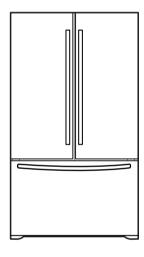


REFRIGERATOR SERVICE MANUAL

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



MODELS: LFC21760ST

LFC25760SB LFC25760ST LFC25760SW LFC25760TT **COLORS: WESTERN BLACK(SB)**

TITANIUM(TT)
SUPER WHITE(SW)
STAINLESS(ST)

CONTENTS

| SAFETY PRECAUTIONS | |
|---|-------|
| SPECIFICATIONS | 3 |
| PARTS IDENTIFICATION | |
| DISASSEMBLY | 5-10 |
| DOOR | 5-6 |
| DOOR ALIGNMENT | 6 |
| HOW TO REMOVE AND REINSTALL THE PULLOUT DRAWER | |
| ADJUSTMENT | 10-11 |
| COMPRESSOR | 10 |
| PTC-STARTER | 10 |
| OLP (OVERLOAD PROTECTOR) | 11 |
| TO REMOVE THE COVER PTC | |
| CIRCUIT DIAGRAM | 12 |
| TROUBLESHOOTING | 13-18 |
| COMPRESSOR AND ELECTRIC COMPONENTS | |
| PTC AND OLP | 14 |
| OTHER ELECTRICAL COMPONENTS | 15 |
| SERVICE DIAGNOSIS CHART | 16 |
| REFRIGERATION CYCLE | |
| OPERATION PRINCIPLE AND REPAIR METHOD OF ICEMAKER | |
| DESCRIPTION OF FUNCTION AND CIRCUIT OF MICOM | 23-40 |
| EXPLODED VIEW AND REPLACEMENT PARTS LIST | 41- |

SAFETY PRECAUTIONS

Please read the following instructions before servicing your refrigerator.

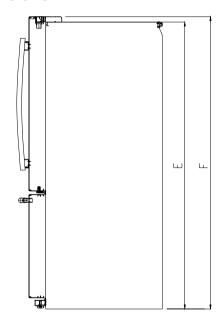
- 1. Unplug the power before handling any elctrical componets.
- 2. Check the rated current, voltage, and capacity.
- 3. Take caution not to get water near any electrical components.
- 4. Use exact replacement parts.
- 5. Remove any objects from the top prior to tilting the product.

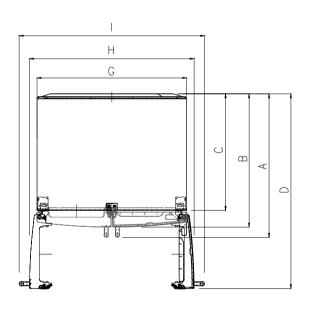
1. SPECIFICATIONS

| ITEMS | SPECIFICATIONS |
|---------------------|---------------------|
| DOOR DESIGN | Side Rounded |
| COOLING SYSTEM | Fan Cooling |
| TEMPERATURE CONTROL | Micom Control |
| DEFROSTING SYSTEM | Full Automatic |
| DEI NOSTING STSTEM | Heater Defrost |
| DOOR FINISH | PCM, VCM, Stainless |
| HANDLE TYPE | Bar |
| INNER CASE | ABS Resin |
| INSULATION | Polyurethane Foam |

| ITEMS | | SPECIFICATIONS | | |
|-------------------|--------------|--------------------|--|--|
| VEGET | ABLE TRAY | Opaque Drawer Type | | |
| СОМРЕ | RESSOR | PTC Starting Type | | |
| EVAPO | RATOR | Fin Tube Type | | |
| CONDENSER | | Wire Condenser | | |
| REFRIGERANT | | R-134a (115 g) | | |
| LUBRIC | CATING OIL | ISO10 (280 ml) | | |
| DEFROSTING DEVICE | | SHEATH HEATER | | |
| LAMP | REFRIGERATOR | 60 W (2 EA) | | |
| | FREEZER | 60 W (1 EA) | | |
| | | | | |

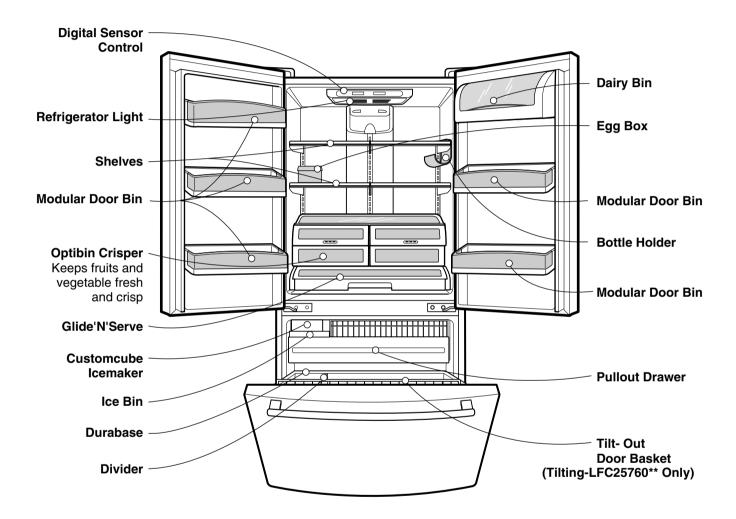
DIMENSIONS





| Description | LFC21760** | LFC25760** | |
|--------------------------------------|------------|------------|-------------|
| Depth w/ Handles | A | 30 in. | 34 1/4 in. |
| Depth w/o Handles | В | 27 1/2 in. | 31 3/4 in. |
| Depth w/o Door | С | 23 5/8 in. | 27 7/8 in. |
| Depth (Total with Door Open) | D | 42 1/4 in. | 46 1 /2 in. |
| Height to Top of Case | E | 68 3/8 in. | 68 3/8 in. |
| Height to Top of Door Hinge | F | 69 3/4 in. | 69 3/4 in. |
| Width | G | 35 3/4 in. | 35 3/4 in. |
| Width (door open 90 deg. w/o handle) | Н | 39 1/4 in. | 39/1/4 in. |
| Width (door open 90 deg. w/ handle) | I | 44 1/4 in. | 44 1/4 in. |

