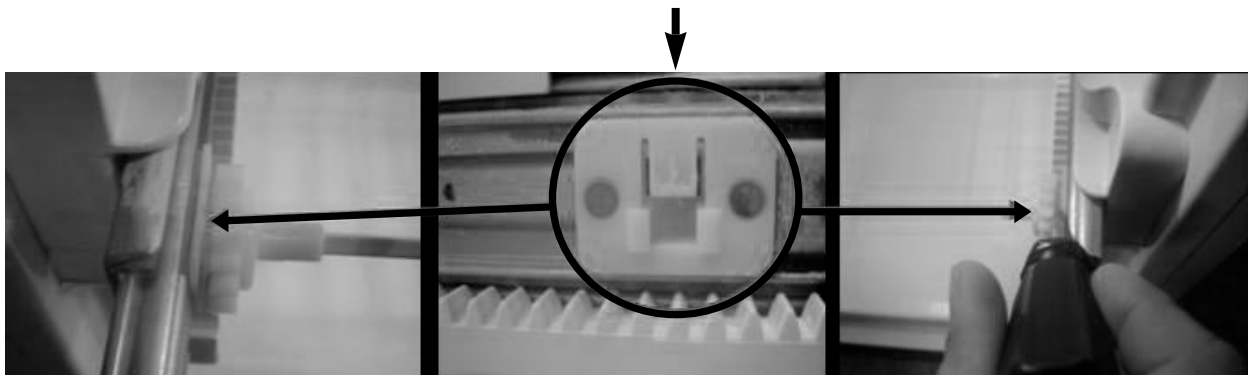


Step 5) First : Remove the gear from the left side first by releasing the tab behind the gear, place a screwdriver between the gear and the tab and pull up on the gear.

Second : Remove the center rail.

Third : Remove the gear from the right side by following the same steps for the left side.

NOTE : THIS TAB MUST BE PUSHED IN TO RELEASE THE GEAR.



3-19-2 Follow Steps to Reinstall

Step 1) Reinstall the right side gear into the clip.



Step 2) Insert the rail into the right side gear. Gears do **not** need to be perpendicular to each other.



Step 3) Insert the rail into the left side gear, and insert the gear into the clip.



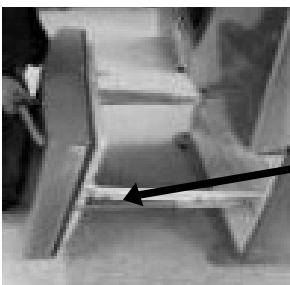
Step 4) The rail system will align itself by pushing the rails all the way into the freezer section. Pull the rails back out to full extension.



Step 5) Reinstall the freezer door by inserting the rail tabs into the guide rail.



Step 6) Reinstall the two screws into the guide rails (one from each side).

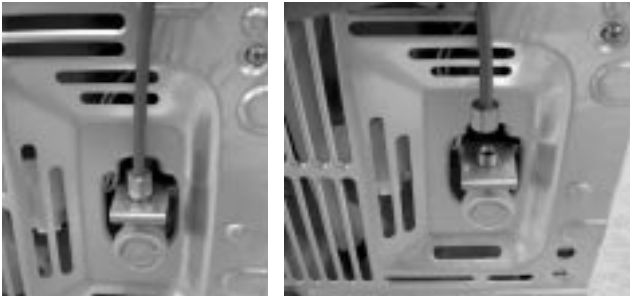


Step 7) Reinstall the lower basket, and close the freezer door.

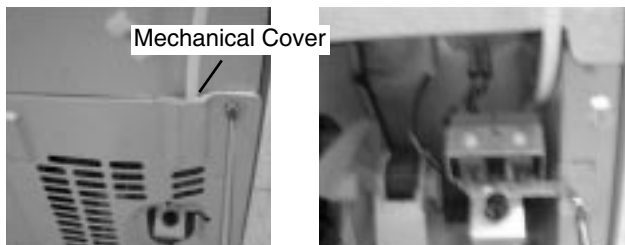


3-20 WATER VALVE DISASSEMBLY METHOD

- 1) Turn off the water. Then separate the water line from the valve.



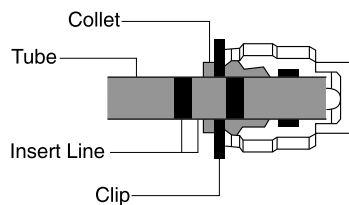
- 2) Separate the Mechanical Cover and Valve Screw.



- 3) Separate the housing and pull out the valve.

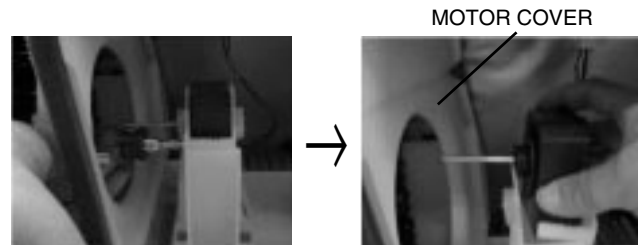


- 4) Lay a dry towel on the floor and get ready to spill water from the water filter. Pull out the Cilp. Then press te collet to separate the tube from the connector and pour out the water until emptied.

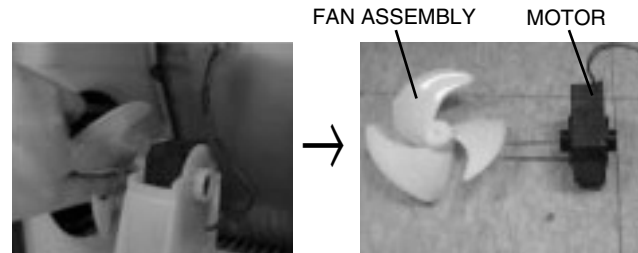


3-21 FAN AND FAN MOTOR DISASSEMBLY METHOD

- 1) Using a short screwdriver, loosen one SCREW in DRAIN PIPE ASSEMBLY and one connected to the MOTOR COVER.



- 2) Pull and separate the FAN ASSEMBLY and MOTOR turning counterclockwise based on the MOTOR SHAFT.

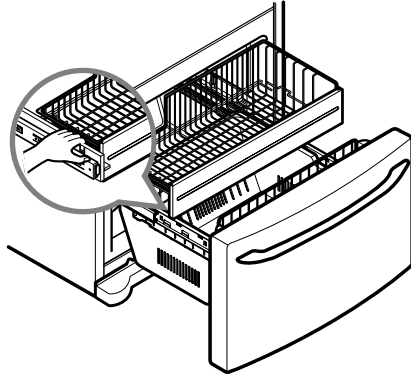


The assembly is in the reverse order of the disassembly and take special care for the following details.

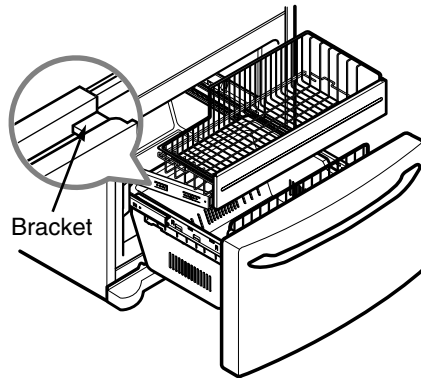
1. Be careful not to bend the tube during assembly.
2. Press the WATER DISPENSER button until water pours out and check for leakage in the CONNECTOR TUBE (It differs by the water pressure but usually takes about 2 minutes until water pours out.)

3-22 PULL OUT DRAWER

To remove the drawer, push the tabs located on the front inside surface of each rail. Next, gently lift the rear left and right sides of the drawer and pull it out.



To reinstall, pull out both rails to full extension. Insert the end of rib in the bracket at left and right. Making sure that the guides at the front are lined up properly, gently push down on both sides.



4. ADJUSTMENT

4-1 COMPRESSOR

4-1-1 Role

The compressor intakes low temperature and low pressure gas from the evaporator of the refrigerator and compresses this gas to high-temperature and high-pressure gas. It then delivers the gas to the condenser.

4-1-2 Note for Usage

- (1) Be careful not to allow over-voltage and over-current.
- (2) Do not drop or handle carelessly.
- (3) Keep away from any liquid.
If liquid such as oil or water enters the Cover PTC Compressor may fail due to breakdown of their insulating capabilities.
- (4) Always use the Parts designed for the compressor and make sure it is properly attached to the compressor. Parts may appear physically identical but could have different electrical ratings. Replace parts by part number and model number. Use only approved substitute parts.

4-1-3 Remove the cover PTC



(1) Remove the Cover Back M/C



(2) Loosen two screws on comp base

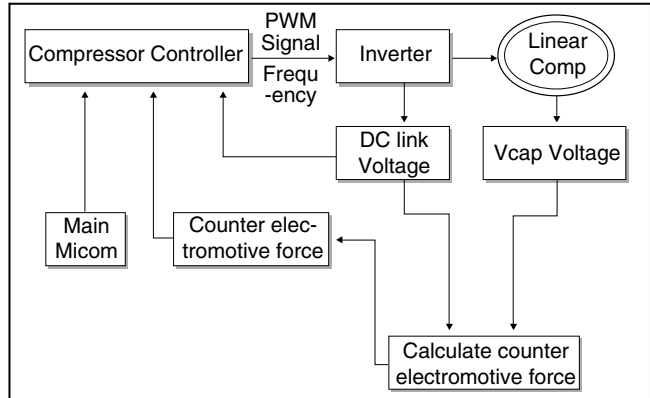


(3) Use a L-shaped flap tool to pry off the cover
(4) Assembly in reverse order of disassembly

4-2 INTRODUCTION OF E-LINEAR COMPRESSOR

- E-Linear compressor is run by mechanical part design through automatically varying the cooling power. The main parts consist of compressor and Sub PCB which controls the compressor. PCB authorizes constant voltage and constant frequency to the compressor and protects it.

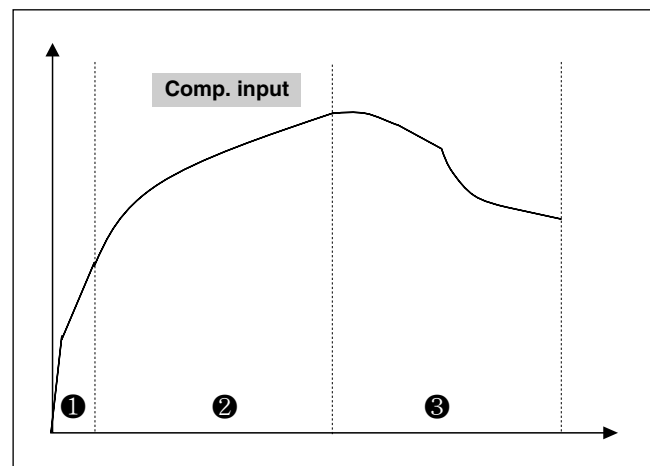
4-2-1 Control of Compressor Block Diagram



Control Block Diagram of Compressor

4-2-2 Compressor operating pattern

- Drive half stroke after turning on initial power for 1 second. Then, Reach Target Voltage by increasing 0.35 Vrms per every 0.3 second. Once reaching the target input, input naturally changes according to refrigerator load without any special control.



- Interval 1) Half stroke interval - after initial running, stay at the initial value for 1 second
- Interval 2) Running interval - Increase at every 0.3 till it reaches the target input; it takes about 1 minute
- Interval 3) CVCF interval - Run by target voltage and main operating frequency and the input naturally changes according to refrigerator load

4-2-3 Compressor protection logic

- Since linear Comp conducts linear reciprocating motion, we have protection logic for compressor, motor and PCB as the below.

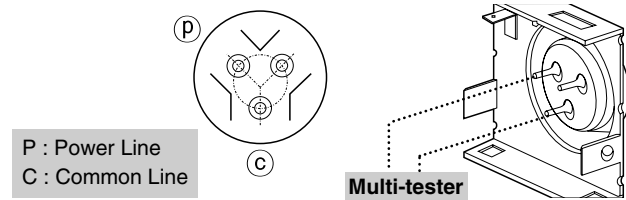
- Stroke Trip
During the operation, if stroke is above the target value, decrease the target volt by 3V.
- Current Trip
Current trip is set in order to protect compressor mechanical part and drive from the overcurrent that might arise during the operation.
Check the current for every 416.7us and if the Trip exceeds 1.86Arms more than three times at Comp ON, forcibly stop and restart six minutes later.
- Lock Piston Trip
If stroke is under 5mm even if the current is more than 14Arms, Take it as 'piston lock' and restart after 2'30" of Comp OFF. Check the current and stroke for every 416.7us and if the condition fits more than three times at Comp ON, the Trip occurs.
- IPM fault Trip
It occurs if FO signal received from IPM is LOW. For every 416.7us, check whether FO signal is LOW. The trip occurs if it is found three times during the five periods(83ms).

4-2-4 Compressor problems diagnosis

- When there is a problem or failure with the `operation, you are kindly recommended to check it as follows ;

1) Check to normality by measurement of resistance

Measure the resistance between poles of the hermetic terminal (as shown picture) with a multi-tester. (measurement several minutes after power off)



Case 1-1

If the measured values lie in the normal resistance range as in the table below,

- ➔ Compressor is normal.

Case 1-2

If the measured values are above several MΩ or a infinity,

- ➔ Wire is disconnected in the shell.

Case 1-3

If the measured values are excessively of small number,

- ➔ There is short somewhere in the shell.

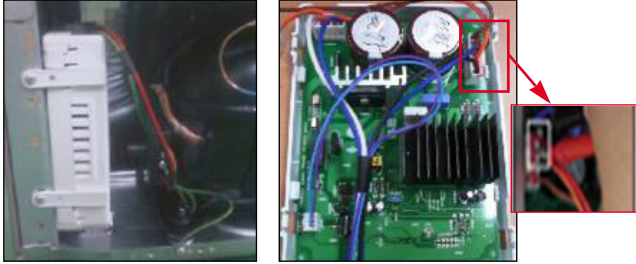
- Normal resistance range (measured at ambient temperature 23 °C)

| | Resistance |
|----------|------------|
| FC75LANE | 6~8 Ω |

- ※ According to ambient temperature or operation situation, the values could show a little deviation.

2) Check to normality by measurement of Voltage

Measure the resistance between pin of the connector (as shown picture) with a multi-tester.



<Fig. 1>

<Fig. 1>

Standard for normality

- In order to decide whether compressor operating is normal or not, check the output transfer during the refrigerator operation.
- After input the initial power and compressor operates, wait for 10 minutes to estimate.
- Compressor operation may be diagnosed as normal if the voltage falls between 145V and 180V.

Warning

1. Please be cautious of electric shock and short (it is estimated after turning on initial power).
2. If the voltage is estimated less than 80V, it is diagnosed as bad.

3) Check problems by LED On & Off Count _ (Sub PCB)

If compressor protection logic is running, LED Lamp's blinking frequency of sub PCB, which takes in charge of control, can help estimate the protection logic's symptoms and the cause of its problems.

| Trip name | Led Times | Comp Off Time |
|------------------|-----------|---------------|
| Stroke Trip | 2 | 1min |
| Current Trip | 6 | 6min |
| Lock Piston Trip | 5 | 2min 30sec |
| IPM fault trip | 7 | 20sec |

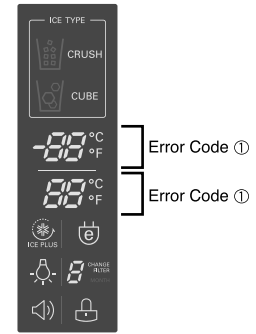
- Current Trip ➔ PCB defects or Cycle clogging maybe the causes. After estimating winding resistance, estimate compressor operation voltage to check if there is any problem and take actions to repair cycle at replacement of compressor.
- Stroke Trip ➔ can occur when the surrounding temperature is high, C-Fan, F-Fan and so on are constrained, or when cycle problems, such as moisture blocking or compressor defect, are related.
- Lock Piston Trip ➔ Since compressor itself can be a potential cause of a defect, estimate the compressor resistance value according to #1's compressor winding value estimation method and estimate the #2's compressor operation voltage to decide whether it is defective or not
(Before replacement of compressor, replace PCB and conduct the replacement of compressor during compressor replacement)
- IPM fault Trip ➔ Replace sub PCB since there is high chance that it is caused by sub PCB's part defect.

6. TROUBLESHOOTING

6-1 Error Code Summary

▲ WARNING: When you check the Resistance values,
be sure to turn off the power.
And wait for the voltage-discharge sufficiently.


NOTE) 3 hours before the error : Press the Ice Plus button and Freezer button simultaneously
3 hours after the error : All errors, except for "Er rt", "Er SS",
"Er IS(except for Icing sensor)", "Er gF", "Er It" error, are displayed.
"Er IS" which is displayed without input of user is the error of Icing Sensor.



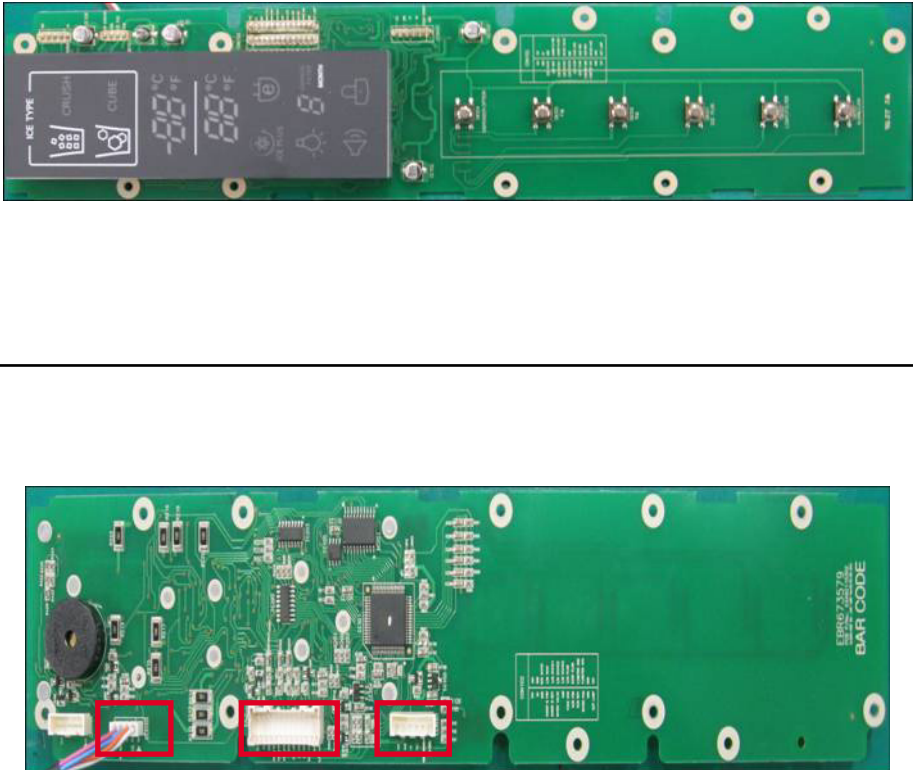
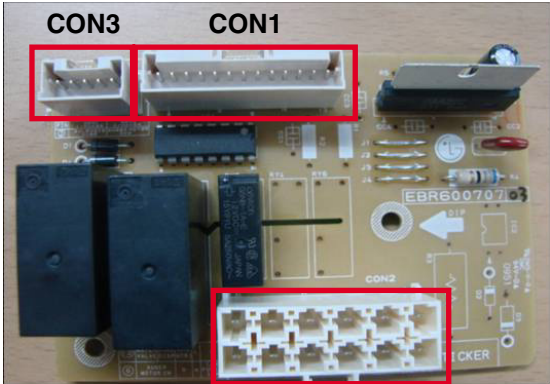
| NO | Error Detection Category | Error Display | | Error Generation Factors | Remark |
|----|---|---------------------|---------------------|---|--|
| | | Freezer Temperature | Freezer Temperature | | |
| 1 | Normality | | | None | Normal operation of Display |
| 2 | Freezer Sensor Error | Er | FS | Short or Disconnection of Freezer Sensor | Check each sensor and its connector. |
| 3 | Refrigerator Sensor Error | Er | rS | Short or Disconnection of Refrigerator Sensor | |
| 4 | Defrosting Sensor Error | Er | dS | Short or Disconnection of Defrosting Sensor | |
| 5 | Icing Sensor Error | Er | IS | Short or disconnection of the sensor about Ice maker (Icing sensor, Ice maker sensor) | |
| 6 | Pantry sensor error | Er | SS | Short or Disconnection of Pantry Sensor | |
| 7 | Room Temp Sensor Error | Er | rt | Short or Disconnectoin of Room temp.sensor | |
| 8 | Ice maker kit defect | Er | It | Other Electric system error such as moter, gear, Hall IC, operation circuit within I/M kit | |
| 9 | Flow Meter(Sensor) Defect | Er | gF | Error of flow meter or water input or low water pressure | Error of flow meter or water input or low water pressure or flow meter connection |
| 10 | Poor Defrosting | Er | dH | Even though it is passed 1 hour since then Defrosting, if Defrosting sensor is not over 46°F(8°C), it is caused | Temperature Fuse Disconnection, Heater disconnection, DRAIN Jam, Poor Relay for Heater |
| 11 | Abnormality of BLDC FAN Motor for Ice Making | Er | IF | It is caused when feedback signal isn't over 65 seconds during BLDC FAN motor operating | Poor BLDC Motor connection, DRIVE IC, and TR |
| 12 | Abnormality of BLDC FAN Motor for Freezer | Er | FF | It is caused when feedback signal isn't over 65 seconds during BLDC FAN motor operating | Poor BLDC Motor connection, DRIVE IC, and TR |
| 13 | Abnormality of BLDC FAN MOTOR For Refrigerator | Er | rF | It is caused when feedback signal isn't over 65 seconds during BLDC FAN motor operating | Poor BLDC Motor connection, DRIVE IC, and TR |
| 14 | Abnormality of BLDC FAN Motor for Mechanic Room | Er | CF | It is caused when feedback signal isn't over 65 seconds during BLDC FAN motor operating | Poor BLDC Motor connection, DRIVE IC, and TR |
| 15 | Communication Error | Er | CO | Communication Error between Micom of Main PCB and Display Micom | Poor Communication connection, Poor TR of Transmitter and Receiver Tx/Rx between display and main board. |

7. PCB Picture

7-1 Main PCB

| P/No & MFG | Picture |
|-----------------------------------|--|
| <p>EBR67348001 (2010.02~)</p> |  |
| | |
| | |

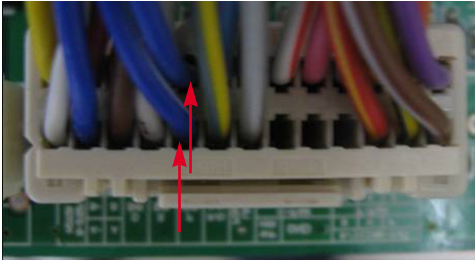
7-2 Display PCB & Sub PCB

| P/No | Picture |
|---|---|
| <p>Display PCB EBR67357901 (2010.02~)</p> |  <p>CON103 CON102 CON101</p> |
| <p>Sub PCB EBR60070707 (2010.02~)</p> |  <p>CON3 CON1</p> <p>CON2</p> |

8. Troubleshooting With Error Display

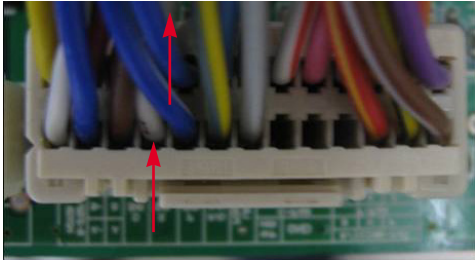
8-1 Freezer Sensor Error (Er FS)



| No | Checking flow | Result & SVC Action | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------|---|---|--------|--|------------|-----|-------|-------------------|-----|------|--------------------------|-------|--------|---|------------|--------|---------------|----------------|---------------|----------------|--------------|--------------|-------------|----------------|--------------|----------------|-------------|---------------|------------|------------|
| 1 | Check for a loose connection. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | <p>Check the <u>Blue/White to Blue/White.</u></p>  <p><CON4></p> | <table border="1" data-bbox="889 555 1450 761"> <thead> <tr> <th colspan="2">Result</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td>0 Ω</td> <td>Short</td> <td>Change the sensor</td> </tr> <tr> <td>OFF</td> <td>Open</td> <td>Replace the refrigerator</td> </tr> <tr> <td>Other</td> <td>Normal</td> <td>Check the Temp and resistance (Table-1)</td> </tr> </tbody> </table> <p><Temperature table-1></p> <table border="1" data-bbox="946 838 1377 1225"> <thead> <tr> <th>(1) To (2)</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>-22°F / -30°C</td> <td>40.5 ~ 38.5 kΩ</td> </tr> <tr> <td>-13°F / -25°C</td> <td>30.5 ~ 28.5 kΩ</td> </tr> <tr> <td>-4°F / -20°C</td> <td>23 ~ 21.5 kΩ</td> </tr> <tr> <td>5°F / -15°C</td> <td>17.5 ~ 16.5 kΩ</td> </tr> <tr> <td>14°F / -10°C</td> <td>13.5 ~ 12.5 kΩ</td> </tr> <tr> <td>23°F / -5°C</td> <td>10.5 ~ 9.5 kΩ</td> </tr> <tr> <td>32°F / 0°C</td> <td>8 ~ 7.5 kΩ</td> </tr> </tbody> </table> <p>※ The sensor is determined by the temperature. For example, 23kΩ indicates -4°F.</p> | Result | | SVC Action | 0 Ω | Short | Change the sensor | OFF | Open | Replace the refrigerator | Other | Normal | Check the Temp and resistance (Table-1) | (1) To (2) | Result | -22°F / -30°C | 40.5 ~ 38.5 kΩ | -13°F / -25°C | 30.5 ~ 28.5 kΩ | -4°F / -20°C | 23 ~ 21.5 kΩ | 5°F / -15°C | 17.5 ~ 16.5 kΩ | 14°F / -10°C | 13.5 ~ 12.5 kΩ | 23°F / -5°C | 10.5 ~ 9.5 kΩ | 32°F / 0°C | 8 ~ 7.5 kΩ |
| Result | | SVC Action | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 Ω | Short | Change the sensor | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OFF | Open | Replace the refrigerator | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Other | Normal | Check the Temp and resistance (Table-1) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (1) To (2) | Result | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -22°F / -30°C | 40.5 ~ 38.5 kΩ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -13°F / -25°C | 30.5 ~ 28.5 kΩ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -4°F / -20°C | 23 ~ 21.5 kΩ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5°F / -15°C | 17.5 ~ 16.5 kΩ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14°F / -10°C | 13.5 ~ 12.5 kΩ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23°F / -5°C | 10.5 ~ 9.5 kΩ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 32°F / 0°C | 8 ~ 7.5 kΩ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

