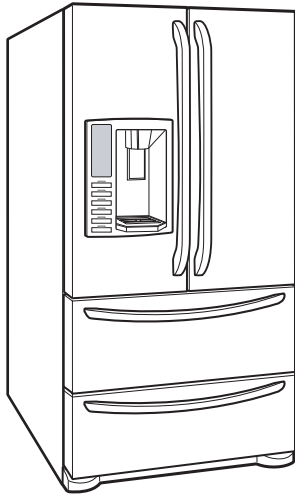




# REFRIGERATOR

# SERVICE MANUAL

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



**MODEL : GR-L28AK\*\***

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## SAFETY PRECAUTIONS

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Please read the following instructions before servicing your refrigerator.

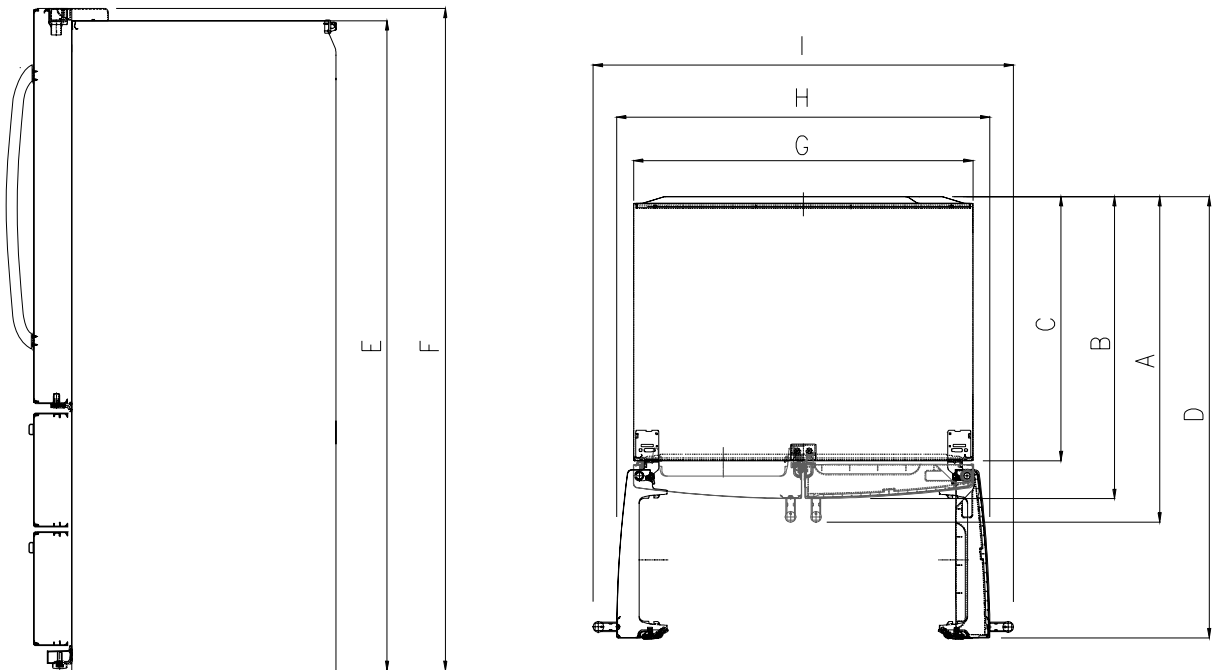
1. Unplug the power before handling any elctrical componets.
2. Check the rated current, voltage, and capacity.
3. Take caution not to get water near any electrical components.
4. Use exact replacement parts.
5. Remove any objects from the top prior to tilting the product.

# 1. SPECIFICATIONS

28 cu. ft. / 025 cu. ft

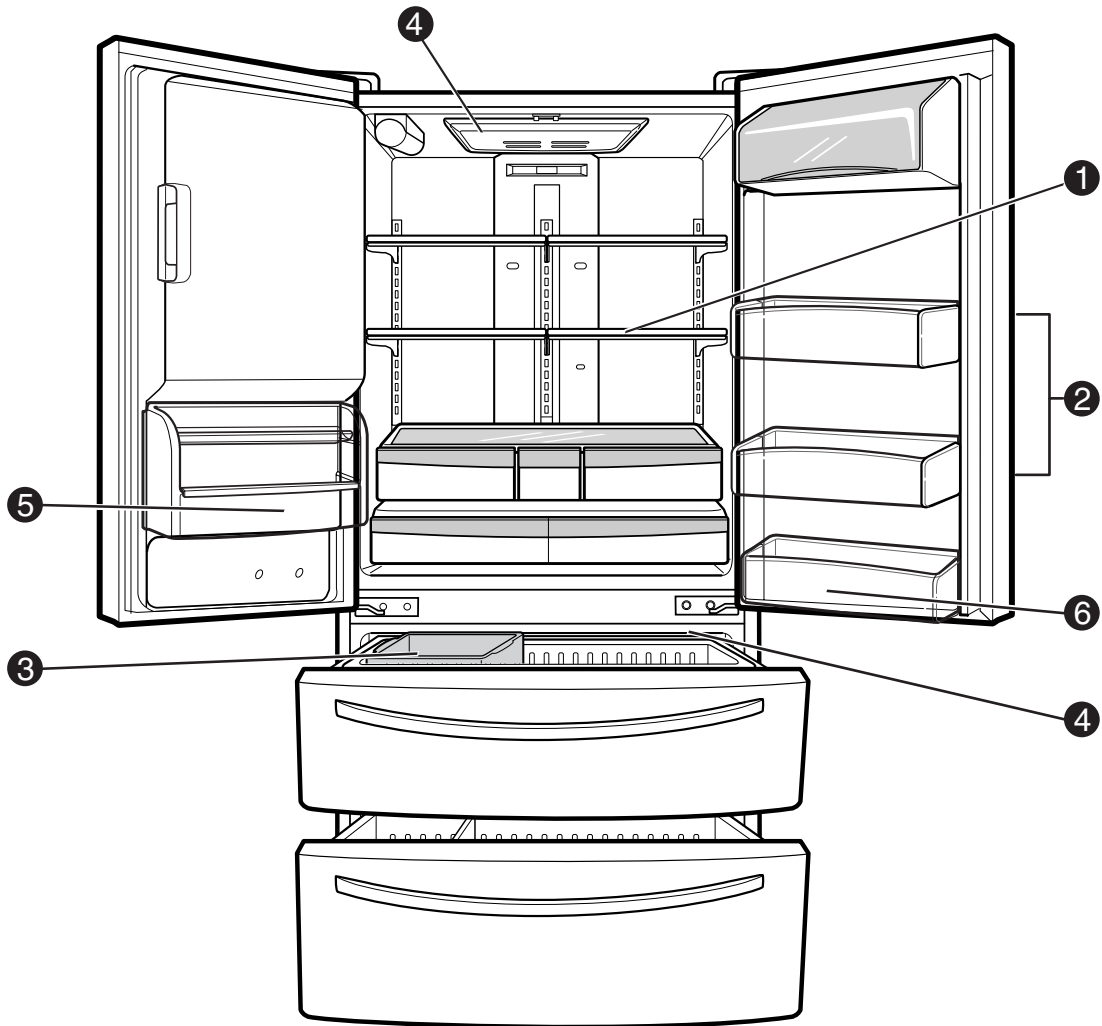
ITEMS	SPECIFICATIONS	ITEMS	SPECIFICATIONS	
DOOR DESIGN	Side Rounded	VEGETABLE TRAY	Clear Drawer Type	
DIMENSIONS (inches)	35 3/4 X 35 3/8 X 69 3/4 (WXDXH) 28cu.ft	COMPRESSOR	Recipro	
NET WEIGHT (pounds)	359lb. (163kg)	EVAPORATOR	Fin Tube Type	
COOLING SYSTEM	Fan Cooling	CONDENSER	Wire Condenser	
TEMPERATURE CONTROL	Micom Control	REFRIGERANT	R-134a (150 g)	
DEFROSTING SYSTEM	Full Automatic	LUBRICATING OIL	ISO10 (280 ml)	
	Heater Defrost	DEFROSTING DEVICE	SHEATH HEATER	
DOOR FINISH	Embossed Metal, VCM, Stainless	LAMP	REFRIGERATOR	LED Module(24)
HANDLE TYPE	Bar		FREEZER	LED Module(12)
INNER CASE	ABS Resin			
INSULATION	Polyurethane Foam			

## DIMENSIONS



Description		LMX28987**
Depth w/ Handles	A	35 3/8 in.
Depth w/o Handles	B	32 7/8 in.
Depth w/o Door	C	29 in.
Depth (Total with Door Open)	D	47 5/8 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

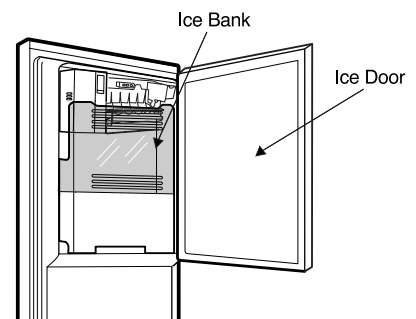
The ice storage bin can be removed to fill ice buckets, coolers, or pitchers.

### 4 LED INTERIOR LAMPS

Two separate LED arrays light the freezer and refrigerator interiors.

### 5 SHORT N'TALL BIN

### 6 FIXED DOOR BIN



# 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 (4).-FIG. 1
2. Open door. Loosen top hinge cover screw (1).
- Use flat tip screwdriver to pry back hooks on front underside of cover (3). Lift up cover.
3. Disconnect door switch wire harness (2). Remove cover.
4. Pull out the tube.
5. Disconnect the three wire harnesses (5). Remove the grounding screw (6).
6. Rotate hinge lever (7) counterclockwise and remove. Lift top hinge (8) free of hinge lever latch (9).

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

7. 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 (3).
2. Disconnect door switch wire harness (2). Remove cover.
3. Disconnect wire harness (5).
4. Rotate hinge lever (6) clockwise and remove. 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.

5. Lift door up from middle hinge pin (9) and remove door.
6. Place door, inside facing up, down onto a non-scratching surface.

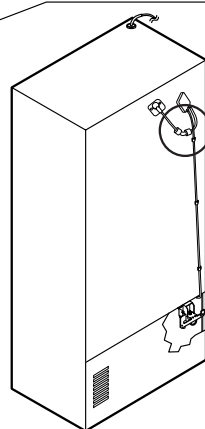
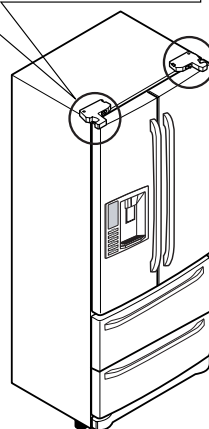
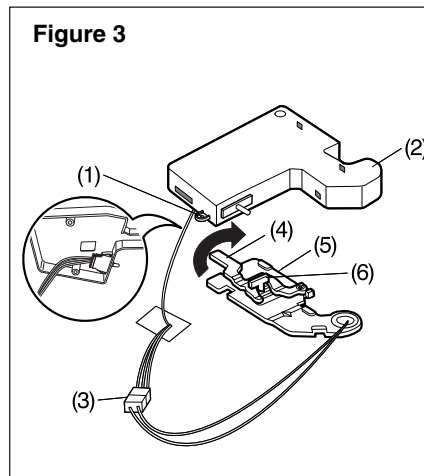
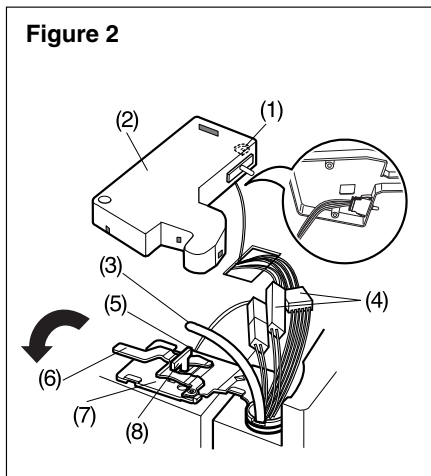
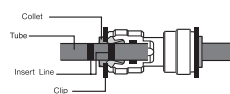
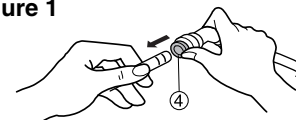


Figure 1



- 1) Insert the tube until you can see only one of the lines printed on the tube.
- 2) After inserting, pull the tube to ascertain that it is secure.
- 3) Assemble clip.



## 3-2 DOOR

### ● Door Gasket Removal

#### 1. Remove door frame cover

Starting at top of cover and working down, snap cover out and away from door.

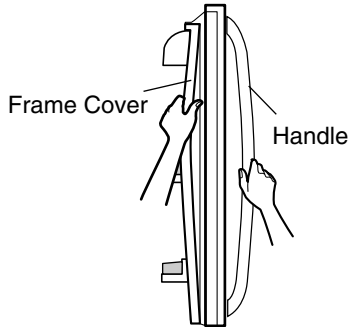


Figure 1

#### 2. Remove gasket bracket clips

There are two clips on each door. Start bracket removal near one of the middle clips.

- 1) Pull gasket back to expose gasket bracket clip and door frame.
- 2) Insert a flat tip screwdriver into seam between gasket bracket and door frame and pry back until clips snap out.
- 3) Continue prying back along seam until all clips snap out.

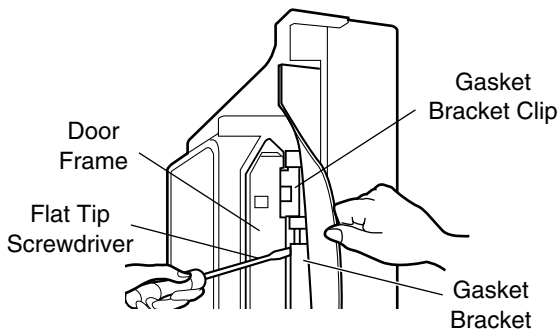


Figure 2

#### 3. Remove gasket

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

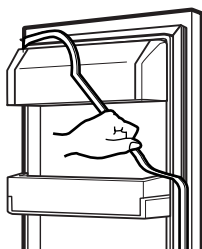


Figure 3

### ● Door Gasket Replacement

#### 1. Insert gasket bracket clips

- 1) Insert gasket bracket edge beneath door frame edge.
- 2) Turn upper gasket bracket spring so that the spring ends are in the door channel.
- 3) Push in clip until you hear it snap securely into place.

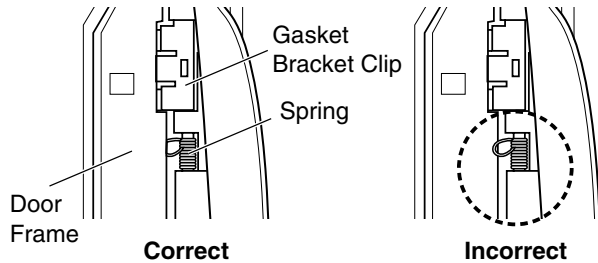


Figure 4

- 4) Push in remaining clip until you hear it snap securely into place.

**Note:** Make sure that no part of gasket bracket edge protrudes from beneath door frame edge.

#### 2. Insert gasket into channel

- 1) Snap gasket assembly into the door bracket.  
<Inserting the Gasket Assembly into the Bracket Door>

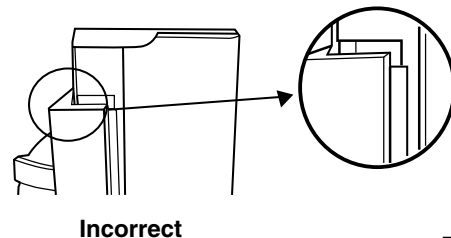
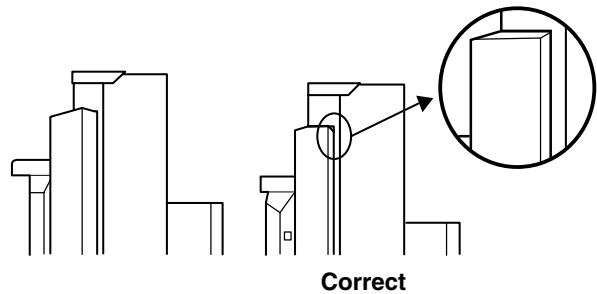


Figure 5

- 2) Press gasket into channels on the three remaining sides of door.

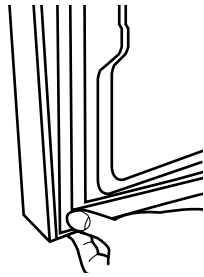


Figure 6

**3. Replace door frame cover**

Starting at top of cover and working down, snap cover back into door.

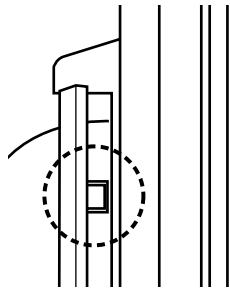


Figure 7

**3-3 DOOR ALIGNMENT**

If the space between your doors is uneven, follow the instructions below to align the doors:  
Remove the Base Grillie. 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.)

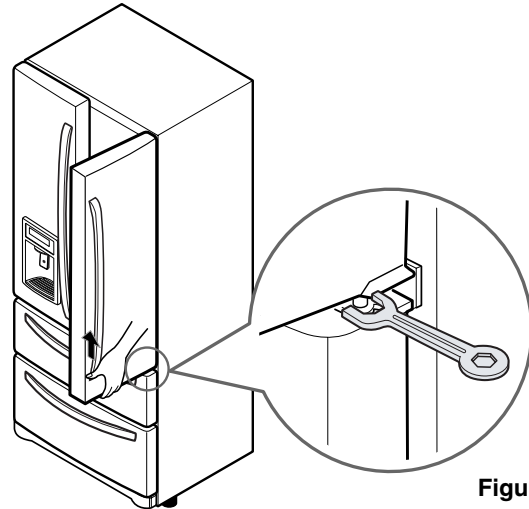


Figure 8

**3-4 FAN AND FAN MOTOR(EVAPORATOR)**

1. Remove the freezer drawer. (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 four screws and pulling the grille forward.
4. Remove the Fan Motor assembly by loosening 3 screws and disassembling the shroud.

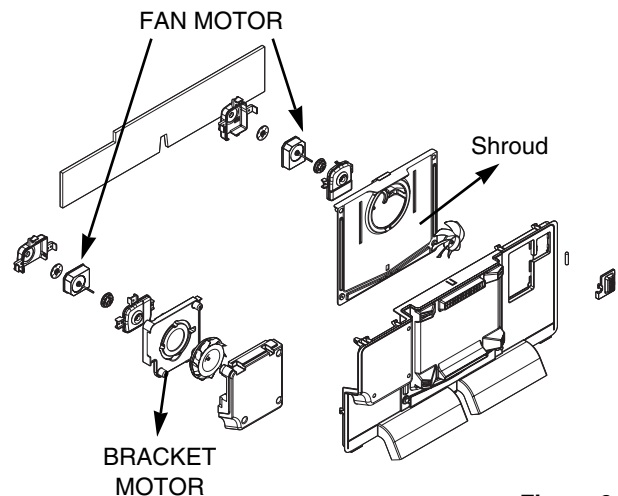


Figure 9

5. Pull out the fan and separate the Fan Motor and Bracket.

\* Ice Fan Scroll Assembly Replacement

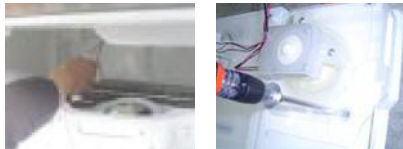
- 1) Remove the plastic guide for slides on left side by unscrewing phillips head screws.
- 2) Pull out the cover sensor to disassemble using tools shown in the figure.
- 3) Pull out the cover grille to disassemble using tools shown in the figure.
- 4) Put your hand into the inside of grille to disassemble shown in the figure.
- 5) Disconnect wire harness of the grille
- 6) Remove the scroll assembly by loosening all screws



(1) (2)



(3) (4)



(5) (6)

**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 72°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)

GRILLE ASSEMBLY

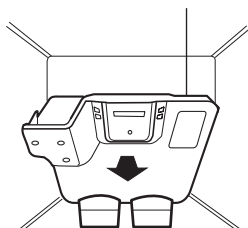


Figure 10

DEFROST-CONTROL ASSEMBLY

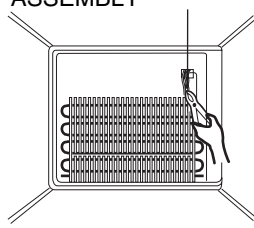


Figure 11

**3-6 LAMP**

Unplug Refrigerator, or disconnect power at the circuit breaker.

If necessary, remove top shelf or shelves.

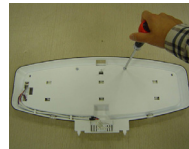
**3-6-1 Refrigerator Compartment Lamp**

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



Figure 12

- 3) To remove the case lamp and cover lamp, release another 2 screws as following picture.

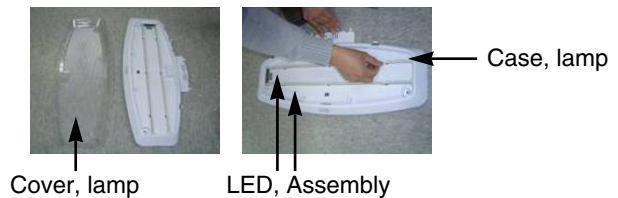


- 4) Use a flat tool as shown below to remove the cover lamp.



Figure 13

- 5) To remove the LED Assembly, open the Hook part to pull it out as shown in the following picture.



Cover, lamp LED, Assembly

Figure 14

**3-6-2 Freezer Compartment Lamp**

1. Unplug refrigerator power cord form outlet.
2. Remove screw with driver.
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.

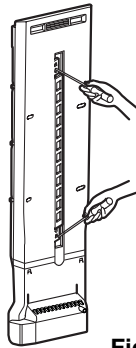


Figure 16



- 3) If nozzle is interfered with button, push and pull out the bottom of button.
- 4) Remove the connected part of Lead wire.

▲ **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,

### 3-8 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.



### 3-9 DISPENSER



- 1) Pull out the darin

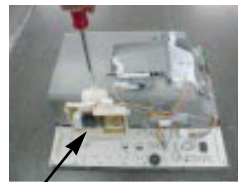


- 2) Hold the inner side of cover dispenser with both hands at the handle side to pull it out forward.

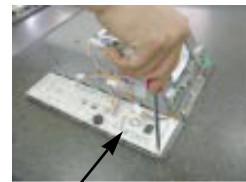


### 3-10 DISPLAY PCB

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



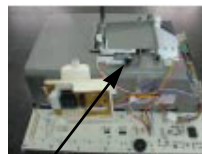
Case, PCB



Display PCB

### 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.

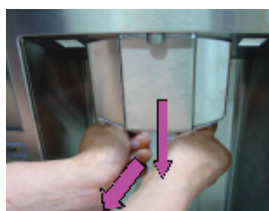


Button Lever



### 3-12 FUNNEL REPLACEMENT

Pull down and forward.



---

### 3-13 WATER BUTTON ASSEMBLY

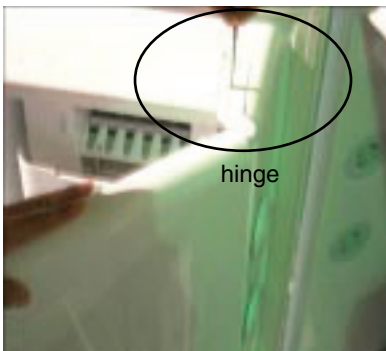
- 1) Remove screws.
- 2) Grasp the Button assembly and lift up.

Button Lever



### 3-14 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.



### 3-15 ICEMAKER ASSEMBLY

- 1) Loosen two screws as shown in the first picture.



- 2) Disconnect the wire harness & ground screw replace the icemaker assembly in the reverse order of removal.



- 3) It separates a ground connection screw.



### 3-16 CAP DUCT MOTOR REPLACEMENT

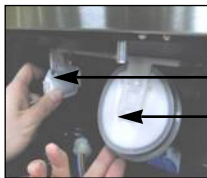
1) Separate the Housing of the Cap Duct Motor.



2) Unscrew 3 screws to disassemble the motor.



3) When replacing to a new Motor, always hold the Duct Door with your hand to install the Motor.



Cap Duct Motor  
Duct Door



4) Assemble on the screws.



5) Contract the Housing.



### 3-17 AUGER MOTOR COVER

1) After removing the icemaker remove the (5) stainless screws holding the auger motor cover, shown in the pictures below.



2) Grip the bottom of motor cover assembly and pull out it.