2. PARTS IDENTIFICATION

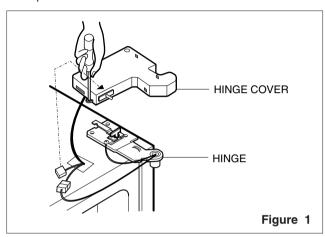


3. DISASSEMBLY

3-1 DOOR

Refrigerator door

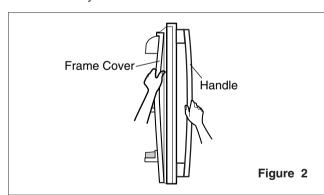
- Remove the top hinge cover and disconnect the wire harness.
- 2. Remove the ground screw.
- 3. Rotate the lever hinge and lift off hinge.
- 4. Lift off the refrigerator door.
- 5. Replace in the reverse order.



Door gasket removal

1. Remove door frame cover

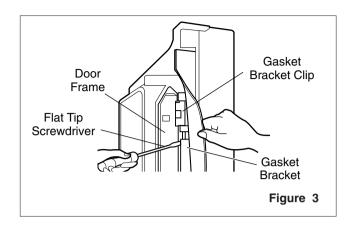
Starting at top of cover and working down, snap cover out and away from door.



2. Remove gasket bracket clips

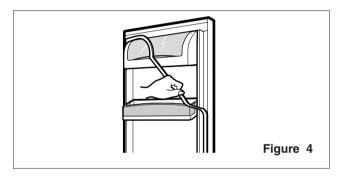
There are two clips on each door. Start bracket removal near one of the middle clips.

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



3. Remove gasket

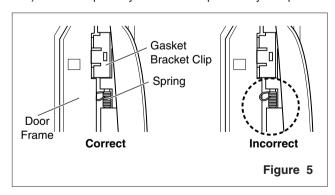
Pull gasket free from gasket channel on the three remaining sides of door.



Door gasket replacement

1. Insert gasket bracket clips

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

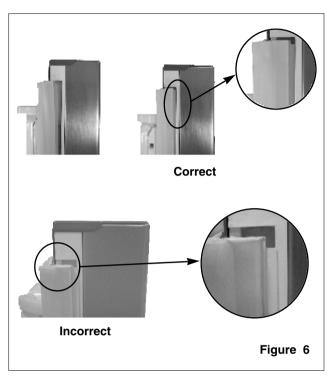


 Push in remaining two clips until you hear each snap securely into place.

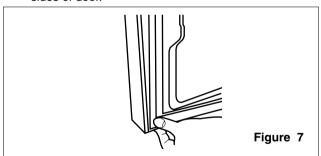
Note: Make sure that no part of gasket bracket edge protrudes from beneath door frame edge.

2. Insert gasket into channel

1) Snap gasket assembly into the door bracket. Inserting the gasket assembly into the bracket door

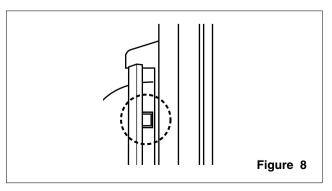


2) Press gasket into channels on the three remaining sides of door.



3. Replace door frame cover

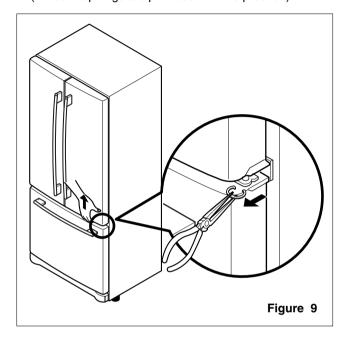
Starting at top of cover and working down, snap the cover back into door.



3-2 DOOR ALIGNMENT

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

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



3-3 HOW TO REMOVE AND REINSTALL THE PULLOUT DRAWER

3-3-1 FOLLOW STEPS TO REMOVE

Step 1) Open the freezer door.



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



Step 2) Remove the lower basket.

Step 4) Lift the freezer door up to unhook it from the rail support and remove.

Pull both rails to full extension.



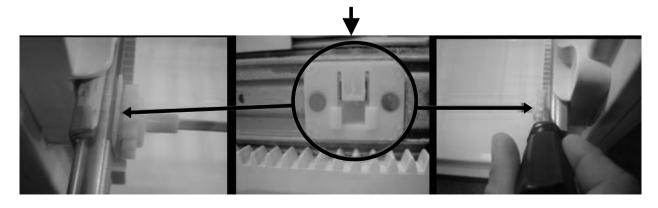


Step 5) First: Remove the gear from the left side first by releasing the tab behind the gear, place a screwdriver between the gear and the tab and pull up on the gear.

Second: Remove the center rail.

