

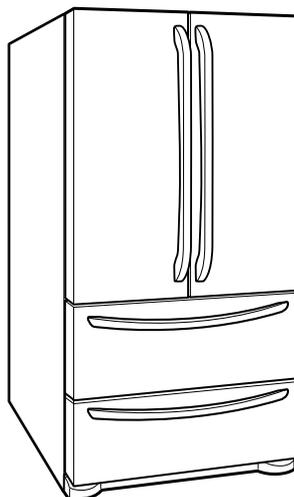


LG

REFRIGERATOR

SERVICE MANUAL

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



MODEL : LMC25780**

COLOR : WESTERN BLACK(SB)
ILLUMINA(AL)
SUPER WHITE(SW)

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SAFETY PRECAUTIONS

Please read the following instructions before servicing your refrigerator.

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

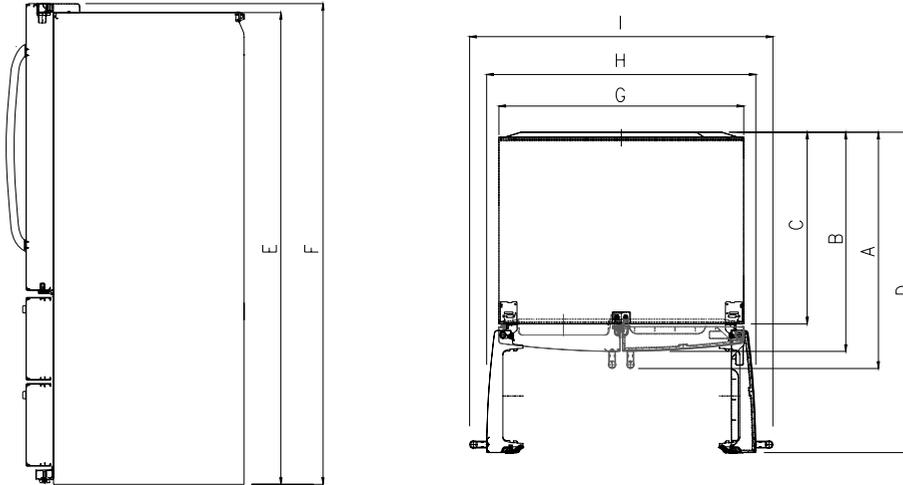
1. SPECIFICATIONS

25 cu. ft

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

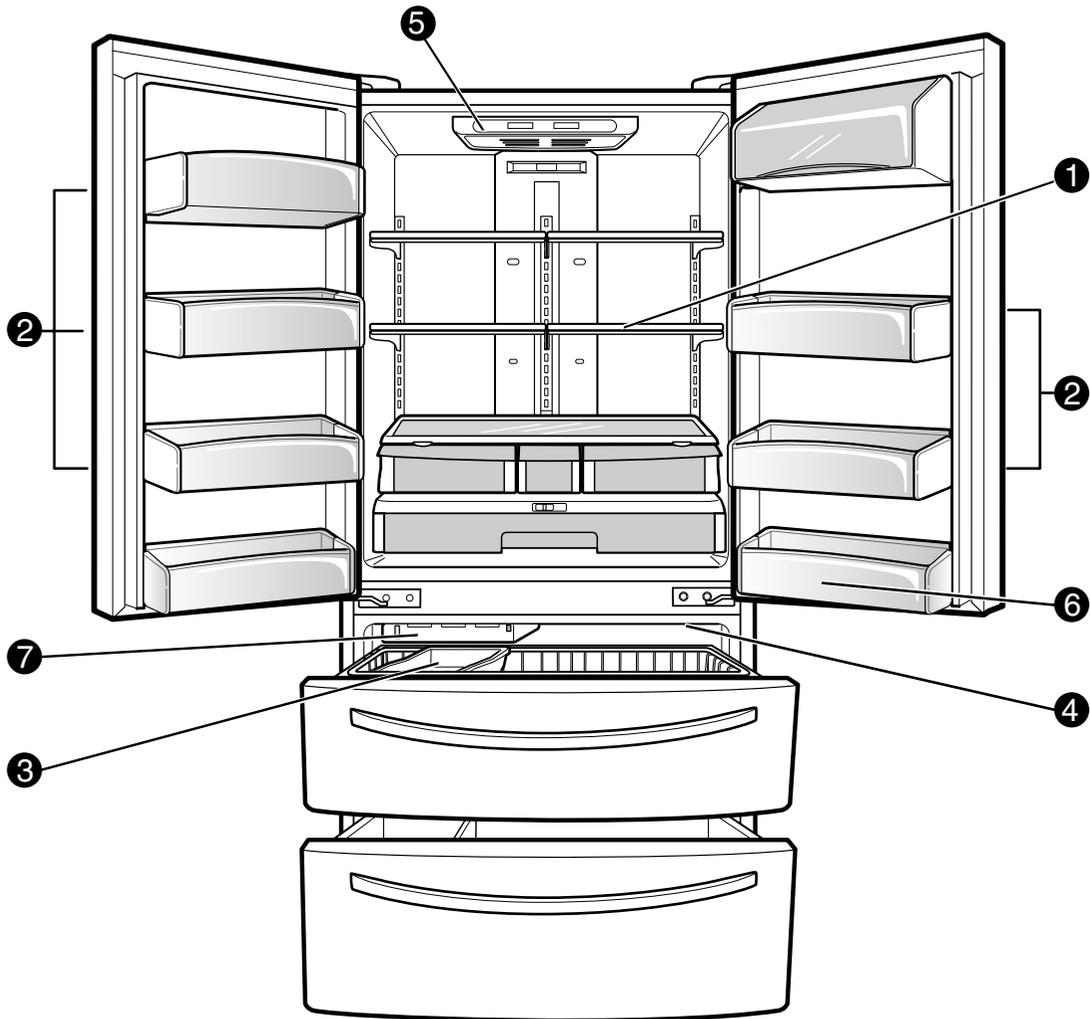
ITEMS	SPECIFICATIONS	
VEGETABLE TRAY	Opaque Drawer Type	
COMPRESSOR	Recipro	
EVAPORATOR	Fin Tube Type	
CONDENSER	Wire Condenser	
REFRIGERANT	R-134a (130 g)	
LUBRICATING OIL	ISO10 (280 ml)	
DEFROSTING DEVICE	SHEATH HEATER	
LAMP	REFRIGERATOR	60W (2EA)
	FREEZER	60W (1EA)

DIMENSIONS



Description		LMC25780**
Depth w/ Handles	A	34 1/4 in.
Depth w/o Handles	B	31 1/4 in.
Depth w/o Door	C	27 7/8 in.
Depth (Total with Door Open)	D	46 1/2 in.
Height to Top of Case	E	68 3/8 in.
Height to Top of Door Hinge	F	69 3/4 in.
Width	G	35 3/4 in.
Width (door open 90 deg. w/o handle)	H	39 1/4 in.
Width (door open 90 deg. w/ handle)	I	44 1/4 in.

2. PARTS IDENTIFICATION



1 ADJUSTABLE REFRIGERATOR SHELVING

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

2 MODULAR DOOR 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 INTERIOR LAMP

5 Digital Sensor Control

6 FIXED DOOR BIN

7 AUTOMATIC ICEMAKER

3. DISASSEMBLY

3-1 REMOVING AND REPLACING REFRIGERATOR DOORS

● Removing Refrigerator Door

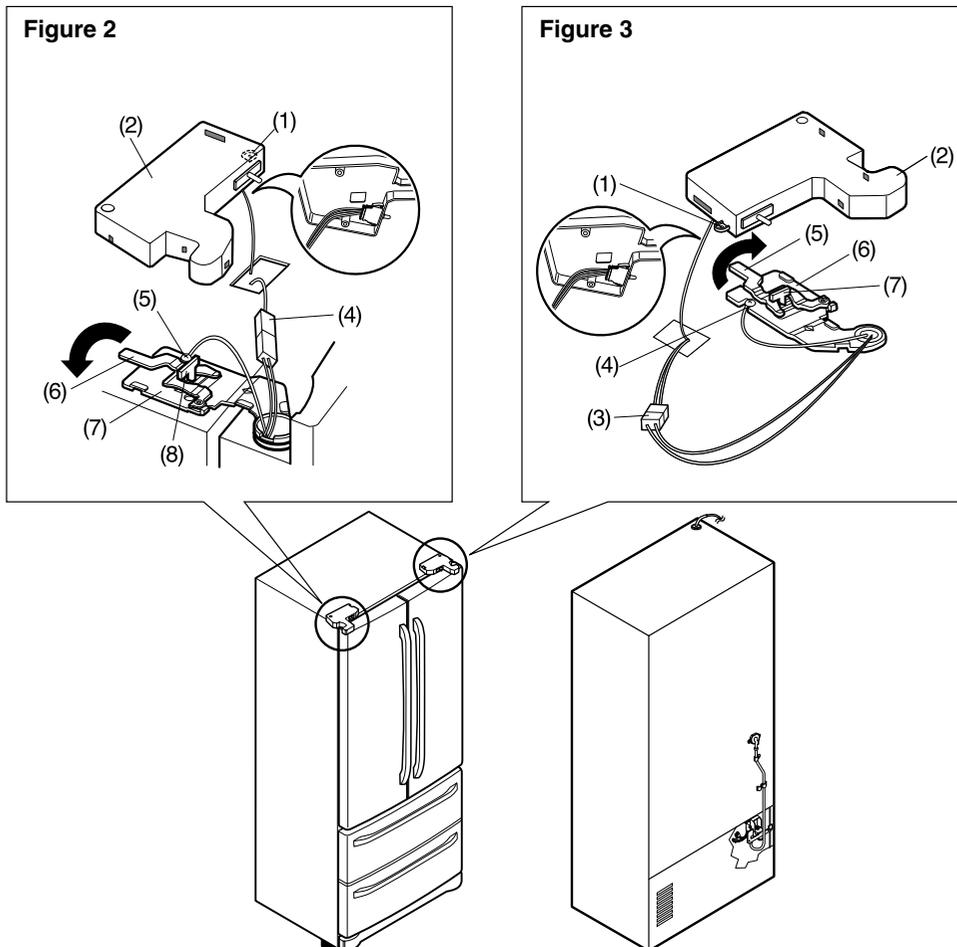
▲ **CAUTION** : Before you begin, unplug the refrigerator. Remove food and bins from doors.

▶ Left Door -FIG. 2

1. Open door. Loosen top hinge cover screw (1).
Use flat tip screwdriver to pry back hooks on front underside of cover (2). Lift up cover.
 2. Disconnect door switch wire harness. Remove cover.
 3. Disconnect the three wire harnesses (4). Remove the grounding screw (5).
 4. Rotate hinge lever (6) counterclockwise. Lift top hinge (7) free of hinge lever latch (8).
- ▲ **CAUTION** : When lifting hinge free of latch, be careful that door does not fall forward.
5. Place door, inside facing up, down onto a non-scratching surface.

▶ Right Door -FIG. 3

1. Open door. Loosen top hinge cover screw (1). Lift up cover (2).
 2. Disconnect door switch wire harness. Remove cover.
 3. Disconnect wire harness (3).
 4. Remove the grounding screw (4).
 5. Rotate hinge lever (5) clockwise. Lift top hinge (6) free of hinge lever latch (7).
- ▲ **CAUTION** : When lifting hinge free of latch, be careful that door does not fall forward.
6. Lift door up from middle hinge pin door.
 7. Place door, inside facing up, down onto a non-scratching surface.



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.

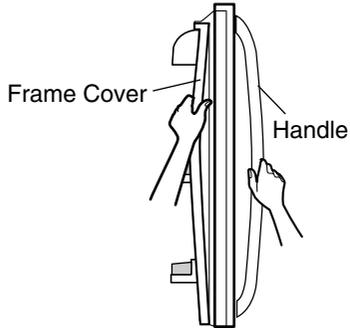


Figure 1

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.

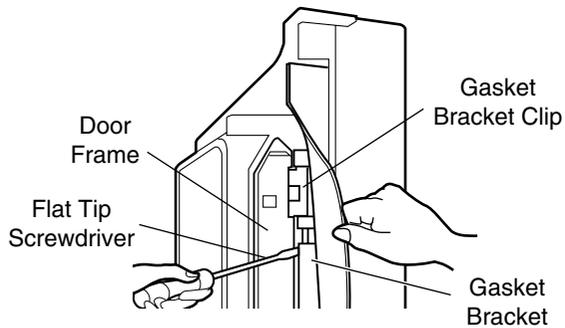


Figure 2

3. Remove gasket

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

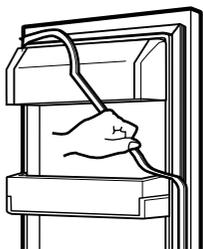


Figure 3

● 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.

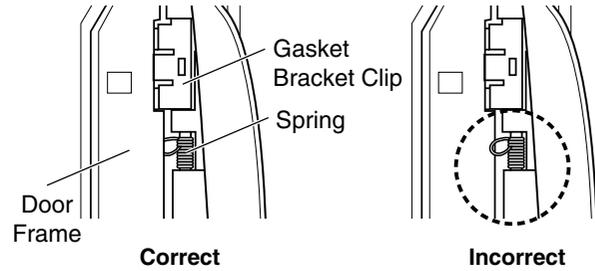


Figure 4

- 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>

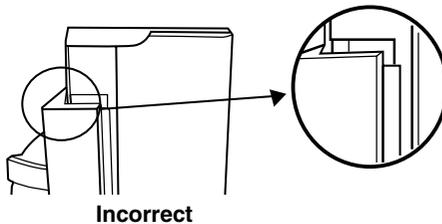
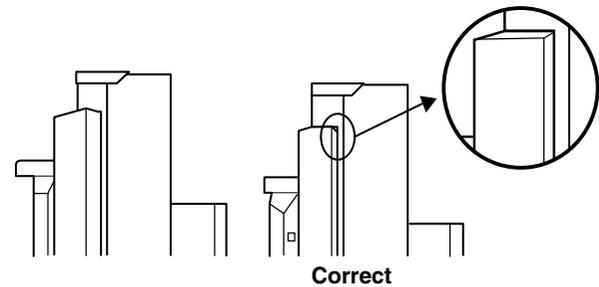


Figure 5

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

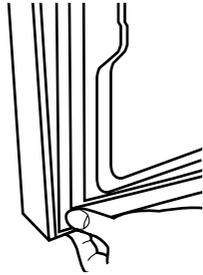


Figure 6

3. Replace door frame cover

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

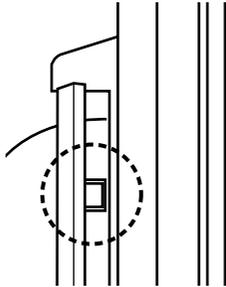


Figure 7

3-3 DOOR ALIGNMENT

If the space between your doors is uneven, follow the instructions below to align the doors:

1. With one hand, lift the door you want to raise at middle hinge.
2. With other hand, use pliers to insert snap ring as shown.
3. Insert additional snap rings until the doors are aligned.
(Three snap rings are provided with the product.)