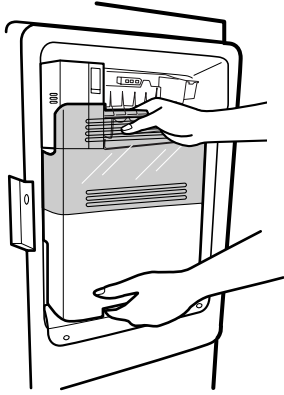
3) Disconnect wire harness of motor cover assembly. There is a auger motor on the back, as shown in the picture.



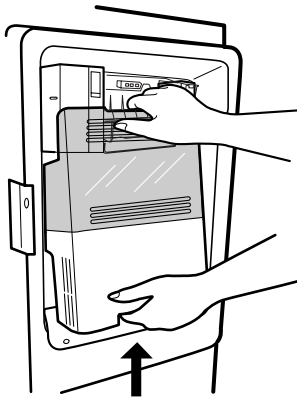
Auger Motor

### 3-18 HOW TO REMOVE A ICE BIN

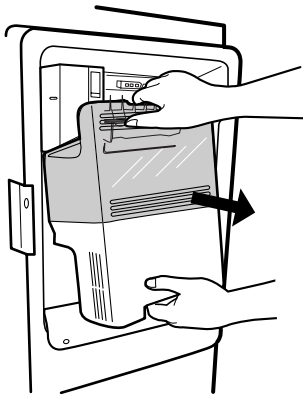
1) Grip the handles, as shown in the picture.



2) Lift the lower part slightly.

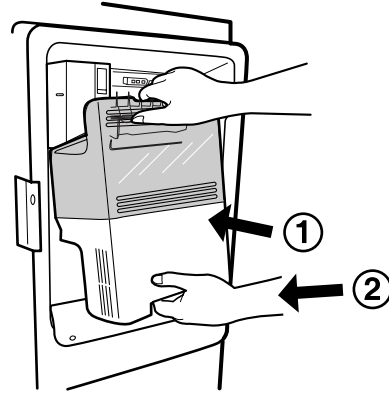


3) Take the Ice Bin out slowly.

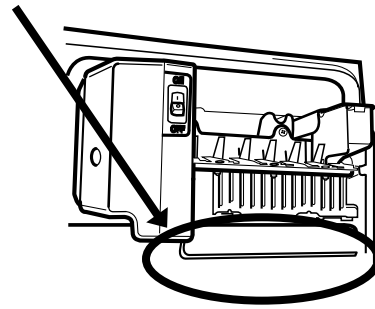


### 3-19 HOW TO INSERT A ICE BIN

1) Insert the Ice Bin, slightly tilting it to avoid touching the icemaker. (especially, icemaker lever)



※ Insert the ice bin carefully avoid contacting the automatic shut off arm.

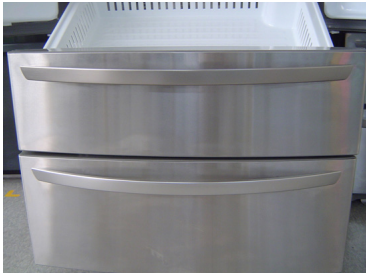


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### 3-20 HOW TO REMOVE AND REINSTALL THE PULLOUT DRAWER

#### 3-20-1 Follow Steps to Remove

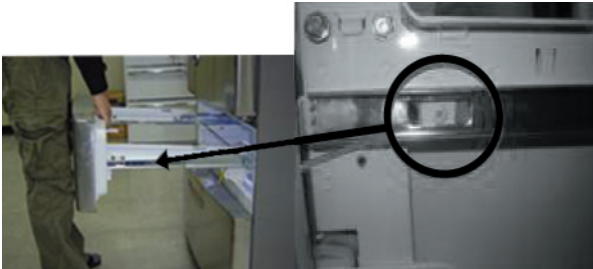
Step 1) Open the freezer door.



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.  
Pull the Tab from the Motor.**



---

### 3-20-2 Follow Steps to Reinstall

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



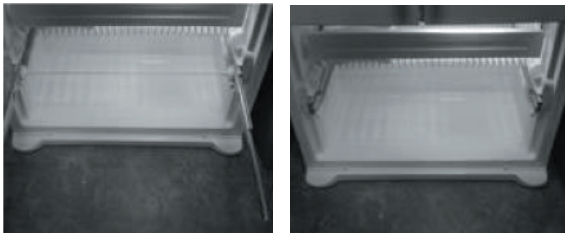
Step 2) Insert the rail into the right side gear. Gears do not need to be perpendicular to each other.



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).

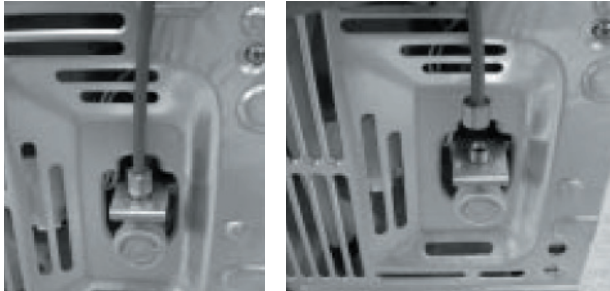


Step 7) Reinstall the lower basket, and close the freezer door.

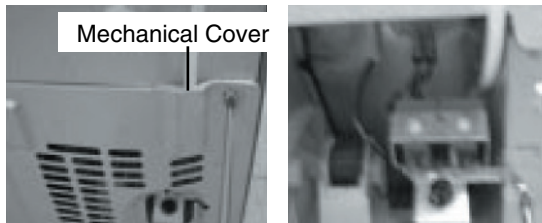


### 3-21 WATER VALVE DISASSEMBLY METHOD

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



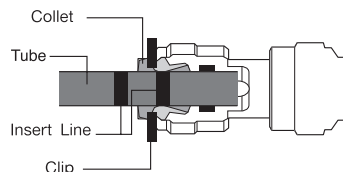
- 2) Separate the Mechanical Cover and Valve Screw.



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

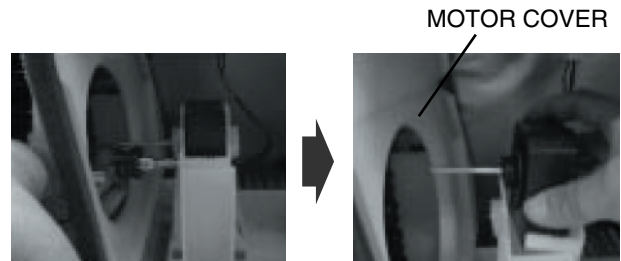


- 4) Lay a dry towel on the floor and get ready to spill water from the water filter. Pull out the Cilp. Then press te collet to separate the tube from the connector and pour out the water until emptied.

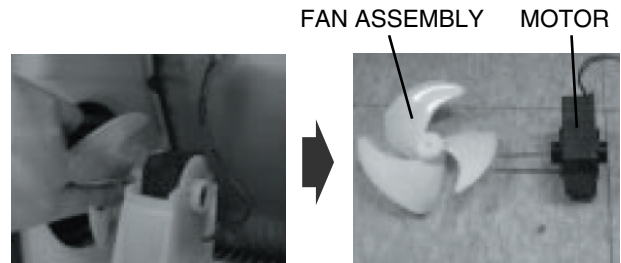


### 3-22 FAN AND FAN MOTOR DISASSEMBLY METHOD

- 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.



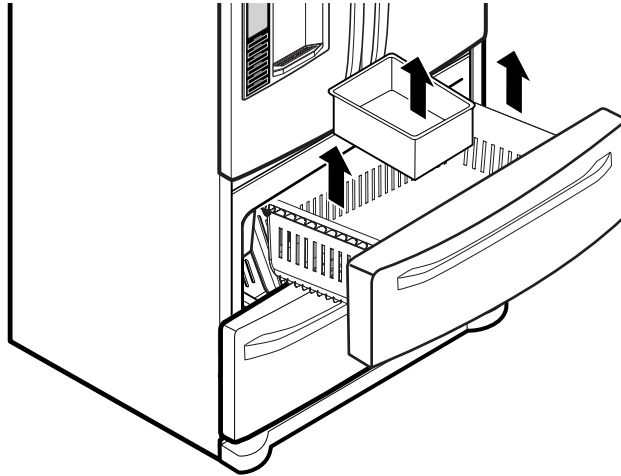
The assembly is in the reverse order of the disassembly and take special care for the following details.

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.)

---

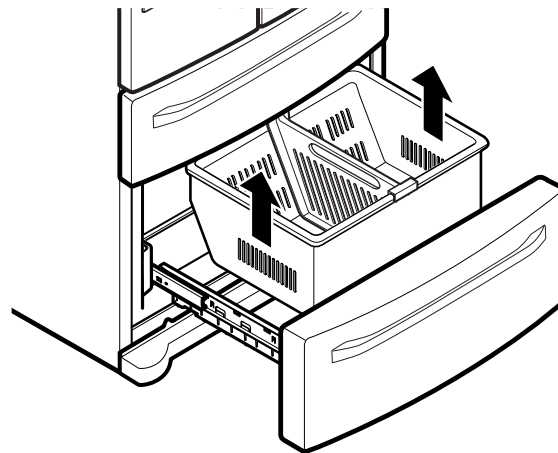
### 3-23 TOP DRAWER

To remove the freezer drawer, pull the drawer open to full extension. Remove the drawer and Ice Bin lifting the basket from the rail system.



### 3-24 BOTTOM DRAWER

To remove the freezer drawer, pull the drawer open to full extension. Remove the lower DuraBase® basket by lifting the basket from the rail system.





# 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 Composition

The compressor includes overload protection. The PTC starter and OLP (overload protector) are attached to the outside of the compressor. Since the compressor is manufactured to tolerances of 1 micron and is hermetically sealed in a dust and moisture-free environment, use extreme caution when performing repairs.

### 4-1-3 Note for usage

- (1) Be careful not to allow over-voltage and over-current.
- (2) If compressor is dropped or handled carelessly, poor operation and noise may result.
- (3) Use proper electric components appropriate to the Particular Compressor in your product.
- (4) Keep Compressor dry.  
If the Compressor gets wet (in the rain or a damp environment) and rust forms in the pin of the Hermetic Terminal, poor operation and contact may result.
- (5) When replacing the Compressor, be careful that dust, humidity, and soldering flux don't contaminate the inside of the compressor. Dust, humidity, and solder flux contaminate the cylinder and may cause noise, improper operation or even cause it to lock up.

## 4-2 PTC-STARTER

### 4-2-1 Composition of PTC-Starter

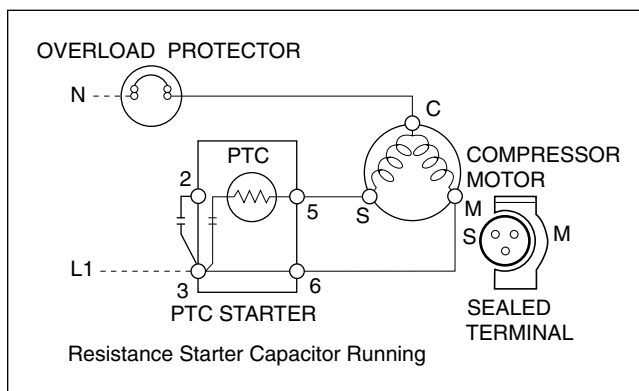
- (1) PTC (Positive Temperature Coefficient) is a no-contact semiconductor starting device which uses ceramic material consisting of BaTiO<sub>3</sub>.
- (2) The higher the temperature is, the higher the resistance value. These features are used as a starting device for the Motor.

### 4-2-2 Role of PTC-Starter

- (1) The PTC is attached to the Sealed Compressor and is used for starting the Compressor Motor.
- (2) The compressor is a single-phase induction motor. The starting operation, the PTC allows current flow to both the start winding and main winding.

### 4-2-3 PTC-Applied Circuit Diagram

- Starting Method for the Motor



### 4-2-4 Motor Restarting and PTC Cooling

- (1) It requires approximately 5 minutes for the pressure to equalize before the compressor can restart.
- (2) The PTC device generates heat during operation. Therefore, it must be allowed to cool before the compressor can restart.

### 4-2-5 Relation of PTC-Starter and OLP

- (1) If the compressor attempts to restart before the PTC device is cooled, the PTC device will allow current to flow only to the main winding.
- (2) The OLP will open because of the over current condition. This same process will continue (3 to 5 times) when the compressor attempts to restart until the PTC device has cooled. The correct OLP must be properly attached to prevent damage 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.

### 4-2-6 Note for Using the PTC-Starter

- (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 PTC, PTC materials may fail due to breakdown of their insulating capabilities.
- (4) If the exterior of the PTC is damaged, the resistance value may be altered. This can cause damage to the compressor and result in a no-start or hard-to-start condition.
- (5) Always use the PTC 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.

### 4-3 OLP (OVERLOAD PROTECTOR)

#### 4-3-1 Definition of OLP

- (1) OLP (OVERLOAD PROTECTOR) is attached to the Compressor and protects the Motor by opening the circuit to the Motor if the temperature rises and activating the bimetal spring in the OLP.
- (2) When high current flows to the Compressor motor, the Bimetal works by heating the heater inside the OLP, and the OLP protects the Motor by cutting off the current flowing to the Compressor Motor.

#### 4-3-2 Role of the OLP

- (1) The OLP is attached to the Sealed Compressor used for the Refrigerator. It prevents the Motor Coil from being started in the Compressor.
- (2) For normal operation of the OLP, do not turn the Adjust Screw of the OLP in any way.

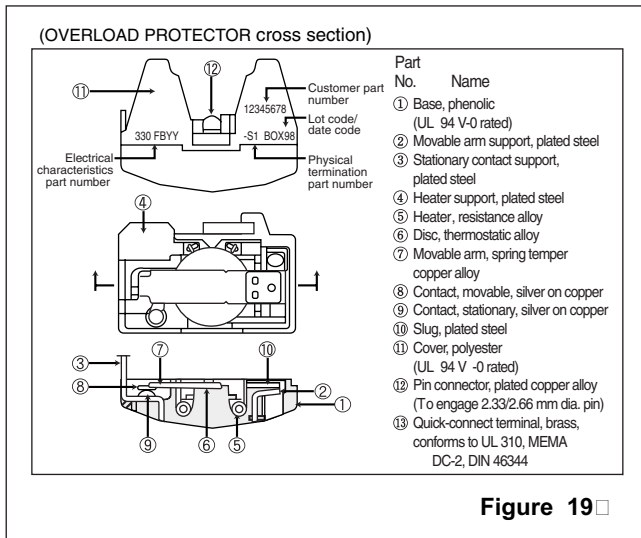
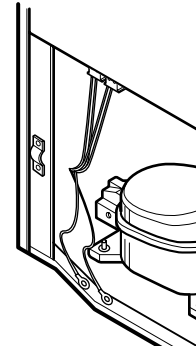
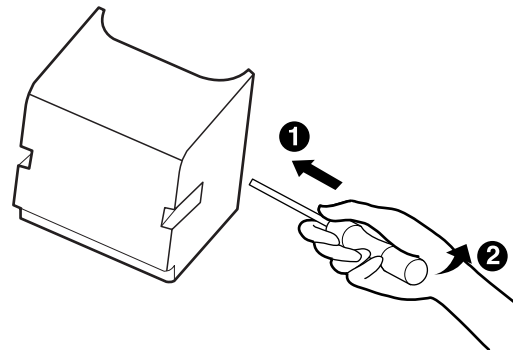


Figure 19 □

### 4-4 TO REMOVE THE COVER PTC



- (1) Remove the Cover Back M/C.
- (2) Disconnect two housing upper side of comp connected in.
- (3) Loosen two screws on comp base.



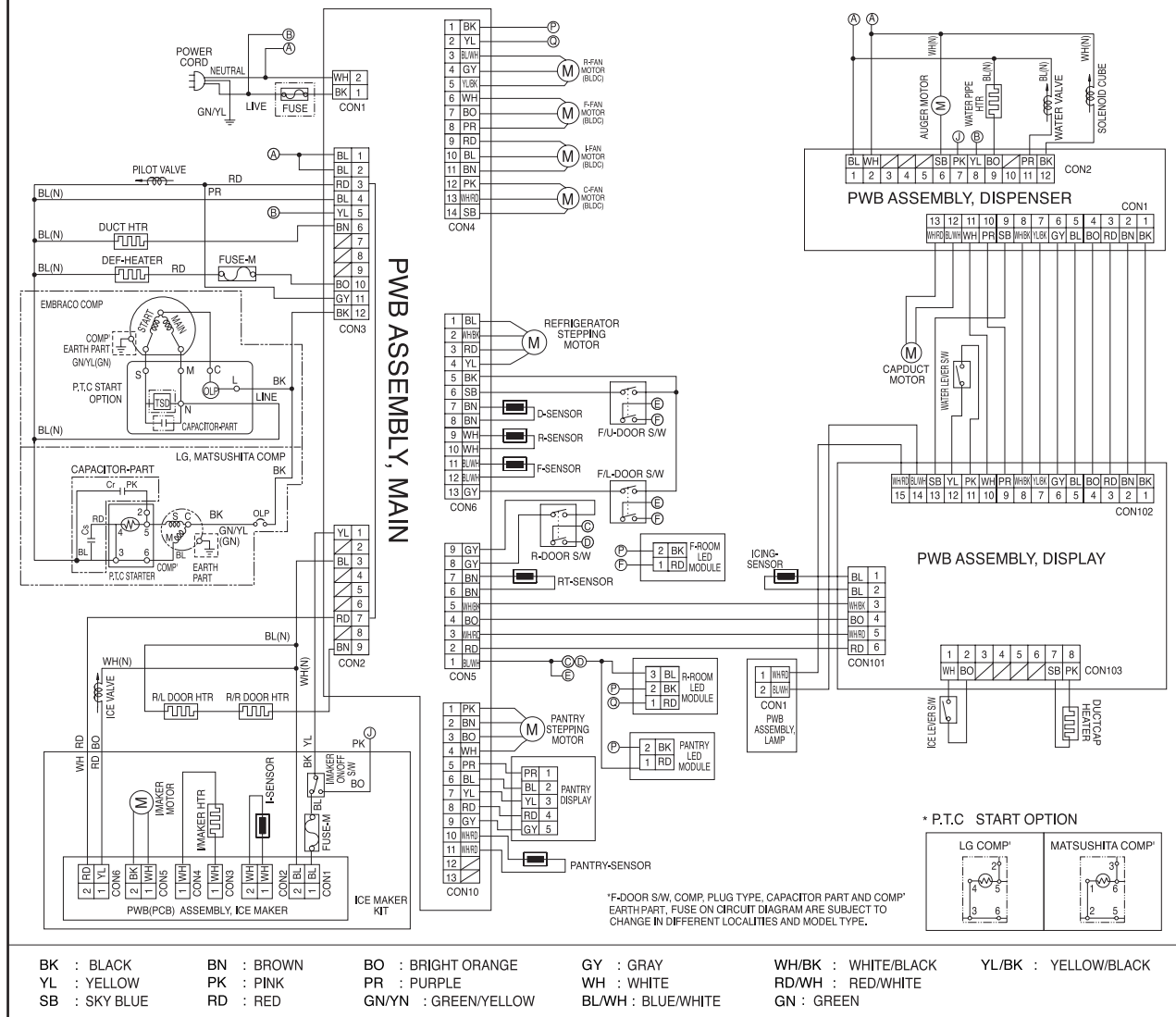
- (4) Use a L-shaped flap tool to pry off the cover.
- (5) Assembly in reverse order of disassembly.

# 5. CIRCUIT DIAGRAM

## LG Electronics CIRCUIT DIAGRAM



MEZ62040603



# 6. TROUBLESHOOTING

## 6-1. Error Code Summary

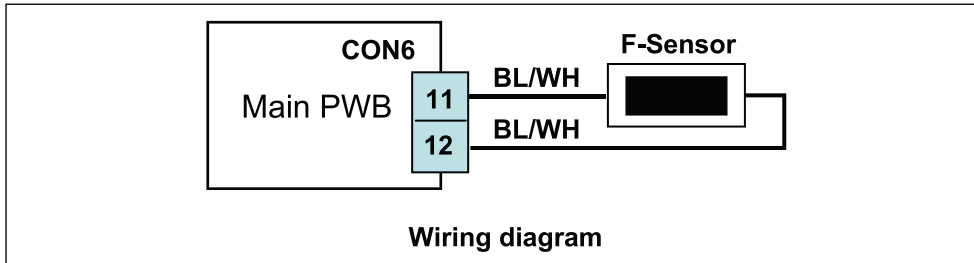
**▲ WARNING:** When you check the Resistance values, be sure to turn off the power.  
And wait for the voltage-discharge sufficiently.

**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" error, are displayed.

NO	Error Detection Category	Error Display		Error Generation Factors	Remark
		Freezer Temperature	Refrigerator 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 Icing Sensor	
6	Pantry sensor error	Er	SS	Short or Disconnection of Pantry Sensor	
7	Room Temp Sensor Error	Er	rt	Short or Disconnection of room temp.sensor	
8	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	
9	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
10	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
11	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
12	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
13	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.

## 6-2. Troubleshooting With Error

### Freezer Sensor Error



Is Er-FS displayed?

**Yes**

Is the connection loose?

**Yes** → Reconnect

**No**

**Power Off**

Tip : To protection of MICOM

Disconnect CON6 and measure the value. Is resistance value between pins 11 & 12 of CON6 as below? (BL/WH to BL/WH)

**No** → Replace F-sensor (Position No : 610C)

pin11 pin12

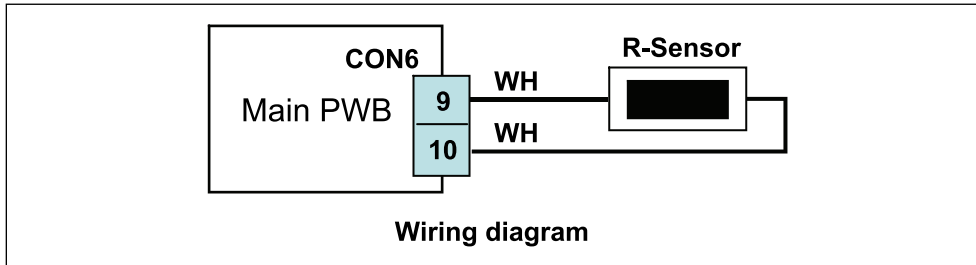
Test Point	Result
Pin11 to pin12	1.4 ~ 120 kΩ

**Yes**

Reconnect CON6 and Power ON

If the ER-FS appears when you press FREEZER key and ICE PLUS Key at the same time, Replace the main PWB. (Position No:500A)  
Otherwise, explain to the customer!

## Refrigerator Sensor Error



Is Er-rS displayed?

**Yes**

Is the connection loose?