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

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



3-3-2 FOLLOW STEPS TO REINSTALL

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







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

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



Step 4) The rail system will align itself by pushing the rails all the way into the freezer section.

Pull the rails back out to full extension.

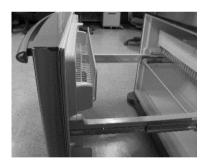


Step 5) Reinstall the freezer door by inserting the rail tabs into the guide rail.





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



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

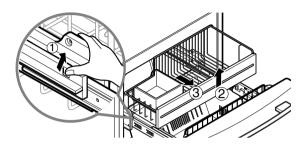




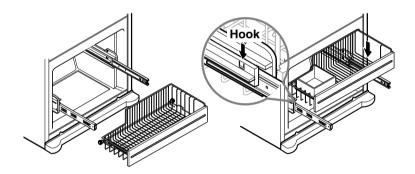
3-3-3 PULL OUT DRAWER

To separate the drawer, push the front left and right hooks in \bigcirc direction to pull up and remove.

Then gently lift the gear part of rear left and right side of the drawer and pull it out in 3 direction.



To install, reposition the gear part of rear left and right side of the drawer after pulling out both rails as much as possible, and gently push down both left and right side while checking the hook on the front part.



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.
 If the hermetic connector rusts out or fails, refrigerant and oil will be expelled into the contact area, probably
- (5) When replacing the compressor, be careful that dust, humidity, and soldering flux don't contaminate the inside of the compressor. Contamination in the cylinder may cause noise, improper operation or even cause it to lock up.

4-2 PTC-STARTER

4-2-1 Composition of PTC-Starter

resulting in smoke and fire.

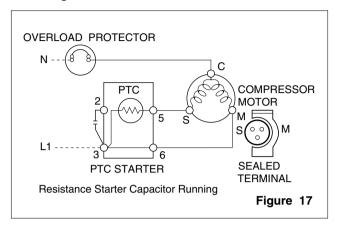
- PTC (Positive Temperature Coefficient) is a no-contact semiconductor starting device which uses ceramic material consisting of BaTiO3.
- (2) The higher the temperature is, the higher the resistance value. These features are used as a starting device for the motor.

4-2-2 Role of PTC-Starter

- 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 overcurrent 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.

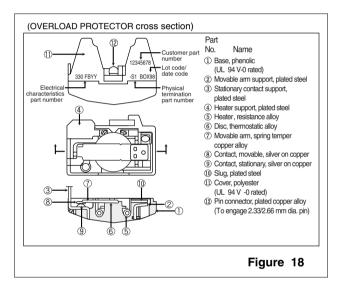
4-3 OLP (OVERLOAD PROTECTOR)

4-3-1 Definition of OLP

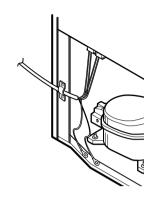
- (1) OLP (OVERLOAD PROTECTOR) is attached to the compressor and protects the motor by opening the circuit to the motor if the temperature rises and activating the bimetal spring in the OLP.
- (2) When high current flows to the compressor motor, the bimetal works by heating the heater inside the OLP,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

4-3-2 Role of the OLP

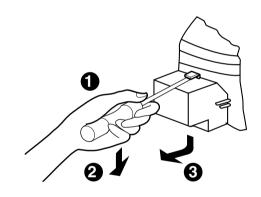
- (1) The OLP is attached to the sealed compressor used for the refrigerator. It prevents the motor coil from being started in the compressor.
- (2) For normal operation of the OLP, do not turn the adjustment screw of the OLP in any way.



4-4 TO REMOVE THE COVER PTC



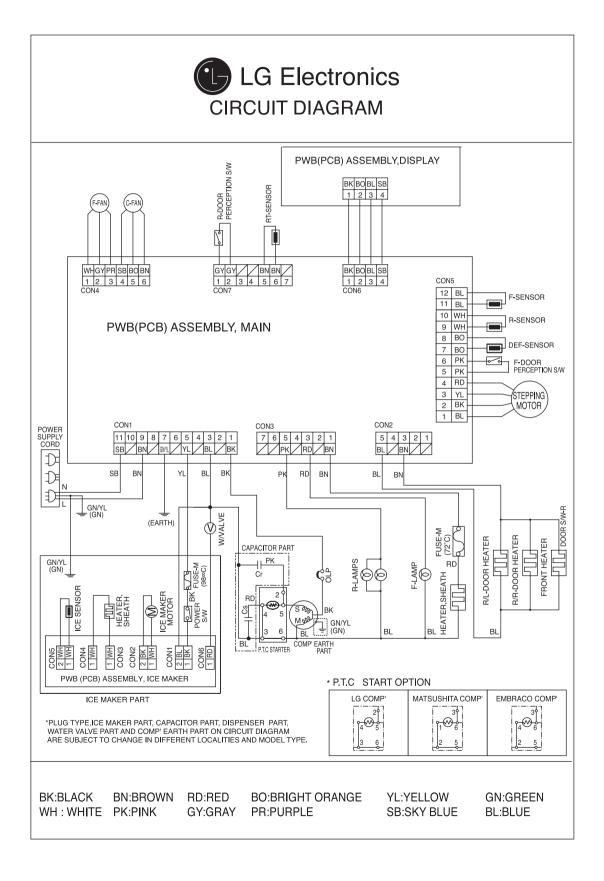
- (1) Remove the back cover of the mechanical area..
- (2) Disconnect the two connectors on the top of the compressor..
- (3) Loosen two screws on compressor base.