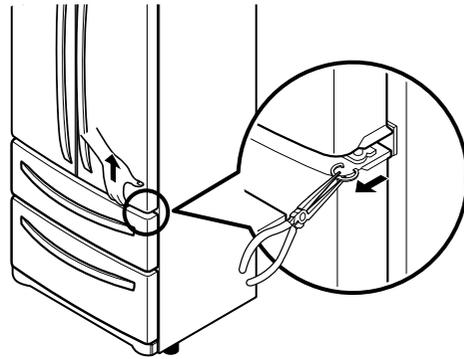


Figure 8

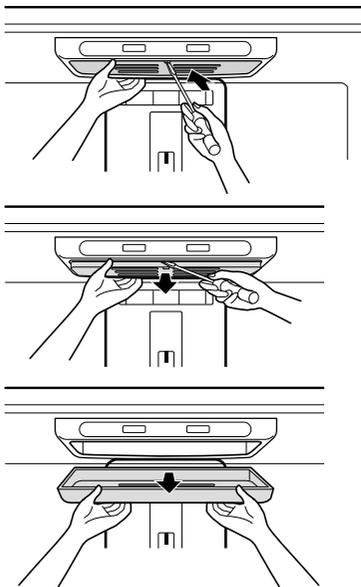
3-4 LAMP

Unplug Refrigerator, or disconnect power at the circuit breaker.

If necessary, remove top shelf or shelves.

3-4-1 Refrigerator Compartment Lamp

1. Using a flat instrument, gently pry the lamp cover loose in the front as shown. Rotate downward to remove rear tabs.
2. Make sure the bulbs are cool to the touch. Turn bulbs counterclockwise to remove. Insert new bulb(s).
3. Replace with a new 60-watt appliance bulb.
4. Assemble in reverse order by snapping the Lamp Cover in, engaging the rear tabs followed by the front tabs.



3-4-2 Freezer Compartment Lamp

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



Figure 15

3-5 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.

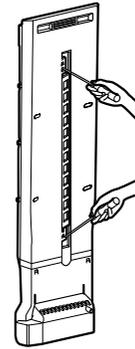


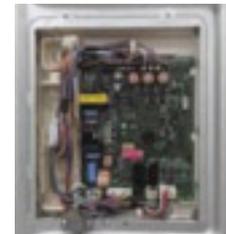
Figure 16

3-6 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.



3-7 HOW TO REMOVE AND REINSTALL THE PULLOUT DRAWER

3-7-1 Follow Steps to Remove

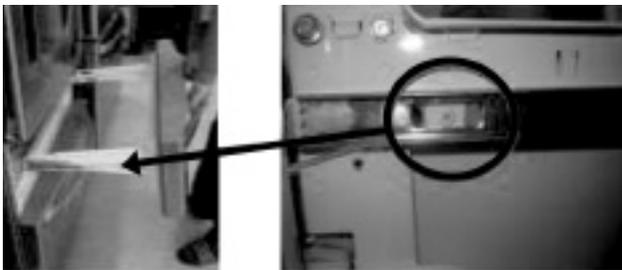
Step 1) Open the freezer door.



Step 2) Remove the lower basket.



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



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

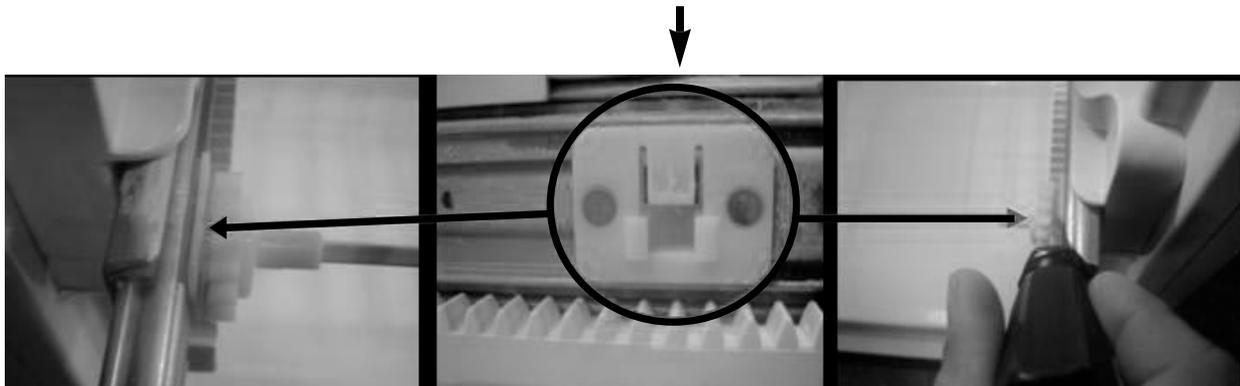


Step 5) First: Remove the gear from the left side first by releasing the tab behind the gear, place a screwdriver between the gear and the tab and pull up on the gear.

Second: Remove the center rail.

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

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



3-7-2 Follow Steps to Reinstall

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



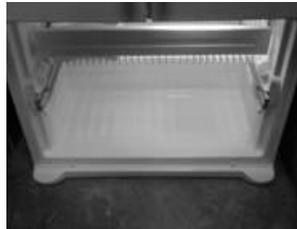
Step 2) Insert the rail into the right side gear. Gears do **not** need to be perpendicular to each other.



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



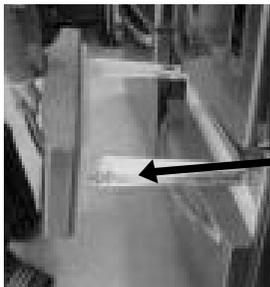
Step 4) The rail system will align itself by pushing the rails all the way into the freezer section. Pull the rails back out to full extension.



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).

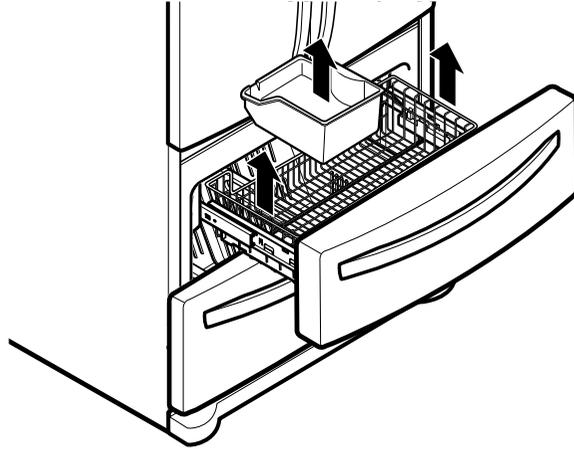


Step 7) Reinstall the lower basket, and close the freezer door.



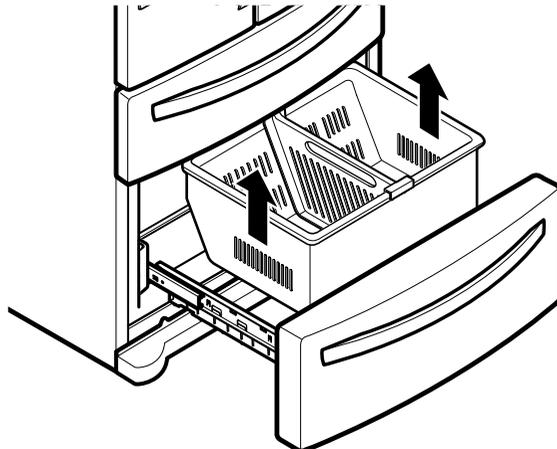
3-8 TOP DRAWER

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.



3-9 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

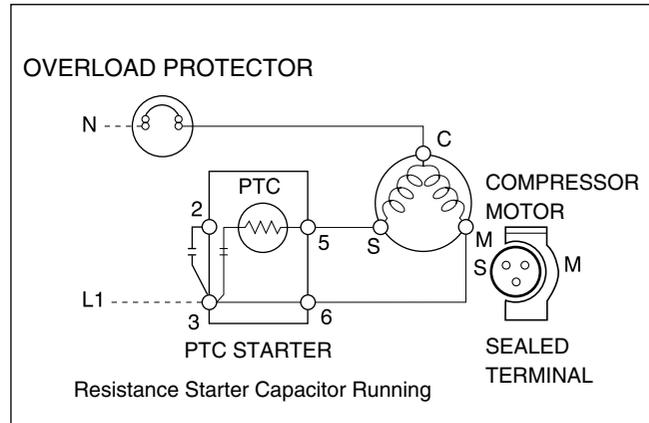
- (1) PTC (Positive Temperature Coefficient) is a no-contact semiconductor starting device which uses ceramic material consisting of BaTiO_3 .
- (2) The higher the temperature is, the higher the resistance value. These features are used as a starting device for the Motor.

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.

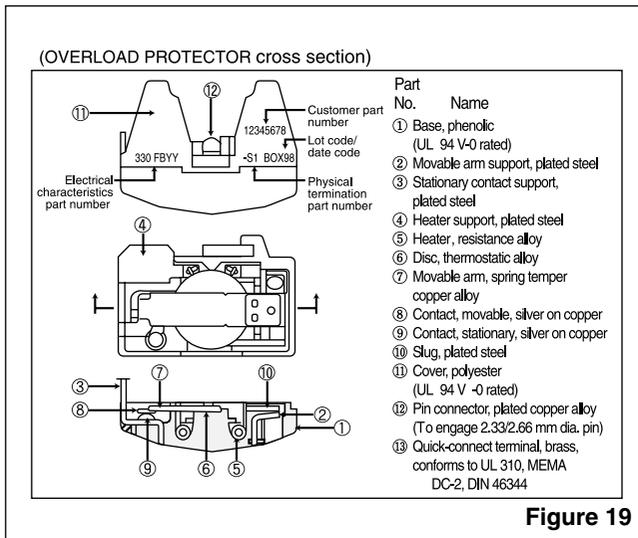
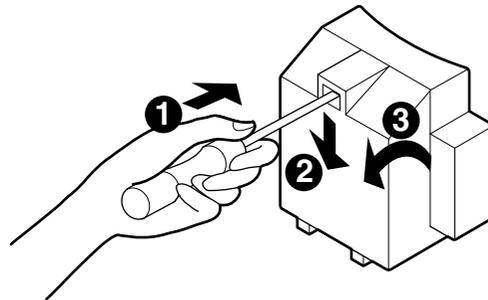


Figure 19

4-4 TO REMOVE THE COVER PTC



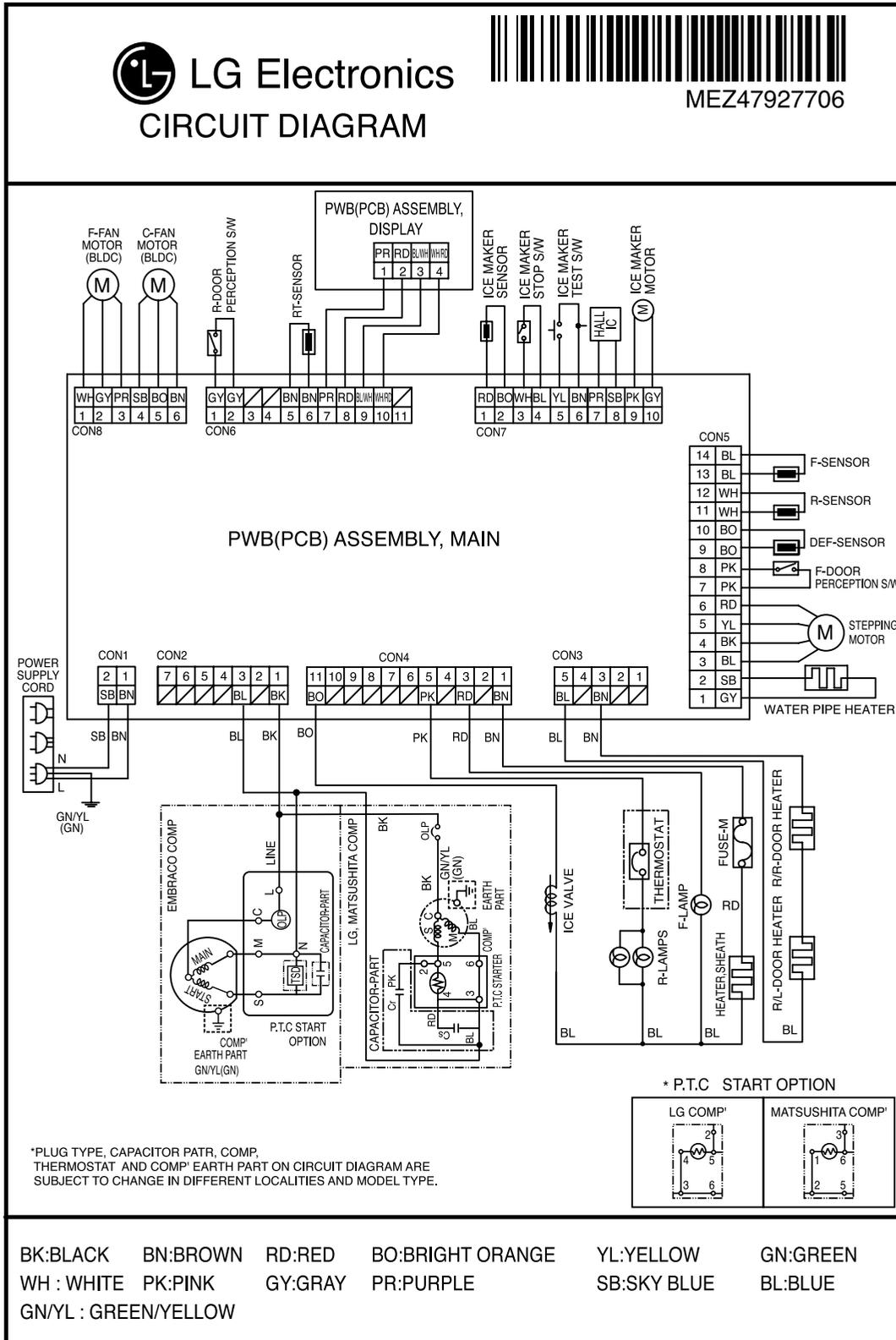
- (1) Remove the Cover Back M/C.
- (2) Disconnect two housing upper side of comp connected in.
- (3) Loosen two screws on comp base.



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

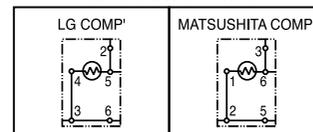
5. CIRCUIT DIAGRAM

 LG Electronics
CIRCUIT DIAGRAM



PLUG TYPE, CAPACITOR PATR, COMP, THERMOSTAT AND COMP EARTH PART ON CIRCUIT DIAGRAM ARE SUBJECT TO CHANGE IN DIFFERENT LOCALITIES AND MODEL TYPE.