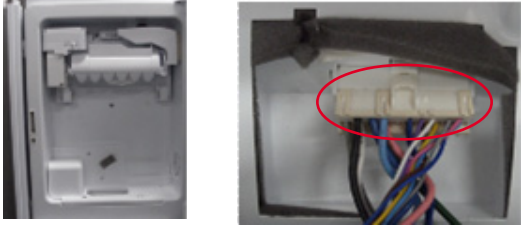
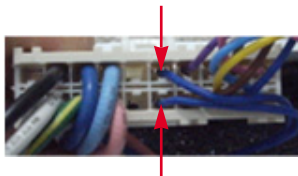
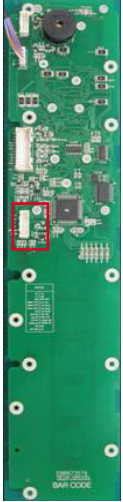
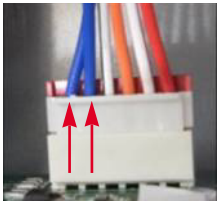
8-2 Refrigerator Sensor Error (Er rS)



| No | Checking flow | Result & SVC Action | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------|---|--|--------|--|------------|-----|-------|-------------------|-----|------|--------------------------|-------|--------|---|-------------|--------|-------------|----------------|------------|----------------|------------|----------------|-------------|------------|-------------|--------------|
| 1 | Check for a loose connection. | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | <p>Check the <u>White to White</u>.</p>  <p><CON4></p> | <table border="1" data-bbox="886 555 1446 763"> <thead> <tr> <th colspan="2">Result</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td>0 Ω</td> <td>Short</td> <td>Change the sensor</td> </tr> <tr> <td>OFF</td> <td>Open</td> <td>Replace the refrigerator</td> </tr> <tr> <td>Other</td> <td>Normal</td> <td>Check the Temp and resistance (Table-2)</td> </tr> </tbody> </table> <p><Temperature table-2></p> <table border="1" data-bbox="943 838 1373 1129"> <thead> <tr> <th>Temperature</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>23°F / -5°C</td> <td>38.5 ~ 36.5 kΩ</td> </tr> <tr> <td>32°F / 0°C</td> <td>30.5 ~ 29.5 kΩ</td> </tr> <tr> <td>41°F / 5°C</td> <td>24.5 ~ 23.5 kΩ</td> </tr> <tr> <td>50°F / 10°C</td> <td>20 ~ 19 kΩ</td> </tr> <tr> <td>59°F / 15°C</td> <td>16 ~ 15.5 kΩ</td> </tr> </tbody> </table> <p>※ The sensor is determined by the temperature. For example, 30kΩ indicates 32°F.</p> | Result | | SVC Action | 0 Ω | Short | Change the sensor | OFF | Open | Replace the refrigerator | Other | Normal | Check the Temp and resistance (Table-2) | Temperature | Result | 23°F / -5°C | 38.5 ~ 36.5 kΩ | 32°F / 0°C | 30.5 ~ 29.5 kΩ | 41°F / 5°C | 24.5 ~ 23.5 kΩ | 50°F / 10°C | 20 ~ 19 kΩ | 59°F / 15°C | 16 ~ 15.5 kΩ |
| Result | | SVC Action | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 Ω | Short | Change the sensor | | | | | | | | | | | | | | | | | | | | | | | | |
| OFF | Open | Replace the refrigerator | | | | | | | | | | | | | | | | | | | | | | | | |
| Other | Normal | Check the Temp and resistance (Table-2) | | | | | | | | | | | | | | | | | | | | | | | | |
| Temperature | Result | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23°F / -5°C | 38.5 ~ 36.5 kΩ | | | | | | | | | | | | | | | | | | | | | | | | | |
| 32°F / 0°C | 30.5 ~ 29.5 kΩ | | | | | | | | | | | | | | | | | | | | | | | | | |
| 41°F / 5°C | 24.5 ~ 23.5 kΩ | | | | | | | | | | | | | | | | | | | | | | | | | |
| 50°F / 10°C | 20 ~ 19 kΩ | | | | | | | | | | | | | | | | | | | | | | | | | |
| 59°F / 15°C | 16 ~ 15.5 kΩ | | | | | | | | | | | | | | | | | | | | | | | | | |


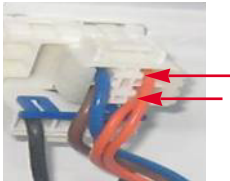
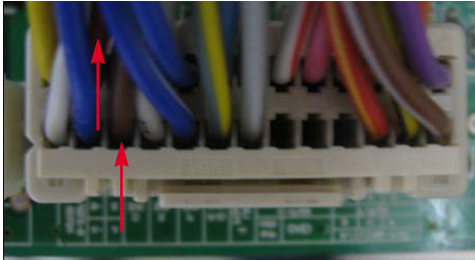
8-3 Icing Sensor Error (Er IS)



| No | Checking flow | Result & SVC Action | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------|---|---|--------|--|------------|-----|-------|-------------------|-----|------|--------------------------|-------|--------|---|------------|--------|---------------|----------------|---------------|----------------|--------------|--------------|-------------|----------------|--------------|----------------|-------------|---------------|------------|------------|
| 1 | Check for a loose connection. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | <p>Check the <u>Blue to Blue</u>.</p>    <p>CON101</p>  <p><Display> <CON101></p> | <table border="1" data-bbox="889 557 1448 761"> <thead> <tr> <th colspan="2">Result</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td>0 Ω</td> <td>Short</td> <td>Change the sensor</td> </tr> <tr> <td>OFF</td> <td>Open</td> <td>Replace the refrigerator</td> </tr> <tr> <td>Other</td> <td>Normal</td> <td>Check the Temp and resistance (Table-1)</td> </tr> </tbody> </table> <p data-bbox="1015 804 1307 834"><Temperature table-1></p> <table border="1" data-bbox="945 840 1377 1229"> <thead> <tr> <th>(1) To (2)</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>-22°F / -30°C</td> <td>40.5 ~ 38.5 kΩ</td> </tr> <tr> <td>-13°F / -25°C</td> <td>30.5 ~ 28.5 kΩ</td> </tr> <tr> <td>-4°F / -20°C</td> <td>23 ~ 21.5 kΩ</td> </tr> <tr> <td>5°F / -15°C</td> <td>17.5 ~ 16.5 kΩ</td> </tr> <tr> <td>14°F / -10°C</td> <td>13.5 ~ 12.5 kΩ</td> </tr> <tr> <td>23°F / -5°C</td> <td>10.5 ~ 9.5 kΩ</td> </tr> <tr> <td>32°F / 0°C</td> <td>8 ~ 7.5 kΩ</td> </tr> </tbody> </table> <p data-bbox="889 1244 1339 1344">※ The sensor is determined by the temperature. For example, 23kΩ indicates -4°F.</p> | Result | | SVC Action | 0 Ω | Short | Change the sensor | OFF | Open | Replace the refrigerator | Other | Normal | Check the Temp and resistance (Table-1) | (1) To (2) | Result | -22°F / -30°C | 40.5 ~ 38.5 kΩ | -13°F / -25°C | 30.5 ~ 28.5 kΩ | -4°F / -20°C | 23 ~ 21.5 kΩ | 5°F / -15°C | 17.5 ~ 16.5 kΩ | 14°F / -10°C | 13.5 ~ 12.5 kΩ | 23°F / -5°C | 10.5 ~ 9.5 kΩ | 32°F / 0°C | 8 ~ 7.5 kΩ |
| Result | | SVC Action | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 Ω | Short | Change the sensor | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| OFF | Open | Replace the refrigerator | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Other | Normal | Check the Temp and resistance (Table-1) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| (1) To (2) | Result | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -22°F / -30°C | 40.5 ~ 38.5 kΩ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -13°F / -25°C | 30.5 ~ 28.5 kΩ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -4°F / -20°C | 23 ~ 21.5 kΩ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5°F / -15°C | 17.5 ~ 16.5 kΩ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14°F / -10°C | 13.5 ~ 12.5 kΩ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23°F / -5°C | 10.5 ~ 9.5 kΩ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 32°F / 0°C | 8 ~ 7.5 kΩ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

8-4 Defrost Sensor Error (F dS)



| No | Checking flow | Result & SVC Action | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------|---|---|--------|--|------------|-----|-------|-------------------|-----|------|--------------------------|-------|--------|---|-------------|--------|-------------|----------------|------------|----------------|------------|----------------|-------------|------------|-------------|--------------|
| 1 | <p>Check for a loose connection.</p>  | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | <p>Check the <u>Orange to Orange</u>.</p>  <p>Check the <u>Brown to Brown</u>.</p>  <p style="text-align: center;"><CON4></p> | <table border="1" data-bbox="886 755 1446 966"> <thead> <tr> <th colspan="2">Result</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td>0 Ω</td> <td>Short</td> <td>Change the sensor</td> </tr> <tr> <td>OFF</td> <td>Open</td> <td>Replace the refrigerator</td> </tr> <tr> <td>Other</td> <td>Normal</td> <td>Check the Temp and resistance (Table-3)</td> </tr> </tbody> </table> <p style="text-align: center;"><Temperature table-3></p> <table border="1" data-bbox="943 1040 1373 1332"> <thead> <tr> <th>Temperature</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>23°F / -5°C</td> <td>38.5 ~ 36.5 kΩ</td> </tr> <tr> <td>32°F / 0°C</td> <td>30.5 ~ 29.5 kΩ</td> </tr> <tr> <td>41°F / 5°C</td> <td>24.5 ~ 23.5 kΩ</td> </tr> <tr> <td>50°F / 10°C</td> <td>20 ~ 19 kΩ</td> </tr> <tr> <td>59°F / 15°C</td> <td>16 ~ 15.5 kΩ</td> </tr> </tbody> </table> <p>※ The sensor is determined by the temperature. For example, 23kΩ indicates -4°F.</p> | Result | | SVC Action | 0 Ω | Short | Change the sensor | OFF | Open | Replace the refrigerator | Other | Normal | Check the Temp and resistance (Table-3) | Temperature | Result | 23°F / -5°C | 38.5 ~ 36.5 kΩ | 32°F / 0°C | 30.5 ~ 29.5 kΩ | 41°F / 5°C | 24.5 ~ 23.5 kΩ | 50°F / 10°C | 20 ~ 19 kΩ | 59°F / 15°C | 16 ~ 15.5 kΩ |
| Result | | SVC Action | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 Ω | Short | Change the sensor | | | | | | | | | | | | | | | | | | | | | | | | |
| OFF | Open | Replace the refrigerator | | | | | | | | | | | | | | | | | | | | | | | | |
| Other | Normal | Check the Temp and resistance (Table-3) | | | | | | | | | | | | | | | | | | | | | | | | |
| Temperature | Result | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23°F / -5°C | 38.5 ~ 36.5 kΩ | | | | | | | | | | | | | | | | | | | | | | | | | |
| 32°F / 0°C | 30.5 ~ 29.5 kΩ | | | | | | | | | | | | | | | | | | | | | | | | | |
| 41°F / 5°C | 24.5 ~ 23.5 kΩ | | | | | | | | | | | | | | | | | | | | | | | | | |
| 50°F / 10°C | 20 ~ 19 kΩ | | | | | | | | | | | | | | | | | | | | | | | | | |
| 59°F / 15°C | 16 ~ 15.5 kΩ | | | | | | | | | | | | | | | | | | | | | | | | | |




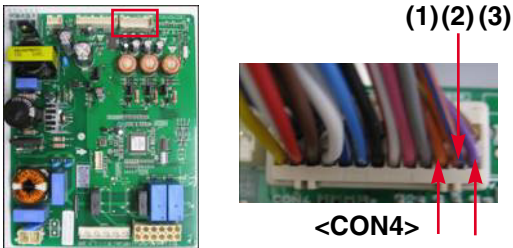
8-5 Defrost Heater Error (Er dH)



| No | Checking flow | Result & SVC Action | | | | | | | | | | | | | | | | | | |
|-------------|---|--|------------|------------|-------------|---------------------|-------------|------------------|-------|---------------|-------------|---------|-------------|-------|---------------|-------------|---------|-------------|-------|-------------|
| 1 | Check the <u>Door gasket.</u> | <table border="1"> <thead> <tr> <th>Part</th> <th>Result</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Fuse-M</td> <td>0 Ω</td> <td>Go to the 3</td> </tr> <tr> <td>Other</td> <td>Change Fuse-M</td> </tr> <tr> <td rowspan="2">Def' Heater</td> <td>34~42 Ω</td> <td>Go to the 3</td> </tr> <tr> <td>Other</td> <td>Change Fuse-M</td> </tr> <tr> <td rowspan="2">Def' Sensor</td> <td>21 kΩ ↓</td> <td>Go to the 3</td> </tr> <tr> <td>Other</td> <td>Go to the 5</td> </tr> </tbody> </table> | Part | Result | SVC Action | Fuse-M | 0 Ω | Go to the 3 | Other | Change Fuse-M | Def' Heater | 34~42 Ω | Go to the 3 | Other | Change Fuse-M | Def' Sensor | 21 kΩ ↓ | Go to the 3 | Other | Go to the 5 |
| Part | Result | | SVC Action | | | | | | | | | | | | | | | | | |
| Fuse-M | 0 Ω | Go to the 3 | | | | | | | | | | | | | | | | | | |
| | Other | Change Fuse-M | | | | | | | | | | | | | | | | | | |
| Def' Heater | 34~42 Ω | Go to the 3 | | | | | | | | | | | | | | | | | | |
| | Other | Change Fuse-M | | | | | | | | | | | | | | | | | | |
| Def' Sensor | 21 kΩ ↓ | Go to the 3 | | | | | | | | | | | | | | | | | | |
| | Other | Go to the 5 | | | | | | | | | | | | | | | | | | |
| 2 | <p>Check the <u>Defrost control part.</u></p> | | | | | | | | | | | | | | | | | | | |
| 3 | <p>Input Test 3 Mode. (Push the button 3 times)</p> | | | | | | | | | | | | | | | | | | | |
| 4 | <p>Check the <u>Blue to Orange.</u></p> <p><CON3></p> | <table border="1"> <thead> <tr> <th>Result</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td>112 ~ 116 V</td> <td>Go to the 5</td> </tr> <tr> <td>0 V</td> <td>Replace Main PCB</td> </tr> </tbody> </table> | Result | SVC Action | 112 ~ 116 V | Go to the 5 | 0 V | Replace Main PCB | | | | | | | | | | | | |
| Result | SVC Action | | | | | | | | | | | | | | | | | | | |
| 112 ~ 116 V | Go to the 5 | | | | | | | | | | | | | | | | | | | |
| 0 V | Replace Main PCB | | | | | | | | | | | | | | | | | | | |
| 5 | <p>Release the test mode. Push the button 1 times. (Normal)</p> | | | | | | | | | | | | | | | | | | | |
| 6 | <p>Check the <u>Blue to Orange.</u></p> <p><CON3></p> | <table border="1"> <thead> <tr> <th>Result</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td>0 V</td> <td>Explain to customer</td> </tr> <tr> <td>112 ~ 116 V</td> <td>Replace Main PCB</td> </tr> </tbody> </table> | Result | SVC Action | 0 V | Explain to customer | 112 ~ 116 V | Replace Main PCB | | | | | | | | | | | | |
| Result | SVC Action | | | | | | | | | | | | | | | | | | | |
| 0 V | Explain to customer | | | | | | | | | | | | | | | | | | | |
| 112 ~ 116 V | Replace Main PCB | | | | | | | | | | | | | | | | | | | |




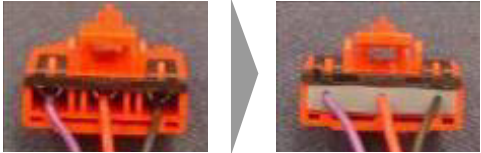


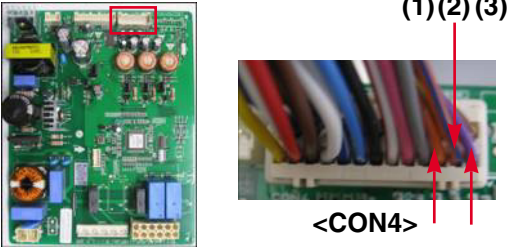
8-6 Freezer Fan Error (Er FF)



| No | Checking flow | Result & SVC Action | | | | | | | | | |
|-----------|---|--|--------|------------|------------|-----------|-----------|----------------|-----------|----------|------------------|
| 1 | <p>Reset the unit and Input Test 1 Mode. (Push the button 1 time)</p> |  | | | | | | | | | |
| 2 | <p>Open the freezer door and Check the air flow. ※ While an error code is displayed, the fan is not working.</p> |  <table border="1" data-bbox="1127 1012 1450 1157"> <thead> <tr> <th>Status</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td>No windy</td> <td>Go to 3</td> </tr> <tr> <td>Windy</td> <td>Go to 4</td> </tr> </tbody> </table> | Status | SVC Action | No windy | Go to 3 | Windy | Go to 4 | | | |
| Status | SVC Action | | | | | | | | | | |
| No windy | Go to 3 | | | | | | | | | | |
| Windy | Go to 4 | | | | | | | | | | |
| 3 | <p>Check the <u>Fan motor</u>.</p>  | <p>Rotate fan using your hand. It feel sticky, change the motor. (Cause of ice or rust inside of motor)</p> | | | | | | | | | |
| 4 | <p>Check the <u>Fan motor voltage</u>.</p>  <p>(1)(2)(3)</p> <p><CON4></p> | <table border="1" data-bbox="886 1583 1446 1725"> <thead> <tr> <th>Point</th> <th>Result</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td>(1) ~ (2)</td> <td>Below 9 V</td> <td>Change the PCB</td> </tr> <tr> <td>(2) ~ (3)</td> <td>0 or 5 V</td> <td>Change the motor</td> </tr> </tbody> </table> | Point | Result | SVC Action | (1) ~ (2) | Below 9 V | Change the PCB | (2) ~ (3) | 0 or 5 V | Change the motor |
| Point | Result | SVC Action | | | | | | | | | |
| (1) ~ (2) | Below 9 V | Change the PCB | | | | | | | | | |
| (2) ~ (3) | 0 or 5 V | Change the motor | | | | | | | | | |






8-7 Icing Fan Error (Er IF)



| No | Checking flow | Result & SVC Action | | | | | | | | | | | |
|-----------|---|---|----------|------------|------------|---------------|-----------|----------------|-----------|----------|------------------|-------|-------|
| 1 | <p>Reset the unit and Input Test 1 Mode. (Push the button 1 time)</p> |  | | | | | | | | | | | |
| 2 | <p>Open the refrigerator door and Check the air flow. ※ While an error code is displayed, the fan is not working.</p> |  <table border="1" data-bbox="1130 655 1451 804"> <thead> <tr> <th>Status</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td>No windy</td> <td>Go to the 3,4</td> </tr> <tr> <td>Windy</td> <td>Go to the 5</td> </tr> </tbody> </table> | Status | SVC Action | No windy | Go to the 3,4 | Windy | Go to the 5 | | | | | |
| Status | SVC Action | | | | | | | | | | | | |
| No windy | Go to the 3,4 | | | | | | | | | | | | |
| Windy | Go to the 5 | | | | | | | | | | | | |
| 3 | <p>Check the <u>Connector</u>. (Frozen caused the PCB short)</p>  | <p>※ Tip To protect ice short, add wire seal in connector. We developed new type connector, so order the new type.</p>  | | | | | | | | | | | |
| 4 | <p>Check the <u>Fan motor</u>. (Frozen, Lock, ect.)</p>  | <p>Wire seal (Silicon)</p>  <table border="1" data-bbox="889 1336 1451 1481"> <thead> <tr> <th>No</th> <th>Part Name</th> <th>Old P/No</th> <th>New P/No</th> </tr> </thead> <tbody> <tr> <td rowspan="2">407A</td> <td>Duct Asm,</td> <td>5209JA</td> <td>5209JA</td> </tr> <tr> <td>Connector</td> <td>1044A</td> <td>1044A</td> </tr> </tbody> </table> | No | Part Name | Old P/No | New P/No | 407A | Duct Asm, | 5209JA | 5209JA | Connector | 1044A | 1044A |
| No | Part Name | Old P/No | New P/No | | | | | | | | | | |
| 407A | Duct Asm, | 5209JA | 5209JA | | | | | | | | | | |
| | Connector | 1044A | 1044A | | | | | | | | | | |
| 5 | <p>Check the <u>Fan motor voltage</u>.</p>  <p>(1)(2)(3)</p> <p><CON4></p> | <table border="1" data-bbox="889 1598 1451 1740"> <thead> <tr> <th></th> <th>Result</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td>(1) ~ (2)</td> <td>Below 9 V</td> <td>Change the PCB</td> </tr> <tr> <td>(2) ~ (3)</td> <td>0 or 5 V</td> <td>Change the motor</td> </tr> </tbody> </table> | | Result | SVC Action | (1) ~ (2) | Below 9 V | Change the PCB | (2) ~ (3) | 0 or 5 V | Change the motor | | |
| | Result | SVC Action | | | | | | | | | | | |
| (1) ~ (2) | Below 9 V | Change the PCB | | | | | | | | | | | |
| (2) ~ (3) | 0 or 5 V | Change the motor | | | | | | | | | | | |

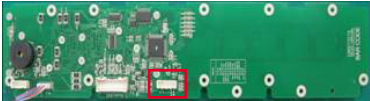
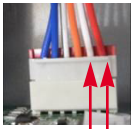
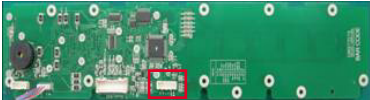
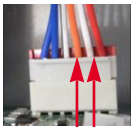

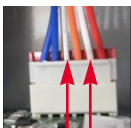

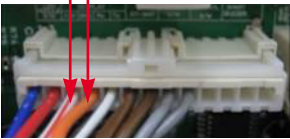

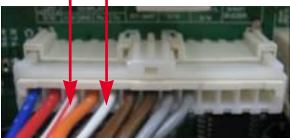
8-8 Condenser Fan Error (Er CF)



| No | Checking flow | Result & SVC Action | | | | | | | | | |
|-----------|---|--|--------|------------|------------|-------------|-----------|----------------|-----------|----------|------------------|
| 1 | <p>Reset the unit and Input Test 1 Mode. (Push the button 1 time)</p> |  | | | | | | | | | |
| 2 | <p>Check the fan rotating. ※ While an error code is displayed, the fan is not working.</p> |  <table border="1" data-bbox="1127 655 1451 804"> <thead> <tr> <th>Status</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td>No windy</td> <td>Check motor</td> </tr> <tr> <td>Windy</td> <td>Go to the 4</td> </tr> </tbody> </table> | Status | SVC Action | No windy | Check motor | Windy | Go to the 4 | | | |
| Status | SVC Action | | | | | | | | | | |
| No windy | Check motor | | | | | | | | | | |
| Windy | Go to the 4 | | | | | | | | | | |
| 3 | <p>Check the <u>Fan motor</u> and <u>surrounding</u>.</p>  | <p>Rotate fan using your hand. It feel sticky, change the motor.</p> | | | | | | | | | |
| 4 | <p>Check the <u>Fan motor voltage</u>.</p>   <p>(1)(2)(3)</p> <p><CON4></p> | <table border="1" data-bbox="886 1236 1446 1385"> <thead> <tr> <th></th> <th>Result</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td>(1) ~ (2)</td> <td>Below 9 V</td> <td>Change the PCB</td> </tr> <tr> <td>(2) ~ (3)</td> <td>0 or 5 V</td> <td>Change the motor</td> </tr> </tbody> </table> | | Result | SVC Action | (1) ~ (2) | Below 9 V | Change the PCB | (2) ~ (3) | 0 or 5 V | Change the motor |
| | Result | SVC Action | | | | | | | | | |
| (1) ~ (2) | Below 9 V | Change the PCB | | | | | | | | | |
| (2) ~ (3) | 0 or 5 V | Change the motor | | | | | | | | | |