- (4) Use a flat screwdriver to pry off the cover.
- (5) Assembly is the reverse order of disassembly.

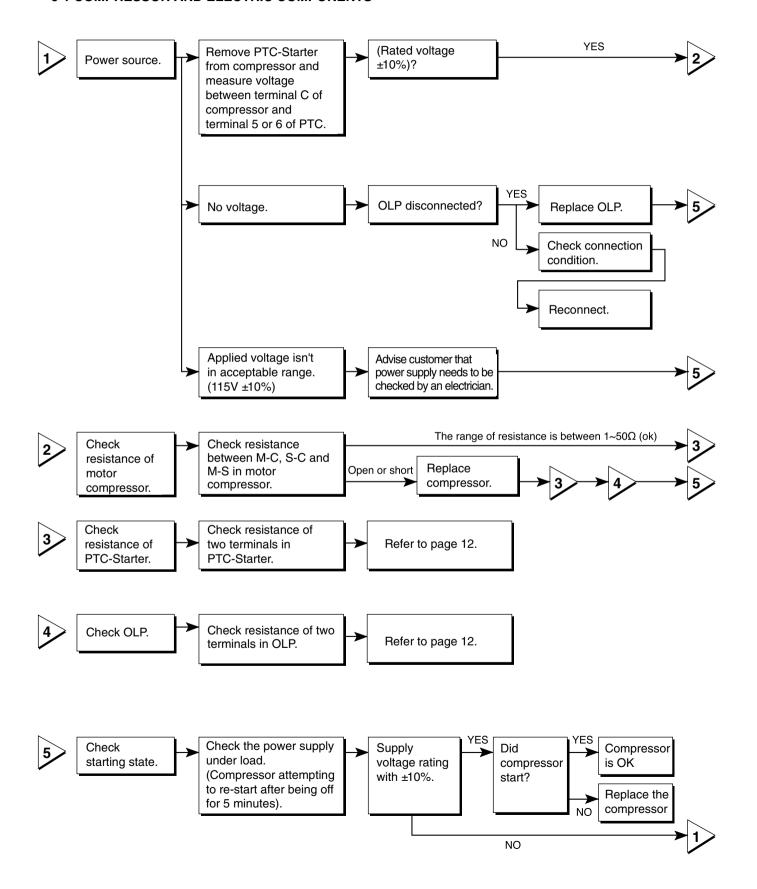
5. CIRCUIT DIAGRAM

BETTER MODEL

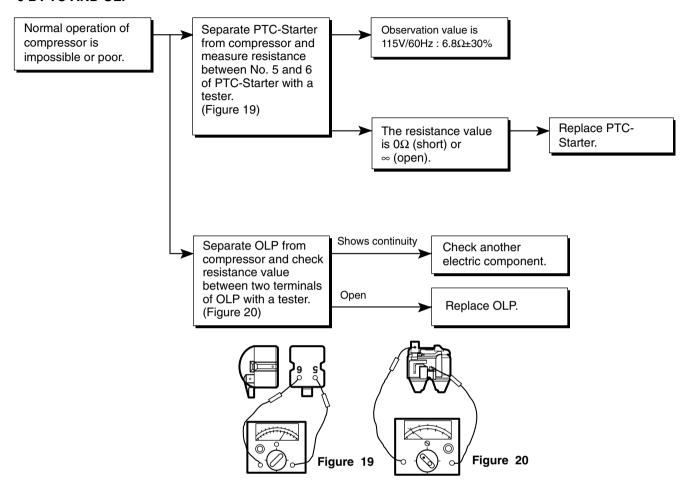


6. TROUBLESHOOTING

6-1 COMPRESSOR AND ELECTRIC COMPONENTS

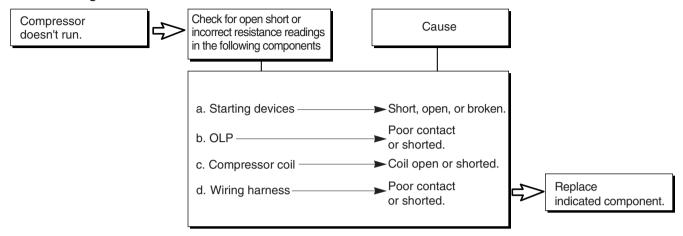


6-2 PTC AND OLP

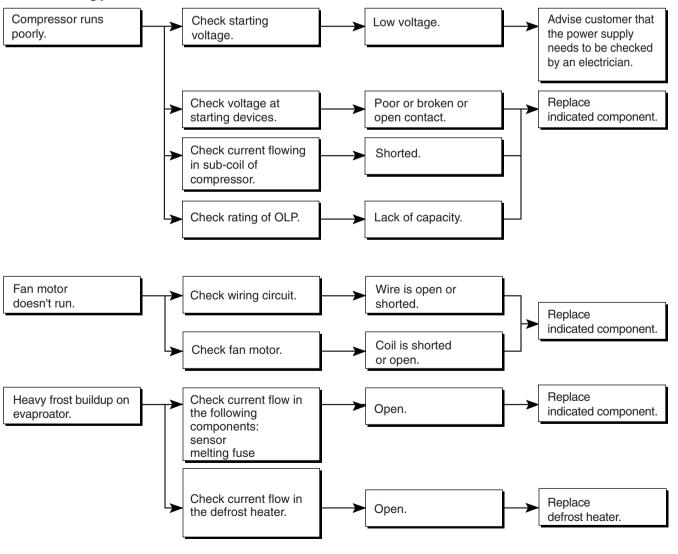


6-3 OTHER ELECTRICAL COMPONENTS

▼ Not cooling at all



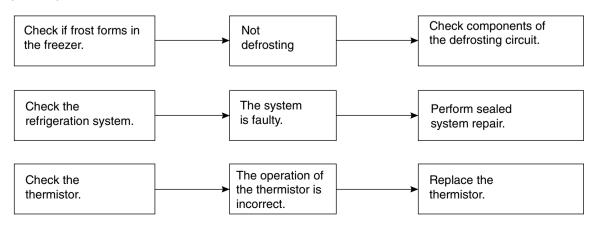
▼ Poor cooling performance



6-4 SERVICE DIAGNOSIS CHART

| COMPLAINT | POINTS TO BE CHECKED | REMEDY |
|--|--|---|
| No Cooling. | 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. | Plug into the outlet. Set the switch to ON. Replace the fuse. If the voltage is low, correct the wiring. |
| Cools poorly. | 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. | Place the unit about 4 inches (10 cm) from the wall. Place the unit away from these heat sources. Lower the ambient temperature. Put in foods after they have cooled down. Don't open the door too often and close it firmly. Set the control to recommended position. |
| Food in the Refrigerator is frozen. | Is food placed in the cooling air outlet? Check if the control is set to colder position. Is the ambient temperature below 5°C? | 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. | 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? | 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. | Check if the ambient temperature and humidity of the surrounding air are high. Is there a gap in the door gasket? | Wipe moisture with a dry cloth. It will disappear in low temperature and humidity. Fill up the gap. |
| There is abnormal noise. | Is the unit positioned in a firm and even place? Are any unnecessary objects placed behind of the unit? Check if the drip tray is not firmly attached. Check if the cover of the compressor enclosure in the lower front side is taken out. | Adjust the leveling screw, and position the refrigerator in a firm place. Remove the objects. Fix the drip tray firmly in the original position. Place the cover in its original position. |