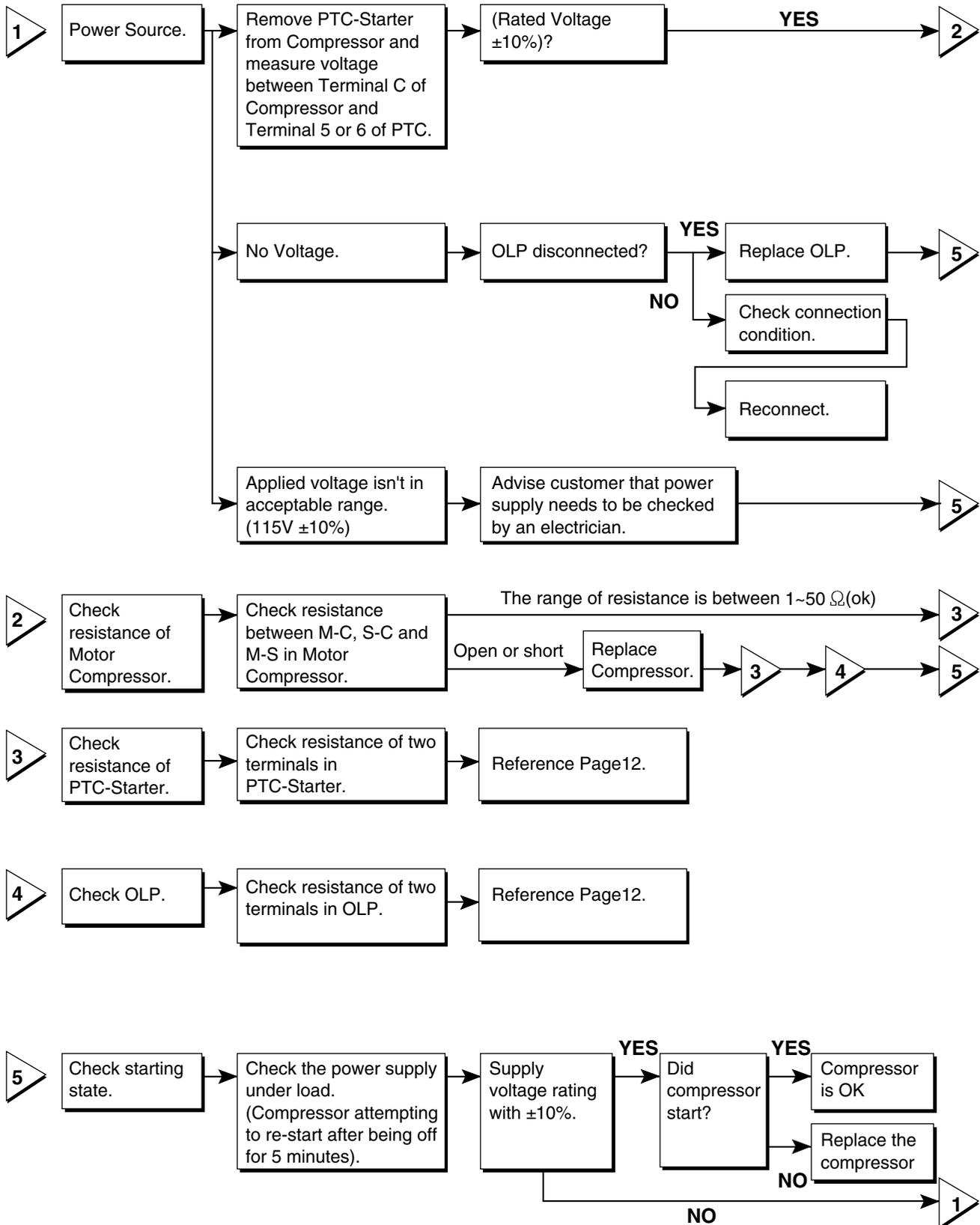
* P.T.C. START OPTION



BK:BLACK BN:BROWN RD:RED BO:BRIGHT ORANGE YL:YELLOW GN:GREEN
 WH : WHITE PK:PINK GY:GRAY PR:PURPLE SB:SKY BLUE BL:BLUE
 GN/YL : GREEN/YELLOW

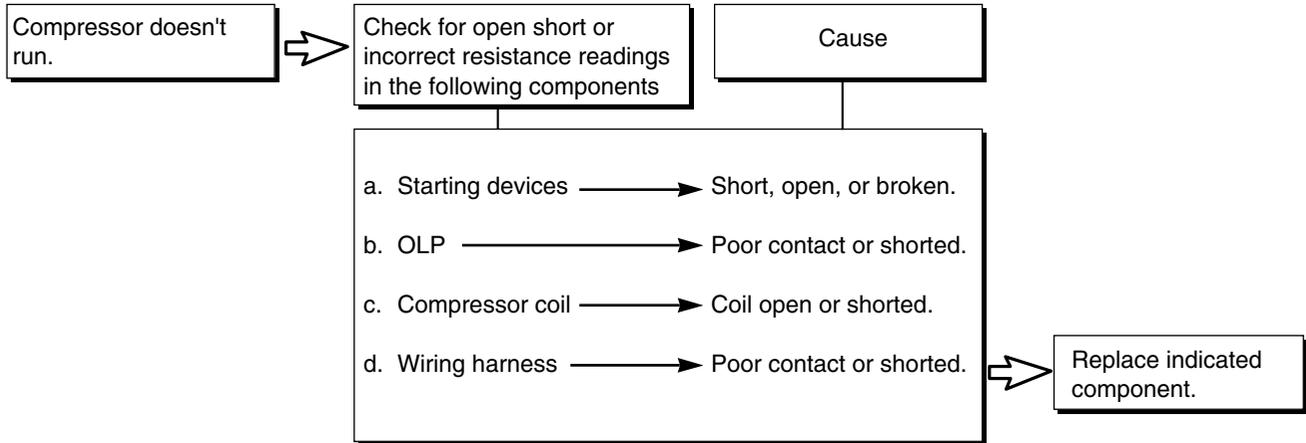
6. TROUBLESHOOTING

6-1 COMPRESSOR AND ELECTRIC COMPONENTS

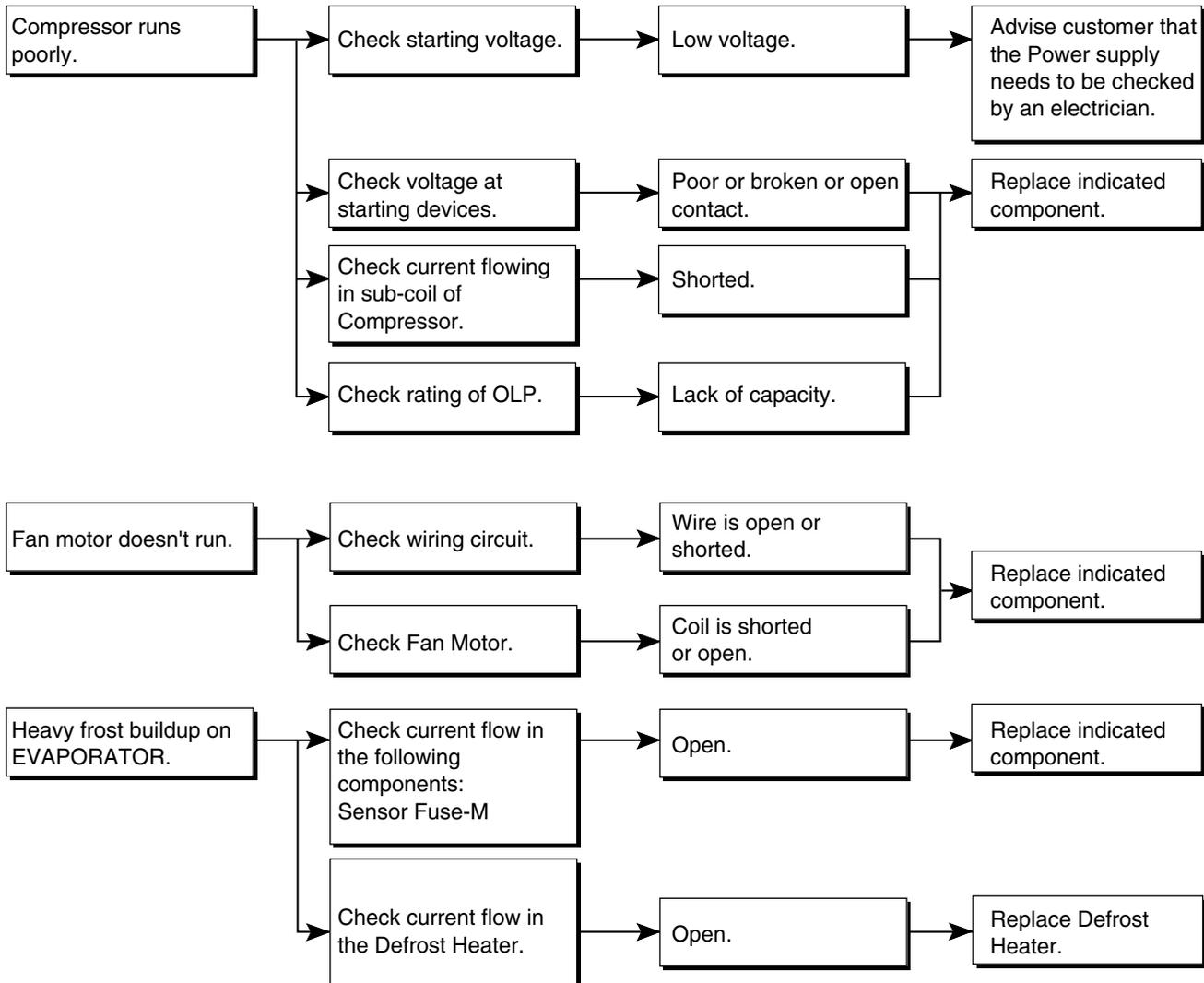


6-2 OTHER ELECTRICAL COMPONENTS

▼ Not cooling at all



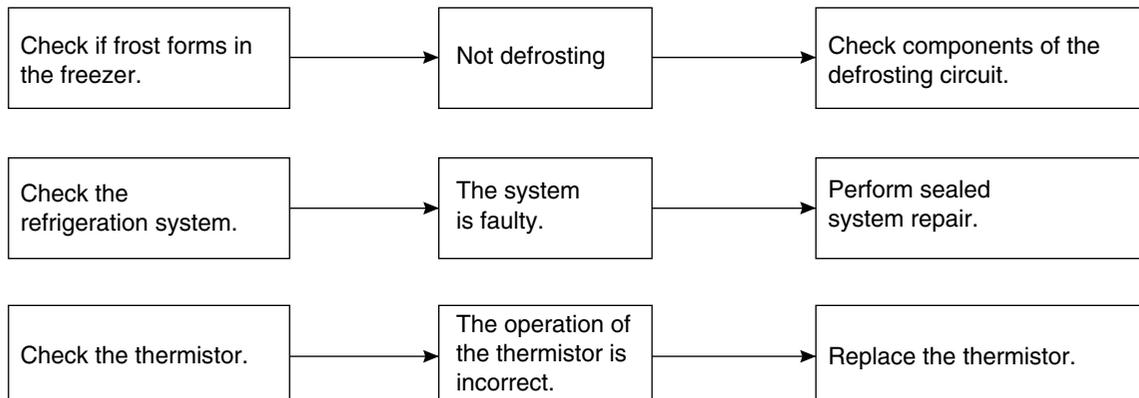
▼ Poor cooling performance



6-4 SERVICE DIAGNOSIS CHART

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

● Other possible problems:

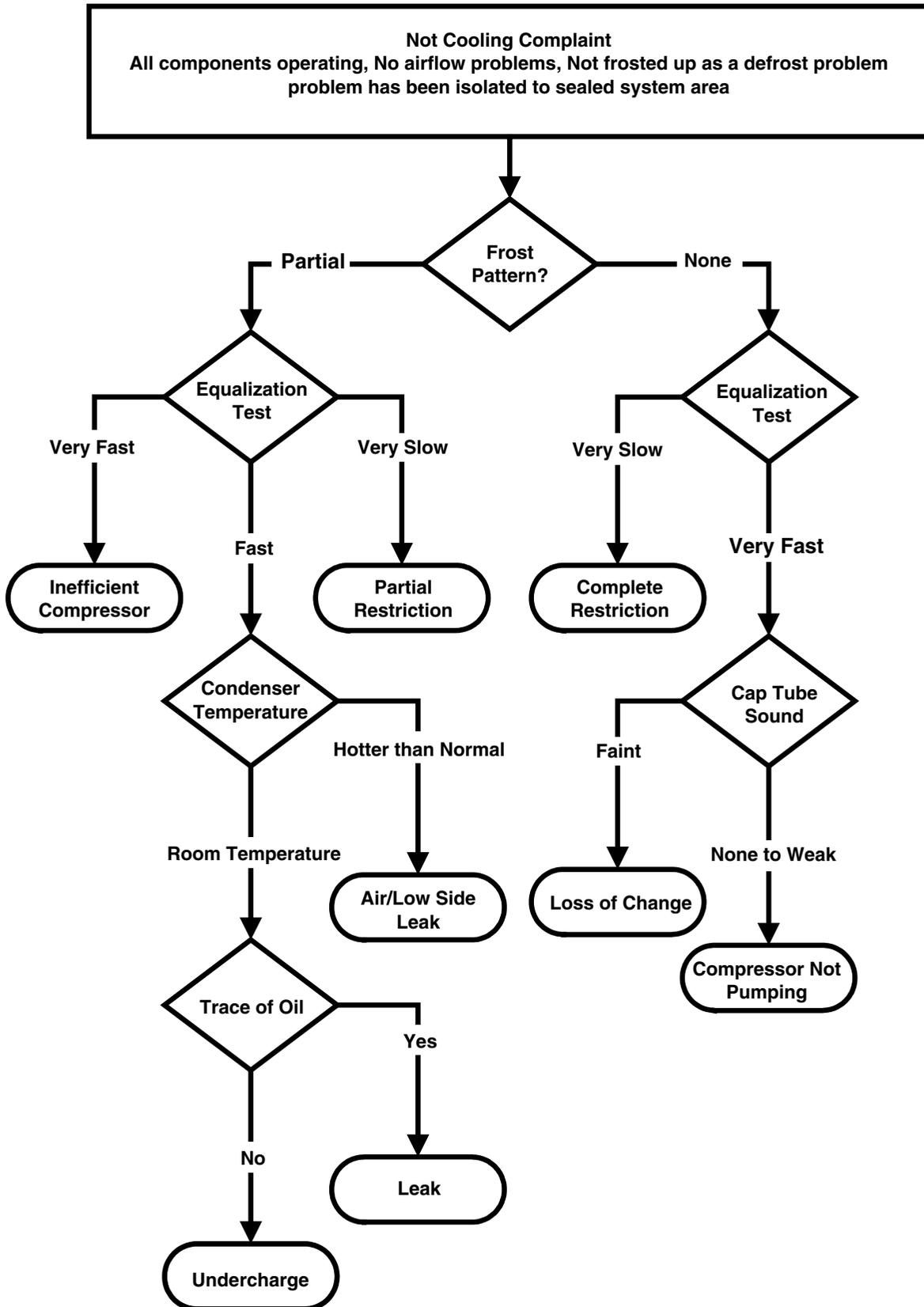


6-5 REFRIGERATION CYCLE

▼ Troubleshooting Chart

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

6-5-1 SEALED SYSTEM DIAGNOSIS

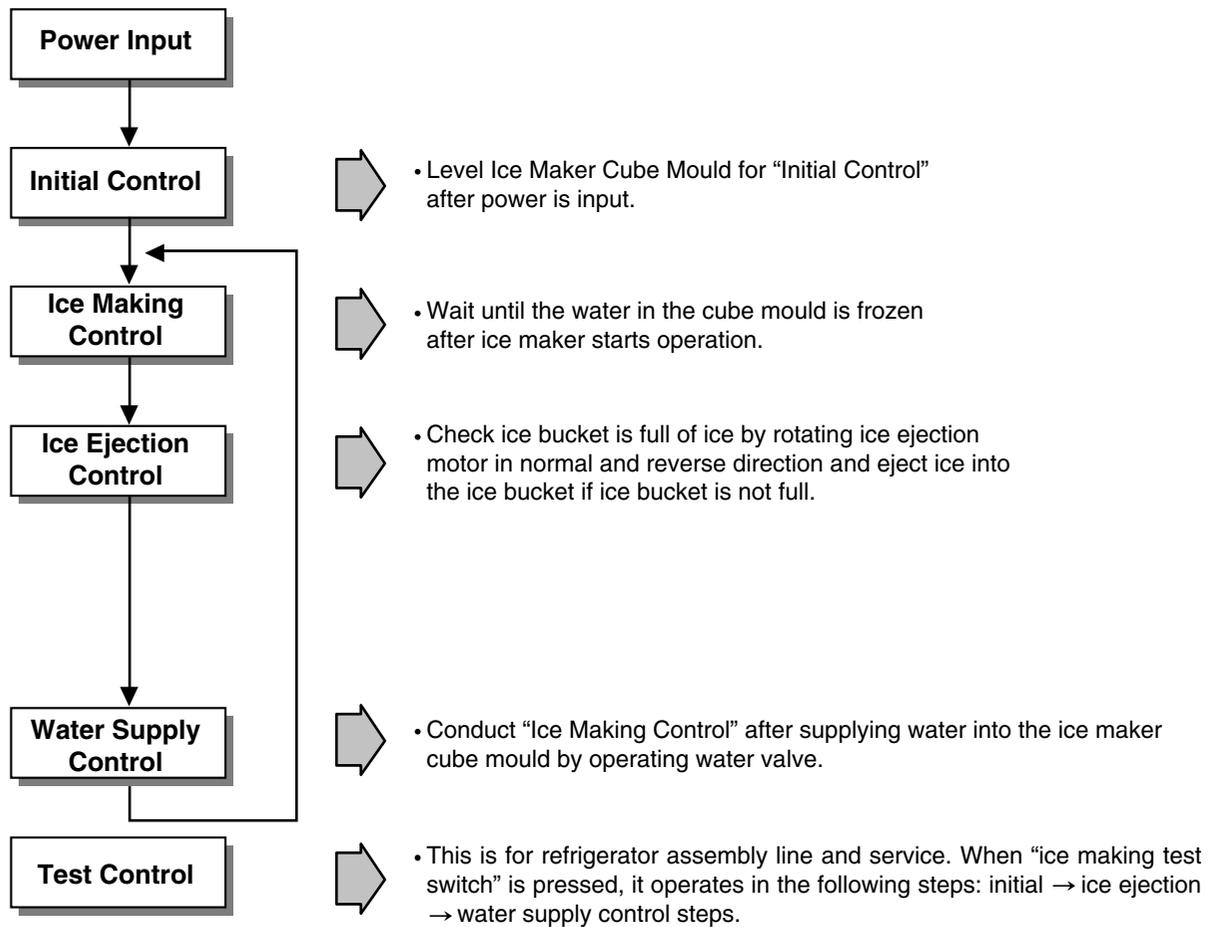


(The equalization test is trying to restart a compressor using a start kit after it has been operating.)

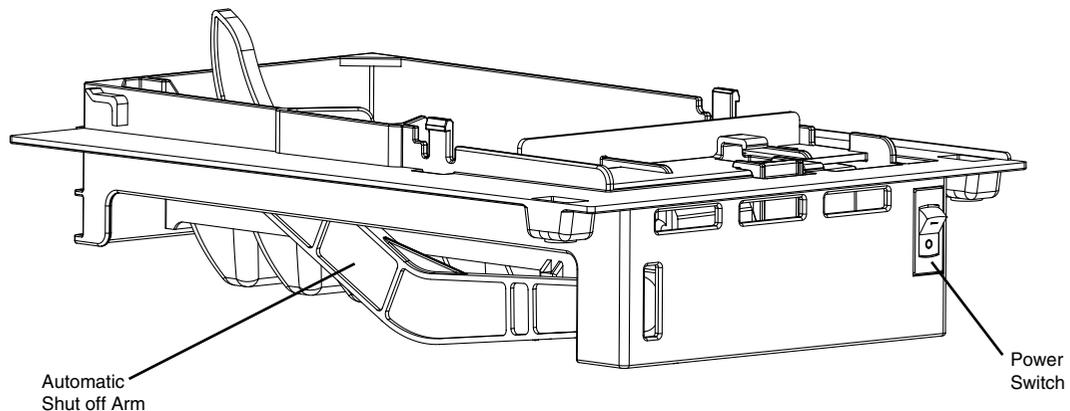
7. ICE MAKER AND DISPENSER WORKING PRINCIPLES AND REPAIR

7-1 Working Principles

7-1-1 Ice Maker Working Principles



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



7-2 Function of Ice Maker

7-2-1 Initial Control Function

1. When power is initially applied or reapplied after power cut, it detects level of ice maker cube mould after completion of MICOM initialization. The detecting lever moves up and down.
2. The level of ice maker cube mould is judged by output signal, high and low signal, of Hall IC. Make the cube mould to be horizontal by rotating ice ejection motor in normal or reverse direction.
3. If there is no change in signals one minute after the geared motor starts to operate, it stops icemaker operation and check the signal every hour. It resets initialization of icemaker when it becomes normal.
4. It judges that the initial control is completed when it judges the ice maker cube mould is horizontal.
5. Ice ejection conducts for 1 cycle irrespective of ice in the ice bucket when power is initially applied.

7-2-2 Water Supply Control Function

1. This is to supply water into the ice maker cube mould by operating water valve in the machine room when ice ejection control is completed and ice maker mould is even.
2. The quantity of water supplied is determined by DIP switch and time.

<Water Supply Quantity Table>

No	DIP SWITCH SETTING		WATER SUPPLY TIME	REMARKS
	S1	S2		
1	OFF	OFF	9 SEC	* The quantity of water supplied depends on DIP switch setting conditions and water pressure as it is a direct tap water connection type. (the water supplied is generally 60 cc to 100 cc) * DIP switch is on the main PCB.
2	ON	OFF	8 SEC	
3	OFF	ON	10 SEC	
4	ON	ON	11 SEC	

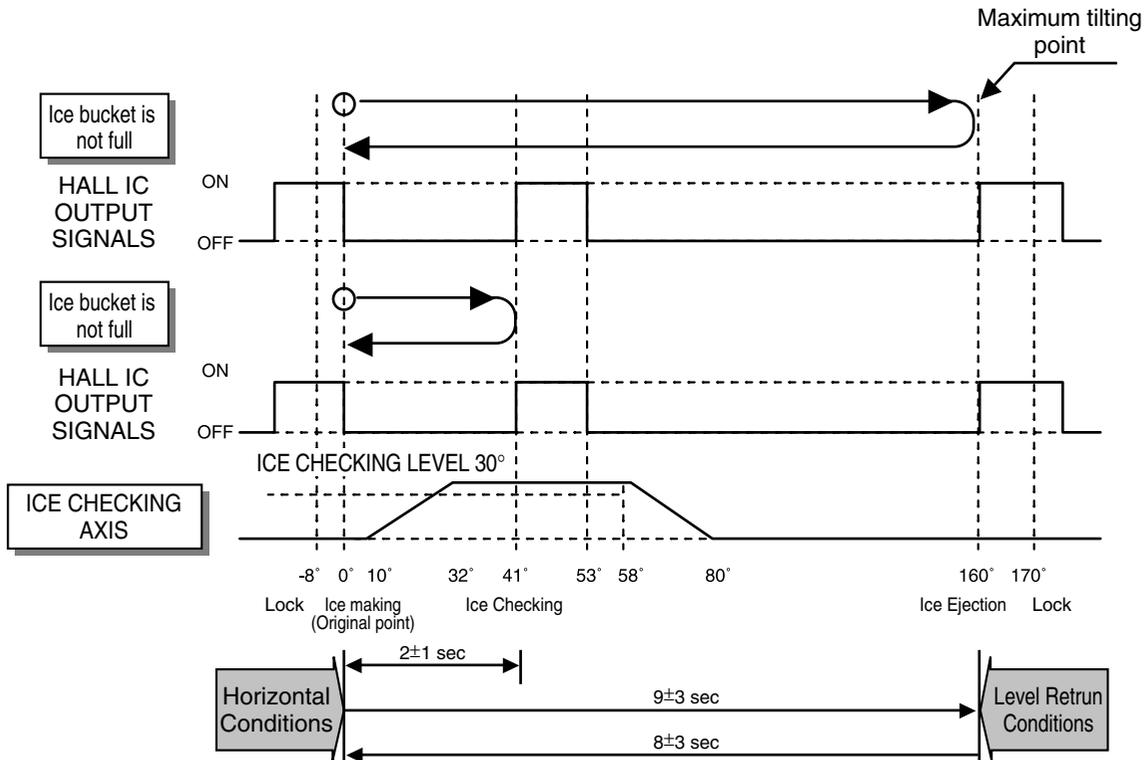
3. If water supply quantity setting is changed while power is on, water supplies for the amended time. If DIP switch is changed during water supply, water shall be supplied for the previous setting time. But it will supply for the amended time from the next supply.
4. When water supply signal is applied to water and ice valves at the same time during water supply, water shall be supplied to water valve. If water supply signal is applied to ice valve during water supply, water shall be supplied to both water and ice valves.

7-2-3 Ice Making Control Function

1. Ice making control is carried out from the completion of water supply to the completion of ice making in the cube mould. Ice making sensor detects the temperature of cube mould and completes ice making. (ice making sensor is fixed below ice maker cube mould)
2. Ice making control starts after completion of water supply control or initial control.
3. At first, It is judged that ice making is completed when ice making sensor temperature reaches at -8°C after 70 minutes when water is supplied to ice maker cube mould.
4. Finally, It is judged that ice making is completed when ice maker sensor temperature reaches below -8 °C after 10 minutes in condition 3.

7-2-4 Ice Ejection Control Function

1. This is to eject ice from ice maker cube mould after ice making is completed.
2. If Hall IC signal is on within 3.6 seconds after ice ejection motor rotates in normal direction, it does not proceed ice ejection but waits. If the ice bucket is full, ice ejection motor rotates in normal direction in every hour to check the condition of ice bucket. If the ice bucket is not full, the water supply control starts after completion of ice ejection control. If the ice bucket is full, ice ejection motor rotates in reverse direction and sops under ice making or waiting conditions.
3. If ice bucket is not full, ice ejection starts. The cube mould tilts to the maximum and ice is separated from the mould and ice checking lever raises.
4. Ice ejection motor stops for 1 second if Hall IC signal changes from OFF (low) to ON (high) after 3.6 seconds when ice ejection motor rotates in normal direction. If there is no change in Hall IC signals within 1 minute after ice ejection motor operates, ice ejection motor stops as ice ejection motor or hall IC is out of order.
5. If ice ejection motor or Hall IC is abnormal, ice ejection motor rotates in normal direction to exercise initial operation. It resets the ice maker if ice ejection motor or Hall IC is normal.
6. The mould stops for 1 second at maximum tilted conditions.
7. The mould returns to horizontal conditions as ice ejection motor rotates in reverse direction.
8. When the mould becomes horizontal, the cycle starts to repeat:
Water Supply → Ice Making → Ice Ejection → Mould Returns to Horizontal
9. When freezer door is open, ice ejection don't operating, and after 1minute of Freezer door closing, ejection control function is operated.



<Timing Chart During Ice Ejection>

7-2-5 Test Function

1. It is to force the operation during operation test, service, and cleaning. The test switch is mounted under the automatic ice maker. The test function starts when the test switch is pressed for more than 0.5 second.
2. Test button does not work during ice ejection and water supply. It works when it is in the horizontal conditions. If mould is full of ice during test function operation, ice ejection control and water supply control do not work.
3. When test switch is pressed for more than 0.5 second in the horizontal conditions, ice ejection starts irrespect of the mould conditions. Water shall be splashed if test switch is pressed before the water in the mould freezes. Water shall be supplied while the mould returns to the horizontal conditions after ice ejection. Therefore the problems of ice ejection, returning to the horizontal conditions, and water supply can be checked by test switch. When test function performs normally, buzzer sounds and water supply shall carry out. Check it for repair if buzzer does not sound.
4. When water supply is completed, the cycle operates normally as follows: Ice making → Ice ejection → Returning to horizontal conditions → Water supply
5. Remove ice from the ice maker cube mould and press test switch when ice maker cube mould is full of ice as ice ejection and water supply control do not work when cube mould is full of ice.

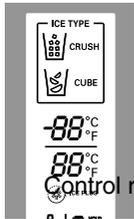
8. DESCRIPTION OF FUNCTION & CIRCUITS OF MICOM

8-1 FUNCTION

8-1-1 Function

1. When the appliance is plugged in, it defaults to 37°F for the refrigerator and 0°F for the 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 automatically set to 37 & 0.

Best Model



Control range : -6°F ~ 9°F
-21°C ~ -13°C

8-1-2 How to Change the Temperature Mode to °F/°C

1. The display temperature mode can be changed from °F to °C or °C to °F by pressing and holding the FRZ TEMP and the COLDER key of REF TEMP keys at the same time for over five seconds
2. The initial setting is °F. Whenever the mode is changed, the LED lights are changed.

8-1-3 Control of freezer fan motor

1. Freezer fan motor runs at either regular or high speed.(2,400 or 2,700 rpm.)
2. High RPM is used when electricity is first on, for ICE PLUS, and when refrigerator is overloaded.
Standard RPM is used for normal usage.
3. The fan motor is stopped when any door is opened.

8-1-4 ICE PLUS

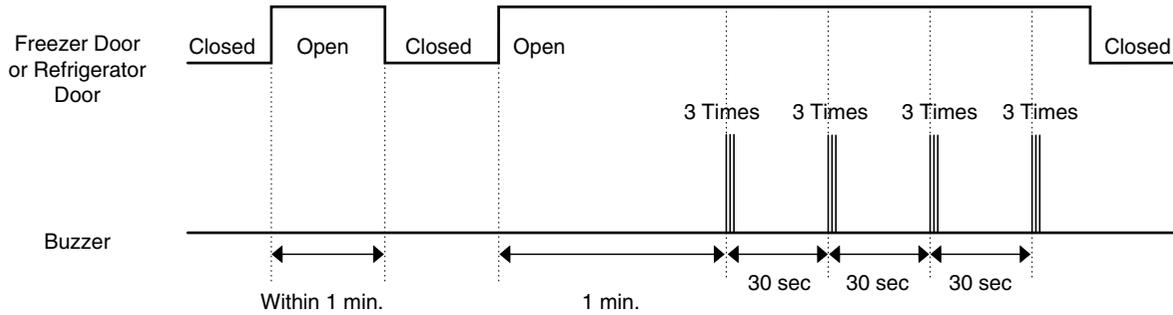
1. The purpose of this function is to intensify the cooling speed of freezer and to increase the amount of ice.
2. Whenever selection switch is pressed, selection/release, the icon will turn ON or OFF.
3. If there is a power outage and the refrigerator is powered on again, ICE PLUS will be canceled.
4. To activate this function you need to press the ICE PLUS key and the icon will turn ON. This function will remain activated for 24 hours. 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 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) will start after the balance of the delay time.
 - (5) The fan motor in the freezer compartment rotates at high speed during ICE PLUS.
6. For the rest of 21 hours, the freezer will be controlled at the lowest temperature.

8-1-5. REFRIGERATOR LAMP AUTO OFF

1. To protect the risk of lamp heat, when the refrigerator door is opened for 7 minutes, the refrigerator lamp will be turned off automatically.