8-9 Communication Error (Er CO)



| No | Checking flow | Result & SVC Action | | | | | | |
|------------|---|--|--------|------------|------------|------------------------|-------|---|
| 1 | Check the loose connection. | | | | | | | |
| 2 | <p>Check the <u>Red to White/Red.</u></p>  <p>CON101 <Display></p>  <p><CON101></p> | <table border="1"> <thead> <tr> <th>Result</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td>12 V</td> <td>Go to the 3</td> </tr> <tr> <td>Other</td> <td>Check the Hinge (loose connection) Change the Main PCB</td> </tr> </tbody> </table> | Result | SVC Action | 12 V | Go to the 3 | Other | Check the Hinge (loose connection) Change the Main PCB |
| Result | SVC Action | | | | | | | |
| 12 V | Go to the 3 | | | | | | | |
| Other | Check the Hinge (loose connection) Change the Main PCB | | | | | | | |
| 3 | <p>Check the <u>Orange to White/Red.</u></p>  <p>CON101 <Display></p>  <p><CON101></p> | <table border="1"> <thead> <tr> <th>Result</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td>0 V or 5 V</td> <td>Change the Display PCB</td> </tr> <tr> <td>Other</td> <td>Go to the 4</td> </tr> </tbody> </table> | Result | SVC Action | 0 V or 5 V | Change the Display PCB | Other | Go to the 4 |
| Result | SVC Action | | | | | | | |
| 0 V or 5 V | Change the Display PCB | | | | | | | |
| Other | Go to the 4 | | | | | | | |
| 4 | <p>Check the <u>White/Black to White/Red.</u></p>  <p>CON101 <Display></p>  <p><CON101></p> | <table border="1"> <thead> <tr> <th>Result</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td>0 V or 5 V</td> <td>Change the Main PCB</td> </tr> <tr> <td>Other</td> <td>Go to the 5</td> </tr> </tbody> </table> | Result | SVC Action | 0 V or 5 V | Change the Main PCB | Other | Go to the 5 |
| Result | SVC Action | | | | | | | |
| 0 V or 5 V | Change the Main PCB | | | | | | | |
| Other | Go to the 5 | | | | | | | |
| 5 | <p>Check the <u>White/Red to Orange.</u></p>   <p><CON5></p> | <table border="1"> <thead> <tr> <th>Result</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td>0 V or 5 V</td> <td>Change the Display PCB</td> </tr> <tr> <td>Other</td> <td>Go to the 6</td> </tr> </tbody> </table> | Result | SVC Action | 0 V or 5 V | Change the Display PCB | Other | Go to the 6 |
| Result | SVC Action | | | | | | | |
| 0 V or 5 V | Change the Display PCB | | | | | | | |
| Other | Go to the 6 | | | | | | | |
| 6 | <p>Check the <u>White/Red to White/Black.</u></p>   <p><CON5></p> | <table border="1"> <thead> <tr> <th>Result</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td>0 V or 5 V</td> <td>Change the Main PCB</td> </tr> <tr> <td>Other</td> <td>Explain to customer</td> </tr> </tbody> </table> | Result | SVC Action | 0 V or 5 V | Change the Main PCB | Other | Explain to customer |
| Result | SVC Action | | | | | | | |
| 0 V or 5 V | Change the Main PCB | | | | | | | |
| Other | Explain to customer | | | | | | | |

9. Troubleshooting Without Error Display

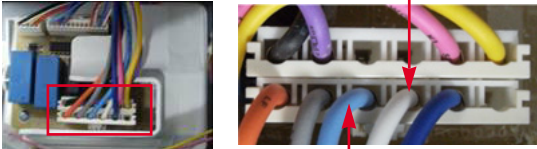

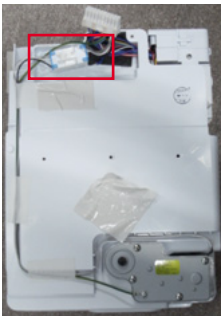
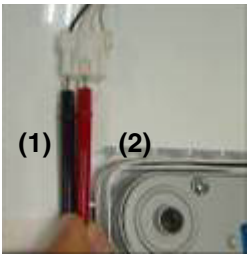
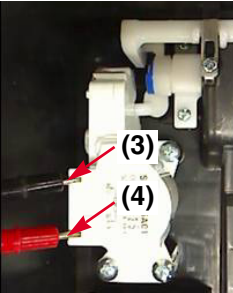
9-1 Cube mode doesn't work



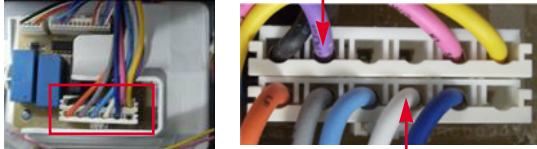
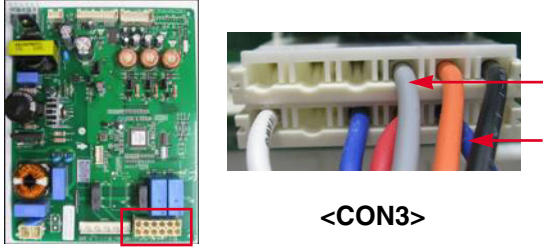
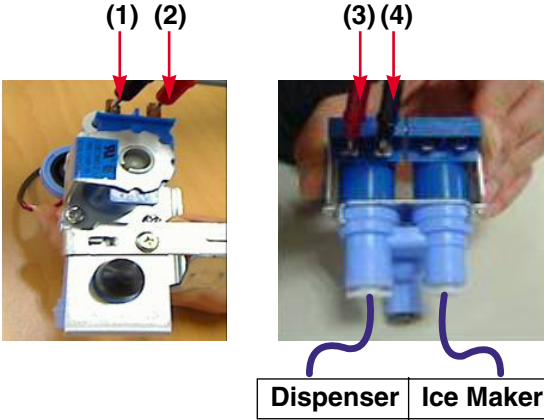
| No | Checking flow | Result & SVC Action | | | | | | | | | | | | | |
|-------------|--|--|-----------|--------|------------|------------|---------------|-------------|-------|----------------------|-------------|--------------|-------------|-------|----------------------|
| 1 | Check the loose connection. | | | | | | | | | | | | | | |
| 2 | <p>Check the <u>Black to White</u>. (While pushing the lever S/W)</p> <p style="text-align: center;"><CON2></p> | <table border="1"> <thead> <tr> <th>Lever s/w</th> <th>Result</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Pushing</td> <td>112 ~ 115 V</td> <td>Go to the 3</td> </tr> <tr> <td>Other</td> <td>Change PCB</td> </tr> <tr> <td rowspan="2">Not pushing</td> <td>0 ~2 V</td> <td>Go to the 3</td> </tr> <tr> <td>Other</td> <td>Change PCB</td> </tr> </tbody> </table> | Lever s/w | Result | SVC Action | Pushing | 112 ~ 115 V | Go to the 3 | Other | Change PCB | Not pushing | 0 ~2 V | Go to the 3 | Other | Change PCB |
| Lever s/w | Result | SVC Action | | | | | | | | | | | | | |
| Pushing | 112 ~ 115 V | Go to the 3 | | | | | | | | | | | | | |
| | Other | Change PCB | | | | | | | | | | | | | |
| Not pushing | 0 ~2 V | Go to the 3 | | | | | | | | | | | | | |
| | Other | Change PCB | | | | | | | | | | | | | |
| 3 | <p>Check the <u>Red to White Red</u>. (While pushing the lever S/W)</p> <p style="text-align: center;"><CON3> <CON1></p> | <table border="1"> <thead> <tr> <th>Lever s/w</th> <th>Result</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Pushing</td> <td>9 ~ 12 V</td> <td>Go to the 4</td> </tr> <tr> <td>Other</td> <td>Change PCB</td> </tr> <tr> <td rowspan="2">Not pushing</td> <td>0 ~2 V</td> <td>Go to the 4</td> </tr> <tr> <td>Other</td> <td>Change PCB</td> </tr> </tbody> </table> | Lever s/w | Result | SVC Action | Pushing | 9 ~ 12 V | Go to the 4 | Other | Change PCB | Not pushing | 0 ~2 V | Go to the 4 | Other | Change PCB |
| Lever s/w | Result | SVC Action | | | | | | | | | | | | | |
| Pushing | 9 ~ 12 V | Go to the 4 | | | | | | | | | | | | | |
| | Other | Change PCB | | | | | | | | | | | | | |
| Not pushing | 0 ~2 V | Go to the 4 | | | | | | | | | | | | | |
| | Other | Change PCB | | | | | | | | | | | | | |
| 4 | <p>Check the resistance value.</p> <p style="text-align: center;"><Ice Maker></p> <p style="text-align: center;"><Geared Motor></p> <p style="text-align: center;"><Dispenser Motor></p> | <table border="1"> <thead> <tr> <th>Point</th> <th>Result</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td rowspan="2">(1) to (2)</td> <td>31.1 ~ 42.1 Ω</td> <td>Explain</td> </tr> <tr> <td>Other</td> <td>Replace Geared Motor</td> </tr> <tr> <td rowspan="2">(3) to (4)</td> <td>9.9 ~ 12.1 Ω</td> <td>Explain</td> </tr> <tr> <td>Other</td> <td>Replace Geared Motor</td> </tr> </tbody> </table> | Point | Result | SVC Action | (1) to (2) | 31.1 ~ 42.1 Ω | Explain | Other | Replace Geared Motor | (3) to (4) | 9.9 ~ 12.1 Ω | Explain | Other | Replace Geared Motor |
| Point | Result | SVC Action | | | | | | | | | | | | | |
| (1) to (2) | 31.1 ~ 42.1 Ω | Explain | | | | | | | | | | | | | |
| | Other | Replace Geared Motor | | | | | | | | | | | | | |
| (3) to (4) | 9.9 ~ 12.1 Ω | Explain | | | | | | | | | | | | | |
| | Other | Replace Geared Motor | | | | | | | | | | | | | |

9-2 Crush mode doesn't work


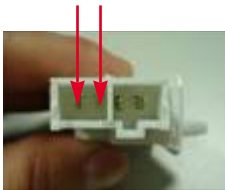
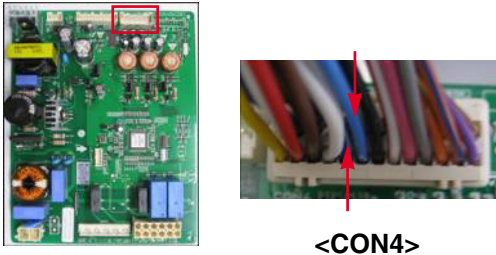
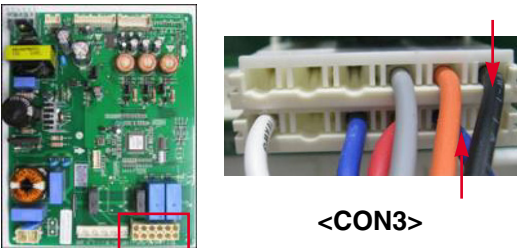


| No | Checking flow | Result & SVC Action | | | | | | | | | | | | | |
|-------------|--|--|-----------|--------|------------|------------|---------------|-------------|-------|----------------------|-------------|--------------|-------------|-------|----------------------|
| 1 | Check the loose connection. | | | | | | | | | | | | | | |
| 2 | <p>Check the <u>Sky Blue to White</u>. (While pushing the lever S/W)</p>  <p style="text-align: center;"><CON2></p> | <table border="1"> <thead> <tr> <th>Lever s/w</th> <th>Result</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Pushing</td> <td>112 ~ 115 V</td> <td>Go to the 3</td> </tr> <tr> <td>Other</td> <td>Change PCB</td> </tr> <tr> <td rowspan="2">Not pushing</td> <td>0 ~2 V</td> <td>Go to the 3</td> </tr> <tr> <td>Other</td> <td>Change PCB</td> </tr> </tbody> </table> | Lever s/w | Result | SVC Action | Pushing | 112 ~ 115 V | Go to the 3 | Other | Change PCB | Not pushing | 0 ~2 V | Go to the 3 | Other | Change PCB |
| Lever s/w | Result | SVC Action | | | | | | | | | | | | | |
| Pushing | 112 ~ 115 V | Go to the 3 | | | | | | | | | | | | | |
| | Other | Change PCB | | | | | | | | | | | | | |
| Not pushing | 0 ~2 V | Go to the 3 | | | | | | | | | | | | | |
| | Other | Change PCB | | | | | | | | | | | | | |
| 3 | <p>Check the <u>Red to White Red</u>. (While pushing the lever S/W)</p>  <p style="text-align: center;"><CON3> <CON1></p> | <table border="1"> <thead> <tr> <th>Lever s/w</th> <th>Result</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Pushing</td> <td>9 ~ 12 V</td> <td>Go to the 4</td> </tr> <tr> <td>Other</td> <td>Change PCB</td> </tr> <tr> <td rowspan="2">Not pushing</td> <td>0 ~2 V</td> <td>Go to the 4</td> </tr> <tr> <td>Other</td> <td>Change PCB</td> </tr> </tbody> </table> | Lever s/w | Result | SVC Action | Pushing | 9 ~ 12 V | Go to the 4 | Other | Change PCB | Not pushing | 0 ~2 V | Go to the 4 | Other | Change PCB |
| Lever s/w | Result | SVC Action | | | | | | | | | | | | | |
| Pushing | 9 ~ 12 V | Go to the 4 | | | | | | | | | | | | | |
| | Other | Change PCB | | | | | | | | | | | | | |
| Not pushing | 0 ~2 V | Go to the 4 | | | | | | | | | | | | | |
| | Other | Change PCB | | | | | | | | | | | | | |
| 4 | <p>Check the resistance value.</p>  <p style="text-align: center;"><Ice Maker></p>  <p style="text-align: center;"><Geared Motor></p>  <p style="text-align: center;"><Dispenser Motor></p> | <table border="1"> <thead> <tr> <th>Point</th> <th>Result</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td rowspan="2">(1) to (2)</td> <td>31.1 ~ 42.1 Ω</td> <td>Explain</td> </tr> <tr> <td>Other</td> <td>Replace Geared Motor</td> </tr> <tr> <td rowspan="2">(3) to (4)</td> <td>9.9 ~ 12.1 Ω</td> <td>Explain</td> </tr> <tr> <td>Other</td> <td>Replace Geared Motor</td> </tr> </tbody> </table> | Point | Result | SVC Action | (1) to (2) | 31.1 ~ 42.1 Ω | Explain | Other | Replace Geared Motor | (3) to (4) | 9.9 ~ 12.1 Ω | Explain | Other | Replace Geared Motor |
| Point | Result | SVC Action | | | | | | | | | | | | | |
| (1) to (2) | 31.1 ~ 42.1 Ω | Explain | | | | | | | | | | | | | |
| | Other | Replace Geared Motor | | | | | | | | | | | | | |
| (3) to (4) | 9.9 ~ 12.1 Ω | Explain | | | | | | | | | | | | | |
| | Other | Replace Geared Motor | | | | | | | | | | | | | |


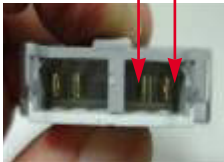
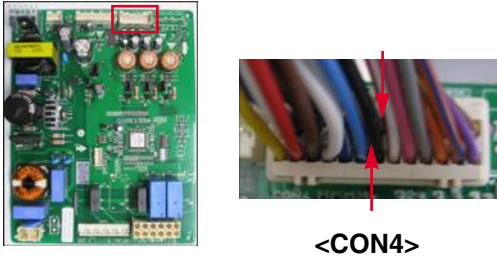


9-3 Water mode doesn't work

| No | Checking flow | Result & SVC Action | | | | | | | | | | | | | |
|-------------|---|---|-----------|--------|------------|------------|-------------|-------------|-------|---------------------|-------------|------------|-------------|-------|---------------------|
| 1 | Check the loose connection. | | | | | | | | | | | | | | |
| 2 | <p>Check the <u>Purple to White</u>. (While pushing the lever S/W)</p>  <p style="text-align: center;"><CON2></p> | <table border="1"> <thead> <tr> <th>Lever s/w</th> <th>Result</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Pushing</td> <td>112 ~ 115 V</td> <td>Go to the 3</td> </tr> <tr> <td>Other</td> <td>Change PCB</td> </tr> <tr> <td rowspan="2">Not pushing</td> <td>0 ~2 V</td> <td>Go to the 3</td> </tr> <tr> <td>Other</td> <td>Change PCB</td> </tr> </tbody> </table> | Lever s/w | Result | SVC Action | Pushing | 112 ~ 115 V | Go to the 3 | Other | Change PCB | Not pushing | 0 ~2 V | Go to the 3 | Other | Change PCB |
| Lever s/w | Result | SVC Action | | | | | | | | | | | | | |
| Pushing | 112 ~ 115 V | Go to the 3 | | | | | | | | | | | | | |
| | Other | Change PCB | | | | | | | | | | | | | |
| Not pushing | 0 ~2 V | Go to the 3 | | | | | | | | | | | | | |
| | Other | Change PCB | | | | | | | | | | | | | |
| 3 | <p>Check the <u>Blue to Gray</u>. (While pushing the lever S/W)</p>  <p style="text-align: center;"><CON3></p> | <table border="1"> <thead> <tr> <th>Lever s/w</th> <th>Result</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Pushing</td> <td>112 ~ 115 V</td> <td>Go to the 4</td> </tr> <tr> <td>Other</td> <td>Change PCB</td> </tr> <tr> <td rowspan="2">Not pushing</td> <td>0 ~2 V</td> <td>Go to the 4</td> </tr> <tr> <td>Other</td> <td>Change PCB</td> </tr> </tbody> </table> | Lever s/w | Result | SVC Action | Pushing | 112 ~ 115 V | Go to the 4 | Other | Change PCB | Not pushing | 0 ~2 V | Go to the 4 | Other | Change PCB |
| Lever s/w | Result | SVC Action | | | | | | | | | | | | | |
| Pushing | 112 ~ 115 V | Go to the 4 | | | | | | | | | | | | | |
| | Other | Change PCB | | | | | | | | | | | | | |
| Not pushing | 0 ~2 V | Go to the 4 | | | | | | | | | | | | | |
| | Other | Change PCB | | | | | | | | | | | | | |
| 4 | <p>Check the resistance value.</p>  <p style="text-align: center;"><Pilot Valve> Machine Room</p> <p style="text-align: center;"><Water Valve> In door</p> | <table border="1"> <thead> <tr> <th>Point</th> <th>Result</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td rowspan="2">(1) to (2)</td> <td>360 ~ 420Ω</td> <td>Explain</td> </tr> <tr> <td>Other</td> <td>Replace Water Valve</td> </tr> <tr> <td rowspan="2">(3) to (4)</td> <td>360 ~ 420Ω</td> <td>Explain</td> </tr> <tr> <td>Other</td> <td>Replace Water Valve</td> </tr> </tbody> </table> | Point | Result | SVC Action | (1) to (2) | 360 ~ 420Ω | Explain | Other | Replace Water Valve | (3) to (4) | 360 ~ 420Ω | Explain | Other | Replace Water Valve |
| Point | Result | SVC Action | | | | | | | | | | | | | |
| (1) to (2) | 360 ~ 420Ω | Explain | | | | | | | | | | | | | |
| | Other | Replace Water Valve | | | | | | | | | | | | | |
| (3) to (4) | 360 ~ 420Ω | Explain | | | | | | | | | | | | | |
| | Other | Replace Water Valve | | | | | | | | | | | | | |

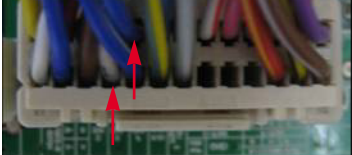
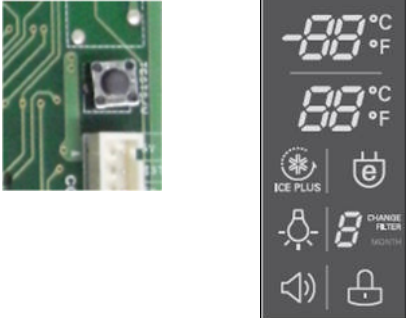

9-4 Freezer room AC Bulb Lamp doesn't work

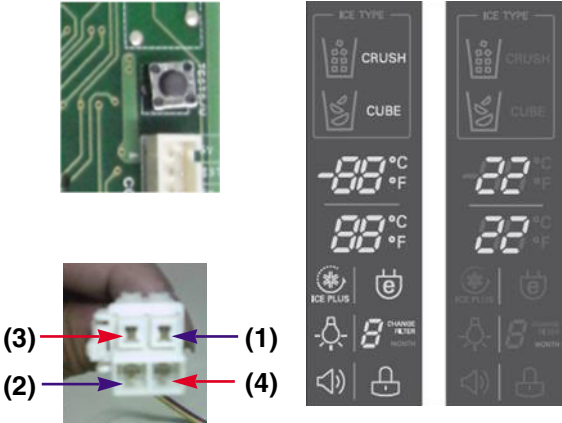
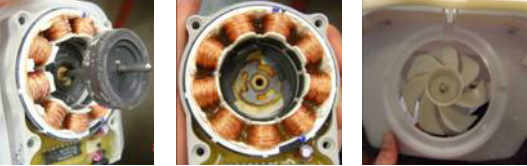
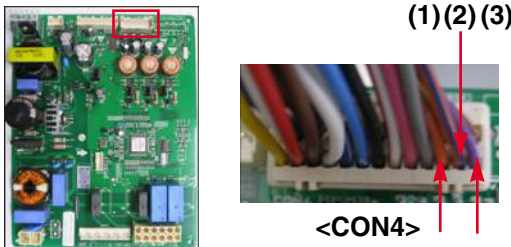
| No | Checking flow | Result & SVC Action | | | | | | | | | | | | | |
|----------|--|---|--------|--------|------------|--------|---------|---------------------|----------|---------------------|----------|----------|-------------------|-------|---------------------|
| 1 | <p>Check the Freezer door switch.</p>  | <p>If feel sticky, Change the door s/w.</p> | | | | | | | | | | | | | |
| 2 | <p>Check the <u>door S/W resistance.</u></p>  | <table border="1"> <thead> <tr> <th>Status</th> <th>Result</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Normal</td> <td>0 Ω</td> <td>Go to the 3</td> </tr> <tr> <td>Infinity</td> <td>Change door S/W</td> </tr> <tr> <td rowspan="2">Push S/W</td> <td>Infinity</td> <td>Go to the 3</td> </tr> <tr> <td>0 Ω</td> <td>Change door S/W</td> </tr> </tbody> </table> | Status | Result | SVC Action | Normal | 0 Ω | Go to the 3 | Infinity | Change door S/W | Push S/W | Infinity | Go to the 3 | 0 Ω | Change door S/W |
| Status | Result | SVC Action | | | | | | | | | | | | | |
| Normal | 0 Ω | Go to the 3 | | | | | | | | | | | | | |
| | Infinity | Change door S/W | | | | | | | | | | | | | |
| Push S/W | Infinity | Go to the 3 | | | | | | | | | | | | | |
| | 0 Ω | Change door S/W | | | | | | | | | | | | | |
| 3 | <p>Check the <u>Yellow Blue to Sky blue.</u></p>  <p style="text-align: center;"><CON4></p> | <table border="1"> <thead> <tr> <th>Status</th> <th>Result</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Closed</td> <td>5 V</td> <td>Go to the 4</td> </tr> <tr> <td>Other</td> <td>Change the Door S/W</td> </tr> <tr> <td rowspan="2">Open</td> <td>0 V</td> <td>Go to the 4</td> </tr> <tr> <td>Other</td> <td>Change the Door S/W</td> </tr> </tbody> </table> | Status | Result | SVC Action | Closed | 5 V | Go to the 4 | Other | Change the Door S/W | Open | 0 V | Go to the 4 | Other | Change the Door S/W |
| Status | Result | SVC Action | | | | | | | | | | | | | |
| Closed | 5 V | Go to the 4 | | | | | | | | | | | | | |
| | Other | Change the Door S/W | | | | | | | | | | | | | |
| Open | 0 V | Go to the 4 | | | | | | | | | | | | | |
| | Other | Change the Door S/W | | | | | | | | | | | | | |
| 4 | <p>Check the <u>Blue to Black.</u></p>  <p style="text-align: center;"><CON3></p> | <table border="1"> <thead> <tr> <th>Status</th> <th>Result</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Closed</td> <td>0 ~ 2 V</td> <td>Explain to customer</td> </tr> <tr> <td>Other</td> <td>Change the Main PCB</td> </tr> <tr> <td rowspan="2">Open</td> <td>115 V</td> <td>Change the F Lamp</td> </tr> <tr> <td>Other</td> <td>Change the PCB</td> </tr> </tbody> </table> | Status | Result | SVC Action | Closed | 0 ~ 2 V | Explain to customer | Other | Change the Main PCB | Open | 115 V | Change the F Lamp | Other | Change the PCB |
| Status | Result | SVC Action | | | | | | | | | | | | | |
| Closed | 0 ~ 2 V | Explain to customer | | | | | | | | | | | | | |
| | Other | Change the Main PCB | | | | | | | | | | | | | |
| Open | 115 V | Change the F Lamp | | | | | | | | | | | | | |
| | Other | Change the PCB | | | | | | | | | | | | | |