| Door does not close well. | Check if the door gasket is dirty with an item like juice. Is the refrigerator level? Is there too much food in the refrigerator? | Clean the door gasket. Position in a firm place and level the leveling screw. Make sure food stored in shelves does not prevent the door from closing. |
| Ice and foods smell unpleasant. | Check if the inside of the unit is dirty. Are foods with a strong odor unwrapped? The unit smells of plastic. | 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:

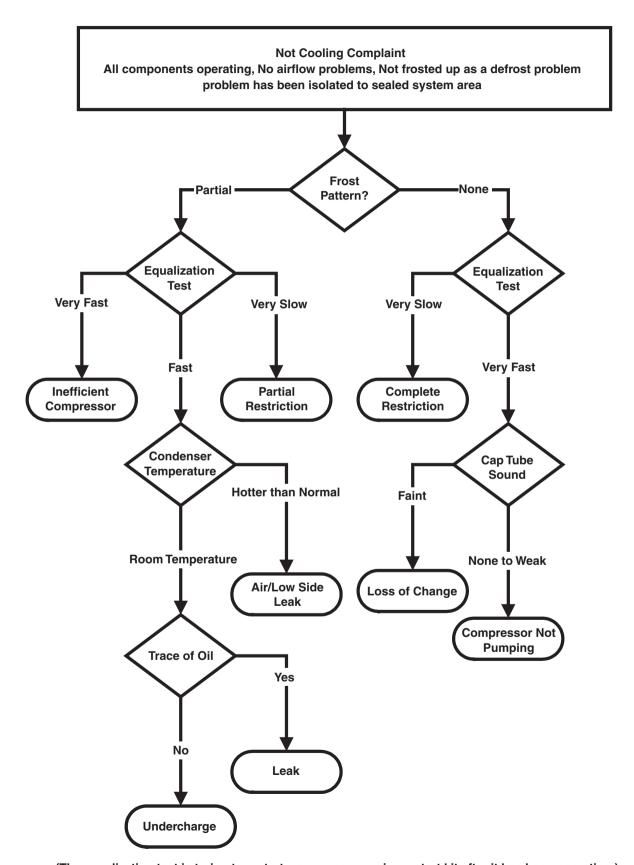


6-5 REFRIGERATION CYCLE

▼ 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. | 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. | No discharging of refrigerant. Normal cooling is possible by restoring the normal amount of refrigerant and repairing the leak. |
| CLOGGED | 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. | Normal discharging of the refrigerant. The capillary tube is faulty. |
| BY DUST | 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. | Normal discharging of the refrigerant. |
| 1 - | MOISTURE CLOG | Cooling operation stops periodically. | Flowing sound of refrigerant is not heard and frost melts. | Lower than ambient temperature. | Cooling operation restarts when heating the inlet of the capillary tube. |
| DEFECTIVE COMPRESSION | COMP- RESSION | Freezer and refrigerator don't cool. | Low flowing sound of refrigerant is heard and frost forms in inlet only. | A little higher than ambient temperature. | Low pressure at high side of compressor due to low refrigerant level. |
| | NO COMP- RESSION | No compressing operation. | Flowing sound of refrigerant is not heard and there is no frost. | Equal to ambient temperature. | No pressure in the high pressure part of the compressor. |