8-1-6 Alarm for Open Door

1. This feature sounds a buzzer when the freezer or refrigerator door is not closed within 1 minute after it is opened.
2. One minute after the door is opened, the buzzer sounds three times each for 1/2 second. These tones repeat every 30 seconds.
3. The alarm is cancelled when the freezer or the refrigerator is closed while the buzzer sounds.



8-1-7 Buzzer Sound

When the button on the front display is pushed, a Ding~ Dong~ sound is produced.

8-1-8 Defrosting (removing frost)

1. Defrosting starts each time the compressor running time reaches between 7~50 hours and 50 hours according to door open time.
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 8°C or more. If the sensor doesn't reach 8°C in 1 hours, the defrost mode is malfunctioning.
4. Defrosting won't function if its sensor is defective (wires are cut or short circuited)

8-1-9 Electrical Parts Are Turned On Sequentially

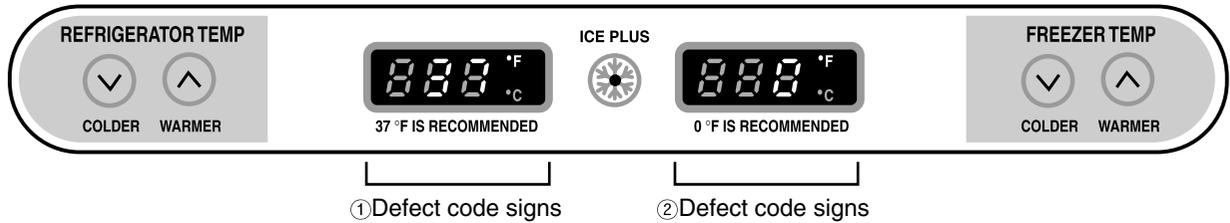
Electrical parts such as compressor, defrosting heater, freezer fan, etc. are turned on in the following order to prevent noise and parts damage. Several parts are started at the same time at initial power on and are turned off together when test is completed.

OPERATING		ORDERS	
Initial power on	Temperature of defrosting sensor is 45°C or more (when unit is newly purchased or when moved)	Power ON → in 0.5 sec → Compressor ON → in 0.5 sec → Freezer fan ON	
	Temperature of defrosting sensor is lower than 45°C (during power outages or for service)	Power ON → in 0.5 sec → Defrosting heater ON → in 10 sec → Defrosting heater OFF in 0.5 sec → Door heater ON → in 5 sec → Door heater OFF in 0.5 sec → Compressor ON → in 0.5 sec → Freezer fan ON	
Reset to normal operation from test mode		Total load OFF → in 7 min → Compressor ON → in 10 min → Freezer fan ON	

8-1-10 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.

Best Model



ERROR CODE on display panel

NO	ITEM	ERROR CODE		CONTENTS	REMARKS
		①	②		
1	Failure of freezer sensor	Er	FS	Cut or short circuit wire	Inspect Connecting wires on each sensor
2	Failure of Refrigerator sensor	Er	rS	Cut or short circuit wire	
3	Failure of defrost sensor	Er	dS	Cut or short circuit wire	
4	Ice maker sensor error	Er	IS	Ice maker disconnection or short circuit	
5	Failure of Room Temperature sensor	NOTE 1)		Cut or short circuit wire	
6	Ice maker kit defect	Er	It	Other electric system error such as motor, gear, hall IC, operating circuit within I/M kit	When the ice does not drop even when the I/M Test S/W is pressed
7	Failure of defrost mode	Er	dH	When defrost sensor doesn't reach 46°F (8°C) within 1 hour after starting defrost	Snapping of defrost heater or Temperature fuse, pull-out of connector (indicated minimum 1 hour after failure occurs)
8	Failure of BLDC Fan Motor at Freezing Compartment	Er	FF	If there is no fan motor signal for more than 65 sec in operation fan motor	Poor motor, hooking to wires of fan, contact of structures to fan, snapping or short circuit of Lead wires
9	Failure of BLDC Fan Motor at Mechanical Room	Er	CF	If there is no fan motor signal for more than 65 sec in operation fan motor	Poor motor, hooking to wires of fan, contact of structures to fan, snapping or short circuit of Lead wires
10	Failure of communication	Er	CO	If there is no signal for Communication between Main PCB and display PCB	Short or open of lead wire Connecting between main PCB And display PCB, transmission TR and receiving part

Note 1) Room temperature sensor is not indicated on the failure indicating part but indicated in checking display. (When pressing for more than the warmer key of refrigerator temp and the warmer key of freezer temp for more than 1 second).

* LED check function : If press and hold the warmer key of refrigerator temp and the warmer key of freezer temp for a second, all display LED graphics on. When you release the buttons, the LED graphics displays the previous status.

8-1-11 TEST Mode

1. The test mode allows checking the PCB and the function of the product as well as finding out the defective part in case of an error.
2. The test mode is operated by pressing test button at main PCB controller.
3. While in the test mode, the function control button is not recognized, but the recognition tone (beep~) sounds.
4. After exiting the test mode, be sure to reset by unplugging and then plugging in the appliance.
5. If an error, such as a sensor failure, is detected while in the test mode, the test mode is cleared and the error code is displayed.
6. While an error code is displayed, the test mode will not be activated.

MODE	MANIPULATION	CONTENTS	REMARKS
TEST1	Push TEST S/W (in the main Board)once.	1)Continuous Operation of the COMPRESSOR and the FAN(freezer/Condenser) 2) Stepping DAMPER OPEN 3) Defrosting HEATER OFF 4) DISPLAY LED all ON	
TEST2	Push TEST S/W once in TEST MODE 1	1)Continuous Operation of the COMPRESSOR and the FAN(freezer/Condenser) 2) Stepping DAMPER CLOSE 3) Defrosting HEATER OFF 4) DISPLAY LED SHOWS "22"	
TEST3	Push TEST S/W once in TEST MODE 2	1) COMPRESSOR and the Fan(Freezer/Condenser) OFF 2) Stepping DAMPER CLOSE 3) Defrosting HEATER ON 4) DISPLAY LED SHOWS "33"	Reset if the Temperature of the Defrosting Sensor is 46°F (8°C) or more.
RESET	Push TEST S/W once in TEST MODE 3	Reset to the previously setting Before TEST MODE.	The compressor will Start after a 7-minute Delay.

* Freezer Fan Variable RPM Check :

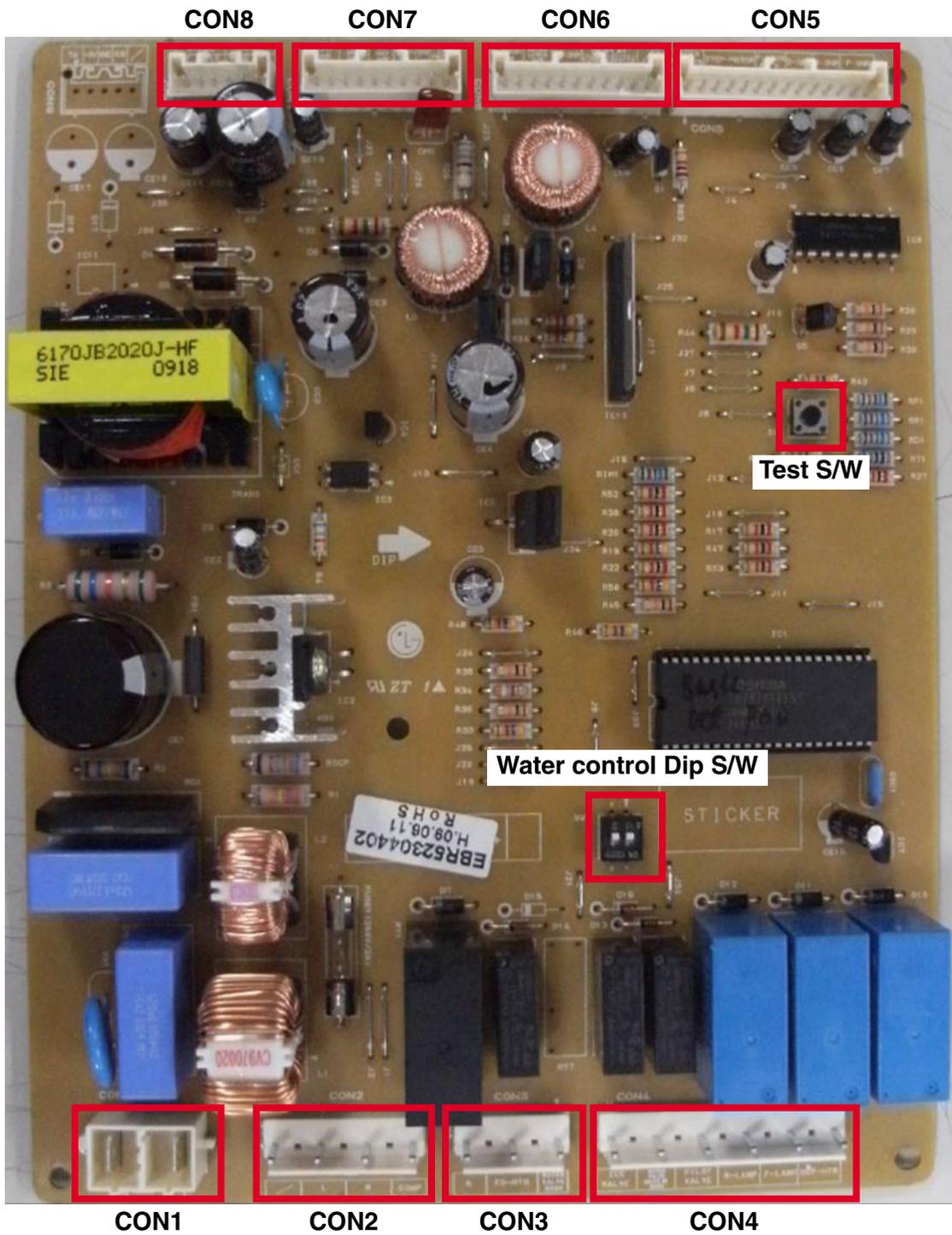
To check the variable rpm, press and hold the WARMER keys of both the REF TEMP and FRE TEMP. The fan speed will change (low to high or high to low) for 30 seconds before reverting to its original setting.

* Demonstration (Display) MODE:

1. To enter this mode, raise either the Refrigerator or Freezer temperature to its highest setting. Then, press and hold WARMER Key for 5 seconds.
2. Perform the same way again to cancel the display mode.
3. The LED panels will display OFF, to indicate that the compressor, circulating fan, damper, and defrost heater are not operating.
4. The open door alarm and the lamp auto-off feature will work normally and can be demonstrated.
5. To reset to normal operation, press and hold either WARMER key for about 5 seconds.

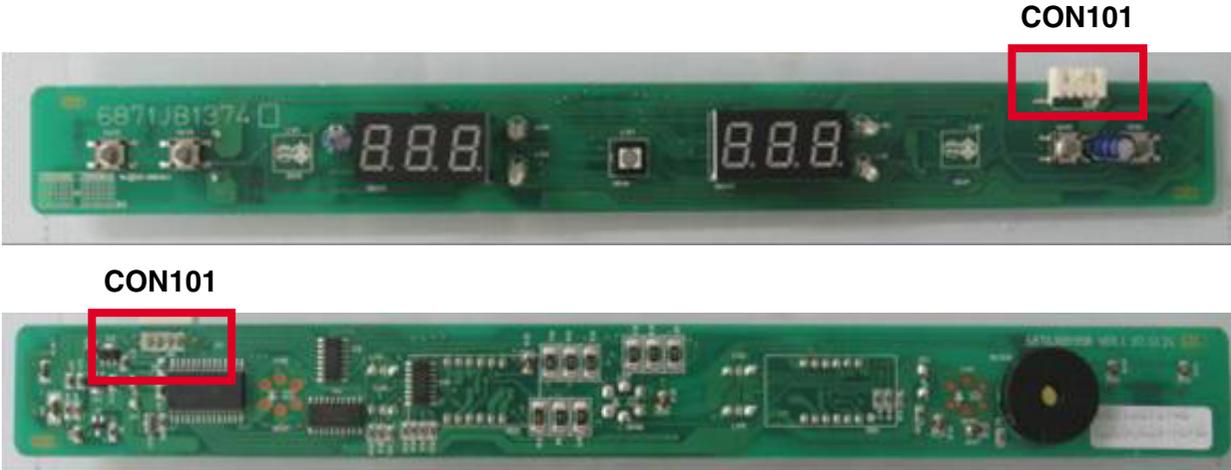
9. PCB Picture

9-1 Main PCB



*EBR523044

9-2 Display PCB

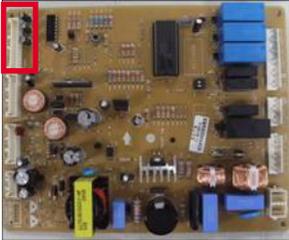
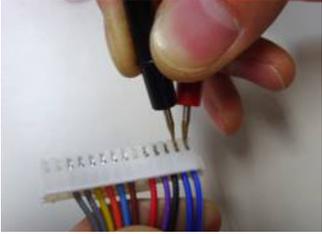


*6871JB1374

10. Troubleshooting With Error Display

WARNING When you check the resistance values, be sure to turn off the power and wait for the voltage-discharge sufficiently.

10-1 Freezer Sensor Error

Defect Symptom	Check Point
 <p data-bbox="435 821 526 846"><Er FS></p>	 <p data-bbox="1089 821 1187 846"><CON5></p>
<p data-bbox="217 966 233 991">1</p>	<p data-bbox="326 966 639 991">Check for a loose connection.</p>  <p data-bbox="841 1236 938 1261"><CON5></p> <p data-bbox="217 1285 233 1310">2</p> <p data-bbox="326 1285 651 1342">Disconnect the wire connector. Set the meter to Ω.</p> <p data-bbox="217 1385 233 1410">3</p> <p data-bbox="326 1385 570 1410">Check the <u>Blue to Blue</u></p> <p data-bbox="711 1427 841 1453">(1)BL (2)BL</p>  

4

Using your Ohmmeter,
Read the resistance of the sensor.
The sensor is determined by the temperature.
For example, 23k Ω indicates -4°F.

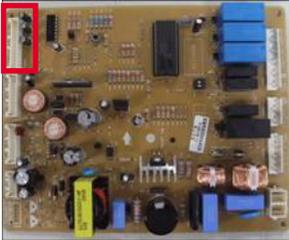
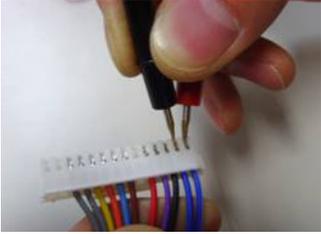
(1) To (2)	Result
-22°F / -30°C	40 k Ω
-13°F / -25°C	30 k Ω
-4°F / -20°C	23 k Ω
5°F / -15°C	17 k Ω
14°F / -10°C	13 k Ω
23°F / -5°C	10 k Ω
32°F / 0°C	8 k Ω

<Temperature table>

WARNING

When you check the resistance values, be sure to turn off the power and wait for the voltage-discharge sufficiently.

10-2 Refrigerator Sensor Error

Defect Symptom	Check Point
 <p style="text-align: center;"><Er rS></p>	 <p style="text-align: center;"><CON5></p>
<p>1</p>	<p>Check for a loose connection.</p>  <p style="text-align: center;"><CON5></p> <p>2</p> <p>Disconnect the wire connector. Set the meter to Ω.</p> <p>3</p> <p>Check the <u>White to White</u></p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>(1)WH(2)WH</p>  </div> <div style="text-align: center;">  </div> </div>

4

Using your Ohmmeter,
Read the resistance of the sensor.
※ The sensor is determined by the temperature.
For example, 30 kΩ indicates 32°F.