9-5 Refrigerator room lamp doesn't work

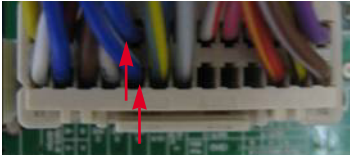
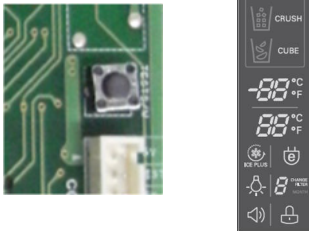

| No | Checking flow | Result & SVC Action | | | | | | | | | | | | | |
|----------|--|---|--------|--------|------------|--------|---------|---------------------|----------|---------------------|----------|----------|---------------------|-------|---------------------|
| 1 | <p>Check the Refrigerator door switch.</p>  | <p>If feel sticky, Change the door s/w.</p> | | | | | | | | | | | | | |
| 2 | <p>Check the <u>door S/W resistance.</u></p>  | <table border="1"> <thead> <tr> <th>Status</th> <th>Result</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Normal</td> <td>0 Ω</td> <td>Go to the 3</td> </tr> <tr> <td>Infinity</td> <td>Change door S/W</td> </tr> <tr> <td rowspan="2">Push S/W</td> <td>Infinity</td> <td>Go to the 3</td> </tr> <tr> <td>0 Ω</td> <td>Change door S/W</td> </tr> </tbody> </table> | Status | Result | SVC Action | Normal | 0 Ω | Go to the 3 | Infinity | Change door S/W | Push S/W | Infinity | Go to the 3 | 0 Ω | Change door S/W |
| Status | Result | SVC Action | | | | | | | | | | | | | |
| Normal | 0 Ω | Go to the 3 | | | | | | | | | | | | | |
| | Infinity | Change door S/W | | | | | | | | | | | | | |
| Push S/W | Infinity | Go to the 3 | | | | | | | | | | | | | |
| | 0 Ω | Change door S/W | | | | | | | | | | | | | |
| 3 | <p>Check the <u>Black to Gray White.</u></p>  <p style="text-align: center;"><CON4></p> | <table border="1"> <thead> <tr> <th>Status</th> <th>Result</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Normal</td> <td>12 V</td> <td>Go to the 4</td> </tr> <tr> <td>Other</td> <td>Change the PCB</td> </tr> </tbody> </table> | Status | Result | SVC Action | Normal | 12 V | Go to the 4 | Other | Change the PCB | | | | | |
| Status | Result | SVC Action | | | | | | | | | | | | | |
| Normal | 12 V | Go to the 4 | | | | | | | | | | | | | |
| | Other | Change the PCB | | | | | | | | | | | | | |
| 4 | <p>Check the <u>Red to Black.</u></p>  | <table border="1"> <thead> <tr> <th>Status</th> <th>Result</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Normal</td> <td>12 V</td> <td>Go to the 5</td> </tr> <tr> <td>Other</td> <td>Change the LED Lamp</td> </tr> </tbody> </table> | Status | Result | SVC Action | Normal | 12 V | Go to the 5 | Other | Change the LED Lamp | | | | | |
| Status | Result | SVC Action | | | | | | | | | | | | | |
| Normal | 12 V | Go to the 5 | | | | | | | | | | | | | |
| | Other | Change the LED Lamp | | | | | | | | | | | | | |
| 5 | <p>Check the <u>Black to White.</u></p>  | <table border="1"> <thead> <tr> <th>Status</th> <th>Result</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Closed</td> <td>0 ~ 2 V</td> <td>Explain to customer</td> </tr> <tr> <td>Other</td> <td>Change the Door S/W</td> </tr> <tr> <td rowspan="2">Open</td> <td>12 V</td> <td>Explain to customer</td> </tr> <tr> <td>Other</td> <td>Change the LED Lamp</td> </tr> </tbody> </table> | Status | Result | SVC Action | Closed | 0 ~ 2 V | Explain to customer | Other | Change the Door S/W | Open | 12 V | Explain to customer | Other | Change the LED Lamp |
| Status | Result | SVC Action | | | | | | | | | | | | | |
| Closed | 0 ~ 2 V | Explain to customer | | | | | | | | | | | | | |
| | Other | Change the Door S/W | | | | | | | | | | | | | |
| Open | 12 V | Explain to customer | | | | | | | | | | | | | |
| | Other | Change the LED Lamp | | | | | | | | | | | | | |

9-6 Poor cooling in Fresh food section

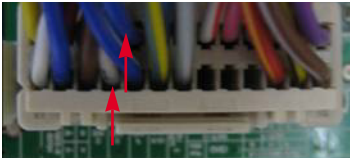


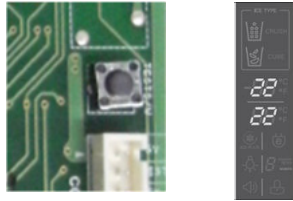
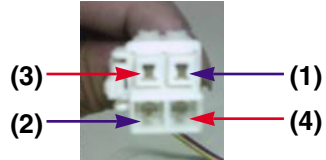
| No | Checking flow | Result & SVC Action | | | | | | | | | | | | |
|-------------|---|--|-------------|------------|-------------|---------------------|------------|--|------------|----------------|-------------|------------|-------------|-------------|
| 1 | <p>Check the sensor resistance.</p>  <p><CON4></p> <p>※ The sensor is determined by the temperature. For example, 30kΩ indicates 32°F.</p> | <table border="1"> <thead> <tr> <th>Temperature</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>23°F / -5°C</td> <td>38.5 ~ 36.5 kΩ</td> </tr> <tr> <td>32°F / 0°C</td> <td>30.5 ~ 29.5 kΩ</td> </tr> <tr> <td>41°F / 5°C</td> <td>24.5 ~ 23.5 kΩ</td> </tr> <tr> <td>50°F / 10°C</td> <td>20 ~ 19 kΩ</td> </tr> <tr> <td>59°F / 15°C</td> <td>16 ~15.5 kΩ</td> </tr> </tbody> </table> | Temperature | Result | 23°F / -5°C | 38.5 ~ 36.5 kΩ | 32°F / 0°C | 30.5 ~ 29.5 kΩ | 41°F / 5°C | 24.5 ~ 23.5 kΩ | 50°F / 10°C | 20 ~ 19 kΩ | 59°F / 15°C | 16 ~15.5 kΩ |
| Temperature | Result | | | | | | | | | | | | | |
| 23°F / -5°C | 38.5 ~ 36.5 kΩ | | | | | | | | | | | | | |
| 32°F / 0°C | 30.5 ~ 29.5 kΩ | | | | | | | | | | | | | |
| 41°F / 5°C | 24.5 ~ 23.5 kΩ | | | | | | | | | | | | | |
| 50°F / 10°C | 20 ~ 19 kΩ | | | | | | | | | | | | | |
| 59°F / 15°C | 16 ~15.5 kΩ | | | | | | | | | | | | | |
| 2 | <p>Reset the unit and Input Test 1 Mode. (Push the button 1 time)</p> |  | | | | | | | | | | | | |
| 3 | <p>Open the fresh food door and Check the air flow.</p>  | <table border="1"> <thead> <tr> <th>Status</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td>Windy</td> <td>Go to the 4</td> </tr> <tr> <td>No windy</td> <td>Check the R Fan motor Check the damper (Go to the 6)</td> </tr> </tbody> </table> | Status | SVC Action | Windy | Go to the 4 | No windy | Check the R Fan motor Check the damper (Go to the 6) | | | | | | |
| Status | SVC Action | | | | | | | | | | | | | |
| Windy | Go to the 4 | | | | | | | | | | | | | |
| No windy | Check the R Fan motor Check the damper (Go to the 6) | | | | | | | | | | | | | |
| 4 | <p>Check the air temperature. Cold or not?</p> | <table border="1"> <thead> <tr> <th>Status</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td>Cold</td> <td>Explain to customer</td> </tr> <tr> <td>Not cold</td> <td>Check the Compressor And sealed system</td> </tr> </tbody> </table> | Status | SVC Action | Cold | Explain to customer | Not cold | Check the Compressor And sealed system | | | | | | |
| Status | SVC Action | | | | | | | | | | | | | |
| Cold | Explain to customer | | | | | | | | | | | | | |
| Not cold | Check the Compressor And sealed system | | | | | | | | | | | | | |

| No | Checking flow | Result & SVC Action | | | | | | | | | | | | | | | | | | | | | | | | |
|------------|---|--|-----------|--------------|------------|-----------|------------|---|-----------|----------|------------------|-------------|-------------------|-------|--------|------------|------------|------------|-------------|-------|---------------|------------|------------|-------------|-------|---------------|
| 5 | <p>Damper checking method. Inputting TEST Mode, Check the damper and PCB.</p>  | <table border="1" data-bbox="883 442 1442 715"> <thead> <tr> <th>Test Mode</th> <th>Damper State</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td>1 Mode</td> <td>Open</td> <td rowspan="2">Damper is normal. (Check the Damper)</td> </tr> <tr> <td>2 Mode</td> <td>Closed</td> </tr> <tr> <td>1,2 mode</td> <td>Not working</td> <td>Change the damper</td> </tr> </tbody> </table> <table border="1" data-bbox="883 761 1442 1004"> <thead> <tr> <th>Point</th> <th>Result</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td rowspan="2">(1) to (2)</td> <td>270 ~330 Ω</td> <td>It's normal</td> </tr> <tr> <td>Other</td> <td>Change damper</td> </tr> <tr> <td rowspan="2">(3) to (4)</td> <td>270 ~330 Ω</td> <td>It's normal</td> </tr> <tr> <td>Other</td> <td>Change damper</td> </tr> </tbody> </table> | Test Mode | Damper State | SVC Action | 1 Mode | Open | Damper is normal. (Check the Damper) | 2 Mode | Closed | 1,2 mode | Not working | Change the damper | Point | Result | SVC Action | (1) to (2) | 270 ~330 Ω | It's normal | Other | Change damper | (3) to (4) | 270 ~330 Ω | It's normal | Other | Change damper |
| Test Mode | Damper State | SVC Action | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 Mode | Open | Damper is normal. (Check the Damper) | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 Mode | Closed | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1,2 mode | Not working | Change the damper | | | | | | | | | | | | | | | | | | | | | | | | |
| Point | Result | SVC Action | | | | | | | | | | | | | | | | | | | | | | | | |
| (1) to (2) | 270 ~330 Ω | It's normal | | | | | | | | | | | | | | | | | | | | | | | | |
| | Other | Change damper | | | | | | | | | | | | | | | | | | | | | | | | |
| (3) to (4) | 270 ~330 Ω | It's normal | | | | | | | | | | | | | | | | | | | | | | | | |
| | Other | Change damper | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | <p>Check the Fan motor. Rotate fan using your hand. It feel sticky, change the motor. (Cause of ice or rust inside of motor)</p>  | <table border="1" data-bbox="883 1089 1442 1178"> <thead> <tr> <th>Point</th> <th>Result</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td>Motor</td> <td>Sticky</td> <td>Change the motor</td> </tr> </tbody> </table> | Point | Result | SVC Action | Motor | Sticky | Change the motor | | | | | | | | | | | | | | | | | | |
| Point | Result | SVC Action | | | | | | | | | | | | | | | | | | | | | | | | |
| Motor | Sticky | Change the motor | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | <p>Check the F Fan motor voltage.</p>  | <table border="1" data-bbox="883 1472 1442 1613"> <thead> <tr> <th>Point</th> <th>Result</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td>(1) ~ (2)</td> <td>Below 12 V</td> <td>Change the PCB</td> </tr> <tr> <td>(2) ~ (3)</td> <td>0 or 5 V</td> <td>Change the motor</td> </tr> </tbody> </table> | Point | Result | SVC Action | (1) ~ (2) | Below 12 V | Change the PCB | (2) ~ (3) | 0 or 5 V | Change the motor | | | | | | | | | | | | | | | |
| Point | Result | SVC Action | | | | | | | | | | | | | | | | | | | | | | | | |
| (1) ~ (2) | Below 12 V | Change the PCB | | | | | | | | | | | | | | | | | | | | | | | | |
| (2) ~ (3) | 0 or 5 V | Change the motor | | | | | | | | | | | | | | | | | | | | | | | | |

9-7 Poor cooling in Freezer compartment

| No | Checking flow | Result & SVC Action | | | | | | | | | | | | | | | | |
|---------------|---|---|------------|------------|---------------|---------------------|---------------|---|--------------|--------------|-------------|----------------|--------------|----------------|-------------|---------------|------------|-----------|
| 1 | <p>Check the sensor resistance.</p>  <p><CON4></p> <p>※ The sensor is determined by the temperature. For example, 23kΩ indicates -4°F.</p> | <table border="1"> <thead> <tr> <th data-bbox="943 442 1159 491">(1) To (2)</th> <th data-bbox="1159 442 1373 491">Result</th> </tr> </thead> <tbody> <tr> <td data-bbox="943 491 1159 540">-22°F / -30°C</td> <td data-bbox="1159 491 1373 540">40.5 ~ 38.5 kΩ</td> </tr> <tr> <td data-bbox="943 540 1159 589">-13°F / -25°C</td> <td data-bbox="1159 540 1373 589">30.5 ~ 28.5 kΩ</td> </tr> <tr> <td data-bbox="943 589 1159 638">-4°F / -20°C</td> <td data-bbox="1159 589 1373 638">23 ~ 21.5 kΩ</td> </tr> <tr> <td data-bbox="943 638 1159 687">5°F / -15°C</td> <td data-bbox="1159 638 1373 687">17.5 ~ 16.5 kΩ</td> </tr> <tr> <td data-bbox="943 687 1159 736">14°F / -10°C</td> <td data-bbox="1159 687 1373 736">13.5 ~ 12.5 kΩ</td> </tr> <tr> <td data-bbox="943 736 1159 785">23°F / -5°C</td> <td data-bbox="1159 736 1373 785">10.5 ~ 9.5 kΩ</td> </tr> <tr> <td data-bbox="943 785 1159 834">32°F / 0°C</td> <td data-bbox="1159 785 1373 834">8 ~7.5 kΩ</td> </tr> </tbody> </table> | (1) To (2) | Result | -22°F / -30°C | 40.5 ~ 38.5 kΩ | -13°F / -25°C | 30.5 ~ 28.5 kΩ | -4°F / -20°C | 23 ~ 21.5 kΩ | 5°F / -15°C | 17.5 ~ 16.5 kΩ | 14°F / -10°C | 13.5 ~ 12.5 kΩ | 23°F / -5°C | 10.5 ~ 9.5 kΩ | 32°F / 0°C | 8 ~7.5 kΩ |
| (1) To (2) | Result | | | | | | | | | | | | | | | | | |
| -22°F / -30°C | 40.5 ~ 38.5 kΩ | | | | | | | | | | | | | | | | | |
| -13°F / -25°C | 30.5 ~ 28.5 kΩ | | | | | | | | | | | | | | | | | |
| -4°F / -20°C | 23 ~ 21.5 kΩ | | | | | | | | | | | | | | | | | |
| 5°F / -15°C | 17.5 ~ 16.5 kΩ | | | | | | | | | | | | | | | | | |
| 14°F / -10°C | 13.5 ~ 12.5 kΩ | | | | | | | | | | | | | | | | | |
| 23°F / -5°C | 10.5 ~ 9.5 kΩ | | | | | | | | | | | | | | | | | |
| 32°F / 0°C | 8 ~7.5 kΩ | | | | | | | | | | | | | | | | | |
| 2 | <p>Reset the unit and input Test 1 Mode. (Push the button 1 time)</p> |  | | | | | | | | | | | | | | | | |
| 3 | <p>Open the freezer door and check the air flow.</p>  | <table border="1"> <thead> <tr> <th data-bbox="927 1178 1086 1227">Status</th> <th data-bbox="1086 1178 1408 1227">SVC Action</th> </tr> </thead> <tbody> <tr> <td data-bbox="927 1227 1086 1276">Windy</td> <td data-bbox="1086 1227 1408 1276">Go to the 4</td> </tr> <tr> <td data-bbox="927 1276 1086 1325">No windy</td> <td data-bbox="1086 1276 1408 1325">Check the F Fan motor</td> </tr> </tbody> </table> | Status | SVC Action | Windy | Go to the 4 | No windy | Check the F Fan motor | | | | | | | | | | |
| Status | SVC Action | | | | | | | | | | | | | | | | | |
| Windy | Go to the 4 | | | | | | | | | | | | | | | | | |
| No windy | Check the F Fan motor | | | | | | | | | | | | | | | | | |
| 4 | <p>Check the air temperature. Cold or not ?</p> | <table border="1"> <thead> <tr> <th data-bbox="927 1508 1086 1557">Status</th> <th data-bbox="1086 1508 1408 1557">SVC Action</th> </tr> </thead> <tbody> <tr> <td data-bbox="927 1557 1086 1606">Cold</td> <td data-bbox="1086 1557 1408 1606">Explain to customer</td> </tr> <tr> <td data-bbox="927 1606 1086 1683">Not cold</td> <td data-bbox="1086 1606 1408 1683">Check the Compressor And sealed system</td> </tr> </tbody> </table> | Status | SVC Action | Cold | Explain to customer | Not cold | Check the Compressor And sealed system | | | | | | | | | | |
| Status | SVC Action | | | | | | | | | | | | | | | | | |
| Cold | Explain to customer | | | | | | | | | | | | | | | | | |
| Not cold | Check the Compressor And sealed system | | | | | | | | | | | | | | | | | |

9-8 Over cooling in Fresh food compartment

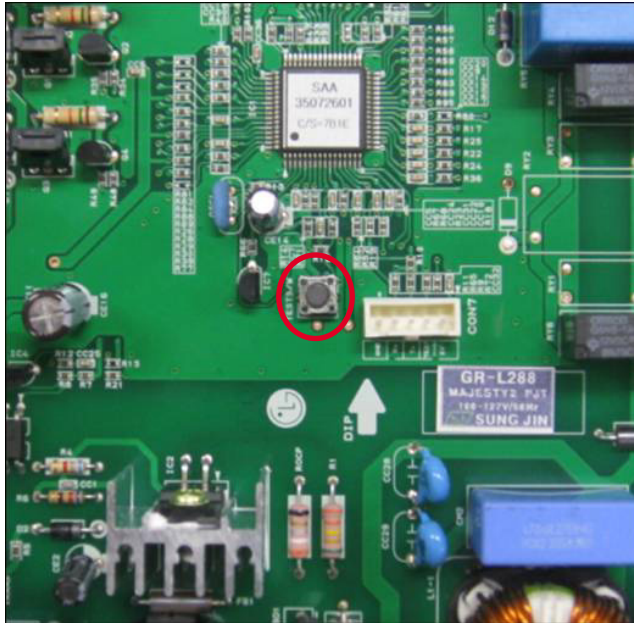
| No | Checking flow | Result & SVC Action | | | | | | | | | | | | | |
|-------------|---|---|-------------|------------|-------------|----------------|------------|--|------------|----------------|-------------|------------|-------------|--------------|---------------|
| 1 | <p>Check the sensor resistance.</p>  <p><CON4></p> <p>※ The sensor is determined by the temperature. For example, 30kΩ indicates 32°F.</p> | <table border="1"> <thead> <tr> <th>Temperature</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>23°F / -5°C</td> <td>38.5 ~ 36.5 kΩ</td> </tr> <tr> <td>32°F / 0°C</td> <td>30.5 ~ 29.5 kΩ</td> </tr> <tr> <td>41°F / 5°C</td> <td>24.5 ~ 23.5 kΩ</td> </tr> <tr> <td>50°F / 10°C</td> <td>20 ~ 19 kΩ</td> </tr> <tr> <td>59°F / 15°C</td> <td>16 ~ 15.5 kΩ</td> </tr> </tbody> </table> | Temperature | Result | 23°F / -5°C | 38.5 ~ 36.5 kΩ | 32°F / 0°C | 30.5 ~ 29.5 kΩ | 41°F / 5°C | 24.5 ~ 23.5 kΩ | 50°F / 10°C | 20 ~ 19 kΩ | 59°F / 15°C | 16 ~ 15.5 kΩ | |
| Temperature | Result | | | | | | | | | | | | | | |
| 23°F / -5°C | 38.5 ~ 36.5 kΩ | | | | | | | | | | | | | | |
| 32°F / 0°C | 30.5 ~ 29.5 kΩ | | | | | | | | | | | | | | |
| 41°F / 5°C | 24.5 ~ 23.5 kΩ | | | | | | | | | | | | | | |
| 50°F / 10°C | 20 ~ 19 kΩ | | | | | | | | | | | | | | |
| 59°F / 15°C | 16 ~ 15.5 kΩ | | | | | | | | | | | | | | |
| 2 | <p>Reset the unit and Input Test 1 Mode. (Push the button 1 time)</p> |  | | | | | | | | | | | | | |
| 3 | <p>Open the refrigerator door and Check the air flow.</p>  | <table border="1"> <thead> <tr> <th>Status</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td>Windy</td> <td>Go to the 4</td> </tr> <tr> <td>No windy</td> <td>Check the R Fan Check the damper (Go to the 5)</td> </tr> </tbody> </table> | Status | SVC Action | Windy | Go to the 4 | No windy | Check the R Fan Check the damper (Go to the 5) | | | | | | | |
| Status | SVC Action | | | | | | | | | | | | | | |
| Windy | Go to the 4 | | | | | | | | | | | | | | |
| No windy | Check the R Fan Check the damper (Go to the 5) | | | | | | | | | | | | | | |
| 4 | <p>Input Test 2 Mode and Check the air flow. (Push the button 1 time)</p>  | <table border="1"> <thead> <tr> <th>Status</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td>Windy</td> <td>Go to the 5</td> </tr> <tr> <td>No windy</td> <td>It's normal</td> </tr> </tbody> </table> | Status | SVC Action | Windy | Go to the 5 | No windy | It's normal | | | | | | | |
| Status | SVC Action | | | | | | | | | | | | | | |
| Windy | Go to the 5 | | | | | | | | | | | | | | |
| No windy | It's normal | | | | | | | | | | | | | | |
| 5 | <p>Check the damper resistance.</p>  | <table border="1"> <thead> <tr> <th>Point</th> <th>Result</th> <th>SVC Action</th> </tr> </thead> <tbody> <tr> <td rowspan="2">(1) to (2)</td> <td>270 ~330 Ω</td> <td>It's normal</td> </tr> <tr> <td>Other</td> <td>Change damper</td> </tr> <tr> <td rowspan="2">(3) to (4)</td> <td>270 ~330 Ω</td> <td>It's normal</td> </tr> <tr> <td>Other</td> <td>Change damper</td> </tr> </tbody> </table> | Point | Result | SVC Action | (1) to (2) | 270 ~330 Ω | It's normal | Other | Change damper | (3) to (4) | 270 ~330 Ω | It's normal | Other | Change damper |
| Point | Result | SVC Action | | | | | | | | | | | | | |
| (1) to (2) | 270 ~330 Ω | It's normal | | | | | | | | | | | | | |
| | Other | Change damper | | | | | | | | | | | | | |
| (3) to (4) | 270 ~330 Ω | It's normal | | | | | | | | | | | | | |
| | Other | Change damper | | | | | | | | | | | | | |

10. Reference

10-1 TEST MODE and Removing TPA

1. How to make TEST MODE

If you push the test button on the Main PCB, the refrigerator will be enter the TEST MODE.



Main PWB

* 1 time : Comp / Damper / All FAN on
(All things displayed)



* 2 times : Damper closed
(22 22 displayed)

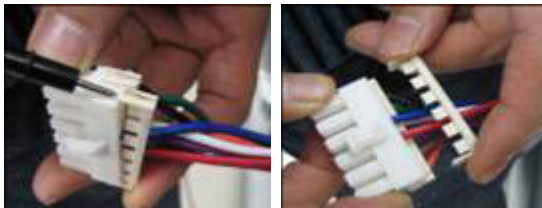


* 3 times : Forced defrost mode
(33 33 displayed)

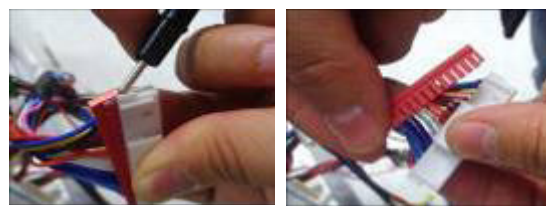


2. How to remove Terminal Position Assurance (TPA)

<AC TPA>



<DC TPA>



※ After measure the values, you should put in the TPA again.

