

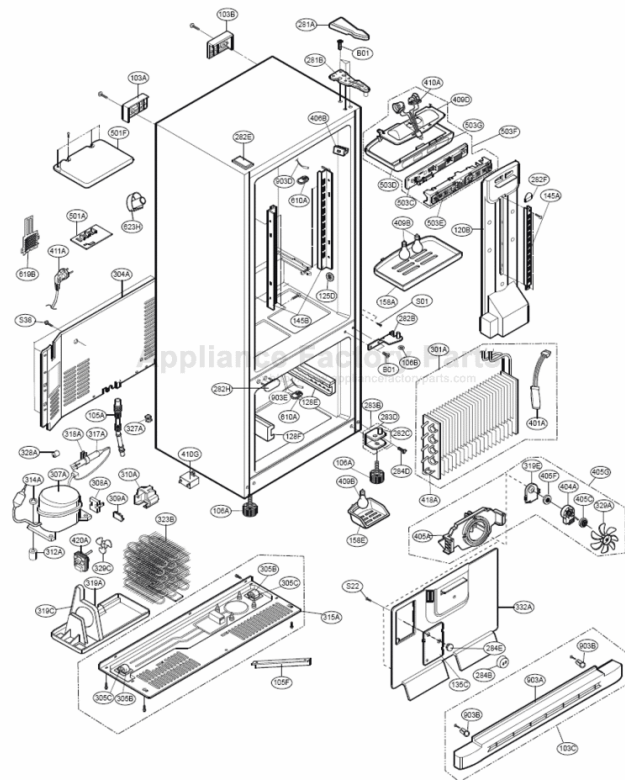
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LG LBN22515SB Owner's Manual

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CASE PARTS
CAUTION: Use the part number to order part, not the position number



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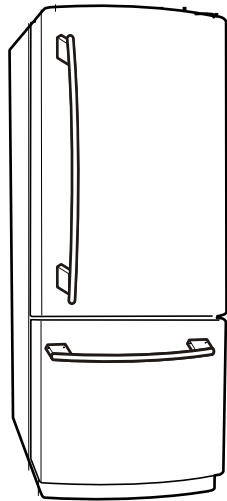


LG

REFRIGERATOR

SERVICE MANUAL

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



MODELS
LB*22515**

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SAFETY PRECAUTIONS

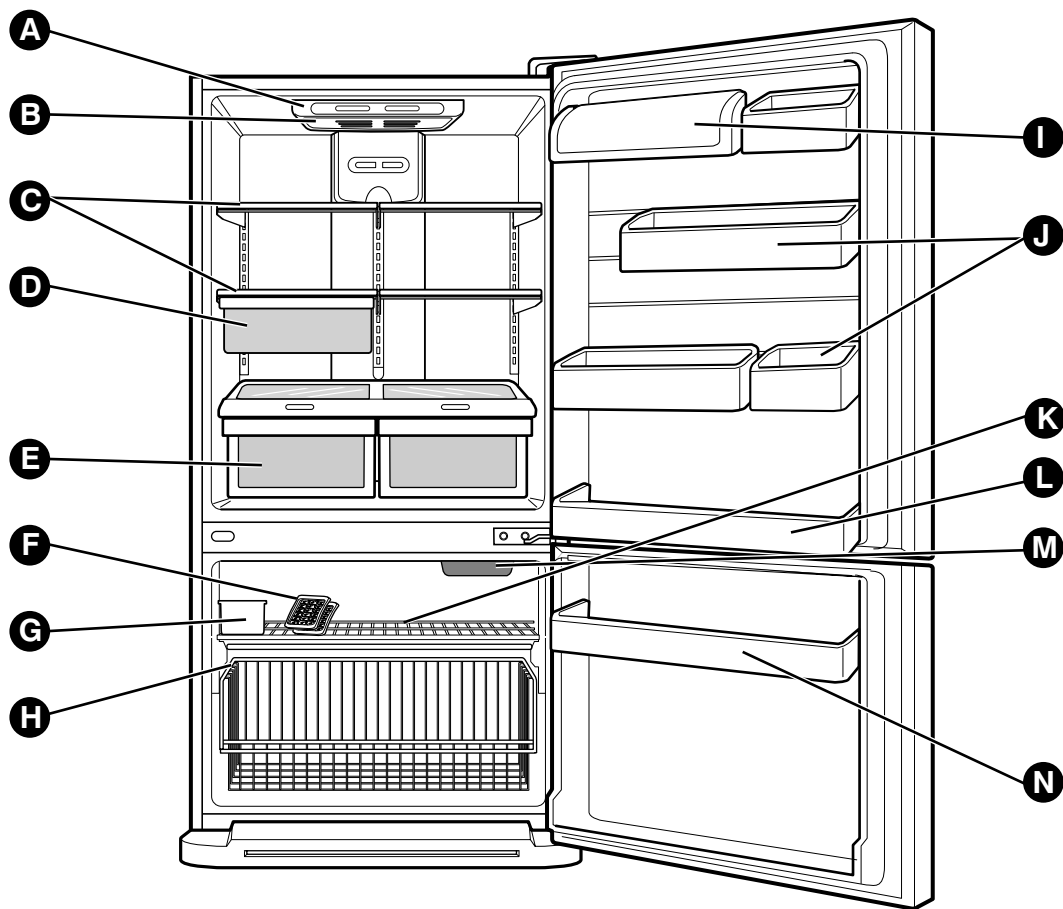
Please read the following instructions before servicing your refrigerator.

1. Check the refrigerator for current leakage.
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.
6. Prevent water from spilling on to electric elements or the machine parts.
7. Before tilting the refrigerator, remove all materials from on or in the refrigerator.
8. When servicing the evaporator, wear gloves to prevent injuries from the sharp evaporator fins.
9. Service on the refrigerator should be performed by a qualified technician. Sealed system repair must be performed by a CFC certified technician.

1. SPECIFICATIONS

| MODELS | | LBN22515** |
|------------------|------------------------|----------------------|
| SPECIFICATIONS | | |
| GENERAL FEATURES | CAPACITY litros(F/R/T) | 195.98/438.97/634.95 |
| | DIMENSIONS in(W*H*D) | 32 7/8*68 1/2*34 |
| | WEIGHT kg | 125 |
| | HANDLE TYPE | CURVED |
| | REVERSIBLE DOOR | YES |
| | DOOR FINISH | STAINLESS STEEL |
| | REFRIGERANT/gr | R134a 120±3 |
| FREEZER | ICE TRAY | I/T(2EA)+I/B |
| | SHELF | WIRE |
| | BASKET DOOR | PLASTIC(1) |
| | LAMP | YES(1)60W/BBLUE |
| REFRIGERATOR | TRAY MEAT | YES |
| | SHELF | 4FIX |
| | MAGIC CRISPER | NO |
| | LAMP | YES(2)60W/BBLUE |
| | GUIDE BOTTLE | NO |
| | DOOR COOOLING | NO |
| | TRAY VEGETABLE | NORMAL |
| | BASKET DOOR | 2 1/3+2 2/3+ 1FULL |

2. PARTS IDENTIFICATIONS



NOTE: This guide covers several different models. The refrigerator you have purchased may have some or all of the items listed below. The locations of the features shown below may not match your model.

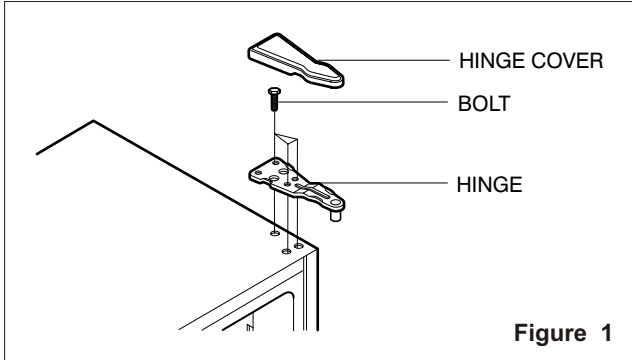
- | | |
|--|---------------------------------|
| A Digital Sensor Control | I Dairy Bin |
| B Refrigerator Light | J Design-A-Door |
| C Shelves | K Wire Freezer Shelf |
| D Snack Pan | L Refrigerator Door Rack |
| E Optibin Crisper Keeps fruits and vegetable fresh and crisp | M Freezer Light |
| F Ice Trays | N Freezer Door Rack |
| G Ice Bin | |
| H Wire Durabase | |

3. DISASSEMBLY

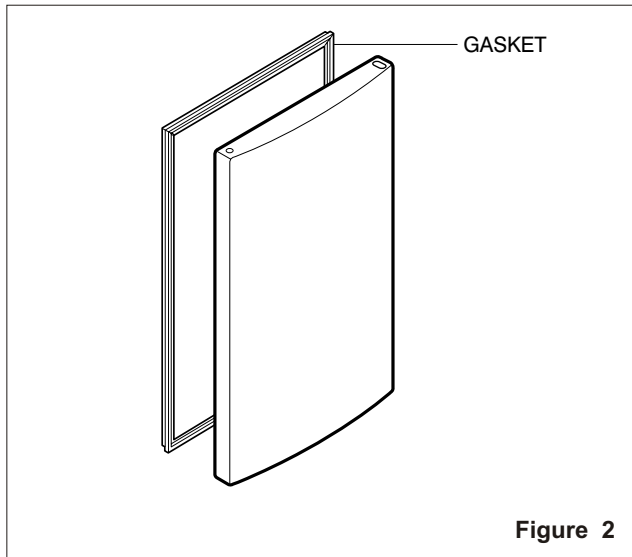
3-1 DOOR

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.

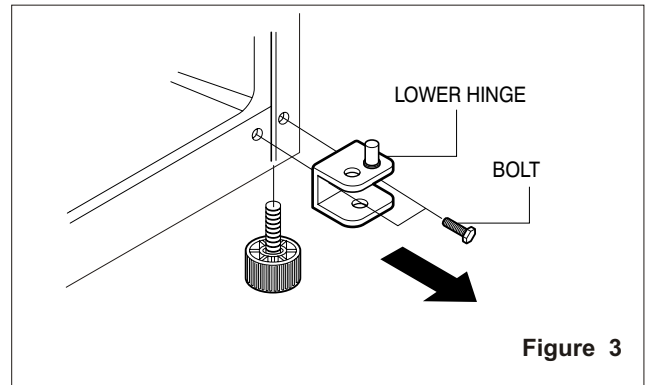


3. Pull out the door gasket to remove from the door foam assembly.



Freezer Door

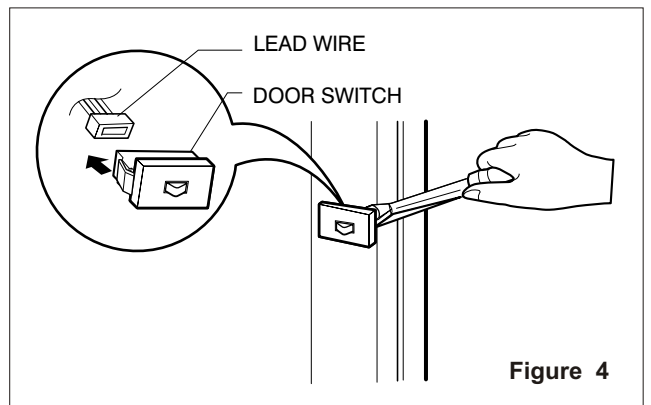
1. Loosen the hexagonal bolts attaching the lower hinge to the body to remove the refrigerator door only.



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 plastic guide for slides on left side by unscrewing phillips head screws.
3. Remove the grille by removing one screw and pulling the grille forward.
4. Remove the Fan Motor assembly by loosening 2 screws and disassembling the shroud.
5. Pull out the fan and separate the Fan Motor and Bracket.

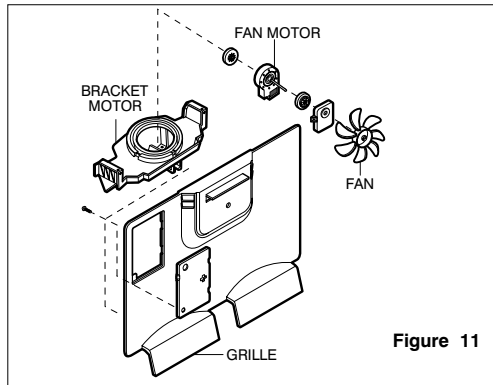


Figure 11

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)

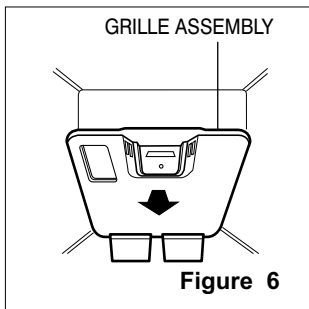


Figure 6

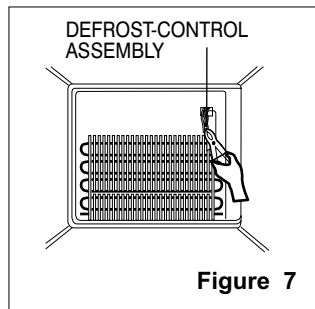


Figure 7

3-5 LAMP

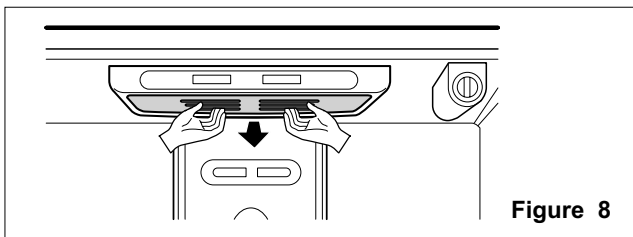


Figure 8

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).

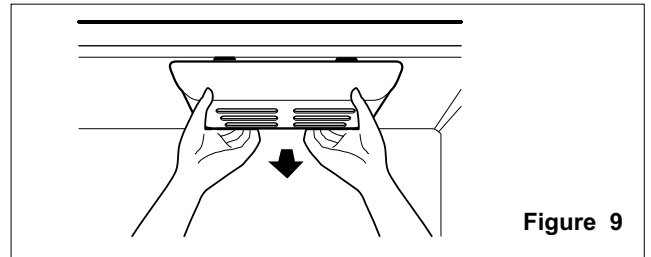


Figure 9

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, than remove the Refrigerator control Box by loosening 2 screws.

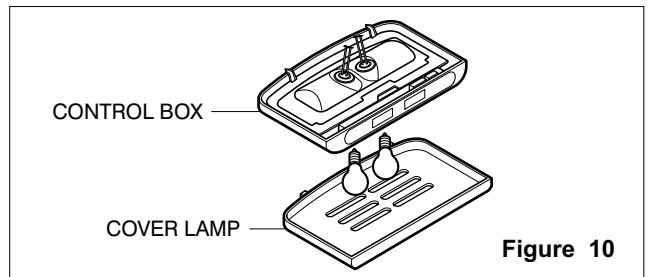


Figure 10

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.

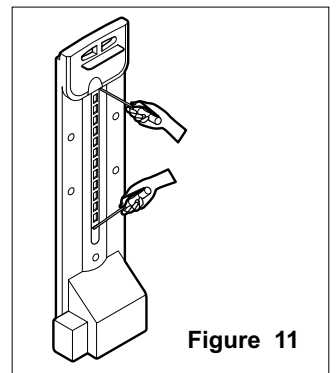


Figure 11

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

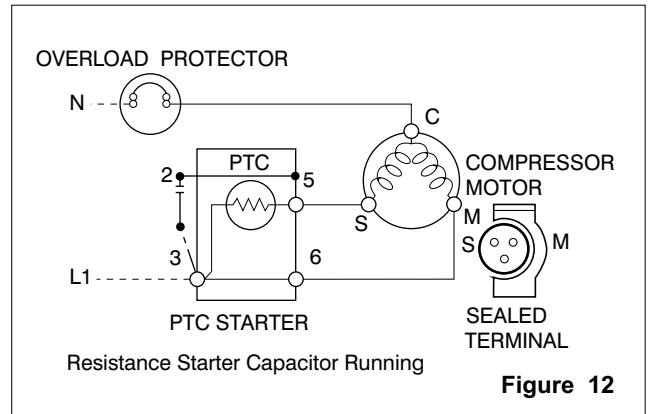
4-2-1 Composition of PTC-Starter

- (1) PTC (Positive Temperature Coefficient) is a no-contact semiconductor starting device which uses ceramic material consisting of BaTiO₃.
- (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. During 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.

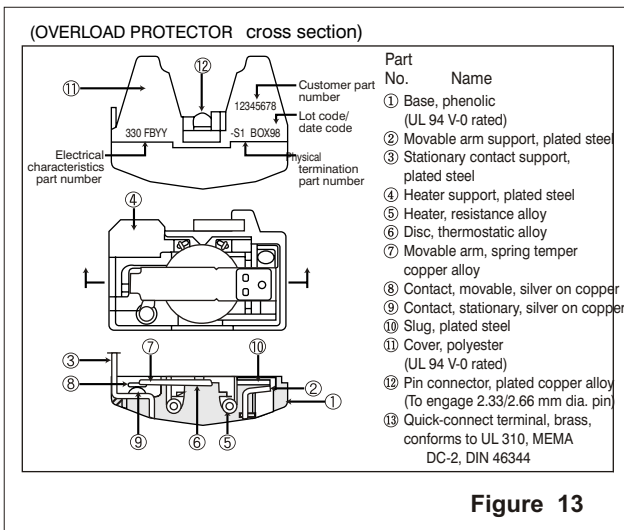
4-3 OLP (OVERLOAD PROTECTOR)

4-3-1 Definition of OLP

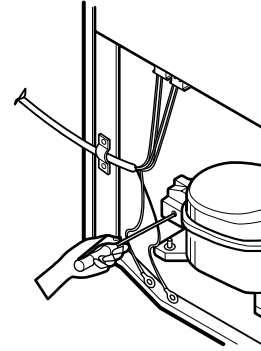
- (1) OLP (OVERLOAD PROTECTOR) is attached to the Compressor and protects the Motor by opening the circuit to the Motor if the temperature rises and activating the bimetal spring in the OLP.
- (2) When high current flows to the Compressor motor, the Bimetal works by heating the heater inside the OLP,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

4-3-2 Role of the OLP

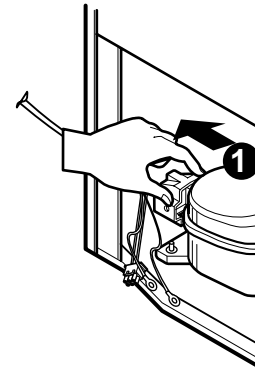
- (1) The OLP is attached to the Sealed Compressor used for the Refrigerator. It prevents the Motor Coil from being started in the Compressor.
- (2) For normal operation of the OLP, do not turn the Adjust Screw of the OLP in any way.