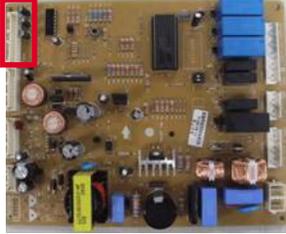
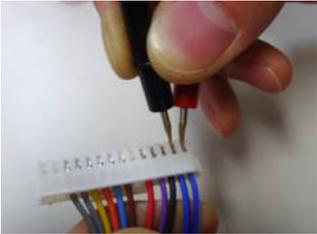
(1) To (2)	Result
23°F / -5°C	38 kΩ
32°F / 0°C	30 kΩ
41°F / 5°C	24 kΩ
50°F / 10°C	19.5 kΩ
59°F / 15°C	16 kΩ

<Temperature table>

WARNING

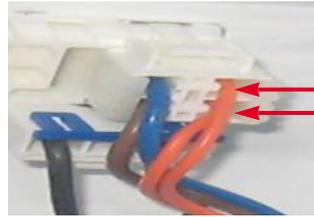
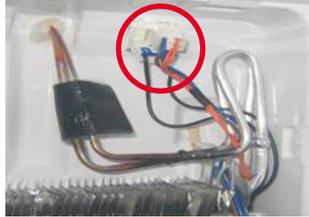
When you check the resistance values, be sure to turn off the power and wait for the voltage-discharge sufficiently.

10-3 Defrost Sensor Error

Defect Symptom	Check Point
 <p style="text-align: center;"><Er dS></p>	 <p style="text-align: center;"><CON5></p>
<p>1</p> <p>2</p> <p>3</p>	<p>Check for a loose connection.</p>  <p style="text-align: center;"><CON5></p> <p>Disconnect the wire connector. Set the meter to Ω.</p> <p>Check the <u>Orange to Orange</u>.</p> <p>(1)BO (2)BO</p>  <p style="text-align: center;"><CON5></p> 

4 Remove the grill assembly in freezer room.

5 Check the Orange to Orange.



(1)BO
(2)BO

6 Using your Ohmmeter,
Read the resistance of the sensor.
The sensor is determined by the temperature.
For example, 23k Ω indicates -4°F.

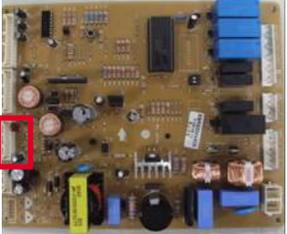
(1) To (2)	Result
-22°F / -30°C	40 k Ω
-13°F / -25°C	30 k Ω
-4°F / -20°C	23 k Ω
5°F / -15°C	17 k Ω
14°F / -10°C	13 k Ω
23°F / -5°C	10 k Ω
32°F / 0°C	8 k Ω

<Temperature table>

WARNING

When you check the resistance values, be sure to turn off the power and wait for the voltage-discharge sufficiently.

10-4 Ice Maker Sensor Error

Defect Symptom	Check Point
 <p><Er IS></p>	 <p><CON7></p>
1	<p>Check for a loose connection.</p>  <p><CON7></p> <p>2</p> <p>Disconnect the wire connector. Set the meter to Ω.</p> <p>3</p> <p>Check the <u>Red to Orange</u>.</p> <p>(1)RD (2)BO</p>  

4

Using your Ohmmeter,
Read the resistance of the sensor.
The sensor is determined by the temperature.
For example, 23k Ω indicates -4°F.

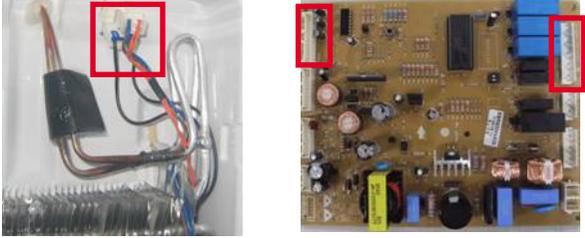
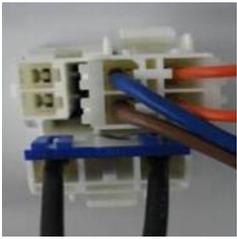
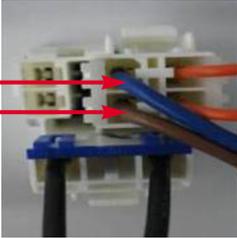
(1) To (2)	Result
-22°F / -30°C	40 k Ω
-13°F / -25°C	30 k Ω
-4°F / -20°C	23 k Ω
5°F / -15°C	17 k Ω
14°F / -10°C	13 k Ω
23°F / -5°C	10 k Ω
32°F / 0°C	8 k Ω

<Temperature table>

WARNING

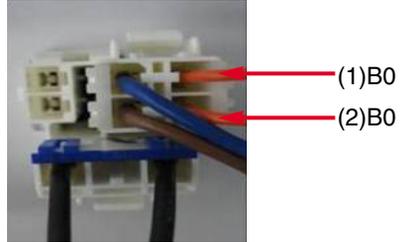
When you check the resistance values, be sure to turn off the power and wait for the voltage-discharge sufficiently.

10-5 Defrost Heater Error

Defect Symptom	Check Point					
 <p style="text-align: center;"><Er dH></p>	 <p style="text-align: center;"><Freezer> <CON4&CON5></p>					
<p>1</p> <p>2</p> <p>3</p> <p>4</p>	<p>Check the Freezer door gasket sealing.</p> <p>Remove the grille assembly in freezer.</p> <p>Unplug the defrost control assembly.</p> <div style="display: flex; justify-content: space-around;">   </div> <p style="text-align: center;"><Freezer> <Defrost control></p> <p>Check the <u>Blue to Brown</u>.</p> <div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> <p>(1)BL →</p> <p>(2)BN →</p> </div>  </div> <p style="text-align: center;"><Fuse-M></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 Ω</td> </tr> </tbody> </table>		Test Point	Result	(1) To (2)	0 Ω
Test Point	Result					
(1) To (2)	0 Ω					

5

Check the Orange to Orange.

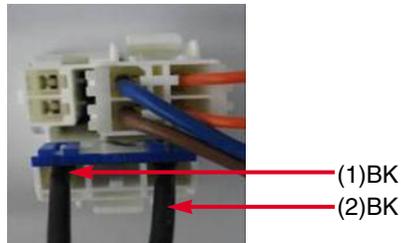
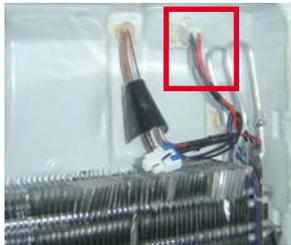


<Defrost control>

(1) To (2)	Result
23°F / -5°C	38 kΩ
32°F / 0°C	30 kΩ
41°F / 5°C	24 kΩ
50°F / 10°C	19.5 kΩ
59°F / 15°C	16 kΩ

6

Check the Black to Black.



Test Point	Result
(1) To (2)	32~42 Ω

7

Check for a loose connection.



<CON4>



<CON5>

8

Disconnect the wire connector.
Set the meter to Ω .

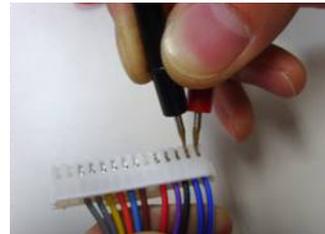
9

Check the Orange to Orange.

(1)BO (2)BO



<CON5>

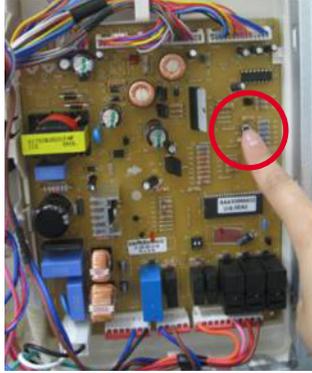


<Defrost sensor>

(1) To (2)	Result
23°F / -5°C	38 k Ω
32°F / 0°C	30 k Ω
41°F / 5°C	24 k Ω
50°F / 10°C	19.5 k Ω
59°F / 15°C	16 k Ω

10

Input the TEST 3 MODE. Push the button 3 times.

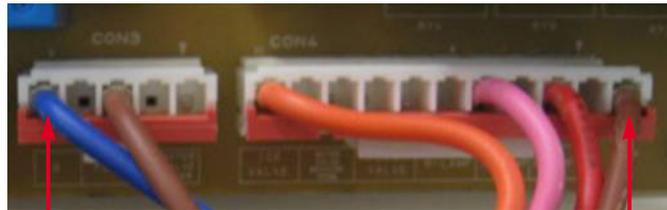


11

Set the meter to V.

12

Check the Blue to Brown.



(1)BL

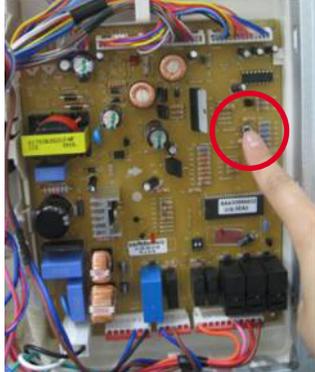
<CON3 & CON4>

(2)BN

Test Point	Result
(1) To (2)	115V

13

Release the TEST 3 MODE. Push the button 1 times.
(Normal state)



14

Check the Blue to Brown.



(1)BL

<CON3 & CON4>

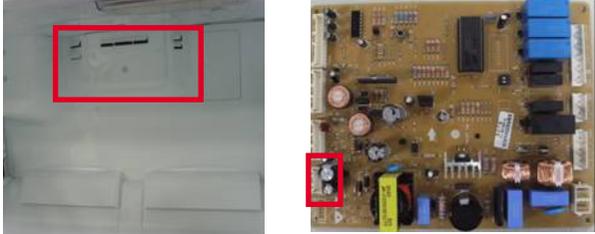
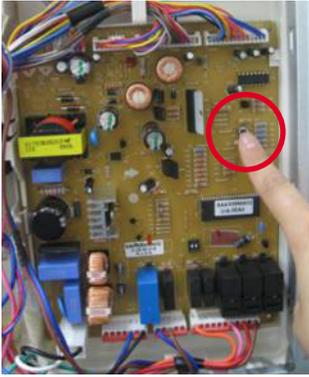
(2)BN

Test Point	Result
(1) To (2)	0V

WARNING

When you check the resistance values, be sure to turn off the power and wait for the voltage-discharge sufficiently.

10-6 Freezer Fan Error

Defect Symptom	Check Point
 <p style="text-align: center;"><Er FF></p>	 <p style="text-align: center;"><Freezer> <CON8></p>
	<ol style="list-style-type: none"> 1 Check for a loose connection. 2 Reset and Push the TEST button. (TEST 1 MODE)   <ol style="list-style-type: none"> 3 Open the freezer door and check the air flow.  <p>※ While an error code is displayed, the test mode will not be activated.</p>

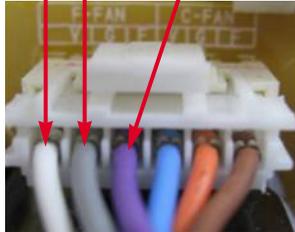
4

If feel air come out, It's OK.

5

If not, Check the F-fan voltage.

(1)WH (2)GY (3)PR



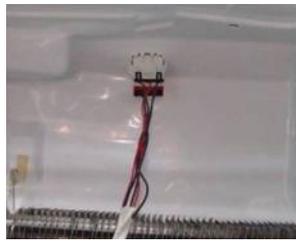
<CON8>

Test Point	Result	SVC Solution
(1) To (2)	Blew 12 V	Change the PCB
(2) To (3)	0 or 5 V	Change the motor

6 Although PCB make a voltage, the fan is not working, Check the Fan motor.

7 Remove the gill assembly in freezer room.

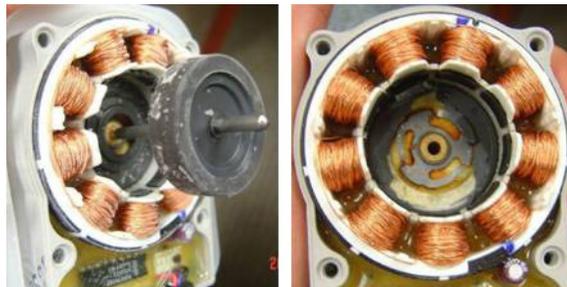
8 Check the connector status. (Frozen, short, ect.)



9 Check the Fan blade. (Frozen, lock, ect.)



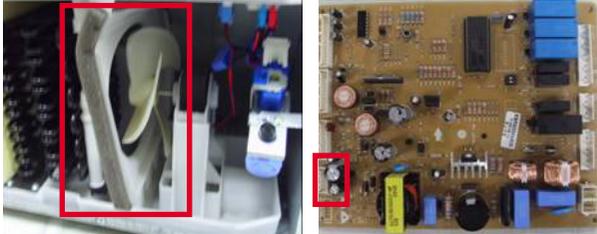
10 Rotate fan using your hand.
It feel sticky, change the motor.
(cause of ice or rust inside of motor)



WARNING

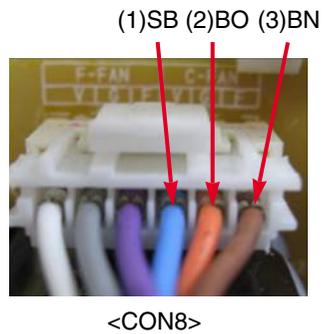
When you check the resistance values, be sure to turn off the power and wait for the voltage-discharge sufficiently.

10-7 Condenser Fan Error

Defect Symptom	Check Point
 <p data-bbox="435 819 527 846"><Er CF></p>	 <p data-bbox="889 819 1073 846"><Machine room></p> <p data-bbox="1239 819 1339 846"><CON8></p>
	<ol style="list-style-type: none"><li data-bbox="219 963 641 991">1 Check for a loose connection.<li data-bbox="219 1027 865 1055">2 Reset and Push the TEST button. (TEST 1 MODE)   <ol style="list-style-type: none"><li data-bbox="219 1485 841 1542">3 Check the fan rotating. If fan is rotating, It's ok. It isn't check the voltage.  <p data-bbox="703 1810 1096 1868">※ While an error code is displayed, the test mode will not be activated.</p>

4

Check the C-fan voltage.



Test Point	Result	SVC Solution
(1) To (2)	Blew 12 V	Change the PCB
(2) To (3)	0 or 5 V	Change the motor

5

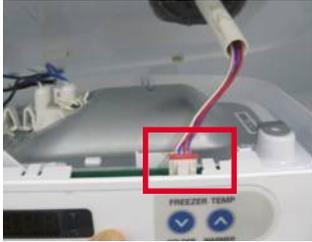
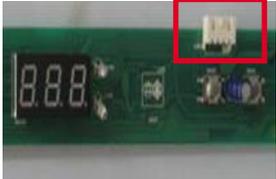
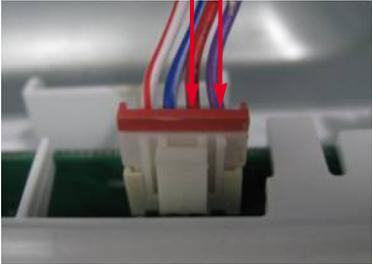
Rotate fan using your hand.
It feel sticky, change the motor.
(cause of ice or rust inside of motor)



TIP

Because the signal of Tx and Rx is composed of the combination of digital code, you can't measure the voltage exactly.