10-2 TEMPERATRUE CHART - FRZ AND ICING SENSOR

| TEMP | RESISTANCE | VOLTAGE |
|---------------|------------|---------|
| -39°F (-40°C) | 73.29 kΩ | 4.09 V |
| -30°F (-35°C) | 53.63 kΩ | 3.84 V |
| -21°F (-30°C) | 39.66 kΩ | 3.55 V |
| -13°F (-25°C) | 29.62 kΩ | 3.23 V |
| -4°F (-20°C) | 22.33 kΩ | 2.89 V |
| 5°F (-15°C) | 16.99 kΩ | 2.56 V |
| 14°F (-10°C) | 13.05 kΩ | 2.23 V |
| 23°F (-5°C) | 10.10 kΩ | 1.92 V |
| 32°F (0°C) | 7.88 kΩ | 1.63 V |
| 41°F (5°C) | 6.19 kΩ | 1.38 V |
| 50°F (10°C) | 4.91 kΩ | 1.16 V |
| 59°F (15°C) | 3.91 kΩ | 0.97 V |
| 68°F (20°C) | 3.14 kΩ | 0.81 V |
| 77°F (25°C) | 2.54 kΩ | 0.67 V |
| 86°F (30°C) | 2.07 kΩ | 0.56 V |
| 95°F (35°C) | 1.69 kΩ | 0.47 V |
| 104°F (40°C) | 1.39 kΩ | 0.39 V |

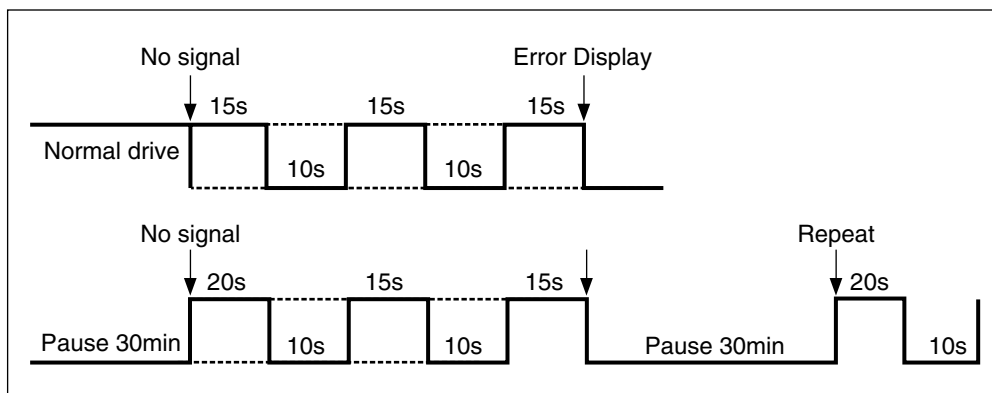
10-3 TEMPERATRUE CHART - REF AND DEF SENSOR

| TEMP | RESISTANCE | VOLTAGE |
|---------------|------------|---------|
| -39°F (-40°C) | 225.1 kΩ | 4.48 V |
| -30°F (-35°C) | 169.8 kΩ | 4.33 V |
| -21°F (-30°C) | 129.3 kΩ | 4.16 V |
| -13°F (-25°C) | 99.30 kΩ | 3.95 V |
| -4°F (-20°C) | 76.96 kΩ | 3.734 V |
| 5°F (-15°C) | 60.13 kΩ | 3.487 V |
| 14°F (-10°C) | 47.34 kΩ | 3.22 V |
| 23°F (-5°C) | 37.55 kΩ | 2.95 V |
| 32°F (0°C) | 30 kΩ | 2.67 V |
| 41°F (5°C) | 24.13 kΩ | 2.40 V |
| 50°F (10°C) | 19.53 kΩ | 2.14 V |
| 59°F (15°C) | 15.91 kΩ | 1.89 V |
| 68°F (20°C) | 13.03 kΩ | 1.64 V |
| 77°F (25°C) | 10.74 kΩ | 1.45 V |
| 86°F (30°C) | 8.89 kΩ | 1.27 V |
| 95°F (35°C) | 7.40 kΩ | 1.10 V |
| 104°F (40°C) | 6.20 kΩ | 0.96 V |

10-4 How to check the Fan-Error

(1) EBR673480

After sending a signal to the fan, the MICOM checks the BLDC fan motor's lock status. If there is no feedback signal from the BLDC fan, the fan motor stops for 10 seconds and then is powered again for 15 seconds. To determine that there is a fan motor malfunction, this process is repeated 3 times. If the fan motor is determined to be defective, the error code will be shown in the display for 30 minutes. At this point, the process will be repeated until the fan motor operates normally. If normal operation is achieved, the error display is erased and the MICOM is reset automatically.

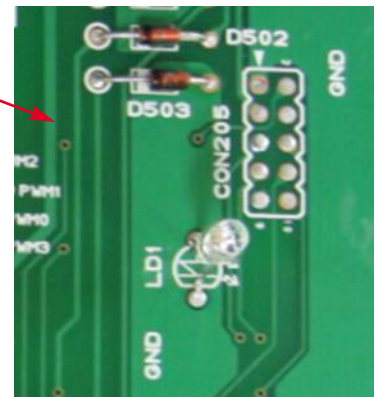
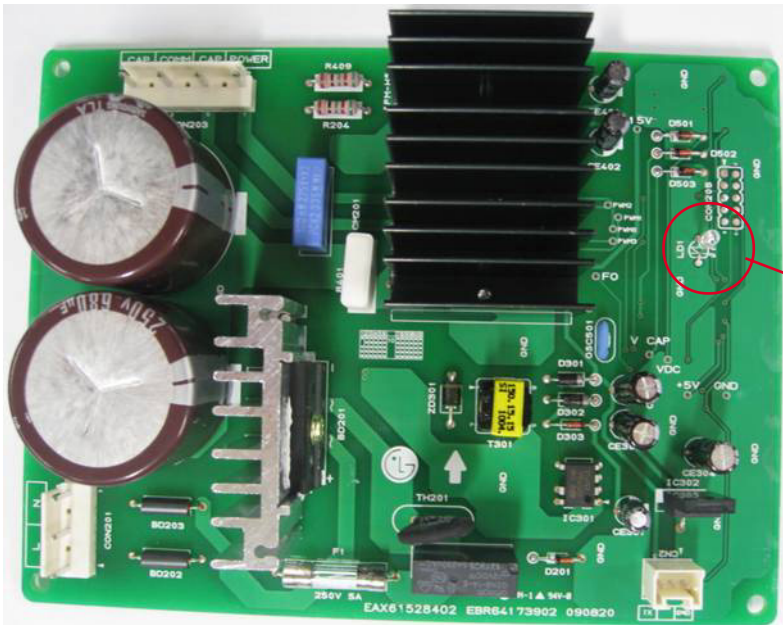


Compressor Troubleshooting

Step 1) Loosen up screw of Case Assembly PCB and open the Cover PCB








Step 2) Check for blinking frequency of LED, PWB



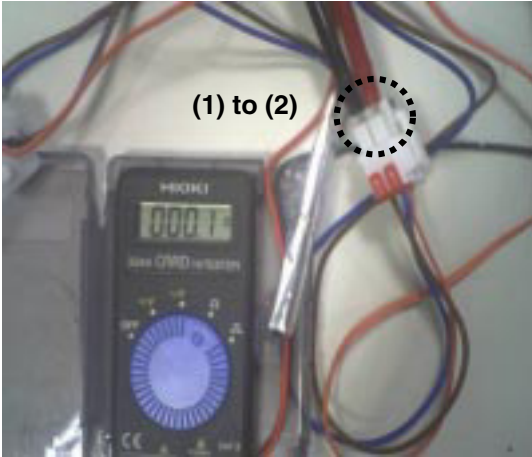
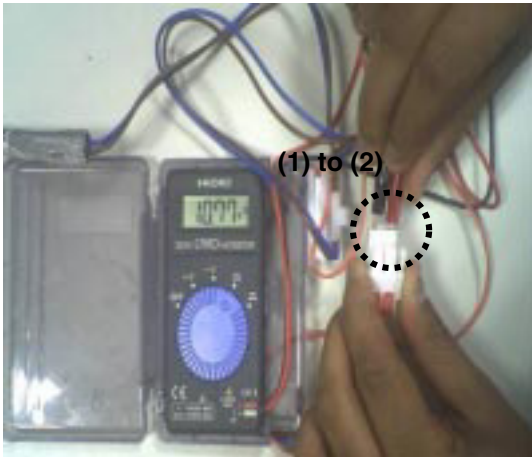
If compressor is normal, it does not blink
: Refer to the next page to find out what actions to take according to how many times LED blink

Actions to take according to Led blinking frequency


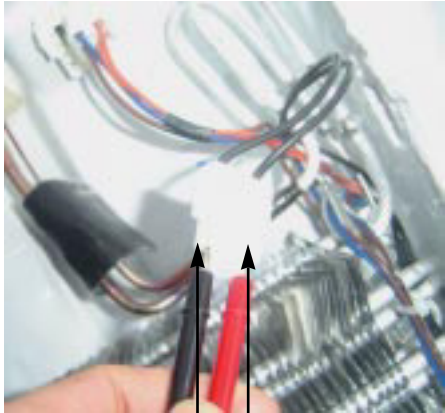
| No | LED operating condition | Cause | Service guideline |
|----|---|---|---|
| 1 | <p>LED two - time repetiton (Stroke Trip)</p>  <p>..on - on - off - on - on - off - on - on - off ..repeating</p> | PCB Parts defect or Compress or Connector miss connecting (Piston over run) | <ol style="list-style-type: none"> 1. Please check, Whether connector of compressor is attached rightly or not. after power off 2. After the first action, You check on normal operation of compressor. 3. If the same symptom arises after the second action, replace PCB |
| 2 | <p>LED four - time repetiton (Overload Protect)</p>  <p>..on - on - on - on - off - on - on - on - on - off ..repeating</p> | Outlet clogging | <ol style="list-style-type: none"> 1. After resetting power, check if it is running normal 2. If the same symptom arises after the first action 3. If the same symptom arises after the second action, replace compressor |
| 3 | <p>LED five - time repetiton (Piston Lock Trip)</p>  <p>..on - on - on - on - on - off - on - on - on - on - on - off ..repeating</p> | Piston constraint | <ol style="list-style-type: none"> 1. After resetting power, check if it is running normal 2. If the same symptom arises after the first action 3. If the same symptom arises after the second action, replace compressor |
| 4 | <p>LED six - time repetiton (Current Trip)</p>  <p>..on - on - on - on - on - on - off - on - on - on - on - on - off ..repeating</p> | Circuit over current error Or cycle error | <ol style="list-style-type: none"> 1. After resetting power, check if it is running normal 2. If the same symptom arises after the first action 3. If the same symptom arises after the second action, replace compressor |
| 5 | <p>LED seven- time repetiton (IPM Fault Trip)</p>  <p>..on - on - on - on - on - on - on - off - on - on - on - on - on - on - off ..repeating</p> | PCB parts defect (IPM) | <ol style="list-style-type: none"> 1. After resetting power, check if it is running normal 2. If the same symptom arises after the first action, replace PCB |

11. COMPONENT TESTING INFORMATION

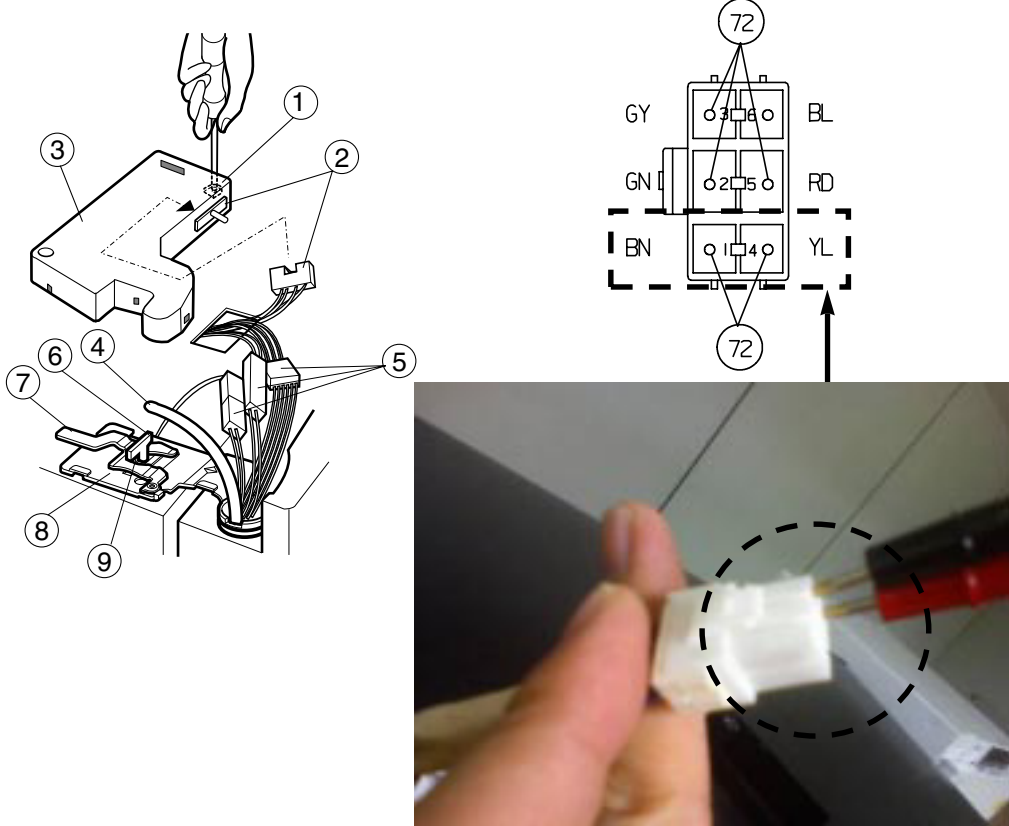
11-1 Defrost Controller Assembly

| <p>Function</p> | <ul style="list-style-type: none"> - Controller assembly is consist of 2 kinds of part those are fuse-m and sensor. we can decide part is defect or not when we check the resistance. - Fuse-m can cut off the source when defrost heater operate the unusual high temperature. - Sensor give temperature information to Micom | | | | | | | | | |
|---------------------------------------|---|---|---------|------------|-----------|--|------------|---------|------------|------|
| <p>How to Measure (Fuse-M)</p> |  | <p>Set a ohmmeter to the 2 housing pin. Measure the 2 pin connected to Fuse-M. If the ohmmeter indicate below 0.1ohm fuse-m is a good condition, But infinitely great ohm Fuse-M is disconnection</p> | | | | | | | | |
| <p>How to Measure (Sensor)</p> |  | <p>Set a ohmmeter to The 2housing pin. Measure the 2 pin connected to Sensor. If the ohmmeter indicate 11 kΩ (at room temperature) Sensor is not a defect. When check the ohm at other temperature Check the sensor manual.</p> | | | | | | | | |
| <p>Standard</p> | <p style="text-align: center;">Fuse-M (at all temperature)</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Test Point</th> <th>Ressult</th> </tr> </thead> <tbody> <tr> <td>(1) to (2)</td> <td>0 ~ 0.1 Ω</td> </tr> </tbody> </table> | Test Point | Ressult | (1) to (2) | 0 ~ 0.1 Ω | <p style="text-align: center;">Sensor (at room temperature)</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Test Point</th> <th>Ressult</th> </tr> </thead> <tbody> <tr> <td>(1) to (2)</td> <td>11 Ω</td> </tr> </tbody> </table> | Test Point | Ressult | (1) to (2) | 11 Ω |
| Test Point | Ressult | | | | | | | | | |
| (1) to (2) | 0 ~ 0.1 Ω | | | | | | | | | |
| Test Point | Ressult | | | | | | | | | |
| (1) to (2) | 11 Ω | | | | | | | | | |

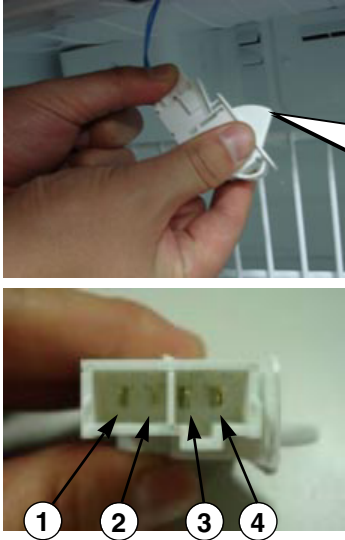
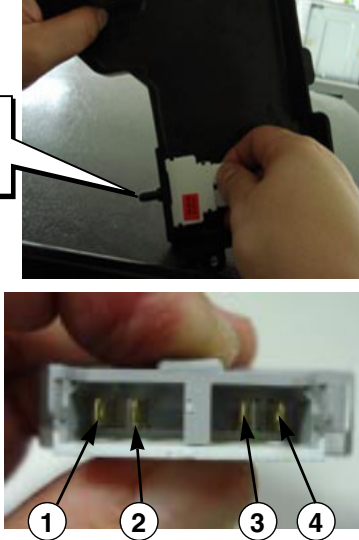
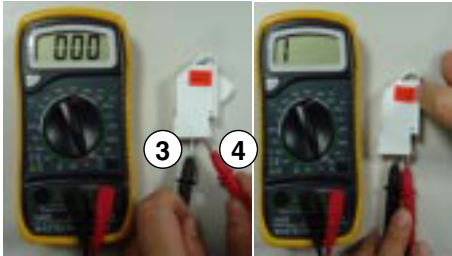
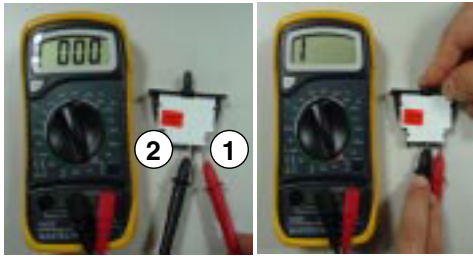
11-2 Sheath Heater

| Function | Sheath heater is a part for defrost. All heating wire is connected to only one line. So we can decide part is defect or not when we check the resistance. | | | | |
|-----------------------|---|------------|---------|------------|------------------|
| How to Measure | <div style="display: flex; justify-content: space-around; align-items: center;">   </div> <p style="text-align: center;">(1) (2)</p> <p>Set a ohmmeter connect to The 2 housing pin. Measure the 2 pin connected to Sheath Heater. If the ohmmeter indicate $(V^{\circ}\delta V)/Watt=R$ is good condition, ex) when watt=350w, voltage=115v $R=(115^{\circ}\delta 115)/350=38\ \Omega$ But the ohmmeter indicate infinitely great Sheath heater is disconnection</p> | | | | |
| Standard | <p style="text-align: center;">Sheath heater (at all temperature)</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Test Point</th> <th>Ressult</th> </tr> </thead> <tbody> <tr> <td>(1) to (2)</td> <td>34 ~ 42 Ω</td> </tr> </tbody> </table> | Test Point | Ressult | (1) to (2) | 34 ~ 42 Ω |
| Test Point | Ressult | | | | |
| (1) to (2) | 34 ~ 42 Ω | | | | |

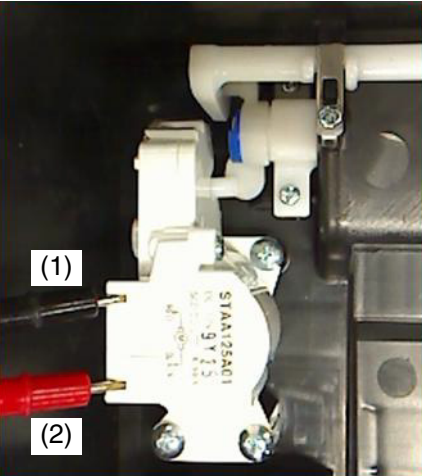
11-3 Door Heater Assembly

| <p>Function</p> | <p>The heater is designed to prevent the raising dew from door.</p> | | | | |
|------------------------------|---|------------|--------|------------|-------------|
| <p>How to Measure</p> |  <p>The diagram shows the assembly of the door heater. Part 1 is a screw used to secure the heater (3) to the door. Part 2 is a terminal block. Part 3 is the heater unit. Part 4 is a connector. Part 5 is a cable. Part 6 is a terminal block. Part 7 is a terminal block. Part 8 is a terminal block. Part 9 is a terminal block. The photo shows a hand holding a white connector with a dashed circle around it.</p> <p>The wiring diagram shows the following connections:</p> <ul style="list-style-type: none"> GY (Green-Yellow) to terminal 3 BL (Black) to terminal 6 GN (Green) to terminal 2 RD (Red) to terminal 5 BN (Black-Navy) to terminal 1 YL (Yellow) to terminal 4 <p>Terminal 7 is also shown in the diagram.</p> | | | | |
| <p>Standard</p> | <table border="1" data-bbox="418 1415 852 1510"> <thead> <tr> <th>Test Point</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>(1) to (2)</td> <td>2.3 ~ 2.9 Ω</td> </tr> </tbody> </table> | Test Point | Result | (1) to (2) | 2.3 ~ 2.9 Ω |
| Test Point | Result | | | | |
| (1) to (2) | 2.3 ~ 2.9 Ω | | | | |

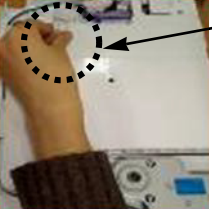
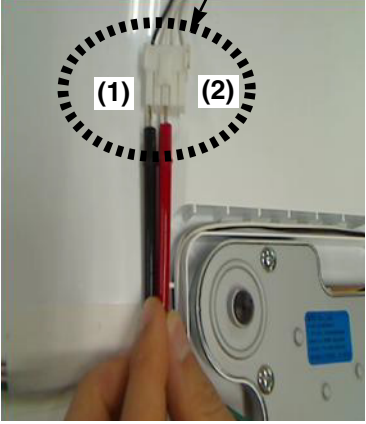
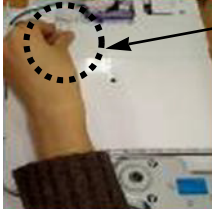
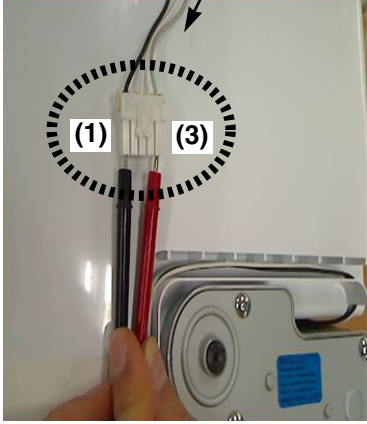
11-4 Door Switch

| | | | | | |
|------------------------------|--|-------|--------------------------|------------|-----------|
| <p>Function</p> | <p>The switch sense if the door open or close. - When the door open, lamp on. - When the door open, the switch give information to Micom. When the door open, internal contact operate on and off moving plunger of door switch up and down.</p> | | | | |
| <p>How to Measure</p> | <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p><Switch, Freezer></p>  </div> <div style="text-align: center;"> <p><Switch, Refrigerator></p>  </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;">  <p>Beep</p> </div> <div style="text-align: center;">  <p>Beep</p> </div> </div> <p>Check the resistance between connectors 1, 2 and 3, 4 .It means check whether or not applying an electric current. If there is resistance, it means the switch not inferiority</p> | | | | |
| <p>Standard</p> | <p style="text-align: center;">Multimeter beep – Switch F,R</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="padding: 5px;">Nomal</td> <td style="padding: 5px;">Push the button(Plunger)</td> </tr> <tr> <td style="padding: 5px;">Beep or 0Ω</td> <td style="padding: 5px;">None (∞Ω)</td> </tr> </table> | Nomal | Push the button(Plunger) | Beep or 0Ω | None (∞Ω) |
| Nomal | Push the button(Plunger) | | | | |
| Beep or 0Ω | None (∞Ω) | | | | |

11-5 Dispenser DC Motor

| Function | - Dispenser DC Motor : When customer push the dispenser button, Pull duct door and abstract from ice bank. | | | | | | |
|---------------------------|---|---------------------------|--|-------------|--------|------------|--------------|
| How to Measure | <div style="text-align: center;">  <p>Dispenser DC Motor</p> </div> | | | | | | |
| Standard | <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2" style="text-align: center;">Dispenser DC Motor</th> </tr> <tr> <th style="text-align: center;">Test Points</th> <th style="text-align: center;">Result</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">(1) to (2)</td> <td style="text-align: center;">9.9 ~ 12.1 Ω</td> </tr> </tbody> </table> | Dispenser DC Motor | | Test Points | Result | (1) to (2) | 9.9 ~ 12.1 Ω |
| Dispenser DC Motor | | | | | | | |
| Test Points | Result | | | | | | |
| (1) to (2) | 9.9 ~ 12.1 Ω | | | | | | |