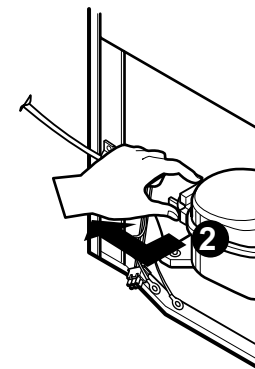
4-4 TO REMOVE THE COVER PTC



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

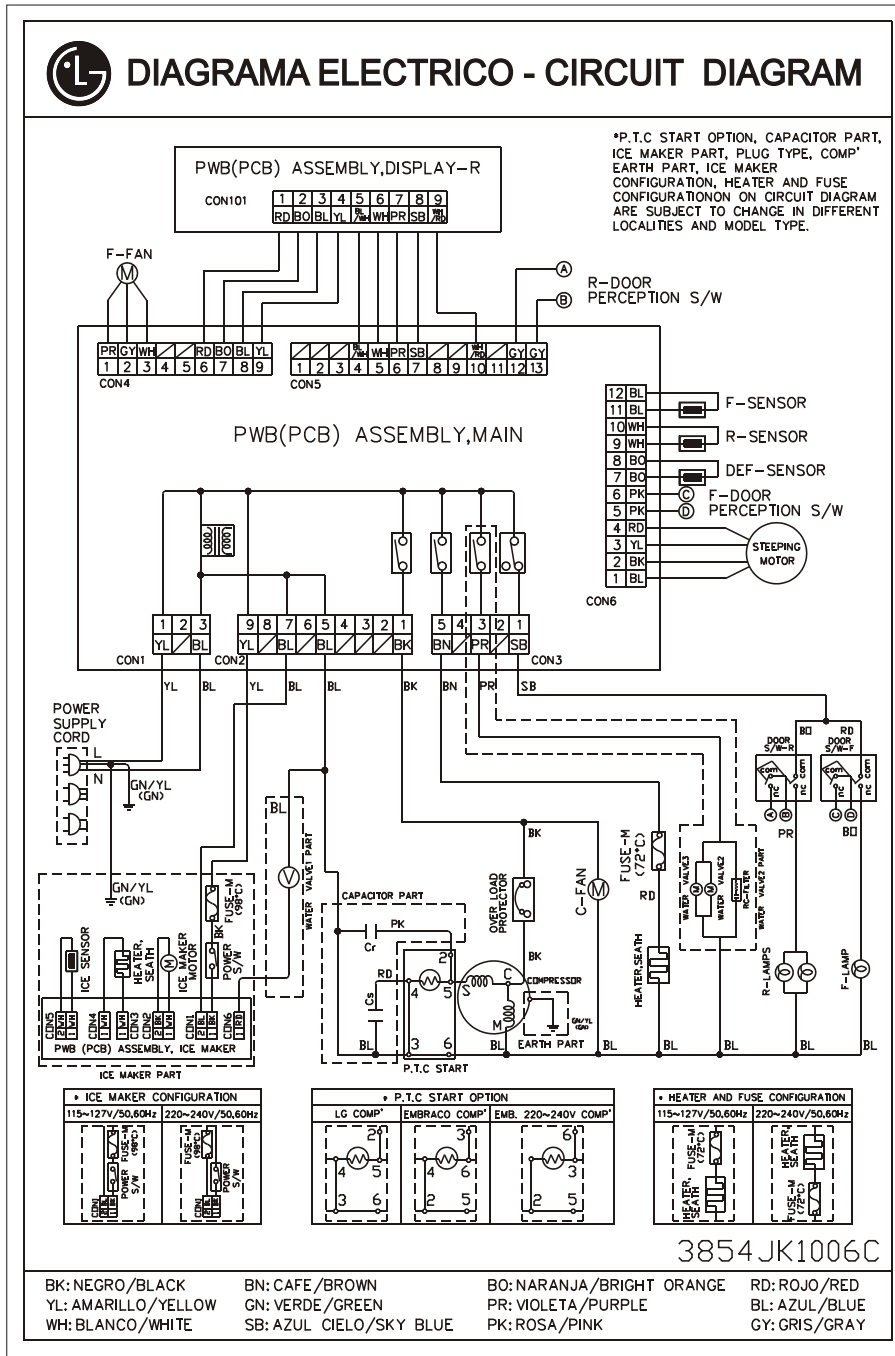


- (3) Remove two Housings on upper part of Cover PTC.
- (4) Take out the cover PTC from upper to lower position like (1).



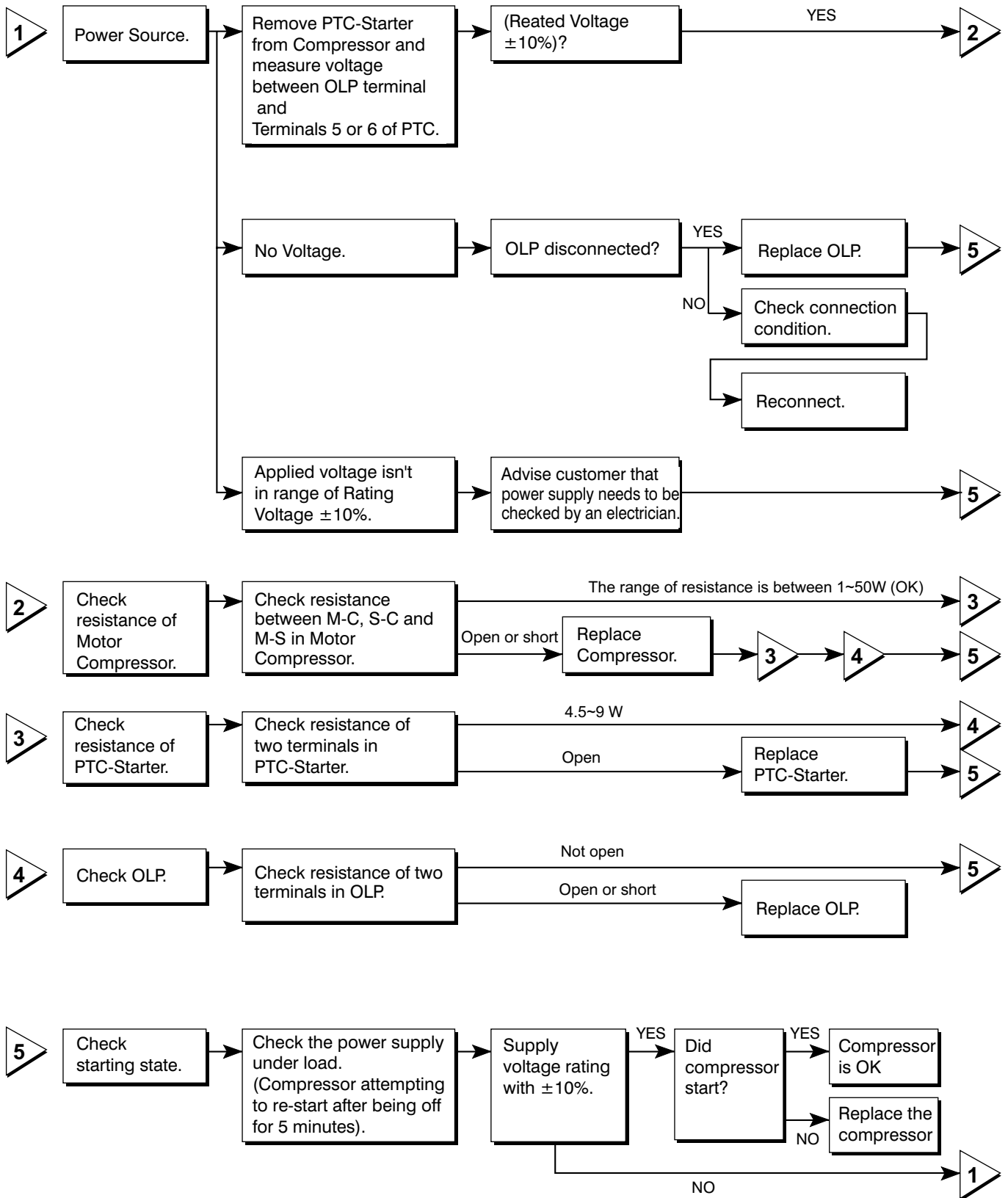
- (5) Turn 45° in the direction of (2) and take it out.
- (6) Assembly in reverse order of disassembly.

5. CIRCUIT DIAGRAM



6. TROUBLESHOOTING

6-1 COMPRESSOR AND ELECTRIC COMPONENTS



6-2 PTC AND OLP

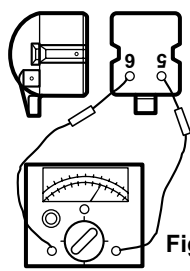
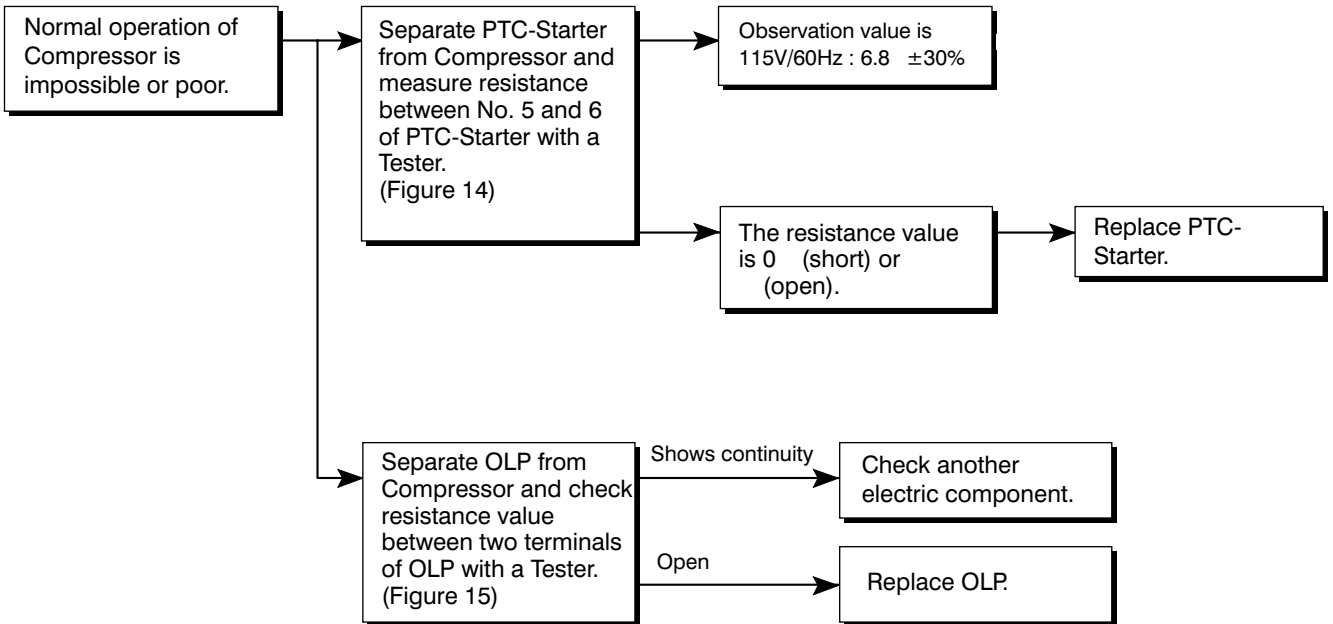


Figure 14

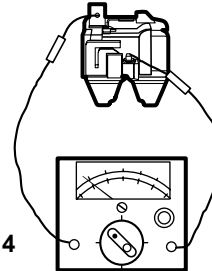
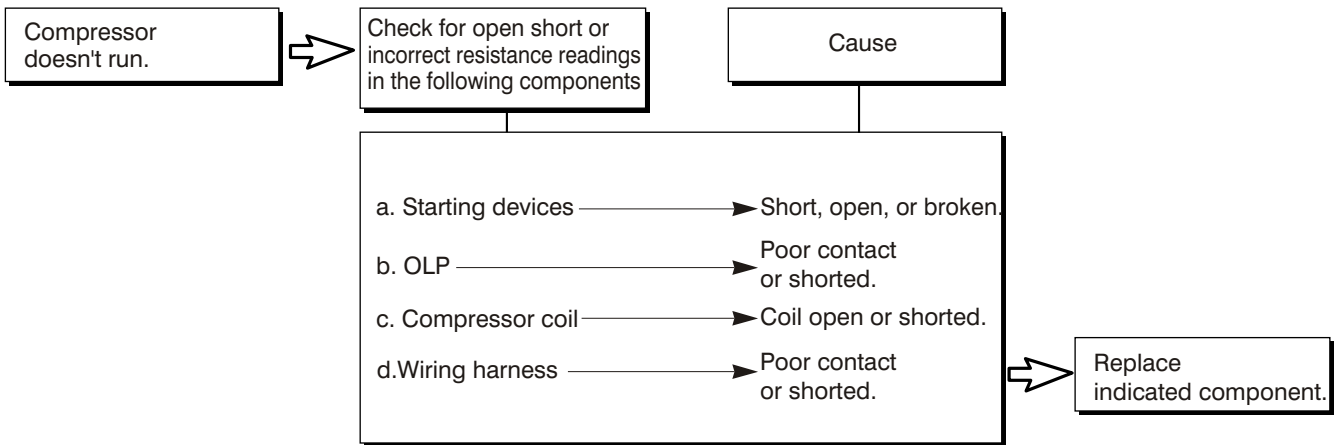


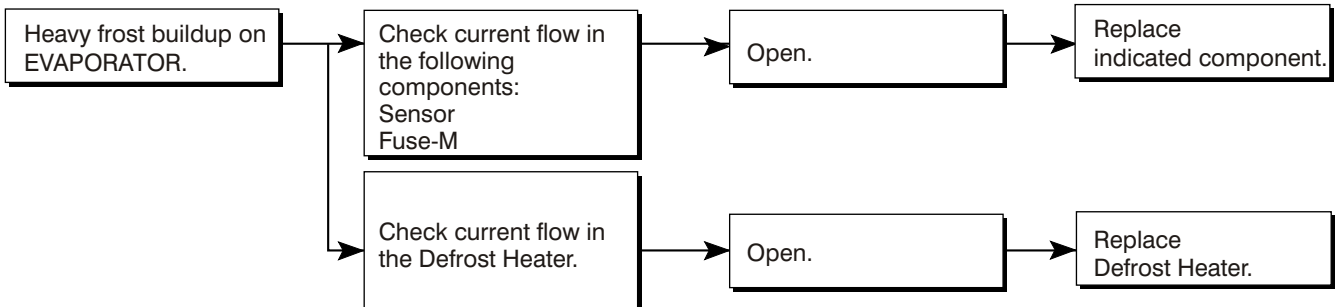
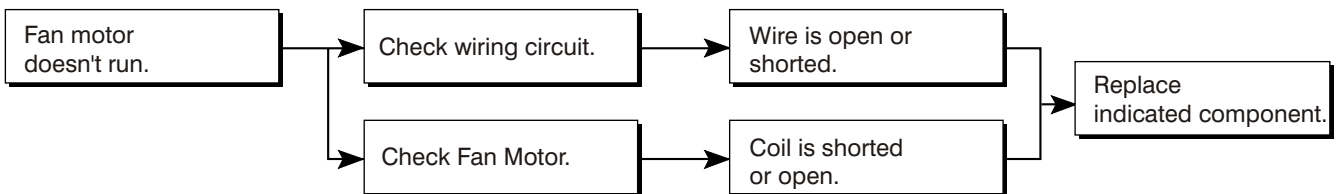
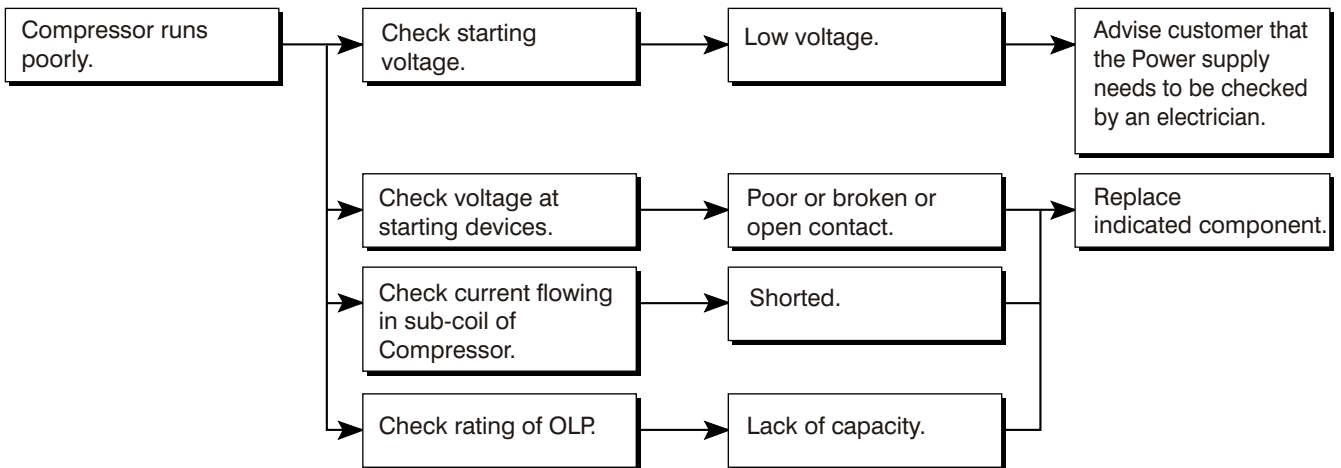
Figure 15