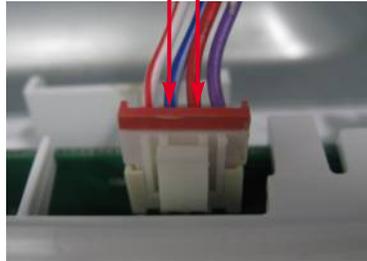
10-8 Communication Error(Display LED off)

Defect Symptom	Check Point				
	<div style="display: flex; justify-content: space-around;"> <div data-bbox="837 551 1149 793">  <p data-bbox="911 819 1073 846"><Lamp Cover></p> </div> <div data-bbox="1166 580 1442 759">  <p data-bbox="1239 819 1365 846"><CON101></p> </div> </div>				
<p data-bbox="217 963 233 991">1</p> <p data-bbox="217 1087 233 1115">2</p>	<p data-bbox="321 963 639 991">Check for a loose connection.</p> <p data-bbox="321 1087 591 1115">Check the <u>Purple to Red</u>.</p> <div style="text-align: center;"> <p data-bbox="808 1144 948 1172">(1)RD (2)PR</p>  <p data-bbox="800 1506 924 1534"><CON101></p> <table border="1" data-bbox="620 1570 1105 1668"> <thead> <tr> <th>Test Point</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>(1) To (2)</td> <td>12V</td> </tr> </tbody> </table> </div>	Test Point	Result	(1) To (2)	12V
Test Point	Result				
(1) To (2)	12V				

3

Check the Blue White to Red.

(1)BL/WH (2)RD

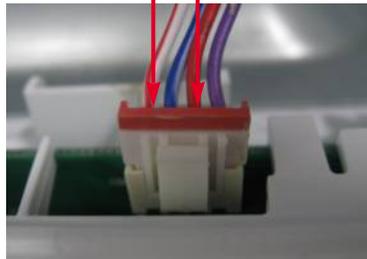


Test Point	Result	Solution
(1) To (2)	0V or 5V	Change the Display PCB

4

Check the White Red to Red.

(1)WH/RD (2)RD



Test Point	Result	Solution
(1) To (2)	0V or 5V	Change the Main PCB

11. Troubleshooting Without Error Display

⚠ WARNING When you check the resistance values, be sure to turn off the power and wait for the voltage-discharge sufficiently.

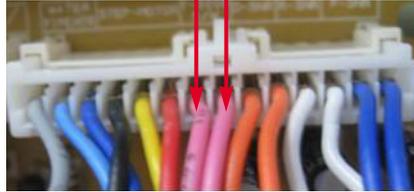
11-1 Freezer Room Lamp does not work.

Defect Symptom	Check Point						
 <p data-bbox="391 819 573 846"><Freezer Lamp></p>	 <p data-bbox="1044 819 1235 846"><CON5 & CON4></p>						
<p data-bbox="219 963 235 991">1</p> <p data-bbox="219 1112 235 1140">2</p>	<p data-bbox="321 963 781 1023">Push the door s/w and check the s/w state. If feel sticky, Change the door s/w.</p> <p data-bbox="321 1112 651 1140">Check the door s/w resistance.</p> <div data-bbox="531 1210 1068 1410">  </div> <table border="1" data-bbox="565 1449 1049 1593"> <thead> <tr> <th data-bbox="565 1449 805 1495">Stauts</th> <th data-bbox="805 1449 1049 1495">Tester</th> </tr> </thead> <tbody> <tr> <td data-bbox="565 1495 805 1544">Normal</td> <td data-bbox="805 1495 1049 1544">0 Ω</td> </tr> <tr> <td data-bbox="565 1544 805 1593">Push the Switch</td> <td data-bbox="805 1544 1049 1593">Infinity</td> </tr> </tbody> </table>	Stauts	Tester	Normal	0 Ω	Push the Switch	Infinity
Stauts	Tester						
Normal	0 Ω						
Push the Switch	Infinity						

3

Check the Pink to Pink.

(1)PK (2)PK



<CON5>

Part	F/Door	Test Point	Result
CON5	Closed	(1) To (2)	5 V
	Open	(1) To (2)	0 V

4

Check the Blue to Red.

(1)BL

(2)RD



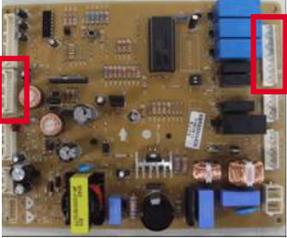
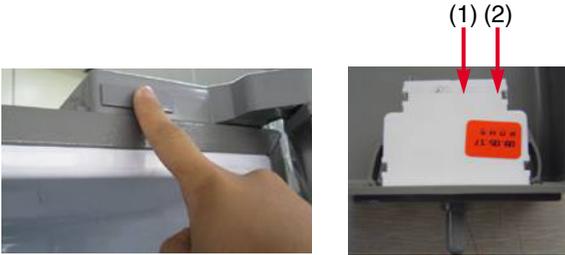
<CON3&CON4>

Part	F/Door	Test Point	Result
CON4	Closed	(1) To (2)	0 ~ 2 V
	Open	(1) To (2)	115 V

WARNING

When you check the resistance values, be sure to turn off the power and wait for the voltage-discharge sufficiently.

11-2 REFRIGERATOR Room LAMP does not work

Defect Symptom	Check Point						
 <p data-bbox="370 819 592 846"><Refrigerator Lamp></p>	 <p data-bbox="1045 819 1235 846"><CON6 & CON4></p>						
<p data-bbox="219 963 233 987">1</p> <p data-bbox="219 1119 233 1142">2</p>	<p data-bbox="323 963 781 1023">Push the door s/w and check the s/w state. If feel sticky, Change the door s/w.</p> <p data-bbox="323 1119 651 1142">Check the door s/w resistance.</p> <div data-bbox="500 1183 1065 1438">  </div> <table border="1" data-bbox="566 1481 1049 1625"> <thead> <tr> <th>Stauts</th> <th>Tester</th> </tr> </thead> <tbody> <tr> <td>Normal</td> <td>0 Ω</td> </tr> <tr> <td>Push the Switch</td> <td>Infinity</td> </tr> </tbody> </table>	Stauts	Tester	Normal	0 Ω	Push the Switch	Infinity
Stauts	Tester						
Normal	0 Ω						
Push the Switch	Infinity						

3

Check the Gray to Gray.

(1)GY (2)GY



<CON6>

Part	F/Door	Test Point	Result
CON6	Closed	(1) To (2)	5 V
	Open	(1) To (2)	0 V

4

Check the Blue to Pink.

(1)BL

(2)PK



<CON3&CON4>

Part	F/Door	Test Point	Result
CON4	Closed	(1) To (2)	0 ~ 2 V
	Open	(1) To (2)	115 V

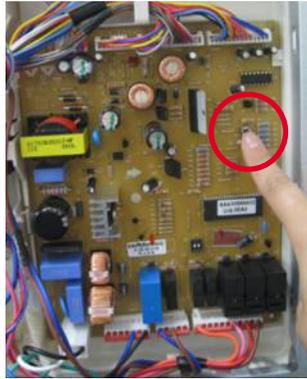
TIP

Because poor cooling is related to temperature, there can be many causes. Therefore, you must check every function of the PCB Board.

11-3 POOR COOLING in the refrigerator compartment

1 Check for a loose connection.

2 Reset and Push the TEST button. (TEST 1 MODE)



3 Open the freezer door and check the air flow.



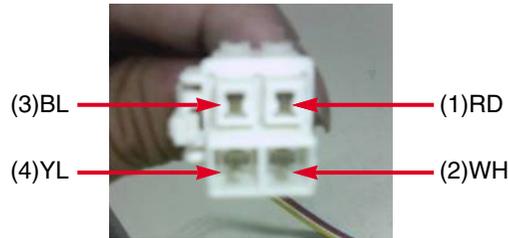
Freezer Fan

4 Open the refrigerator door, push the refrigerator Door s/w and check the air flow near the vent. (while the door is open, the air is not coming out)



5 If the air is not coming out, check the fan and damper.

6 To judge the damper defect, check the resistance.



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

7 To judge the fan defect,
Reference Freezer fan error and Condenser fan error.

8 If the air is not cooling, Check the Compressor as flow.



- 1) Check the Oil leakage in machine room.
- 2) Check the remaining Oil in Tray Drip.
- 3) Check Temp of Comp, Cond over the 40°.
- 4) Check the frost in Suction line.

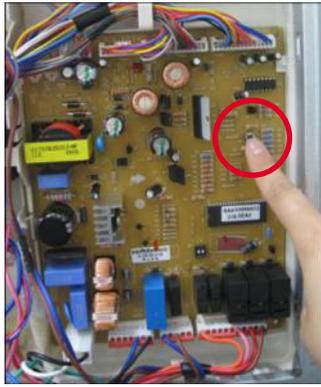
In case of this, you need to repair Sealing system.

TIP

Because poor cooling is related to temperature, there can be many causes. Therefore, you must check every function of the PCB Board.

11-4 OVER-COOLING in the refrigerator compartment

- 1 Check for a loose connection.
- 2 Reset and Push the TEST button. (TEST 1 MODE)



- 3 Open the freezer door and check the air flow.



Freezer Fan

- 4 Open the refrigerator door, push the refrigerator Door s/w and check the air flow near the vent. (while the door is open, the air is not coming out)

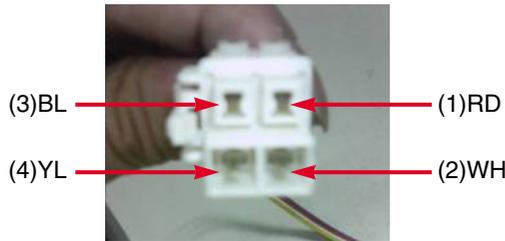


5 Push the TEST button 1 more time. (TEST 2 MODE)



6 If the air is not coming out of vent, It's OK.

7 If the air is coming out of vent, Check the damper.



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

8 Although PCB and damper working well,
Check the sensor position and resistance.
Reference to Temperature chart end of troubleshooting.

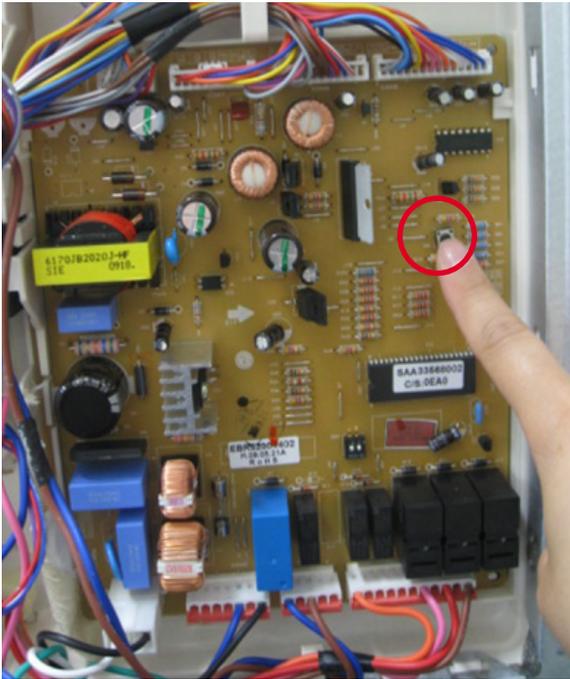
12. Reference

⚠ WARNING When you push the test button, be careful to avoid electrical shock.

12-1 TEST MODE and Removing TPA

1. How to make TEST MODE

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



Main PWB

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



* 2 times : Damper closed
(22 22 displayed)

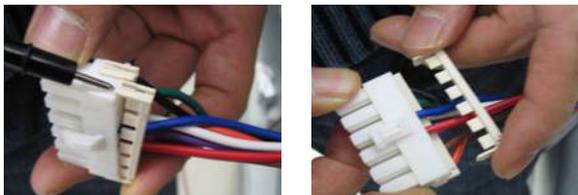


* 3 times : Forced forced defrost mode
(33 33 displayed)

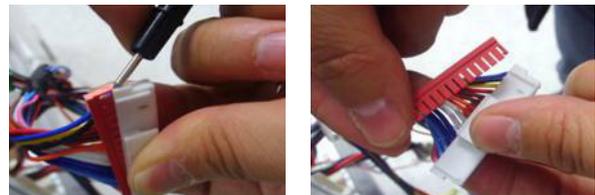


2. How to remove Terminal Position Assurance (TPA)

* AC TPA



* DC TPA



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

**WARNING**

When you push the test button, be careful to avoid electrical shock.

12-2 TEMPERATRUE CHART - FRZ AND ICING SENSOR

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

**WARNING**

When you push the test button, be careful to avoid electrical shock.

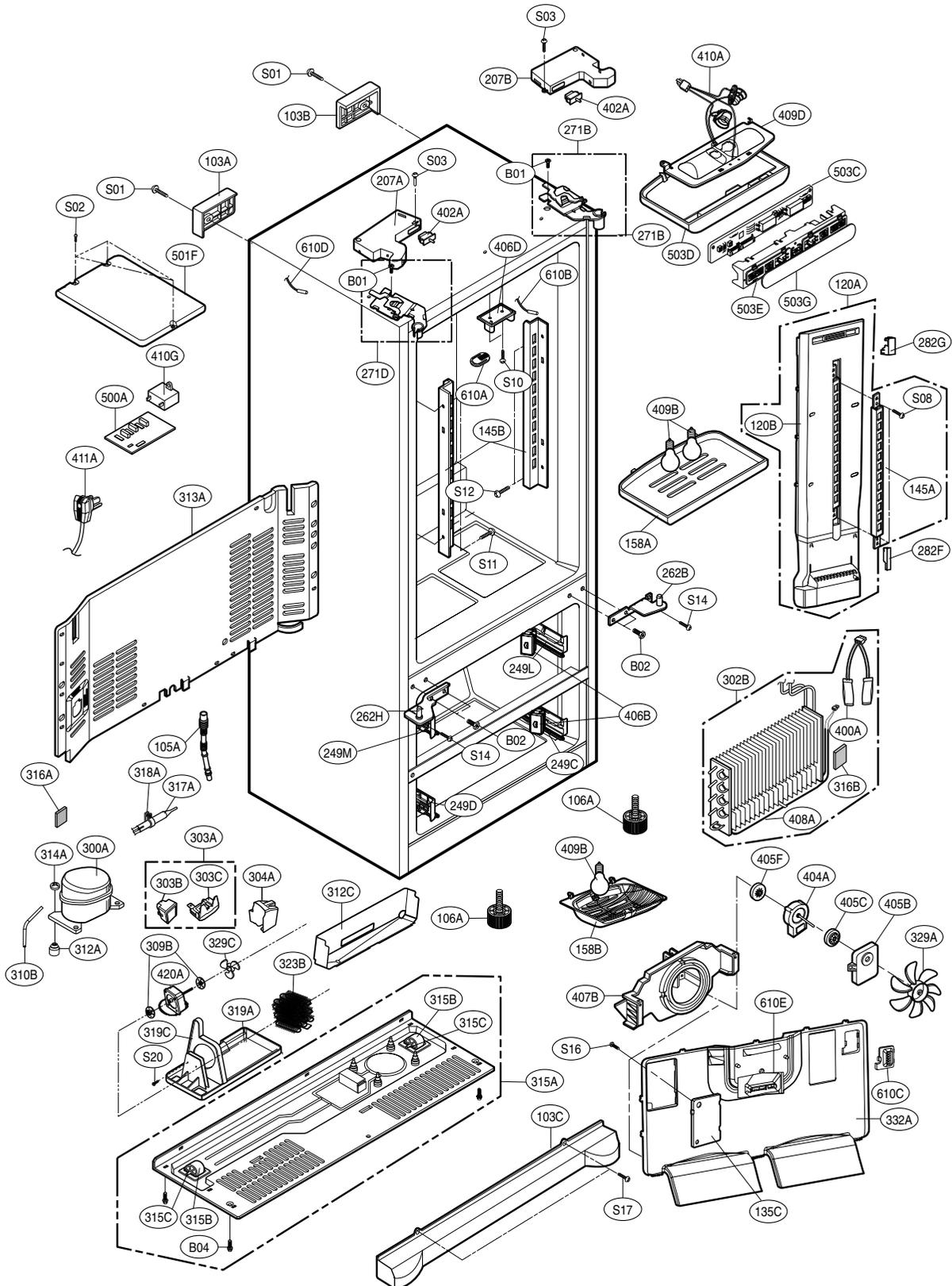
12-3 TEMPERATRUE CHART - REF AND DEF SENSOR