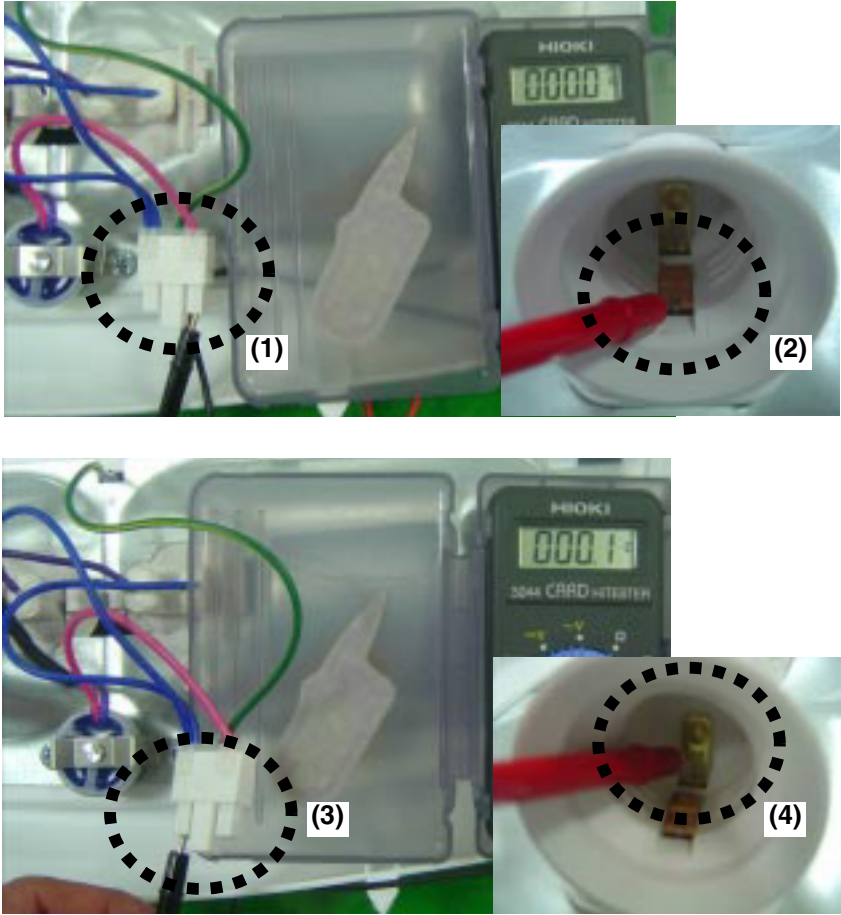
11-6 AC Motor ASSEMBLY

| <p>Function</p> | <p>The In-door motor of AC motor assembly pushes ices to the dispenser.</p> | | | | | | | | | |
|------------------------------|---|--|--------|------------|----------------|---|-------------|--------|------------|----------------|
| <p>How to Measure</p> | <p>< In-door Motor ></p>  <p>① Take out the male housing from female housing</p>  <p>② Measure the resistance between (1) and (2)</p> | <p>< In-door Motor ></p>  <p>① Take out the male housing from female housing</p>  <p>② Measure the resistance between (1) and (3)</p> <p>Check the resistance between connectors (In-door motor 1, 2) and (In-door motor 1, 3). It means check whether or not applying an Electric current. If there is resistance, it means the geared motor or solenoid is not inferiority</p> | | | | | | | | |
| <p>Standard</p> | <p style="text-align: center;">Geared Motor</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Test Points</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>(1) to (2)</td> <td>31.1 ~ 42.09 Ω</td> </tr> </tbody> </table> | Test Points | Result | (1) to (2) | 31.1 ~ 42.09 Ω | <p style="text-align: center;">Cube Solenoid</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Test Points</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>(1) to (3)</td> <td>31.1 ~ 42.09 Ω</td> </tr> </tbody> </table> | Test Points | Result | (1) to (3) | 31.1 ~ 42.09 Ω |
| Test Points | Result | | | | | | | | | |
| (1) to (2) | 31.1 ~ 42.09 Ω | | | | | | | | | |
| Test Points | Result | | | | | | | | | |
| (1) to (3) | 31.1 ~ 42.09 Ω | | | | | | | | | |

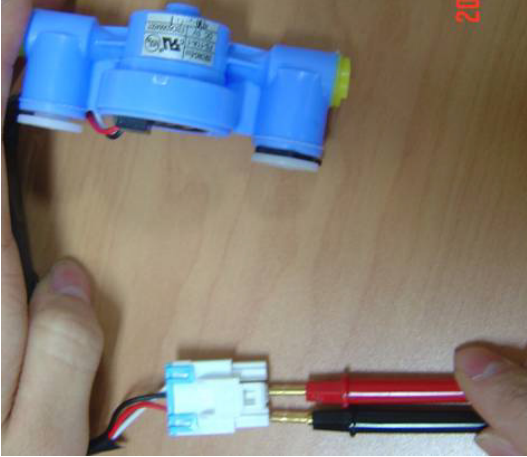

11-7 Damper

| Function | The damper supplies the cold air at freezer room to chillroom by using the damper's plate. Chillroom is colder than before when damper's plate is open. When damper's plate is close, chillroom's temperature will rise. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------------------|---|----------------------------|-------------|---|--|-------------|--------|-------------|--------|----------------|-------------|----------------|-------------|---|---|------------|---|---|---|---|-------------|---|---|---|---|--------------|---|---|---|---|
| How to Measure | <div style="display: flex; justify-content: space-around;"> <div data-bbox="454 510 779 872"> <p>Table(1): 결선도(Wiring)</p> </div> <div data-bbox="860 510 1347 829"> <p>Table(2): 2-2상 여자순서(CW Rotation)</p> <table border="1"> <thead> <tr> <th rowspan="2">Housing No. & L/Wire Color</th> <th colspan="4">Step</th> </tr> <tr> <th>1</th> <th>2</th> <th>3</th> <th>4</th> </tr> </thead> <tbody> <tr> <td>1- Blue (A)</td> <td>+</td> <td>-</td> <td>-</td> <td>+</td> </tr> <tr> <td>2- Red (B)</td> <td>+</td> <td>+</td> <td>-</td> <td>-</td> </tr> <tr> <td>3- White(A)</td> <td>-</td> <td>+</td> <td>+</td> <td>-</td> </tr> <tr> <td>4- Yellow(B)</td> <td>-</td> <td>-</td> <td>+</td> <td>+</td> </tr> </tbody> </table> </div> </div> <p style="text-align: center;">< Damper Circuit ></p> <div style="display: flex; justify-content: space-around;"> <div data-bbox="357 957 747 1276"> </div> <div data-bbox="1023 957 1412 1276"> </div> </div> <p style="text-align: center;">< extension ></p> <div style="display: flex; justify-content: space-around;"> <div data-bbox="357 1340 747 1617"> </div> <div data-bbox="1023 1340 1412 1617"> </div> </div> <p>Check the resistance between connectors 1,3 and 2,4 .It means check whether or not applying an electric current. If there is resistance, it means the damper not inferiority</p> | Housing No. & L/Wire Color | Step | | | | 1 | 2 | 3 | 4 | 1- Blue (A) | + | - | - | + | 2- Red (B) | + | + | - | - | 3- White(A) | - | + | + | - | 4- Yellow(B) | - | - | + | + |
| Housing No. & L/Wire Color | Step | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1 | 2 | 3 | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1- Blue (A) | + | - | - | + | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2- Red (B) | + | + | - | - | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3- White(A) | - | + | + | - | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4- Yellow(B) | - | - | + | + | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Standard | <table border="1" style="width: 100%;"> <thead> <tr> <th colspan="2" style="text-align: left;">Damper</th> <th colspan="2"></th> </tr> <tr> <th>Test Points</th> <th>Result</th> <th>Test Points</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Red and Yellow</td> <td>373 ~ 456 Ω</td> <td>Blue and White</td> <td>373 ~ 456 Ω</td> </tr> </tbody> </table> | Damper | | | | Test Points | Result | Test Points | Result | Red and Yellow | 373 ~ 456 Ω | Blue and White | 373 ~ 456 Ω | | | | | | | | | | | | | | | | | |
| Damper | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Test Points | Result | Test Points | Result | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Red and Yellow | 373 ~ 456 Ω | Blue and White | 373 ~ 456 Ω | | | | | | | | | | | | | | | | | | | | | | | | | | | |

11-8 Lamp Socket

| <p>Function</p> | <p>The lamp socket connect cover lamp assembly to lamp. The lamp socket fix lamp and unite lamp and cover lamp assembly. The lamp socket supply electric source to lamp also.</p> | | | | |
|------------------------------|--|-------------|--------|---------------------------|-------------|
| <p>How to Measure</p> | <div style="text-align: center;">  </div> <p>Check the resistance between connector of housing and connector of lamp socket. It means check whether or not applying an electric current. If there is resistance it means the lamp socket is not inferiority.</p> | | | | |
| <p>Standard</p> | <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Test Points</th> <th style="text-align: center;">Result</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">(1) to (2) and (3) to (4)</td> <td style="text-align: center;">$0\ \Omega$</td> </tr> </tbody> </table> | Test Points | Result | (1) to (2) and (3) to (4) | $0\ \Omega$ |
| Test Points | Result | | | | |
| (1) to (2) and (3) to (4) | $0\ \Omega$ | | | | |

11-9 Flow Sensor

| Function | Flow Sensor (in machine room) Count the water quantity from city water to water filter in refrigerator | | | | | |
|------------------------|---|---|-------------|--------|------------------------|----------|
| How to Measure |  <p style="text-align: center;">Flow Sensor (in machine room)</p> |  | | | | |
| Standard | <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Test Points</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Red wire to Black wire</td> <td>4 ~ 30 Ω</td> </tr> </tbody> </table> | | Test Points | Result | Red wire to Black wire | 4 ~ 30 Ω |
| Test Points | Result | | | | | |
| Red wire to Black wire | 4 ~ 30 Ω | | | | | |

12. TROUBLESHOOTING

12-1 INFORMATION OF LINEAR COMPRESSOR

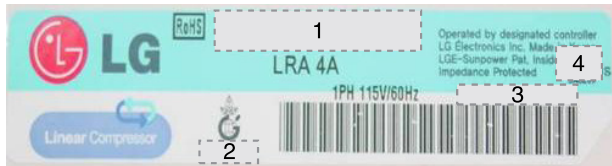
- The information tag provides compressor model, refrigerant, serial number and safety approval



Name Plate



Size : 90mm X 20mm



Compressor Label

1. Compressor Model

FC75LANE

- Series name** DLF/FA/FB
- Displacement** ex)90=9.0cm /stroke
- Application Category**
 - L : LBP with R134a
 - H : HBP with R134a
 - N : LBP with R600a
- Operating Type**
 - A : A-Inverter
 - E : E-Inverter
- Rated Voltage & Frequency**
 - M : 220V 50/60Hz
 - N : 115V 50/60Hz
- Efficiency version**
 - A : 1st generation
 - B : 2nd generation

2. Refrigerant

3. Serial Number

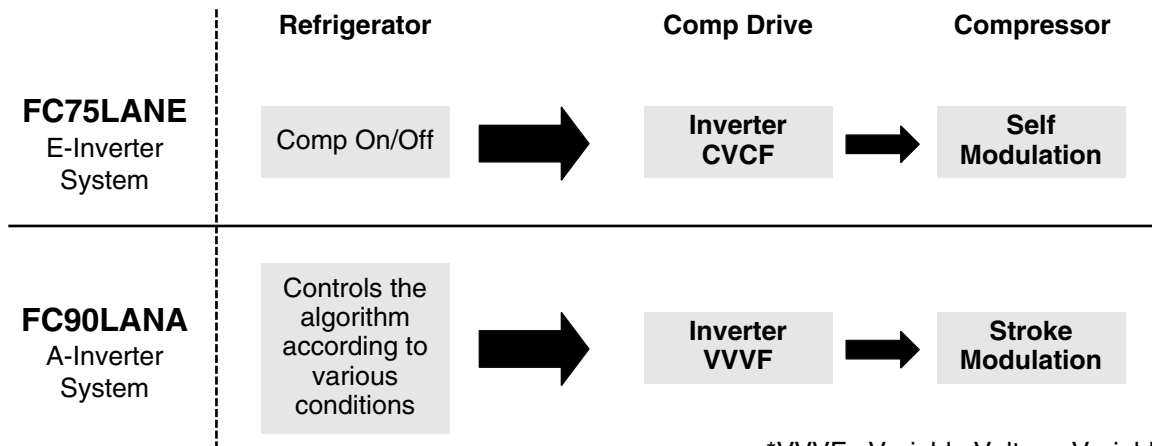
00 00 9 2003 5 13 0012

- Buyer Code** 00
 - Model Code** 00
 - Line** 9
 - Year** 2003
 - Month** 5
 - Date** 13
 - Serial No.** 0012
- 1 : January O : October
 ~ N : November
 9 : September D : December

4. Safety Approval

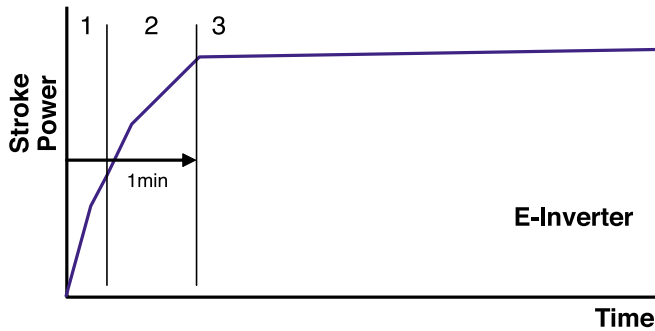


- There are two types of controllers used in the linear compressor system.
 - The “E”-inverter system is used with the FC75LANE compressor.
 - The “A”-inverter system is used with the FC90LANA compressor.

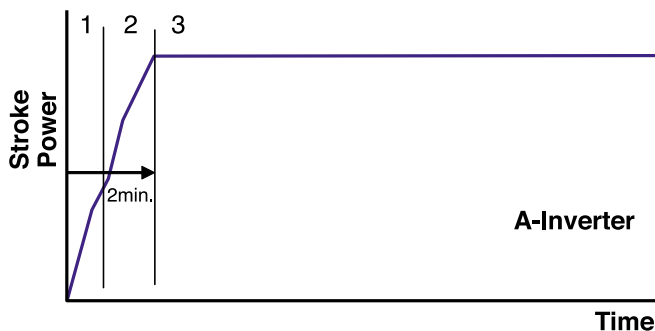


*VVVF : Variable Voltage Variable Frequency
 **CVCF : Constant Voltage Constant Frequency

- To reduce noise level, the piston stroke is slowly increased to full power during start up.



- Step 1) Start up - Half stroke interval for first 1 second.
- Step 2) Ramp up - Stroke increases every 0.8sec until maximum stroke length is reached (about 1 min)
- Step 3) CVCF interval - 180V / 60Hz



- Step 1) Start up - Half stroke interval for first 20 seconds.
- Step 2) Ramp up - Stroke increases until maximum stroke length is reached (about 1 min, 40 sec)
- Step 3) VVVF interval - target voltage and frequency controlled by Control Board signals

- There are 6 protection logics designed to protect the linear compressor system. When a failure is detected, the compressor will shut and will try to restart after a set period of time for each type of failure. The LED located on the inverter drive PCB will flash the appropriate code to indicate the detected failure. This code will continue to flash until the unit is disconnected from the power source.

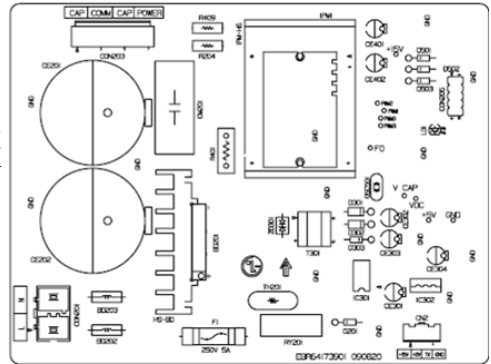
Inverter Error Codes

| | App. | Requirement | Waiting Time | The number of LED flashes |
|---------------------|------------------|---|----------------|---------------------------|
| FCT0 | A-Inv. | Compressor current and voltage error. | 20 sec. | 1 |
| Stroke Trip | E-Inv. A-Inv. | Piston stroke overrun detected. | 1 min. | 2 |
| Locked Piston Trip | E-Inv. A-Inv. | Piston is locked. | 2 min. 30 sec. | 5 |
| Current Trip | E-Inv. A-Inv. | Current overload detected. | 6 min. | 6 |
| IPM Fault | E-Inv. A-Inv. | High current detected due to IPM failure. | 20 sec. | 7 |
| Communication Error | A-Inv. | Miscommunication with Refrigerator | 0 | 8 |

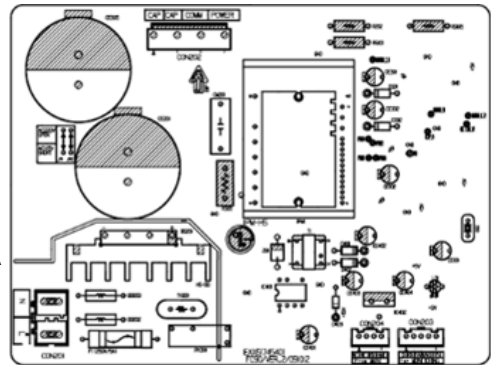
- Bridge Diodes converts 115V AC (Alternating current) to 115V DC (Direct current)
The Voltage Multiplying circuit then increases the 115V DC to 230V DC.
Then the IPM (Intelligent Power Module) converts the 230V DC to 230V AC.
The converted AC power can be regulated to any required voltage and frequency.



E-Inverter
FC75LANE

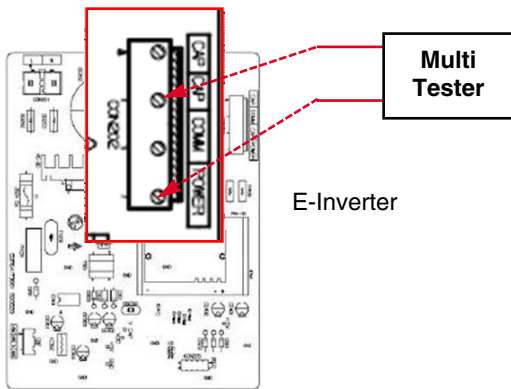


A-Inverter
FC90LANA

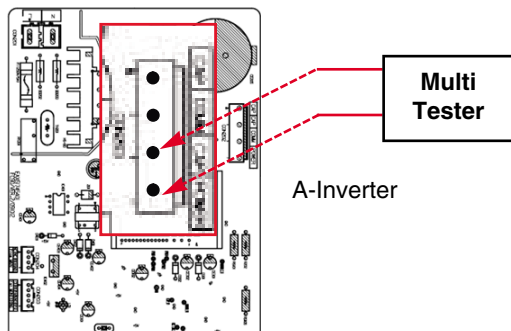


- There is a PCB located in the PCB case next to the compressor. That is the driver PCB, the linear compressor.

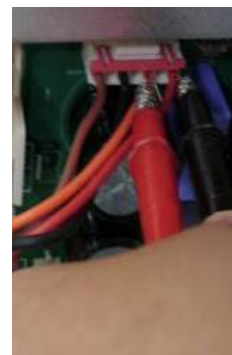
- Measure the voltage at locations on the connector (as shown picture) with a multi-tester.



E-Inverter



A-Inverter



IPM Voltage Check

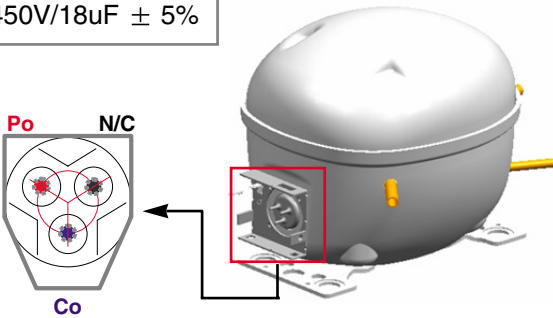
- To ensure proper diagnosis, make sure that the unit has been plugged in for at least 10 min.
- To determine if the compressor is receiving the proper voltage, check the PCB output voltage during operation.
- Normal operating voltage will be between 80V AC and 180V AC.

Note : Higher voltage readings may occur under "heavy" load conditions.

- Insulation check : Check for infinite Ohms between all compressor terminal and ground.

FC90LANA

Capacitor Spec.
 450V/18uF ± 5%

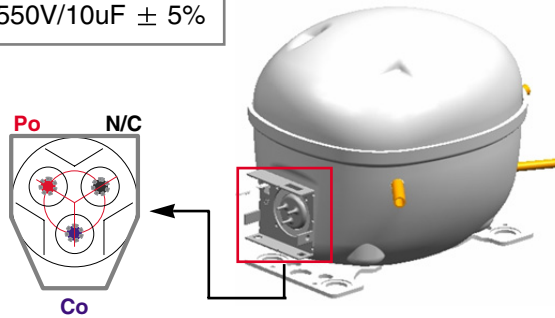


Po : Power
 Co : Common
 N/C : No Connecting

Compressor Winding Resistance Check
 6 ~ 8 Ω Between Po and Co

FC75LANE

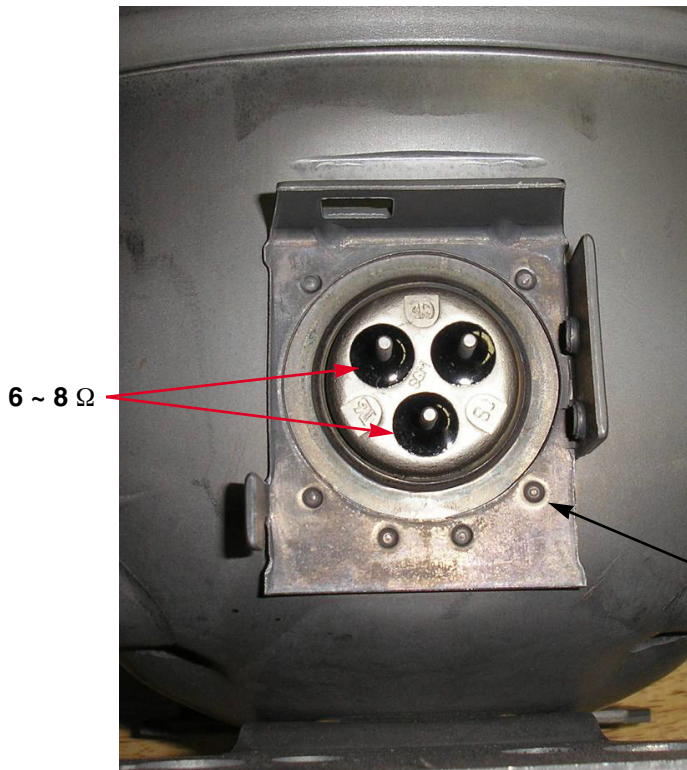
Capacitor Spec.
 550V/10uF ± 5%



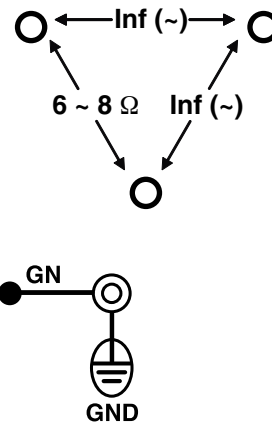
Po : Power
 Co : Common
 N/C : No Connecting

Compressor Winding Resistance Check
 6 ~ 8 Ω Between Po and Co

LG Linear Compressor



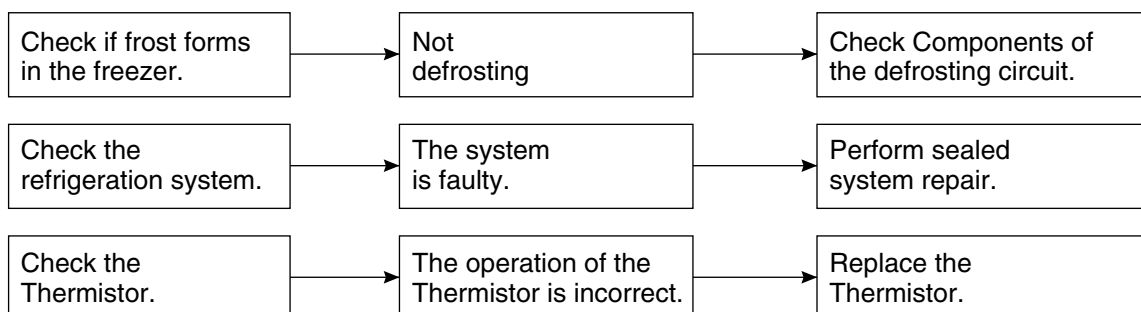
NOTE : Any Terminal to Ground should read Inf (~)



12-2 SERVICE DIAGNOSIS CHART

| COMPLAINT | POINTS TO BE CHECKED | REMEDY |
|--|---|--|
| No Cooling. | <ul style="list-style-type: none"> Is the power cord unplugged from the outlet? Check if the power switch is set to OFF. Check if the fuse of the power switch is shorted. Measure the voltage of the power outlet. | <ul style="list-style-type: none"> Plug into the outlet. Set the switch to ON. Replace the fuse. If the voltage is low, correct the wiring. |
| Cools poorly. | <ul style="list-style-type: none"> Check if the unit is placed too close to the wall. Check if the unit is placed too close to the stove, gas cooker, or in direct sunlight. Is the ambient temperature too high or the room door closed? Check if food put in the refrigerator is hot. Did you open the door of the unit too often or check if the door is sealed properly? Check if the Control is set to Warm position. | <ul style="list-style-type: none"> Place the unit about 4 inches (10 cm) from the wall. Place the unit away from these heat sources. Lower the ambient temperature. Put in foods after they have cooled down. Don't open the door too often and close it firmly. Set the control to Recommended position. |
| Food in the Refrigerator is frozen. | <ul style="list-style-type: none"> Is food placed in the cooling air outlet? Check if the control is set to colder position. Is the ambient temperature below 41°F(5°C)? | <ul style="list-style-type: none"> Place foods in the high-temperature section. (front part) Set the control to Recommended position. Set the control to Warm position. |
| Condensation or ice forms inside the unit. | <ul style="list-style-type: none"> Is liquid food sealed? Check if food put in the refrigerator is hot. Did you open the door of the unit too often or check if the door is sealed properly? | <ul style="list-style-type: none"> Seal liquid foods with wrap. Put in foods after they have cooled down. Don't open the door too often and close it firmly. |
| Condensation forms in the Exterior Case. | <ul style="list-style-type: none"> Check if the ambient temperature and humidity of the surrounding air are high. Is there a gap in the door gasket? | <ul style="list-style-type: none"> Wipe moisture with a dry cloth. It will disappear in low temperature and humidity. Fill up the gap. |
| There is abnormal noise. | <ul style="list-style-type: none"> Is the unit positioned in a firm and even place? Are any unnecessary objects placed in the back side of the unit? Check if the Drip Tray is not firmly fixed. Check if the cover of the compressor enclosure in the lower front side is taken out. | <ul style="list-style-type: none"> Adjust the Leveling Screw, and position the refrigerator in a firm place. Remove the objects. Fix the Drip Tray firmly in the original position. Place the cover in its original position. |
| Door does not close well. | <ul style="list-style-type: none"> Check if the door gasket is dirty with an item like juice. Is the refrigerator level? Is there too much food in the refrigerator? | <ul style="list-style-type: none"> Clean the door gasket. Position in a firm place and level the Leveling Screw. Make sure food stored in shelves does not prevent the door from closing. |
| Ice and foods smell unpleasant. | <ul style="list-style-type: none"> Check if the inside of the unit is dirty. Are foods with a strong odor unwrapped? The unit smells of plastic. | <ul style="list-style-type: none"> Clean the inside of the unit. Wrap foods that have a strong odor. New products smell of plastic, but this will go away after 1-2 weeks. |