**Yes** → Reconnect

**No**

**Power Off**

Tip : To protection of MICOM

Disconnect CON6 and measure the value. Is resistance value between pins 9 & 10 of CON6 as below? (WH to WH)

**No** → Replace R-sensor (Position No : 610B)

pin9 pin10

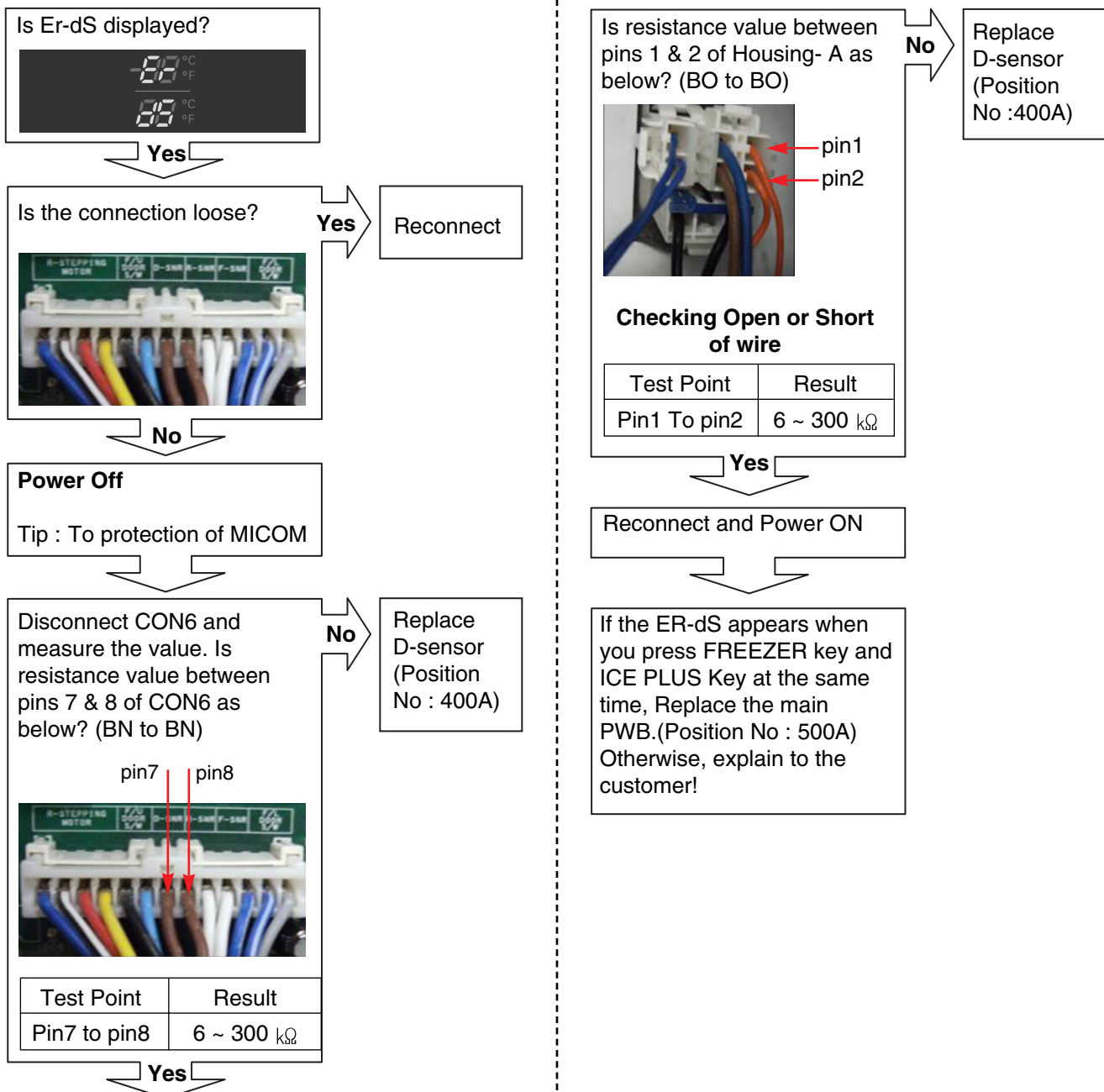
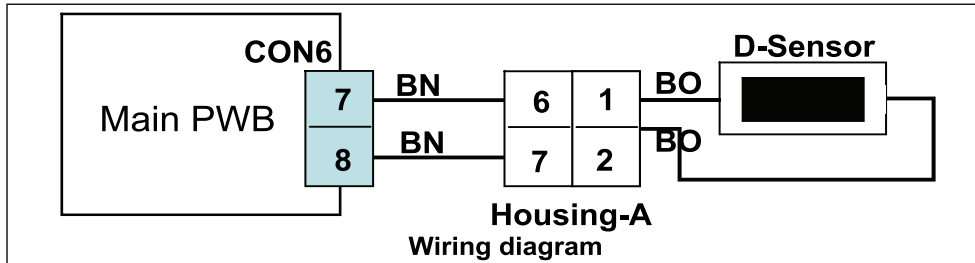
Test Point	Result
Pin9 to pin10	6 ~ 300 kΩ

**Yes**

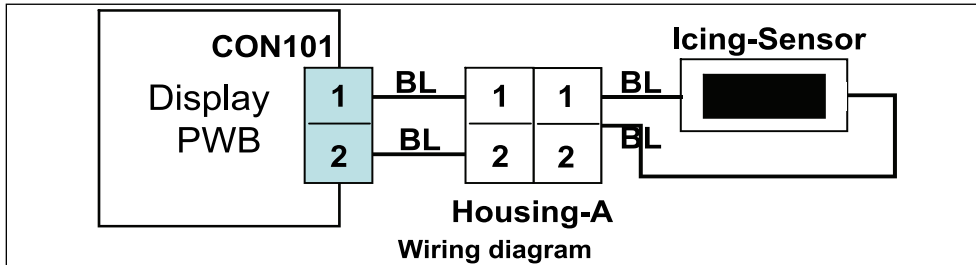
Reconnect CON6 and Power ON

If the ER-rS appears when you press FREEZER key and ICE PLUS Key at the same time, Replace the main PWB. (Position No : 500A)  
Otherwise, explain to the customer!

## Defrost Sensor Error



## Icing Room Sensor Error



Is Er-IS displayed?

Yes

Is the connection loose?

Yes → Reconnect

Display PWB

Inner of Icing door

No

Disconnect CON101 and measure the value. Is resistance value between pins 5 & 6 of CON101 as below? (BL to BL)

No → Replace the Icing-Sensor (Position No : 600B)

pin1 BL

pin2 BL

**Icing room Sensor Resistance**

Test Point	Result
pin5 To pin6	1.4 ~ 120 kΩ

Yes

Is resistance value between pins 1 & 2 of Housing- A as below? (BL to BL)

No → Replace the Icing-Sensor (Position No : 600B)



pin1 BL | pin2 BL

### Checking Open or Short of wire

Test Point	Result
(1) To (2)	1.4 ~ 120 kΩ

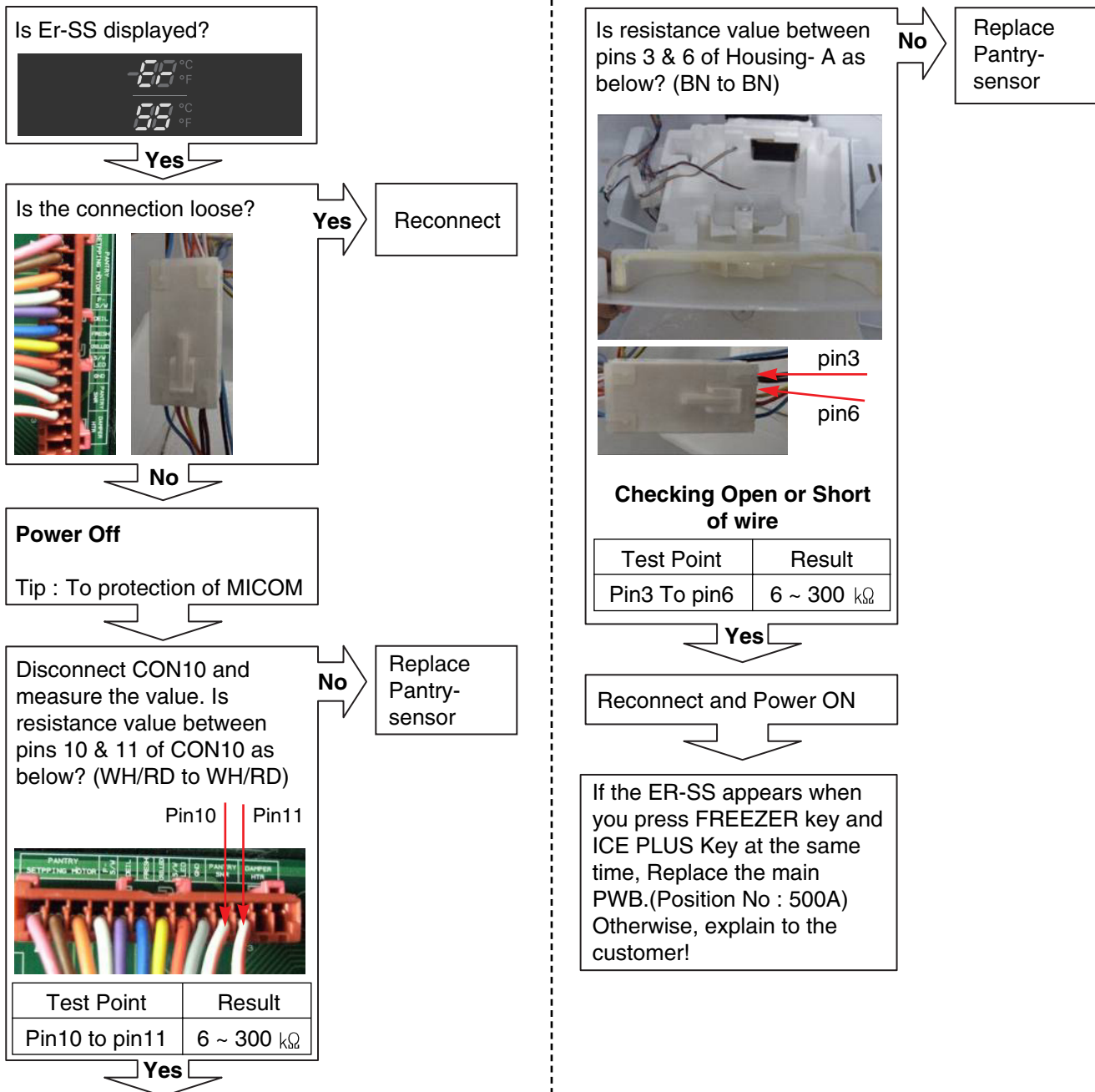
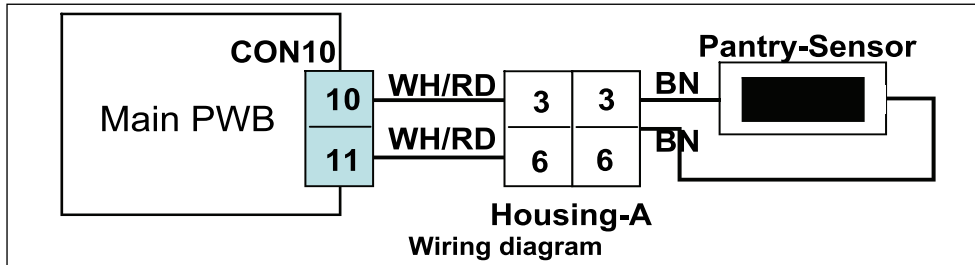
Yes

Reconnect and Power ON

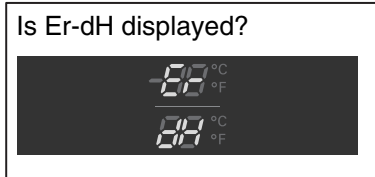
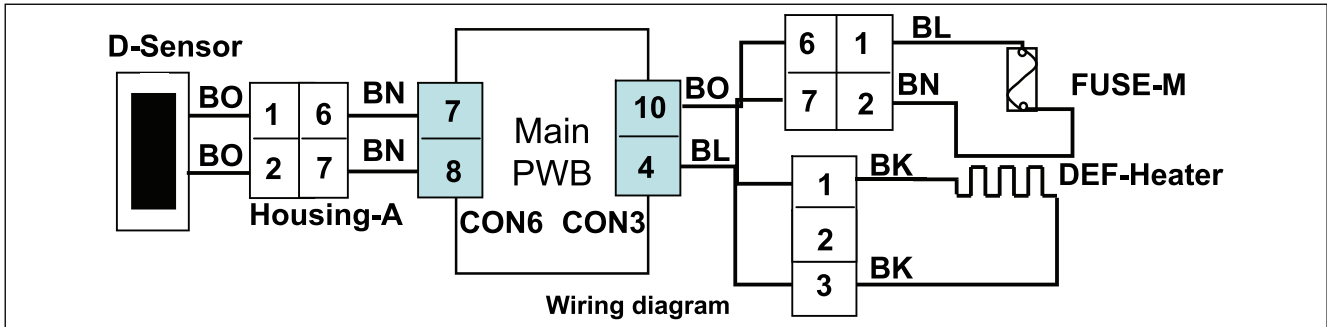
If the ER-IS appears when you press FREEZER key and ICE PLUS Key at the same time, Replace Display PWB. (Position No : 501A) Otherwise, explain to the customer!



## Pantry Sensor Error



## Defrost Heater Error



Yes

Is the connection loose?

Yes

Reconnect



CON6



CON3

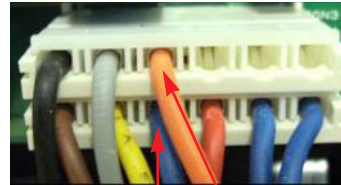
No

### Enter the TEST 3 MODE

Is the voltage value between pins 10 (BO) and 4 (BL) of CON3 115 V AC?

No

Replace MAIN PWB (Position No : 500A)



Pin4 BL Pin10 BO

#### Relay operation

Test Point	Result
pin4 To pin10	115V

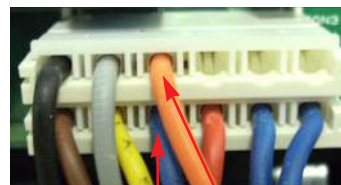
Yes

### Reset TEST3 MODE(Normal)

Is the voltage value between pins 10 (BO) and 4 (BL) of CON3 0 V AC?

No

Replace MAIN PWB (Position No : 500A)



pin4 BL pin10 BO

#### Relay Open

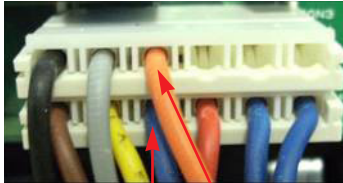
Test Point	Result
Reset/Norm OP	0 ~ 2 V

Yes

Is the resistance value between pins 10 (BO) And 4 (BL) of CON3 like as below?

Yes

Normal



Pin4 BL Pin10 BO

**Resistance**

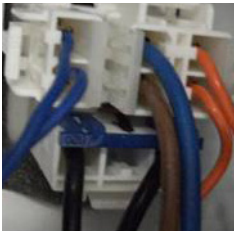
Test Point	Result
(1) To (2)	34 ~ 42 Ω

No

Is the connection loose?

Yes

Reconnect

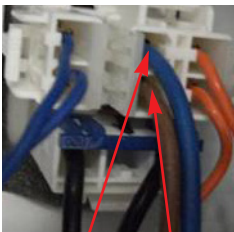


No

Is the resistance value of Fuse -M like as below?

No

Replace Fuse-M (Position No : 400A)



(1) BL (2) BN

**Open or Short of Fuse-M**

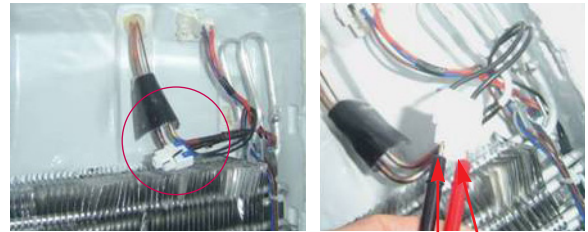
Test Point	Result
(1) To (2)	0 Ω

Yes

Is the resistance value of heater like as below?

No

Replace Heater (Position No : 408A)



**Heater Resistance**

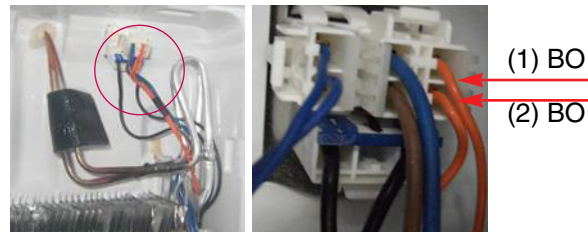
Test Point	Result
(1) To (2)	34 ~ 42 Ω

Yes

Is the resistance value of DEF-sensor like as below? It depends on the temperature.

No

Replace D-sensor (Position No : 400A)



(1) BO  
(2) BO

**Defrost Sensor Resistance**

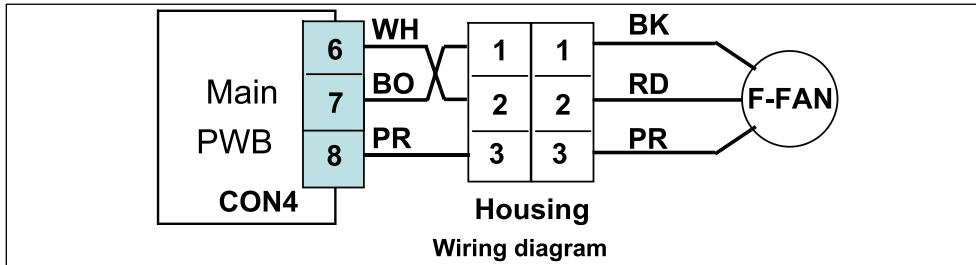
Test Point	Result	Test Point	Result
-30 °C	129.3 kΩ	10 °C	19.53 kΩ
-20 °C	76.96 kΩ	20 °C	13.03 kΩ
-10 °C	47.34 kΩ	30 °C	8.896 kΩ
0 °C	30 kΩ	40 °C	6.201 kΩ

Yes

Explain to the customer!

: It can be occurred, when the gasket is not stuck to product or when you put the high temperature loads (hot foods) a lot in the product.

## Freezer Fan Error

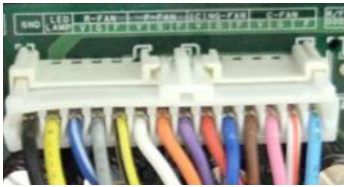


Is Er-FF displayed?



Yes

Is the connection loose?



No

**Reset and Enter the TEST 1 MODE**  
Is the output voltage between pin6 and pin7 of CON4 like as below?

Pin6 WH Pin7 BO



**Freezer Fan Voltages**

Test Point	Result
pin6 To pin7	12 ~ 16 V

Yes

Yes

Reconnect

No

Replace MAIN PWB (Position No : 500A)

Does the cold-air come out of the top of the Grill Fan under Test1 mode ?



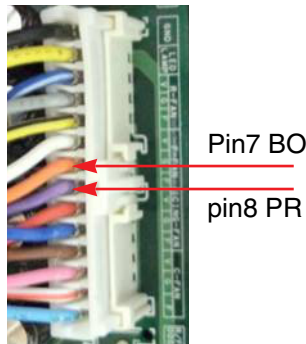
Yes

No

Check fan motor (Connector, Frozen, Locked) and replace.



Is the feedback voltage between pin7 and pin8 of CON4 like as below? (from motor to main board)



**Feedback Voltages**

Test Point	Result
Pin7 To pin8	1 ~ 4 V

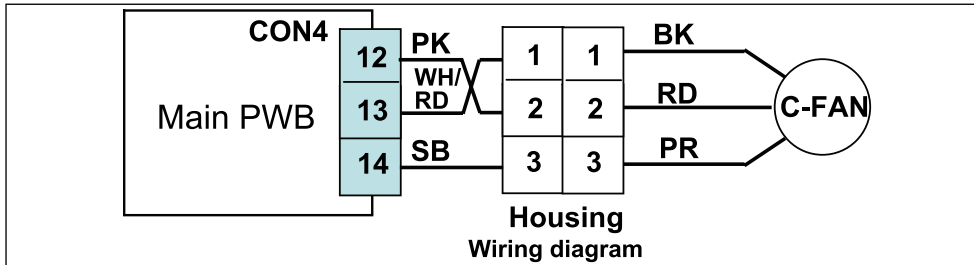
Yes

No

Replace MAIN PWB (Position No : 500A)

Explain to the customer!

## Condenser Fan Error



Is Er-CF displayed?

Yes

Is the connection loose?

Yes

Reconnect

No

**Reset and Enter the TEST 1 MODE**

Is the output voltage between pin12 and pin13 of CON4 like as below?

Pin12 PK Pin13 WH/RD

**Condenser Fan Voltages**

Test Point	Result
pin12 To pin13	10 ~ 16 V

No

Replace MAIN PWB  
(Position No : 500A)

Yes

Is the condenser fan rotate under Test1 mode?

No

Check fan motor  
(Connector, Locked, mouse)  
and replace.  
(Position No : 420A)



Yes

Is the feedback voltage between pin13 and pin14 of CON4 like as below?  
(from motor to main board)

Pin13 WH/RD  
Pin14 SB

**Feedback Voltages**

Test Point	Result
Pin13 To pin14	1 ~ 4 V

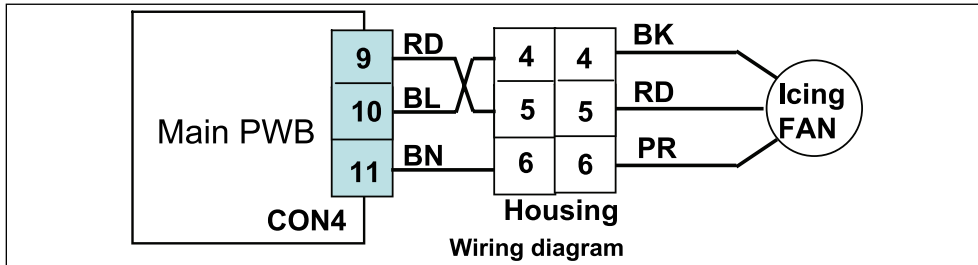
No

Replace MAIN PWB  
(Position No : 500A)

Yes

Explain to the customer!

## Icing Room Fan Error



Is Er-IF displayed?

Yes

Is the connection loose?

Yes

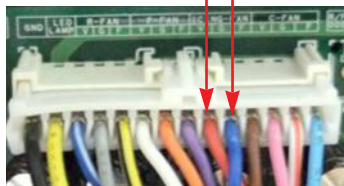
Reconnect

No

**Reset and Enter the TEST 1 MODE**

Is the output voltage between pin9 and pin10 of CON4 like as below?

Pin9 RD    Pin10 BL



### Icing Fan Voltages

Test Point	Result
pin9 To pin10	10 ~ 16 V

Yes

No

Replace MAIN PWB (Position No : 500A)

Does the cold-air come out of the side duct under the Test1 Mode?

Yes

No

Check fan motor (Connector, Frozen, Locked) and replace.



Is the feedback voltage between pin10 and pin11 of CON4 like as below? (from motor to main board)



Pin10 BL

Pin11 BN

### Feedback Voltages

Test Point	Result
Pin10 To pin11	1 ~ 4 V

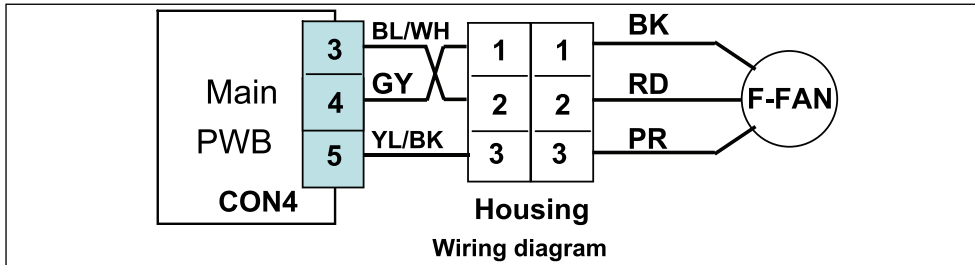
Yes

No

Replace MAIN PWB (Position No : 500A)

Explain to the customer!

## Refrigerator Fan Error



Is Er-rF displayed?



Yes

Is the connection loose?



No

Yes

Reconnect

**Reset and Enter the TEST 1 MODE**  
Is the output voltage between pin3 and pin4 of CON4 like as below?

Pin3 BL/WH Pin4 GY



**Freezer Fan Voltages**

Test Point	Result
pin3 To pin4	12 ~ 16 V

Yes

No

Replace MAIN PWB (Position No : 500A)

Does the cold-air come out of the top of the main duct under Test1 mode ?



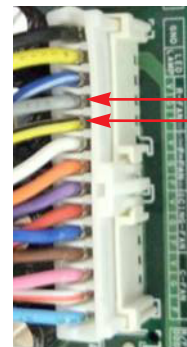
Yes

No

Check fan motor (Connector, Frozen, Locked) and replace.



Is the feedback voltage between pin4 and pin5 of CON4 like as below? (from motor to main board)



**Feedback Voltages**

Test Point	Result
Pin4 To pin5	1 ~ 4 V

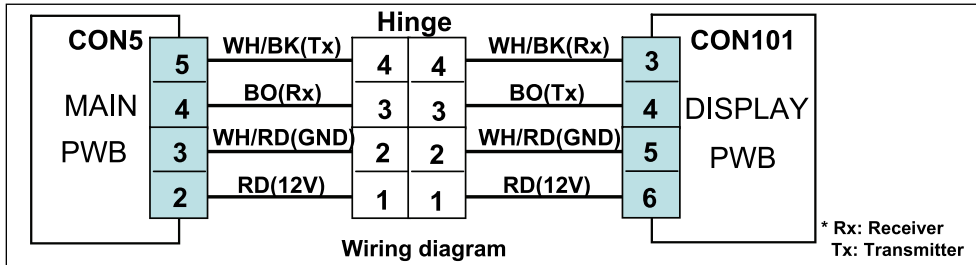
Yes

No

Replace MAIN PWB (Position No : 500A)

Explain to the customer!

## Communication Error



Is Er-CO displayed?

