

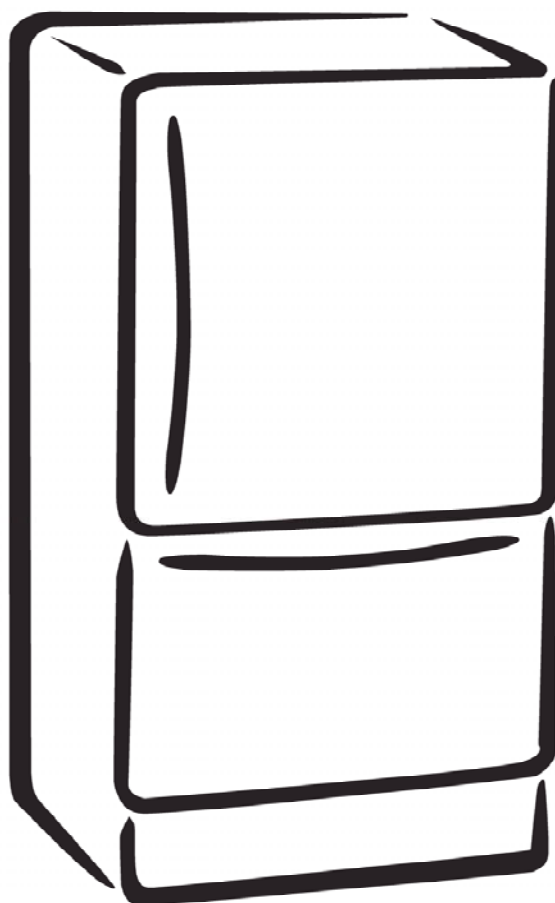


# REFRIGERATOR SERVICE MANUAL

CAUTION

BEFORE SERVICING THE PRODUCT

READ THE SAFETY PRECAUTIONS IN THIS MANUAL.



MODELS:

501-65012

501-65019

501-65092

501-65093

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## SAFETY PRECAUTIONS

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Please read the following instructions before servicing your refrigerator.

1. Check the refrigerator for electrical faults.
2. To prevent electric shock, unplug before servicing.
3. Always check line voltage and amperage.
4. Use standard electrical components.
5. Don't touch metal products in the freezer with wet hands. This may cause frostbite or cause your skin to freeze and stick to the surfaces inside the freezer.
6. Prevent water from flowing onto electric elements in the mechanical parts.
7. Close the top door before opening the bottom door. Otherwise, you might hit your head when you stand up.
8. When tilting the refrigerator, remove any materials on the refrigerator, especially the glass shelves and stored foods.
9. When servicing the evaporator, wear cotton gloves. This is to prevent injuries from the sharp evaporator fins.
10. Disassembly, repair, and servicing the sealed refrigeration system should be performed only by qualified and certified personnel. Refrigerant should not be vented into the atmosphere; proper recovery equipment should be used.

# 1. SPECIFICATIONS

## 1-1 DISCONNECT POWER CORD BEFORE SERVICING IMPORTANT D RECONNECT ALL GROUNDING DEVICES

All parts of this appliance capable of conducting electrical current are grounded. If grounding wires, screws, straps, clips, nuts or washers used to complete a path to ground are removed for service, they must be returned to their original position and properly fastened.

## 1-2 IMPORTANT NOTICE

This information is intended for use by individuals possessing adequate backgrounds of electrical, electronic and mechanical experience. Any attempt to repair a major appliance may result in personal injury and property damage. The manufacturer or seller cannot be responsible for the interpretation of this information, nor can it assume any liability in connection with its use.

## 1-3 ELECTRICAL SPECIFICATIONS

Temperature Control (Position : MID) ..... 8-(-6)°F  
 Defrost Control ..... 7 hrs.  
 Defrost Thermostat ..... 50°F  
 Electrical Rating :115V. AC, 60 Hz. .... 1-5 Amp.  
 Maximum Current Leakage ..... 0.5 mA  
 Maximum Ground Path Resistance ..... 0.14 Ohms  
 Energy Consumption ...20 cu.ft : 482 kWh/yr(Energy star, 520kWh/yr  
 .....22 cu.ft : 494 kWh/yr(Energy star), 530kWh/yr

## 1-4 NO LOAD PERFORMANCE CONTROL POSITION: MID/MID

And Ambient of : .....70°F .....90°F  
 Fresh Food, °F .....33°F to 41°F ..... 33°F to 41°F  
 Frozen Food, °F .....(-4°F) to 4°F ..... (-4°F) to 4°F  
 Percent Running Time .....25%-35% ..... 45%-60%

PERFORMANCE DATA (NORMAL OPERATING CONDITIONS)			
AMB	WATTS	SYSTEM PRESSURE (PSIG)	
		HIGH SIDE	LOW SIDE
70°F	98 (+10 / -10)	97 (+5 / -3)	(-5) to (-2)
90°F	98 (+10 / -10)	130 (+3 / -3)	(-4) to 1
110°F	103 (+5 / -5)	174 (+5 / -5)	(-2) to 3

## 1-5 REFRIGERATION SYSTEM

Minimum Compressor Capacity Vacuum ..... 21 in.  
 Minimum Equalized Pressure  
 @ 70°F ..... 49 PSIG  
 @ 90°F ..... 56 PSIG  
 Refrigerant - R - 134a ..... 4.05 oz.....(21cu.ft.....5.47oz)  
 Compressor .....687 BTU/hr

## 1-6 INSTALLATION

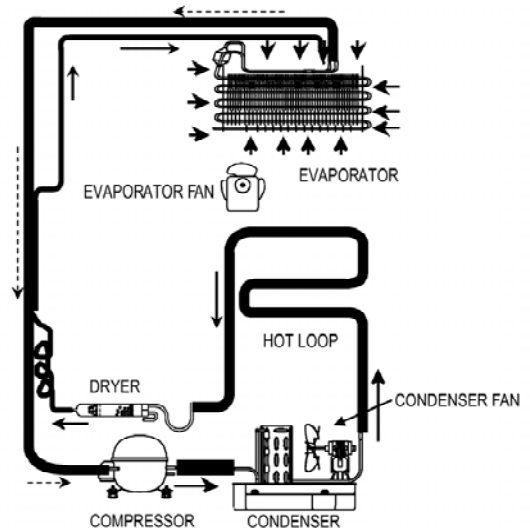
Clearance must be provided at top, sides and rear of the refrigerator for air circulation.

AT TOP ..... 1 in  
 AT SIDES ..... 1/8 in  
 AT REAR ..... 1 in

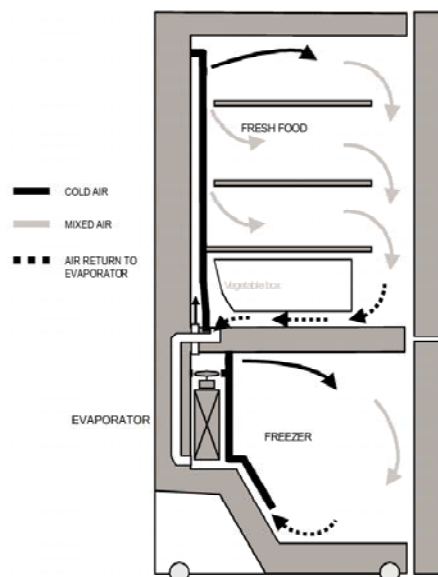
## 1-7 REPLACEMENT PARTS

Relay ..... 6749C-0008D  
 Overload ..... 6750C-0004S  
 Defrost Thermostat ..... 6615JB2005C  
 Defrost Heater ..... 20cu. ft : 5300JB1001D  
 ..... 22cu. ft : 5300JB1100J  
 Evaporator Fan Motor ..... 4680JK1002B  
 Capacitor ..... OCZZJB2003H  
 Compressor (Hi-Side) ..... 2521JJ8007A  
 Evaporator (Lo-Side) ..... 20cu. ft : 5421JJ1001A  
 ..... 22cu. ft : 5421JJ1001B  
 Condenser ..... 5403JJ1005A,4A  
 Dryer ..... 5851JJ2002B  
 Condenser Fan Motor ..... 4681JK1001B  
 Temperature Control ..... 6871JB2047A,46B  
 Main Control..... 6871JB1215A,13A

## 1-8 AIR FLOW / CIRCULATION D' AIR



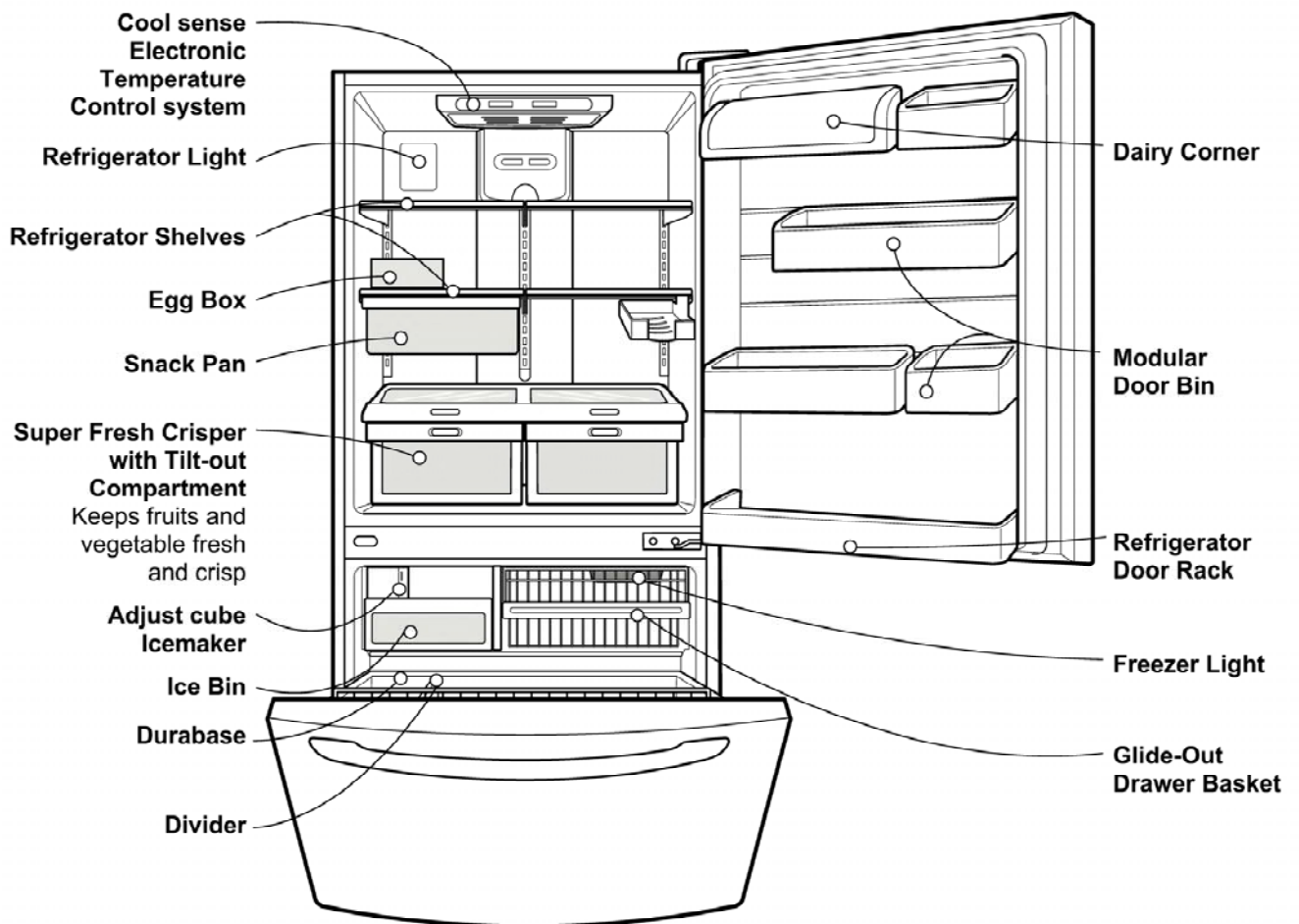
21cu.ft..... 5.47 oz.



## 2. PARTS IDENTIFICATION

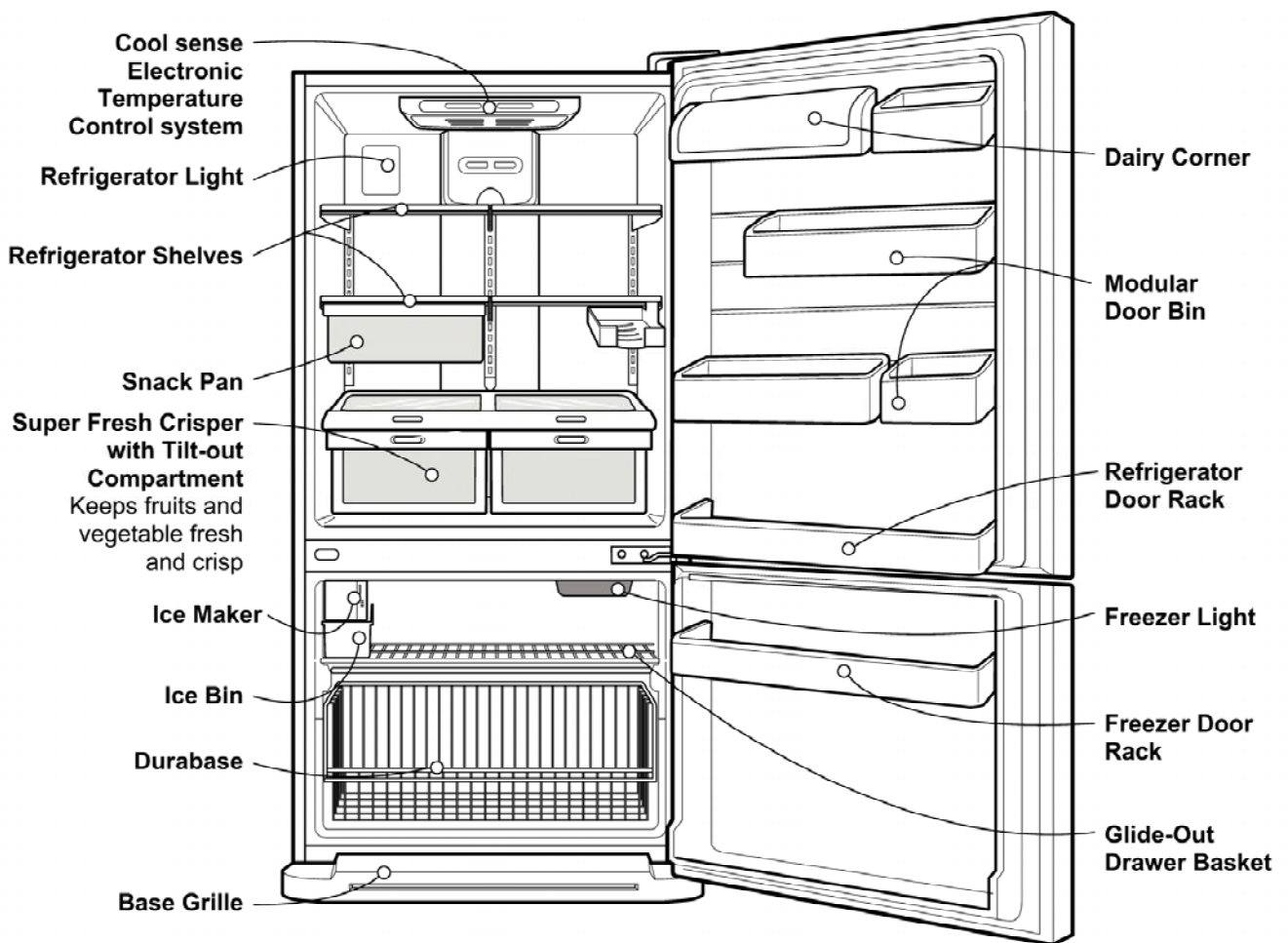
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### ► Freezer Drawer Model





► **Swing Out Freezer Door Model**

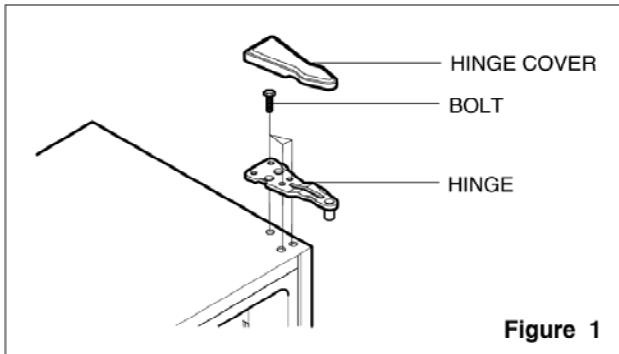


# 3. DISASSEMBLY

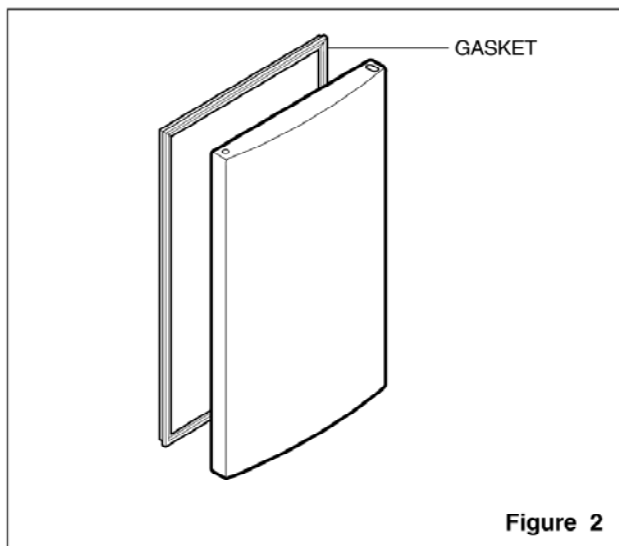
## 3-1 DOOR

### ● Refrigerator Door

1. Remove the hinge cover by pulling it upwards.
2. Loosen the hexagonal bolts attaching the upper hinge to the body and lift the freezer door.

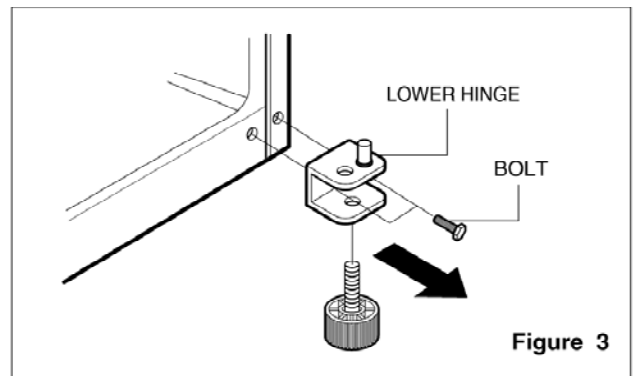


3. Pull out the door gasket to remove from the door foam assembly.



### ● Freezer Door

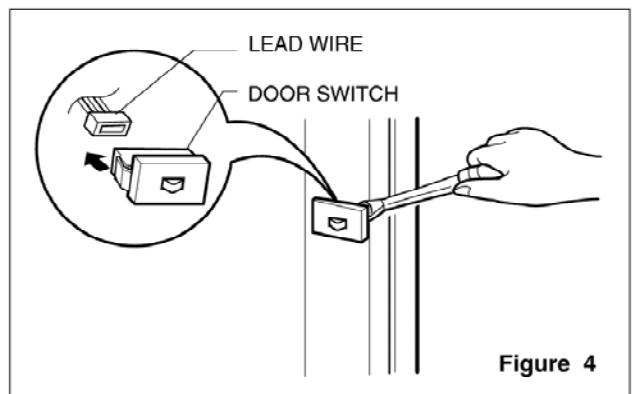
1. Loosen the hexagonal bolts attaching the lower hinge to the body to remove the refrigerator door only.



2. Pull out the door gasket to remove from the door foam assembly.

## 3-2 DOOR SWITCH

1. To remove the door switch, pry it out with a slotted-type driver, as shown in (Figure 4).
2. Disconnect the lead wire from the switch.



### 3-3 FAN AND FAN MOTOR

1. Remove the freezer shelf. (If your refrigerator has an icemaker, remove the icemaker first)
2. Remove the grille by pulling it out and by loosening a screw.
3. Remove the Fan Motor assembly by loosening 2 screws and disassemble the shroud.
4. Pull out the fan and separate the Fan Motor and Bracket.

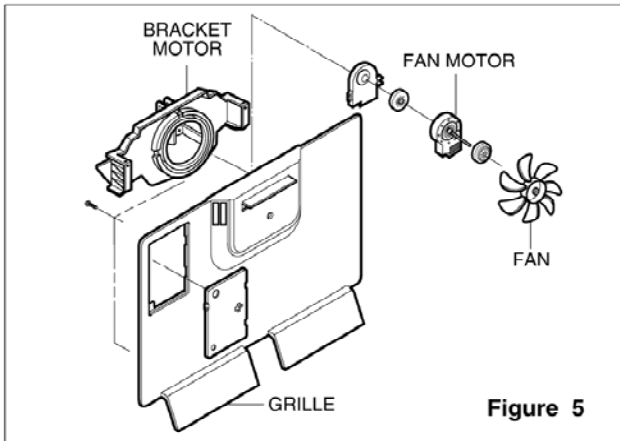


Figure 5

### 3-4 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 6)
2. Separate the connector with the Defrost Control assembly and replace the Defrost Control assembly after cutting the Tie Wrap. (Figure 7)

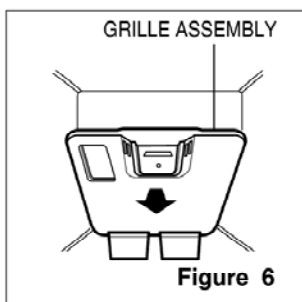


Figure 6

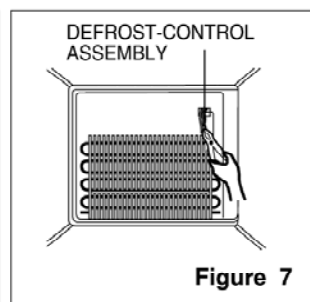


Figure 7

### 3-5 LAMP

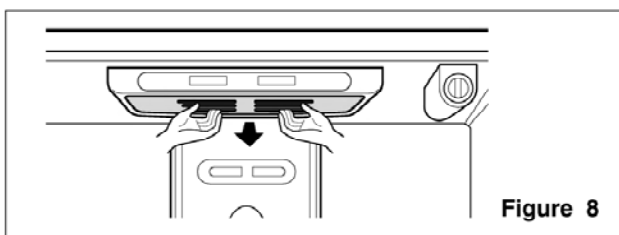


Figure 8

### 3-5-1 Refrigerator Compartment Lamp

1. Unplug the power cord from the outlet.
2. Remove refrigerator shelves.
3. Release the hooks on both ends of the lamp shield and pull the shield downward to remove it.
4. Turn the lamp counterclockwise.
5. Assemble in reverse order of disassembly. Replacement bulb must be the same specification as the original (Max. 60 W-2EA).

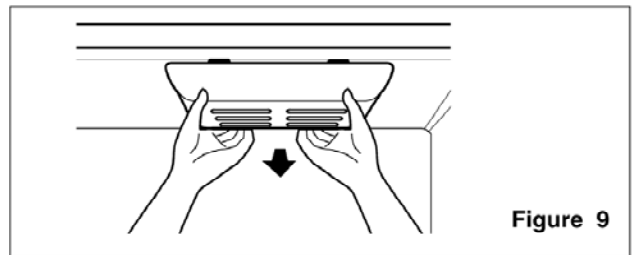


Figure 9

### 3-5-2 Freezer Compartment Lamp

1. Unplug refrigerator or disconnect power.
2. Reach behind light shield to remove bulb.
3. Replace bulb with a 60-watt appliance bulb.
4. Plug in refrigerator or reconnect power.