6-5-1 SEALED SYSTEM DIAGNOSIS

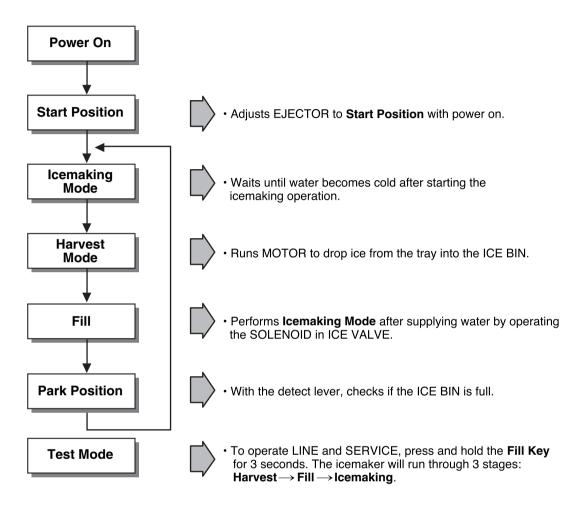


(The equalization test is trying to restart a compressor using a start kit after it has been operating.)

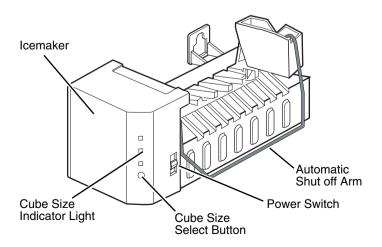
7. OPERATION PRINCIPLE AND REPAIR METHOD OF ICEMAKER

7-1 OPERATION PRINCIPLE

7-1-1 Operation Principle of Icemaker



- 1. Turning the Icemaker stop switch off (O) stops the icemaking 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. Icemaking refers to the freezing of supplied water in the ice trays. Complete freezing is assured by measuring the temperature of the Tray with icemaking SENSOR.
- 2. Icemaking starts after completion of the water fill operation.
- 3. The icemaking function is completed when the sensor reaches -7°C, 60 to 240 minutes after starting.
- 4. If the temperature sensor is defective, the icemaking 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 ices into the ice bin from the tray when icemaking has completed.
- 2. Harvest mode:
 - (1) The Heater is ON for 30 seconds, then the motor starts.
 - (2) Harvest mode is completed if it reaches start position again while Heater & Motor are on at the same time.
 - A. ice bin is full: The EJECTOR stops (heater off).
 - B. ice bin is not full: The EJECTOR rotates twice to open for ice.

NOTE: If the EJECTOR does not rotate once within 5 minutes in status (2), separate heater control mode starts operating to prevent the EJECTOR from being constrained. (It is recommended that the user open for ice to return to normal mode.)

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. | | |
| 2 | 7 sec. | | The water amount will vary depending on the water control switch setting, as well as the water pressure of the connected water line. |
| 3 | 8 sec. | | |

7-2-5 Function TEST

- 1. This is a compulsory operation for test, service, cleaning, etc. It is operated by pressing and holding the fill key for 3 seconds.
- 2. The test works only in the icemaking mode. It cannot be entered from the harvest or fill mode. (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 icemaker is frozen, the ejector will pass through the water. When the fill mode begins (stage 4), unless the water supply has been shut off, added water will overflow into the ice bin. If the control doesn't operate normally in the test mode, check and repair as needed.
- 4. After water is supplied, the normal cycle is followed: **icemaking** → **harvest** → **fill** → **park position**.
- 5. Five seconds after stage 5 is completed, the icemaker returns to MICOM control. The time needed to supply water resets to the pre-test setting.

< 5 stage of diagnosis >

| STAGE | ITEMS | INDICATOR | REMARKS |
|-------|--|--------------------------------------|--|
| 1 | HEATER | | Five seconds after heater starts, heater will go off if temperature recorded by sensor is 50°F(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 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 the Hall IC is sensing a full ice condition.(If there is a full-filled error, the fifth stage would not be progressed) |
| 6 | Reset | Mark previous status on TEST mode | Five seconds after fifth stage is completed, the icemaker resets to initial status. |

7-3 DEFECT DIAGNOSIS FUNCTION

7-3-1 ERROR CODE on water supply control panel at Ice Maker

| No | ITEM | ERROR CODE | 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. |

^{*} ERROR indicators in table can be checked only on TEST mode.

8. DESCRIPTION OF FUNCTION & CIRCUIT OF MICOM

8-1 FUNCTION

8-1-1 Function

- 1. When the appliance is plugged in, it defaults to 37°F for the refrigerator and 0°F for the freezer. You can adjust the refrigerator and the freezer control temperature by pressing the ADJUST button.
- 2. When the power is initially applied or restored after a power failure, it is automatically set to 37 & 0.