Yes

**Display PWB**  
Is the connection loose?

Yes → Reconnect

No

**Display PWB**  
Is the voltage between pins 7 and pin 9 of CON101?

Yes → Replace the Display PWB (Position No : 501A)

Pin5 WH/RD Pin3 WH/BK

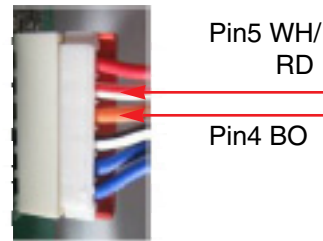
**Receiver fail Voltages**

Test Point	Result
pin7 To pin9	0 V or 5 V

No

**Display PWB**  
Is the voltage between pin8 and pin9 of CON101 0 V or 5 V?

Yes → Replace the Display PWB (Position No : 501A)



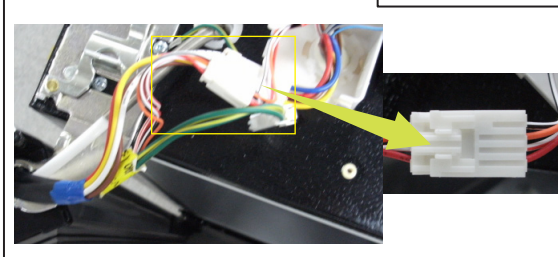
### Transmitter Voltages

Test Point	Result
pin8 To pin9	0 V or 5 V

No

Is the joint connection loose In the Hinge?

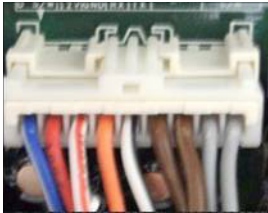
No → Reconnect





**MAIN PWB**  
Is the connection loose?

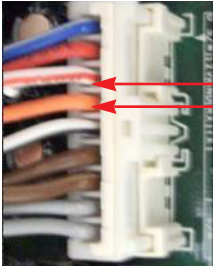
**Yes** → Reconnect



**No** →

Main PWB  
Is the voltage between pin 3 and pin 4 of CON5 0V or 5V?

**Yes** → Replace MAIN PWB (Position No : 500A)



Pin3 WH/RD  
Pin4 BO

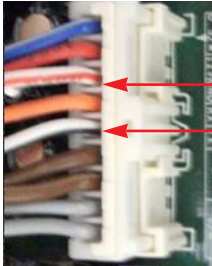
**Receiver Voltages**

Test Point	Result
pin3 To pin4	0 V or 5 V

**No** →

Main PWB  
Is the voltage between pin3 and pin5 of CON5 0 V or 5 V?

**Yes** → Replace MAIN PWB (Position No : 500A)



Pin3 WH/RD  
Pin5 WH/BK

**Transmitter Voltages**

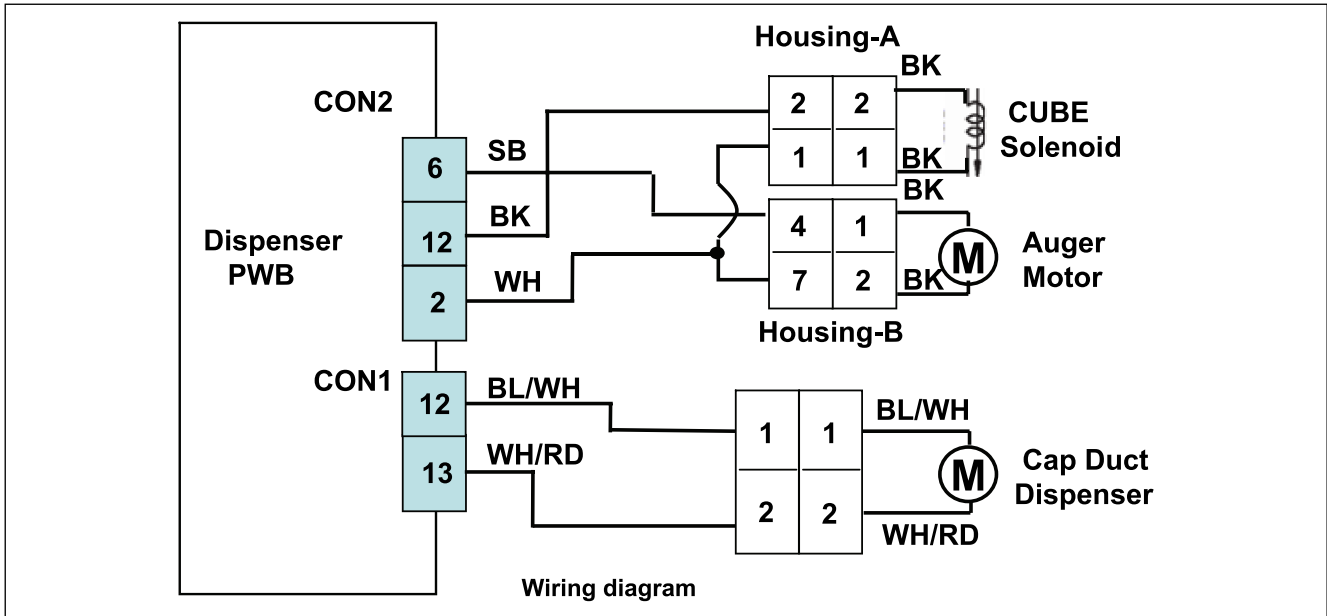
Test Point	Result
pin3 To pin5	0 V or 5 V

**No** →

After plug in,  
If Er-CO is disappeared,  
Explain to the customer!

6-3. Troubleshooting Else

**CUBE Mode doesn't work**



**Dispenser PWB**  
Is the connection loose?

**Yes** → Reconnect

**No** → [Next Step]

**In CUBE Mode,**  
Is the voltage between pin2 and pin12 of CON2 like as below, while pushing the ICE lever switch?

**No** → Replace Dispenser PWB (Position No : 500C)

**Yes** → [Next Step]

**Relay open of cube solenoid**

Lever switch	Test Point	Result
Pushing	pin2 To pin12	115 V
Normal	pin2 To pin12	0 ~ 2V

**In CUBE Mode,**  
Is the voltage between pin2 and pin6 of CON2 like as below, while pushing the ICE lever switch?

No

Replace Dispenser PWB (Position No : 500C)



Pin2 WH

Pin6 SB

**Output voltage of auger motor**

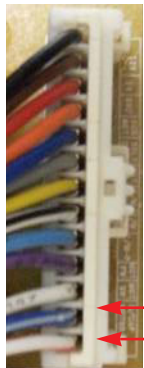
Lever switch	Test Point	Result
Pushing	pin2 To pin6	115 V
Normal	pin2 To pin6	0 ~ 2 V

Yes

**In CUBE Mode,**  
Is the voltage between pin12 and pin13 of CON1 like as below, while pushing the ICE lever switch?

No

Replace Dispenser PWB (Position No: 500C)



Pin12 BL/WH

Pin13 WH/RD

**Output voltage of dispenser cap duct**

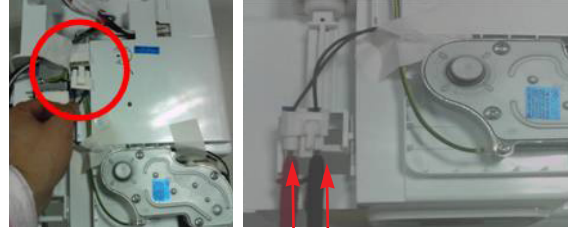
Lever switch	Test Point	Result
Pushing	pin12 To pin13	12 V
Normal	pin12 To pin13	0 V

Yes

Is the resistance value between (1) and (2) of the Auger motor like as below?

No

Replace Auger Motor (Position No : 606A)



(1)(2)

**Resistance of Auger Motor**

Test Point	Result
(1) To (2)	2.38 ~ 4.02 $\Omega$

Yes

Is the resistance value between (1) and (2) of the cube solenoid like as below?

No

Replace Cube Solenoid (Position No : 614A)



(1)(2)

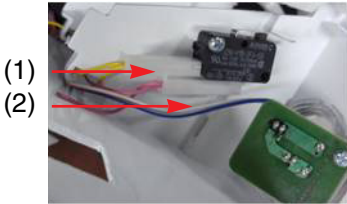
**Resistance of Cube solenoid**

Test Point	Result
(1) To (2)	32 ~ 40 $\Omega$

Yes

---

Is the condition of the micro switch like as below?



(1)  
(2)

**No**

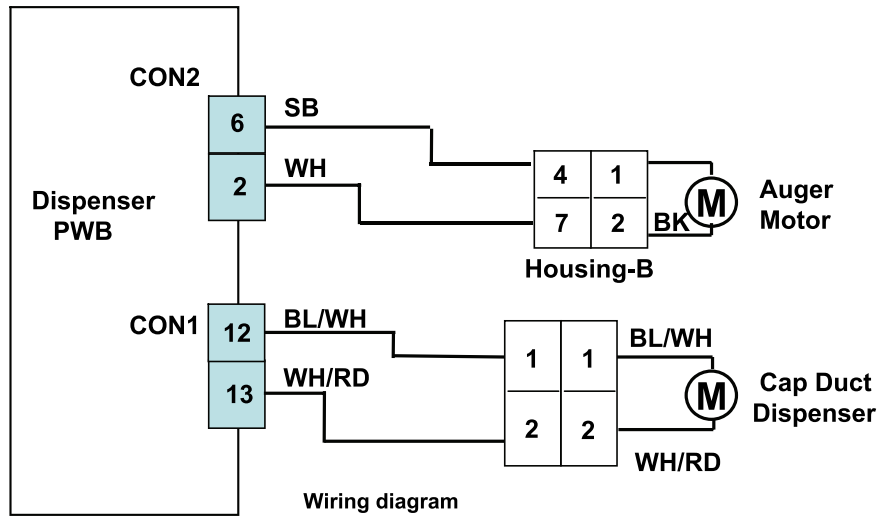
Replace Micro Switch  
(Position No : 402C)

Status	Tester
Normal	Infinity
Push the Lever	0 $\Omega$

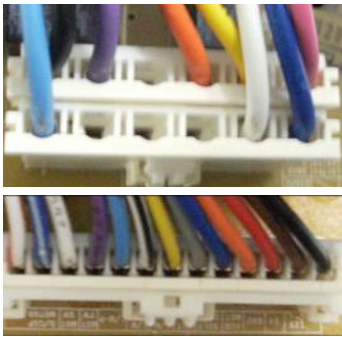
**Yes**

After plug in,  
explain to the customer!

## Crush Mode Doesn't work



**Dispenser PWB**  
Is the connection loose?

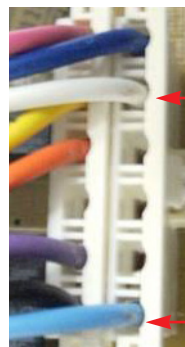


Yes

Reconnect

No

**In Crush Mode,**  
Is the voltage between pin2  
and pin6 of CON2 like as  
below, while pushing the  
ICE lever switch?



Pin2 WH

Pin6 SB

No

Replace  
Dispenser  
PWB  
(Position No :  
500C)

**Output voltage of auger motor**

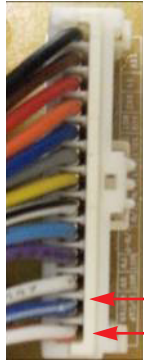
Lever switch	Test Point	Result
Pushing	pin2 To pin6	115 V
Normal	pin2 To pin6	0 ~ 2V

Yes

**In Crush Mode,**  
Is the voltage between pin12 and pin13 of CON1 like as below, while pushing the ICE lever switch?

**No**

Replace Dispenser PWB (Position No : 500C)



Pin12 BL/WH  
Pin13 WH/RD

**Output voltage of dispenser cap duct**

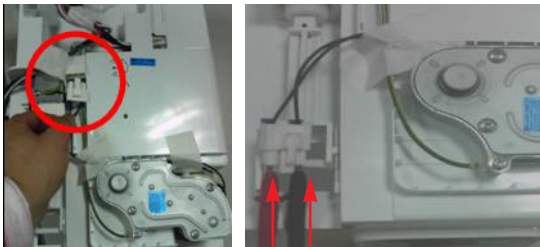
Lever switch	Test Point	Result
Pushing	pin12 To pin13	12 V
Normal	pin12 To pin13	0V

**Yes**

Is the resistance value between (1) and (2) of the Auger motor like as below?

**No**

Replace Auger Motor (Position No : 606A)



(1) (2)

**Resistance of Auger Motor**

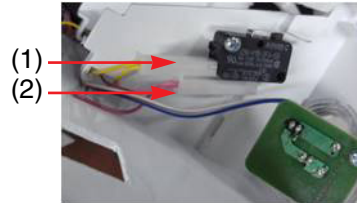
Test Point	Result
(1) To (2)	2.38 ~ 4.02 $\Omega$

**Yes**

Is the condition of the micro switch like as below?

**No**

Replace Micro Switch (Position No: 402C)

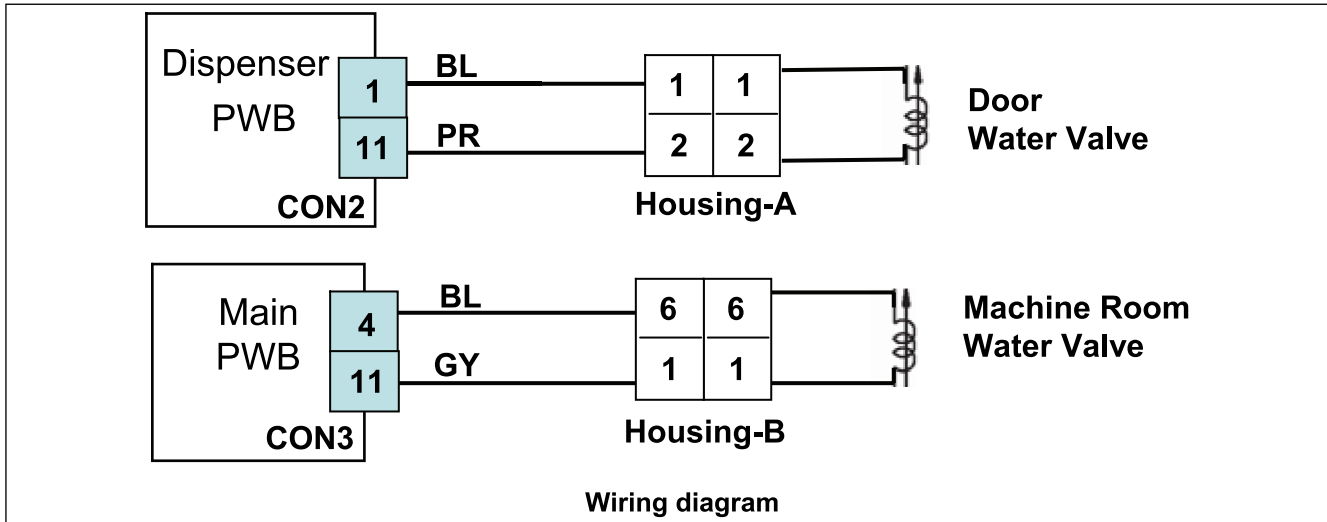


Status	Tester
Normal	Infinity
Push the Lever	0 $\Omega$

**Yes**

After plug in, explain to the customer!

**Water Mode Doesn't work**



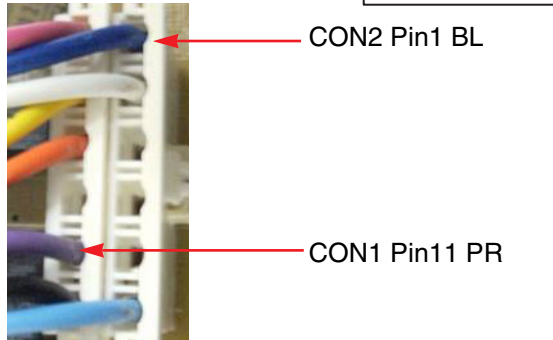
**Dispenser PWB**  
Is the connection loose?

**No**

**Yes** → Reconnect

**In Water Mode,**  
Is the voltage between pin1 and pin11 of CON2 in dispenser PWB like as below, while pushing the Water lever switch?

**No** → Replace Dispenser PWB (Position No : 500C)



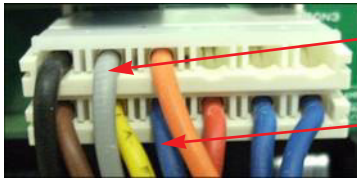
**Output voltage of door water valve**

Lever switch	Test Point	Result
Pushing	pin1 To pin11	115 V
Normal	pin1 To pin11	0 V

**Yes**

**In Water Mode,**  
Is the voltage between pin4 and pin11 of CON3 in main PWB like as below, while pushing the level switch?

**No** → Replace MAIN PWB (Position No : 500A)



Main PWB  
CON3  
Pin11 GY  
Pin4 BL

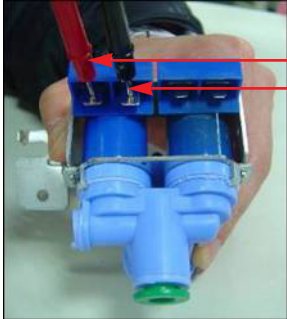
**Output voltage of machine room water valve**

Test Point	Result
Pin4 To pin11	115 V

**Yes** →

**First Water- valve**  
Is the resistance value between (1) and (2) of the First-water valve like as below?

**No** → Replace First Water-valve (Position No : 619A)



(1)  
(2)

**Machine room**

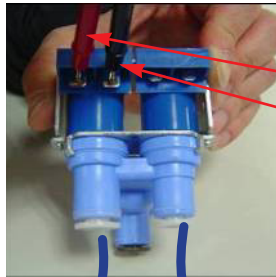
**Checking resistance of First-valve**

Test Point	Result
(1) To (2)	360 ~ 420 Ω

**Yes** →

**Second Water- valve**  
Is the resistance value of Second-water valve like as below?

**No** → Replace Second Water-valve (Position No : 619B)



(1)  
(2)

**In door**

**Door Dispenser Ice Maker**


**Checking resistance of Second-valve**

Test Point	Result
(1) To (2)	360 ~ 420 Ω

**Yes** →

Is the condition of the micro switch like as below?

**No** → Replace Micro Switch (Position No : 279G)



(1) YL  
(2) PK

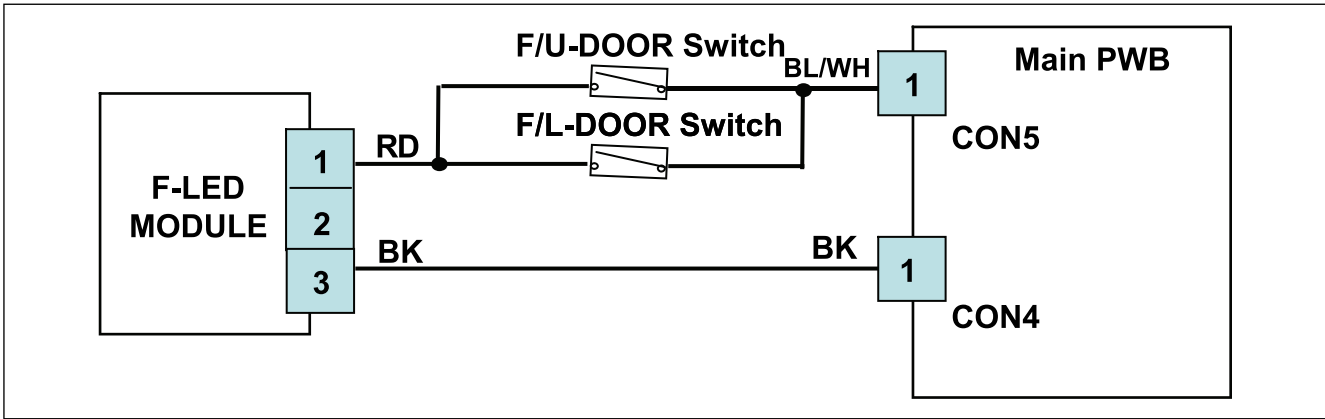
Status	Tester
Normal	Infinity
Push the Lever	0 Ω

**Yes** →

After plug in, explain to the customer!



**Freezer-LED Module Doesn't work**



Is the condition of the freezer door switch like as below?

**No** → Replace Door switch (Position No : 406B)

Status	Tester
Normal	0 Ω
Push the Switch	Infinity

**Yes** →

Is the voltage between pin 1 of CON5 and pin1 of CON4 like as below?

**No** → Replace MAIN PWB (Position No : 500A)

**Voltage of Freezer LED**

Door	Test Point	Result
Don't Care	pin1 of CON5 To pin1 of CON4	12 V

**Yes** →

Is the connection loose?

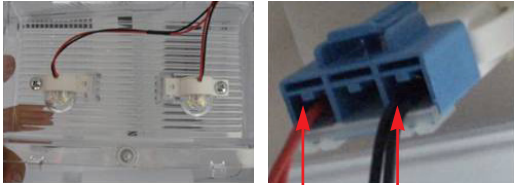
**Yes** → Reconnect

**No** →

Is the voltage between pin1 and pin3 of Freezer LED Module Housing?

**No**

Check the harness open or short and replace F LED Module



Pin1 RD Pin3 BK

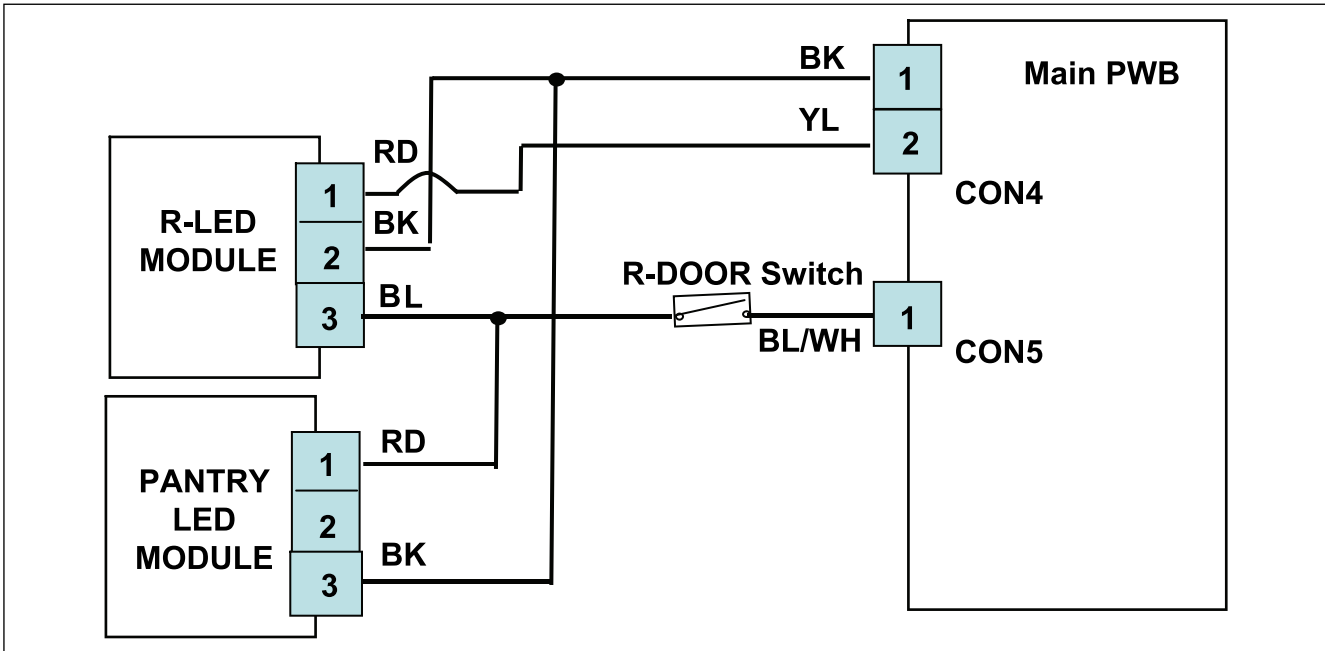
**Voltage of Freezer LED**

Door	Test Point	Result
Close	pin1 To pin3	0 V
Open	pin1 To pin3	12 V

**Yes**

Replace F LED Module  
(Position No : 409E)

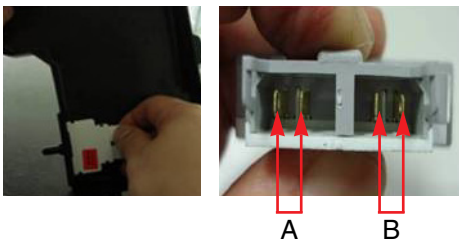
## Refrigerator-LED Module Doesn't work



Is the condition of the freezer door switch like as below?

No

Replace Door switch (Position No : 402A)



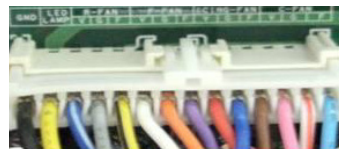
Status	Tester
Normal	0 Ω
Push the Switch	Infinity

Yes

Is the connection loose?

Yes

Reconnect



CON4

No

Is the voltage between pin 1 and pin2 of CON4 like as below?