### 3-6 CONTROL BOX-REFRIGERATOR

1. First, remove all shelves in the refrigerator, then remove the Refrigerator control Box by loosening 2 screws.

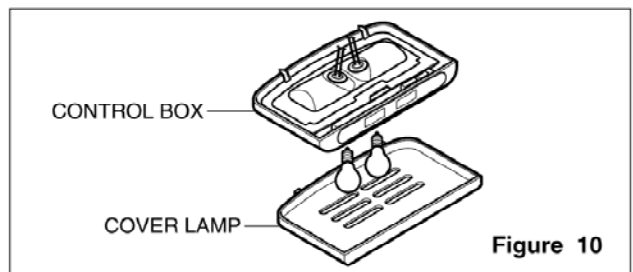


Figure 10

2. Remove the Refrigerator Control Box by pulling it downward.
3. Disconnect the lead wire on the right position and separate the lamp sockets.

### 3-7 MULTI DUCT

1. Remove an upper and lower Cap by using a flat screwdriver, and loosen 3 screws. (Figure 11)
2. Disconnect the lead wire on the bottom position.

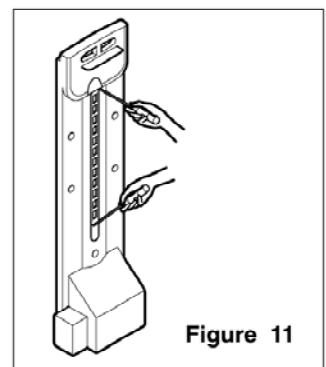


Figure 11

# 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 repairing it.

### 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

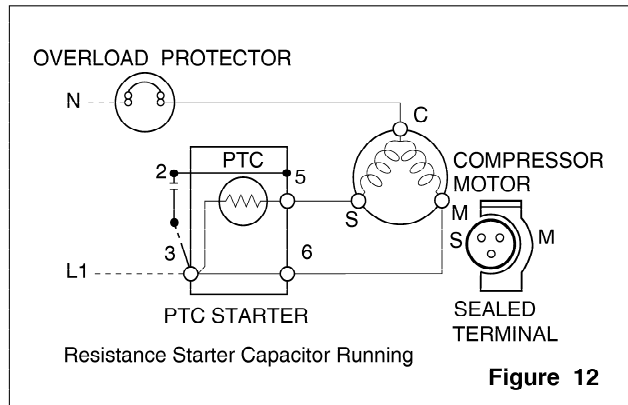
- (1) PTC (Positive Temperature Coefficient) is a no-contact semiconductor starting device which uses ceramic material consisting of BaTiO<sub>3</sub>.
- (2) The higher the temperature is, the higher the resistance value. These features are used as a starting device for the Motor.

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

- (1) The PTC is attached to the Sealed Compressor and is used for starting the Motor.
- (2) The compressor is a single-phase induction motor. Durign 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. Using an incorrect part could result in damage to the product, fire, injury, or possibly death.

## 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. Using an incorrect part could result in damage to the product, fire, injury, or possibly death.

### 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.

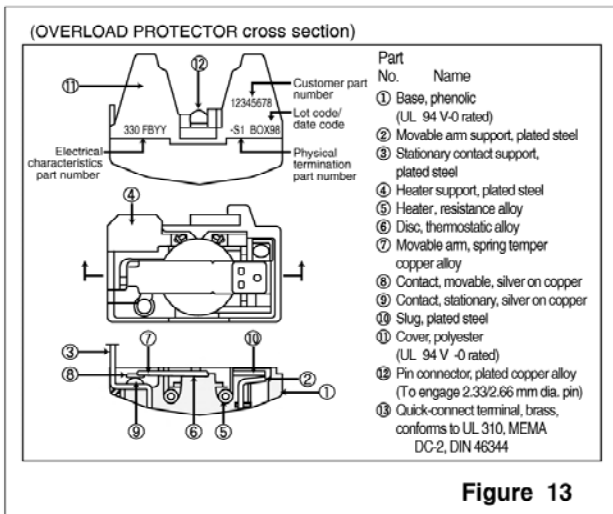
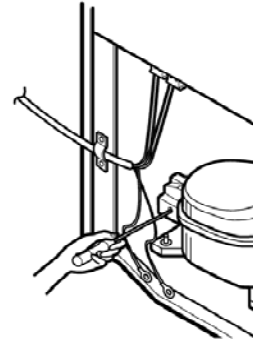


Figure 13

### 4-4 TO REMOVE THE COVER PTC



- 1) Remove the Cover Back M/C.
- (2) Remove the screw on Cover PTC.



- (3) Remove two Housings on upper part of Cover PTC.
- (4) Take out the cover PTC from upper to lower position like ①.

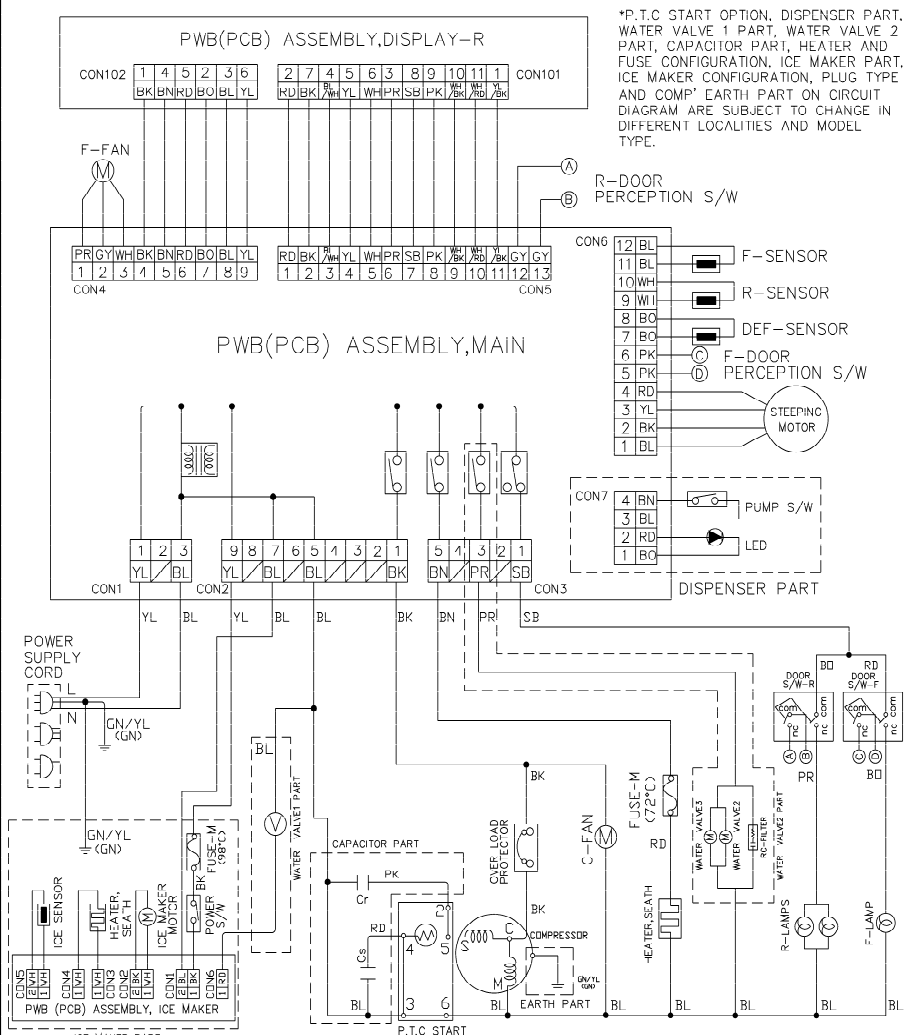


- (5) Turn 45° in the direction of ② and take it out.
- (6) Assembly in reverse order of disassembly.

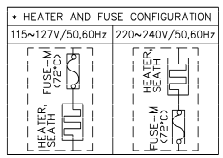
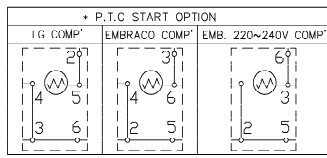
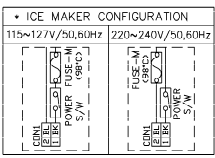
# 5. CIRCUIT DIAGRAM

## Best / Best dispenser

### DIAGRAMA ELECTRICO - CIRCUIT DIAGRAM



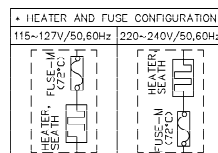
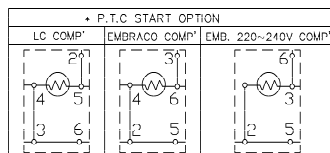
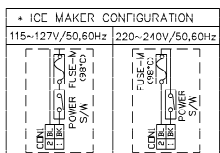
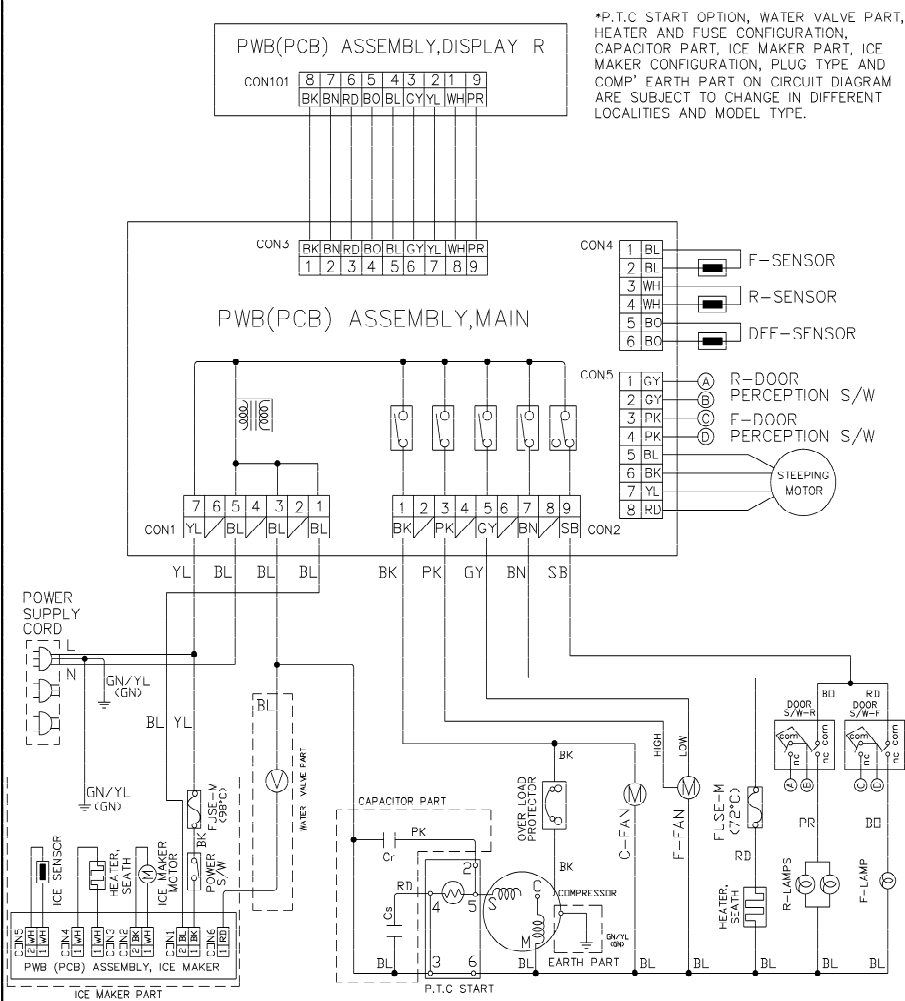
\*P.T.C START OPTION, DISPENSER PART, WATER VALVE 1 PART, WATER VALVE 2 PART, CAPACITOR PART, HEATER AND FUSE CONFIGURATION, ICE MAKER PART, ICE MAKER CONFIGURATION, PLUG TYPE AND COMP' EARTH PART ON CIRCUIT DIAGRAM ARE SUBJECT TO CHANGE IN DIFFERENT LOCALITIES AND MODEL TYPE.



BK: NEGRO/BLACK	BN: CAFE/BROWN	RD: ROJO/RED	BO: NARANJA/BRIGHT ORANGE
YL: AMARILLO/YELLOW	GN: VERDE/GREEN	BL: AZUL/BLUE	PR: VIOLETA/PURPLE
WH: BLANCO/WHITE	SB: AZUL CIELO/SKY BLUE	PK: ROSA/PINK	

# Good / Better

## DIAGRAMA ELECTRICO - CIRCUIT DIAGRAM

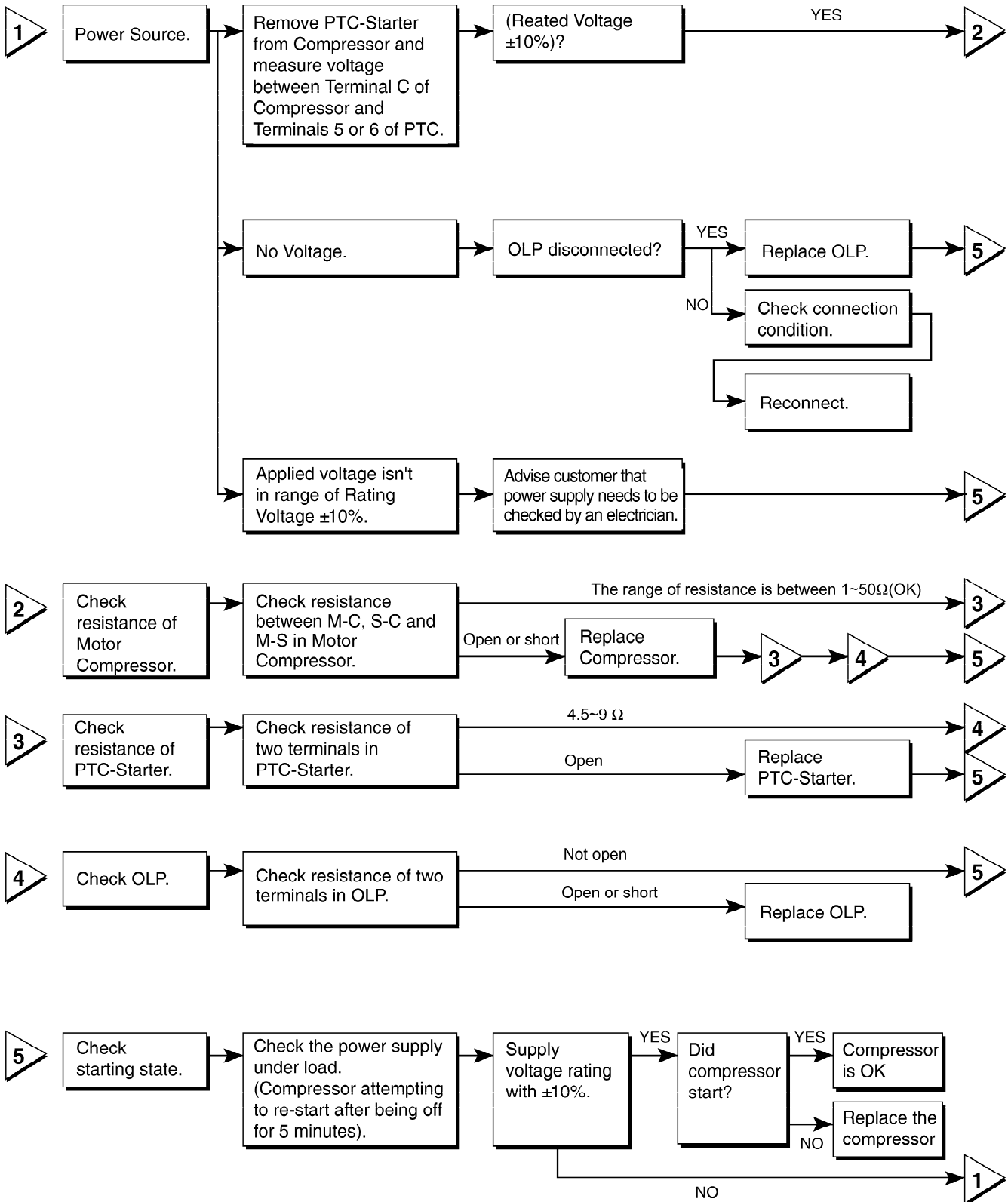


BK: NEGRO/BLACK      BN: CAFE/BROWN      RD: ROJO/RED      BO: NARANJA/BRIGHT ORANGE  
 YL: AMARILLO/YELLOW      GN: VERDE/GREEN      BL: AZUL/BLUE      PR: VIOLETA/PURPLE      GY: GRIS/GRAY  
 WH: BLANCO/WHITE      SB: AZUL CIELO/SKY BLUE      PK: ROSA/PINK



# 6. TROUBLESHOOTING

## 6-1 COMPRESSOR AND ELECTRIC COMPONENTS



## 6-2 PTC AND OLP

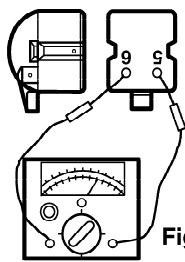
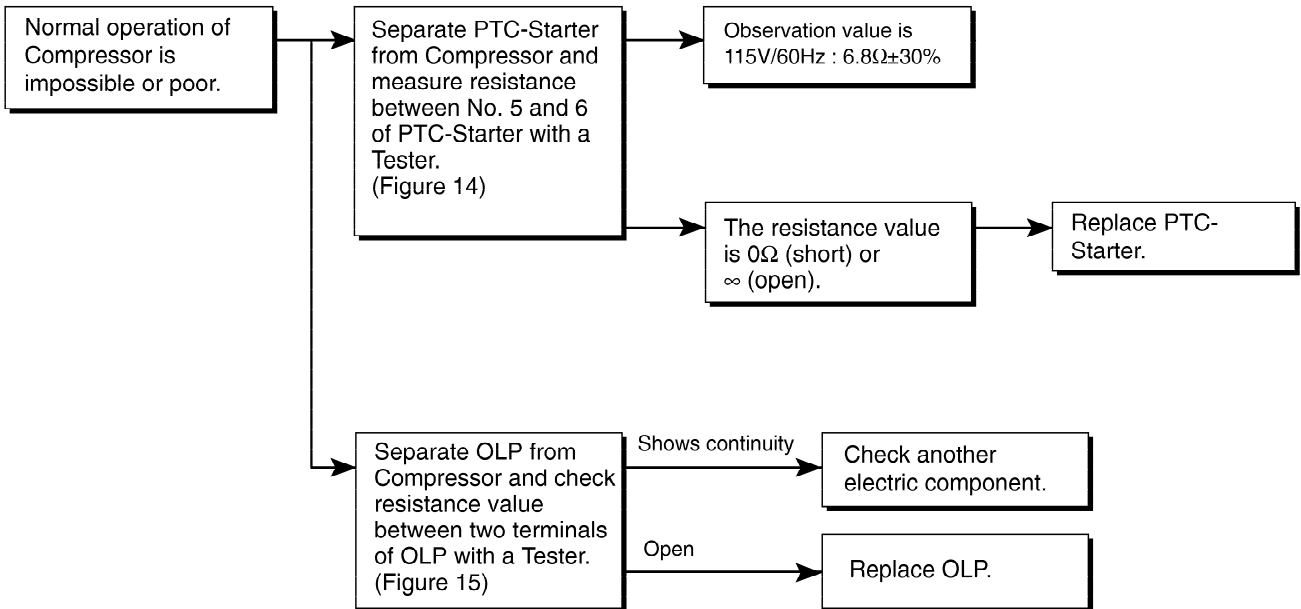


Figure 14

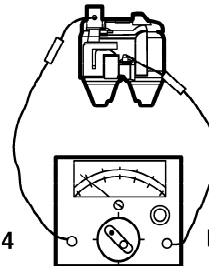
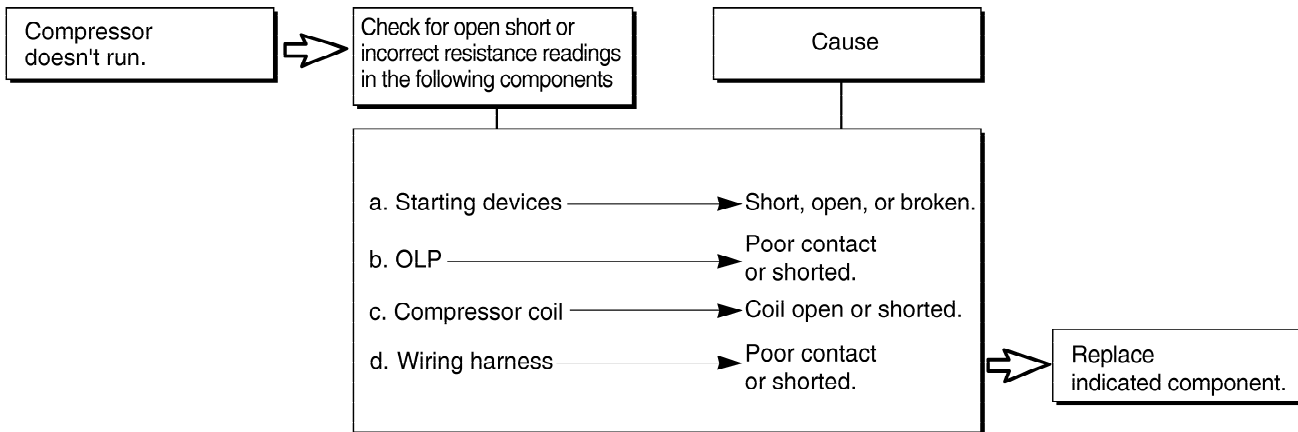