6-3 OTHER ELECTRICAL COMPONENTS

Not cooling at all



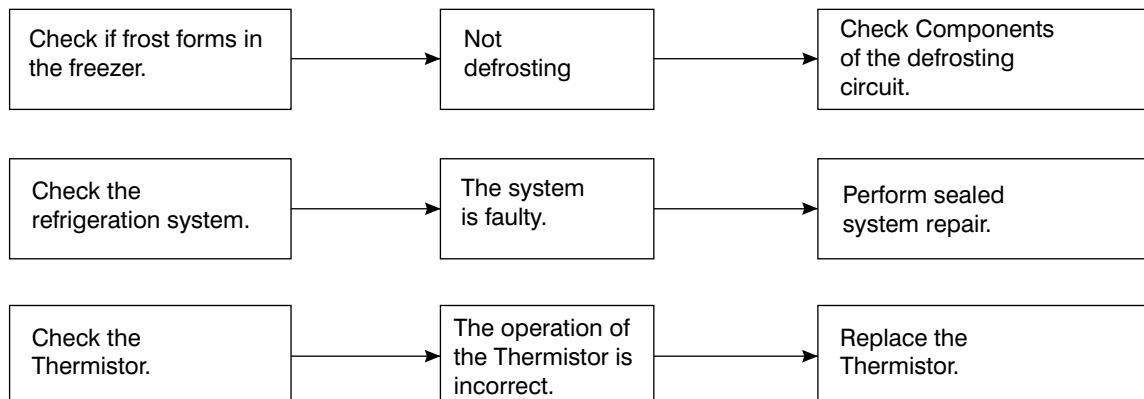
Poor cooling performance



6-4 SERVICE DIAGNOSIS CHART

| COMPLAINT | POINTS TO BE CHECKED | REMEDY |
|--|---|--|
| No Cooling. | <ul style="list-style-type: none"> • 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. |
| Foods in the Refrigerator are frozen. | <ul style="list-style-type: none"> • Is food placed in the cooling air outlet? • Check if the control is set to colder position. • Is the ambient temperature below 41°F(5°C)? | <ul style="list-style-type: none"> • Place foods in the high-temperature section. (front part) • Set the control to Recommended position. • Set the control to Warm position. |
| Condensation or ice forms inside the unit. | <ul style="list-style-type: none"> • Is liquid food sealed? • Check if food put in the refrigerator is hot. • Did you open the door of the unit too often or check if the door is sealed properly? | <ul style="list-style-type: none"> • Seal liquid foods with wrap. • Put in foods after they have cooled down. • Don't open the door too often and close it firmly. |
| Condensation forms in the Exterior Case. | <ul style="list-style-type: none"> • Check if the ambient temperature and humidity of the surrounding air are high. • Is there a gap in the door gasket? | <ul style="list-style-type: none"> • Wipe moisture with a dry cloth. It will disappear in low temperature and humidity. • Fill up the gap. |
| There is abnormal noise. | <ul style="list-style-type: none"> • Is the unit positioned in a firm and even place? • Are any unnecessary objects placed in the back side of the unit? • Check if the Tray Drip is not firmly fixed. • Check if the cover of the compressor enclosure in the front lower 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 Tray Drip 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 the 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:



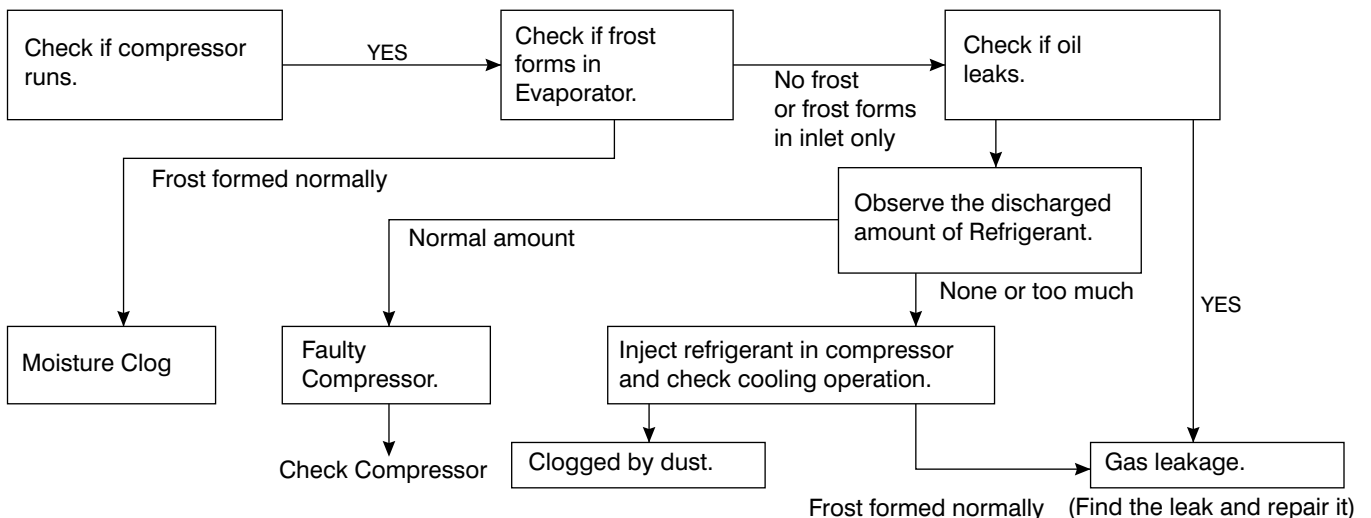
6-5 REFRIGERATION CYCLE

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 | COMPRESSION | 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"> Low pressure at high side of compressor due to low refrigerant level. |
| | NO COMPRESSION | 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. |

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.



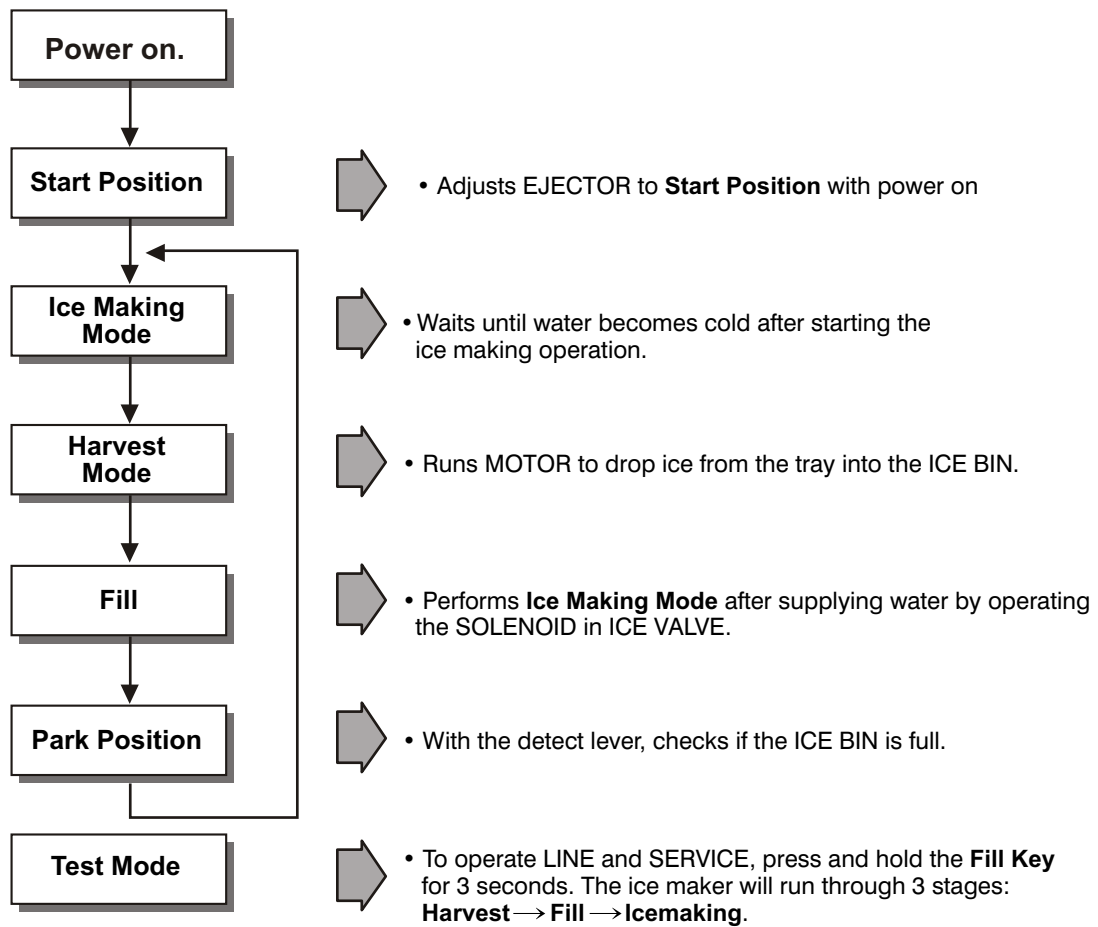
General Control of Refrigerating Cycle

| 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 ₂ pressure: 0.1~0.2 kg/cm ²) | 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 ₂ sealed parts | Confirm N ₂ 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 ₂ 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. | |

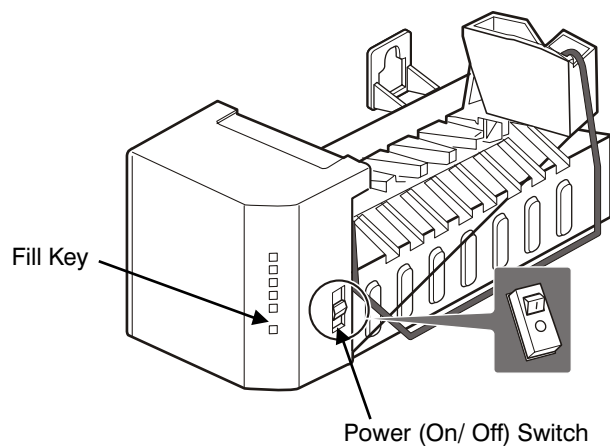
7. OPERATION PRINCIPLE AND REPAIR METHOD OF ICEMAKER

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 ICE MAKER 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 after the heater turns from ON to OFF, it is being initialized. If not, it is not functioning. Repeat Step B with Heater and Motor off.

7-2-2 Ice Making Mode

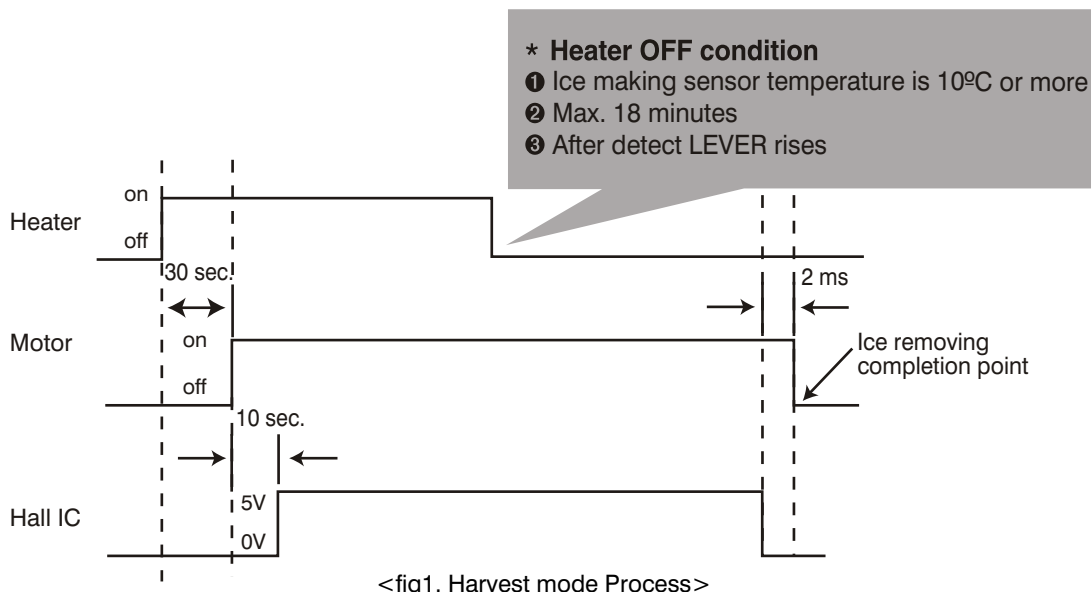
1. Ice Making refers to the freezing of supplied water in the ice trays. Complete freezing is assured by measuring the temperature of the Tray with Ice-Making SENSOR.
2. Ice Making starts after completion of the water fill operation.
3. The Ice Making function is completed when the sensor reaches -7°C , 60 to 240 minutes after starting.
4. If the temperature sensor is defective, the ice-making function will be completed in 4 hours.

NOTE : After Icemaker Power is ON, the Icemaker heater will be on for test for 9 sec.

7-2-3 Harvest Mode

1. Harvest (Ice removing) refers to the operation of dropping cubes into the ice bin from the tray when ice-making has completed.
2. Harvest mode:
 - (1) The Heater is ON for 30 seconds, then the motor starts.
 - (2) After performing Step 1 (the Heater is turned OFF), the Ejector will be back in place within 18 minutes. (Hall SENSOR sign = 0V). Ice removal is then complete. Then the Ice Maker cycles to the Fill Mode. The water supply 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. Once a normal harvest mode has been completed, the water solenoid will be activated.
2. The amount of water is adjusted by pressing the Fill Key repeatedly. This changes the time allowed for fill as illustrated in the table below.






<Water supply amount TABLE>

| STAGE | TIME TO SUPPLY | INDICATIONS | REMARKS |
|-------|----------------|---|--|
| 1 | 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 | 6.5 sec. |  | |
| 3 | 7 sec. |  | |
| 4 | 7.5 sec. |  | |
| 5 | 8 sec. |  | |

7-2-5 Function TEST



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

<Diagnosis TABLE>

| STAGE | ITEMS | INDICATOR | REMARKS |
|-------|--|---|--|
| 1 | HEATER |  | Five seconds after heater starts, heater will go off if temperature recorded by sensor is 10iC or lever is in up position. |
| 2 | MOTOR |  | Five seconds after heater starts, you can confirm that motor is moving. |
| 3 | HALL IC I (detection of position) |  | 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 II (detection of full-filled Ice) |  | 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 | Return to Status prior to TEST MODE | Five seconds after fifth stage is completed, the icemaker resets to 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 |  | Open 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 after Harvest Mode starts. | Check HALL IC/MOTOR/HEATER/RELAY |

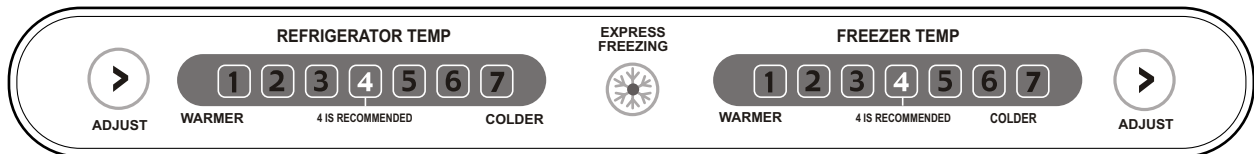
ERROR indicators in table can be checked only in TEST mode.

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 FREEZING, 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 FREEZING.
Normal speed (2200 RPM): general working conditions.
5. Fan motor stops when refrigerator or freezer door opens.

8-1-3 EXPRESS FREEZING

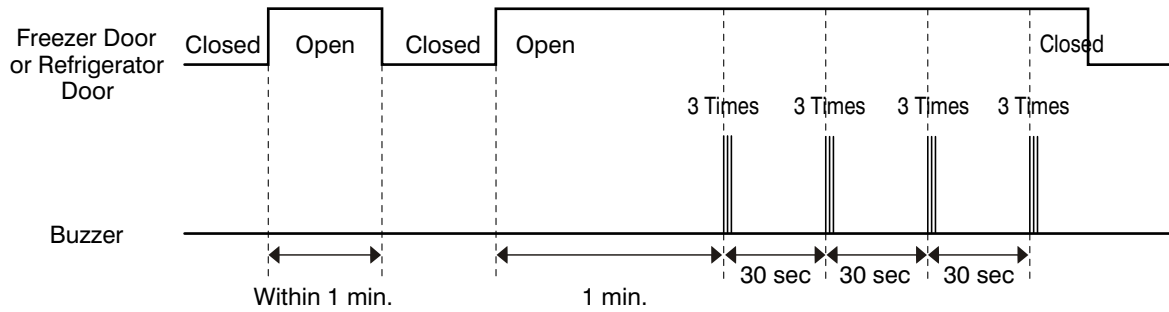
1. The purpose of this function is to intensify the cooling speed of freezer and to increase the amount of ice.
2. Whenever selection switch is pressed, selection/release, the LED will turn ON or OFF.
3. If there is a power cut and the refrigerator is power on again, EXPRESS FREEZING function will be canceled.
4. To activate these function you need to press the EXPRESS FREEZING key and the LED will turn ON. This function will remain activated for 24 hrs. The first three hours the compressor and EXPRESS FREEZING will be ON. The next 21 hours the freezer will be controlled at the lowest temperature. After 24 hours or if the EXPRESS FREEZING 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 FREEZING, EXPRESS FREEZING operates for the rest of time after defrost is completed, when EXPRESS FREEZING operation time is less than 90 minutes.
If EXPRESS FREEZING operates for more than 90 minutes, the EXPRESS FREEZING will operate for two hours after defrost is completed.
 - (3) If EXPRESS FREEZING is pressed during defrost, EXPRESS FREEZING is on but this function will start seven minutes after defrost is completed and it shall operate for three hours.
 - (4) If EXPRESS FREEZING 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 FREEZING.
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 8-2-4 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)

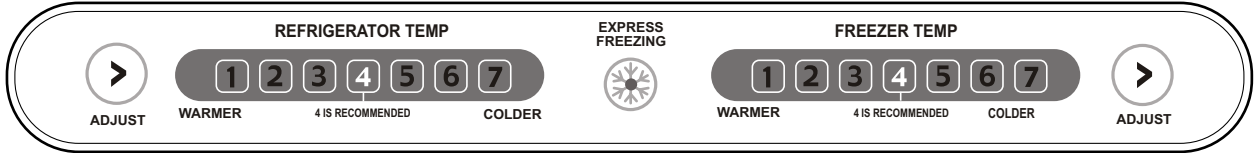
8-1-8 Electrical Parts Are Turned On Sequentially

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

8-1-9 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

● LED OFF LED ON ○

| NO | ITEM | | ERROR CODE | | | | | CONTENTS | REMARKS | | |
|----|---|---------|------------|---|---|---|---|----------|---|--|--|
| | | | | | | | | | | | |
| 1 | Failure of freezer sensor | All off | ● | ○ | ○ | ○ | ○ | ○ | Inspect Connecting wires on each sensor | | |
| 2 | Failure of Refrigerator sensor | All off | ○ | ● | ○ | ○ | ○ | ○ | | | |
| 3 | Failure of defrost sensor | All off | ○ | ○ | ● | ○ | ○ | ○ | | | |
| 4 | Poor of defrost | All off | ● | ● | ● | ● | ○ | ○ | ○ | 2 hours 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) |
| 5 | Failure of BLDC fan motor at freezing compartment | All off | ● | ● | ● | ● | ● | ○ | ○ | If there is no fan motor signal, for more than 65 seg. In operation fan motor. | Poor motor, hocking to wires of fan, contact of structures to fan, snapping or short of lead |

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 FREEZING key and ADJUST key of Freezer Temperature at the same time over 3 seconds. | <ol style="list-style-type: none"> 1. Continuous operation of the COMPRESSOR 2. Continuous operation of the freezer fan 3. STEPPING DAMPER OPEN 4. Defrosting Heater OFF 5. Every DISPLAY LED ON | |
| TEST2 | Push EXPRESS FREEZING key and ADJUST key of Freezer Temperature at the same time over 3 seconds in TEST MODE 1 | <ol style="list-style-type: none"> 1. COMP OFF 2. Freezer FAN OFF 3. STEPPING DAMPER CLOSE 4. Defrosting heater ON 5. DISPLAY LED 1, 3, 5, 7 ON | Reset if the temperature of the Defrosting sensor is 46°F (8°C) or more. |
| Reset | Push EXPRESS FREEZING key and ADJUST 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:

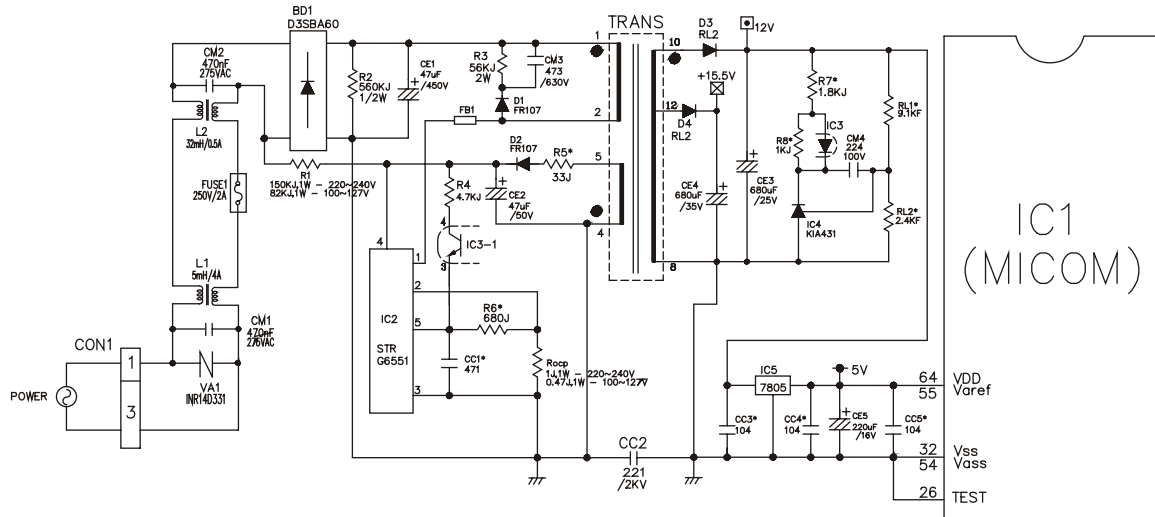
In case the freezer fan is in operation when the ADJUST key in Refrigerator and Freezer Temp. Control are pressed for more than one second at the same time freezer fan RPM changes. (for example if high speed, to normal speed or if normal speed, to high speed for 30 seconds)
After 30 seconds, it turns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

* Demonstration MODE:

1. When the EXPRESS FREEZING key and ADJUST key of refrigerator temperature control are pressed for more than 3 seconds at the same time 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



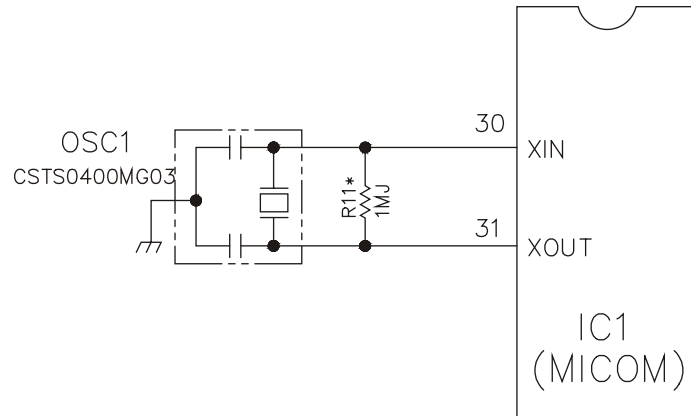
The secondary part of the TRANSFORMER is composed of the power supply for the display, the BLDC FAN Motor drive (15.5 V), the relay drive (12 Vdc) and the MICOM and IC (5 Vdc).

The voltage for each part is as follows:

| PART | VA 1 | CE 3 | CE 4 | CE 5 |
|---------|---------|--------|----------|------|
| VOLTAGE | 115 Vac | 12 Vdc | 15.5 Vdc | 5 V |

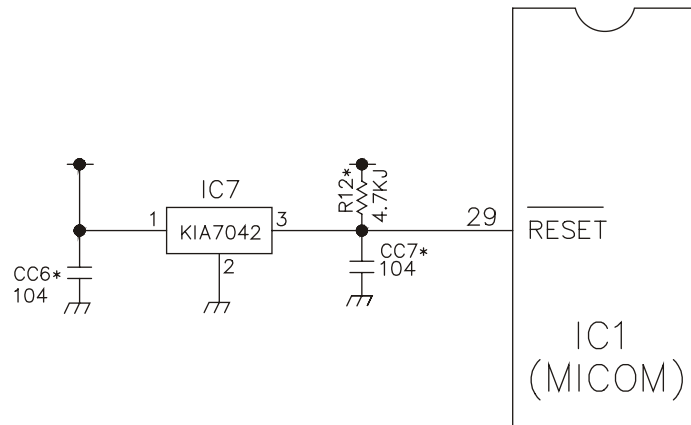
VA1 is a part for preventing over voltage and noise. When 385V or higher power is applied, the inside elements are short-circuited and broken, resulting in blowout of the fuse in order to protect the elements of the secondary part of the TRANSFORMER.

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.

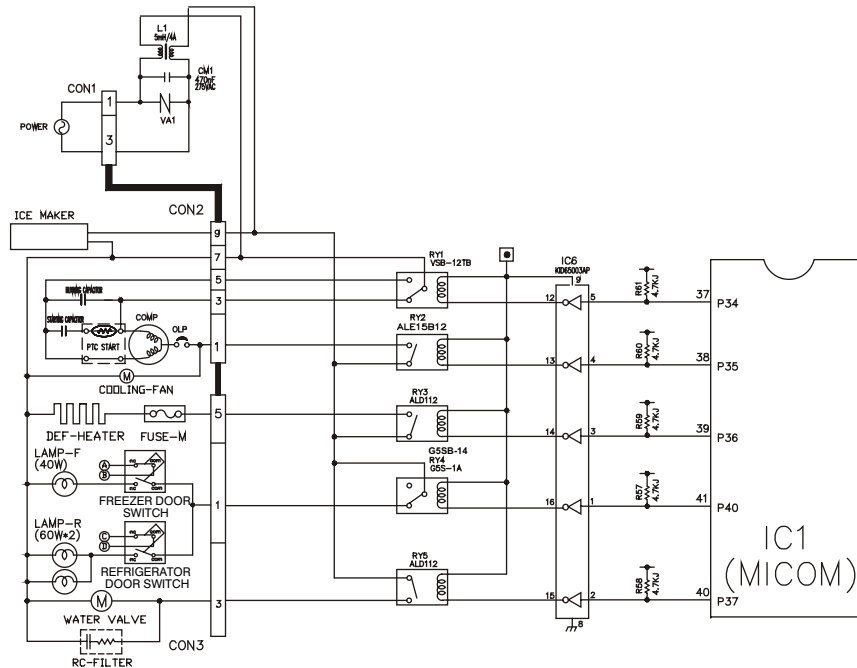
8-2-3 Reset Circuit



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

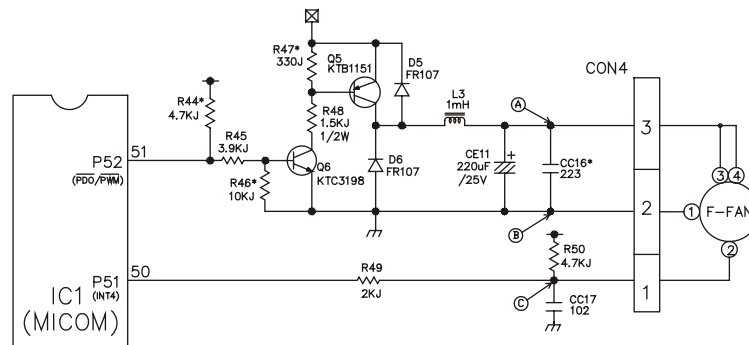


| LOAD TYPE | | COMP | DEFROSTING HEATER | LAMP | TCM POWER MODE (OPTIONAL) | VALVE (DISPENSER MDL) |
|----------------------------|-----|-------------|-------------------|-------|---------------------------|-----------------------|
| Measurement Location (IC6) | | NO.13 | NO.14 | NO.16 | NO.12 | NO.15 |
| Condition | ON | 1V or below | | | | |
| | OFF | 12V | | | | |

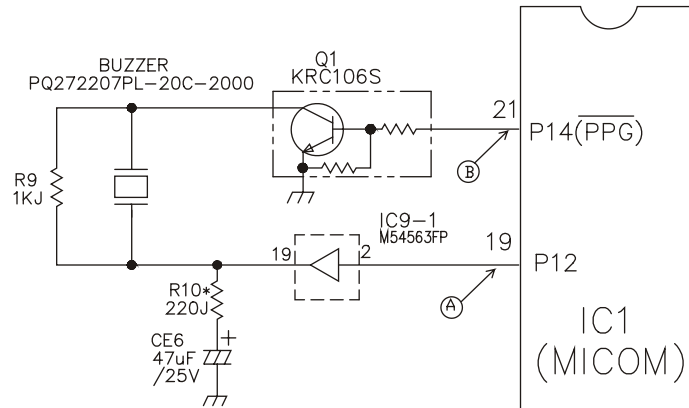
2. Fan motor driving circuit (freezing compartment fan)

1. This circuit makes standby power 0 by cutting off power supplied to ISs inside of the fan motor in the fan motor OFF.
2. This is a circuit to perform a temporary change of speed for the fan motor and applies DC voltage up to 7.5V ~ 16V to motor.
3. This circuit prevents over-driving the fan motor by cutting off power applied to the fan motor in the lock of fan motor by sensing the operation RPM of the fan motor.

| | Ⓐ part | Ⓑ part | Ⓒ part |
|-----------|------------|--------|--------|
| MOTOR OFF | 2V or less | 0V | 5V |
| MOTOR ON | 13V~15V | 0V | 2V~3V |

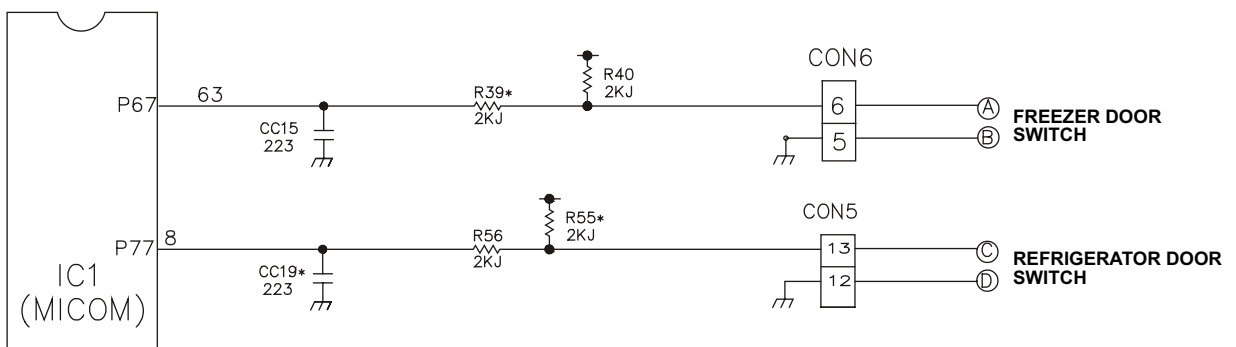


3. Buzzer Drive Condition Check



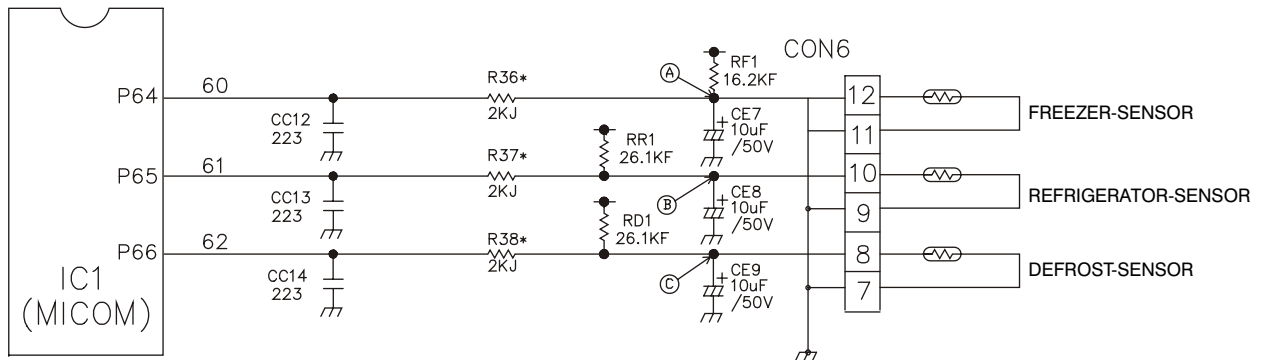
| Condition Measurement Location | Tone (Ding~Dong~) when the button on the display is pushed. | Alarm for open door (beep-beep-beep) | OFF |
|-----------------------------------|---|--------------------------------------|-----|
| IC1 (A) | | | 0 V |
| IC1 (B) | | | 0 V |

4. Open Door Detection Circuit Check



| Measurement Location Freezer/ Refrigerator Door | (PIN NO.63 & PIN NO.8) |
|---|------------------------|
| Closed | 5 V |
| Open | 0 V |

8-2-5 Temperature Sensor Circuit

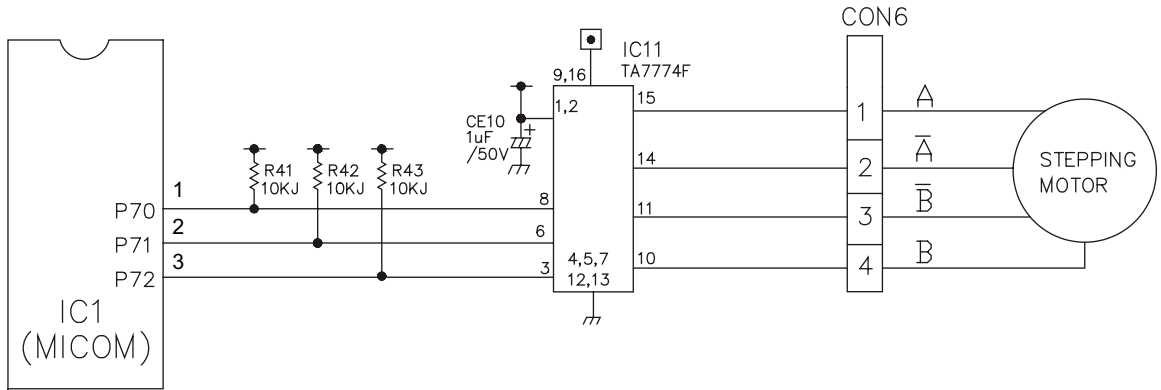


The upper CIRCUIT reads REFRIGERATOR temperature, FREEZER Temperature, and DEFROST-SENSOR temperature for defrosting and the indoor temperature for compensating for the surrounding temperature into MICOM. OPENING or SHORT state of each TEMPERATURE SENSOR are as follows:

| 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 | | | |

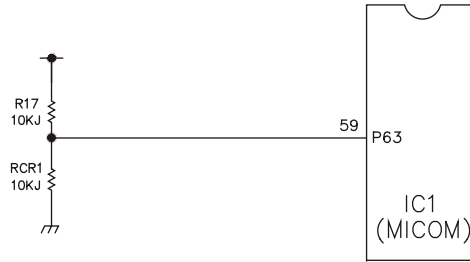
8-2-6 Refrigeration Compartment Stepping Motor Damper Circuit

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



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

1. Refrigerator Temperature Compensation



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

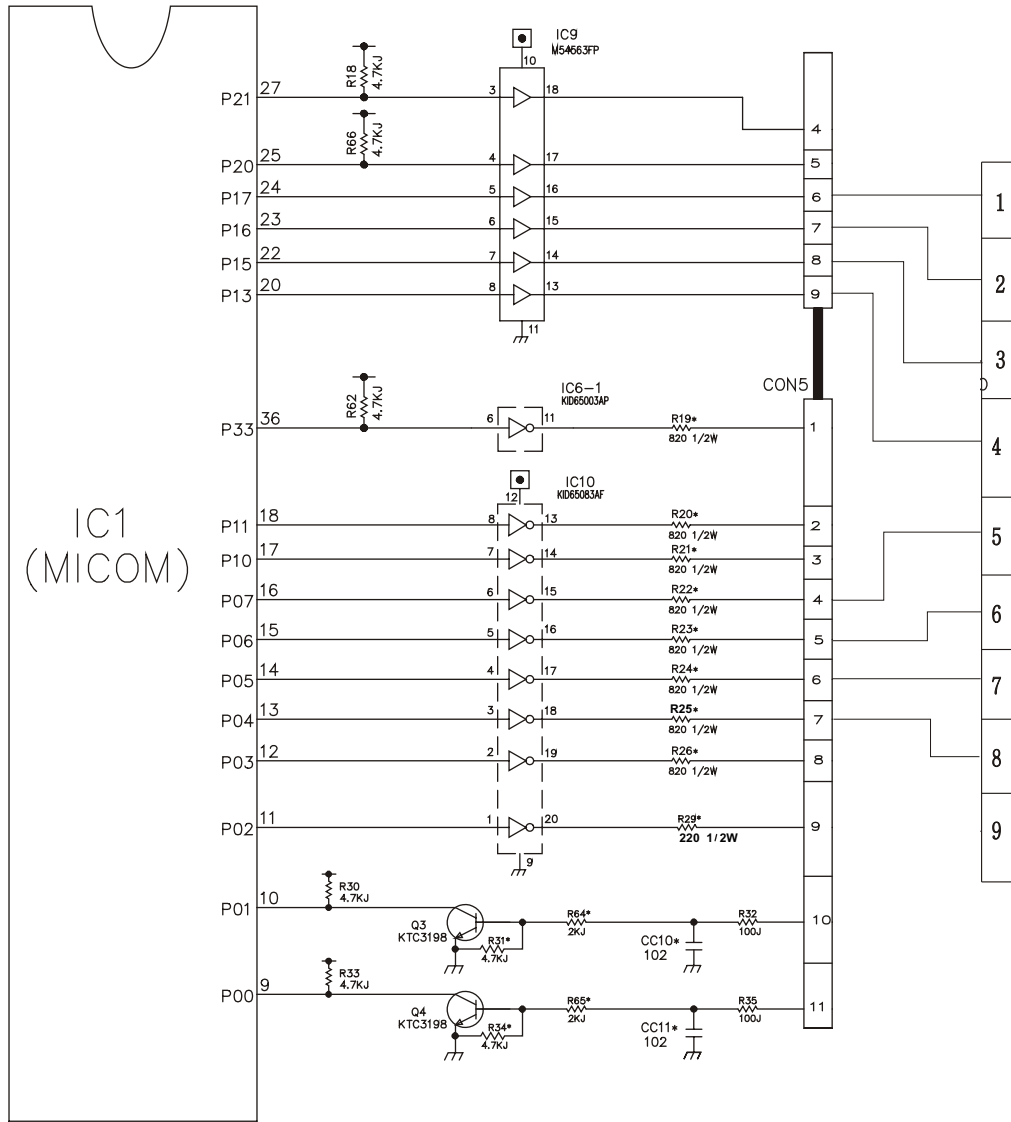
2. The temperature compensation for refrigerator compartment is in the following table:

| | Revised resistance / Present resistance | 470 | 2k | 3.3k | 5.6k | 8.2k | 10k | 12k | 18k | 33k | 56k | 180k |
|------|---|--------------------|------------|------------|------------|------------|------------|------------|------------|------------|-----------|----------|
| | | Refrigerator (RCR) | 470 | 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 |
| 2k | 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 |
| 3.3k | 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 |
| 5.6k | 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 |
| 8.2k | 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 |
| 10k | 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 |
| 12k | 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 |
| 18k | 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 |
| 33k | 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 |
| 56k | 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 |
| 180k | 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 | |

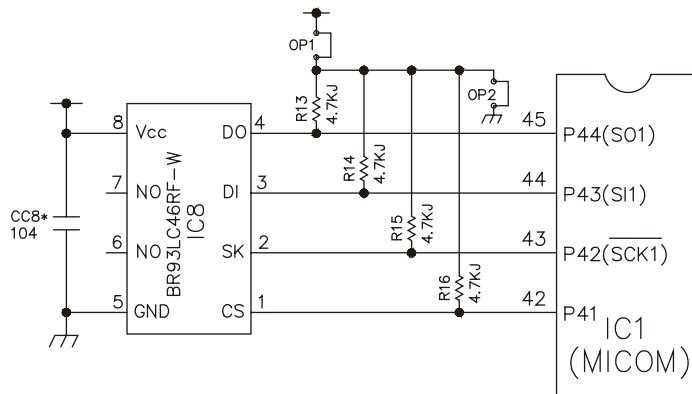
NOTE: This circuit is designed to input the necessary temperature compensation values into the MICOM. This adjusts the refrigerator temperature, which is different in each model.