No

Replace MAIN PWB (Position No : 500A)



Pin1 BK Pin2 YL

CON4

### Voltage of Refrigerator LED

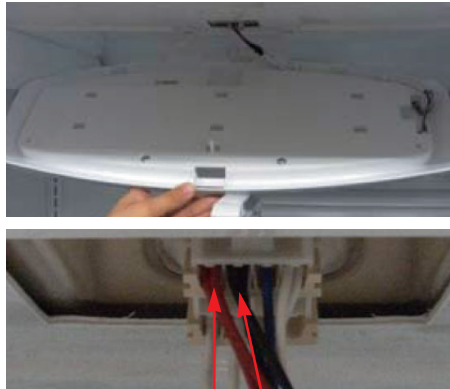
Door	Test Point	Result
Don't care	pin1 To pin2	12 V

Yes

Is the voltage between pin 1 and pin2 of Refrigerator LED Module Housing?

**No**

1.Check the harness open or short  
2.replace R LED Module



Pin1 RD Pin2 BK

**Voltage of Refrigerator LED**

Door	Test Point	Result
Don't care	pin1 To pin2	12 V

**Yes**

Is the connection loose?

**Yes**

Reconnect



CON5

**No**

Is the voltage between pin 1 and 3 of CON5 like as below?

**No**

Replace MAIN PwB (Position No : 500A)



CON5

Pin1 BL/WH Pin3 WH/RD

**Voltage of Door S/W Signal**

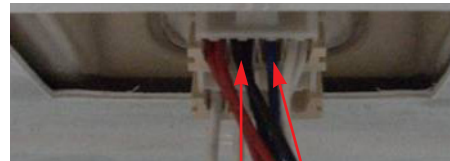
Door	Test Point	Result
Don't care	pin1 To pin3	12 V

**Yes**

Is the voltage between pin 2 and pin3 of Refrigerator LED Module Housing?

**No**

1.Check the harness open or short  
2.replace R LED Module



Pin2 BK Pin3 BL

**Voltage of Door S/W Signal**

Door	Test Point	Result
Close	pin2 To pin3	0 V
Open	pin2 To pin3	12 V


**Yes**

Replace R LED Module (Position No : 409D)

**Poor cooling in the refrigerator compartment**

**MAIN PWB**  
Is the connection loose?

**Yes** → Reconnect




**CON3**

**No** →

**Enter the TEST 1 MODE**  
Is the voltage between Pins 4 and pin 12 of CON3 like as below?

**No** → Replace MAIN PWB (Position No : 500A)



Pin12 BK Pin4 BL **CON3**


**Voltage of Compressor**

Test Point	Result
pin4 To pin12	115 V

**Yes** →

Is the voltage between pins 3 and pin 4 of CON4 like as below?

**No** → Replace MAIN PWB (Position No : 500A)



Pin3 BL/WH  
Pin4 GY **CON4**


**Voltage of R-fan**

Test Point	Result
pin3 To pin4	12 ~ 16 V

**Yes** →

**Feedback check.**  
Is the voltage between Pin 4 and pin 5 of CON4 like as below?

**No** → Replace MAIN PWB (Position No : 500A)



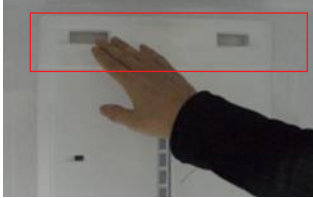
Pin4 GY  
Pin5 YL/BK **CON4**

**Feedback voltage of R-fan**

Test Point	Result
pin4 To pin5	1 ~ 4 V

**Yes** →

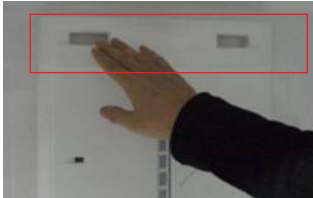
Does the cold-air come out of the top of the main duct? **No**



Check the Damper itself

**Yes**

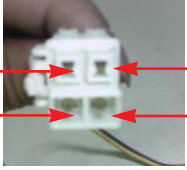
**Enter the TEST 2 MODE**  
Does not cold-air come out of the top of the main duct? **Yes**



Check the Damper itself

**No**

**Checking Damper itself**  
Is the resistance Values between (1) & (4), (2) & (3) like as below? **No**



Replace Damper (Position No : 120A)

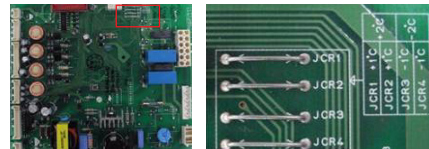
**Resistance of Damper**



Test Point	Result
(1) To (4)	373 ~ 456 Ω
(2) To (3)	373 ~ 456 Ω

**Yes**

**After reset the unit,** take steps to PWB as follows for temperature compensation.

- In the case of EBR600283 : Compensate with Jump wire cutting




JUMP WIRE	Temp. Compensation
 JCR3	-1.0 deg
 JCR4	-1.0 deg
Cutting both jumpers affords a 2° temperature compensation	

**\* Cutting of jumper wire**

**Over cooling in the refrigerator compartment**

**MAIN PWB**  
Is the connection loose?

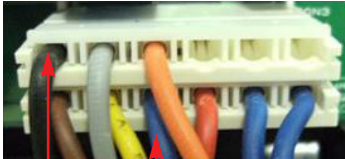


**CON3**

**Yes** → Reconnect

**No** →

**Enter the TEST 1 MODE**  
Is the voltage between Pins 4 and pin 12 of CON3 like as below?



**CON3**

Pin12 BK Pin4 BL

**Voltage of Compressor**

Test Point	Result
pin4 To pin12	115 V

**Yes** →

**No** → Replace MAIN PWB (Position No : 500A)

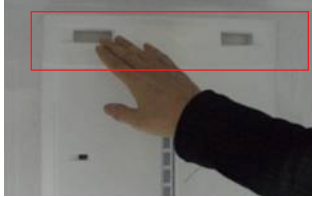
Check the **Fan operation** by placing your hand in front of the vents to feel for any cold air flow.

**Yes** → Replace Fan

Door	Fan-Motor
Open	OFF
Closed	ON

**No** →

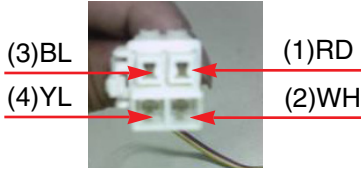
**Enter the TEST 2 MODE**  
Does the cold-air coming out of the top of the main duct?



**No** → Check the Damper itself

**Yes** →

**Checking Damper itself**  
Is the resistance Values between (1) & (4), (2) & (3) like as below?



(3)BL (1)RD  
(4)YL (2)WH

**Resistance of Damper**

Test Point	Result
(1) To (4)	373 ~ 456 Ω
(2) To (3)	373 ~ 456 Ω

**Yes** →

**No** → Replace Damper (Position No : 120A)

**Enter the TEST 3 MODE**

Is the voltage between Pins 4 and pin 12 of CON3 like as below?



pin12 BK Pin4 BL CON3

**Voltage of Compressor**

Test Point	Result
Pin4 To pin12	0~2 V

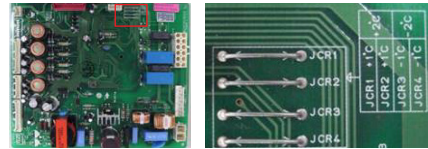
**Yes**



**No**

Replace MAIN PWB (Position No: 500A)

**After reset the unit,** take steps to PWB as follows for temperature compensation.

- In the case of EBR600283 : Compensate with Jump wire cutting



JUMP WIRE	Temp. Compensation
 JCR1	+1.0 deg
 JCR2	+1.0 deg
Cutting both jumpers affords a 2° temperature compensation	

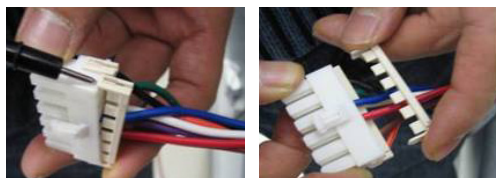
**\* Cutting of jumper wire**



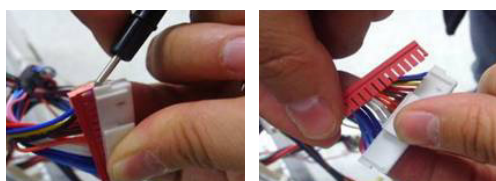
## [ NOTE ]

### 1. How To Remove Terminal Position Assurance (TPA)

\* AC TPA



\* DC TPA



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

### 2. Wire Color

**BL:** Blue

**WH:** White

**BO:** Bright Orange

**BK:** Black

**BN:** Brown

**PR:** Purple

**RD:** Red

**GN:** Green

**SB:** Sky Blue

**GY:** Gray

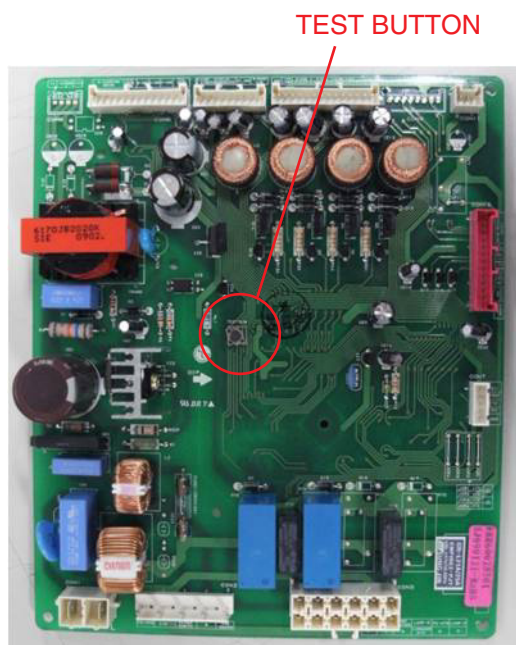
**BL/WH :** Blue & White

**WH/RD :** White & Red

**YL/BK :** Yellow & Black

### 3. How To Start Test Mode

Push the TEST button on the Main PWB, You can start the TEST MODE.



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



\* 2 times : Damper closed  
(22 22 displayed)



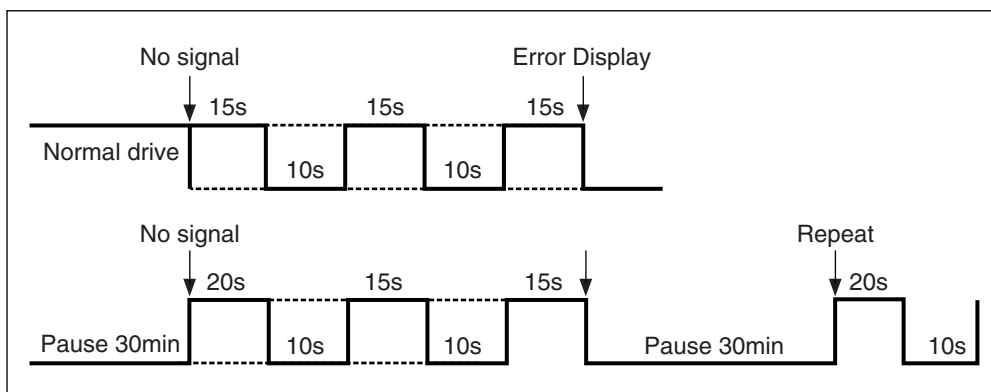
\* 3 times : Forced forced defrost mode  
(33 33 displayed)



#### 4. How to check the Fan-Error

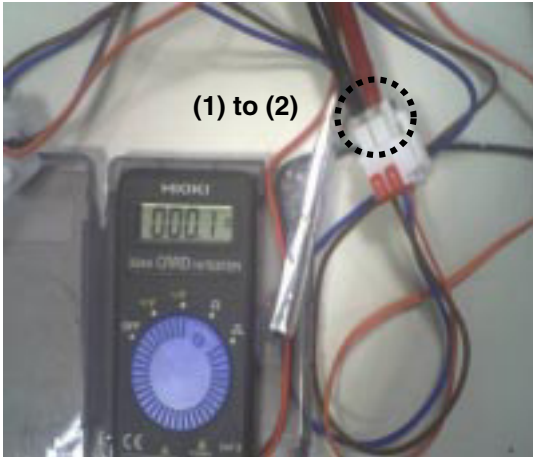
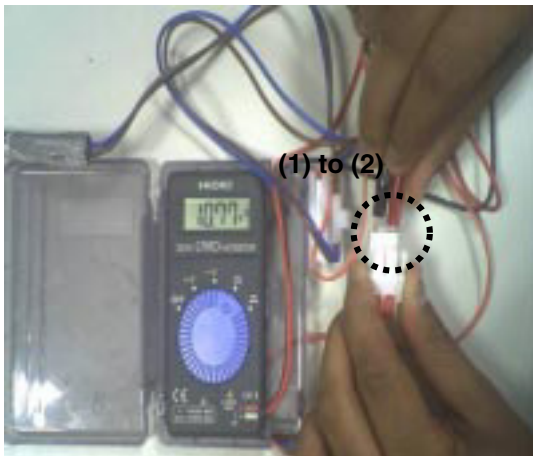
(1) EBR60028301

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.

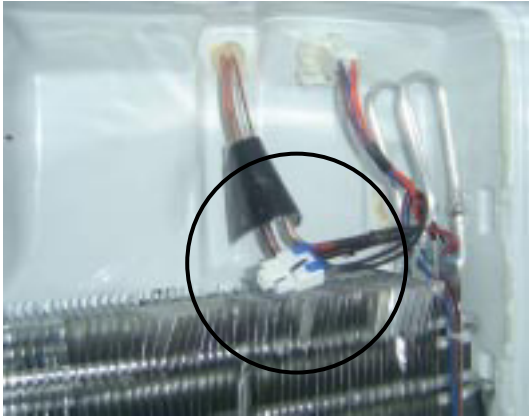
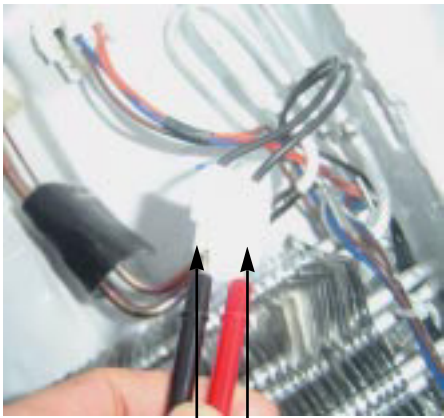


# 7. COMPONENT TESTING INFORMATION

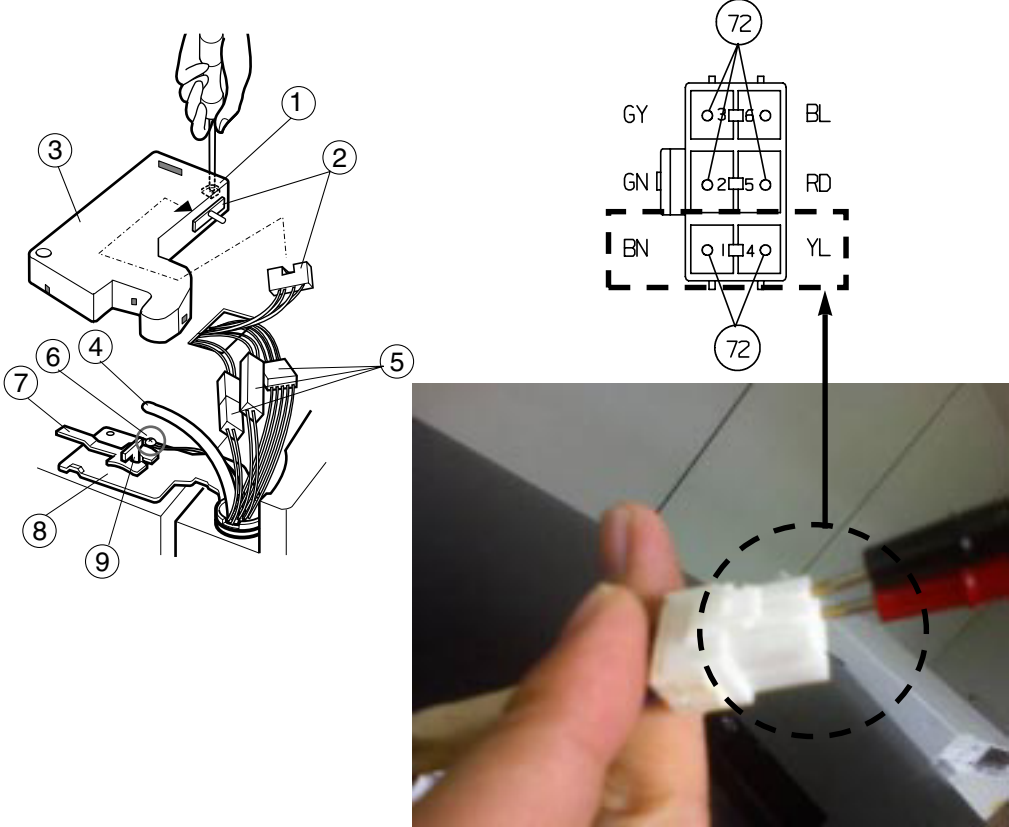
## 7-1. Defrost Controller Assembly

<p><b>Function</b></p>	<ul style="list-style-type: none"> <li>- 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.</li> <li>- Fuse-m can cut off the source when defrost heater operate the unusual high temperature.</li> <li>- Sensor give temperature information to Micom</li> </ul>									
<p><b>How to Measure (Fuse-M)</b></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><b>How to Measure (Sensor)</b></p>		<p>Set a ohmmeter to The 2housing pin. Measure the 2 pin connected to Sensor. If the ohmmeter indicate 11kΩ (at room temperature) Sensor is not a defect. When check the ohm at other temperature Check the sensor manual.</p>								
<p><b>Standard</b></p>	<p style="text-align: center;"><b>Fuse-M (at all temperature)</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Test Point</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>(1) to (2)</td> <td>0 ~ 0.1 Ω</td> </tr> </tbody> </table>	Test Point	Result	(1) to (2)	0 ~ 0.1 Ω	<p style="text-align: center;"><b>Sensor (at room temperature)</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Test Point</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>(1) to (2)</td> <td>11 Ω</td> </tr> </tbody> </table>	Test Point	Result	(1) to (2)	11 Ω
Test Point	Result									
(1) to (2)	0 ~ 0.1 Ω									
Test Point	Result									
(1) to (2)	11 Ω									

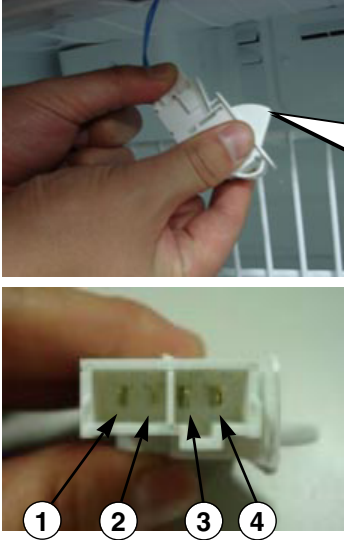
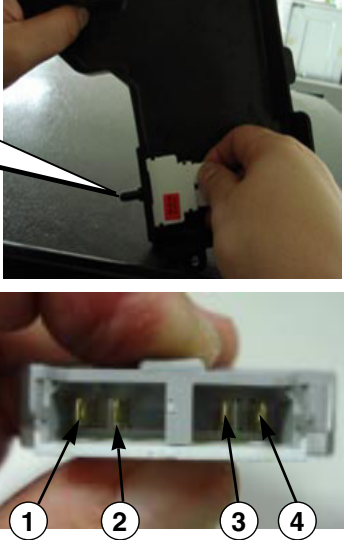
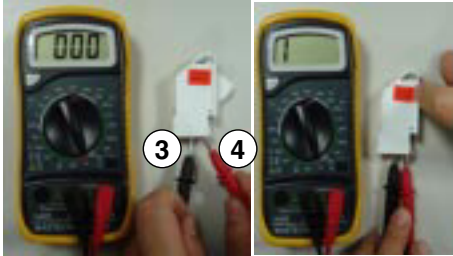
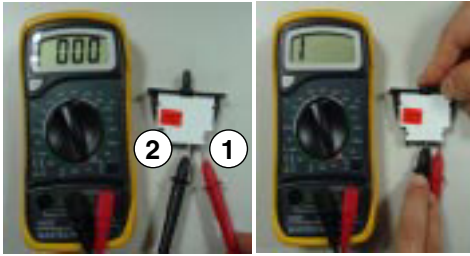
## 7-2. Sheath Heater

<p><b>Function</b></p>	<p>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.</p>				
<p><b>How to Measure</b></p>	<div style="display: flex; justify-content: space-around;">   </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 <math>(V^{\circ}V)/Watt=R</math> is good condition,          ex) when watt=350w, voltage=115v <math>R=(115^{\circ}115)/350=38 \Omega</math>          But the ohmmeter indicate infinitely great          Sheath heater is disconnection</p>				
<p><b>Standard</b></p>	<p style="text-align: center;"><b>Sheath heater (at all temperature)</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Test Point</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>(1) to (2)</td> <td>34 ~ 42 <math>\Omega</math></td> </tr> </tbody> </table>	Test Point	Result	(1) to (2)	34 ~ 42 $\Omega$
Test Point	Result				
(1) to (2)	34 ~ 42 $\Omega$				


### 7-3. Door Heater Assembly

<b>Function</b>	The heater is designed to prevent the raising dew from door.				
<b>How to Measure</b>	 <p>The diagram shows the assembly of the door heater. A hand is shown using a screwdriver to secure the heater (1) to the door panel (3). The heater is connected to a wiring harness (5) which includes a connector (4). The harness is secured to the door panel with a screw (6) and a bracket (7). The door panel is then secured to the door frame with screws (8) and a bracket (9).</p> <p>The wiring harness is shown with a terminal block (72) and color-coded wires: GY (Green), GN (Green), BN (Black), BL (Black), RD (Red), and YL (Yellow). The terminal block is shown with terminals 1, 2, 3, 4, 5, and 6. The terminal block is shown with terminals 1, 2, 3, 4, 5, and 6. The terminal block is shown with terminals 1, 2, 3, 4, 5, and 6.</p> <p>The photograph shows a hand holding a white connector (4) with a dashed circle around it, indicating the measurement point. An arrow points from the dashed circle in the photograph to the terminal block in the diagram.</p>				
<b>Standard</b>	<table border="1" data-bbox="418 1417 849 1513"> <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				

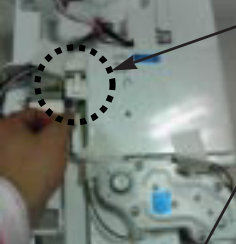
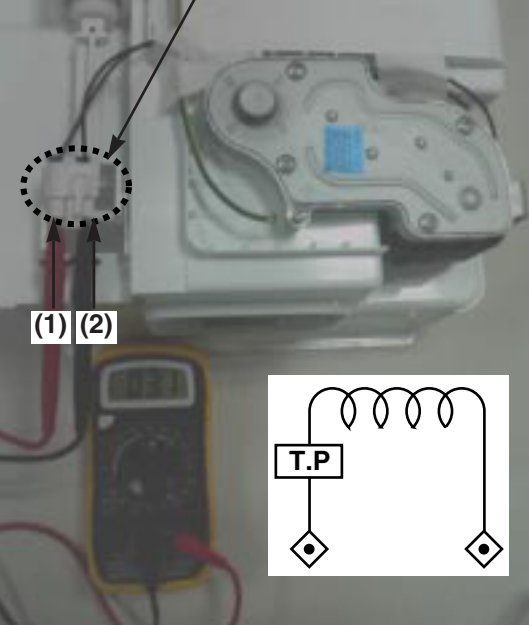
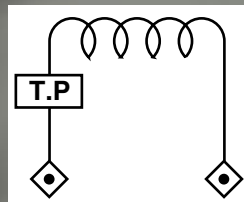
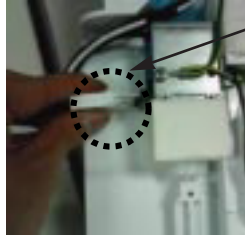
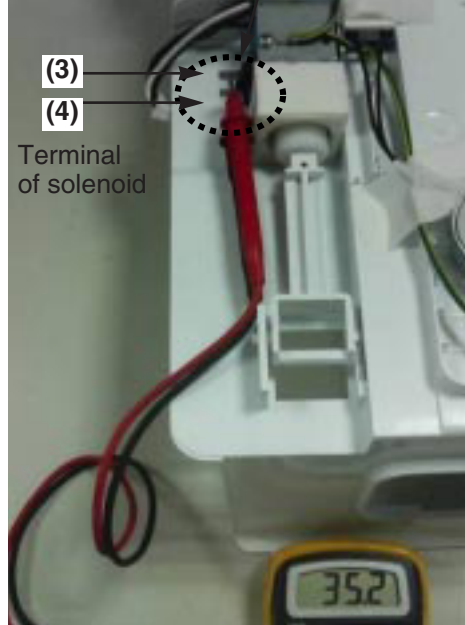
## 7-4. Door Switch