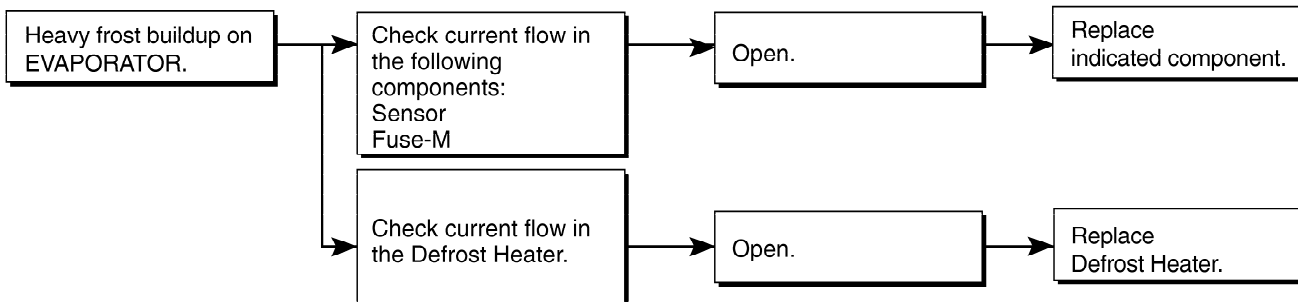
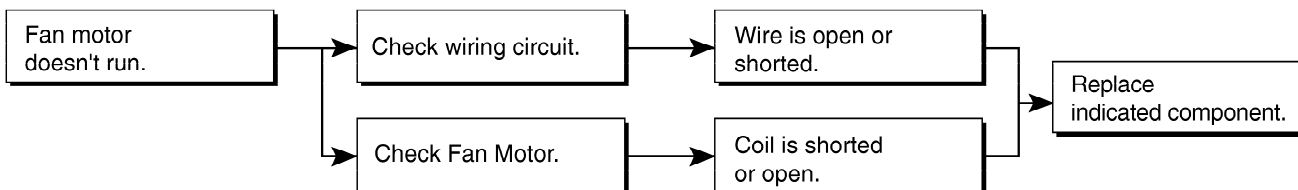
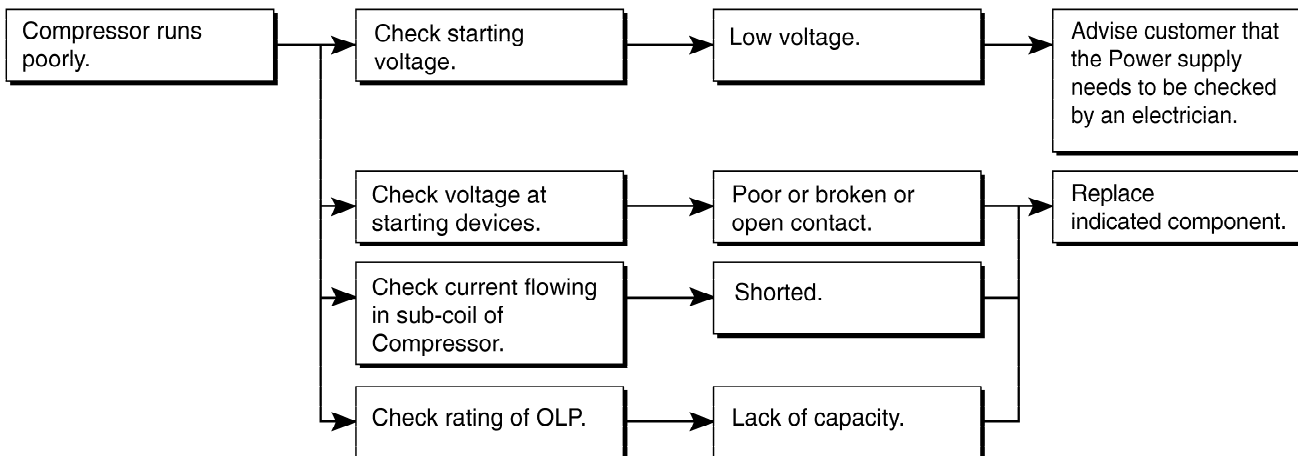
Figure 15

### 6-3 OTHER ELECTRICAL COMPONENTS

#### ▼ Not cooling at all



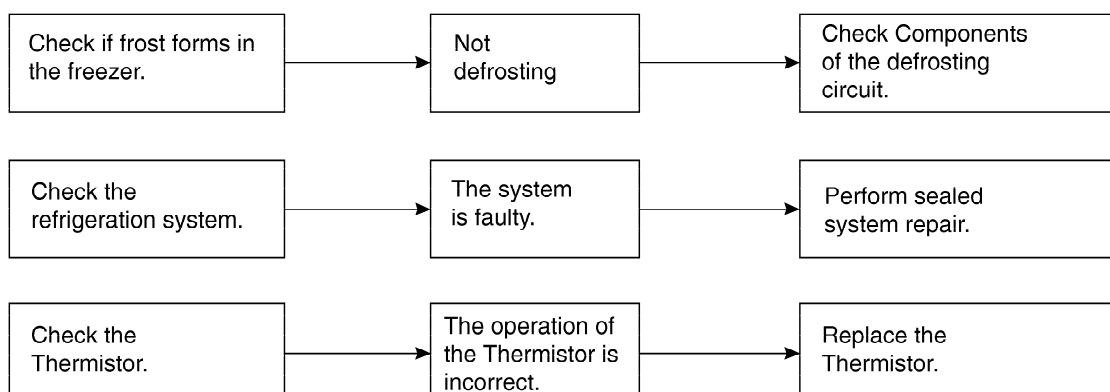
#### ▼ Poor cooling performance



## 6-4 SERVICE DIAGNOSIS CHART

COMPLAINT	POINTS TO BE CHECKED	REMEDY
No Cooling.	<ul style="list-style-type: none"> <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>
Foods in the Refrigerator are 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 the 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:



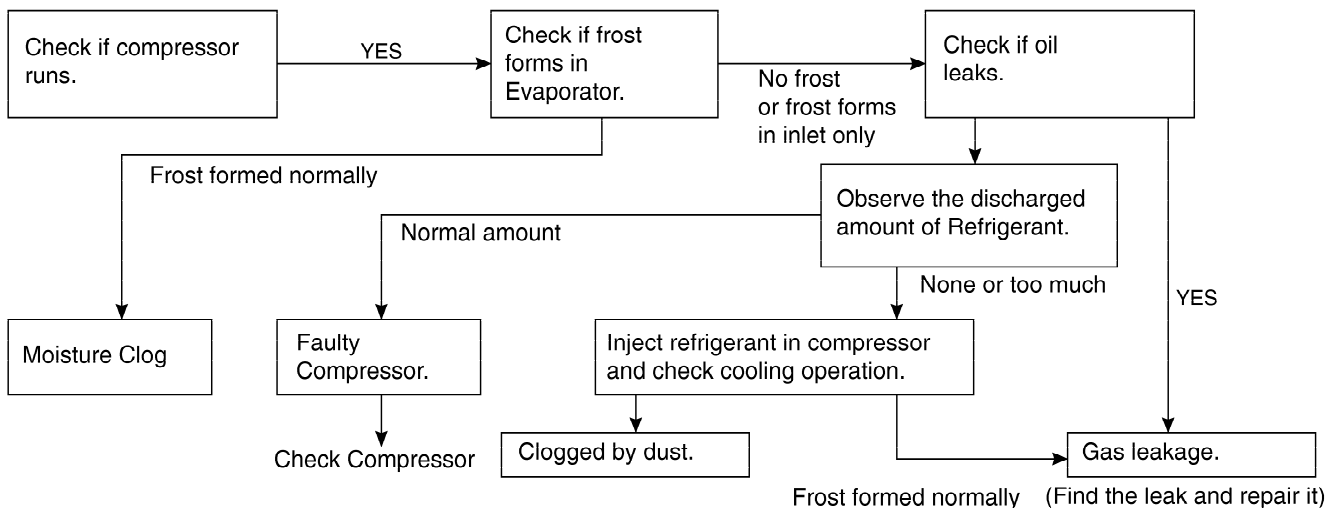
## 6-5 REFRIGERATION CYCLE

### ▼ 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"> <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 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>

### ▼ Leakage Detection

- Observe the discharging point of the refrigerant, which may be in the oil discharging part of the compressor and in a hole in the evaporator.



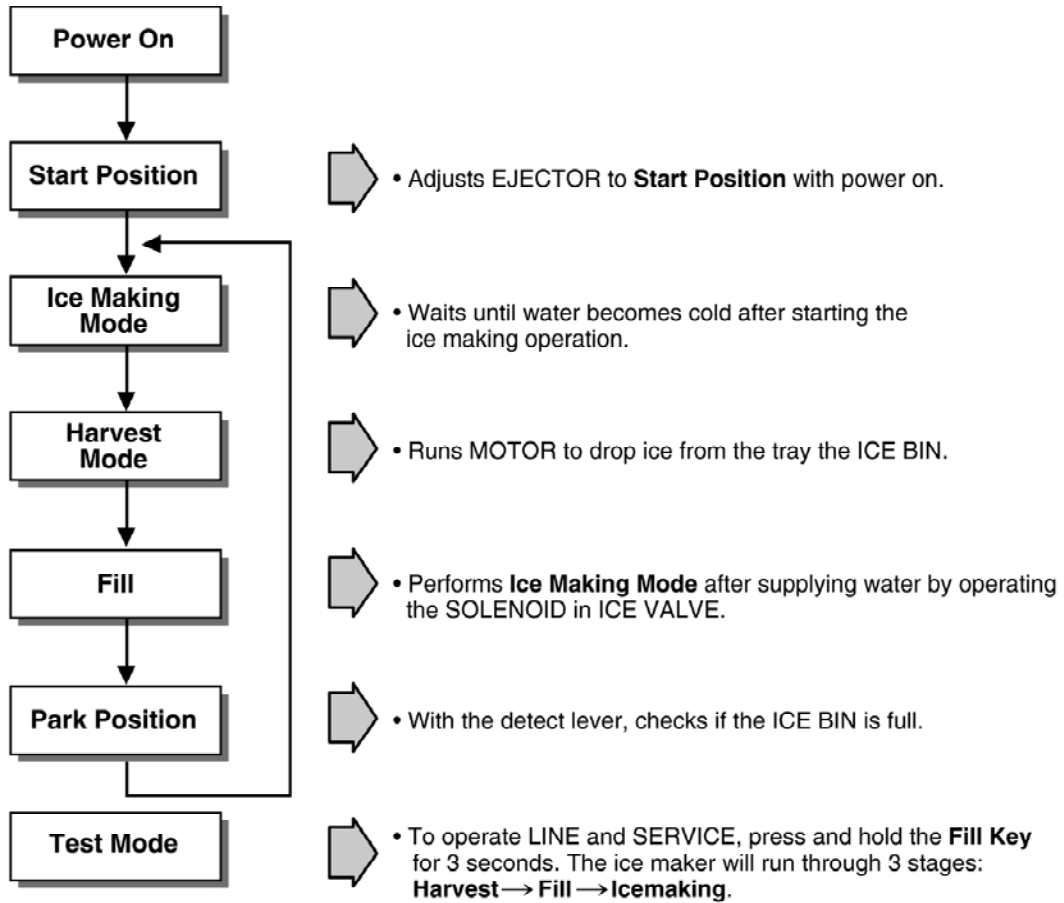
▼ General Control of Refrigerating Cycle

NO.	ITEMS	UNIT	STANDARDS	PURPOSES	REMARKS	
1	Pipe and piping system opening time	Min.	Pipe: within 1 hour. Comp: within 10 minutes. Drier: within 20 minutes.	To protect moisture penetration.	The opening time should be reduced to a half of the standards during rain and rainy seasons (the penetration of water into the pipe is dangerous).	
2	Welding	Nitrogen pressure	Weld under Nitrogen atmosphere. (N <sub>2</sub> pressure: 0.1~0.2 kg/cm <sup>2</sup> )	To protect oxide scale formation.	- Refer to repair note in each part. - R-134a refrigerant is more susceptible to leaks than R-12 and requires more care during welding. - Do not apply force to pipes before and after welding to protect pipe from cracking.	
3	N <sub>2</sub> sealed parts	Confirm N <sub>2</sub> leak	Confirm the sound of pressure relief when removing the rubber cap. Sound: usable No sound: not usable	To protect moisture penetration.	- In case of evaporator parts, if it doesn't make sound when removing rubber cap, blow dry air or N <sub>2</sub> gas for more than 1 min. and then use the parts.	
4	Refrigeration Cycle	Evacuation time	Min.	More than 40 minutes	To remove moisture.	
		Vacuum degree	Torr	Below 0.03 (ref)		Note: Only applicable to the model equipped with reverse flow protect plate.
		Vacuum	EA	High and low pressure sides are evacuated at the same time for models above 200 l.		Vacuum efficiency can be improved by operating compressor during evacuation.
		Vacuum piping	EA	Use R-134a manifold exclusively.	To protect mixing of mineral and ester oils.	The rubber pipes for R-12 refrigerant will be melted when they are used for R-134a refrigerant (causes of leak.)
		Pipe coupler	EA	Use R-134a manifold exclusively.	To protect R-12 refrigerant mixing.	
		Outlet (Socket)		R-134a manifold exclusively.	To protect R-12 refrigerant mixing.	
		Plug		R-134a manifold exclusively.	To protect R-12 refrigerant mixing.	
5	Refrigerant weighing	EA	Use R-134a exclusively. Weighing allowance: ±5g Note: Winter: -5g Summer: +5g	Do not mix with R-12 refrigerant.	- Do not weigh the refrigerant at too hot or too cold an area. (77°F [25°C] is adequate.) - Make Copper charging canister (Device filling refrigerant) Socket: 2SV Plug: 2PV R-134a Note: Do not burn O-ring (bushing) during welding.	
6	Drier replacement		- Use R-134a exclusively for R-134a refrigerator. - Replace drier whenever repairing refrigerator cycle piping.	To remove the moisture from pipe inside.		
7	Leak check		- Do not use soapy water for check. It may be sucked into the pipe by a vacuum.	Defect in refrigerant leak area.	- Check for an oil leak at the refrigerant leak area. Use an electronic leak detector if an oil leak is not found. - The electronic leak detector is very sensitive to halogen gas in the air. It also can detect R-141b in urethane. Practice many times before using this type of detector to avoid false readings.	

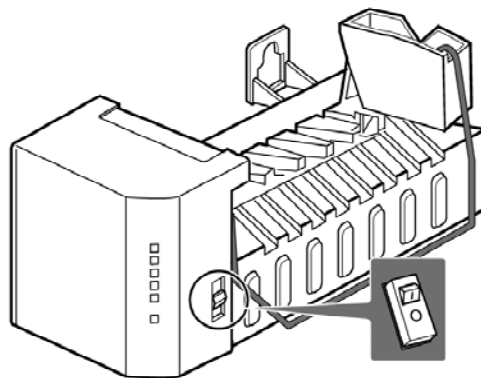
# 7. OPERATION PRINCIPLE AND REPAIR METHOD OF ICEMAKER

## 7-1 OPERATION PRINCIPLE

### 7-1-1 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.





## 7-2 CONTROL METHOD ACCORDING TO FUNCTIONS

### 7-2-1 Start Position

1. After POWER OFF or Power Outage, check the EJECTOR's position with MICOM initialization to restart.
2. How to check if it is in place:
  - Check **HIGH/LOW** signals from HALL SENSOR in MICOM PIN.
3. Control Method to check if it is in place:
  - (1) EJECTOR is in place,
    - It is an initialized control, so the mode can be changed to ice making control.
  - (2) EJECTOR isn't in place:
    - A. If EJECTOR is back in place within 2 minutes with the motor on, it is being initialized. If not, go to Step B.
    - B. If EJECTOR is back in place within 18 minutes with the heater on (to control Heater on its OFF condition), it is being initialized. If not, it is not functioning. Repeat Step B with Heater and Motor off.

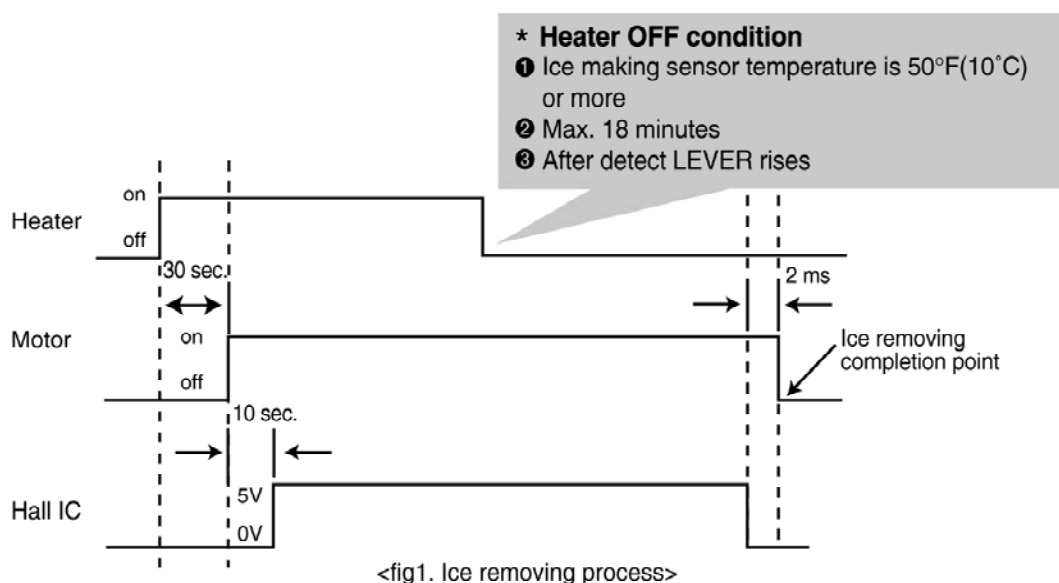
### 7-2-2 Ice Making Mode

1. Ice Making control refers to the freezing of supplied water in the ice trays. Complete ice making operations by measuring the temperature of the Tray with Ice-Making SENSOR.
2. Ice Making starts after completing fulfilled ice control and initial control.
3. The Ice Making function is completed when the sensor reaches 19°F(-7°C), 60 to 240 minutes after starting.
4. If the temperature sensor is defective, the ice-making function will be completed in 4 hours.

### 7-2-3 Harvest Mode

1. Ice-removing control refers to the operation of dropping cubes into the ice bin from the tray when ice-making has completed.
2. Ice removing control mode:
  - (1) Operates Heater for 30 seconds; then operate MOTOR.
  - (2) After performing Step 1 (to control the Heater on its off condition), Ice-Removal control will be back in place within 18 minutes. (Hall SENSOR sign = OV). Ice removal is then complete. Then change the mode to the water supply control. If this control phase fails to start, it is not functioning. Put the Heater and Motor in the off position. Restart every 2 hours. (Refer to fig.1)






**NOTE :** If the motor malfunctions and starts before the detect lever rises, MICOM regards the Ice-Removing phase as completed. Water then starts flowing. To prevent this, MICOM doesn't switch to water-supply mode, but restarts the ice-removing mode. If this happens 3 times, the motor is malfunctioning and you should stop the loads (Heater, Motor). Then restart the Ice-Removing mode every 2 hours. (See Step 2 above.)



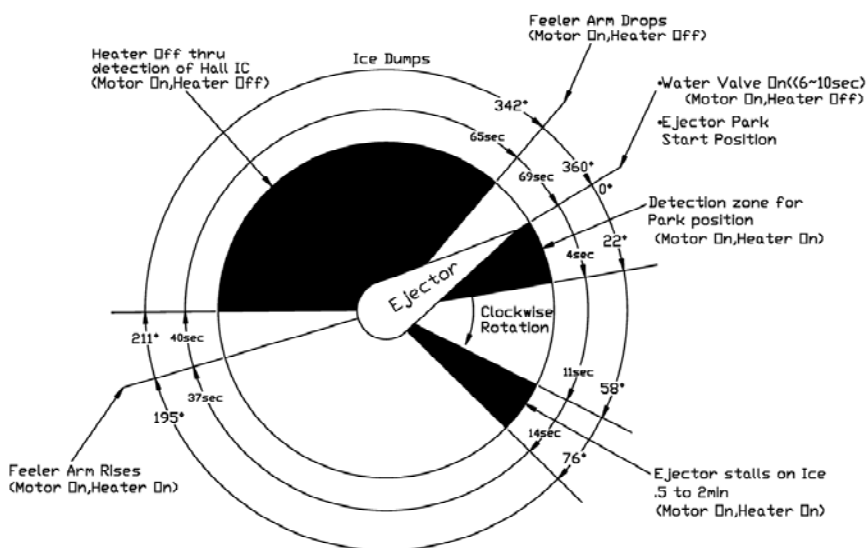
**7-2-4 Fill / Park Position**

1. When Ice-Removing control (Normal Ice-Removing control, Ice-Removing control for test) has completed, and the EJECTOR is in place, this control operates the ICE SOLENOID by time check in the compressor enclosure of the refrigerator. Then it supplies water to the ice making tray.
2. Water supply level is adjustable in levels 1-5 by pressing the water supply control Switch and fill time will be determined by the selected level.

**Water supply amount TABLE**

STAGE	TIME TO SUPPLY	INDICATIONS	REMARKS
1	6 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	7 sec.		
3	8 sec.		
4	9 sec.		
5	10 sec.		






**NOTE :** Below is an example used by another vendor as an explanation of what is taking place.



### 7-2-5 Function TEST



1. This is a compulsory operation for TEST, SVC, cleaning, etc. It is operated by pressing the water supply control KEY for 3 seconds.
2. It operates in the Ice Making mode, but not in the Ice-Removing mode or water supply process. (If there is an ERROR, it can only be checked in the TEST mode.)
3. If the water supply control KEY is pressed for 3 seconds in the Ice-Making mode (no matter what condition the Ice-Making tray is in) the Ice-Removing operation starts immediately. Water is not yet frozen, so water is poured instead of ice. 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: **ice making** → **Harvest** → **Fill** → **Park Position**.
5. When Stage 5 is completed in the TEST mode, minimize MICOM in 5 seconds, the time needed to supply water resets to the previous status in the TEST mode.

#### Diagnosis TABLE

STAGE	ITEMS	INDICATOR	REMARKS
1	HEATER		Five seconds after heater starts, heater will go off if temperature recorded by sensor is 10°C or lever is in up position.
2	MOTOR		Five seconds after heater starts, you can confirm that motor is moving.
3	HALL IC (detection of position) I		You can confirm Hall IC detection of position.
4	VALVE		Two seconds after detection of initial position, you can confirm that valve is on.
5	HALL IC (detection of full-filled Ice) II		You can check whether hall is sensing Full ice condition. (If there is a full-filled error, the fifth LED is not on.)
6	reset	Mark previous status on TEST mode	Five seconds after fifth stage is completed, the icemaker reset at initial status.

### 7-3 DEFECT DIAGNOSIS FUNCTION

#### 7-3-1 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	Ice-Making Sensor malfunction		Cut or short-circuited wire	Make sure that the wire on each sensor is connected.
3	Ice Maker Kit malfunction		When ejector blades don't reach park position over 18 minutes since Harvest Mode starts.	Defects of HALL IC/MOTOR/HEATER/RELAY

ERROR indicators in table can be checked only in TEST mode.

# 8. DESCRIPTION OF FUNCTION & CIRCUIT OF MICOM

## 8-1 FUNCTION

### 8-1-1 Function

1. When the appliance is plugged in, it is set to "4" for Refrigerator and "4" 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 automatically set to "4" & "4".



### 8-1-2 Control of freezer fan motor

1. Freezer fan motor has high and standard RPMs.
2. High RPM is used when electricity is first on, for express freeze, and when refrigerator is overloaded.  
But standard RPM is used for general purposes.
3. To improve cooling speed and load corresponding speed, the RPM of freezer fan motor shall change from normal speed to high speed.
4. High speed (2500RPM) : Initial power on or load corresponding operation, express freeze Normal speed (2200RPM) : General working conditions.
5. Fan motor stops when refrigerator or freezer door opens.