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

8. EXPLODED VIEW & REPLACEMENT PARTS LIST

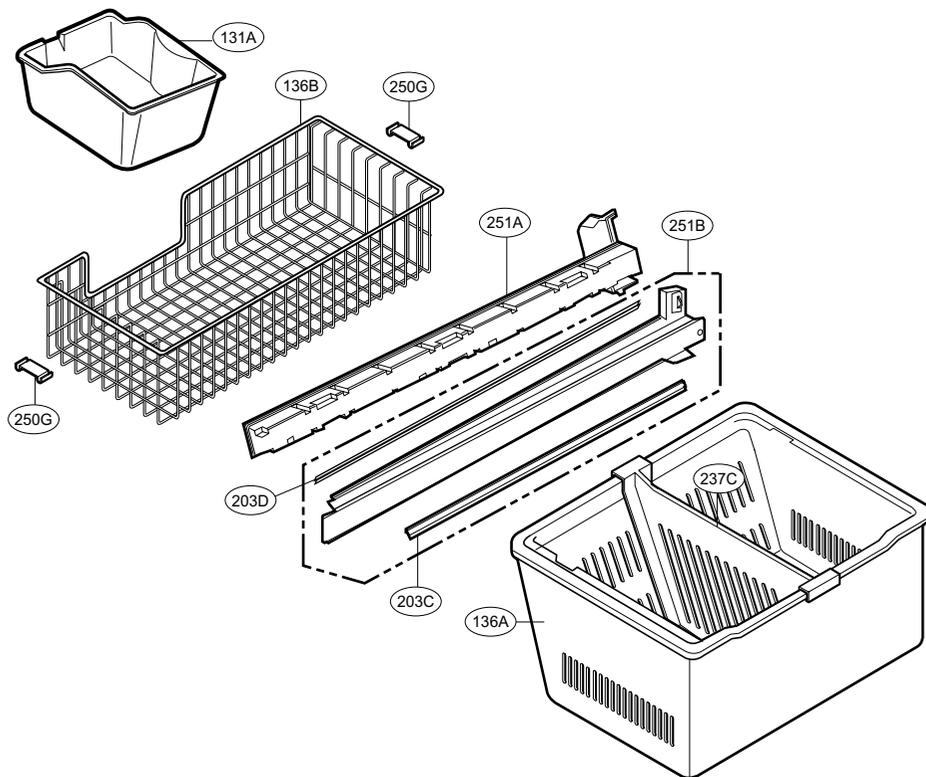
CASE PARTS

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



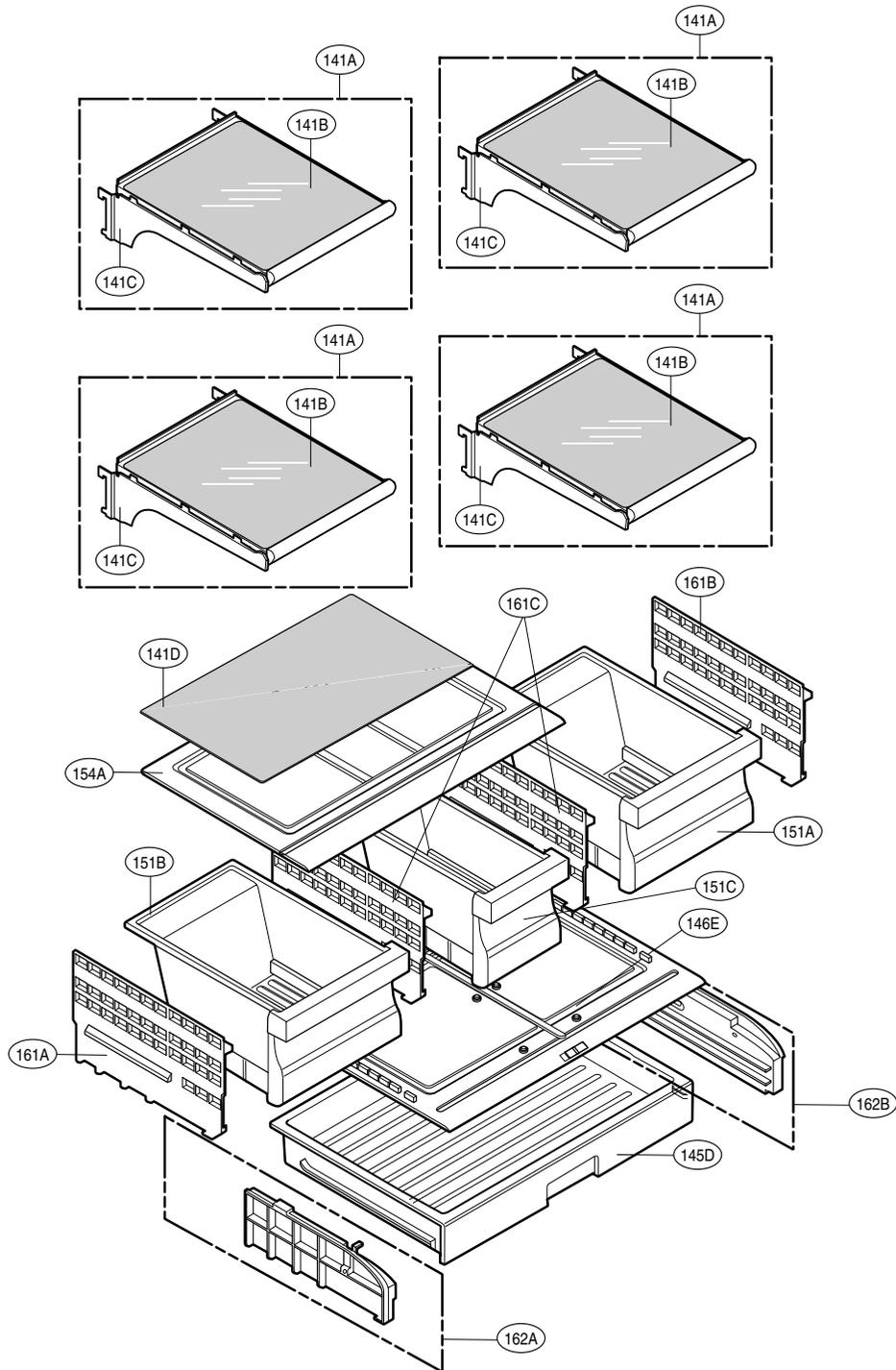
FREEZER PARTS

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



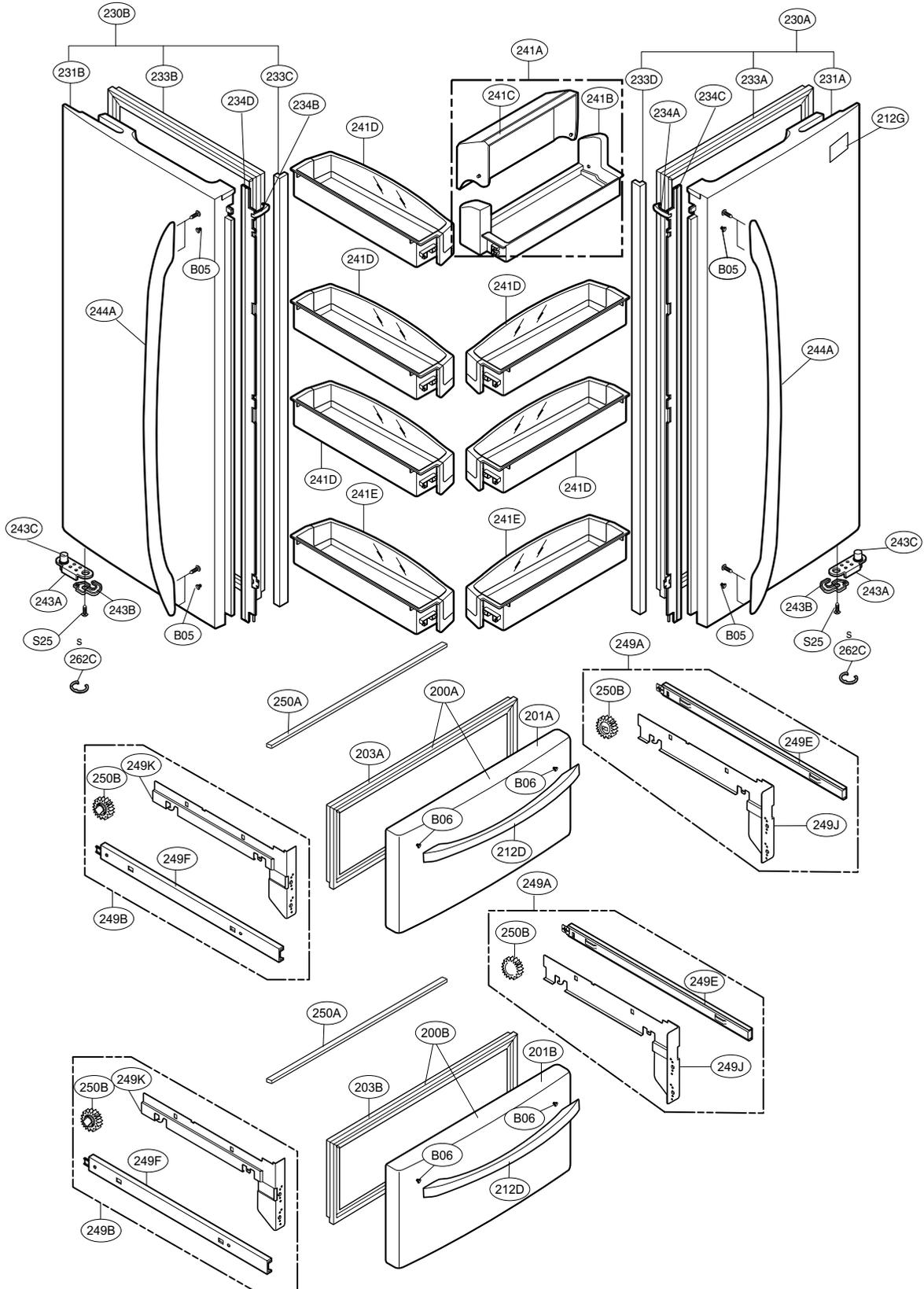
REFRIGERATOR PARTS

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



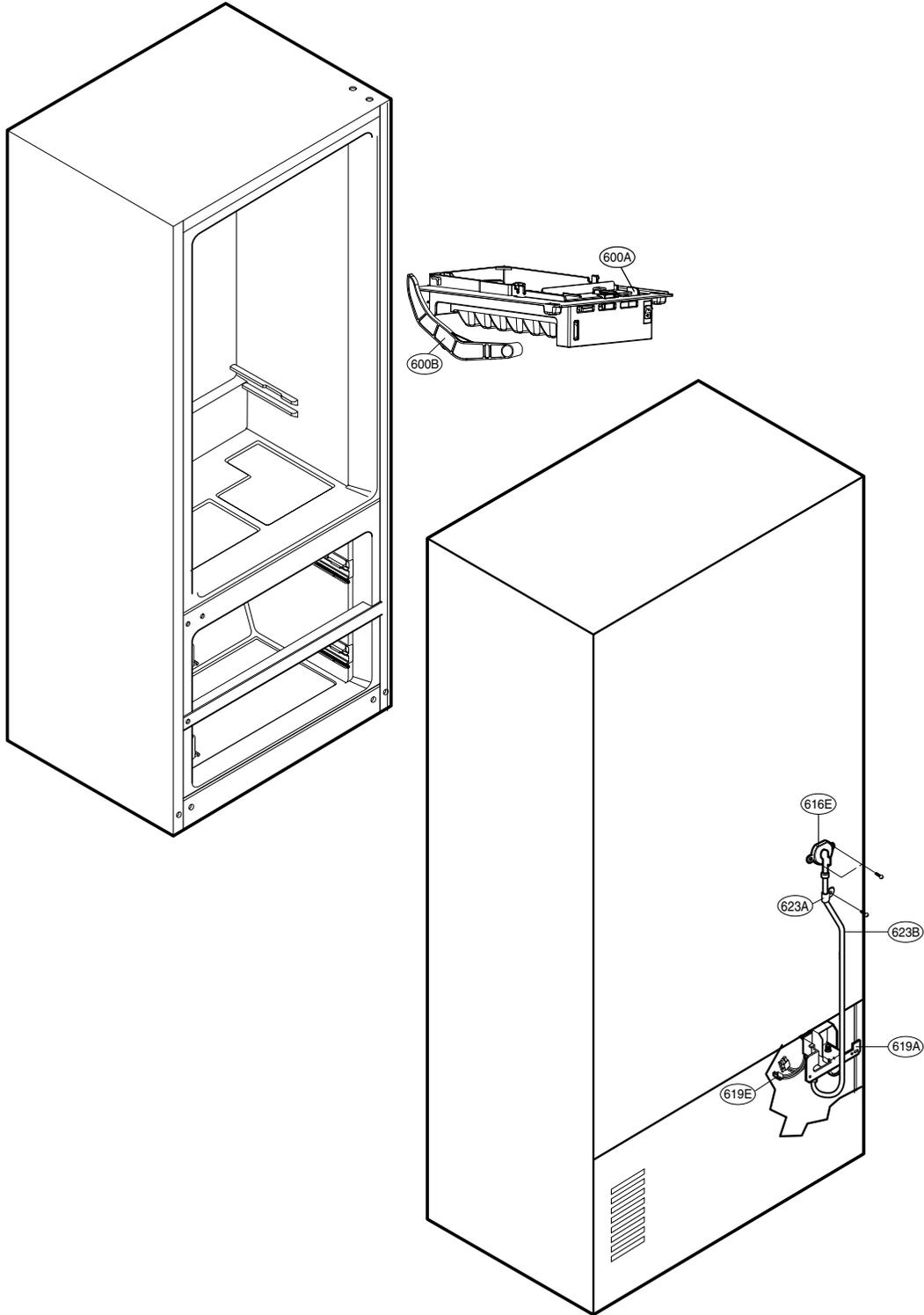
DOOR PARTS

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



WATER AND ICEMAKER PARTS

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





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