Best Model



Control range : 32°F ~ 46°F 0°C ~ 8°C Control range : $-6^{\circ}F \sim 9^{\circ}F$ $-21^{\circ}C \sim -13^{\circ}C$

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

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

8-1-3 Control of freezer fan motor

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

8-1-4 ICE PLUS

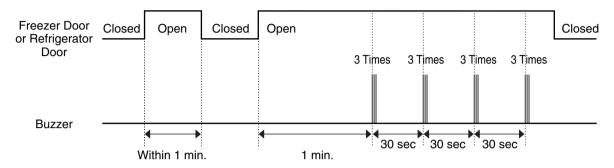
- 1. The purpose of this function is to intensify the cooling speed of freezer and to increase the amount of ice.
- 2. Whenever selection switch is pressed, selection/release, the icon will turn ON or OFF.
- 3. If there is a power outage and the refrigerator is powered on again, ICE PLUS will be canceled.
- 4.To activate this function you need to press the ICE PLUS key and the icon will turn ON. This function will remain activated for 24 hours. The first three hours the compressor and freezer fan will be ON. The next 21 hours the freezer will be controlled at the lowest temperature. After 24 hours or if the iICE PLUS key is pressed again, the freezer will return to its previous temperature.
- 5. During the first 3 hours:
 - (1) Compressor and freezer fan (HIGH RPM) run continuously.
 - (2) If a defrost cycle begins during the first 90 minutes of ICE PLUS, the ICE PLUS cycle will complete its cycle after defrosting has ended. If the defrost cycle begins when iICE PLUS has run for more than 90 minutes, ICE PLUS will run for two hours after the defrost is completed.
 - (3) If ICE PLUS is pressed during defrost, ICE PLUS icon is on this function will start seven minutes after defrost is completed and it shall operate for three hours.
 - (4) If ICE PLUS is selected within seven minutes after compressor has stopped, the compressor (compressor delays seven minutes) will start after the balance of the delay time.
 - (5) The fan motor in the freezer compartment rotates at high speed during ICE PLUS.
- 6. For the rest of 21 hours, the freezer will be controlled at the lowest temperature.

8-1-5. REFRIGERATOR LAMP AUTO OFF

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

8-1-6 Alarm for Open Door

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



8-1-7 Buzzer Sound

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

8-1-8 Defrosting (removing frost)

- 1. Defrosting starts each time the compressor running time reaches 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 8°C or more. If the sensor doesn't reach 8°C in 2 hours, the defrost mode is malfunctioning.
- 4. Defrosting won't function if its sensor is defective (wires are cut or short circuited)

8-1-9 Electrical Parts Are Turned On Sequentially

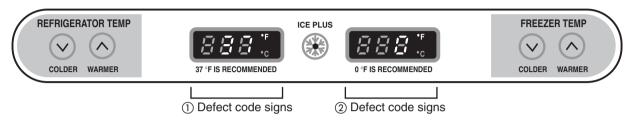
Electrical parts such as compressor, defrosting heater, freezer fan, etc. are turned on in the following order to prevent noise and parts damage. Several parts are started at the same time at initial power on and are turned off together when test is completed.

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

8-1-10 Defect Diagnosis Function

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

Best Model



ERROR CODE on display panel

| , NO | ITEM | ERROR CODE | | CONTENTS | DEMARKO |
|------|--|------------|-----------------------|---|---|
| NO | ITEM | 1) | 2 | CONTENTS | REMARKS |
| 1 | Failure of freezer sensor | Er | FS | Cut or short circuit wire | |
| 2 | Failure of Refrigerator sensor | Er | rS | Cut or short circuit wire | Inspect Connecting wires |
| 3 | Failure of defrost sensor | Er | dS | Cut or short circuit wire | on each sensor |
| 4 | Failure of Room Temperature sensor | | play check e:Er rt | Cut or short circuit wire | |
| 5 | Failure of defrost mode | Er | dH | When defrost sensor doesn't reach 46°F(8°C) within 2hours after starting defrost | Snapping of defrost heater or Temperature fuse, pullout of connector (indicated minimum 2 hours after failure occurs) |
| 6 | Failure of BLDC Fan Motor at Freezing Compartment | Er | FF | If there is no fan motor signal for more than 65sec in operation fan motor | Poor motor, hooking to wires of fan, contact of structures to fan, snapping or short circuit of Lead wires |
| 7 | Failure of BLDC Fan Motor a Mechanical Room | Er | CF | If there is no fan motor signal for more than 115sec in operation fan motor | Poor motor, hooking to wires of fan, contact of structures to fan, snapping or short circuit of Lead wires |

- Note 1) Room temperature sensor is not indicated on the failure indicating part but indicated in checking display. (When pressing for more than the warmer key of refrigerator temp and the warmer kye of freezer temp for more than 1 second).
- * LED check function: If press and hold the warmer key of refrigerator temp and the warmer key of freezer temp for a second, all display LED graphics on. When you release the buttons, the LED graphics displays the previous status.

8-1-11 TEST Mode

- 1. The test mode allows checking the PCB and the function of the product as well as finding out the defective part in case of an error.
- 2. The test mode is operated by pressing two buttons on the 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 COLDER KEY of Freezer Temp at the same time over 3seconds OR Push TEST S/W (in the main Board)once. | 1) Continuous operation of the COMPRESSOR and the Freezer fan 2) Stepping DAMPER OPEN 3) Defrosting HEATER OFF 4) DISPLAY LED all ON | |
| TEST2 | Push Express Freezing Key and COLDER KEY of Freezer Temp at the same time over 3 seconds in TEST MODE 1 OR Push TEST S/W once in TEST MODE 1 | 1) Continuous operation of the COMPRESSOR and the Freezer fan 2) Stepping DAMPER CLOSE 3) Defrosting HEATER OFF 4) DISPLAY LED shows no. 2 | |
| TEST3 | Push Express Freezing Key and COLDER KEY of Freezer Temp at the same time over 3 seconds in TEST MODE 2 OR Push TEST S/W once in TEST MODE 2 | COMPRESSOR and the Freezer fan OFF Stepping DAMPER CLOSE Defrosting HEATER ON DISPLAY LED shows no. 3 | Reset if the Temperature of the Defrosting Sensor is 46°F(8°C)or more. |
| RESET | Push Express Freezing Key and COLDER KEY of Freezer Temp at the same time over 3 seconds in TEST MODE 3 OR Push TEST S/W once in TEST MODE 3 | Reset to the previously setting Before TEST MODE. | The compressor will Start after a 7-minute Delay. |