### 8-1-3 EXPRESS FREEZE

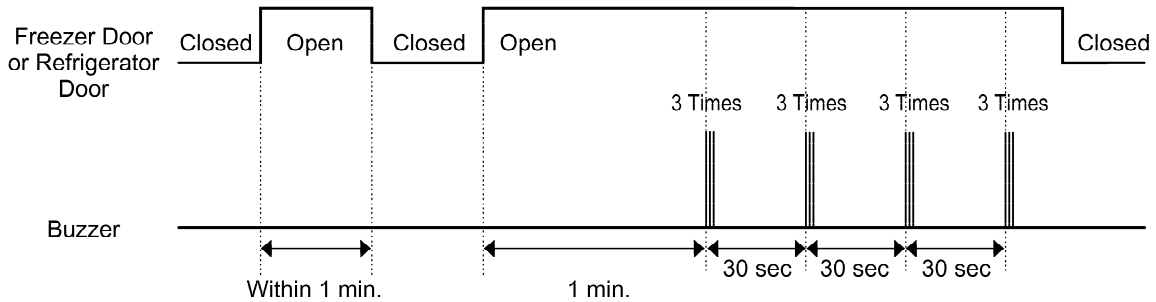
1. The purpose of this function is to intensify the cooling speed of freezer and to increase the amount of ice.
2. Whenever selection switch is pressed, selection/release, the LED will turn ON or OFF.
3. If there is a power cut and the refrigerator is power on again, EXPRESS FREEZE function will be canceled.
4. To activate these function you need to press the Express Freeze key and the LED 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 21hours the freezer will be controlled at the lowest temperature. After 24 hours or if the Express Freeze key is pressed again, the freezer will return to its previous temperature.
5. For the first three hours notice the following cases:
  - (1) Compressor and freezer fan(HIGH RPM) continuously operate for three hours.
  - (2) If defrost starts during EXPRESS FREEZE, EXPRESS FREEZE operates for the rest of time after defrost is completed, when EXPRESS FREEZE operation time is less than 90 minutes.  
If EXPRESS FREEZE operates for more than 90minutes, the EXPRESS FREEZE will operate for two hours after defrost is completed.
  - (3) If EXPRESS FREEZE is pressed during defrost, EXPRESS FREEZE LED is on but this function will start seven minutes after defrost is completed and it shall operate for three hours.
  - (4) If EXPRESS FREEZE 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 rotates at high speed during EXPRESS FREEZE.
6. For the rest of 21 hours, the freezer will be controlled at the lowest temperature.

### 8-1-4. REFRIGERATOR LAMP AUTO OFF

1. To protect the risk of lamp heat, when Refrigerator door opens for 7 min., refrigerator lamp is auto off.

### 8-1-5 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 seconds. These tones repeat every 30 seconds.
3. The alarm is cancelled when the freezer or the refrigerator is closed while the buzzer sounds.



### 8-1-6 Buzzer Sound

When the button on the front Display is pushed, a Ding~ Dong~ sound is produced.  
(Refer to the Buzzer Circuit 7-2-4 No. 2)

### 8-1-7 Defrosting (removing frost)

1. Defrosting starts each time the COMPRESSOR running time reaches 7 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 2 hours, the defrost mode is malfunctioning. (Refer to the defect diagnosis function, 7-1-9.)
4. Defrosting won't function if its sensor is defective (wires are cut or short circuited)

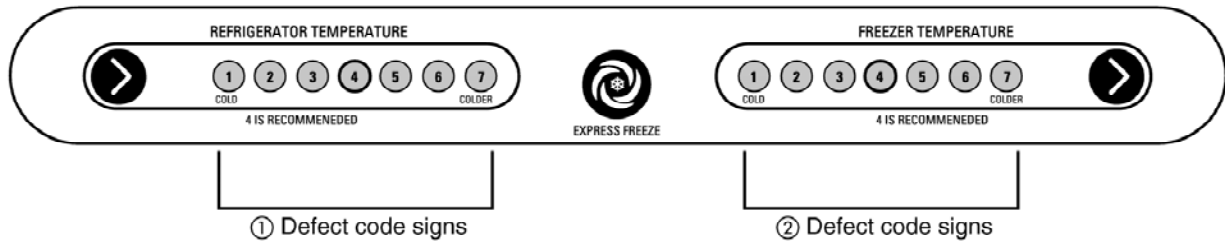
### 8-1-8 Electrical Parts Are Turned On Sequentially

Electrical parts such as COMP, 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)	<b>POWER ON</b>	in 1/2 second →	<b>COMP ON</b>	in 1/2 second →	<b>Freezer FAN ON</b>
	Temperature of defrosting sensor is lower than 45°C (when power cuts, SERVICE)	<b>POWER ON</b>	in 1/2 second →	<b>Defrosting heater ON</b>	in 10 second →	<b>Defrosting heater OFF</b>
		in 1/2 second →	<b>COMP ON</b>	in 1/2 second →	<b>Freezer FAN ON</b>	
Reset to normal operation from TEST MODE		<b>Total load OFF</b>	in 7 minute →	<b>COMP ON</b>	in 1/2 second →	<b>Freezer FAN ON</b>

### 8-1-8 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.



### ERROR CODE on display panel

NO	ITEM	ERROR CODE		CONTENTS	REMARKS
		①	②		
1	Failure of freezer sensor	All off	● ○ ○ ○ ○ ○ ○ ○	Cut or short circuit wire	Inspect Connecting wires on each sensor
2	Failure of Refrigerator sensor	All off	○ ● ○ ○ ○ ○ ○ ○	Cut or short circuit wire	
3	Failure of defrost sensor	All off	○ ○ ● ○ ○ ○ ○ ○	Cut or short circuit wire	
4	Poor of defrost	All off	● ● ● ● ○ ○ ○	2hours later After starting defrost, If sensor doesn't be over 46°F (8°C)	Snapping of defrost heater or Temperature fuse, pull-out of Connector (indicated minimum 2 Hours after failure occurs)

### 8-1-10 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 two buttons at Display panel.
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 Express Freeze key and COLDER KEY of Freezer Temp. at the same time over 3 seconds.	<ol style="list-style-type: none"> <li>1. Continuous operation of the COMPRESSOR</li> <li>2. Continuous operation of the freezer fan</li> <li>3. STEPPING DAMPER OPEN</li> <li>4. Defrosting Heater OFF</li> <li>5. Every DISPLAY LED ON</li> </ol>	
TEST2	Push Express Freeze key and COLDER KEY of Freezer Temp. at the same time over 3 seconds in TEST MODE 1	<ol style="list-style-type: none"> <li>1. COMP OFF</li> <li>2. Freezer FAN OFF</li> <li>3. STEPPING DAMPER CLOSE</li> <li>4. Defrosting heater ON</li> <li>5. DISPLAY LED 1, 3, 5, 7 ON</li> </ol>	Reset if the temperature of the Defrosting sensor is 46°F (8°C) or more.
Reset	Push Express Freeze key and COLDER KEY of Freezer Temp. at the same time over 3 seconds. in TEST MODE 2	Reset to the previously setting before TEST MODE	The compressor will Start after a 7-minute delay.

**NOTE :** LED CHECK MODE: When the refrigerator temperature control and the freezer temperature control button at the same time are hold for 1 second or longer, every LED on the display turns on at the same time. when the button are released, the previous mode is restored.

\* Freezer Fan RPM Variable Check:

In case the freezer fan is in operation when the COLD KEY in Refrigerator and Freezer Temp. Control are pressed for more than one second at the same time freezer fan RPM changes. (for example if high speed, to normal speed or if normal speed, to high speed for 30 seconds)  
After 30 seconds, it turns to its original RPM.

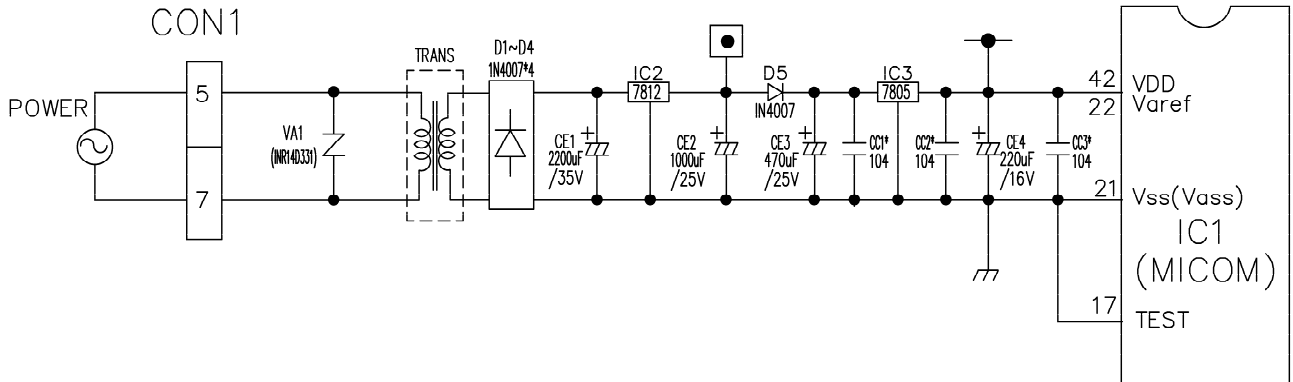
\* Demonstration MODE:

1. When the KEY of refrigerator Temp. control or of freezer Temp. control is pushed and held over 5 seconds, warmest temperature's It converts to Demonstration Mode.
2. In this status, each LED is rotated with 1 second interval.
3. In this status, all Loads are off (Compressor / Fan / Damper / Heater)  
(Even is Demonstration Mode, the refrigerator Lamp automatic off function works normally and can be demonstrated)
4. It reset if you do again as clause.



## 8-2 PCB FUNCTION

### 8-2-1 Power Circuit



The secondary part of the TRANSFORMER is composed of the power supply for the display, the BLDC FAN Motor drive (15.5 V), the relay drive (12 Vdc) and the MICOM and IC (5 Vdc).

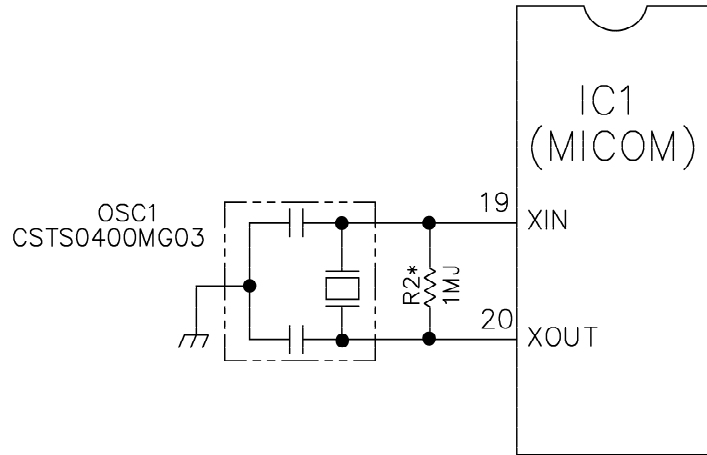
The voltage for each part is as follows:

PART	VA 1	CE 2	CE 1	CE 4
VOLTAGE	115 Vac	12 Vdc	15.5 Vdc	5 V

VA1 is a part for preventing over voltage and noise. When 385V or higher power is applied, the inside elements are short-circuited and broken, resulting in blowout of the fuse in order to protect the elements of the secondary part of the TRANSFORMER.

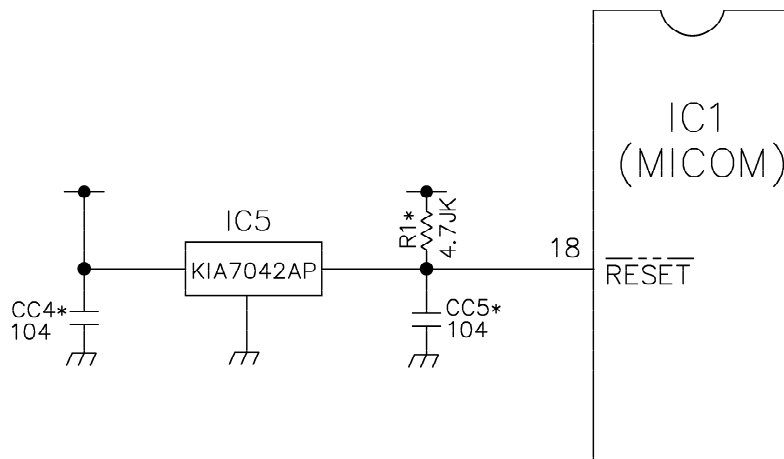
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### 8-2-2 Oscillation Circuit



This circuit generates the base clock for calculating time and the synchro clock for transmitting data from and to the inside logic elements of the IC1 (MICOM). Be sure to use specific replacement parts, since calculating time by the IC1 may be changed. If changed, the OSC1 SPEC will not work.

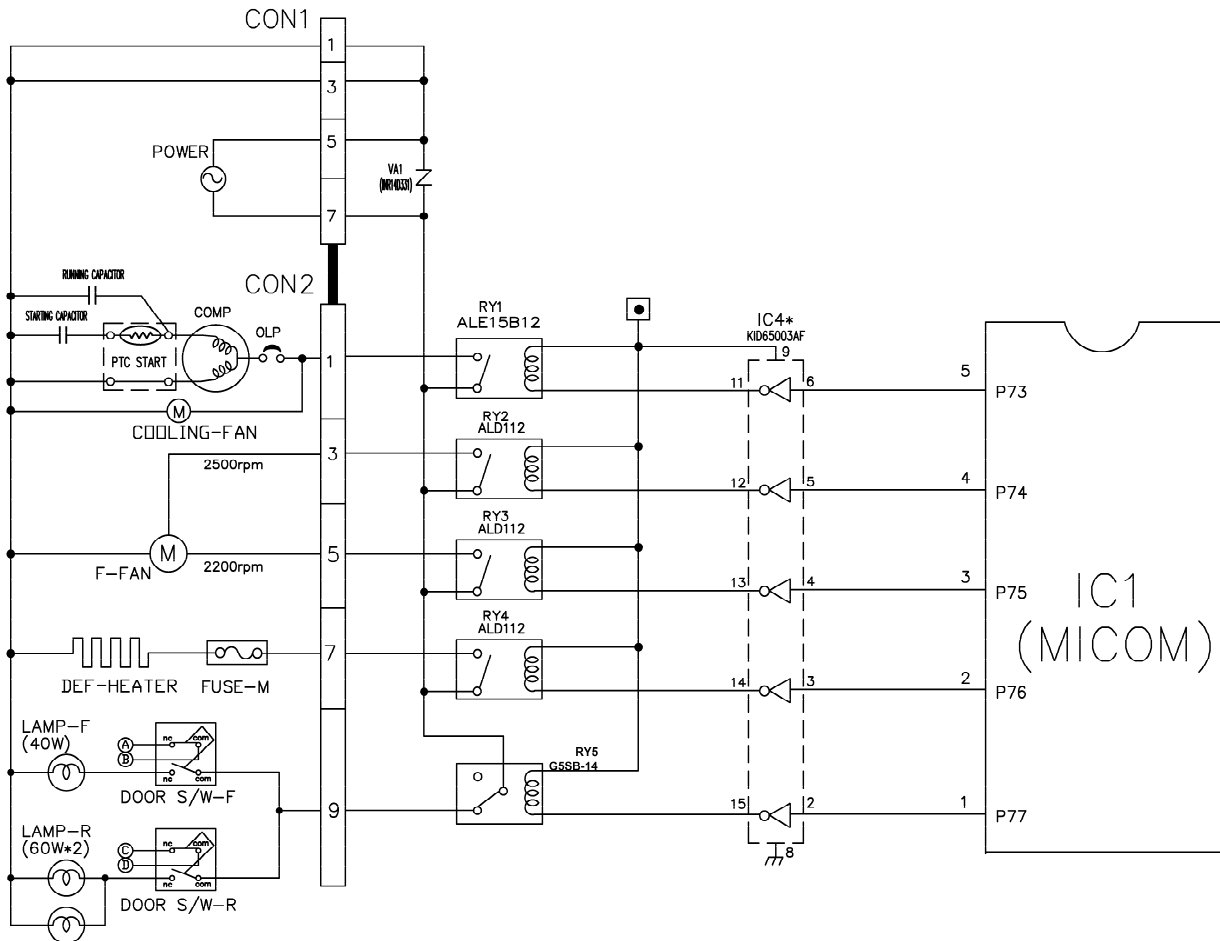
### 8-2-3 Reset Circuit



The RESET circuit allows all the functions to start at the initial conditions by initializing various parts, including the RAM inside the MICOM (IC1) when the power is initially supplied or the power supply to the MICOM is restored after a momentary power failure. For the initial 10ms of power supply, LOW voltage is applied to the MICOM RESET terminal. During a normal operation, 5V is applied to the RESET terminal. (If a malfunction occurs in the RESET IC, the MICOM will not operate.)

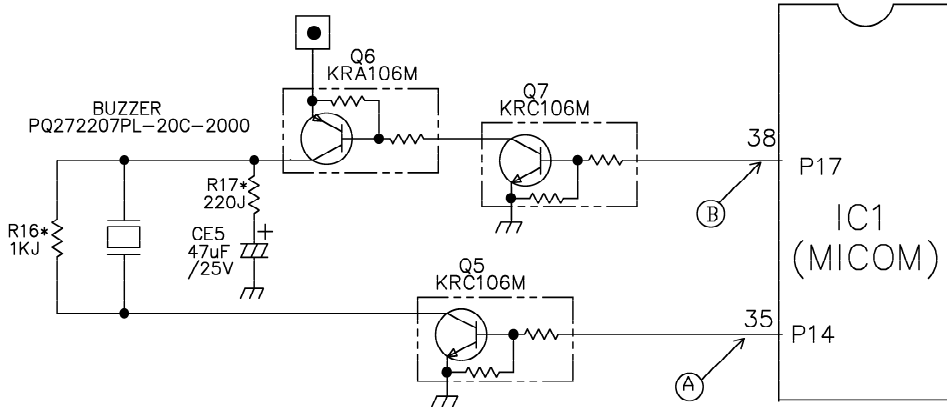
## 8-2-4 Load / Buzzer Drive & Open Door Detection Circuit

### 1. Load Drive Condition Check



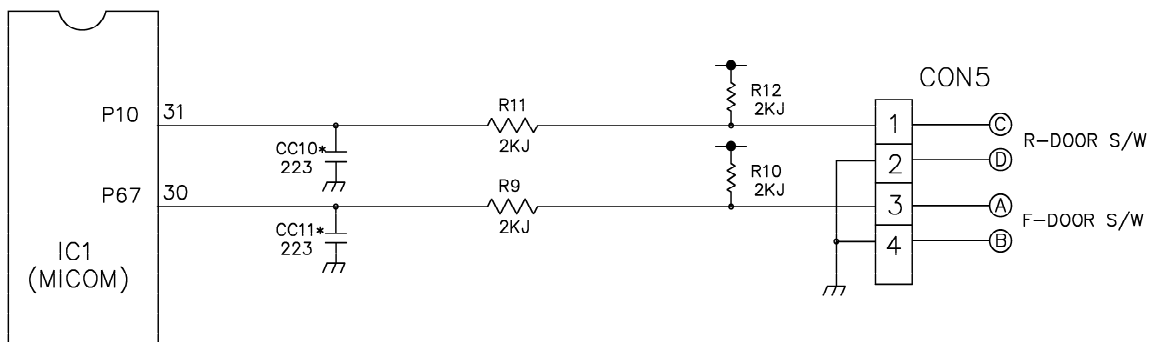
LOAD TYPE	COMP	DEFROSTING HEATER	LAMP	FREEZER FAN MOTOR (HIG RPM)	FREEZER FAN MOTOR (LOW RPM)
Measurement Location (IC4)	NO.11	NO.14	NO.15	NO.12	NO.13
Condition	ON	1V or below			
	OFF	12V			

## 2. Buzzer Drive Condition Check



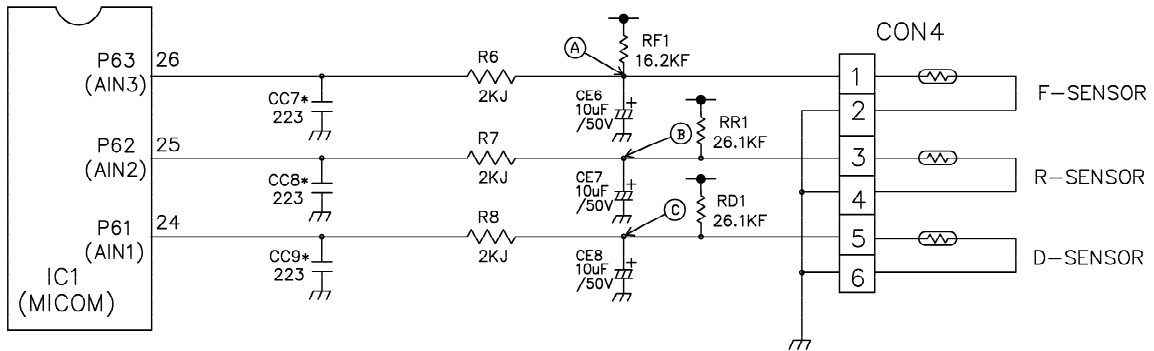
Condition Measurement Location	Tone (Ding-Dong~) when the button on the display is pushed.	Alarm for open door (beep-beep-beep)	OFF
IC1 (A)			0 V
IC1 (B)			0 V

## 3. Open Door Detection Circuit Check



Measurement Location Freezer/ Refrigerator Door	(PIN NO.31 & PIN NO.30)
Closed	5 V
Open	0 V

### 8-2-5 Temperature Sensor Circuit

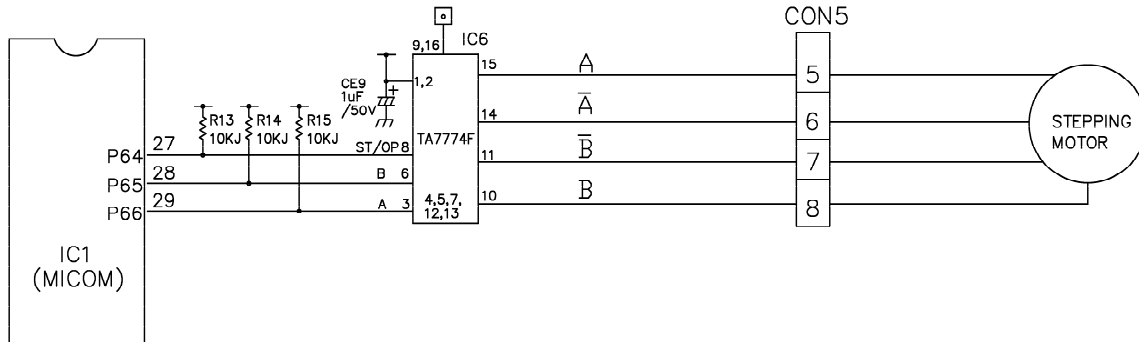


The upper CIRCUIT reads REFRIGERATOR temperature, FREEZER Temperature, and DEFROST-SENSOR temperature for defrosting and the indoor temperature for compensating for the surrounding temperature into MICOM. OPENING or SHORT state of each TEMPERATURE SENSOR are as follows:

SENSOR	CHECK POINT	NORMAL (-30°C ~ 50°C)	SHORT-CIRCUITED	OPEN
Freezer Sensor	POINT (A) Voltage	0.5 V ~ 4.5 V	0 V	5 V
Refrigerator Sensor	POINT (B) Voltage			
Defrosting Sensor	POINT (C) Voltage			

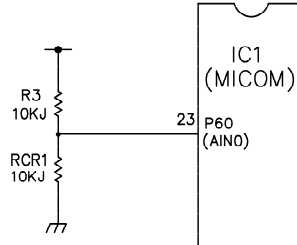
### 8-2-6 Refrigeration Compartment Stepping Motor Damper Circuit

\* The circuit shown below is the damper circuit to regulate the refrigerator temperature.