●Other possible problems:



12-3 REFRIGERATION CYCLE

▼ Troubleshooting Chart

| CAUSE | | STATE OF THE UNIT | STATE OF THE EVAPORATOR | TEMPERATURE OF THE COMPRESSOR | REMARKS |
|-----------------------|------------------|---|--|---|---|
| LEAKAGE | PARTIAL LEAKAGE | Freezer compartment and Refrigerator don't cool normally. | Low flowing sound of Refrigerant is heard and frost forms in inlet only. | A little higher than ambient temperature. | <ul style="list-style-type: none"> Refrigerant level is low due to a leak. Normal cooling is possible by restoring the normal amount of refrigerant and repairing the leak. |
| | COMPLETE LEAKAGE | Freezer compartment and Refrigerator don't cool normally. | Flowing sound of refrigerant is not heard and frost isn't formed. | Equal to ambient temperature. | <ul style="list-style-type: none"> No discharging of Refrigerant. Normal cooling is possible by restoring the normal amount of refrigerant and repairing the leak. |
| CLOGGED BY DUST | PARTIAL CLOG | Freezer compartment and Refrigerator don't cool normally. | Flowing sound of refrigerant is heard and frost forms in inlet only. | A little higher than ambient temperature. | <ul style="list-style-type: none"> Normal discharging of the refrigerant. The capillary tube is faulty. |
| | WHOLE CLOG | Freezer compartment and Refrigerator don't cool. | Flowing sound of refrigerant is not heard and frost isn't formed. | Equal to ambient temperature. | <ul style="list-style-type: none"> Normal discharging of the Refrigerant. |
| MOISTURE CLOG | | Cooling operation stops periodically. | Flowing sound of refrigerant is not heard and frost melts. | Lower than ambient temperature. | <ul style="list-style-type: none"> Cooling operation restarts when heating the inlet of the capillary tube. |
| DEFECTIVE COMPRESSION | COMP-RESSION | Freezer and Refrigerator don't cool. | Low flowing sound of refrigerant is heard and frost forms in inlet only. | A little higher than ambient temperature. | <ul style="list-style-type: none"> Low pressure at high side of compressor due to low refrigerant level. |
| | NO COMP-RESSION | No compressing operation. | Flowing sound of refrigerant is not heard and there is no frost. | Equal to ambient temperature. | <ul style="list-style-type: none"> No pressure in the high pressure part of the compressor. |

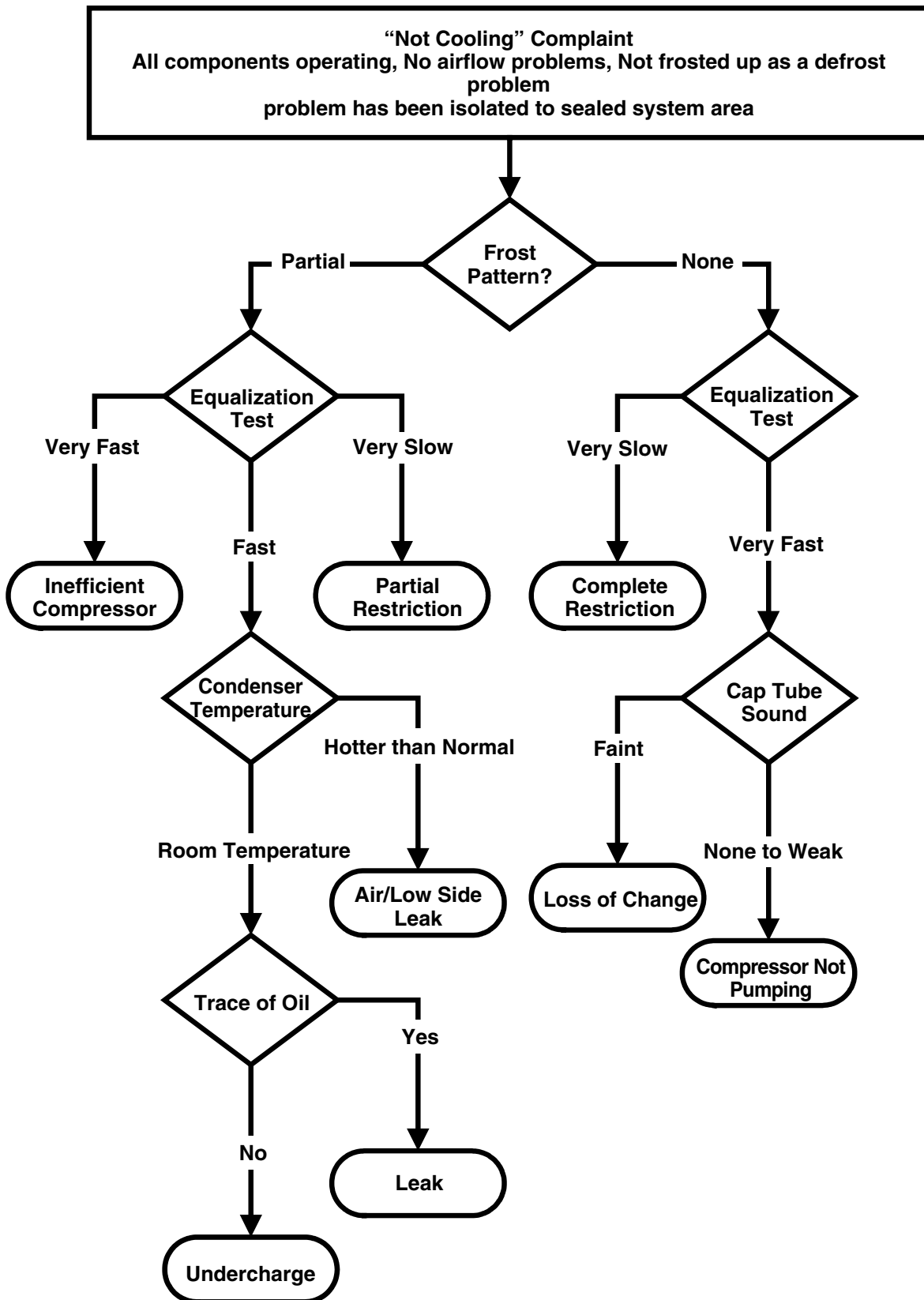
12-3-1 Cleaning

There is no need for routine condenser cleaning in normal Home operating environments. If the environment is particularly greasy or dusty, or there is significant pet traffic in the home, the condenser should be cleaned every 2 to 3 months to ensure maximum efficiency.

If you need to clean the condenser:

- Remove the mechanical cover.
- Use a vacuum cleaner with a soft brush to clean the grille, the open areas behind the grille and the front surface area of the condenser.
- Replace the mechanical cover.

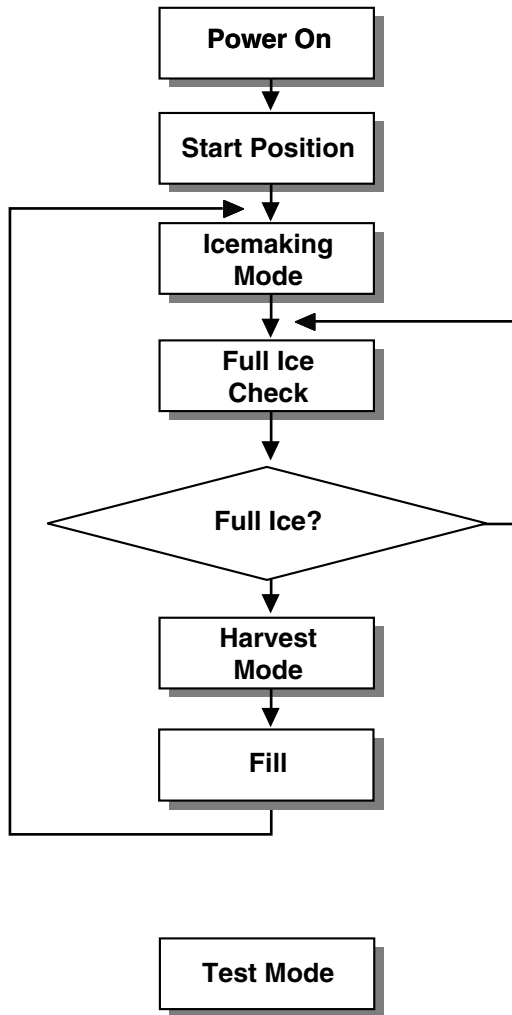
12-3-2 SEALED SYSTEM DIAGNOSIS



(The equalization test is trying to restart a compressor using a start kit after it has been operating.)

13. ICEMAKER OPERATING METHOD AND TROUBLE SHOOTING

13-1 Icemaker's Basic Operating Method



• Adjusts Ice Tray to Start Position with power on.



• Waits until water becomes ice.
 ※ For cold air circulation, Ice tray will be on a slightly tilt one hour after ice-making mode begins. A tilt ice tray means icemaker's normal operation.



• If water becomes ices in the ice tray, Ice-detecting sensor check if the ice bin is full.



• Twist the ice tray to drop ice into the ICE BIN.

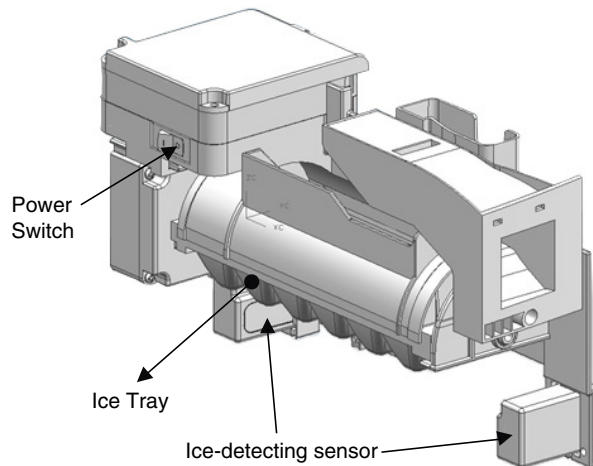


• Supply water to the ice tray by operating the solenoid valve.



• To force water to supply to the ice tray, or check icemaker's condition press and hold the **FILL Key** for about 3seconds.
 In the test mode, The icemaker will run through 3 stages step by step
 : **Harvest** → **Fill water** → **Ice making**

To reset the icemaker's operation, set the power switch OFF position and back it to ON position.



Icemaker Unit

13-2 ICE MAKER FUNCTIONS

13-2-1 Icemaking Mode

1. Icemaking Mode begins right after the ice tray fills with water.
 2. Icemaker waits until water becomes ice in the ice tray.
- ※ Ice-detecting sensor checks if the ice bin is full every 2min.

13-2-2 Harvest Mode

At least in 110min, since icemaker begun icemaking mode, Icemaker starts to twist the ice tray to drop ices into the Ice bin.
(After installation, at least 1day is needed to make ices)

- ※ If the icemaker never drop ices to the ice bin though water becomes ices in the ice tray, check the real temperature of compartment. (not temperature on display)
Icemaker needs below 0°F to drop ices to ice bin.

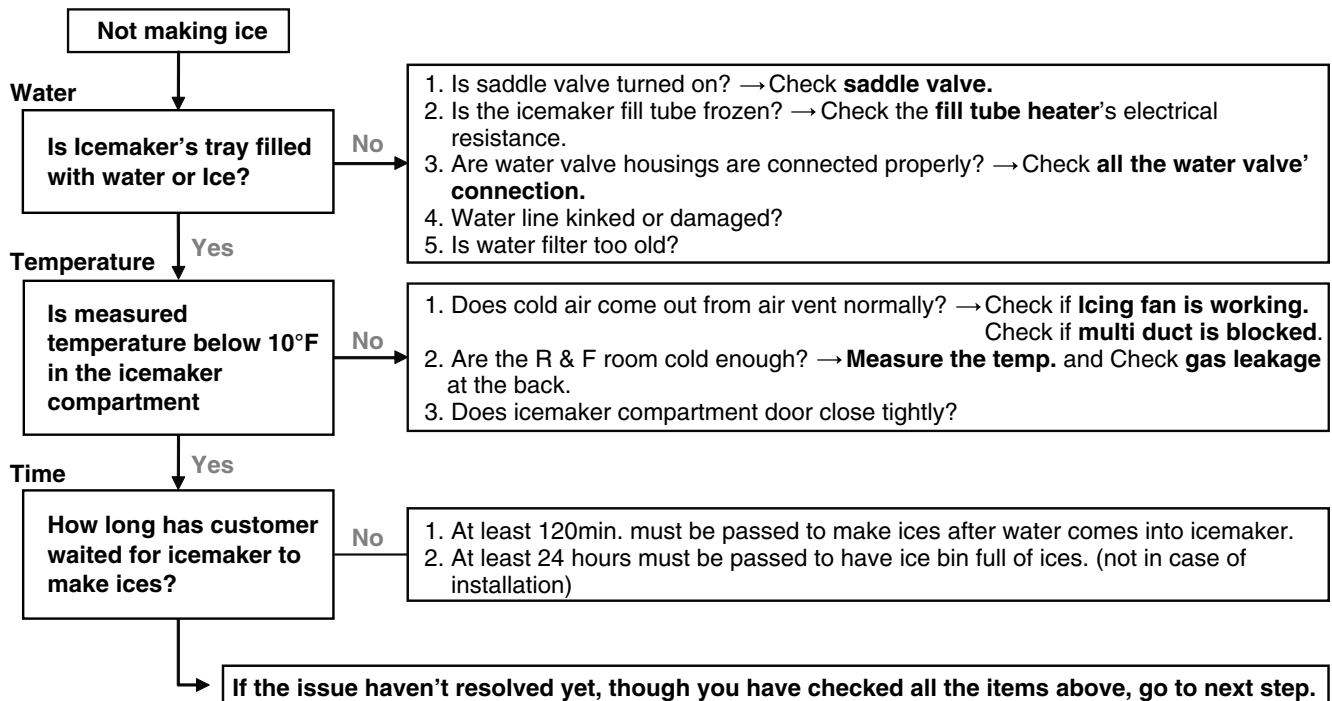
13-2-3 Fill/Park Position

Once the normal harvest mode has been completed, the water solenoid will be activated.

13-3 Trouble Shooting Ice & Water system Issues

13-3-1 Icemaker not making ice or not making enough ice (Environmental Diagnosis)

- Icemaker can't make ices itself. Basically, water, temperature and time are needed.
- Water : If no Water, then no Ice.
 - Temperature : The compartment, where the icemaker is located, has to be at least 1°F so that icemaker dumps ices to the bin.
 - Time : At least 80 minutes must be passed to make one series of ices after water comes into icemaker.
- ※ **Test Mode should not be carried out before checking below.**

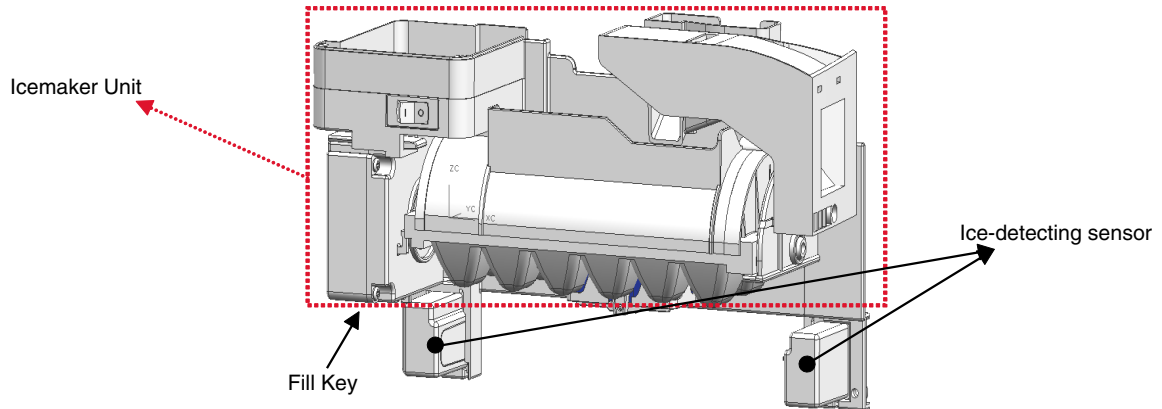


13-3-2 Icemaker not making ice or not making enough ice (Icemaker Unit & Ice-detecting sensor Diagnosis)

► Icemaker Unit and Ice-detecting sensor Diagnosis

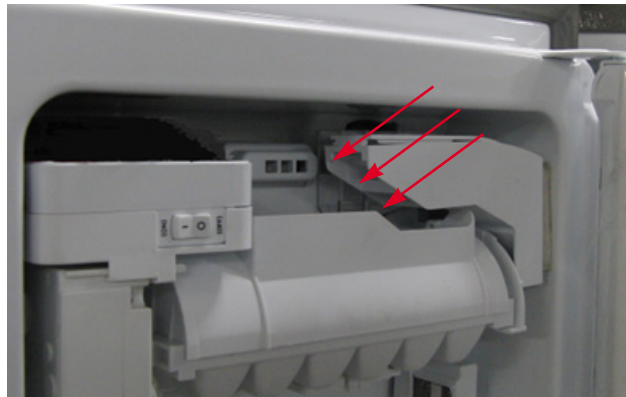
The icemaker unit and Ice-detecting sensor is programmed to be diagnosed.

Follow the procedure step by step to check to see if icemaker and Ice-detecting sensor is working normally.



1st STEP (Icemaker Unit Diagnosis)

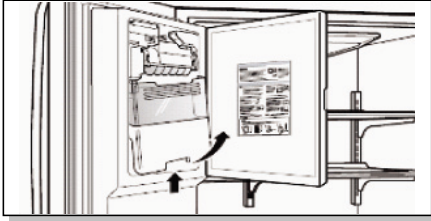
Press the fill key for about 3sec. If the icemaker runs 2 stages of harvest and filling water step by step, It means icemaker's mechanism is normal.



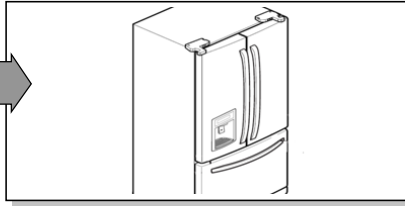
※ Caution : Be sure that the ice tray is not filled with water before pressing fill key.

2st STEP (Ice-detecting sensor Diagnosis)

1. Remove Ice bin from compartment



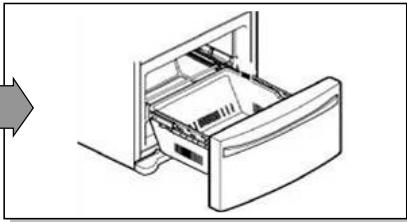
2. Close the left door (Door switch pushed)



3. Wait for 3min.



4. Stay opening freezer door



5. Hold pushing Refrigerator button & Lock button at the same time



If **"ETY"** is shown on the display after the procedure above, Ice-detecting sensor is **normal**.
If **"FULL"** is shown on the display after the procedure above, Ice-detecting sensor is **abnormal**.
※ ETY = empty

13-3-3 Icemaker not making ice or not making enough ice (Other Suspected Items)

Strongly suspect items below If the issue remains yet, though all the diagnosis for icemaker has been carried out.

- Cap duct bad sealing
- Defective thermal sensor in the icemaker compartment
- Not cold icemaker compartment area (sealed system)

13-3-4 Not Dispensing Ice

► Clogged Ice In the Ice Bin (suspected items)

- Customer haven't used ice dispenser over a week.
→ **Resolution** : the ices gets stuck if customer doesn't use ice dispenser.
In this case, empty the ice bin and wait until the new ices are stacked in the ice bin.
- Temperature of icemaker compartment is not cold enough.
→ **Resolution** : Check ice fan, sealed system, cap duct, vent and other items related to temperature.
- Cap duct doesn't seal the air properly.
→ **Resolution** : Possibly, warm air could get into the compartment and make ices get stuck. Replace the cap duct with new one.
- In-door geared motor doesn't work
→ **Resolution** : Change the in-door geared motor and test it.
- The water comes out of fill cup and the water get into the ice bin.
→ **Resolution** : The water pressure from shutoff valve is too high.
Recommend to use regulator to the customer and close the shutoff valve slightly.

► Clogged Ices In the Chute (suspected items)

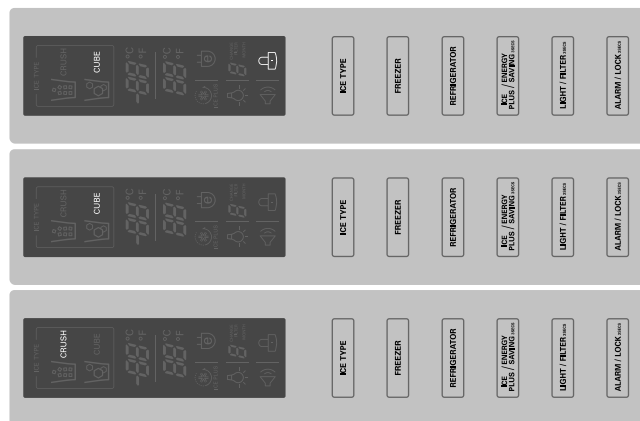
- Cap duct doesn't seal the air properly.
→ **Resolution** : Possibly, warm air could get into the compartment and make ices get stuck. Replace the cap duct with new one.

14. DESCRIPTION OF FUNCTION & CIRCUIT OF MICOM

14-1 FUNCTION

14-1-1 Function

- When the appliance is plugged in, it is set to 37°F for Refrigerator and 0°F for freezer.
You can adjust the Refrigerator and the Freezer control temperature by pressing the ADJUST button.
- When the power is initially applied or restored after a power failure, it is set to Control temperature Previously.
- If you do not press any button after turning on the power, only CRUSH or CUBE Label that has been selected will be turned on and all other LEDs on the display Panel will be turned off within 60 seconds. (Power Save Mode)
- If you press a button, only CRUSH, CUBE label and Lock icon that has been selected will be turned on and all other LEDs on the display Panel will be turned off within 20 seconds. (Power Save Mode)



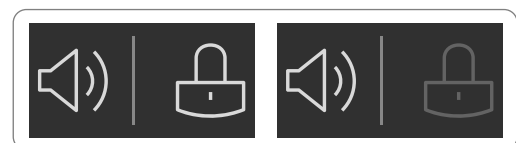
- If you do not want to use the Power Save Mode, you can change the Mode by pressing the ICE PLUS Button and Freezer TEMP button simultaneously for more than 5 seconds.

14-1-2 How to Toggle the Display between °F & °C

- The initial setting is °F and the display temperature mode can be changed from °F to °C or °C to °F by pressing and holding the FRZ TEMP and the REF TEMP keys at the same time for over 5 seconds.

14-1-3 Lock function (dispenser and display button lock)

- When the refrigerator is first turned on, the buttons are not locked. "LOCK" is deactivated with no light on.
- To lock the display, the dispenser, and the control panel, press and hold the LOCK button for 3 seconds. "LOCK" is activated with "Lock Icon" on.
- The LOCK button is the only control feature that remains active in the locked state. The buzzer sound, other control buttons, and the dispenser are deactivated.
- To release from the locked state, press and hold the LOCK button again for 3 seconds.
- If you don't hold the Alarm/Lock button more than 3 seconds, Alarm function will be changed and alarm for opened door will be on/off same as alarm icon indicating.