8-2-9 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 (LED Module) SEVEN SEGMENT DISPLAY (SEVEN SEGMENT DISPLAY MODULE). The drive type is the scan type



8-2-10 Power Failure Compensation Circuit (DISPENSER MODEL)



8-3 RESISTANCE SEPECIFICATION OF SENSOR

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

- 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.

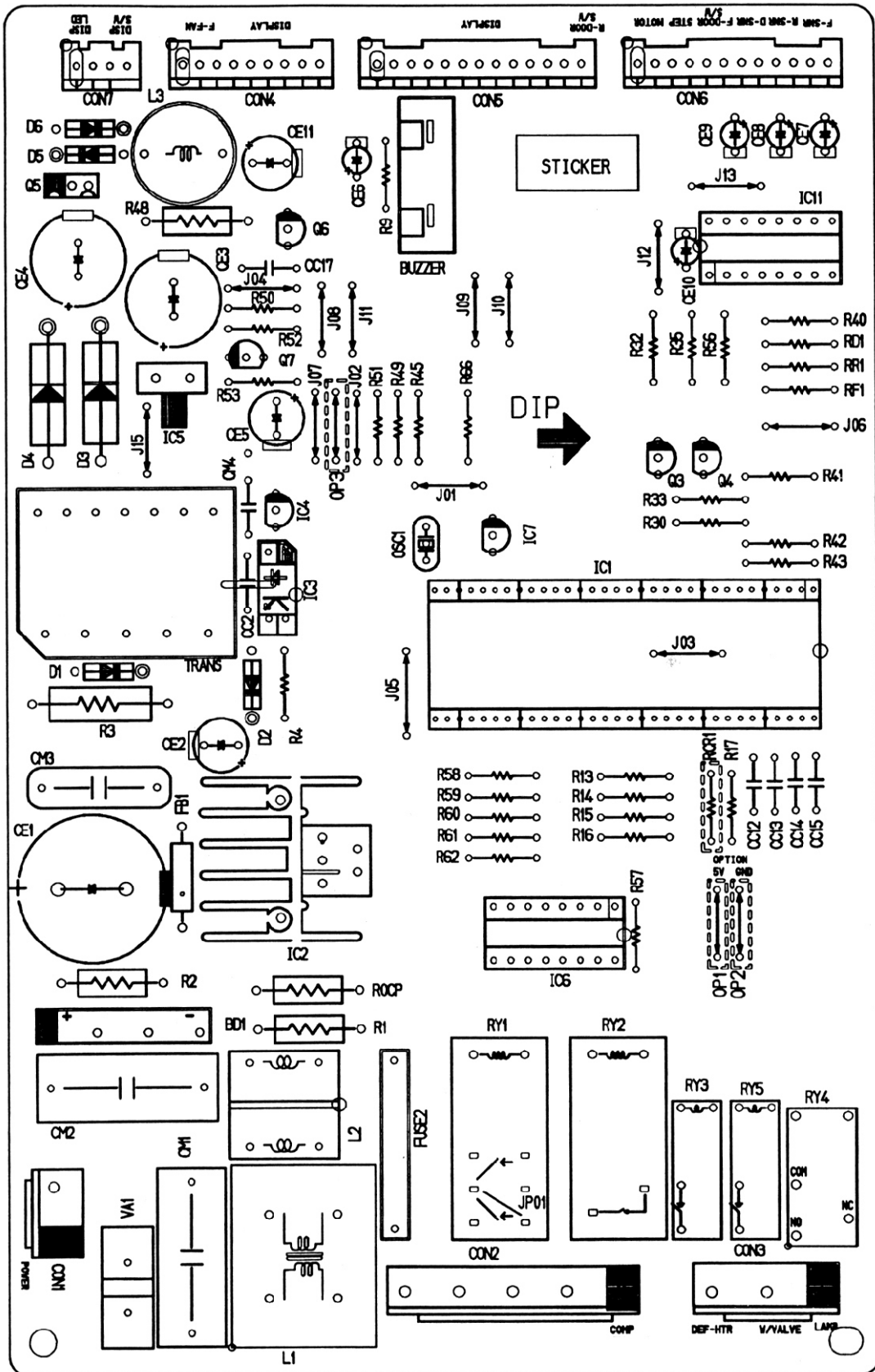
8-4 TROUBLESHOOTING

| PROBLEM | INDICATED BY | CHECK | CHECKING METHOD | CAUSE | SOLUTION | |
|----------------------------------|---|---|--|---|---|--|
| POWER SOURCE is poor. | 1. The whole DISPLAY LED/SEVEN SEGMENT DISPLAY's off. 2. DISPLAY LED/SEVEN SEGMENT DISPLAY operates abnormally | 1. FREEZER/REFRIGERATOR. 2. If LAMP is dim. 3. The connection of the MAIN PWB CONNECTOR. | Check if FREEZER/REFRIGERATOR DOOR IS OPEN and check display. Check visually. Check connection of CONNECTOR. | POWER SOURCE is poor. Applied voltage error. CONNECTOR connection is poor. TRANS FUSE is open. | Check outlet Voltage. Use boosting TRANS. Reconnect CONNECTOR Replace TRANS. | |
| | | | | | | |
| COOLING is poor. | NO COOLING. | 1. If the COMPRESSOR operate. 2. If refrigerant is leaking. | USE TEST MODE1 (forced COOLING). If less than 7 minutes pass after compressor shuts off, don't press the KEY and wait. Measure the amount of frost sticking on EVAPORATOR and the surface temperature of the condenser pipe. | COMPRESSOR locked or blocked. OLP, PTC is poor. COMPRESSOR RELAY is poor. THE CONNECTING WIRE is poor. Refrigerant leakage. | Replace COMPRESSOR. Replace OLP, PTC. Replace MAIN PWB. Check the connection of the black wire of the MAIN PWB CONNECTOR (CON2). Replace the leaking part and replace any lost refrigerant. | |
| | | | | | | |
| FREEZER TEMPERATURE is incorrect | 1. If FANMOTOR operates. USE TEST MODE1 (forced COOLING). | 1. If FANMOTOR operates. 2. If DEFROSTING is normal. 3. If SENSOR is normal. 4. Door Line contact. | USE TEST MODE1 (forced COOLING). Check the amount of frost sticking on the EVAPORATOR. Check the resistance of the Refrigerator SENSOR. Check the seal when the door is closed. | FAN MOTOR is poor. CONNECTING WIRE is poor. DEFROSTING is poor. SENSOR RESISTANCE is poor. Door liner damaged. | Replace the FAN MOTOR. Certify the MOTOR and the connection of the black wire of the MAIN PWB CONNECTOR (CON2). See DEFROSTING is poor. Replace SENSOR. 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 too low. Make sure that the amount and speed of cool air are sufficient by touching the check supplied on the REFRIGERATOR. | FAN MOTOR is poor. | Make sure the DOOR is attached. Replace FAN MOTOR. |
| | | 2. If amount of cool air from FAN MOTOR is sufficient. | | Passage of cool air is blocked. EVA frozen. | Remove impurities. See DEFROSTING is poor . |
| | | 3. Door Line contact. | | 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. | Replace DEFROST-SENSOR. |
| | | | | HEATER RELAY is poor. | Replace RY3 of MAIN PWB. |
| | | | | DRAIN PIPE is blocked. | 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. | Reassemble the DEFROST-SENSOR. |
| | | | | DOOR does not close properly. | Reassemble DOOR. |
| | | | | | Replace GASKET. |