## 8-2-7 Temperature Compensation & Overcooling/Undercooling Compensation Circuit

### 1. Refrigerator Temperature Compensation



Refrigerator		Remark
Resistance (RCR)	Temperature Compensation	
180 KΩ	+2.5°C	Compensation by raising the temperature ↑
56 KΩ	+2.0°C	
33 KΩ	+1.5°C	
18 KΩ	+1.0°C	
12 KΩ	+0.5°C	
10 KΩ	0 °C	Standard Temperature
8.2 KΩ	-0.5°C	Compensation by lowering the temperature ↓
5.6 KΩ	-1.0°C	
3.3 KΩ	-1.5°C	
2 KΩ	-2.0°C	
470 Ω	-2.5°C	

▶ Table of Temperature Compensation by adjusting the resistance (difference from the current temperature) e.g., If the refrigerator compensation resistance (RCR) is changed from 10K (the current resistance) to 18K (the adjustment resistance), the temperature of the refrigerator rises 33.8°F(+1°C).

### 2. The temperature compensation for refrigerator compartment is in the following table:

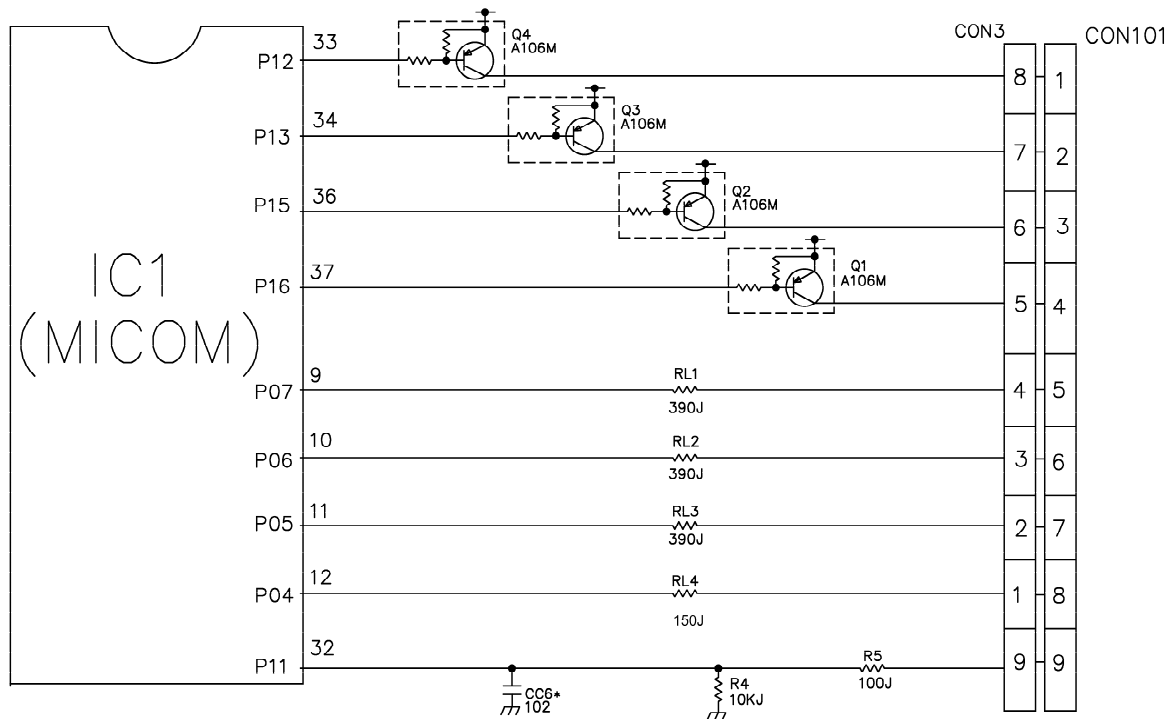
	Revised resistance / Present resistance	470Ω	2kΩ	3.3kΩ	5.6kΩ	8.2kΩ	10kΩ	12kΩ	18kΩ	33kΩ	56kΩ	180kΩ
Refrigerator (RCR)	470Ω	No change	0.5°C Up	1°C Up	1.5°C Up	2°C Up	2.5°C Up	3°C Up	3.5°C Up	4°C Up	4.5°C Up	5°C Up
	2kΩ	0.5°C Down	No Change	0.5°C Up	1°C Up	1.5°C Up	2°C Up	2.5°C Up	3°C Up	3.5°C Up	4°C Up	4.5°C Up
	3.3kΩ	1°C Down	0.5°C Down	No Change	0.5°C Up	1°C Up	1.5°C Up	2°C Up	2.5°C Up	3°C Up	3.5°C Up	4°C Up
	5.6kΩ	1.5°C Down	1°C Down	0.5°C Down	No Change	0.5°C Up	1°C Up	1.5°C Up	2°C Up	2.5°C Up	3°C Up	3.5°C Up
	8.2kΩ	2°C Down	1.5°C Down	1°C Down	0.5°C Down	No Change	0.5°C Up	1°C Up	1.5°C Up	2°C Up	2.5°C Up	3°C Up
	10kΩ	2.5°C Down	2°C Down	1.5°C Down	1°C Down	0.5°C Down	No Change	0.5°C Up	1°C Up	1.5°C Up	2°C Up	2.5°C Up
	12kΩ	3°C Down	2.5°C Down	2°C Down	1.5°C Down	1°C Down	0.5°C Down	No Change	0.5°C Up	1°C Up	1.5°C Up	2°C Up
	18kΩ	3.5°C Down	3°C Down	2.5°C Down	2°C Down	1.5°C Down	1°C Down	0.5°C Down	No Change	0.5°C Up	1°C Up	1.5°C Up
	33kΩ	4°C Down	3.5°C Down	3°C Down	2.5°C Down	2°C Down	1.5°C Down	1°C Down	0.5°C Down	No Change	0.5°C Up	1°C Up
	56kΩ	4.5°C Down	4°C Down	3.5°C Down	3°C Down	2.5°C Down	2°C Down	1.5°C Down	1°C Down	0.5°C Down	No Change	0.5°C Up
	180kΩ	5°C Down	4.5°C Down	4°C Down	3.5°C Down	3°C Down	2.5°C Down	2°C Down	1.5°C Down	1°C Down	0.5°C Down	No Change

**NOTE:** This circuit is designed to input the necessary temperature compensation values into the MICOM. This adjusts the refrigerator temperature, which is different in each model.



### 8-2-8 Key Button Input & Display Light-On Circuit

▶ The circuit shown above determines whether a function control key on the operation display is pushed. It also turns on the corresponding function indication LED DISPLAY. The drive type is the scan type.



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### 8-3 RESISTANCE SPECIFICATION OF SENSOR

TEMPERATURE DETECTED BY SENSOR	RESISTANCE OF FREEZER SENSOR	RESISTANCE OF REFRIGERATOR & DEFROST SENSOR & ROOM SENSOR
- 20 °C	22.3 KΩ	77 KΩ
- 15 °C	16.9 KΩ	60 KΩ
- 10 °C	13.0 KΩ	47.3 KΩ
- 5 °C	10.1 KΩ	38.4 KΩ
0 °C	7.8 KΩ	30 KΩ
+ 5 °C	6.2 KΩ	24.1 KΩ
+ 10 °C	4.9 KΩ	19.5 KΩ
+ 15 °C	3.9 KΩ	15.9 KΩ
+ 20 °C	3.1 KΩ	13 KΩ
+ 25 °C	2.5 KΩ	11 KΩ
+ 30 °C	2.0 KΩ	8.9 KΩ
+ 40 °C	1.4 KΩ	6.2 KΩ
+ 50 °C	0.8 KΩ	4.3 KΩ

- The resistance of the SENSOR has a  $\pm 5\%$  common difference.
- Measure the resistance of the SENSOR after leaving it for over 3 minutes in the measuring temperature. This delay is necessary due to sensor response speed.

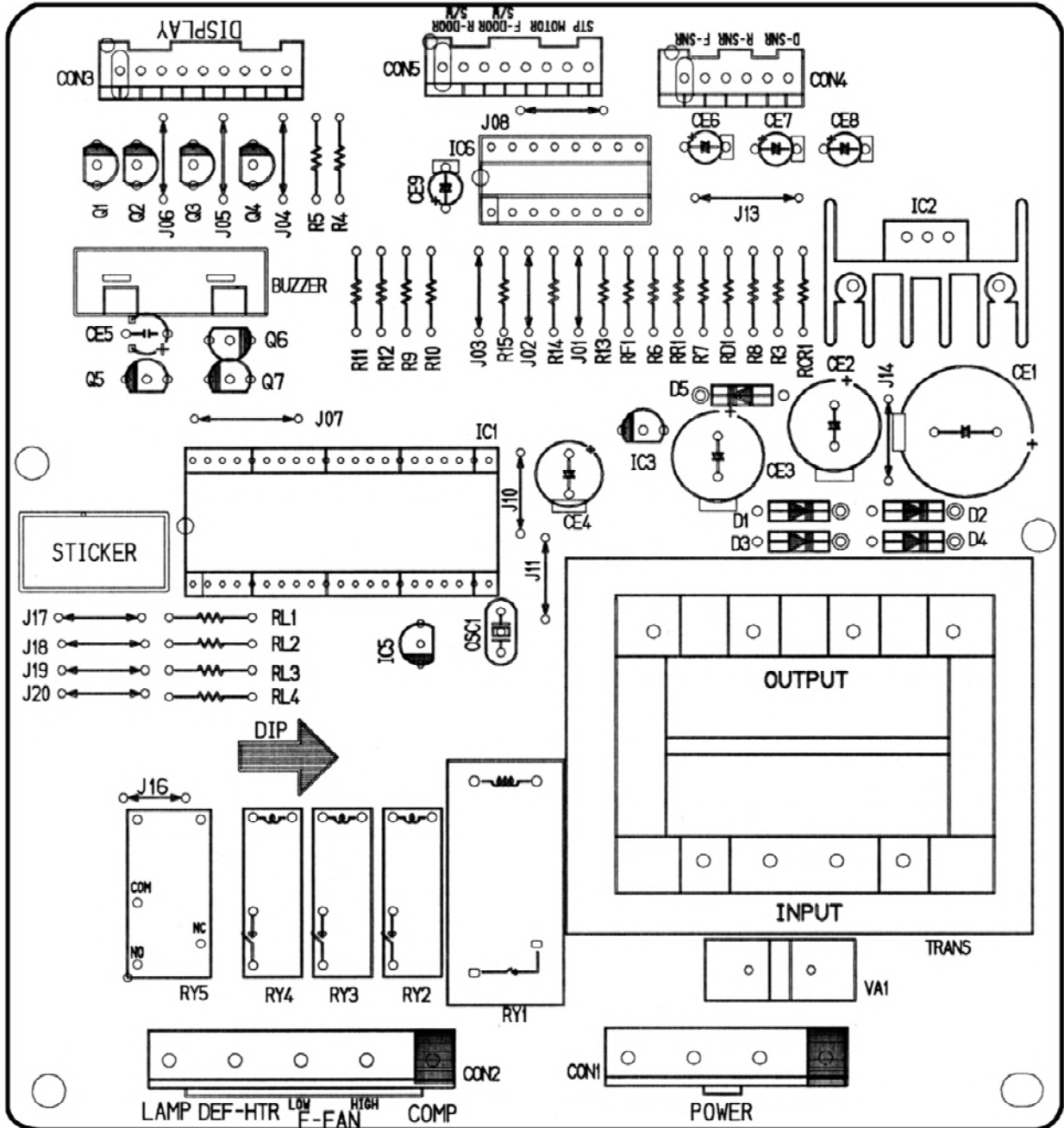
## 8-4 TROUBLESHOOTING

PROBLEM	INDICATED BY	CHECK	CHECKING METHOD	CAUSE	SOLUTION
POWER SOURCE is poor.	1. The whole DISPLAY LED/SEVEN SEGMENT DISPLAY is off. 2. DISPLAY LED/ SEVEN SEGMENT DISPLAY operates abnormally	1. FREEZER/ REFRIGERATOR.	Check if FREEZER/ REFRIGERATOR DOOR IS OPEN and check display.	POWER SOURCE is poor.	Check outlet Voltage.
		2. IF LAMP is dim. 3. The connection of the MAIN PWB CONNECTOR.	Check visually. Check connection of CONNECTOR.	Applied voltage error. CONNECTOR connection is poor. TRANS FUSE is open.	Use boosting TRANS. Reconnect CONNECTOR. Replace TRANS.
COOLING is poor.	NO COOLING.	1. If the COMPRESSOR operate.	USE TEST MODE1 (forced COOLING) If less than 7 minutes pass after compressor shuts off, don't press the KEY and wait.	COMPRESSOR locked or blocked.	Replace COMPRESSOR.
				OLP, PTC is poor. COMPRESSOR RELAY is poor.	Replace OLP, PTC. Replace MAIN PWB.
		2. If refrigerant is leaking.	Measure the amount of frost sticking on EVAPORATOR and the surface temperature of the condenser pipe.	Refrigerant leakage.	Replace the leaking part and replace any lost refrigerant.
		1. If FAN MOTOR operates.	USE TEST MODE1 (forced COOLING).	FAN MOTOR is poor. CONNECTING WIRE is poor.	Replace the FAN MOTOR. Certify the MOTOR and the connection of the black wire of the MAIN PWB CONNECTOR (CON2).
FREEZER TEMPERATURE is incorrect				DEFROSTING is poor.	See <b>DEFROSTING is poor.</b>
				SENSOR RESISTANCE is poor.	Replace SENSOR.
				Door liner damaged.	Replace door liner.

PROBLEM	INDICATED BY	CHECK	CHECKING METHOD	CAUSE	SOLUTION
COOLING is poor.	If REFRIGERATOR TEMPERATURE is too low.	1. If FREEZER TEMPERATURE is normal.	Check is FREEZER TEMPERATURE is too low.		Make sure the DOOR is attached.
		2. If amount of cool air from FAN MOTOR is sufficient.	Make sure that the amount and speed of cool air are sufficient by touching the check supplied on the REFRIGERATOR.	FAN MOTOR is poor. Passage of cool air is blocked. EVA frozen.	Replace FAN MOTOR. Remove impurities. See <b>DEFROSTING is poor.</b>
		3. Door Line contact.	Check door seal when door is closed.	Door liner damaged.	Replace Door liner.
DEFROSTING is poor.	NO DEFROSTING.	1. If HEATER emits heat.	USE TEST MODE2 (forced DEFROSTING).	HEATER disconnection.	Replace HEATER.
				TEMPERATURE FUSE disconnection.	Replace TEMPERATURE FUSE.
				Connection is poor.	Check EVAPORATOR connection and wire of MAIN PWB CONNECTOR.
		2. If DRAIN PIPE is blocked.	Check DRAIN PIPE.	DEFROST-SENSOR is poor. HEATER RELAY is poor. DRAIN PIPE is blocked.	Replace DEFROST-SENSOR. Replace RY3 of MAIN PWB. Remove ice and impurities. Check HEATER PLATE resistance.
		3. If ice remains after DEFROSTING.	Make sure that DEFROST SENSOR is connected. Make sure that FREEZER/ REFRIGERATOR DOOR is closed.	Connection is poor. DOOR does not close properly.	Reassemble the DEFROST-SENSOR. Reassemble DOOR. Replace GASKET.

# 8-5 MAIN PWB ASSEMBLY AND PARTS LIST

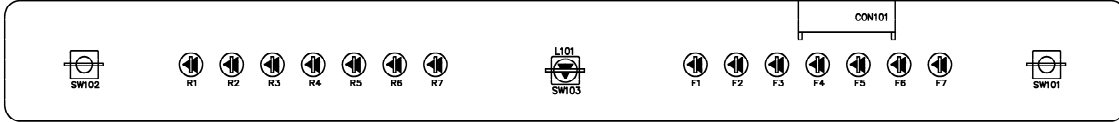
## 8-5-1 Main PWB Assembly



### 8-5-2 Replacement Parts List

No	P/NO	DESCRIPTION	QTY	MAKTR	REMARK
1	6870.B8009A = C	FWB(PCB)	KS-PJT GOOD MDL	DOO SAN	T-1,6
2	-	-	-	-	-
3	G170.B2002H	TRANSFORMER, LOW VOLTAGE	240V 15V YES GR-MICOM ONE TAB	TAE SUNG	TRANS
4	6170.B2002M	TRANSFORMER, LOW VOLTAGE	260V 15V YES GR-MICOM ONE TAB	TAE SUNG	TRANS
5	G170.B2002R	TRANSFORMER, LOW VOLTAGE	140V 15V YES GR-MICOM ONE TAB	TAE SUNG	TRANS
6	6170.B2002W	TRANSFORMER, LOW VOLTAGE	115V 15V YES GR-MICOM ONE TAB	TAE SUNG	TRANS
7	-	-	-	-	-
8	6630A9106C	CONNECTOR (CIRC), WAFER	YW396-07AV YEONHO 7PIN 3.96MM STRAIGHT SN	YEON HO	CONN
9	6630A9106D	CONNECTOR (CIRC), WAFER	YW396-09AV	YEON HO	CONN
10	6630A9106B	CONNECTOR (CIRC), WAFER	YW396-05AV	YEON HO	-
11	6630.B8007G	CONNECTOR (CIRC), WAFER	917785-1 AMP 6PIN 2.5MM STRAIGHT SN	AMP	CONN
12	6630.B8007H	CONNECTOR (CIRC), WAFER	917787-1 AMP 9PIN 2.5MM STRAIGHT SN	AMP	CONN
13	6630.B8007E	CONNECTOR (CIRC), WAFER	917784-1 AMP 6PIN 2.5MM STRAIGHT SN	AMP	CONN
14	-	-	-	-	-
15	01ZZ.B2023L	IC, DRAWING	TMP87C846N 42 SDIP BK KS-BETTER/GOOD(MASK)	TOSHIBA	IC1(O1ZZ.B2022M)
16	01ZZ.B2022	IC, DRAWING	-	TOSHIBA	IC1(O1ZZ.B2022)
17	01ZZ.B2022	IC, DRAWING	-	TOSHIBA	IC1(O1ZZ.B2022)
18	-	-	-	-	-
19	01KE781200B	IC, KEC	K1A7812P1 12V 1A, KEC - - -	KEC	IC2
20	01KE781200M	IC, KEC	K1A7812P1 3DIP BK 12V 1A REFORM	KEC	-
21	01KE780500A	IC, KEC	K1A7805P 3PIN, DIP, KEC	KEC	IC3
22	01ST10001A	IC, STANDARD LOGIC	M54F33P MITSUBISHI 20 R/TP CONVFT	MITSUBISHI	-
23	01T0777400A	IC, TOSHIBA	TAT7774AP 16 SDIP BK STEPPING MOTOR	TOSHIBA	IC6
24	01KE650030C	IC, KEC	K1E65003AF 16SDP BK 7CH DRIVER	KEC	IC4
25	01KE701200A	IC, KEC	K1A7012P 3P BK RESET	KEC	IC5
26	01RH934600D	IC, ROHM	RR93C46RF-W 8PIN 50P BK EEPROM	ROHM	-
27	-	-	-	-	-
28	692000001A	RELAY	ALFERR12 MATSUSHITA 250VAC 16A 12VDC 1A NO VENTING	NAIS	RY1
29	6920000010A	RELAY	YU11-125 YUYU 250VAC 3A 12VDC 1A	YUYU	-
30	6920.B2003B	RELAY	ALD112 MATSUSHITA 250VAC 3A 12VDC 1A	OMRON	RY2-RY4
31	6920.B2003A = B	RELAY	6920 1A 250VAC 5A 12VDC 1C	OMRON	RY5
32	-	-	-	-	-
33	-	-	-	-	-
34	6212.B8001B	RESONATOR, CERAMIC	CST50400 MURATA 4MHZ +/- 0.5% 15PF TP NONE	MURATA	OSC1(.570-00012B)
35	6102V5V006A	VARIABLE	IN14D331 ILJIN UL/CSA/VDE BK	ILJIN	VA1
36	6102.B8003A	VARIABLE	IN14D271 ILJIN UL/VDE TP 270V	ILJIN	VA1
37	6102.J8001D	VARIABLE	IN14D621 ILJIN UL/VDE DK 620V	ILJIN	VA1
38	00D400709AA	DIODE, RECTIFIERS	IN4007 TP MOTOROLA - - 1A - - -	DELTA	DI-D5
39	-	-	-	-	-
40	-	-	-	-	-
41	0CE228GJG10	CAPACITOR, AL, ELECTROLYTIC	2200 UF 5MS,SG 35V M FL BULK	SAM HWA	CE1
42	0CE108GJ610	CAPACITOR, FIXED ELECTROLYTIC	1000UF 5MS,SG 35V 20% FL BULK	SAM HWA	-
43	0CE108GJ61B	CAPACITOR, AL, ELECTROLYTIC	1000 UF 5MS,SG 25V M FL TP 5	SAM HWA	CE2
44	0CE477H61B	CAPACITOR, FIXED ELECTROLYTIC	470UF 5MS,SG 25V 20% FL TP 5	SAM HWA	CE3
45	0CE2277F63B	CAPACITOR, FIXED ELECTROLYTIC	220UF 5MS,SG 16V 20% FMS TP 5	SAM HWA	CF4
46	0CE107H63B	CAPACITOR, FIXED ELECTROLYTIC	100UF 5MS,SG 25V 20% FMS TP 5	SAM HWA	-
47	0CE106H63B	CAPACITOR, FIXED ELECTROLYTIC	10UF 5MS,SG 50V 20% FMS TP 5	SAM HWA	CF6-CER
48	0CE105H63B	CAPACITOR, FIXED ELECTROLYTIC	1UF 5MS,SG 50V 20% FMS TP 5	SAM HWA	CE9
49	0CE476H63B	CAPACITOR, FIXED ELECTROLYTIC	47UF 5MS,SG 25V 20% FMS TP 5	SAM HWA	CE5
50	000223N409	CAPACITOR, POLYESTER	0.022 UF D 100V J PE TP	SAM HWA	-
51	00K102K96A	CAPACITOR, FIXED CERAMIC(HIGH DIELECTRIC)	1NF 2012 50V 80%, -20% R/TP X7R	MURATA	CC6
52	00K223K96A	CAPACITOR, FIXED CERAMIC(HIGH DIELECTRIC)	22NF 2012 50V 80%, -20% R/TP X7R	MURATA	CC7-CC11
53	-	-	-	-	-
54	00K104K94A	CAPACITOR, FIXED CERAMIC(HIGH DIELECTRIC)	100NF 2012 50V R/TP (GFMA0X7R104K50FC)	MURATA	CC1 CC5
55	-	-	-	-	-
56	00K104K94A	CAPACITOR, FIXED CERAMIC(HIGH DIELECTRIC)	0.1UF D 50V 80%, 20% F(Y5V) TAZ2	MURATA	-
57	-	-	-	-	-
58	-	-	-	-	-
59	0RD100G609	RESISTOR, FIXED CARBON FILM	150 OHM 1/4W 5.00% TAZ2	SMART	RL4
60	0RD390G609	RESISTOR, FIXED CARBON FILM	390 OHM 1/4 W 5.00% TAZ2	SMART	RL1-RL3
61	0RD100G609	RESISTOR, FIXED CARBON FILM	100 OHM 1/4 W 5.00% TAZ2	SMART	RF5
62	0RJ001E672	RESISTOR, METAL GLAZED(CHIP)	1K OHM 1/8 W 5% 2012 R/TP	ROHM	RI6
63	0RJ2001E672	RESISTOR, METAL GLAZED(CHIP)	2K OHM 1/8 W 5% 2012 R/TP	ROHM	-
64	0RD2001G609	RESISTOR, FIXED CARBON FILM	2K OHM 1/4 W 5.00% TAZ2	SMART	RF6-RI2
65	0RH2200L622	RESISTOR, METAL GLAZED(CHIP)	220 OHM 1/8 W 2012 5.00% D	ROHM	RI7
66	0RJ2201E672	RESISTOR, METAL GLAZED(CHIP)	2.2K OHM 1/8 W 5% 2012 R/TP	ROHM	-
67	0RJ4701E672	RESISTOR, METAL GLAZED(CHIP)	4.7K OHM 1/8 W 5% 2012 R/TP	ROHM	RI1
68	0RJ4701E672	RESISTOR, METAL GLAZED(CHIP)	4.7K OHM 1/8 W 5% 2012 R/TP	ROHM	-
69	0RD4701G609	RESISTOR, FIXED CARBON FILM	4.7K OHM 1/4 W 5.00% TAZ2	SMART	-
70	0RJ1002E672	RESISTOR, METAL GLAZED(CHIP)	10K OHM 1/8 W 5% 2012 R/TP	ROHM	-
71	0RJ1002E672	RESISTOR, METAL GLAZED(CHIP)	10K OHM 1/8 W 5% 2012 R/TP	ROHM	-
72	0RD1002G609	RESISTOR, FIXED CARBON FILM	10K OHM 1/4 W 5.00% TAZ2	SMART	RF3, RF4, RF1, RF15
73	0RJ2702E672	RESISTOR, METAL GLAZED(CHIP)	27K OHM 1/8 W 5% 2012 R/TP	ROHM	-
74	0RJ1004E672	RESISTOR, METAL GLAZED(CHIP)	10K OHM 1/8 W 5% 2012 R/TP	ROHM	RF2
75	0RJ2612E472	RESISTOR, FIXED METAL FILM	26.1K OHM 1/4 W 1.00% TAZ2	SMART	RF1, RF11
76	0RJ1622E472	RESISTOR, FIXED METAL FILM	16.2K OHM 1/4 W 1.00% TAZ2	SMART	RF1
77	-	-	-	-	-
78	-	-	-	-	-
79	3J03000D	FUSE, DRAWING	9A 250V - -	SAM JU	-
80	0TRI0009AC	TRANSISTOR	KRA100M1KRA220G1 TP KEC	KEC	Q1-Q4
81	01H106009AF	TRANSISTOR	KFC 106M KEC	KFC	Q5, Q7
82	01R319909AA	TRANSISTOR	KTC3199-TP-Y (KTCR15)KFC	KFC	-
83	690B.J83002F	BUZZER	CB2220BP DAE YOUNG PIEZO 2KHZ 750B(CHINA)	DAE YOUNG	BUZZER
84	6600RRT001Z	SWITCH, TACT	JTP1280A6 JEIL 12V DC 50MA	JEIL	-
85	6854B50001A	JUMP WIRE	0.6MM 52MM TP TAPING 5N16MM1	-	J16
86	6854B50001A	JUMP WIRE	0.6MM 52MM TP TAPING 5N10MM1	-	J1-16, J8, J10, J14, J17-J20
87	6854B50001A	JUMP WIRE	0.6MM 52MM TP TAPING 5N12.5MM1	-	J13
88	6854B50001A	JUMP WIRE	0.6MM 52MM TP TAPING 5N12.5MM1	-	J07
89	6854B50001A	JUMP WIRE	0.6MM 52MM TP TAPING 5N	-	-
90	6854B50001A	JUMP WIRE	0.6MM 52MM TP TAPING 5N	-	-
91	4920.B0003A	HEAT SINK	30*25*30 IC 12V R 650, 51, 52, 53, 54, 55, 56 2PIN 1 SCREW 3	-	(IC2)
92	158F03021B	SCREW TAP TITE(S), BINDING HEAD	+ D3.0 L8.0 MSWP3/FZY	-	(IC2)
93	9WFF0120000	SOLDER (ROSN WIRE) R50	DI, 20	TAE SUNG	-
94	49111004	SOLDER, SOLDERING	H63A	-	-
95	59333105	FLUX	5630-R25-0-R30 KOREA F.H-206	KOKI	-