Ex) In selecting "LOCK"

Ex) In selecting "LOCK" again

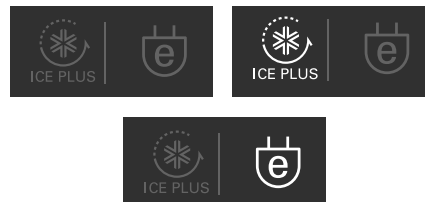
14-1-4 Filter condition display function

- There is a replacement indicator light for the filter cartridge on the dispenser.
- Water filter needs replacement once six months or of using water filter.
- When the Water Filter Icon blinks, you must exchange the filter.
- After replacing the filter, press and hold the Light/Filter button for more than 3 seconds.
After then water Filter icon turn off with reset status.

| Classification | In initial Power On / Filter RESET | Blinking |
|-----------------------|------------------------------------|----------|
| Filter Status Display | | |

14-1-5 Ice Plus selection

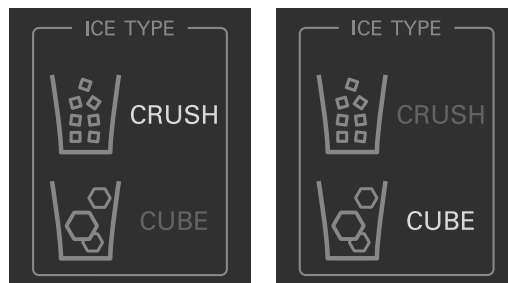
1. Please select ice plus function for quick freezing.
2. When you press the ice plus button, the ice plus icon will be turned on again.
3. Ice plus function automatically turns off after a fixed time passes.
4. If you want additional power save, you can turn on energy saving (some heater off for anti-dew).
5. To turn on or off the energy saving function, press Ice plus/Energy saving Button for more than 3 seconds.
6. We recommend using energy saving function when you go out for quite a long time and are out of the rainy season.



14-1-6 Dispenser use selection

You can select water or ice by separated pad switch.

- When you press ice type button, ice type will be changed. (Crush or Cube)
- Hold your cup in the dispenser for a few seconds after dispensing ice or water to allow the last pieces of ice drops or water to fall into the cup.
- When after initially establishing the water comes out, the water tank inside fills and until at the time of quality the hour is caught.



14-1-7 CONTROL OF FREEZER FAN MOTOR

1. Freezer fan motor has high and standard speeds.
2. High speed is used at power-up, for Ultra Ice, and when refrigerator is overloaded. Standard speeds is used for general purposes.
3. To improve cooling speed, the RPM of the freezer fan motor change from normal speed to high.
4. High speed (2700RPM) : Initial power on or load corresponding operation, Ultra Ice.
Normal speed (2400RPM) : General working conditions.

14-1-8 Cooling Fan Motor

1. The cooling fan is switched ON and OFF in conjunction with the compressor.
2. The cooling fan Motor has high and standard speeds. (When room temperature more high than 38°C speed is high)
3. The Failure sensing method is the same as in the fan motor of the freezing fan motor (refer to failure diagnosis function table for failure display).

14-1-9 Ice Compartment Fan

1. The Icing Fan is controlled by the the sensor on the top of the ice compartment.
2. The Failure sensing method is the same as in the fan motor of the freezer (refer to failure diagnosis function table for failure display)

14-1-10 Refrigeration room Fan Motor

1. The refrigeration room fan is switched ON and OFF in conjunction with the refrigeration room temperature.
2. The Failure sensing method is the same as in the fan motor of the freezing fan motor (refer to failure diagnosis function table for failure display).

14-1-11 Ice PLUS

1. The purpose of this function is to intensify the cooling speed of freezer and to increase the amount of ice.
2. Whenever selection switch is pressed, selection/release, the Icon will turn ON or OFF.
3. If there is a power outage and the refrigerator is powered on again, Ice PLUS will be canceled.
4. To activate this function, press the Ice PLUS key and the Icon will turn ON. This function will remain activated for 24 hrs. The first one hours the compressor, Freezer Fan and Icing Fan will be ON. The next 23 hours the Ice room will be controlled at the lowest temperature. After 24 hours or if the Ice PLUS key is pressed again, the Ice room will return to its previous temperature.
5. During the first 1 hours :
 - (1) Compressor, Freezer Fan and Icing Fan run continuously.
 - (2) If a defrost cycle begins during the first 30 minutes of Ice Plus, the Ice PLUS cycle will complete its cycle after defrosting has ended.
If the defrost cycle begins when Ice Plus has run for more than 30 minutes, Ice PLUS will run for 40 minutes after the defrost is completed.
 - (3) If Ice PLUS is pressed during defrost, Ice Plus Icon is on but this function will start seven minutes after defrost is completed and it shall operate for three hours.
 - (4) If Ice Plus is selected within seven minutes after compressor has stopped, the compressor (compressor delays seven minutes) shall start after the balance of the delay time.
6. For the rest of the 23 hours, the Ice room will be controlled at the lowest temperature.

14-1-12 How to set the display mode and cancel it

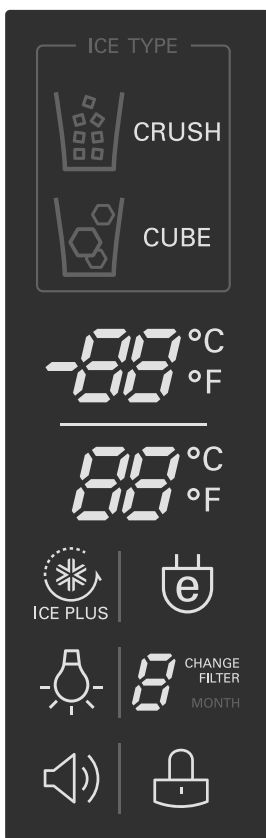
1. With the refrigerator door open, keep pressing the Refrigerator Temp Button and ICE PLUS Button more than 5 seconds, then it goes to the display mode with Special Beep Sound With Special Beep Sound.
2. Perform the same way again to cancel the display mode.
3. All Freezing unit will be turned off at display mode (Exceptions : Lamp, Display)

14-1-13 Defrosting (removing frost)

1. Defrosting starts each time the COMPRESSOR running time Between 7~50 hours.
2. For initial power on or for restoring power, defrosting starts when the compressor running time reaches 4 hours.
3. Defrosting stops if the sensor temperature reaches 46.4°F(8°C) or more. If the sensor doesn't reach 46.4°F(8°C) in 1 hours, the defrost mode is malfunctioning. (Refer to the defect diagnosis function, 8-1-15.)
4. Defrosting won't function if its sensor is defective (wires are cut or short circuited)

14-1-14 Defect Diagnosis Function

1. Automatic diagnosis makes servicing the refrigerator easy.
2. When a defect occurs, the buttons will not operate; but the tones. such as ding. will sound.
3. When the defect CODE removes the sign, it returns to normal operation (RESET).
4. The defect CODE shows on the Refrigerator and Freezer Display.



- * Display check function: If simultaneously pressing Ultra Ice button and freezing temperature adjustment button for a second, display LCD graphics on. If releasing the button, the LCD graphic displays the previous status.
You can check the error code Within 3-hour Period from initial error

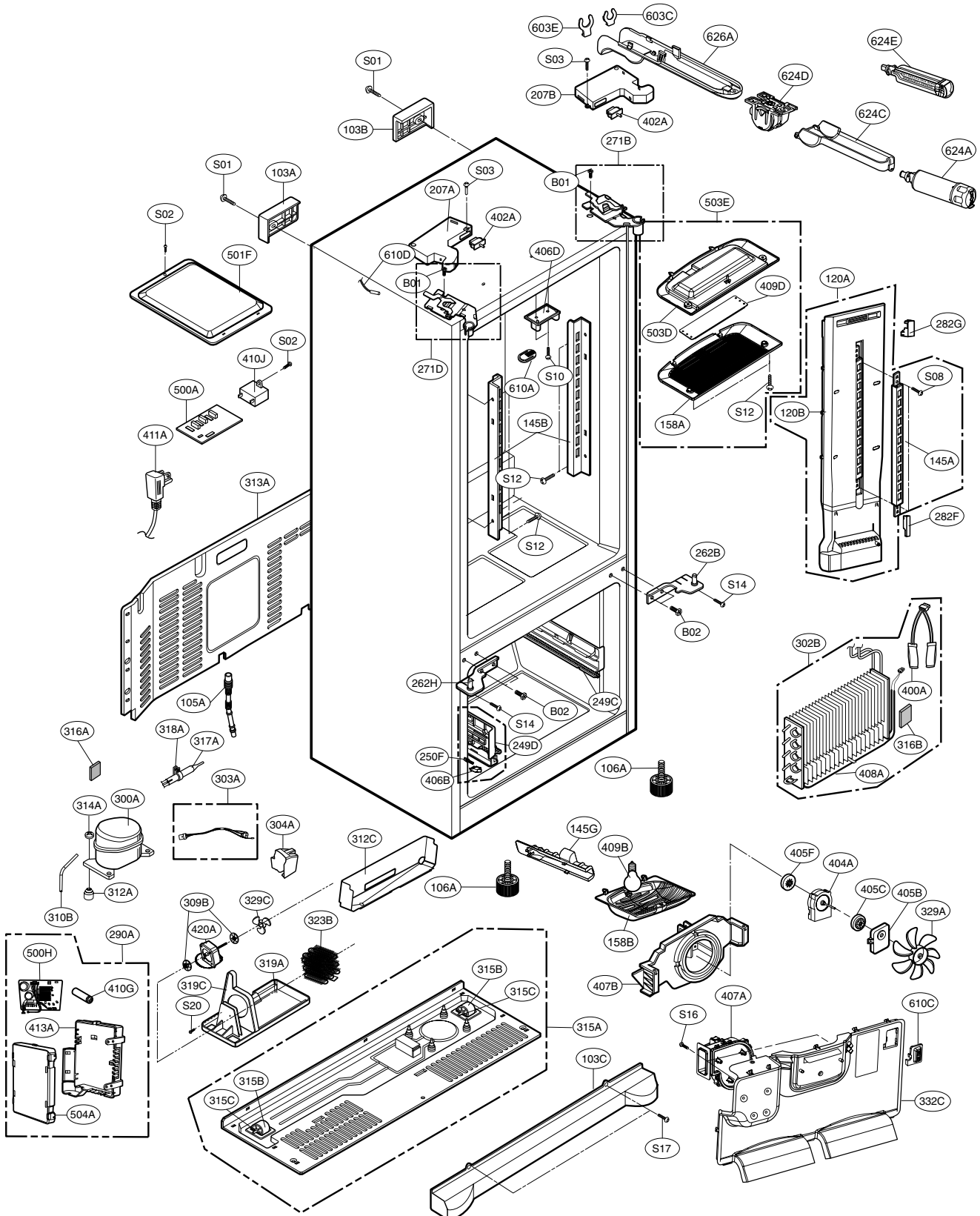
14-1-15 Auto pantry

1. The temperature control will automatically start upon the selected Auto Pantry temperature control.
2. You can adjust the Pantry control with three different temperature ranges by pressing the Temp.Selector button.

9. EXPLODED VIEW & REPLACEMENT PARTS LIST

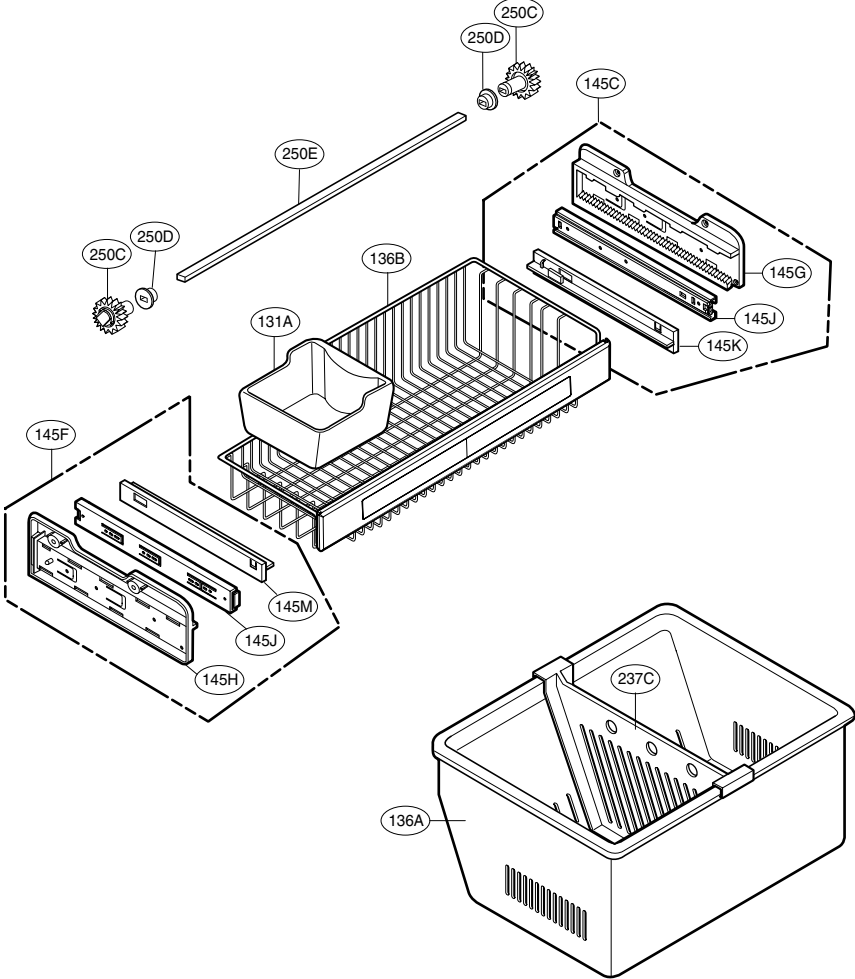
CASE PARTS

CAUTION : Use the part number to order part, not the position number.



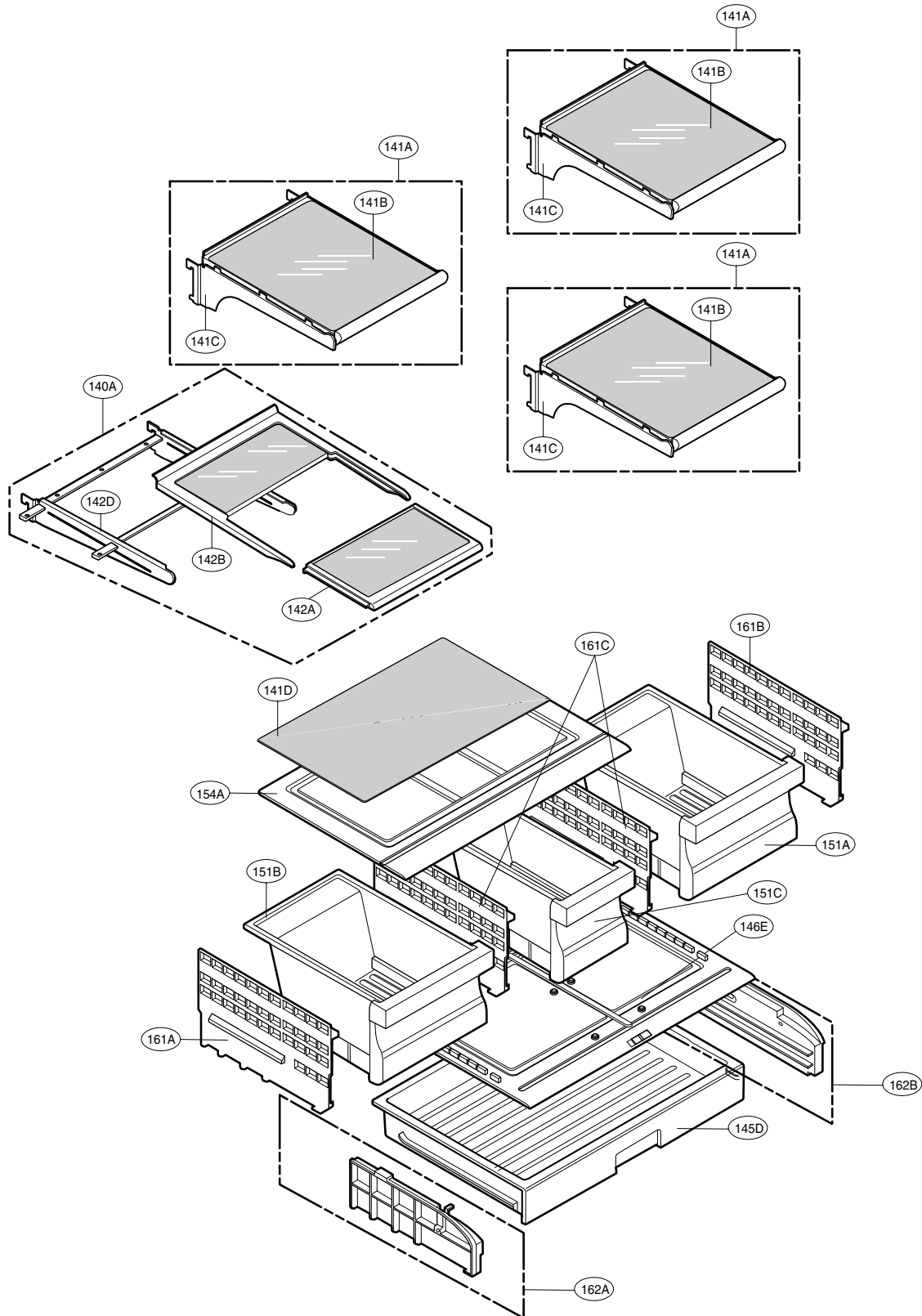
FREEZER PARTS

CAUTION : Use the part number to order part, not the position number.



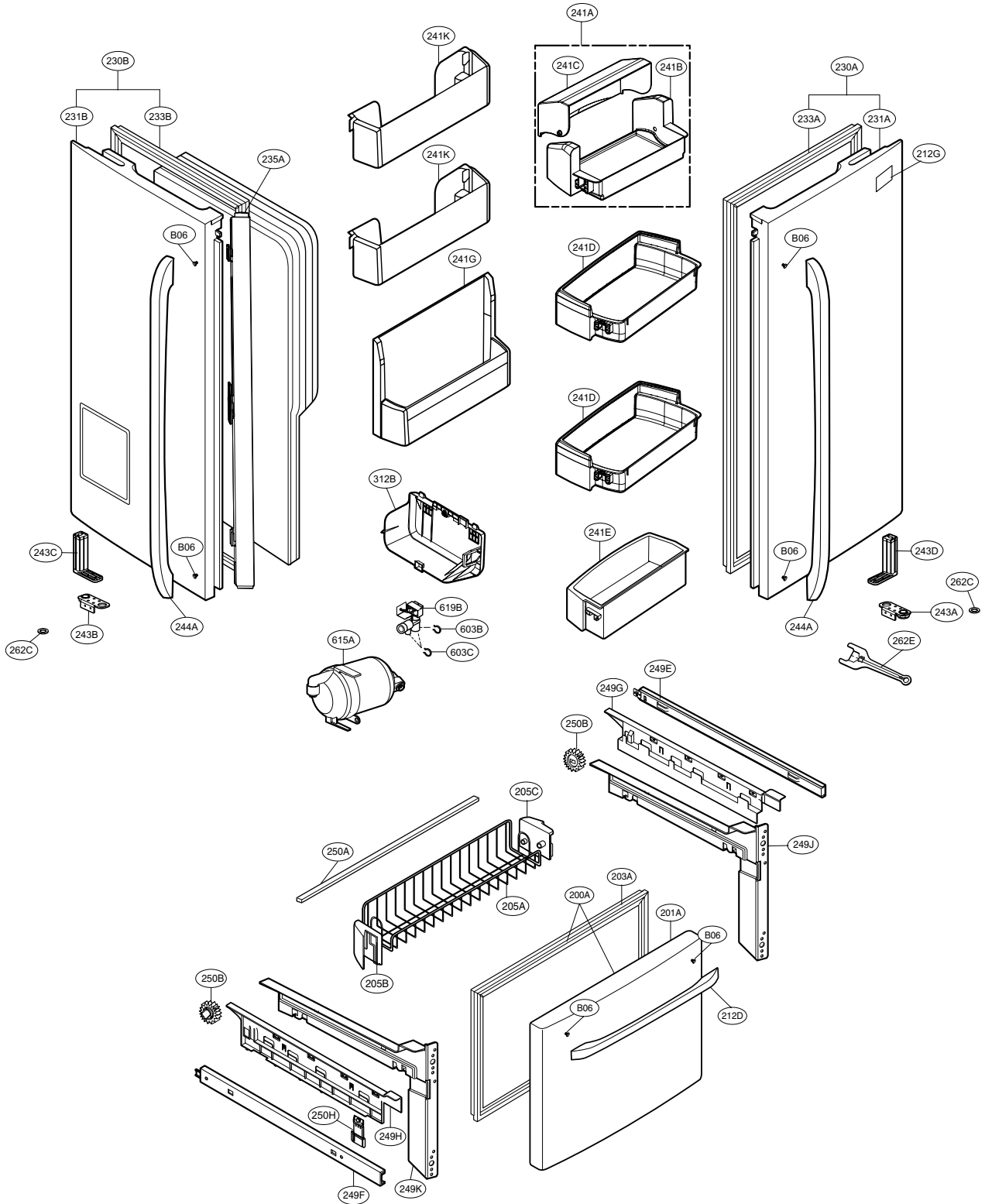
REFRIGERATOR PARTS

CAUTION : Use the part number to order part, not the position number.



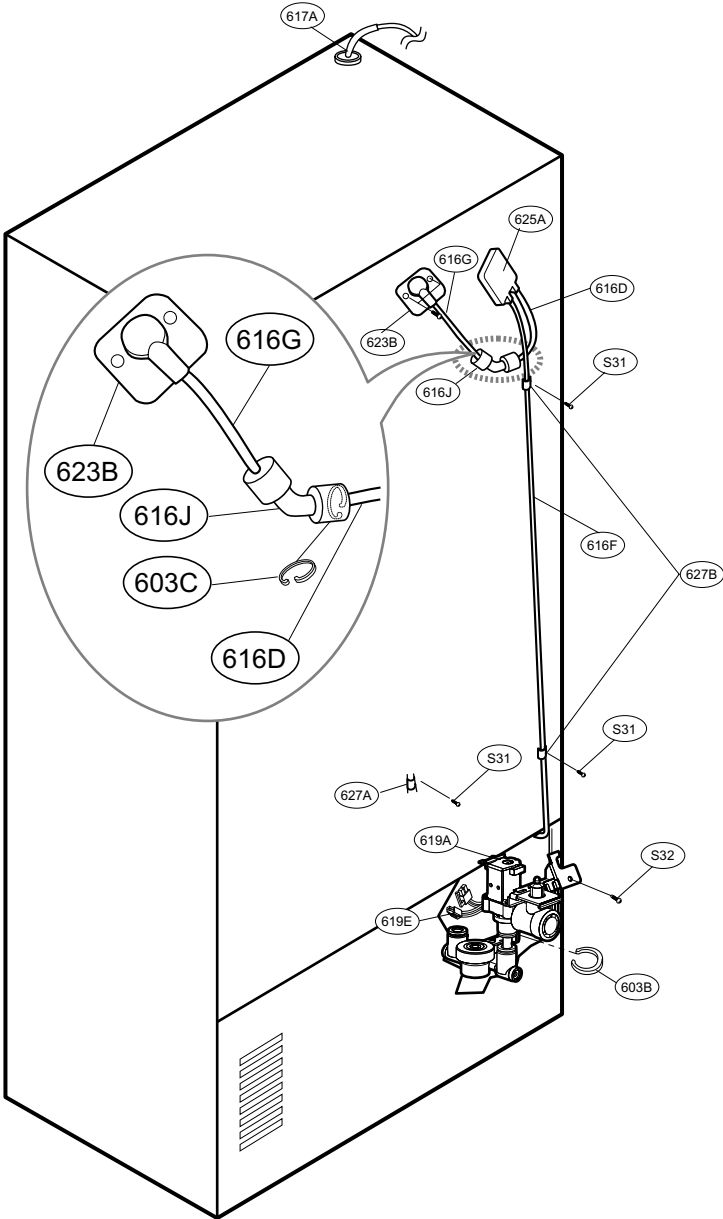
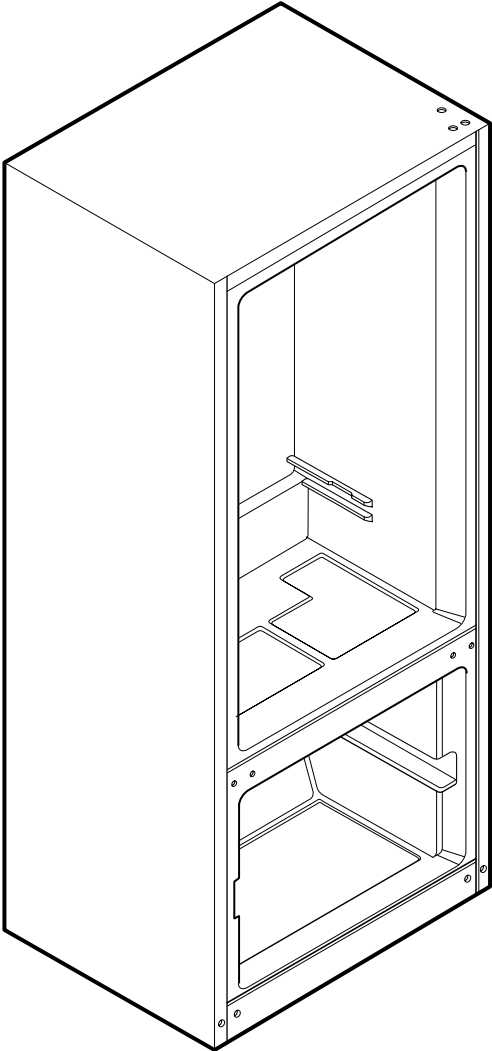
DOOR PARTS

CAUTION : Use the part number to order part, not the position number.



VALVE & WATER TUBE PARTS

CAUTION : Use the part number to order part, not the position number.



ICE BANK PARTS

CAUTION : Use the part number to order part, not the position number.