<p><b>Function</b></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><b>How to Measure</b></p>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>&lt;Switch, Freezer&gt;</p>  <p>1 2 3 4</p> </div> <div style="text-align: center;"> <p>&lt;Switch, Refrigerator&gt;</p>  <p>1 2 3 4</p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;">  <p>3 4</p> <p><b>Beep</b></p> </div> <div style="text-align: center;">  <p>2 1</p> <p><b>Beep</b></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><b>Standard</b></p>	<p style="text-align: center;"><b>Multimeter beep – Switch F,R</b></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 0 Ω</td> <td style="padding: 5px;">None (∞ Ω)</td> </tr> </table>	Nomal	Push the button(Plunger)	Beep or 0 Ω	None (∞ Ω)
Nomal	Push the button(Plunger)				
Beep or 0 Ω	None (∞ Ω)				

**7-5. Solenoid**

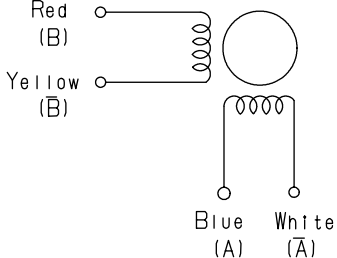
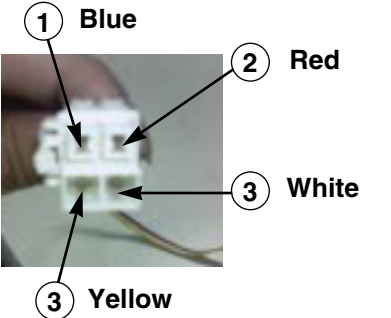
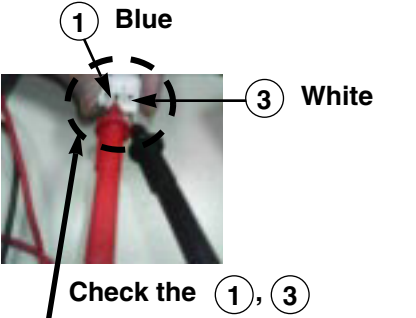


<p><b>Function</b></p>	<p>- Dispenser solenoid : When customer push the dispenser button, Pull duct door and abstract from ice bank.</p>						
<p><b>How to Measure</b></p>	<div style="text-align: center;">  <p><b>Dispenser Solenoid</b></p> </div>						
<p><b>Standard</b></p>	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2" style="text-align: center;"><b>Dispenser Solenoid</b></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;">44 ~ 54 Ω</td> </tr> </tbody> </table>	<b>Dispenser Solenoid</b>		Test Points	Result	(1) to (2)	44 ~ 54 Ω
<b>Dispenser Solenoid</b>							
Test Points	Result						
(1) to (2)	44 ~ 54 Ω						

## 7-6. AC Motor ASSEMBLY (Geared Motor & Solenoid)

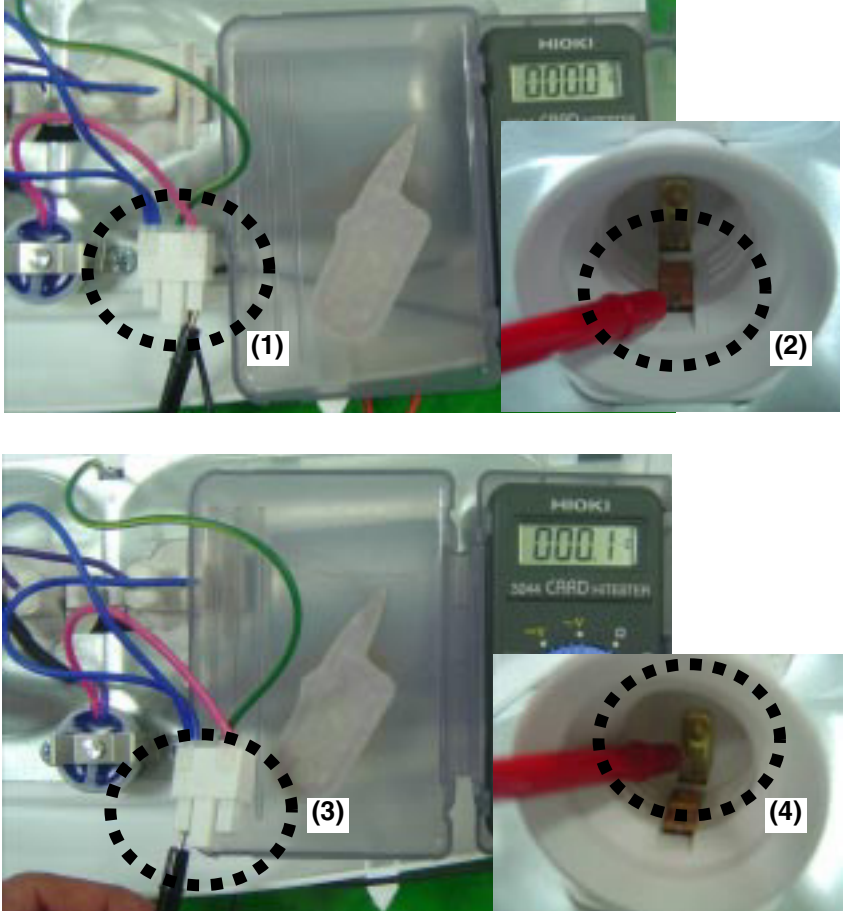
<p><b>Function</b></p>	<p>The Geared Motor of ac motor assembly advances forward the ice by rotating the ice and          The solenoid of ac motor assembly selects one of the cube mode or crush mode.          - Cube solenoid : Pulling the stir lip for moving the ice in icemaker system.</p>													
<p><b>How to Measure</b></p>	<p><b>&lt; Geared Motor &gt;</b></p>  <p>① Take out the male housing from female housing</p>  <p>② Measure the resistance between (1) and (2)</p> 	<p><b>&lt; Geared Motor &gt;</b></p>  <p>① Remove the female housing from terminal.</p>  <p>② Measure the resistance between (3) and (4)</p> <p>(3) (4) Terminal of solenoid</p>												
<p><b>Standard</b></p>	<p>Check the resistance between connectors (Geared motor 1, 2) and (solenoid 3, 4). 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> <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th colspan="2">Geared Motor</th> <th colspan="2">Cube Solenoid</th> </tr> <tr> <th>Test Points</th> <th>Result</th> <th>Test Points</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>(1) to (2)</td> <td>2.38 ~ 4.02 Ω</td> <td>(3) to (4)</td> <td>32 ~ 40 Ω</td> </tr> </tbody> </table>		Geared Motor		Cube Solenoid		Test Points	Result	Test Points	Result	(1) to (2)	2.38 ~ 4.02 Ω	(3) to (4)	32 ~ 40 Ω
Geared Motor		Cube Solenoid												
Test Points	Result	Test Points	Result											
(1) to (2)	2.38 ~ 4.02 Ω	(3) to (4)	32 ~ 40 Ω											




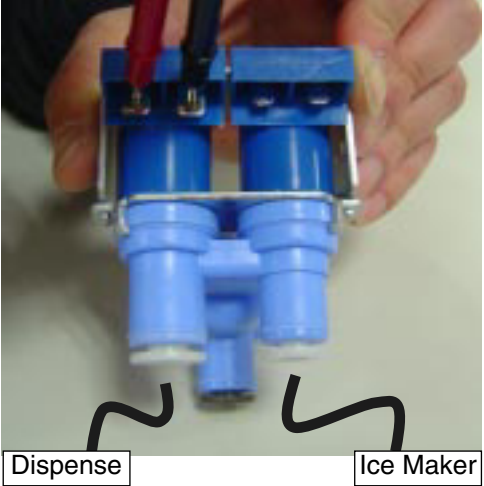
## 7-7. Damper

<b>Function</b>	<p>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.</p>																													
<b>How to Measure</b>	<div style="display: flex; justify-content: space-around;"> <div data-bbox="354 495 852 883"> <p>Table(1): 결선도(Wiring)</p>  </div> <div data-bbox="852 495 1453 883"> <p>Table(2): 2-2상 여자순서(CW Rotation)</p> <table border="1" data-bbox="873 563 1347 819"> <thead> <tr> <th rowspan="2">Housing No. &amp; 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;"><b>&lt; Damper Circuit &gt;</b></p> <div style="display: flex; justify-content: space-around;"> <div data-bbox="354 957 755 1276">  </div> <div data-bbox="1023 957 1453 1276">  <p>Check the ①, ③</p> </div> </div> <p style="text-align: center;"><b>&lt; extension &gt;</b></p> <div style="display: flex; justify-content: space-around;"> <div data-bbox="357 1340 755 1617">  <p>Check the ②, ④</p> </div> <div data-bbox="1031 1340 1453 1617">  <p>Check the ①, ③</p> </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)	-	-	+	+																										
<b>Standard</b>	<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																											

## 7-8. Lamp Socket

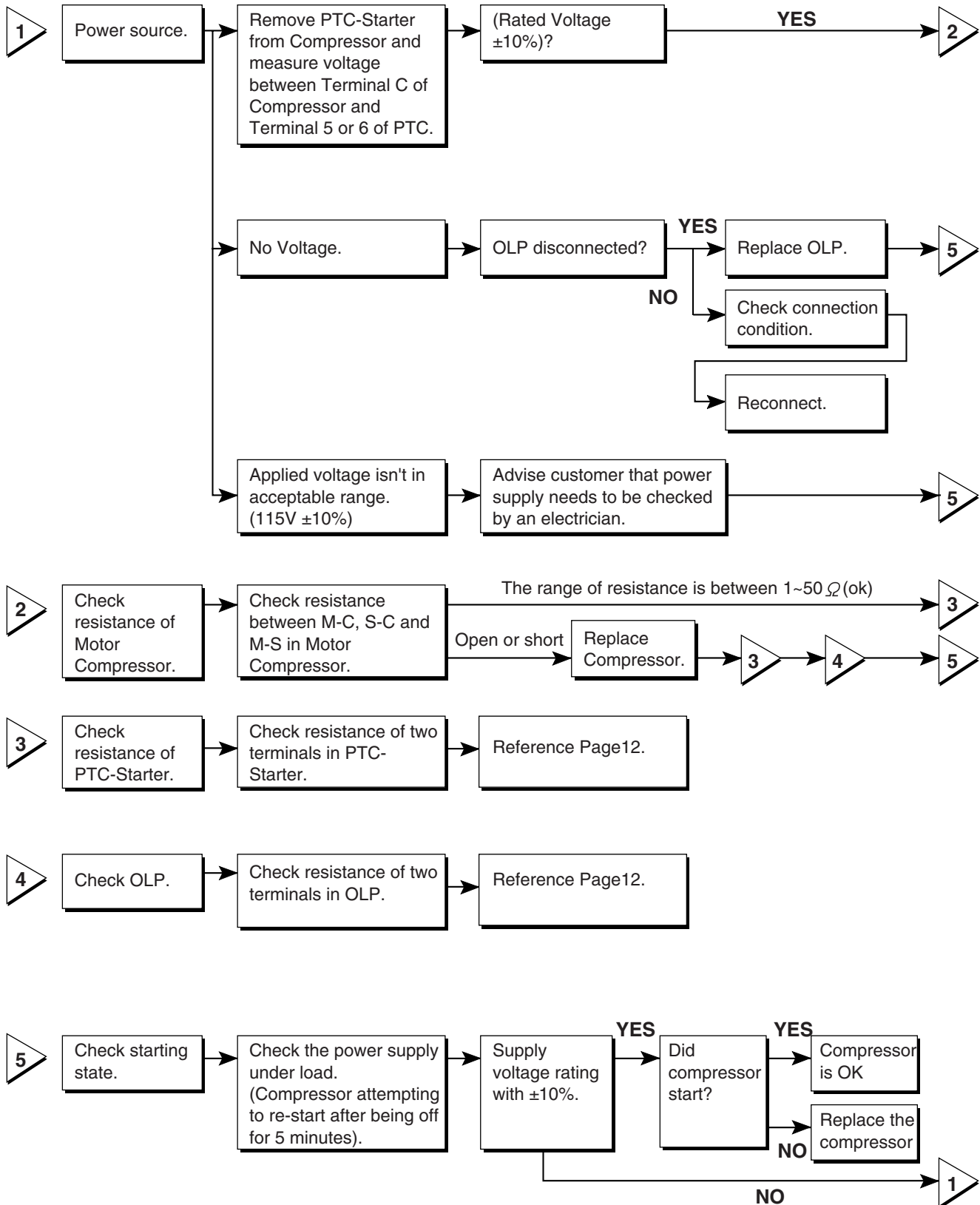
<p><b>Function</b></p>	<p>The lamp socket connect cover lamp assembly to lamp.          The lamp socket fix lamp and unite lamp and cover lamp assembly.          The lamp socket supply electric source to lamp also.</p>				
<p><b>How to Measure</b></p>	<div style="text-align: center;">  </div> <p>Check 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><b>Standard</b></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) and (3) to (4)</td> <td>0 Ω</td> </tr> </tbody> </table>	Test Points	Result	(1) to (2) and (3) to (4)	0 Ω
Test Points	Result				
(1) to (2) and (3) to (4)	0 Ω				

## 7-9. Water Valve

<b>Function</b>	<ul style="list-style-type: none"> <li>- First-Water Valve (in machine room) : supply the water from city water to water filter in refrigerator</li> <li>- Second-Water Valve (in door) : supply the water from water filter to icemaker and dispenser</li> </ul>				
<b>How to Measure</b>	<div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  <p>First-water valve (in machine room)</p> </div> <div style="text-align: center;">  <p>Dispense      Ice Maker</p> <p>second-water valve (in door)</p> </div> </div>				
<b>Standard</b>	<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>360 ~ 420 Ω</td> </tr> </tbody> </table>	Test Points	Result	(1) to (2)	360 ~ 420 Ω
Test Points	Result				
(1) to (2)	360 ~ 420 Ω				

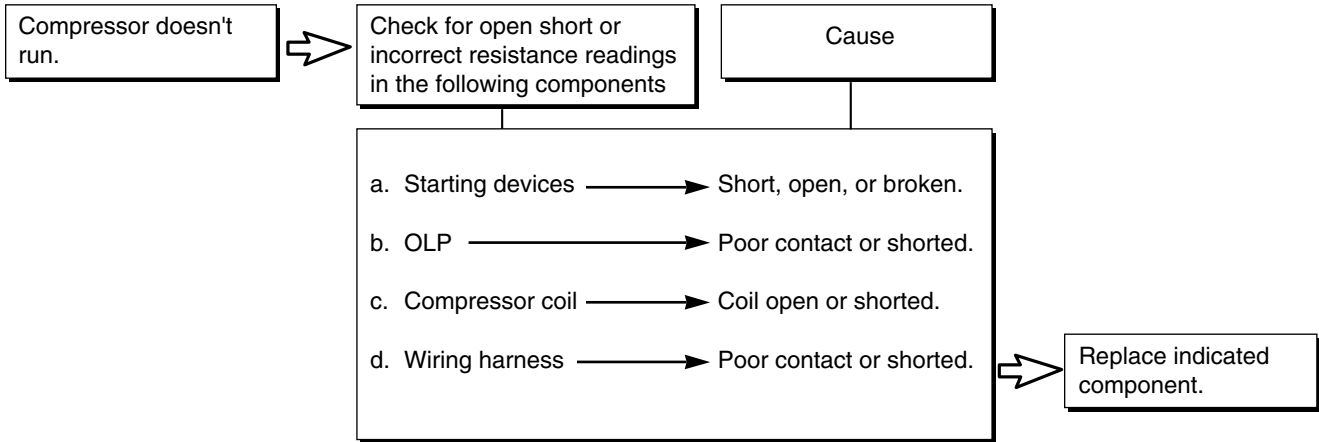
# 8. TROUBLESHOOTING

## 8-1 COMPRESSOR AND ELECTRIC COMPONENTS

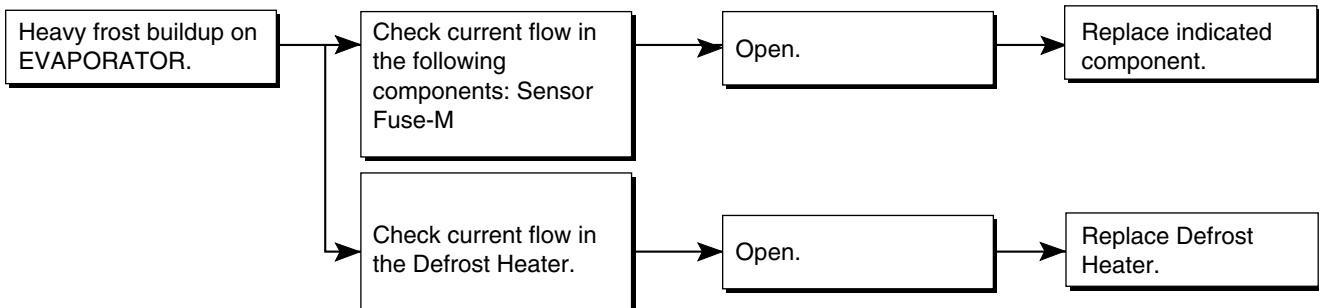
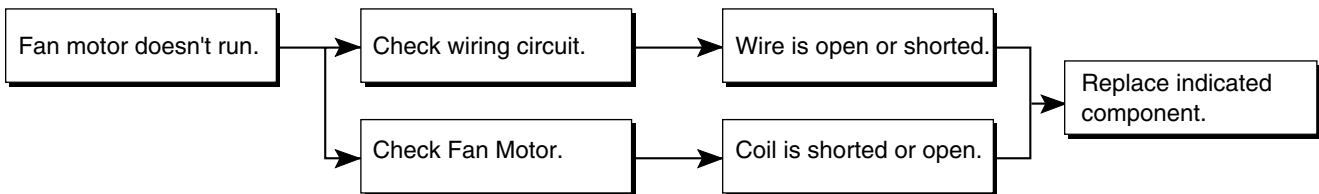
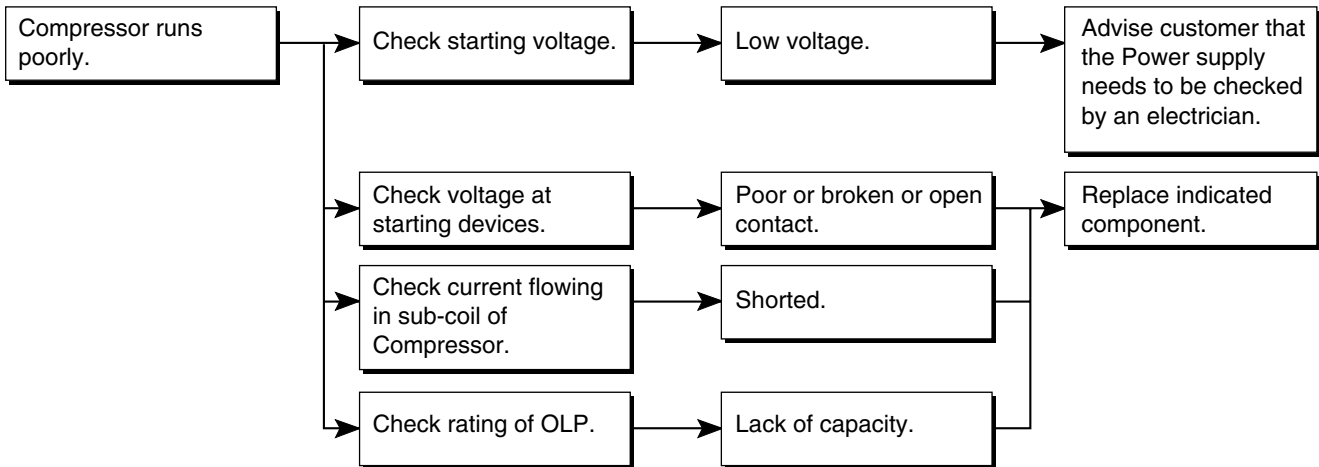


## 8-2 OTHER ELECTRICAL COMPONENTS

### ▼ Not cooling at all



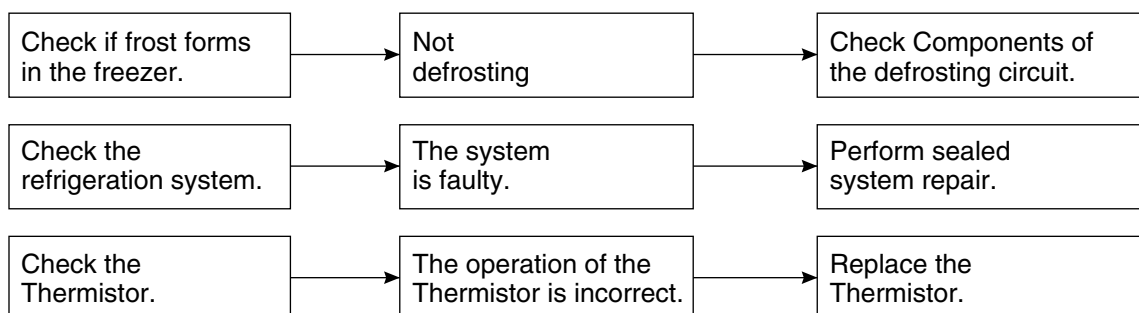
### ▼ Poor cooling performance



### 8-3 SERVICE DIAGNOSIS CHART

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

●Other possible problems:



## 8-4 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"> <li>Refrigerant level is low due to a leak.</li> <li>Normal cooling is possible by restoring the normal amount of refrigerant and repairing the leak.</li> </ul>
	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"> <li>No discharging of Refrigerant.</li> <li>Normal cooling is possible by restoring the normal amount of refrigerant and repairing the leak.</li> </ul>
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"> <li>Normal discharging of the refrigerant.</li> <li>The capillary tube is faulty.</li> </ul>
	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"> <li>Normal discharging of the Refrigerant.</li> </ul>
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"> <li>Cooling operation restarts when heating the inlet of the capillary tube.</li> </ul>
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"> <li>Low pressure at high side of compressor due to low refrigerant level.</li> </ul>
	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"> <li>No pressure in the high pressure part of the compressor.</li> </ul>

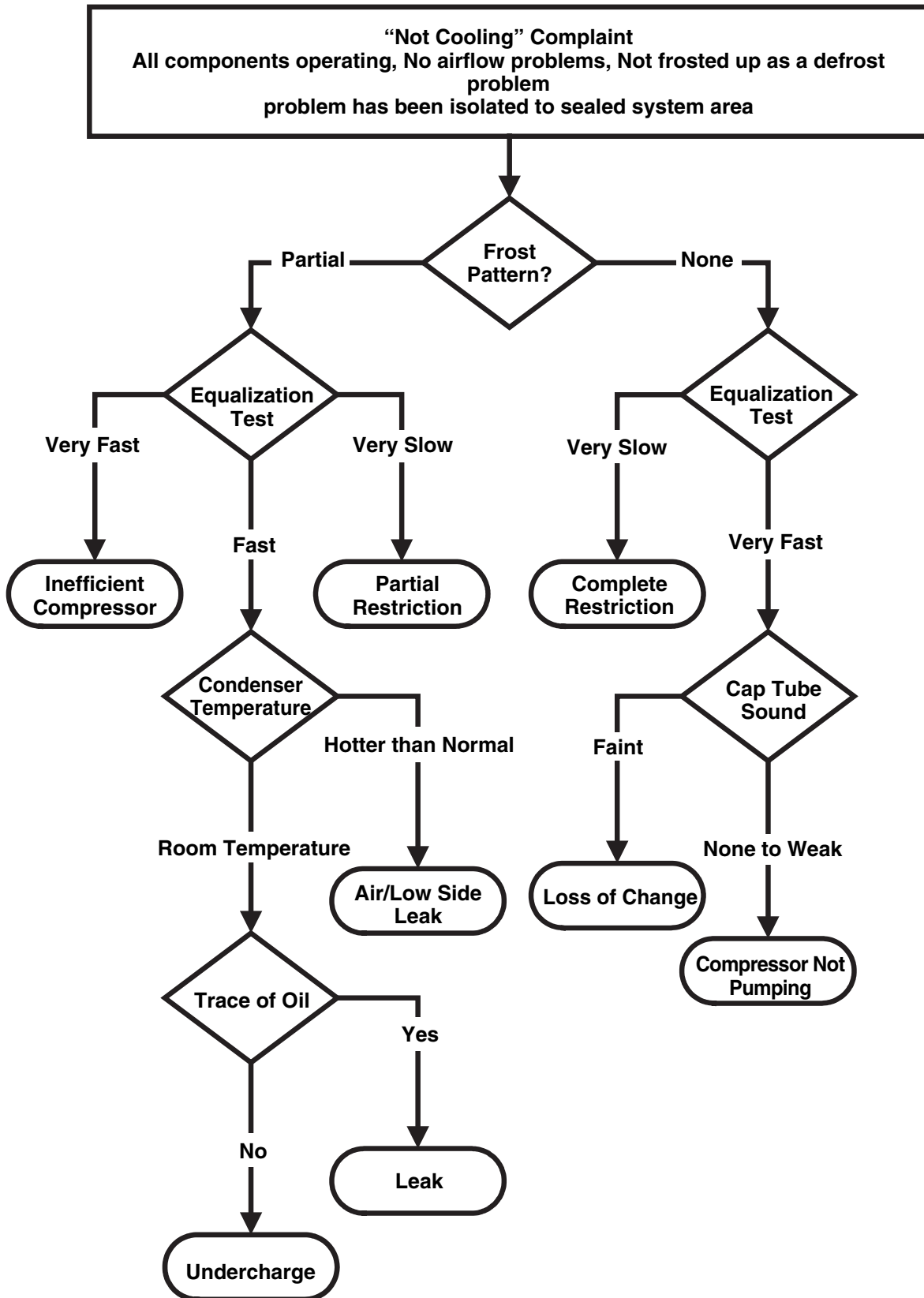
### 8-4-1 Cleaning

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.