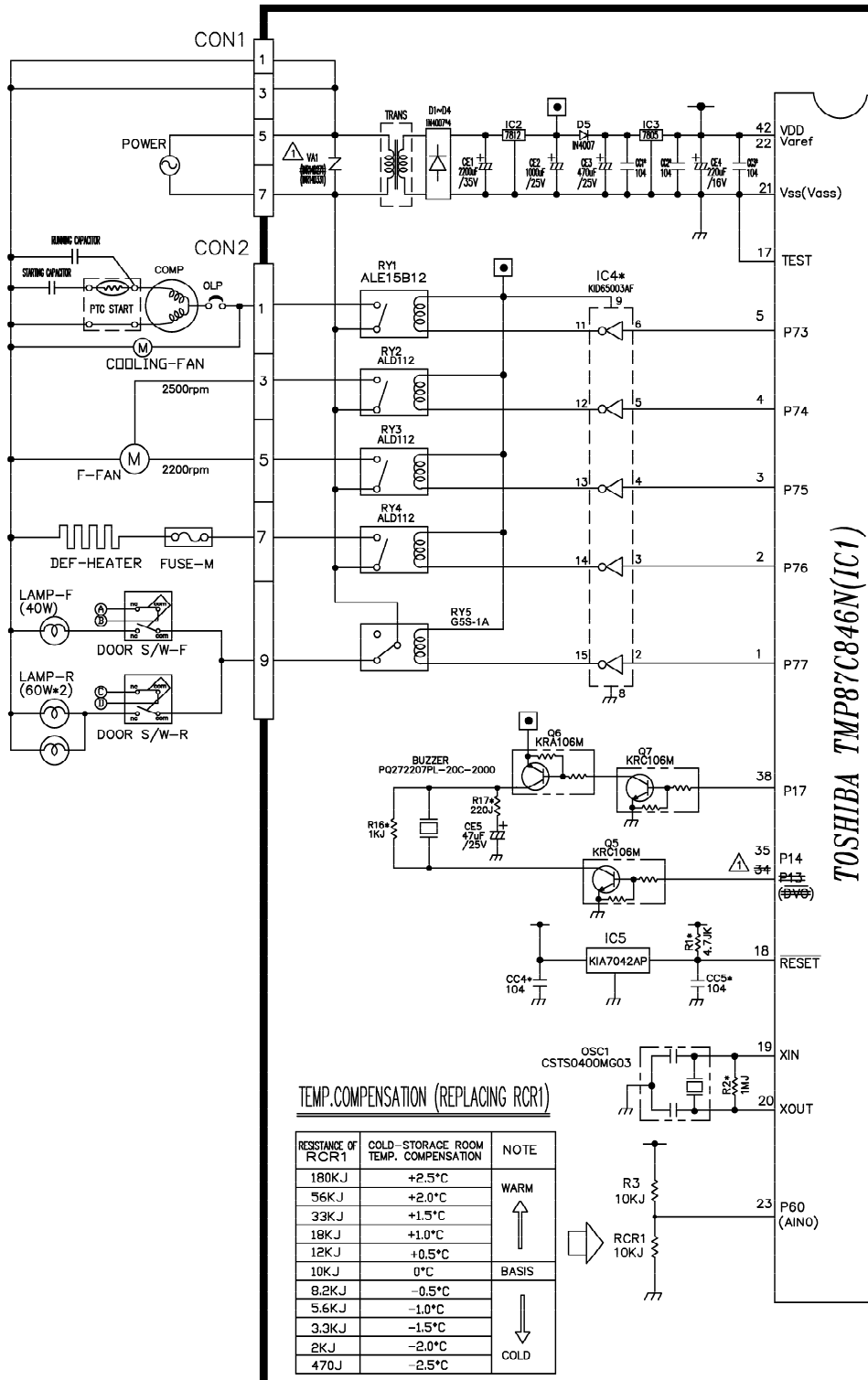
### 8-5-3 PWB Assembly, Display, And Parts List



Qty	No	P/NO	DESCRIPTION	SPEC	MAKER	REMARK
1	1	6870JB8091A	PWB(PCB)	KS-PJT GOOD/BETTER DISPLAY	DDD SAN	t=1.6
	2					
1	3	6630AQ9159H	WAFER	SMAW250-09	YEON HO	CON101
	4					
2	5	6600RRT1002K 6600JB8005A	SWITCH,TACT	JTP1230A JEIL 12V DC 50MA KPT-1105A	JEIL KYUNG IN	SW101,102
1	6	-	TACT S/W	KPT-1109G	KYUNG IN	SW103
14	7	0DLLE0019AA	LED	LT1824-81-BCM TP GREEN 2		R1~R7,F1~F7
3	8	0DD414809AA	DIODE,SWITCHING	1N4148 26MM	PYUNG CHANG DELTA	D101,102,103
12	10	6854B50001A	JUMP WIRE	0.6MM 52MM TP TAPING SN (10MM)	-	J101~J112
	11					
-	12	9VWF0120000	SOLDER(ROSIN WIRE) RSO	D1.20	HCC SUNG	-
0.00	13	49111004	SOLDER,SOLDERING	H63A	-	-
0.0000	14	59333105	FLUX	SGJ0.825-0.830 KOREA F.H-206	KOKI	-

# 8-6 PWB DIAGRAM

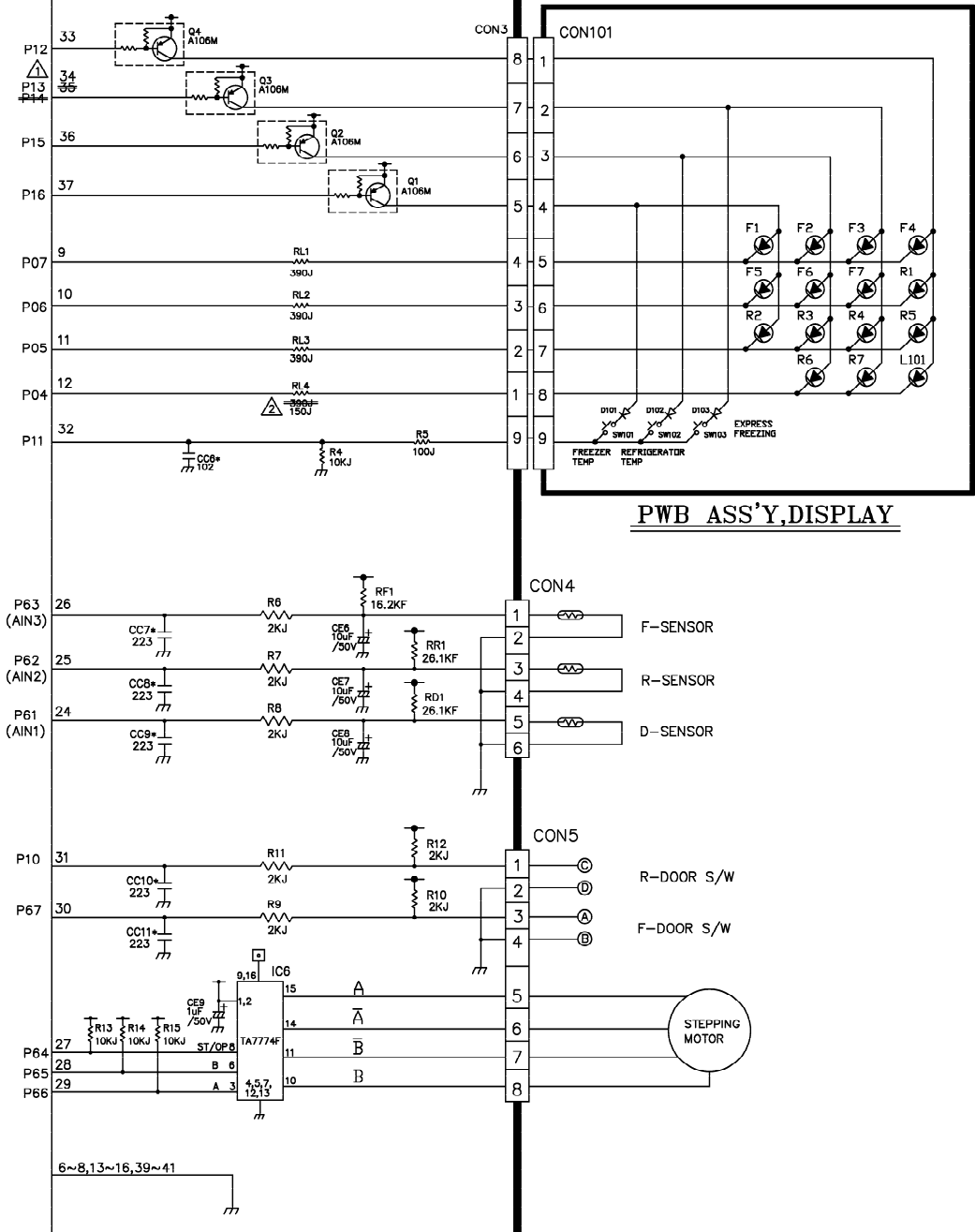
## 8-6-1 PWB Main Assembly



TOSHIBA TMP87C846N(IC1)

**FIG.1 CIRCUIT DIAGRAM**





**PWB ASS'Y, DISPLAY**



## REPAIR PARTS LIST LISTE DE PIÈCES POUR REPARATION

### MODELS No.

501-65012  
501-65019  
501-65092  
501-65093

The model number of your refrigerator is found on the serial plate inside.

All repair parts listed are available for immediate purchase or special order when you visit your nearest Sears Service Center, or the Service Department at most Sears stores. To order parts by phone, call the toll free parts number listed to the left.

When requesting service or ordering parts, always provide the following information:

- Product Type      • Part Number
- Model Number     • Part Description

To call  
Toll Free  
For Parts:

1-800-366-PART  
(1-800-366-7278)

For Service:

1-800-4-LE-FOYER  
(1-800-469-4663)

### N° DE MODÈLE

501-65012  
501-65019  
501-65092  
501-65093

Le numéro de modèle du réfrigérateur est situé sur la plaque signalétique à l'intérieur.

Toutes les pièces indiquées ici sont disponibles pour achat immédiat ou commande spéciale lorsque vous visitez le centre de Service Sears ou le département de service dans la plupart des magasins Sears. Pour commander une pièce par téléphone, communiquez avec le numéro sans frais indiqué à gauche.

Au moment de demander un service ou commander des pièces toujours fournir l'information suivante:

- Type de produit      • Numéro de pièce
- Numéro de modèle   • Description

Appel sans frais  
pour le pièces:

1.800.366.PART  
(1.800.366.7278)

Pour le service:

1-800-4-LE-FOYER  
(1-800-469-4663)

### Get it fixed, at your home or ours!

#### Your Home

In USA for repair—in your home—of all major brand appliances, lawn and garden equipment, or heating and cooling systems, **no matter who made it, no matter who sold it!**

In Canada, for repair in your home of all major brand appliances, no matter who made it, no matter who sold it!

For Sears professional installation of home appliances and items like garage door openers and water heaters.

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Call anytime, day or night (U.S.A. and Canada)

[www.sears.com](http://www.sears.com)    [www.sears.ca](http://www.sears.ca)

#### Our Home

For repair of carry-in items like vacuums, lawn equipment, and electronics, call or go on-line for the location of your nearest **Sears Parts & Repair Center.**

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[www.sears.com](http://www.sears.com)    [www.sears.ca](http://www.sears.ca)

To purchase a protection agreement (U.S.A.) or maintenance agreement (Canada) on a product serviced by Sears:

**1-800-827-6655** (U.S.A.)

**1-800-361-6665** (Canada)

Au Canada pour service en français:

**1-800-LE-FOYER<sup>MC</sup>**



### Réparation à domicile ou à l'atelier!

#### À domicile

Pour la réparation —à domicile—des principales marques d'appareils **quel que soit le fabricant, quel que soit le vendeur!**

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Téléphonez en tout temps, jour et nuit (aux É.-U. et au Canada)

[www.sears.com](http://www.sears.com)    [www.sears.ca](http://www.sears.ca)

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Téléphonez en tout temps, jour et nuit (au Canada)

[www.sears.ca](http://www.sears.ca)

Pour acheter un contrat de protection (É.-U.) ou un contrat d'entretien (Canada) sur un produit dont Sears effectue le service:

**1.800.827.6655** (É.-U.)

**1.800.361.6665** (Canada)

Au Canada pour service en français:

**1-800-LE-FOYER<sup>MC</sup>**

(1-800-533-6937)

[www.sears.ca](http://www.sears.ca)