8-5 MAIN PWB ASSEMBLY AND PARTS LIST

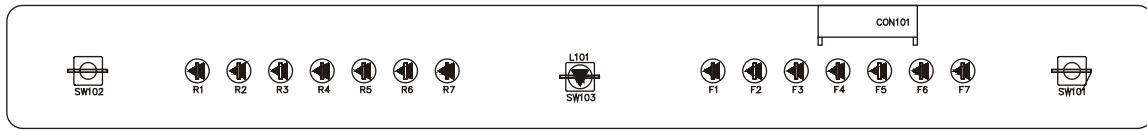
8-5-1 Main PWB Assembly



8-5-2 Replacement Parts List

| No | P/N/O | DESCRIPTION | SPEC | MAKER | REMARK |
|-----|--------------|---|--|-----------------|---------------------------------|
| 1 | 6670_BB087D | PMB(PCB) | KS-PJT BEST | DOO SAN | T-1,6 |
| 2 | 6170_LB2012A | TRANSFORMER, SMPS COIL 1 | KS-PJT 220-240V | SAM IL | TRANS |
| 3 | 6170_LB2012B | TRANSFORMER, SMPS COIL 1 | KS-PJT 100-127V | SAM IL | TRANS |
| 4 | 6630A09106A | CONNECTOR (ICIRC1), WAFER | YK36-03AV | YEON HO | CON2 |
| 5 | 6630A09106B | CONNECTOR (ICIRC1), WAFER | YK396 YEONHO 9P 3.96MM AV | YEON HO | CON2 |
| 6 | 6630A09106H | CONNECTOR (ICIRC1), WAFER | YK396 YEONHO 9P 3.96MM AV | YEON HO | CON3 |
| 7 | 6630_BB007H | CONNECTOR (ICIRC1), WAFER | 917787-1 AMP 9P 2.5MM STRAIGHT SN | AMP | CON4 |
| 8 | 6630_BB007A | CONNECTOR (ICIRC1), WAFER | 917791-1 AMP 13PIN 2.5MM STRAIGHT SN | AMP | CON5 |
| 9 | 6630_BB007L | CONNECTOR (ICIRC1), WAFER | 917790-1 AMP 12P 2.5MM STRAIGHT SN | AMP | CON6 |
| 10 | 6630_BB007C | CONNECTOR (ICIRC1), WAFER | 917782-1 AMP 4P 2.5MM STRAIGHT SN | AMP | CON7 |
| 11 | 01SK655100A | IC, SANKEN | STR-6551 5PIN BK SMPS 2,4PIN FORM | SANKEN | IC2 |
| 12 | 01ZZ_B20240 | IC, DRAWING | TMF870K40AN 64PIN, SDIP BK KS-PJT MASK 1 | TOSHIBA | IC11-01ZZ_B2024R1 |
| 13 | | | | | |
| 14 | 01PM6NE001A | IC, TOSHIBA | 1TL727F 4P BK PHOTO COUPLER | TOSHIBA | IC3 |
| 15 | 01KE431000A | IC, KEC | K1A43L 3 PIN TP - - | KEC | IC4 |
| 16 | 01KE780500W | IC, KEC | K1A7805P1 - - - | KEC | IC5 |
| 17 | 01KE650830B | IC, KEC | K1D6508AE 2050P LED DRIVER | KEC | IC10 |
| 18 | 01KE650030B | IC, KEC | K1D65003AP 16P SDIP BK DRIVE | KEC | IC6 |
| 19 | 01STLM001A | IC, STANDARD LOGIC | M54563P 20 R/TIP CONVERT | MITSUBISHI | IC9 |
| 20 | 01KE704200A | IC, KEC | K1A7042P 3P BK RESET | KEC | IC7 |
| 21 | 01U1774400A | IC, TOSHIBA | 1A7744AP 16, SDIP BK DRIVE IC STEPPING M | TOSHIBA | IC8 |
| 22 | 01R4934600D | IC, ROHM | R49346GF W SPAN SOP BK EEPROM - | ROHM | IC9 |
| 23 | 692000001A | RELAY | AL1E5B12 MATSUHITA 12V 16A 15.6V 1A | NAIS | RY2 |
| 24 | 6920AL2001A | RELAY | AL212B12 NAIS 250VAC 16A 12VDC IC NO VENTING | NAIS | - |
| 25 | 6920_B2005B | RELAY | G58B-14 250VAC 5A 12VDC IC | OMRON | RY4 |
| 26 | 6920_B2007A | RELAY | V58-121B TAKAMISAWA DC12V 60MA 250V IC | FUJITSU | RY1 |
| 27 | 6920A90002A | RELAY | ALD112 NAIS1(TKHLAND) 250V-3A 12V 16.6mA 1A | NAIS | RY3 |
| 28 | 6212_BB001B | RESONATOR, CERAMIC | CST50400M03 MURATA 4MHZ TP | MURATA | RY5 |
| 29 | 6102_BB003A | VARIABLE | INR14D271 ILJIN UL/VDE TP 270V | ILJIN | OSC1 |
| 30 | 6102_BB001B | VARIABLE | INR14D251 ILJIN UL/VDE BK 620V | ILJIN | VA1 |
| 31 | 00R1070094A | DIODE, RECTIFIERS | FRI07 TP DELTA D041 1000V 1A 3 | DELTA | DI_02, D5, D6 |
| 32 | 00RS400070A | DIODE, RECTIFIERS | R1.2 SANKEN BK NON 400V 2A 40A 50NSEC 10UA | SANKEN | D3, D4 |
| 33 | 00B360000AA | DIODE, RECTIFIERS | D3BAG60 BK SHINDENGEN 600V 4A | SHINDENGEN | BD1 |
| 34 | 6102W5V006A | VARIABLE | INR14D31K ILJIN UL/CSA/VDE BK | ILJIN | VA1 |
| 35 | 0CE476ZV6E0 | CAPACITOR, FIXED ELECTROLYTIC | 47UF HE 450V 20% BULK SNAP INT105*1 | SAM WHA | CE1 |
| 36 | 0CE476BK63B | CAPACITOR, FIXED ELECTROLYTIC | 47UF KME TYPE 50V 20% FMS TP 5 (1105*1) | SAM WHA | CE2 |
| 37 | 0CE1076F63B | CAPACITOR, FIXED ELECTROLYTIC | 100UF SMS, S6 25V 20% FMS TP 5 | SAM WHA | CE12 |
| 38 | 0CE687H4E60 | CAPACITOR, FIXED ELECTROLYTIC | 680UF RK 250V 20% BULK SNAP INT105*1 | SAM WHA | CE3 |
| 39 | 0CE687YJ61B | CAPACITOR, FIXED ELECTROLYTIC | 680UF RK 35V 0.2 TP 5 FL1105*1 | SAM WHA | CE4 |
| 40 | 0CE227B6F63B | CAPACITOR, FIXED ELECTROLYTIC | 220UF KME TYPE 16V 20% FMS TP 5(1105*1) | SAM WHA | CE5 |
| 41 | 0CE227H6F63B | CAPACITOR, FIXED ELECTROLYTIC | 220UF RS TYPE 25V 20% FMS TP 5(1105*1) | SAM WHA | CE11 |
| 42 | 0CE105BK63B | CAPACITOR, FIXED ELECTROLYTIC | 10UF KME TYPE 50V 20% FMS TP 5(1105*1) | SAM WHA | CE10 |
| 43 | 0CE476BK63B | CAPACITOR, FIXED ELECTROLYTIC | 47UF KME TYPE 25V 20% FMS TP 5(1105*1) | SAM WHA | CE6 |
| 44 | 0CE106EK63B | CAPACITOR, FIXED ELECTROLYTIC | 10UF KMG 50V 20% FMS TP 5(1105*1) | SAM WHA | CE7-CE9 |
| 45 | 00H1471K562 | CAPACITOR, FIXED CERAMIC(HIGH DIELECTRIC) | 470PF 50V K X7R1X1 1608 R/TP | MURATA | CC1 |
| 46 | 00X2210R61A | CAPACITOR, FIXED CERAMIC(HIGH DIELECTRIC) | 250PF D 250V 10% -10% B1V5P1 R/TP | SAM WHA | CC2 |
| 47 | 00X104K94A | CAPACITOR, FIXED CERAMIC(HIGH DIELECTRIC) | 100NF 2012 50V R/TP (GRM40X7R104K50PE) | MURATA | CC3-CC7 |
| 48 | 00X102K959 | CAPACITOR, FIXED CERAMIC(HIGH DIELECTRIC) | 1000PF 50V K B T AS2 | MURATA | CC7 |
| 49 | 00X2230K96A | CAPACITOR, FIXED CERAMIC(HIGH DIELECTRIC) | 22NF 2012 50V 80%, -20% R/TP X7R | MURATA | CC16, CC18, CC19 |
| 50 | 00X2230K949 | CAPACITOR, FIXED CERAMIC(HIGH DIELECTRIC) | 22NF 50V Z F T AS2 | MURATA | CC12-CC15 |
| 51 | 00X102K96A | CAPACITOR, FIXED CERAMIC(HIGH DIELECTRIC) | 1NF 2012 50V 80%, -20% R/TP X7R | MURATA | CC10 |
| 52 | 00C4741B670 | CAPACITOR, FIXED FILM | 0.47UF D 275V M M/PP NI R | PILKOR | CM1, CM2 |
| 53 | 00F2240B670 | CAPACITOR, FIXED FILM | 220NF D 275V 20% BULK M/PP NI | PILKOR | |
| 54 | 00A47321430 | CAPACITOR, FIXED FILM | 47000PF S 630V J M/PE NI R | SAM WHA | CM3 |
| 55 | 00C2241N630 | CAPACITOR, FIXED FILM | 0.22UF D 100V M M/PE NI R | SAM WHA | CM4 |
| 56 | 00C2231N409 | CAPACITOR, POLYESTER | 0.022UF D 100V J PE TP | SAM WHA | CM5 |
| 57 | 0R_2200H672 | RESISTOR, METAL GLAZED(CHIP) | 220 OHM 1/2 W 5%, 2012 R/TP | SMART, CHOHYANG | R29 |
| 58 | 0RS1503J609 | RESISTOR, FIXED METAL OXIDE FILM | 150K OHM 1W 5.00% T AS2 | SMART, CHOHYANG | R1 |
| 59 | 0RS8202609 | RESISTOR, FIXED METAL OXIDE FILM | 82K OHM 1W 5.00% T AS2 | SMART, CHOHYANG | R1 |
| 60 | 0RS0101J609 | RESISTOR, FIXED METAL OXIDE FILM | 1 OHM 1 W 5.00% T AS2 | SMART, CHOHYANG | ROCP |
| 61 | 0RS0470J609 | RESISTOR, FIXED METAL OXIDE FILM | 0.47 OHM 1 W 5% T AS2 | SMART, CHOHYANG | ROCP |
| 62 | 0RS5502K641 | RESISTOR, FIXED METAL OXIDE FILM | 55K OHM 2 W 5.00% T AS2 | SMART, CHOHYANG | R3 |
| 63 | 0R_8200H672 | RESISTOR, METAL GLAZED(CHIP) | 820 OHM 1/2 W 5%, 2012 R/TP | SMART, CHOHYANG | R19-R26 |
| 64 | 0RD501H609 | RESISTOR, FIXED CARBON FILM | 500K OHM 1/2 W 5.00% T AS2 | SMART, CHOHYANG | R19 |
| 65 | 0RD1501H609 | RESISTOR, FIXED CARBON FILM | 1.5K OHM 1/2 W 5.00% T AS2 | SMART, CHOHYANG | R48 |
| 66 | 0RD1000G609 | RESISTOR, FIXED CARBON FILM | 100 OHM 1/4 W 5.00% T AS2 | SMART, CHOHYANG | R32 |
| 67 | 0R_2200L622 | RESISTOR, METAL GLAZED(CHIP) | 220 OHM 1/8 W 2012 5.00% D | ROHM | R10 |
| 68 | 0RH4701L622 | RESISTOR, METAL GLAZED(CHIP) | 4.7K OHM 1/8 W 2012 5.00% D | ROHM | R12, R44, R31, R18 |
| 69 | 0RH1002L622 | RESISTOR, METAL GLAZED(CHIP) | 10K OHM 1/8 W 2012 5.00% D | ROHM | R34 |
| 70 | 0R_0332E672 | RESISTOR, FIXED CARBON FILM | 33 OHM 1/8 W 5%, 2012 R/TP | ROHM | R46 |
| 71 | 0RD1001G609 | RESISTOR, FIXED CARBON FILM | 1K OHM 1/4 W 5.00% T AS2 | SMART, CHOHYANG | R5 |
| 72 | 0RH1001L622 | RESISTOR, METAL GLAZED(CHIP) | 1K OHM 1/8 W 2012 5.00% D | ROHM | R8 |
| 73 | 0R_2001L622 | RESISTOR, METAL GLAZED(CHIP) | 2K OHM 1/8 W 2012 5.00% D | ROHM | R55, R64, R36-R39 |
| 74 | 0RD2001G609 | RESISTOR, FIXED CARBON FILM | 2K OHM 1/4 W 5.00% T AS2 | SMART, CHOHYANG | R40, R49, R51, R52, R56 |
| 75 | 0R_3300L622 | RESISTOR, METAL GLAZED(CHIP) | 330 OHM 1/8 W 2012 5.00% D | ROHM | R47 |
| 76 | 0RH1004L622 | RESISTOR, METAL GLAZED(CHIP) | 1M OHM 1/8 W 2012 5.00% D | ROHM | R11 |
| 77 | 0RN6226409 | RESISTOR, FIXED CARBON FILM | 16.2K OHM 1/4 W 1.00% T AS2 | SMART, CHOHYANG | RF1 |
| 78 | 0RN26126409 | RESISTOR, FIXED CARBON FILM | 26.1K OHM 1/4 W 1.00% T AS2 | SMART, CHOHYANG | RF1, RF1 |
| 79 | 0RD3501G609 | RESISTOR, FIXED CARBON FILM | 3.5K OHM 1/4 W 5.00% T AS2 | SMART, CHOHYANG | R45 |
| 80 | 0RD4701G609 | RESISTOR, FIXED CARBON FILM | 4.7K OHM 1/4 W 5.00% T AS2 | SMART, CHOHYANG | R4, R30, R33, R50, R57-R62, R66 |
| 81 | 0R_6800E672 | RESISTOR, METAL GLAZED(CHIP) | 680 OHM 1/8 W 5%, 2012 R/TP | ROHM | R13-R16, R53 |
| 82 | 0RD1002G609 | RESISTOR, FIXED CARBON FILM | 10K OHM 1/4 W 5.00% T AS2 | SMART, CHOHYANG | R6 |
| 83 | 0RH1001L622 | RESISTOR, METAL GLAZED(CHIP) | 1.0K OHM 1/8 W 2012 5.00% D | ROHM | R17, RCR1, R41-R43 |
| 84 | 0RD2702G609 | RESISTOR, FIXED CARBON FILM | 27K OHM 1/4 W 5.00% T AS2 | SMART, CHOHYANG | - |
| 85 | 0RD4702G609 | RESISTOR, FIXED CARBON FILM | 47K OHM 1/4 W 5.00% T AS2 | SMART, CHOHYANG | - |
| 86 | 0R_9101E472 | RESISTOR, FIXED METAL FILM | 9.1K OHM 1/8 W 1%, 2012 R/TP | ROHM | - |
| 87 | 0R_2401E472 | RESISTOR, FIXED METAL FILM | 2.4K OHM 1/8 W 1%, 2012 R/TP | ROHM | RL1 |
| 88 | 0R_2700E672 | RESISTOR, METAL GLAZED(CHIP) | 270 OHM 1/8 W 2012 5.00% D | ROHM | RL2 |
| 89 | 0TRKE00008A | TRANSISTOR, BIPOLAR | KEC K1B151 BK 10126 60V 5A | KEC | RS4 |
| 90 | 0TRF31909AA | TRANSISTOR | KTC319B-TP-Y (KTC1B151)KEC | KEC | OS3, OS6 |
| 91 | 0TRKE80016A | TRANSISTOR, BIPOLAR | KEC KR6105 R/TP S0123 50V 100MA | KEC | O1 |
| 92 | 0TR106009AC | TRANSISTOR, BIPOLAR | KRA 106M KEC | KEC | O7 |
| 93 | | | KTC3875 KEC | KEC | |
| 94 | 6210_BB001A | SIL, TRICIRCI, EMC | BFS350AD SAMHHA 52 | SAM WHA | FBI |
| 95 | 6600R1001Z | SIL, TACT | J1P123046 JEIL 12V DC 50MA | JEIL | SW1 |
| 96 | 6854B50001A | JUMP WIRE | 0.6MM 52MM TP TAPING SNT10MM | DAE A LEAD | J01-J04, J06-J13, J14, JPO1 |
| 97 | 6854B50001A | JUMP WIRE | 0.6MM 52MM TP TAPING SNT10,5MM | DAE A LEAD | J05 |
| 98 | 6854B50001A | JUMP WIRE | 0.6MM 52MM TP TAPING SNT10MM | DAE A LEAD | OPI |
| 99 | 6854B50001A | JUMP WIRE | 0.6MM 52MM TP TAPING SNT10MM | DAE A LEAD | OP2, OP3, R13-R16 |
| 100 | 6200_BB004A | FILTER(ICIRC1), EMC | CV940050 TNC BK | TNC | L1 |
| 101 | 6200_BB007X | FILTER(ICIRC1), EMC | UV11-05320 TNC BK 0.5A 32MH | TNC | L2 |
| 102 | 0LR001M4F0 | INDUCTOR, RADIAL LEAD | 1000UH 20% R 5X12.5 BULK | TNC | L3 |
| 103 | 0FR601E1S1 | FUSE, FAST BLOW | 6000MA 250V 6.3X31.8 CY/GL KS | SAM JU | FUSE1 |
| 104 | 6901_BB001A | FUSE ASSEMBLY | KORE-PTJ NVS | SAM JU | FUSE HOLDER |
| 105 | 0FZ7_B3001A | FUSE, DRAWING | 2A 250V SLOW-BLOW LITTLE FUSE, TRIAD | SAM JU | FUSE1 |
| 106 | 6908_BB3002F | BUZZER | 06E2228P DAE YOUNG PE20 2W 755(OHMA) | DAE YOUNG | BUZZER |
| 107 | 4920_B3007A | HEAT SINK | 23.3*17*25 DRIVE IC STR | - | (IC2) |
| 108 | 158F030241B | SCREW TAP TITE (S), BINDING HE | +03.0 LB.0 MSWR3/FZY | SHAN | (IC2) |
| 109 | 9WIF0120000 | SOLDER(ROSN WIRE) R50 | DI_20 | - | - |
| 110 | 49H1004 | SOLDER, SOLDERING | H63A | HISUNG | - |
| 111 | 59333105 | FLUX | SG101.825-0.830 KOREA F.H-206 | KOKI | - |
| 112 | 00C03H609 | CAPACITOR, FIXED FILM | 0.01UF D 100V 10% PE 1P5 | SAM WHA | CM4 |

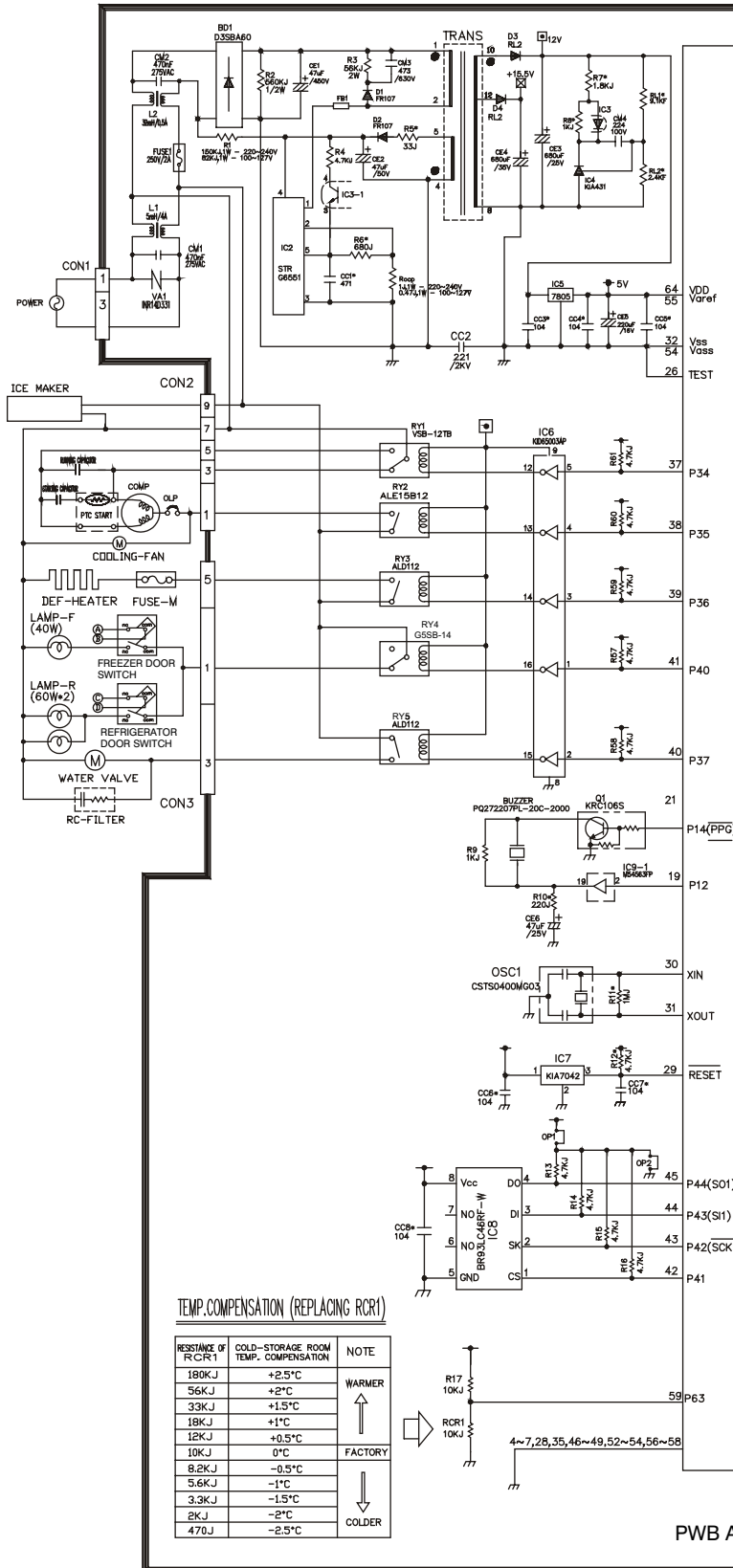
8-5-3 PWB Assembly, Display and Parts List



| Qty | No | P/NO | DESCRIPTION | SPEC | MAKER | REMARK |
|--------|----|----------------------------|-----------------------|--|----------------------|--------------|
| 1 | 1 | 6870JB8091A | PWB(PCB) | KS-PJT GOOD/BETTER DISPLAY | DOO SAN | t=1.6 |
| | 2 | | | | | |
| 1 | 3 | 6630AQ9159H | WAFER | SMAW250-09 | YEON HO | CON101 |
| | 4 | | | | | |
| 2 | 5 | 6600RRT002K 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(ROSN WIRE) RSO | D1.20 | HEE SUNG | - |
| 001 | 13 | 49111004 | SOLDER,SOLDERING | H63A | - | - |
| 0.0002 | 14 | 59333105 | FLUX | SGj0.825-0.830 KOREA F.H-206 | KOKI | - |

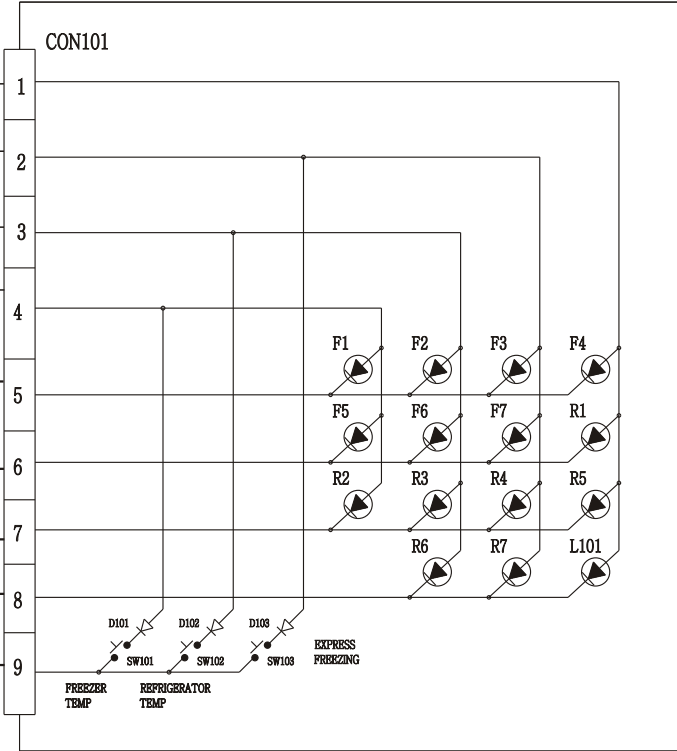
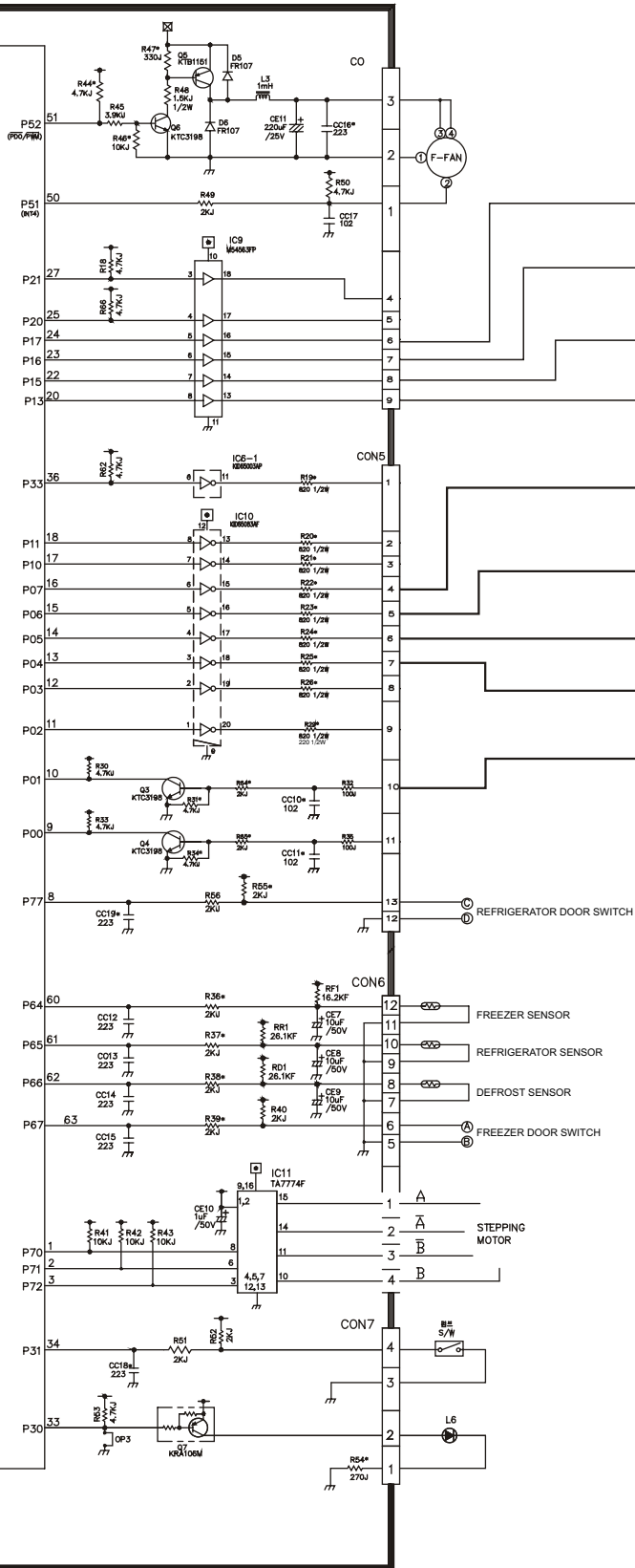
8-6 PWB DIAGRAM