8-4-2 SEALED SYSTEM DIAGNOSIS



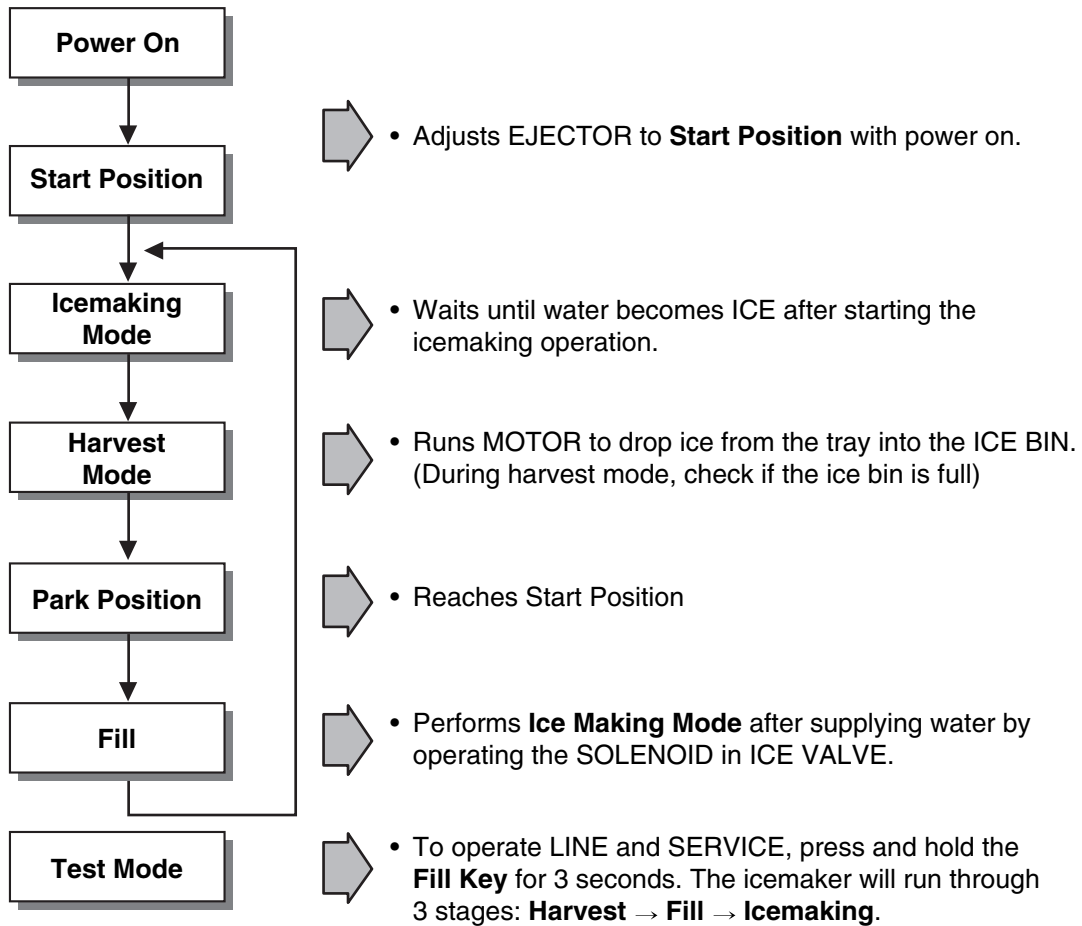
(The equalization test is trying to restart a compressor using a start kit after it has been operating.)



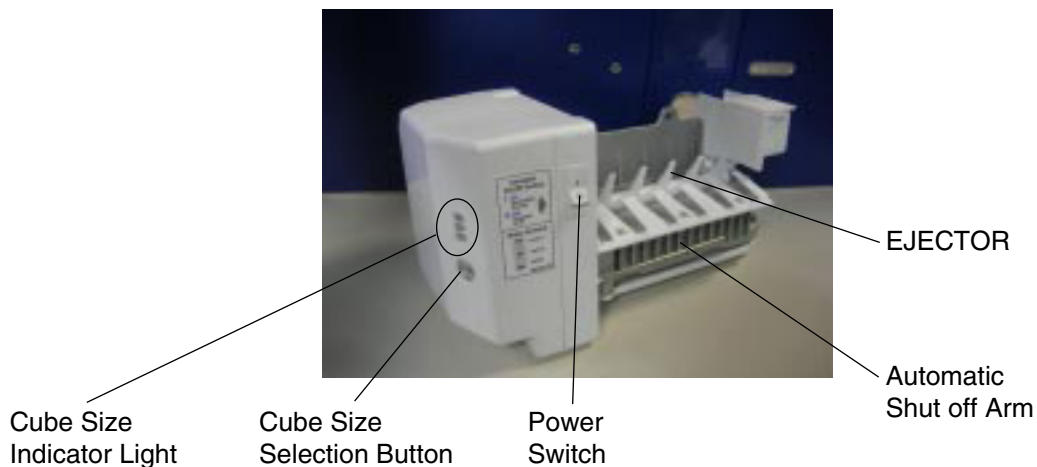
# 9. OPERATION PRINCIPLE AND REPAIR METHOD OF ICEMAKER

## 9-1 OPERATION PRINCIPLE

### 9-1-1 Operation Principle of IceMaker



1. Turning the Icemaker stop switch off (O) stops the ice making function.
2. Setting the Icemaker switch to OFF and then turning it back on will reset the icemaker control.



## 9-2 ICE MAKER FUNCTIONS

### 9-2-1. Icemaking Mode

1. Icemaking refers to the freezing of supplied water in the ice tray. Complete freezing is assured by measuring the temperature of the Tray with Icemaking SENSOR.
2. Icemaking starts after completion of the water fill operation.
3. The Ice Making function is completed when the sensor reaches 19°F (-7°C), 55 minutes after starting.

**NOTE :** After Icemaker Power is ON, the Icemaker heater will be on for test for 6 sec.




### 9-2-2. Harvest Mode

1. Harvest (Ice removing) refers to the operation of dropping ices into the ice bin from the tray when icemaking has completed.
  2. Harvest mode:
    - (1) The Heater is ON for 30 seconds, then the motor starts.
    - (2) The feeler arm senses the quantity of ice in the ice storage bin while rotating with the EJECTOR.
      - A. Ice storage bin is full : The EJECTOR stops (heater off).
      - B. Ice storage bin is not full : The EJECTOR rotates twice to open for ice.
- ※ If the EJECTOR does not rotate once within 5 minutes in B mode, separate heater control mode starts operating to prevent the EJECTOR from being constrained. (It is recommended that the user open for ice to return to normal mode.)

### 9-2-3. Fill/Park Position

1. Once a normal harvest mode has been completed, the water solenoid will be activated.
2. The amount of water is adjusted by pressing the Fill Key repeatedly. This changes the time allowed for fill as illustrated in the table below.






**Water supply amount TABLE**

STAGE	TIME TO SUPPLY	INDICATIONS	REMARKS
1	4.5 sec.		The water amount will vary depending on the water control Switch setting, as well as the water pressure of the connected water line.
2	4.7 sec.		
3	5.0 sec.		

### 9-2-4 Function TEST


1. This is a forced operation for TEST, Service, cleaning, etc. It is operated by pressing and holding the Fill Key for 3 seconds.
2. The test works only in the Icemaking Mode. It cannot be entered from the Harvest or Fill mode.
3. **Caution!** If the test is performed before water in the icemaker is frozen, the ejector will pass through the water. When the Fill mode begins (Stage 4), unless the water supply has been shut off, added water will overflow into the ice bin. If the control doesn't operate normally in the TEST mode, check and repair as needed.
4. After water is supplied, the normal CYCLE is followed: **icemaking** → **Harvest** → **Park Position** → **Fill**.
5. Five seconds after Stage 5 is completed, the Ice Maker returns to MICOM control. The time needed to supply water resets to the pre- test setting.

### Diagnosis TABLE

STAGE	ITEMS	INDICATOR	REMARKS
1	HEATER		Five seconds after heater starts, a heater will go off if the temperature by sensor is higher than 10°C
2	MOTOR		Five seconds after heater starts, you can confirm that a motor is moving.
3	HALL IC I		Check if Ice Bin is full or not. If Ice bin is full, the motor and heater are off and on stand by until Ice bin is empty.
4	HALL IC II		You can confirm HALL IC detection of start position.
5	VALVE		Two seconds after detection of start position, you can confirm that valve is on.
6	Reset	Return to Status prior to TEST MODE	Five seconds after fifth stage is completed, The icemaker resets to initial status.

### 9-3 DEFECT DIAGNOSIS FUNCTION

#### 9-3-1 ERROR CODES shown on Ice Maker water supply control panel

NO	DIVISION	INDICATOR	CONTENTS	REMARKS
1	Normal	Mark time to supply	None	Display switch operates properly
2	Icemaking Sensor malfunction		Open or short-circuited wire	Make sure that the wire on each sensor is connected.

# 10. DESCRIPTION OF FUNCTION & CIRCUIT OF MICOM

## 10-1 FUNCTION

### 10-1-1 Function

1. 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.
2. When the power is initially applied or restored after a power failure, it is set to Control temperature Previously.
3. 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)
4. If you press a button, 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 20 seconds. (Power Save Mode)



5. 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.

### 10-1-2 How to Toggle the Display between °F & °C

1. 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.

### 10-1-3 Lock function (dispenser and display button lock)

1. When the refrigerator is first turned on, the buttons are not locked. "LOCK" is deactivated with light off.
2. To lock the display, the dispenser, and the control panel, press and hold the LOCK button for 3 seconds. "LOCK" is activated with light on.
3. 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.
4. To release from the locked state, press and hold the LOCK button again for 3 seconds.



Ex) In selecting "LOCK"

Ex) In selecting "LOCK" again

### 10-1-4 Filter condition display function

1. There is a replacement indicator light for the filter cartridge on the dispenser.
2. Water filter needs replacement once six months or of using water filter.
3. When the Water Filter Icon blinks, you must exchange the filter.
4. 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		

### 10-1-5 Ice Plus selection

Please select this function for quick freezing.

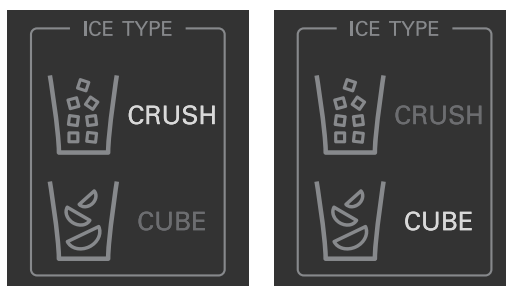
- When you press the Ice Plus Button, the Ice Plus ICON will be turned on again.
- Ice Plus function automatically turns off after a fixed time passes.



### 10-1-6 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.



### 10-1-7 CONTROL OF FREEZER FAN MOTOR

1. Freezer fan motor has high and standard speeds.
2. High speed is used at power-up, for Ice Plus, 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, Ice Plus.  
Normal speed (2400RPM) : General working conditions.

### 10-1-8 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 then 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).

### 10-1-9 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)

### 10-1-10 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).

---

### 10-1-10 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 three hours the compressor and Freezer Fan will be ON. The next 21 hours the freezer will be controlled at the lowest temperature. After 24 hours or if the Ice Plus key is pressed again, the freezer will return to its previous temperature.
5. During the first 3 hours :
  - (1) Compressor and freezer fan (HIGH RPM) run continuously.
  - (2) If a defrost cycle begins during the first 90 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 90 minutes, Ice Plus will run for two hours 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.
  - (5) The fan motor in the freezer compartment runs at high speed during Ice Plus.
6. For the rest of the 21 hours, the freezer will be controlled at the lowest temperature.

### 10-1-11 Select/Cancel Display Mode

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.
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)

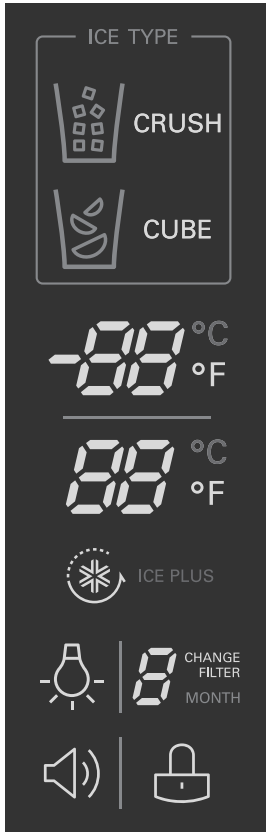
### 10-1-12 Defrosting (removing frost)

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)

---

### 10-1-13 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.



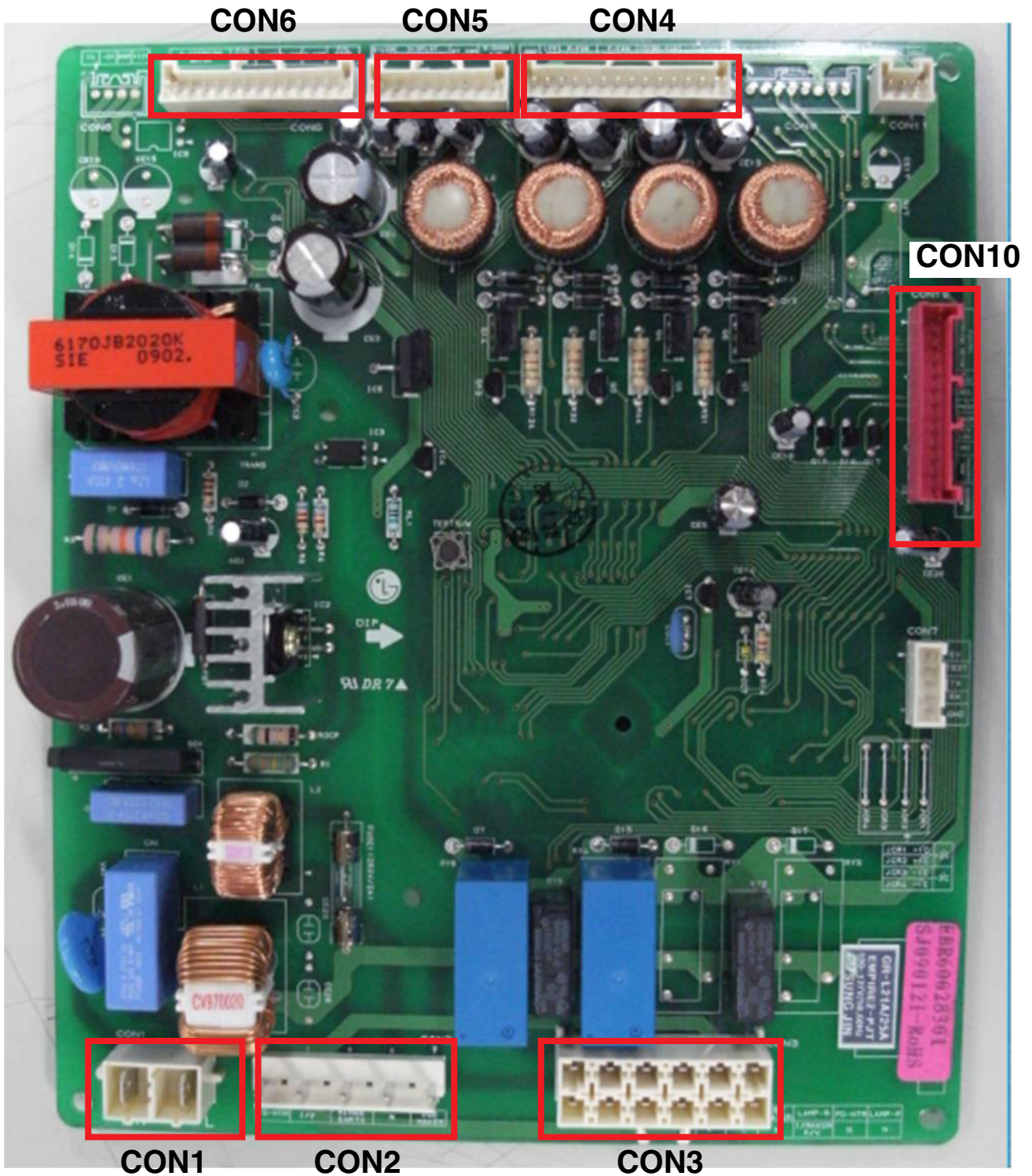
Display check function: If simultaneously pressing Ice Plus button and freezing temperature adjustment button for a second, display LCD graphics on. If releasing the button, the LCD graphic displays the previous status.  
You can check the error code 3 hours before the error.

### 10-1-14 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.

# 10-2. PWB ASSEMBLY

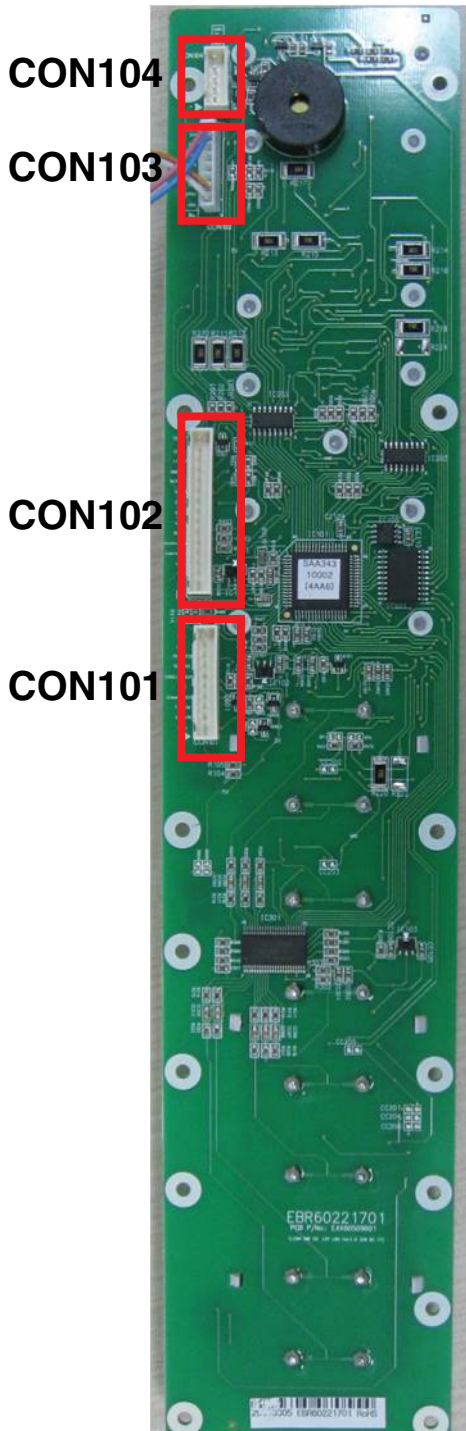
## 10-2-1 Main PWB Assembly (EBR600283)





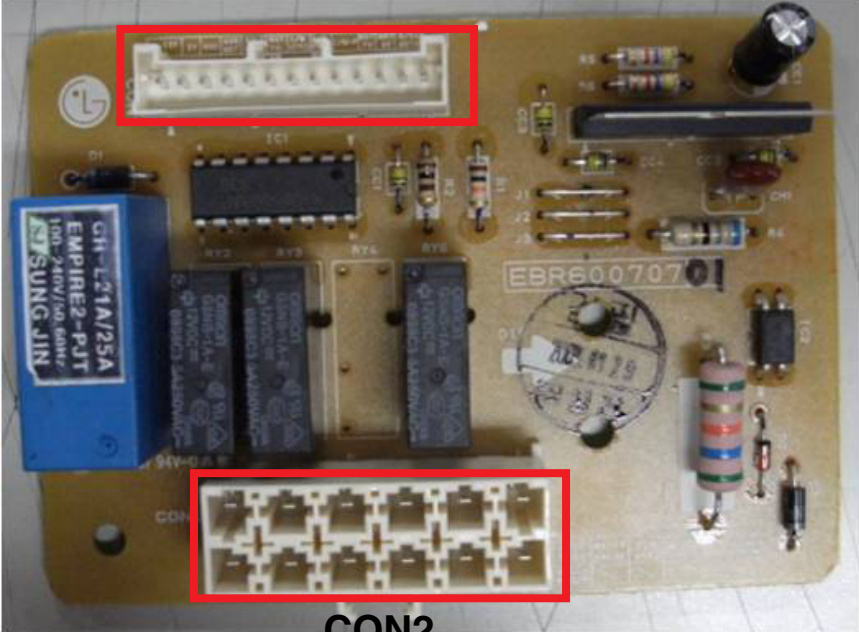
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10-2-2 Display and Dispenser Drive PCB Assembly