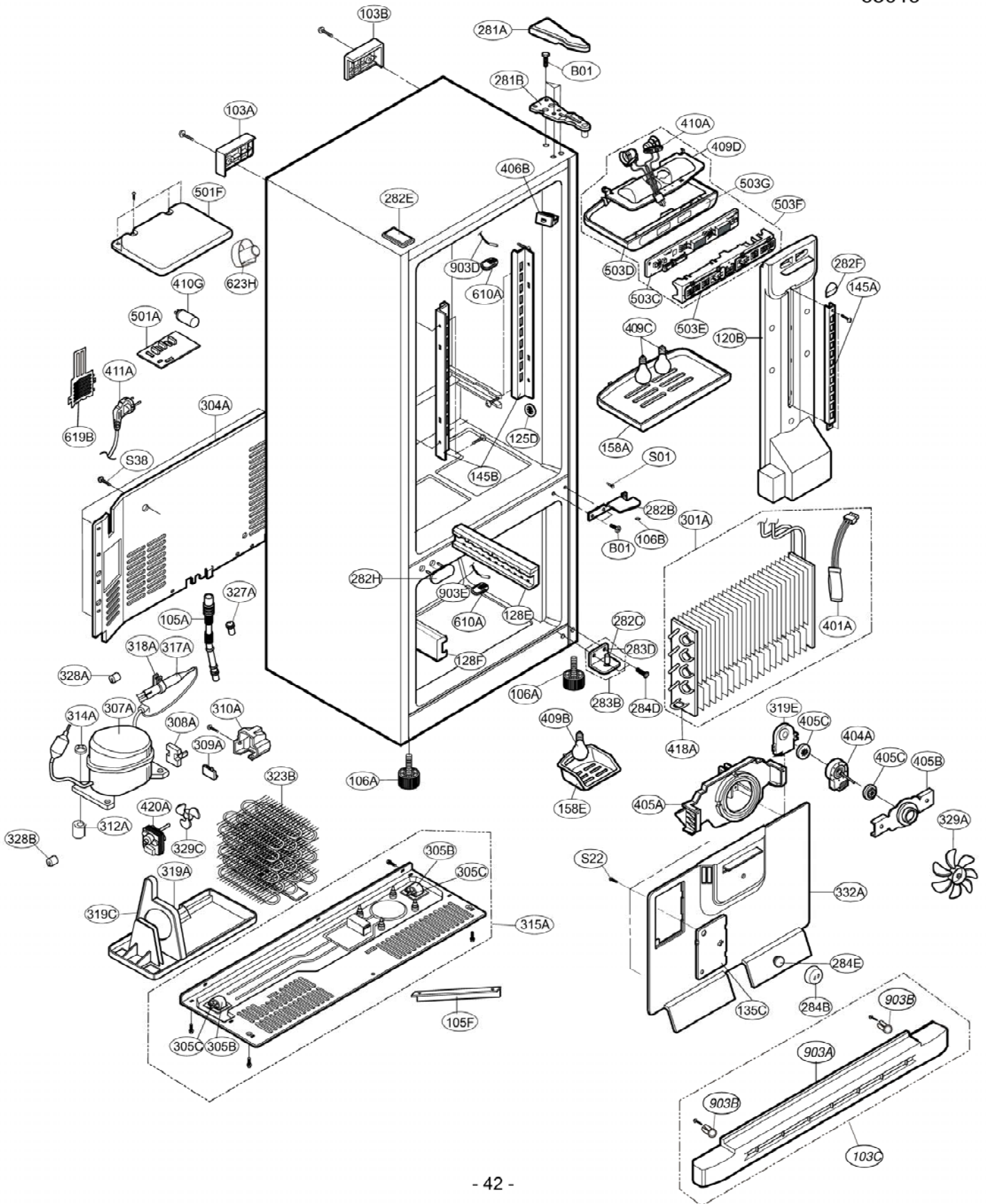


# 9. EXPLODED VIEW & REPLACEMENT PARTS LIST

## CASE PARTS

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

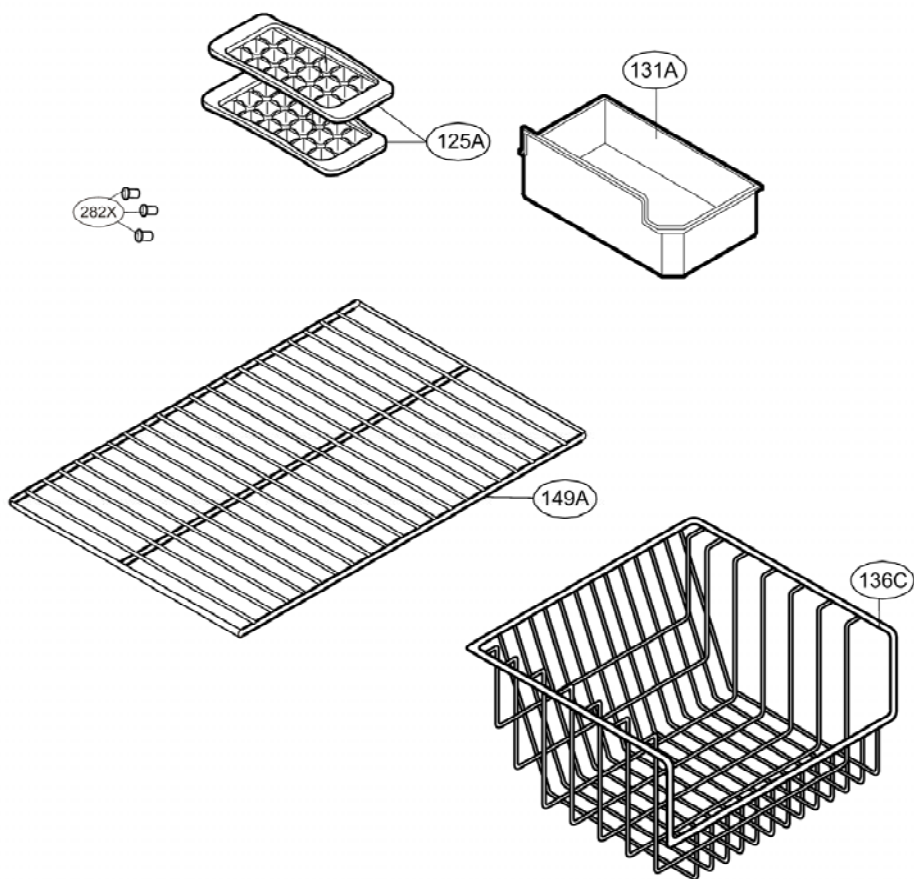
Models:  
65012  
65019



# FREEZER PARTS

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

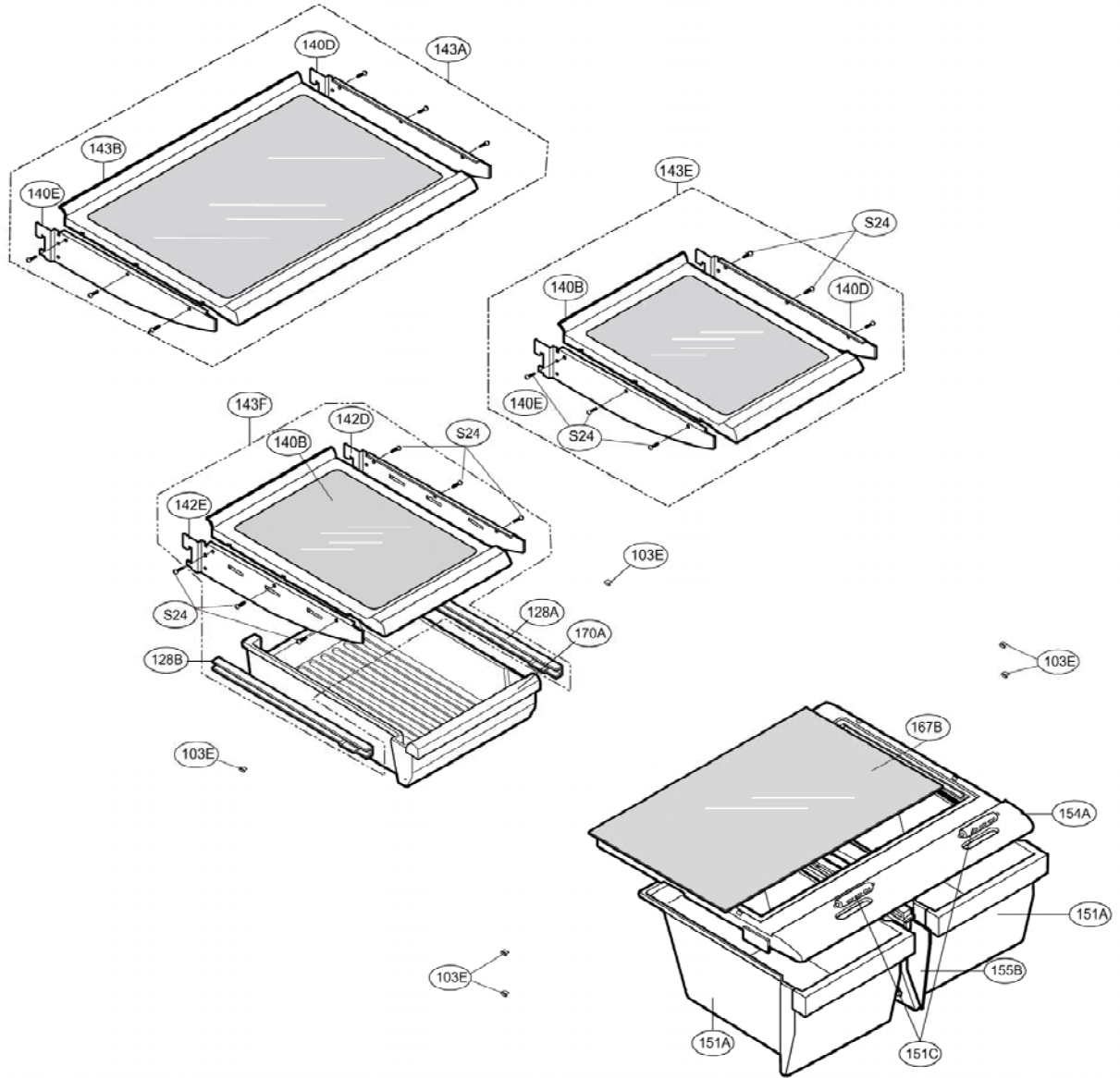
Models:  
65012  
65019



# REFRIGERATOR PARTS

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

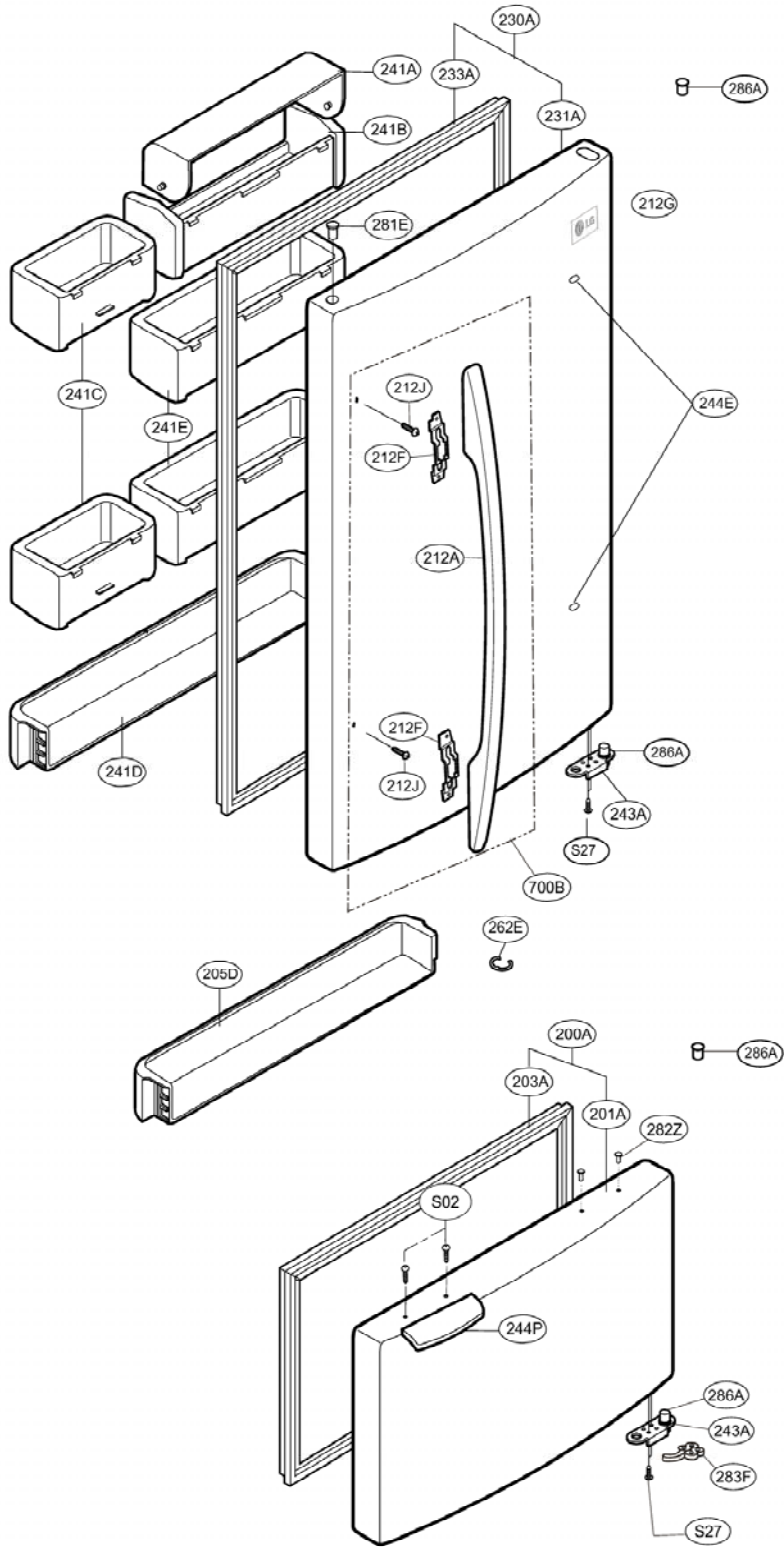
Models:  
65012  
65019



# DOOR PARTS

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

Models:  
65012  
65019



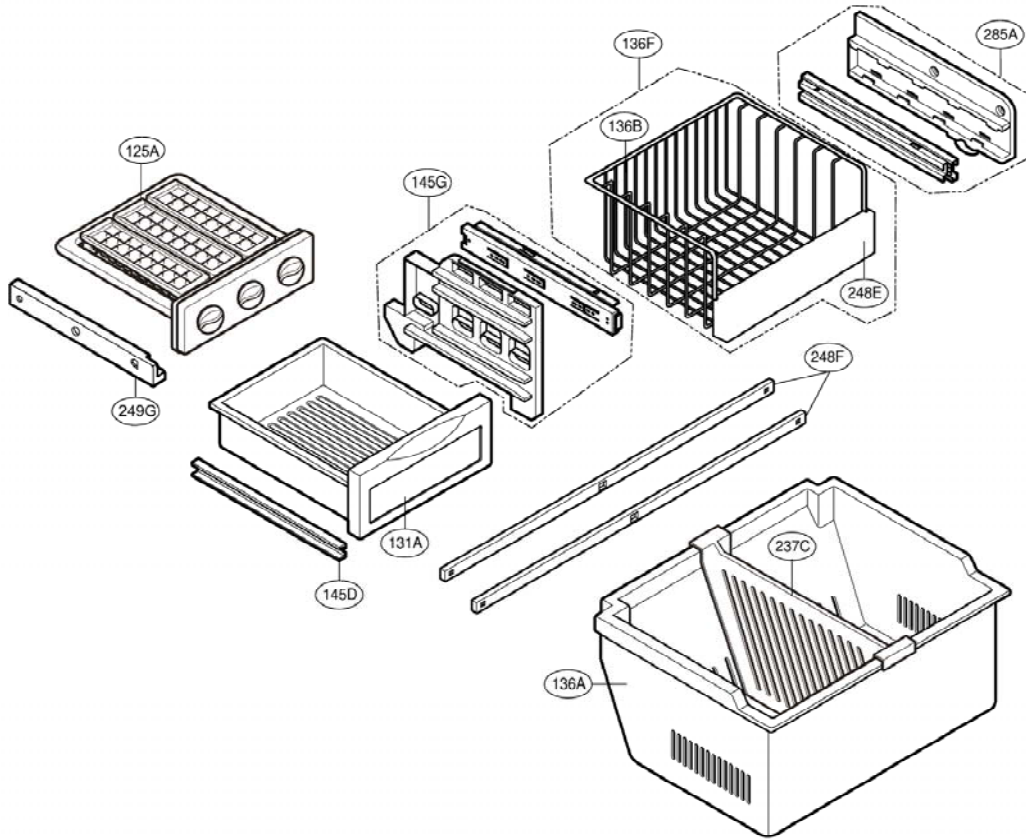




# FREEZER PARTS

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

Models:  
65092  
65093

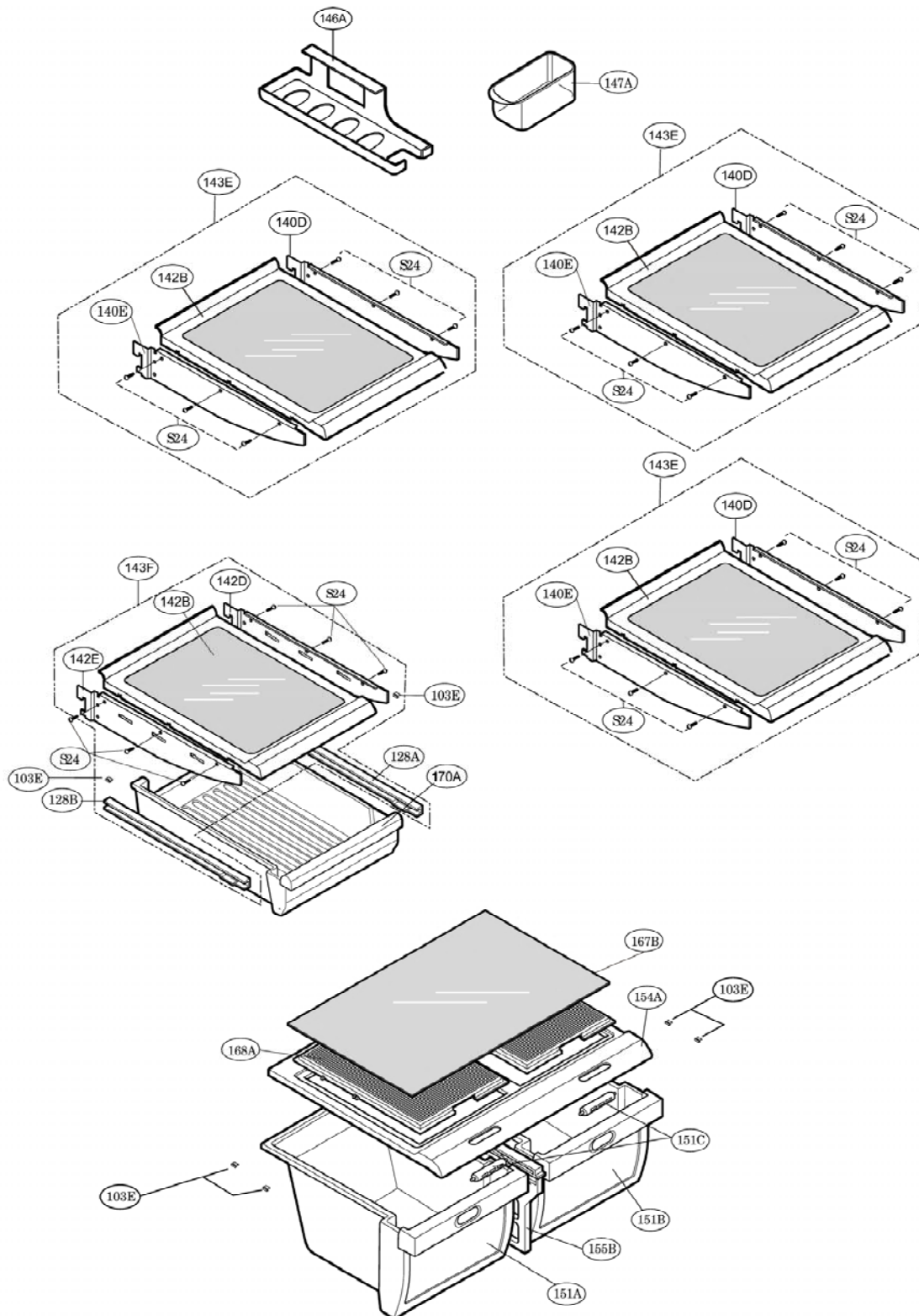




# REFRIGERATOR PARTS

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

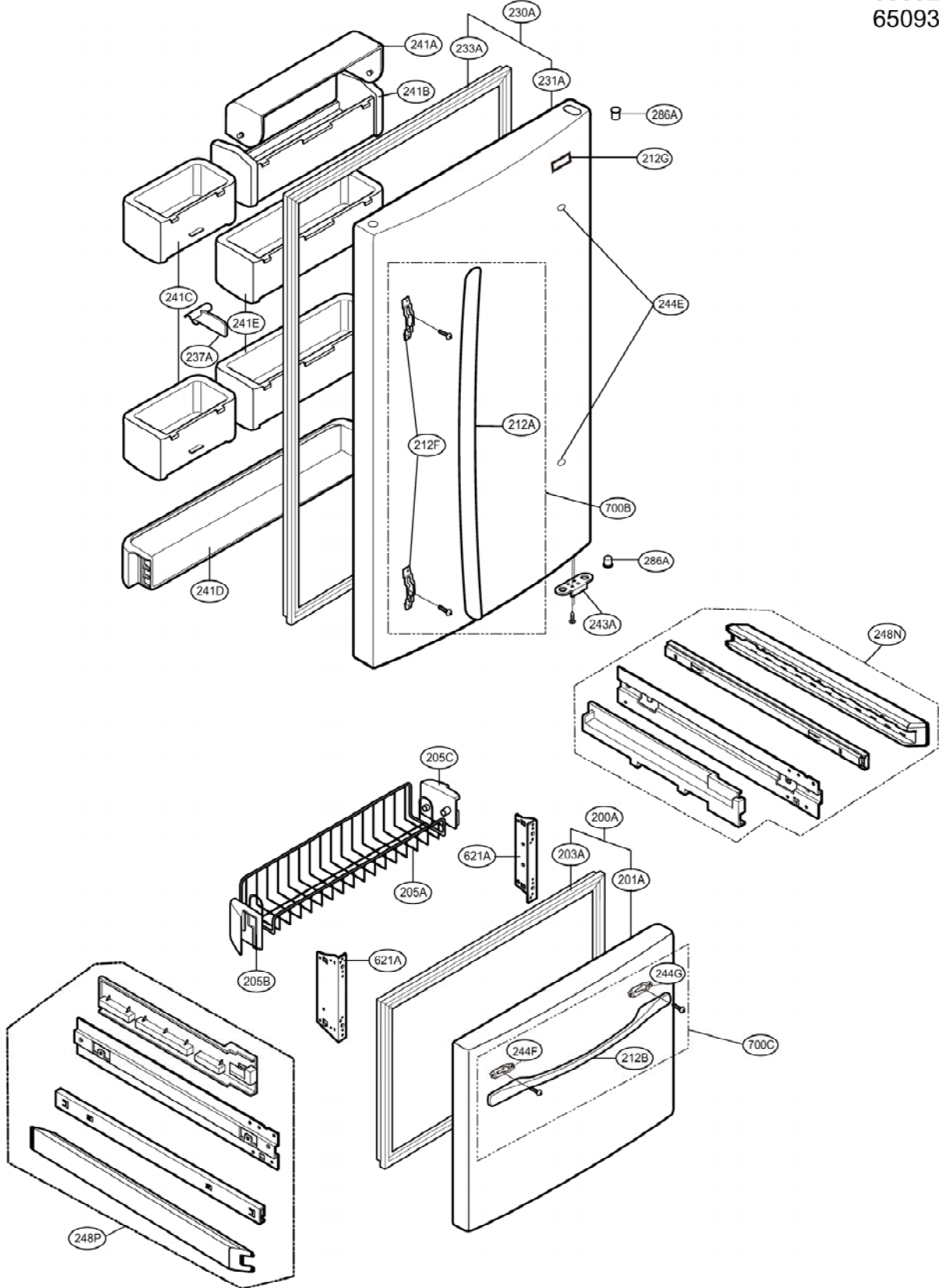
Models:  
65092  
65093



# DOOR PARTS

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

Models:  
65092  
65093



Loc No.	Part No.	Description	Loc No.	Part No.	Description
103A	3650JJ2003E	Handle,Rear	282Z	5006JJ3010A	Cap,Handle
103B	3650JJ2003A	Handle,Rear	283B	4775JJ2007B	Hinge Assembly,Lower
103C	3551JJ1015A	Cover Assembly,Lower	283D	4774JJ2002A	Hinge,Lower
103E	5218JJ3001A	Rail,Slide	283F	MJB36873201	Stopper,Door
105A	5251JA3003B	Tube Assembly,Drain	284B	3550JA3120A	Cover,Connector
105F	5070JJ3002A	Skirt,Lower	284D	1STZJA3004K	Screw,Customized
106A	4779JA2003A	Leg Assembly,Adjust	284E	3550JJ3001A	Cover,Tube
106B	4J00382C	Washer,Common	286A	4984JJ3003A	BUSH
120B	5209JJ1002A	Duct Assembly,Multi	286A	4984JJ3003A	BUSH
125A	3390JJ1023A	Tray,Ice	301A	5421JJ1001A	Evaporator Assembly
125D	4930JJ3007A	Holder,Bracket	304A	3551JJ2008A	Cover Assembly,Machinery(Rear)
128A	4975JJ2002A	Guide Assembly,Rail	305B	4580JJ3001A	Roller
128B	4975JJ2002B	Guide Assembly,Rail	305C	4J04238A	Pin,Common
128E	4930JJ1012A	Holder,Rail	307A	2521CRA5715	Compressor,Set Assembly
128F	4930JJ1012B	Holder,Rail	308A	EBG32606502	Thermistor Assembly,PTC
131A	5074JJ1017A	Bucket,Ice	309A	6750C-0004S	Overload Protect
135C	3550JJ2030A	Cover,Grille Fan	310A	3550JA2059A	Cover,PTC
136C	3390JJ1058A	Tray,Drawer	312A	5040JA3031A	Damper,Compressor
140B	5027JJ2007A	Shelf Assembly,Refrigerator	314A	4620JA3009A	Stopper,Compressor
140D	MHL38615403	Shelf,Net	315A	3103JJ1001K	Base Assembly,Compressor
140E	MHL38615404	Shelf,Net	317A	5851JJ2002F	Drier Assembly
142D	5026JJ2001L	Shelf,Net	318A	4930JA3034A	Holder,Drier
142E	5026JJ2001M	Shelf,Net	319A	3390JJ0003A	Tray,Drip
143A	5027JJ1028E	Shelf Assembly,Refrigerator	319C	4974JJ1009A	Guide,Fan
143B	5027JJ1015A	Shelf Assembly,Refrigerator	319E	4810JJ0002A	Bracket,Motor
143E	5027JJ1008J	Shelf Assembly,Refrigerator	323B	5403JJ1005A	Condenser Assembly,Wire
143F	5027JJ1008C	Shelf Assembly,Refrigerator	327A	5006JA3034A	Cap,Drain Tube
145A	4930JJ2003A	Holder,Shelf	328A	4J03020A	Damper,Pipe
145B	4930JJ2004A	Holder,Shelf	328B	4J04328A	Damper,Pipe
146A	5047JJ1001A	Case,Lower	329A	5901JJ1005A	Fan Assembly
149A	5026JJ1058A	SHELF,FREEZER	329C	5901JJ1004B	Fan Assembly
151A	3390JJ1032A	Tray,Vegetable	332A	3531JJ1004B	Grille Assembly,Fan
151C	4940JJ2003A	Knob,Shutter	401A	6615JB2005C	Controller Assembly
154A	3550JL2001G	Cover,TV	404A	4680JK1002B	Motor, AC Freezing
155B	4981JJ2001B	Supporter Assembly,Cover TV	405A	4811JJ2002B	Bracket Assembly,Motor
158A	3550JJ1040A	Cover,Lamp	405B	4810JA3007A	Bracket,Motor
158E	MCK30060901	Cover,Lamp	405C	J756-00008B	Damper,Motor Support
167B	4890JL1002G	Shelf,Glass	406B	6600JB1010A	Switch,Push Button
170A	3391JJ2004G	Tray Assembly,Meat	409B	6912JK2002D	Lamp,Incandescent
200A	3581JJ8023A	Door Assembly,Freezer	409C	6912JK2002A	Lamp,Incandescent
201A	5433JJ0017E	Door Foam Assembly,Freezer	409D	3034JJ1002B	Reflector,Lamp
203A	4987JJ1004C	Gasket Assembly,Door	410A	6621JK2003B	Harness Assembly
205D	5004JJ1041A	Basket,Door	410G	0CZZJB2012J	Capacitor,Electric Appliance Film,Box
212A	3650JJ1031A	Handle,Refrigerator	411A	6411JK1006A	Power Cord Assembly
212F	4810JJ3015A	Bracket,Handle	418A	5300JB1100D	Heater,Sheath
212G	4140JD1031A	Name Plate	420A	4680JK1001B	Motor,AC
212J	4620JJ3007E	Stopper,Handle	501A	6871JB1215J	PCB Assembly,Main
230A	3581JJ8046B	Door Assembly,Refrigerator	501F	3551JJ1020A	Cover Assembly,PCB
231A	5433JJ0016N	Door Foam Assembly,Refrigerator	503C	6871JB2047A	PCB Assembly,Display
233A	4987JJ1004D	Gasket Assembly,Door	503D	3110JJ1005A	Case,Display
241A	3550JJ1024A	Cover,Tray	503E	3550JJ2031A	Cover,Display
241B	5004JJ1035A	Basket,Door	503F	ABQ33905307	Case Assembly,Display
241C	5004JJ1030A	Basket,Door	503G	3806JL1051A	Decor,Control
241D	5004JJ0002A	Basket,Door	610A	3550JJ2020A	Cover,Sensor
241E	5004JJ1028A	Basket,Door	619B	3550JJ2024A	Cover,Valve
243A	4620JJ3006A	Stopper,Door	623H	3550JJ2036A	Cover,Tube
244E	5006JJ3016A	Cap,Handle	700B	3651JJ2015A	Handle Assembly,Refrigerator
244P	3650JJ2012A	Handle,Freezer	903A	3550JJ0005A	Cover,Lower
262E	4350JA3005B	Ring	903B	4930JJ2021A	Holder,Cover(Lower)
281A	3550JJ2013A	Cover,Hinge	903D	6500JK1003A	Sensor,Temperature
281B	4775JJ2003B	Hinge Assembly,Upper	903E	6500JK1004A	Sensor,Temperature
281E	5006JJ3014A	Cap,Hinge	B01	1STZJA3004F	Screw,Customized
282B	4775JJ8002F	Hinge Assembly,Center	S01	1SZZJJ3010A	Screw,Customized
282C	1PZZJJ3002F	Pin,Common	S02	1SZZJJ3010B	Screw,Customized
282E	5006JJ2001A	Cap,Hinge	S22	J471-00001J	Screw,Customized
282F	3806JL2006D	Decor,Duct	S24	1SZZJA3011B	Screw,Customized
282H	5006JJ3004A	Cap,Hinge	S27	4J01424C	Screw,Customized
282X	5006JJ3010A	Cap,Handle	S38	4J00415D	Screw,Customized