8-6-1 PWB Main Assembly



TOSHIBA TMP87C840N(IC1)

PWB ASSEMBLY

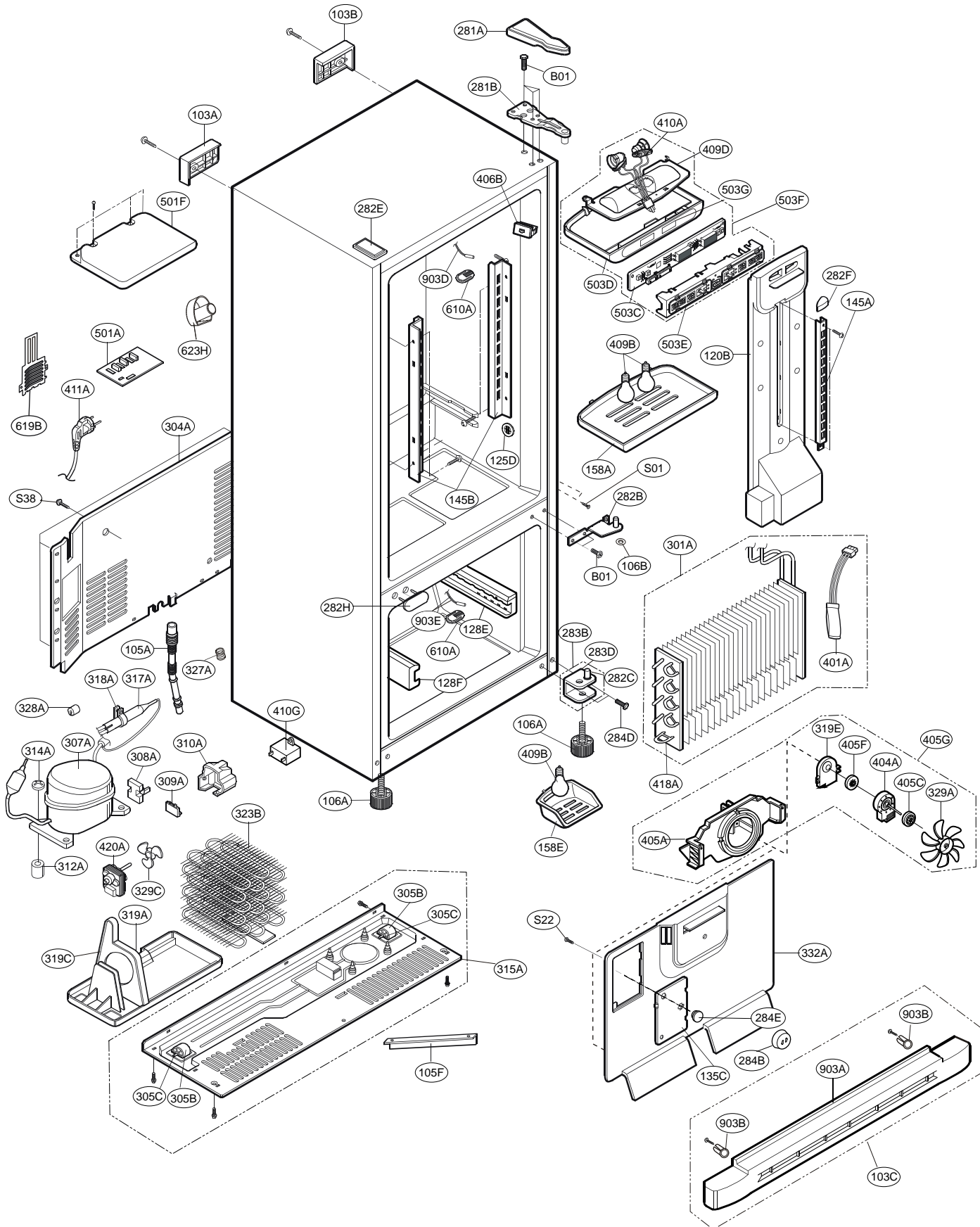


PWB ASS'Y, DISPLAY

9.EXPLODED VIEW AND REPLACEMENT PART LIST

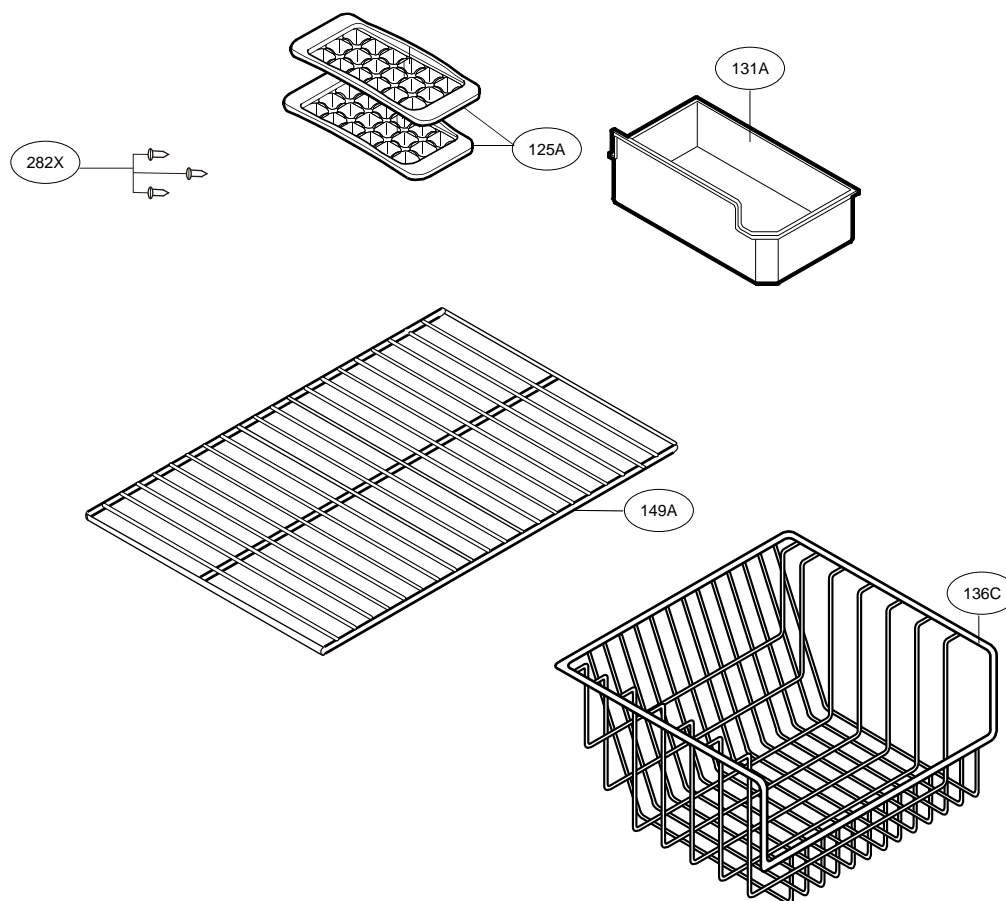
CASE PARTS

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



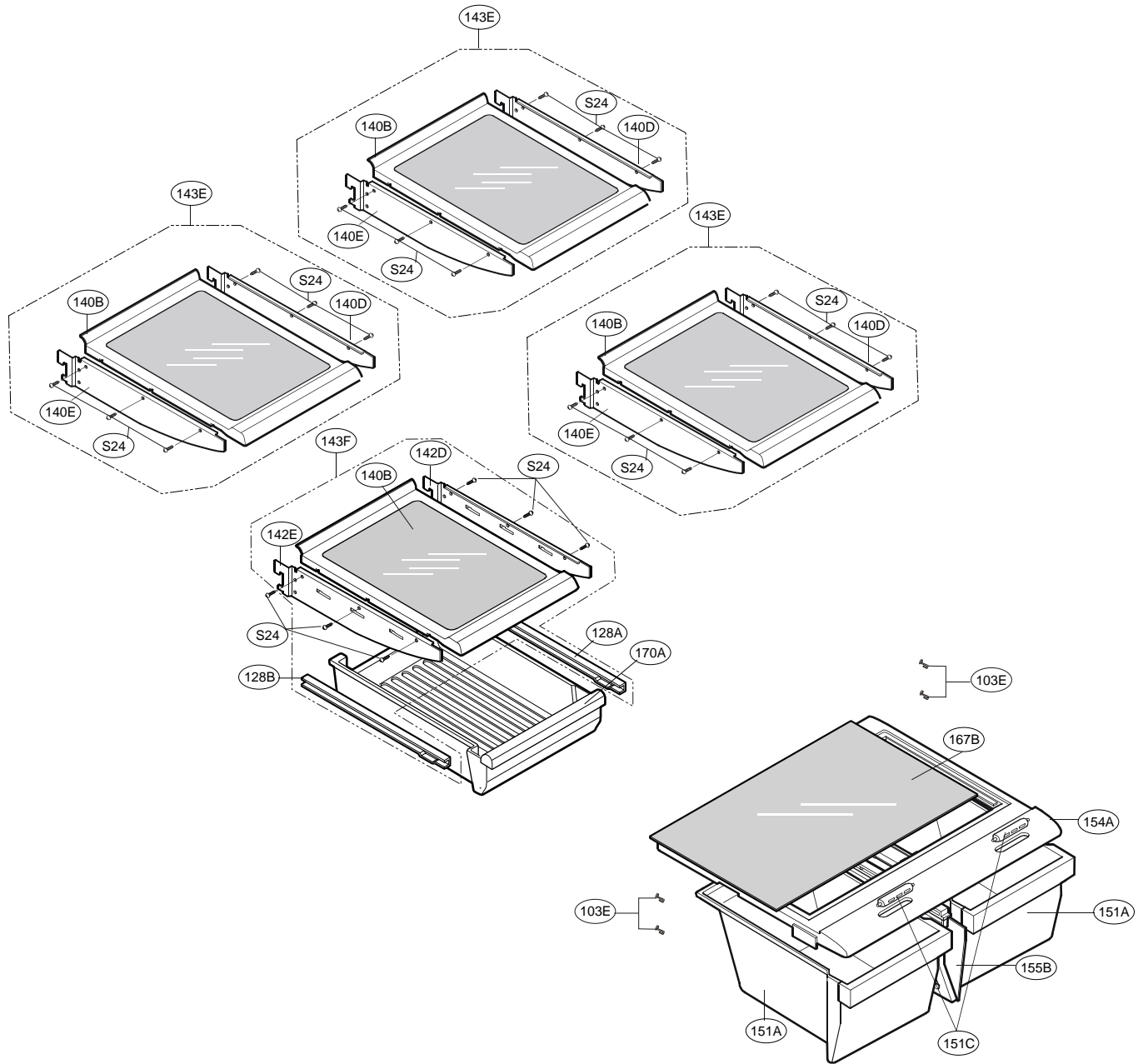
FREEZER PARTS

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



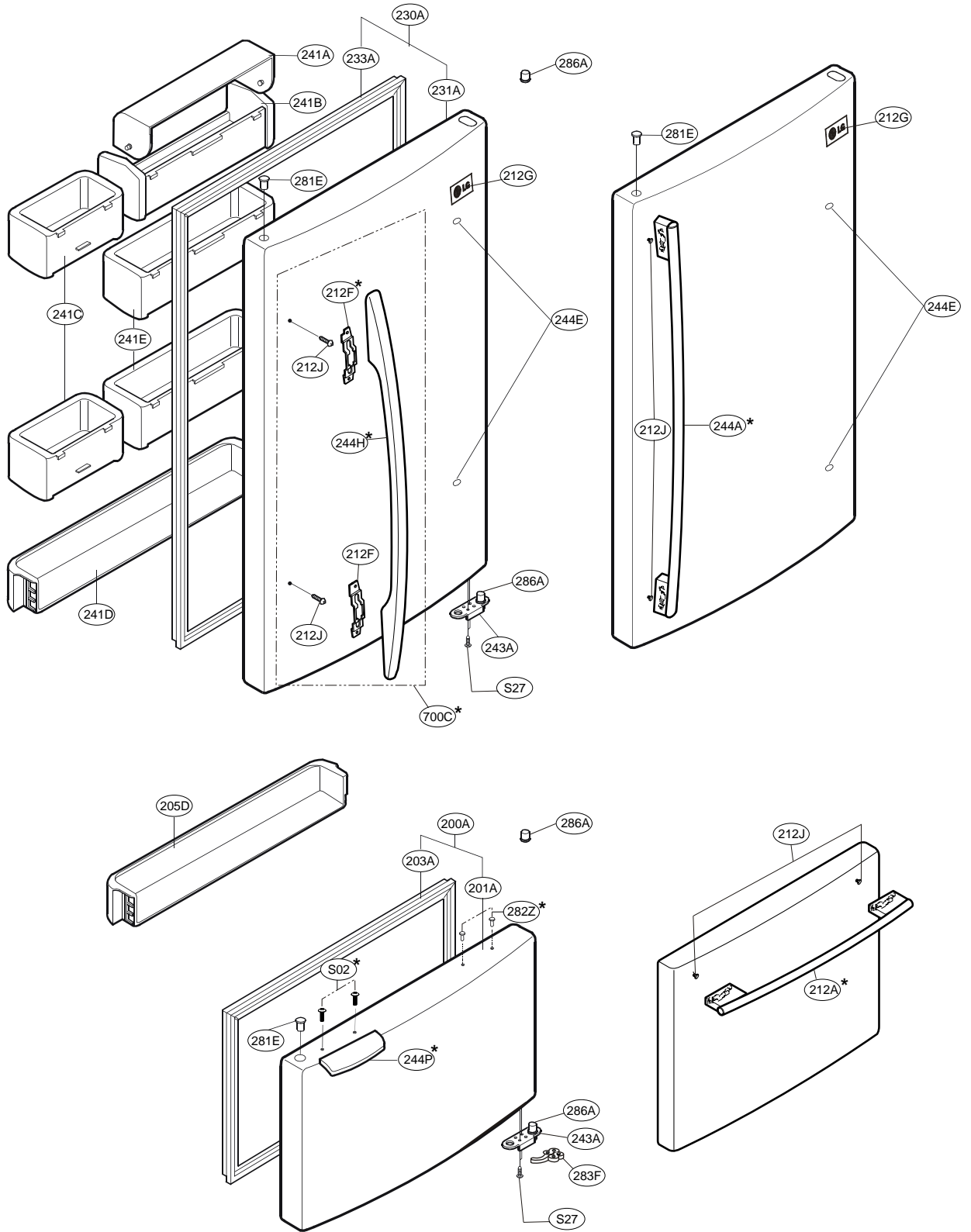
REFRIGERATOR PARTS

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



* On some models

| Loc No. | Part No. | Description | Loc No. | Part No. | Description |
|---------|-------------|---------------------------------|---------|-------------|---------------------------------------|
| 103A | 3650JJ2003M | Handle,Rear | 283B | 4775JJ2007B | Hinge Assembly,Lower |
| 103B | 3650JJ2003L | Handle,Rear | 283D | 4774JJ2002A | Hinge,Lower |
| 103C | 3551JJ1015F | Cover Assembly,Lower | 283F | MJB36873202 | Stopper,Door |
| 103E | 5218JJ3001A | Rail,Slide | 284B | 3550JA3120A | Cover,Connector |
| 105A | 5251JA3003B | Tube Assembly,Drain | 284D | 1STZJA3004K | Screw,Customized |
| 105F | 5070JJ3002A | Skirt,Lower | 284E | 3550JJ3001A | Cover,Tube |
| 106A | 4779JA2003A | Leg Assembly,Adjust | 286A | 4984JJ3003A | BUSH |
| 106B | 4J00382C | Washer,Common | 301A | 5421JJ1001B | Evaporator Assembly |
| 120B | 5209JJ1002A | Duct Assembly,Multi | 304A | 3551JJ2008B | Cover Assembly,Machinery(Rear) |
| 125A | 3390JJ1023A | Tray,Ice | 305B | 4580JJ3001A | Roller |
| 125D | 4930JJ3007A | Holder,Bracket | 305C | 4J04238A | Pin,Common |
| 128A | 4975JJ2002A | Guide Assembly,Rail | 307A | 2521CRA5715 | Compressor,Set Assembly |
| 128B | 4975JJ2002B | Guide Assembly,Rail | 308A | EBG32606502 | Thermistor Assembly,PTC |
| 128E | 4930JJ1012A | Holder,Rail | 309A | 6750C-0004S | Overload Protect |
| 128F | 4930JJ1012B | Holder,Rail | 310A | 3550JA2059A | Cover,PTC |
| 131A | 5074JJ1017A | Bucket,Ice | 312A | 5040JA3031A | Damper,Compressor |
| 135C | 3550JJ2030A | Cover,Grille Fan | 314A | 4620JA3009A | Stopper,Compressor |
| 136C | 3390JJ1057A | Tray,Drawer | 315A | 3103JJ1001J | Base Assembly,Compressor |
| 140B | 5027JJ2007B | Shelf Assembly,Refrigerator | 317A | 5851JJ2002F | Drier Assembly |
| 140D | MHL38615403 | Shelf,Net | 318A | 4930JA3034A | Holder,Drier |
| 140E | MHL38615404 | Shelf,Net | 319A | 3390JJ0003A | Tray,Drip |
| 142D | 5026JJ2001L | Shelf,Net | 319C | 4974JJ1009A | Guide,Fan |
| 142E | 5026JJ2001M | Shelf,Net | 319E | 4810JJ2005A | Bracket,Motor |
| 143E | 5027JJ1008K | Shelf Assembly,Refrigerator | 323B | 5403JJ1007A | Condenser Assembly,Wire |
| 143F | 5027JJ1008D | Shelf Assembly,Refrigerator | 327A | 5006JA3034A | Cap,Drain Tube |
| 145A | 4930JJ2003A | Holder,Shelf | 328A | 4J03020A | Damper,Pipe |
| 145B | 4930JJ2004A | Holder,Shelf | 329A | 5901JJ1005A | Fan Assembly |
| 149A | 5026JJ1026A | SHELF,FREEZER | 329C | 5901JJ1004B | Fan Assembly |
| 151A | 3391JJ1020C | Tray Assembly,Vegetable | 332A | 3531JJ1004A | Grille Assembly,Fan |
| 151C | 4940JJ2003C | KNOB,SHUTTER | 401A | 6615JB2005C | Controller Assembly |
| 154A | 3550JL1006C | Cover,TV | 404A | 4681JK1004A | AC Motor |
| 155B | 4981JJ2001B | Supporter Assembly,Cover TV | 405A | 4811JJ2002A | Bracket Assembly,Motor |
| 158A | 3550JJ1040A | Cover,Lamp | 405C | 5040JA2009B | Damper,Motor Support |
| 158E | MCK30060901 | Cover,Lamp | 405F | 5040JA2004B | Damper,Motor Support |
| 167B | 4890JL1002H | Shelf,Glass | 405G | 4811JJ2002H | Bracket Assembly,Motor |
| 170A | 3391JJ2004H | Tray Assembly,Meat | 406B | 6600JB1004A | Switch,Push Button |
| 200A | 3581JJ8020G | Door Assembly,Freezer | 409B | 6912JB2004M | Lamp,Incandescent |
| 201A | 5433JJ0058F | Door Foam Assembly,Freezer | 409D | 3034JJ1002B | Reflector,Lamp |
| 203A | 4987JJ1004E | Gasket Assembly,Door | 410A | 6621JK2002D | Drawing,Assembly |
| 205D | 5004JJ1040A | Basket,Door | 410G | 0CZZJB2012J | Capacitor,Electric Appliance Film,Box |
| 212A | 3651JA1033M | Handle Assembly,Freezer | 411A | 6411JK1006A | Power Cord Assembly |
| 212G | 3846JD1007G | Name Plate | 418A | 5300JB1100J | Heater,Sheath |
| 212J | 4620JJ3007E | Stopper,Handle | 420A | 4680JK1001B | Motor,AC |
| 230A | 3581JJ8716B | Door Assembly,Refrigerator | 501A | EBR30659302 | PCB Assembly,Main |
| 231A | 5433JJ0019Y | Door Foam Assembly,Refrigerator | 501F | 3551JJ1020A | Cover Assembly,PCB |
| 233A | 4987JJ1004F | Gasket Assembly,Door | 503C | 6871JB2047A | PCB Assembly,Display |
| 241A | 3550JL2003H | Cover,Tray | 503D | 3110JJ1005A | Case,Display |
| 241B | 5004JJ1021A | Basket,Door | 503E | 3550JJ2031A | Cover,Display |
| 241C | 5004JJ1031A | Basket,Door | 503F | ABQ33905301 | Case Assembly,Display |
| 241D | 5004JJ0001A | Basket,Door | 503G | 3806JL1049A | Decor,Control |
| 241E | 5004JJ1029A | Basket,Door | 610A | 3550JJ2020A | Cover,Sensor |
| 243A | 4620JJ3006C | Stopper,Door | 619B | 3550JJ2024A | Cover,Valve |
| 244A | 3651JA1023V | Handle Assembly,Freezer | 623H | 3550JJ2036A | Cover,Tube |
| 244E | 5006JJ3016C | Cap,Handle | 903A | 3550JJ0006C | Cover,Lower |
| 281A | 3550JJ2013C | Cover,Hinge | 903B | 4930JJ2021A | Holder,Cover(Lower) |
| 281B | 4775JJ2003B | Hinge Assembly,Upper | 903D | 6500JK1003A | Sensor |
| 281E | 5006JJ3014C | Cap,Hinge | 903E | 6500JK1004A | Sensor |
| 282B | 4775JJ8002E | Hinge Assembly,Center | B01 | 1STZJA3004F | Screw,Customized |
| 282C | 1PZZJJ3002F | Pin,Common | S01 | 1SZZJJ3010A | Screw,Customized |
| 282E | 5006JJ2001F | Cap,Hinge | S22 | J471-00001J | Screw,Customized |
| 282F | 3806JL2006F | Decor,Duct | S24 | 1SZZJA3011B | Screw,Customized |
| 282H | 5006JJ3004E | Cap,Hinge | S27 | 4J01424C | Screw,Customized |
| 282X | 5006JJ3010A | Cap,Handle | | | |