**Display PWB**

**CON1**



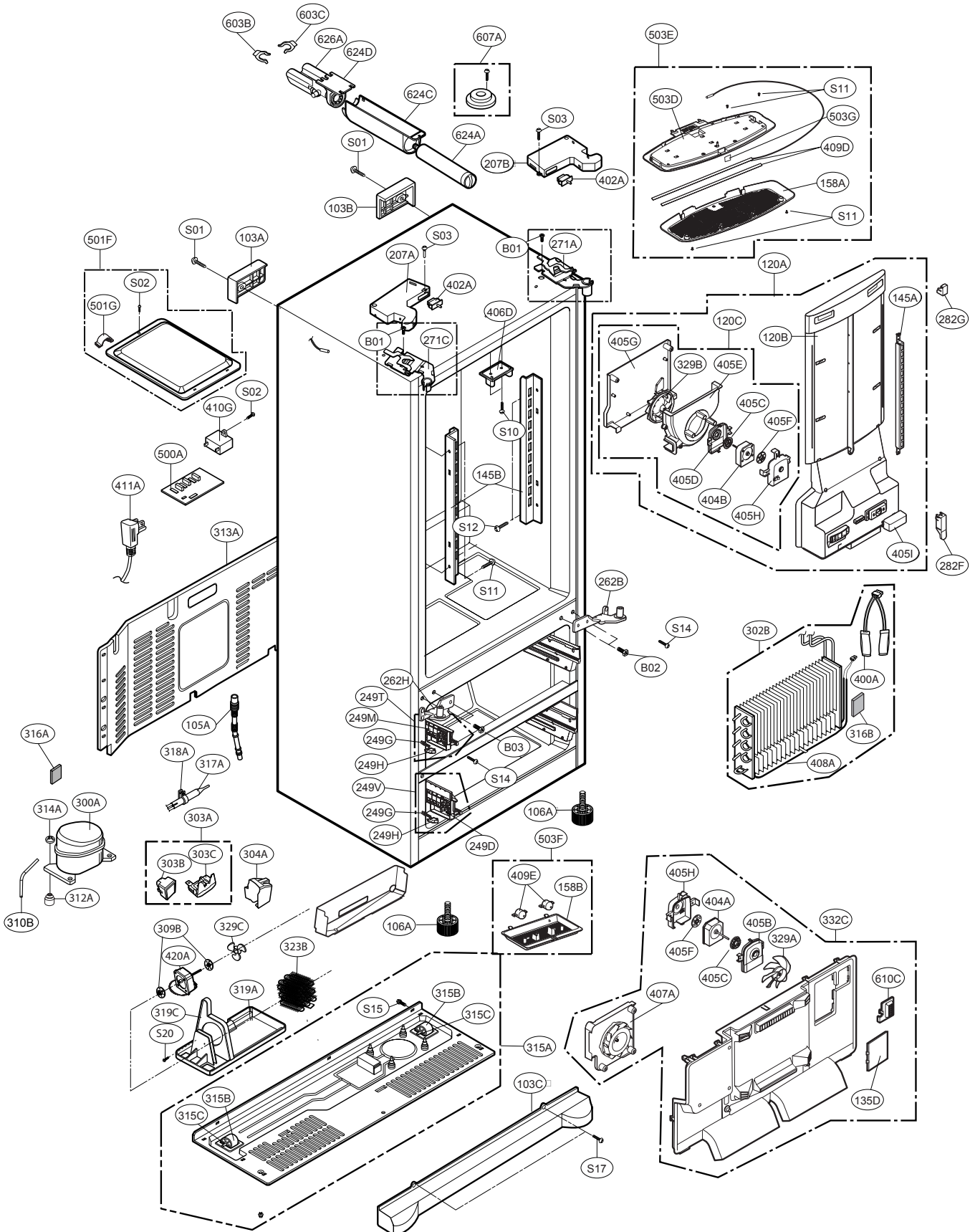
**CON2**

**Dispenser PWB**

# 11. EXPLODED VIEW & REPLACEMENT PARTS LIST

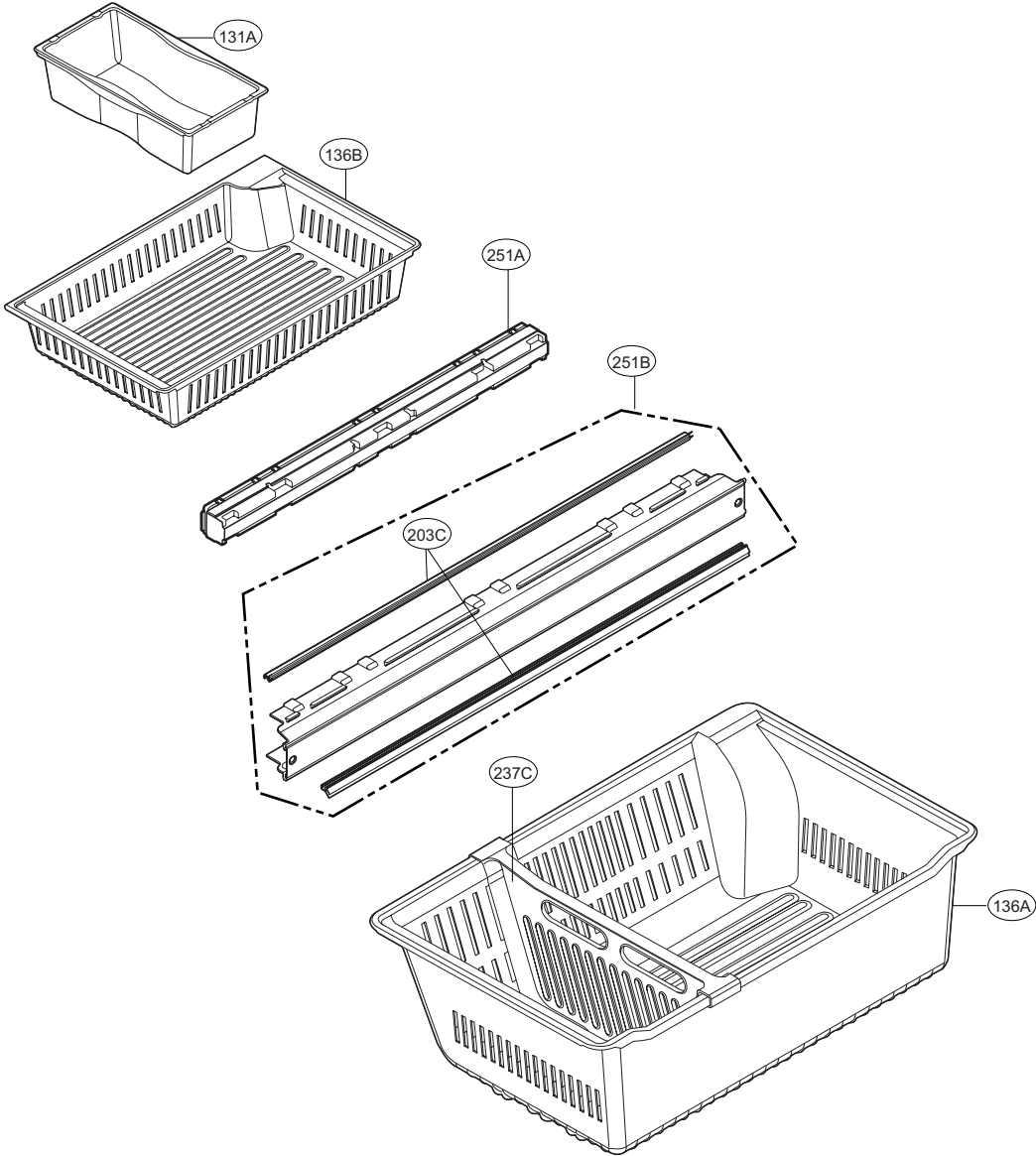
## CASE PARTS

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



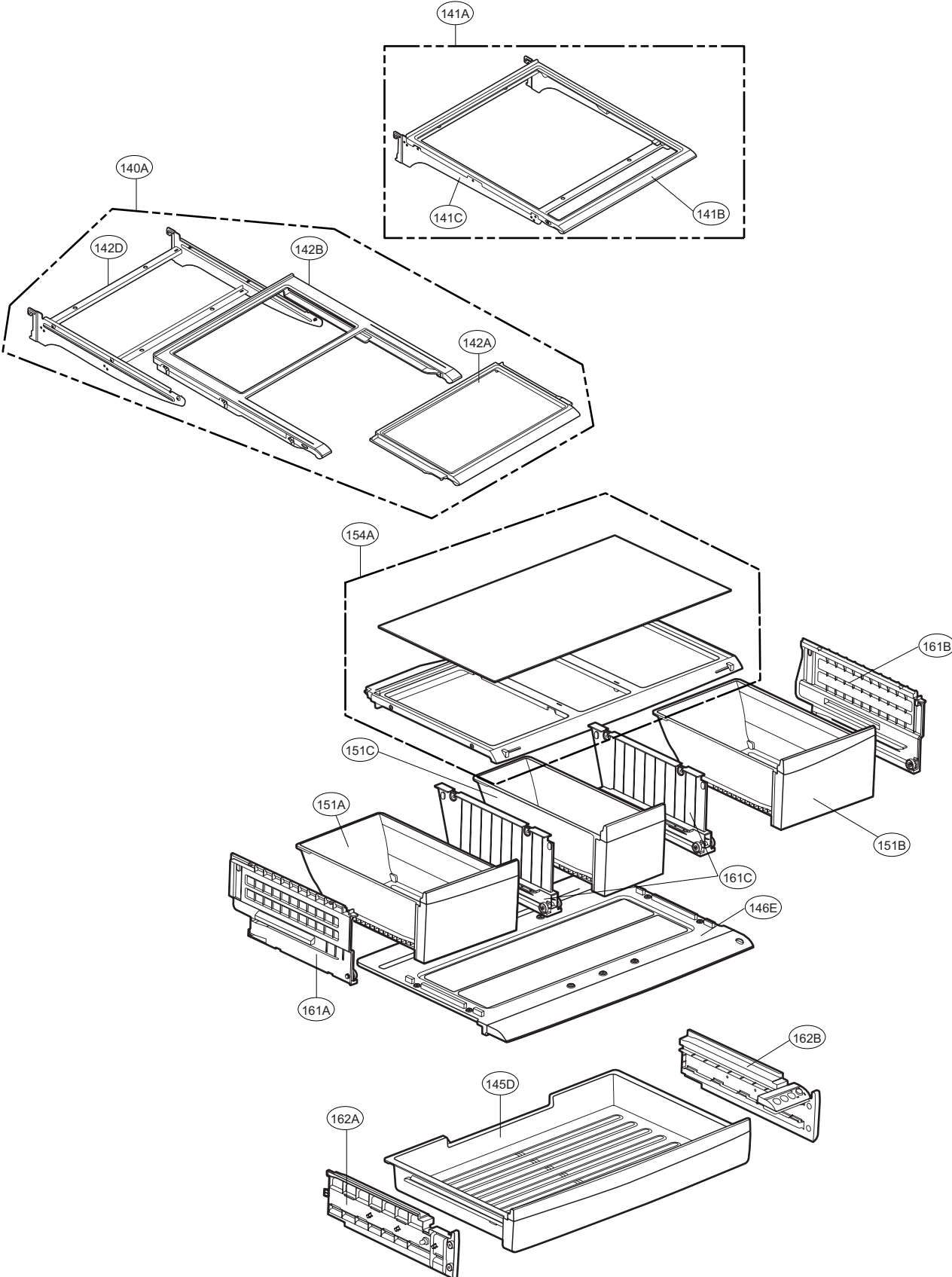
# FREEZER PARTS

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



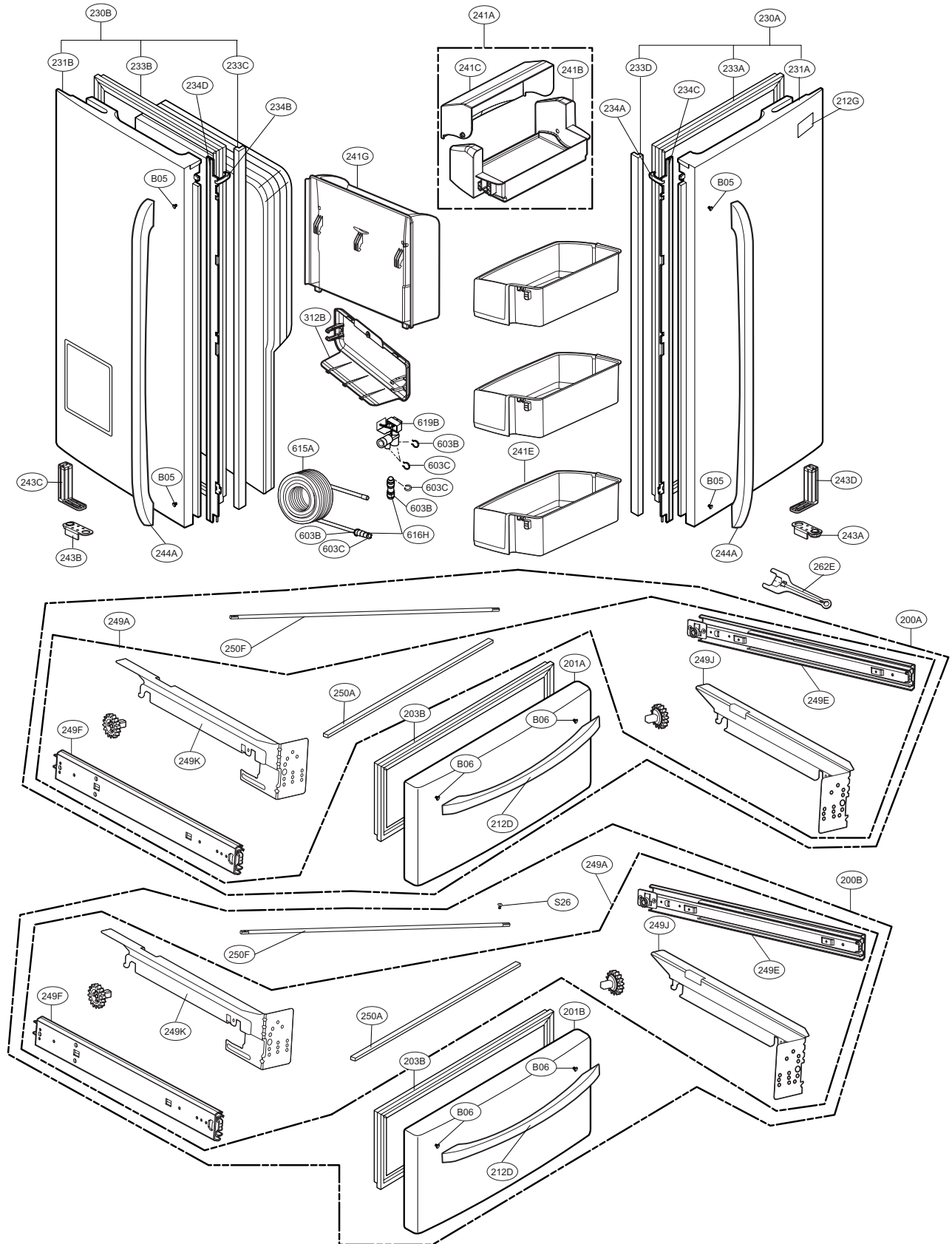
# REFRIGERATOR PARTS

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



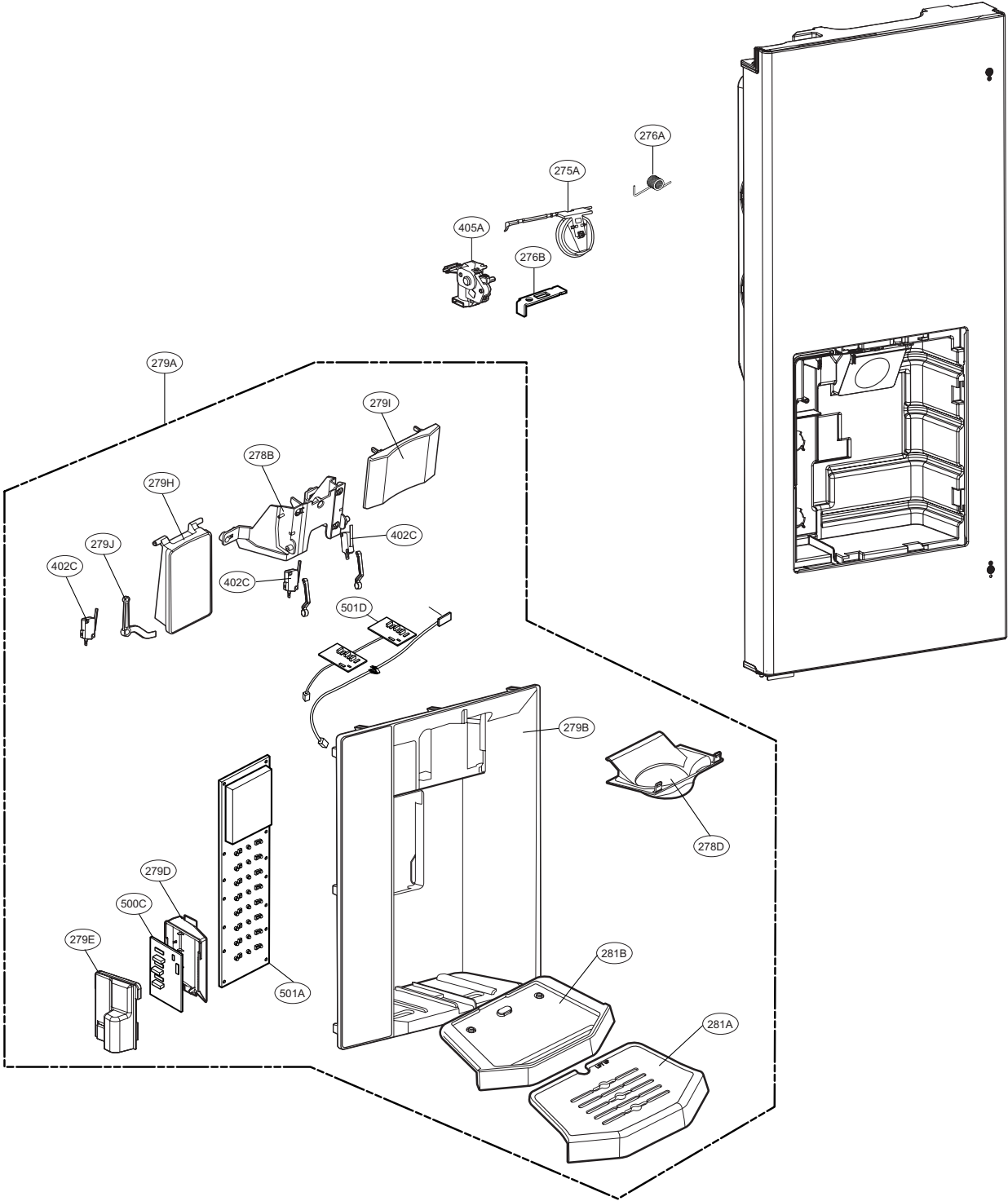
# DOOR PARTS

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



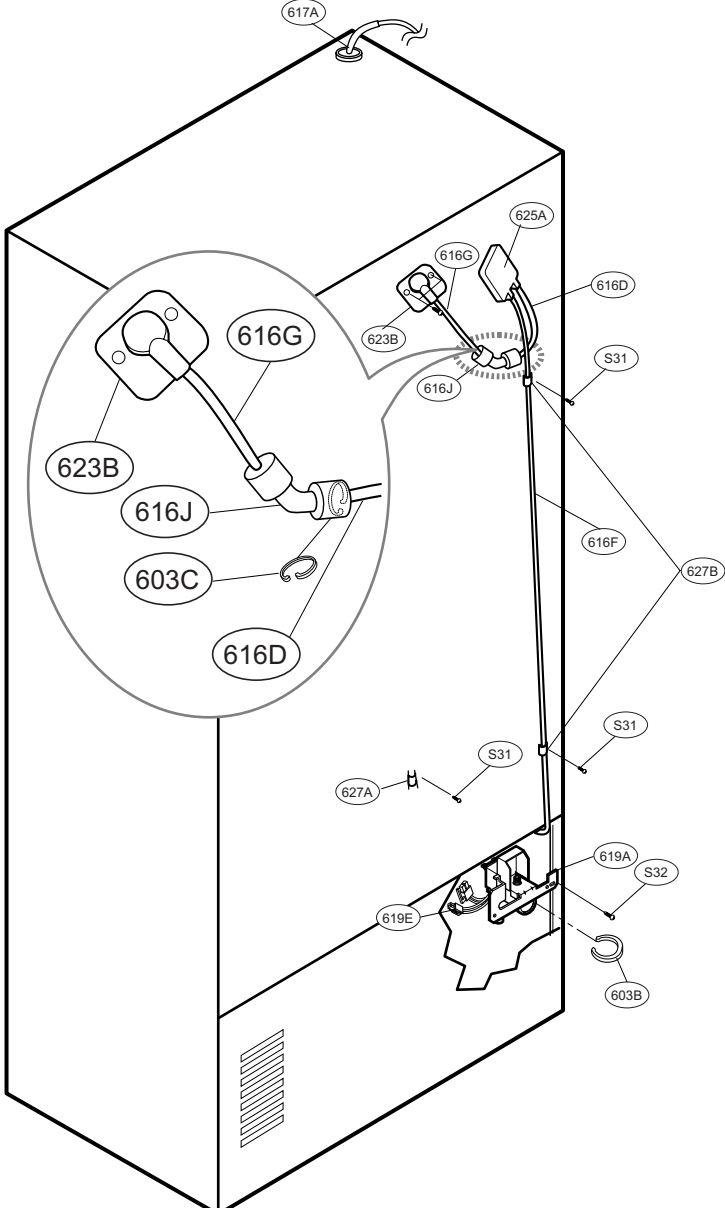
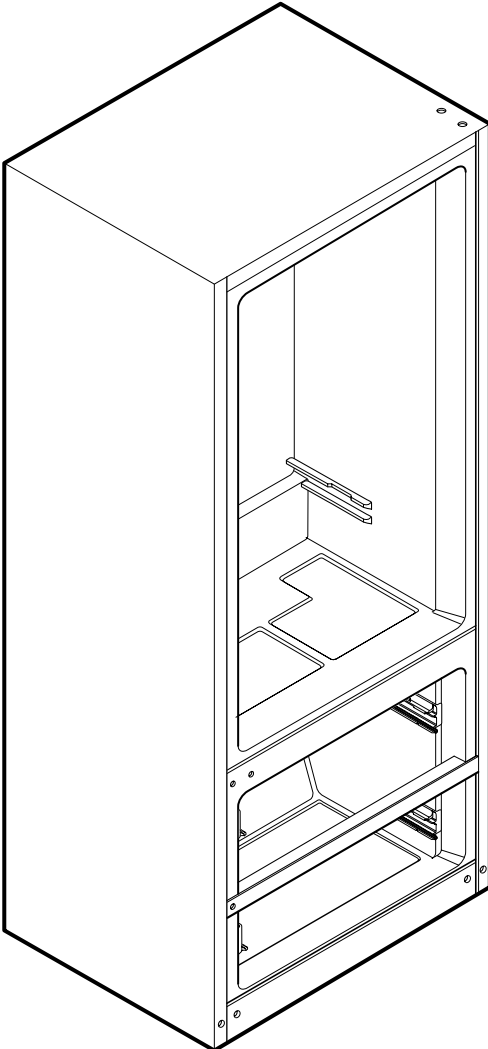
# DISPENSER PARTS

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



# ICE & WATER PARTS

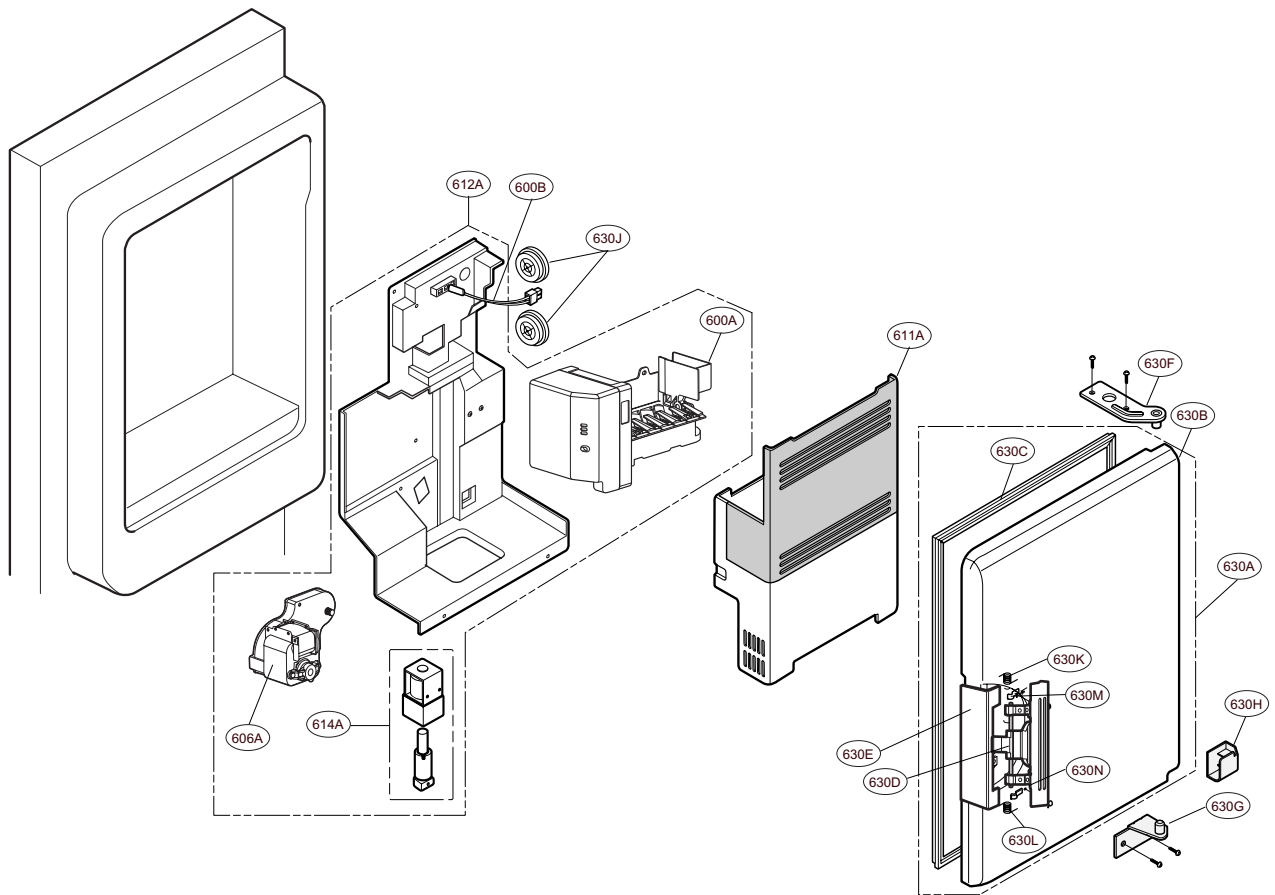
CAUTION: Use the part number to order part, not the position number.





# ICE BANK PARTS

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





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