Loc No.	Part No.	Description	Loc No.	Part No.	Description
103A	3650JJ2003M	Handle,Rear	282Z	5006JJ3010C	Cap,Handle
103B	3650JJ2003L	Handle,Rear	283B	4775JJ2007B	Hinge Assembly,Lower
103C	3551JJ1015E	Cover Assembly,Lower	283D	4774JJ2002A	Hinge,Lower
103E	5218JJ3001A	Rail,Slide	283F	MJB36873202	Stopper,Door
105A	5251JA3003B	Tube Assembly,Drain	284B	3550JA3120A	Cover,Connector
105F	5070JJ3002A	Skirt,Lower	284D	1STZJA3004K	Screw,Customized
106A	4779JA2003A	Leg Assembly,Adjust	284E	3550JJ3001A	Cover,Tube
106B	4J00382C	Washer,Common	286A	4984JJ3003A	BUSH
120B	5209JJ1002A	Duct Assembly,Multi	286A	4984JJ3003A	BUSH
125A	3390JJ1023A	Tray,Ice	301A	5421JJ1001A	Evaporator Assembly
125D	4930JJ3007A	Holder,Bracket	304A	3551JJ2008A	Cover Assembly,Machinery(Rear)
128A	4975JJ2002A	Guide Assembly,Rail	305B	4580JJ3001A	Roller
128B	4975JJ2002B	Guide Assembly,Rail	305C	4J04238A	Pin,Common
128E	4930JJ1012A	Holder,Rail	307A	2521CRA5715	Compressor,Set Assembly
128F	4930JJ1012B	Holder,Rail	308A	EBG32606502	Thermistor Assembly,PTC
131A	5074JJ1017A	Bucket,Ice	309A	6750C-0004S	Overload Protect
135C	3550JJ2030A	Cover,Grille Fan	310A	3550JA2059A	Cover,PTC
136C	3390JJ1058A	Tray,Drawer	312A	5040JA3031A	Damper,Compressor
140B	5027JJ2007A	Shelf Assembly,Refrigerator	314A	4620JA3009A	Stopper,Compressor
140D	MHL38615403	Shelf,Net	315A	3103JJ1001K	Base Assembly,Compressor
140E	MHL38615404	Shelf,Net	317A	5851JJ2002F	Drier Assembly
142D	5026JJ2001L	Shelf,Net	318A	4930JA3034A	Holder,Drier
142E	5026JJ2001M	Shelf,Net	319A	3390JJ0003A	Tray,Drip
143A	5027JJ1028E	Shelf Assembly,Refrigerator	319C	4974JJ1009A	Guide,Fan
143B	5027JJ1015A	Shelf Assembly,Refrigerator	319E	4810JJ0002A	Bracket,Motor
143E	5027JJ1008J	Shelf Assembly,Refrigerator	323B	5403JJ1005A	Condenser Assembly,Wire
143F	5027JJ1008C	Shelf Assembly,Refrigerator	327A	5006JA3034A	Cap,Drain Tube
145A	4930JJ2003A	Holder,Shelf	328A	4J03020A	Damper,Pipe
145B	4930JJ2004A	Holder,Shelf	328B	4J04328A	Damper,Pipe
146A	5047JJ1001A	Case,Lower	329A	5901JJ1005A	Fan Assembly
149A	5026JJ1058A	SHELF,FREEZER	329C	5901JJ1004B	Fan Assembly
151A	3390JJ1032A	Tray,Vegetable	332A	3531JJ1004B	Grille Assembly,Fan
151C	4940JJ2003A	Knob,Shutter	401A	6615JB2005C	Controller Assembly
154A	3550JJ2001G	Cover,TV	404A	4680JK1002B	Motor, AC Freezing
155B	4981JJ2001B	Supporter Assembly,Cover TV	405A	4811JJ2002B	Bracket Assembly,Motor
158A	3550JJ1040A	Cover,Lamp	405B	4810JA3007A	Bracket,Motor
158E	MCK30060901	Cover,Lamp	405C	J756-00008B	Damper,Motor Support
167B	4890JJ1002G	Shelf,Glass	406B	6600JB1010A	Switch,Push Button
170A	3391JJ2004G	Tray Assembly,Meat	409B	6912JK2002D	Lamp,Incandescent
200A	3581JJ8023F	Door Assembly,Freezer	409C	6912JK2002A	Lamp,Incandescent
201A	5433JJ0017P	Door Foam Assembly,Freezer	409D	3034JJ1002B	Reflector,Lamp
203A	4987JJ1004G	Gasket Assembly,Door	410A	6621JK2003B	Harness Assembly
205D	5004JJ1041A	Basket,Door	410G	0CZZJB2012J	Capacitor,Electric Appliance Film,Box
212A	3650JJ1031B	Handle,Refrigerator	411A	6411JK1006A	Power Cord Assembly
212F	4810JJ3015A	Bracket,Handle	418A	5300JB1100D	Heater,Sheath
212G	4140JJ2001C	NAME PLATE	420A	4680JK1001B	Motor,AC
212J	4620JJ3007E	Stopper,Handle	501A	6871JB1215J	PCB Assembly,Main
230A	3581JJ8046C	Door Assembly,Refrigerator	501F	3551JJ1020A	Cover Assembly,PCB
231A	5433JJ0016S	Door Foam Assembly,Refrigerator	503C	6871JB2047A	PCB Assembly,Display
233A	4987JJ1004H	Gasket Assembly,Door	503D	3110JJ1005A	Case,Display
241A	3550JJ1024A	Cover,Tray	503E	3550JJ2031A	Cover,Display
241B	5004JJ1035A	Basket,Door	503F	ABQ33905307	Case Assembly,Display
241C	5004JJ1030A	Basket,Door	503G	3806JJ1051A	Decor,Control
241D	5004JJ0002A	Basket,Door	610A	3550JJ2020A	Cover,Sensor
241E	5004JJ1028A	Basket,Door	619B	3550JJ2024A	Cover,Valve
243A	4620JJ3006C	Stopper,Door	623H	3550JJ2036A	Cover,Tube
244E	5006JJ3016C	Cap,Handle	700B	3651JJ2015B	Handle Assembly,Refrigerator
244P	3650JJ2012B	Handle,Freezer	903A	3550JJ0005C	Cover,Lower
262E	4350JA3005B	Ring	903B	4930JJ2021A	Holder,Cover(Lower)
281A	3550JJ2013C	Cover,Hinge	903D	6500JK1003A	Sensor,Temperature
281B	4775JJ2003B	Hinge Assembly,Upper	903E	6500JK1004A	Sensor,Temperature
281E	5006JJ3014C	Cap,Hinge	B01	1STZJA3004F	Screw,Customized
282B	4775JJ8002E	Hinge Assembly,Center	S01	1SZZJJ3010A	Screw,Customized
282C	1PZZJJ3002F	Pin,Common	S02	1SZZJJ3010D	Screw,Customized
282E	5006JJ2001F	Cap,Hinge	S22	J471-00001J	Screw,Customized
282F	3806JJ2006D	Decor,Duct	S24	1SZZJA3011B	Screw,Customized
282H	5006JJ3004E	Cap,Hinge	S27	4J01424C	Screw,Customized
282X	5006JJ3010A	Cap,Handle	S38	4J00415D	Screw,Customized

Loc No.	Part No.	Description	Loc No.	Part No.	Description
103A	3650.JJ2003E	Handle,Rear	262E	4350.JA3005B	Ring
103B	3650.JJ2003A	Handle,Rear	281A	3550.JJ2013A	Cover,Hinge
103C	3551.JJ1015A	Cover Assembly,Lower	281B	4775.JJ2003B	Hinge Assembly,Upper
103E	5218.JJ3001A	Rail,Side	282B	4775.JJ8002A	Hinge Assembly,Center
105A	5251.JA3003B	Tube Assembly,Drain	282E	5006.JJ2001A	Cap,Hinge
105F	5070.JJ3002A	Skirt,Lower	282F	3806.JL2006D	Decor,Duct
106A	4779.JA2003A	Leg Assembly,Adjust	282H	5006.JJ3004A	Cap,Hinge
106B	4J00382C	Washer,Common	282X	5006.JJ3010A	Cap,Handle
120B	5209.JJ1002A	Duct Assembly,Multi	284B	3550.JA3120A	Cover,Connector
125A	3391.JJ1009A	Tray Assembly,Ice	284E	3550.JJ3001A	Cover,Tube
128A	4975.JJ2002A	Guide Assembly,Rail	285A	4975.JJ2007G	Guide Assembly,Rail
128B	4975.JJ2002B	Guide Assembly,Rail	286A	4984.JJ3003A	BUSH
131A	5075.JJ1001A	Bucket Assembly,Ice	301A	5421.JJ1001A	Evaporator Assembly
135C	3550.JJ2030A	Cover,Grille Fan	304A	3551.JJ2008A	Cover Assembly,Machinery(Rear)
136A	3391.JJ1011A	Tray Assembly,Drawer	305B	4580.JJ3001A	Roller
136B	3390.JJ1088A	Tray,Drawer	305C	4J04238A	Pin,Common
136F	3391.JJ1033A	Tray Assembly,Drawer	307A	2521.CRA5715	Compressor,Set Assembly
140D	5026.JJ2001G	Shelf,Net	308A	EBG32606502	Thermistor Assembly,PTC
140E	5026.JJ2001H	Shelf,Net	309A	6750C-0004S	Overload Protect
142B	5027.JJ1037A	Shelf Assembly,Refrigerator	310A	3550.JA2059A	Cover,PTC
142D	5026.JJ2001L	Shelf,Net	312A	5040.JA3031A	Damper,Compressor
142E	5026.JJ2001M	Shelf,Net	314A	4620.JA3009A	Stopper,Compressor
143E	5027.JJ1013N	Shelf Assembly,Refrigerator	315A	3103.JJ1001K	Base Assembly,Compressor
143F	5027.JJ1013P	Shelf Assembly,Refrigerator	317A	5851.JJ2002F	Drier Assembly
145A	4930.JJ2003A	Holder,Shelf	318A	4930.JA3034A	Holder,Drier
145B	4930.JJ2004A	Holder,Shelf	319A	3390.JJ0003A	Tray,Drip
145D	4974.JJ1012A	Guide,Rail	319C	4974.JJ1009A	Guide,Fan
145G	4975.JJ2005H	Guide Assembly,Rail	319E	4810.JJ0002A	Bracket,Motor
146A	5047.JJ1001A	Case,Lower	323B	5403.JJ1005A	Condenser Assembly,Wire
147A	5074.JJ1005A	Bucket,Dairy	327A	5006.JA3034A	Cap,Drain Tube
151A	3391.JJ1018E	Tray Assembly,Vegetable	328A	4J03020A	Damper,Pipe
151B	3391.JJ1018G	Tray Assembly,Vegetable	328B	4J04328A	Damper,Pipe
151C	4940.JJ2003A	Knob,Shutter	329A	5901.JJ1005A	Fan Assembly
154A	3550.JL2001E	Cover,TV	329C	5901.JJ1004B	Fan Assembly
155B	4980.JJ1012A	Supporter,Cover TV	332A	3531.JJ1004B	Grille Assembly,Fan
158A	3550.JJ1040A	Cover,Lamp	401A	6615.JB2005C	Controller Assembly
158E	MCK30060901	Cover,Lamp	404A	4680.JK1002B	Motor, AC Freezing
167B	4890.JL1002G	Shelf,Glass	405A	4811.JJ2002B	Bracket Assembly,Motor
168A	3550.JJ1036A	Cover,Magic Room	405B	4810.JA3007A	Bracket,Motor
170A	3391.JJ2004G	Tray Assembly,Meat	405C	J756-00008B	Damper,Motor Support
200A	3581.JJ8049A	Door Assembly,Freezer	406B	6600.JB1010A	Switch,Push Button
201A	5433.JJ0059A	Door Foam Assembly,Freezer	409B	6912.JK2002D	Lamp,Incandescent
203A	ADX52752604	Gasket Assembly,Door	409C	6912.JK2002A	Lamp,Incandescent
205A	5004.JJ1042A	Basket,Door	409D	3034.JJ1002B	Reflector,Lamp
205B	5004.JJ2005B	Basket,Tilt	410A	6621.JK2003B	Harness Assembly
205C	5004.JJ2005A	Basket,Tilt	410G	0CZZ.JB2003H	Capacitor,Electric Appliance Film,Radial
212A	3650.JJ1031A	Handle,Refrigerator	411A	6411.JK1006A	Power Cord Assembly
212B	3650.JJ1030A	Handle,Freezer	418A	5300.JB1100D	Heater,Sheath
212F	4810.JJ3015A	Bracket,Handle	420A	4680.JK1001B	Motor,AC
212G	4140.JD1031A	Name Plate	501A	6871.JB1215J	PCB Assembly,Main
212J	4620.JJ3007E	Stopper,Handle	501F	3551.JJ1020A	Cover Assembly,PCB
230A	3581.JJ8046B	Door Assembly,Refrigerator	503F	ABC33905305	Case Assembly,Display
231A	5433.JJ0016N	Door Foam Assembly,Refrigerator	610A	3550.JJ2020A	Cover,Sensor
233A	4987.JJ1004D	Gasket Assembly,Door	619B	3550.JJ2024A	Cover,Valve
237A	4974.JJ2012A	Guide,Pitcher	621A	4932.JJ2001B	CONNECTOR,DOOR
237C	4974.JJ1021A	Guide,Drawer	623H	3550.JJ2036A	Cover,Tube
241A	3550.JJ1024A	Cover,Tray	700B	3651.JJ2015A	Handle Assembly,Refrigerator
241B	5004.JJ1035A	Basket,Door	700C	3651.JJ2016A	Handle Assembly,Freezer
241C	5005.JJ2017B	Basket Assembly,Door	903A	3550.JJ0005A	Cover,Lower
241D	5005.JJ2020B	Basket Assembly,Door	903B	4930.JJ2021A	Holder,Cover(Lower)
241E	5005.JJ2018B	Basket Assembly,Door	903D	6500.JK1003A	Sensor,Temperature
243A	4620.JJ3006A	Stopper,Door	903E	6500.JK1004A	Sensor,Temperature
244E	5006.JJ3016A	Cap,Handle	B01	1STZ.JA3004F	Screw,Customized
244F	4810.JJ2011B	Bracket,Handle	B04	1SZZ.JJ3011C	Screw,Customized
244G	4810.JJ2011A	Bracket,Handle	S01	1SZZ.JJ3010A	Screw,Customized
248E	3806.JJ2036A	Decor,Tray	S22	J471-00001J	Screw,Customized
248F	4980.JJ2005B	SUPPORTER,HOLDER	S24	1SZZ.JA3011B	Screw,Customized
248N	5219.JJ2002A	Rail Assembly,Slide	S27	4J01424C	Screw,Customized
248P	5219.JJ2002B	Rail Assembly,Slide	S38	4J00415D	Screw,Customized
249G	4974.JJ1011A	Guide,Rail			

Loc No.	Part No.	Description	Loc No.	Part No.	Description
103A	3650JJ2003M	Handle,Rear	262E	4350JA3005B	Ring
103B	3650JJ2003L	Handle,Rear	281A	3550JJ2013C	Cover,Hinge
103C	3551JJ1015E	Cover Assembly,Lower	281B	4775JJ2003B	Hinge Assembly,Upper
103E	5218JJ3001A	Rail,Slide	282B	4775JJ8002C	Hinge Assembly,Center
105A	5251JA3003B	Tube Assembly,Drain	282E	5006JJ2001F	Cap,Hinge
105F	5070JJ3002A	Skirt,Lower	282F	3806JL2006D	Decor,Duct
106A	4779JA2003A	Leg Assembly,Adjust	282H	5006JJ3004E	Cap,Hinge
106B	4J00382C	Washer,Common	282X	5006JJ3010A	Cap,Handle
120B	5209JJ1002A	Duct Assembly,Multi	284B	3550JA3120A	Cover,Connector
125A	3391JJ1009A	Tray Assembly,Ice	284E	3550JJ3001A	Cover,Tube
128A	4975JJ2002A	Guide Assembly,Rail	285A	4975JJ2007G	Guide Assembly,Rail
128B	4975JJ2002B	Guide Assembly,Rail	286A	4984JJ3003A	BUSH
131A	5075JJ1001A	Bucket Assembly,Ice	301A	5421JJ1001A	Evaporator Assembly
135C	3550JJ2030A	Cover,Grille Fan	304A	3551JJ2008A	Cover Assembly,Machinery(Rear)
136A	3391JJ1011A	Tray Assembly,Drawer	305B	4580JJ3001A	Roller
136B	3390JJ1088A	Tray,Drawer	305C	4J04238A	Ptn,Common
136F	3391JJ1033A	Tray Assembly,Drawer	307A	2521CRA5715	Compressor,Set Assembly
140D	5026JJ2001G	Shelf,Net	308A	EBC32606502	Thermistor Assembly,PTC
140E	5026JJ2001H	Shelf,Net	309A	6750C-0004S	Overload Protect
142B	5027JJ1037A	Shelf Assembly,Refrigerator	310A	3550JA2059A	Cover,PTC
142D	5026JJ2001L	Shelf,Net	312A	5040JA3031A	Damper,Compressor
142E	5026JJ2001M	Shelf,Net	314A	4620JA3009A	Stopper,Compressor
143E	5027JJ1013N	Shelf Assembly,Refrigerator	315A	3103JJ1001K	Base Assembly,Compressor
143F	5027JJ1013P	Shelf Assembly,Refrigerator	317A	5851JJ2002F	Drier Assembly
145A	4930JJ2003A	Holder,Shelf	318A	4930JA3034A	Holder,Drier
145B	4930JJ2004A	Holder,Shelf	319A	3390JJ0003A	Tray,Drip
145D	4974JJ1012A	Guide,Rail	319C	4974JJ1009A	Guide,Fan
145G	4975JJ2005H	Guide Assembly,Rail	319E	4810JJ0002A	Bracket,Motor
146A	5047JJ1001A	Case,Lower	323B	5403JJ1005A	Condenser Assembly,Wire
147A	5074JJ1005A	Bucket,Dairy	327A	5006JA3034A	Cap,Drain Tube
151A	3391JJ1018E	Tray Assembly,Vegetable	328A	4J03020A	Damper,Pipe
151B	3391JJ1018G	Tray Assembly,Vegetable	328B	4J04328A	Damper,Pipe
151C	4940JJ2003A	Knob,Shutter	329A	5901JJ1005A	Fan Assembly
154A	3550JL2001E	Cover,TV	329C	5901JJ1004B	Fan Assembly
155B	4980JJ1012A	Supporter,Cover TV	332A	3531JJ1004B	Grille Assembly,Fan
158A	3550JJ1040A	Cover,Lamp	401A	6615JB2005C	Controller Assembly
158E	MCK30060901	Cover,Lamp	404A	4680JK1002B	Motor, AC Freezing
167B	4890JL1002G	Shelf,Glass	405A	4811JJ2002B	Bracket Assembly,Motor
168A	3550JJ1036A	Cover,Magic Room	405B	4810JA3007A	Bracket,Motor
170A	3391JJ2004G	Tray Assembly,Meat	405C	J756-00008B	Damper,Motor Support
200A	3581JJ8049D	Door Assembly,Freezer	406B	6600JB1010A	Switch,Push Button
201A	5433JJ0059B	Door Foam Assembly,Freezer	409B	6912JK2002D	Lamp,Incandescent
203A	ADX52752606	Gasket Assembly,Door	409C	6912JK2002A	Lamp,Incandescent
205A	5004JJ1042A	Basket,Door	409D	3034JJ1002B	Reflector,Lamp
205B	5004JJ2005B	Basket,Tilt	410A	6621JK2003B	Harness Assembly
205C	5004JJ2005A	Basket,Tilt	410G	0CZZJB2003H	Capacitor,Electric Appliance Film,Radial
212A	3650JJ1031B	Handle,Refrigerator	411A	6411JK1006A	Power Cord Assembly
212B	3650JJ1030B	Handle,Freezer	418A	5300JB1100D	Heater,Sheath
212F	4810JJ3015A	Bracket,Handle	420A	4680JK1001B	Motor,AC
212G	4140JL2001C	NAME PLATE	501A	6871JB1215J	PCB Assembly,Main
212J	4620JJ3007E	Stopper,Handle	501F	3551JJ1020A	Cover Assembly,PCB
230A	3581JJ8046D	Door Assembly,Refrigerator	503F	ABQ33905305	Case Assembly,Display
231A	5433JJ0016P	Door Foam Assembly,Refrigerator	610A	3550JJ2020A	Cover,Sensor
233A	4987JJ1004H	Gasket Assembly,Door	619B	3550JJ2024A	Cover,Valve
237A	4974JJ2012A	Guide,Pitcher	621A	4932JJ2001B	CONNECTOR,DOOR
237C	4974JJ1021A	Guide,Drawer	623H	3550JJ2036A	Cover,Tube
241A	3550JJ1024A	Cover,Tray	700B	3651JJ2015B	Handle Assembly,Refrigerator
241B	5004JJ1035A	Basket,Door	700C	3651JJ2016B	Handle Assembly,Freezer
241C	5005JJ2017B	Basket Assembly,Door	903A	3550JJ0005C	Cover,Lower
241D	5005JJ2020B	Basket Assembly,Door	903B	4930JJ2021A	Holder,Cover(Lower)
241E	5005JJ2018B	Basket Assembly,Door	903D	6500JK1003A	Sensor,Temperature
243A	4620JJ3006C	Stopper,Door	903E	6500JK1004A	Sensor,Temperature
244E	5006JJ3016D	Cap,Handle	B01	1STZJA3004F	Screw,Customized
244F	4810JJ2011B	Bracket,Handle	B04	1SZZJJ3011C	Screw,Customized
244G	4810JJ2011A	Bracket,Handle	S01	1SZZJJ3010A	Screw,Customized
248E	3806JJ2036A	Decor,Tray	S22	J471-00001J	Screw,Customized
248F	4980JJ2005B	SUPPORTER,HOLDER	S24	1SZZJA3011B	Screw,Customized
248N	5219JJ2002A	Rail Assembly,Slide	S27	4J01424C	Screw,Customized
248P	5219JJ2002B	Rail Assembly,Slide	S38	4J00415D	Screw,Customized
249G	4974JJ1011A	Guide,Rail			



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to Work Safely.'*