| Loc No. | Part No. | Description | Loc No. | Part No. | Description |
|---------|-------------|---------------------------------|---------|-------------|---------------------------------------|
| 103A | 3650JJ2003M | Handle,Rear | 283B | 4775JJ2007B | Hinge Assembly,Lower |
| 103B | 3650JJ2003L | Handle,Rear | 283D | 4774JJ2002A | Hinge,Lower |
| 103C | 3551JJ1015F | Cover Assembly,Lower | 283F | MJB36873202 | Stopper,Door |
| 103E | 5218JJ3001A | Rail,Slide | 284B | 3550JA3120A | Cover,Connector |
| 105A | 5251JA3003B | Tube Assembly,Drain | 284D | 1STZJA3004K | Screw,Customized |
| 105F | 5070JJ3002A | Skirt,Lower | 284E | 3550JJ3001A | Cover,Tube |
| 106A | 4779JA2003A | Leg Assembly,Adjust | 286A | 4984JJ3003A | BUSH |
| 106B | 4J00382C | Washer,Common | 301A | 5421JJ1001B | Evaporator Assembly |
| 120B | 5209JJ1002A | Duct Assembly,Multi | 304A | 3551JJ2008B | Cover Assembly,Machinery(Rear) |
| 125A | 3390JJ1023A | Tray,Ice | 305B | 4580JJ3001A | Roller |
| 125D | 4930JJ3007A | Holder,Bracket | 305C | 4J04238A | Pin,Common |
| 128A | 4975JJ2002A | Guide Assembly,Rail | 307A | 2521CRA5715 | Compressor,Set Assembly |
| 128B | 4975JJ2002B | Guide Assembly,Rail | 308A | EBG32606502 | Thermistor Assembly,PTC |
| 128E | 4930JJ1012A | Holder,Rail | 309A | 6750C-0004S | Overload Protect |
| 128F | 4930JJ1012B | Holder,Rail | 310A | 3550JA2059A | Cover,PTC |
| 131A | 5074JJ1017A | Bucket,Ice | 312A | 5040JA3031A | Damper,Compressor |
| 135C | 3550JJ2030A | Cover,Grille Fan | 314A | 4620JA3009A | Stopper,Compressor |
| 136C | 3390JJ1057A | Tray,Drawer | 315A | 3103JJ1001J | Base Assembly,Compressor |
| 140B | 5027JJ2007B | Shelf Assembly,Refrigerator | 317A | 5851JJ2002F | Drier Assembly |
| 140D | MHL38615403 | Shelf,Net | 318A | 4930JA3034A | Holder,Drier |
| 140E | MHL38615404 | Shelf,Net | 319A | 3390JJ0003A | Tray,Drip |
| 142D | 5026JJ2001L | Shelf,Net | 319C | 4974JJ1009A | Guide,Fan |
| 142E | 5026JJ2001M | Shelf,Net | 319E | 4810JJ2005A | Bracket,Motor |
| 143E | 5027JJ1008K | Shelf Assembly,Refrigerator | 323B | 5403JJ1007A | Condenser Assembly,Wire |
| 143F | 5027JJ1008D | Shelf Assembly,Refrigerator | 327A | 5006JA3034A | Cap,Drain Tube |
| 145A | 4930JJ2003A | Holder,Shelf | 328A | 4J03020A | Damper,Pipe |
| 145B | 4930JJ2004A | Holder,Shelf | 329A | 5901JJ1005A | Fan Assembly |
| 149A | 5026JJ1026A | SHELF,FREEZER | 329C | 5901JJ1004B | Fan Assembly |
| 151A | 3391JJ1020C | Tray Assembly,Vegetable | 332A | 3531JJ1004A | Grille Assembly,Fan |
| 151C | 4940JJ2003C | KNOB,SHUTTER | 401A | 6615JB2005C | Controller Assembly |
| 154A | 3550JL1006C | Cover,TV | 404A | 4681JK1004A | AC Motor |
| 155B | 4981JJ2001B | Supporter Assembly,Cover TV | 405A | 4811JJ2002A | Bracket Assembly,Motor |
| 158A | 3550JJ1040A | Cover,Lamp | 405C | 5040JA2009B | Damper,Motor Support |
| 158E | MCK30060901 | Cover,Lamp | 405F | 5040JA2004B | Damper,Motor Support |
| 167B | 4890JL1002H | Shelf,Glass | 405G | 4811JJ2002H | Bracket Assembly,Motor |
| 170A | 3391JJ2004H | Tray Assembly,Meat | 406B | 6600JB1004A | Switch,Push Button |
| 200A | 3581JJ8020H | Door Assembly,Freezer | 409B | 6912JB2004M | Lamp,Incandescent |
| 201A | 5433JJ0058G | Door Foam Assembly,Freezer | 409D | 3034JJ1002B | Reflector,Lamp |
| 203A | 4987JJ1004E | Gasket Assembly,Door | 410A | 6621JK2002D | Drawing,Assembly |
| 205D | 5004JJ1040A | Basket,Door | 410G | 0CZZJB2012J | Capacitor,Electric Appliance Film,Box |
| 212A | 3651JA1033J | Handle Assembly,Freezer | 411A | 6411JK1006A | Power Cord Assembly |
| 212G | 3846JD1007H | Name Plate | 418A | 5300JB1100J | Heater,Sheath |
| 212J | 4620JJ3007E | Stopper,Handle | 420A | 4680JK1001B | Motor,AC |
| 230A | 3581JJ8716C | Door Assembly,Refrigerator | 501A | EBR30659302 | PCB Assembly,Main |
| 231A | 5433JJ0019Z | Door Foam Assembly,Refrigerator | 501F | 3551JJ1020A | Cover Assembly,PCB |
| 233A | 4987JJ1004F | Gasket Assembly,Door | 503C | 6871JB2047A | PCB Assembly,Display |
| 241A | 3550JL2003H | Cover,Tray | 503D | 3110JJ1005A | Case,Display |
| 241B | 5004JJ1021A | Basket,Door | 503E | 3550JJ2031A | Cover,Display |
| 241C | 5004JJ1031A | Basket,Door | 503F | ABQ33905301 | Case Assembly,Display |
| 241D | 5004JJ0001A | Basket,Door | 503G | 3806JL1049A | Decor,Control |
| 241E | 5004JJ1029A | Basket,Door | 610A | 3550JJ2020A | Cover,Sensor |
| 243A | 4620JJ3006C | Stopper,Door | 619B | 3550JJ2024A | Cover,Valve |
| 244A | 3651JA1023U | Handle Assembly,Freezer | 623H | 3550JJ2036A | Cover,Tube |
| 244E | 5006JJ3016D | Cap,Handle | 903A | 3550JJ0006C | Cover,Lower |
| 281A | 3550JJ2013C | Cover,Hinge | 903B | 4930JJ2021A | Holder,Cover(Lower) |
| 281B | 4775JJ2003B | Hinge Assembly,Upper | 903D | 6500JK1003A | Sensor |
| 281E | 5006JJ3014C | Cap,Hinge | 903E | 6500JK1004A | Sensor |
| 282B | 4775JJ8002E | Hinge Assembly,Center | B01 | 1STZJA3004F | Screw,Customized |
| 282C | 1PZZJJ3002F | Pin,Common | S01 | 1SZZJJ3010A | Screw,Customized |
| 282E | 5006JJ2001F | Cap,Hinge | S22 | J471-00001J | Screw,Customized |
| 282F | 3806JL2006F | Decor,Duct | S24 | 1SZZJA3011B | Screw,Customized |
| 282H | 5006JJ3004E | Cap,Hinge | S27 | 4J01424C | Screw,Customized |
| 282X | 5006JJ3010A | Cap,Handle | | | |

| Loc No. | Part No. | Description | Loc No. | Part No. | Description |
|---------|-------------|---------------------------------|---------|-------------|---------------------------------------|
| 103A | 3650JJ2003E | Handle,Rear | 283B | 4775JJ2007B | Hinge Assembly,Lower |
| 103B | 3650JJ2003A | Handle,Rear | 283D | 4774JJ2002A | Hinge,Lower |
| 103C | 3551JJ1015B | Cover Assembly,Lower | 283F | MJB36873201 | Stopper,Door |
| 103E | 5218JJ3001A | Rail,Slide | 284B | 3550JA3120A | Cover,Connector |
| 105A | 5251JA3003B | Tube Assembly,Drain | 284D | 1STZJA3004K | Screw,Customized |
| 105F | 5070JJ3002A | Skirt,Lower | 284E | 3550JJ3001A | Cover,Tube |
| 106A | 4779JA2003A | Leg Assembly,Adjust | 286A | 4984JJ3003A | BUSH |
| 106B | 4J00382C | Washer,Common | 301A | 5421JJ1001B | Evaporator Assembly |
| 120B | 5209JJ1002A | Duct Assembly,Multi | 304A | 3551JJ2008B | Cover Assembly,Machinery(Rear) |
| 125A | 3390JJ1023A | Tray,Ice | 305B | 4580JJ3001A | Roller |
| 125D | 4930JJ3007A | Holder,Bracket | 305C | 4J04238A | Pin,Common |
| 128A | 4975JJ2002A | Guide Assembly,Rail | 307A | 2521CRA5715 | Compressor,Set Assembly |
| 128B | 4975JJ2002B | Guide Assembly,Rail | 308A | EBG32606502 | Thermistor Assembly,PTC |
| 128E | 4930JJ1012A | Holder,Rail | 309A | 6750C-0004S | Overload Protect |
| 128F | 4930JJ1012B | Holder,Rail | 310A | 3550JA2059A | Cover,PTC |
| 131A | 5074JJ1017A | Bucket,Ice | 312A | 5040JA3031A | Damper,Compressor |
| 135C | 3550JJ2030A | Cover,Grille Fan | 314A | 4620JA3009A | Stopper,Compressor |
| 136C | 3390JJ1057A | Tray,Drawer | 315A | 3103JJ1001J | Base Assembly,Compressor |
| 140B | 5027JJ2007B | Shelf Assembly,Refrigerator | 317A | 5851JJ2002F | Drier Assembly |
| 140D | MHL38615403 | Shelf,Net | 318A | 4930JA3034A | Holder,Drier |
| 140E | MHL38615404 | Shelf,Net | 319A | 3390JJ0003A | Tray,Drip |
| 142D | 5026JJ2001L | Shelf,Net | 319C | 4974JJ1009A | Guide,Fan |
| 142E | 5026JJ2001M | Shelf,Net | 319E | 4810JJ2005A | Bracket,Motor |
| 143E | 5027JJ1008K | Shelf Assembly,Refrigerator | 323B | 5403JJ1007A | Condenser Assembly,Wire |
| 143F | 5027JJ1008D | Shelf Assembly,Refrigerator | 327A | 5006JA3034A | Cap,Drain Tube |
| 145A | 4930JJ2003A | Holder,Shelf | 328A | 4J03020A | Damper,Pipe |
| 145B | 4930JJ2004A | Holder,Shelf | 329A | 5901JJ1005A | Fan Assembly |
| 149A | 5026JJ1026A | SHELF,FREEZER | 329C | 5901JJ1004B | Fan Assembly |
| 151A | 3391JJ1020C | Tray Assembly,Vegetable | 332A | 3531JJ1004A | Grille Assembly,Fan |
| 151C | 4940JJ2003C | KNOB,SHUTTER | 401A | 6615JB2005C | Controller Assembly |
| 154A | 3550JL1006C | Cover,TV | 404A | 4681JK1004A | AC Motor |
| 155B | 4981JJ2001B | Supporter Assembly,Cover TV | 405A | 4811JJ2002A | Bracket Assembly,Motor |
| 158A | 3550JJ1040A | Cover,Lamp | 405C | 5040JA2009B | Damper,Motor Support |
| 158E | MCK30060901 | Cover,Lamp | 405F | 5040JA2004B | Damper,Motor Support |
| 167B | 4890JL1002H | Shelf,Glass | 405G | 4811JJ2002H | Bracket Assembly,Motor |
| 170A | 3391JJ2004H | Tray Assembly,Meat | 406B | 6600JB1004A | Switch,Push Button |
| 200A | 3581JJ8020A | Door Assembly,Freezer | 409B | 6912JB2004M | Lamp,Incandescent |
| 201A | 5433JJ0018E | Door Foam Assembly,Freezer | 409D | 3034JJ1002B | Reflector,Lamp |
| 203A | 4987JJ1004A | Gasket Assembly,Door | 410A | 6621JK2002D | Drawing,Assembly |
| 205D | 5004JJ1040A | Basket,Door | 410G | 0CZZJB2012J | Capacitor,Electric Appliance Film,Box |
| 212F | 4810JJ3015A | Bracket,Handle | 411A | 6411JK1006A | Power Cord Assembly |
| 212G | 3846JD1007F | Name Plate | 418A | 5300JB1100J | Heater,Sheath |
| 212J | 4620JJ3007E | Stopper,Handle | 420A | 4680JK1001B | Motor,AC |
| 230A | 3581JJ8047A | Door Assembly,Refrigerator | 501A | EBR30659302 | PCB Assembly,Main |
| 231A | 5433JJ0019M | Door Foam Assembly,Refrigerator | 501F | 3551JJ1020A | Cover Assembly,PCB |
| 233A | 4987JJ1004B | Gasket Assembly,Door | 503C | 6871JB2047A | PCB Assembly,Display |
| 241A | 3550JL2003H | Cover,Tray | 503D | 3110JJ1005A | Case,Display |
| 241B | 5004JJ1021A | Basket,Door | 503E | 3550JJ2031A | Cover,Display |
| 241C | 5004JJ1031A | Basket,Door | 503F | ABQ33905301 | Case Assembly,Display |
| 241D | 5004JJ0001A | Basket,Door | 503G | 3806JL1049A | Decor,Control |
| 241E | 5004JJ1029A | Basket,Door | 610A | 3550JJ2020A | Cover,Sensor |
| 243A | 4620JJ3006A | Stopper,Door | 619B | 3550JJ2024A | Cover,Valve |
| 244E | 5006JJ3016A | Cap,Handle | 623H | 3550JJ2036A | Cover,Tube |
| 244H | 3650JJ0020A | Handle,Refrigerator | 700C | 3651JJ2015D | Handle Assembly,Refrigerator |
| 244P | 3650JJ2012A | Handle,Freezer | 903A | 3550JJ0006A | Cover,Lower |
| 281A | 3550JJ2013A | Cover,Hinge | 903B | 4930JJ2021A | Holder,Cover(Lower) |
| 281B | 4775JJ2003B | Hinge Assembly,Upper | 903D | 6500JK1003A | Sensor |
| 281E | 5006JJ3014A | Cap,Hinge | 903E | 6500JK1004A | Sensor |
| 282B | 4775JJ8002F | Hinge Assembly,Center | B01 | 1STZJA3004F | Screw,Customized |
| 282C | 1PZZJJ3002F | Pin,Common | S01 | 1SZZJJ3010A | Screw,Customized |
| 282E | 5006JJ2001A | Cap,Hinge | S02 | 1SZZJJ3010B | Screw,Customized |
| 282F | 3806JL2006F | Decor,Duct | S22 | J471-00001J | Screw,Customized |
| 282H | 5006JJ3004A | Cap,Hinge | S24 | 1SZZJA3011B | Screw,Customized |
| 282X | 5006JJ3010A | Cap,Handle | S27 | 4J01424C | Screw,Customized |
| 282Z | 5006JJ3010A | Cap,Handle | | | |



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