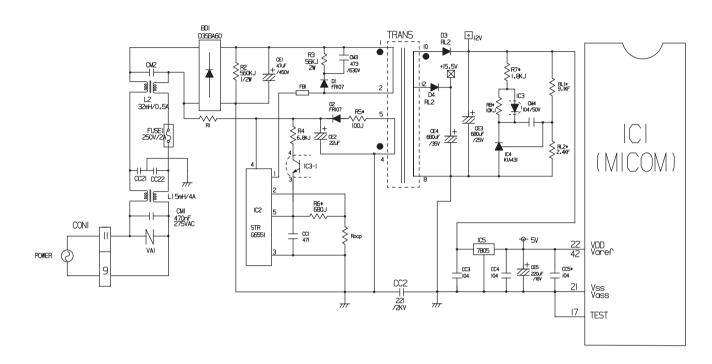
* Freezer Fan Variable RPM Check:

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

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

8-2 PCB FUNCTION

8-2-1 Power Circuit



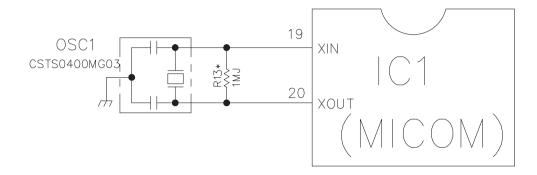
The secondary part of the TRANSFORMER is composed of the power supply for the display, the BLDC FAN Motor drive (15.5 V), the relay drive (12 Vdc) and the MICOM and IC (5 Vdc).

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 |

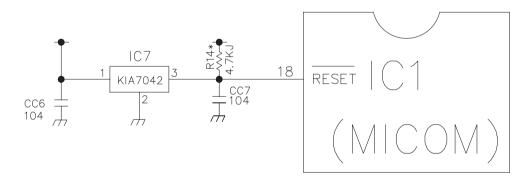
VA1 is a part for preventing over voltage and noise. When 385V or higher power is applied, the inside elements are short-circuited and broken, resulting in blowout of the fuse in order to protect the elements of the secondary part of the TRANSFORMER.

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 specified replacement parts, since calculating time by the IC1 may be changed. If changed, the OSC1 SPEC will not work.

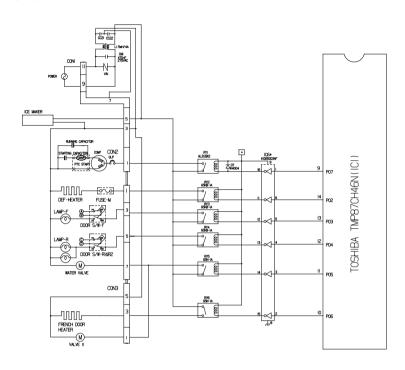
8-2-3 Reset Circuit



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

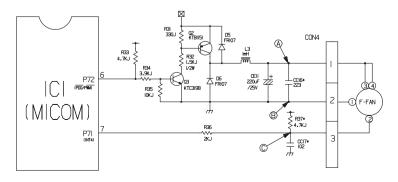


| LOAD T | YPE | COMP | DEFROSTING HEATER | LAMP-F | LAMP-R | WATER VALVE/VALVE2 | FRENCH DOOR HEATER |
|----------------|--------------|-------|----------------------|--------|--------|-----------------------|--------------------------|
| Measurement Lo | cation (IC6) | NO.16 | NO.11 | NO.12 | NO.13 | NO.14 | NO.15 |
| Condition | ON | | | 1V or | below | | |
| Condition | OFF | | | 12 | 2V | | |

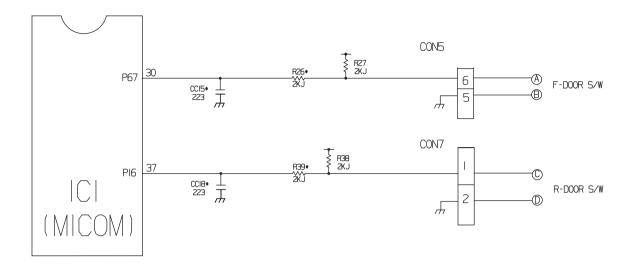
2. Fan motor driving circuit (freezer compartment fan)

- 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.

| | a part | (b) part | © part |
|-----------|------------|----------|--------|
| MOTOR OFF | 2V or less | 0V | 5V |
| MOTOR ON | 13V~15V | 0V | 2V~3V |

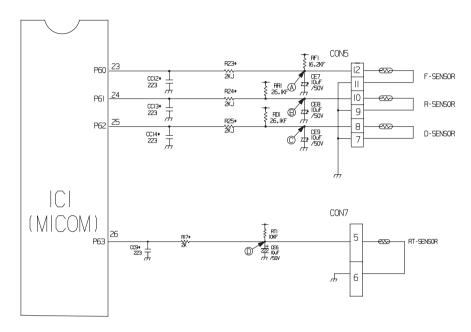


2. Open Door Detection Circuit Check



| Measurement Freezer/ Location Refrigerator Door | (PIN NO.30 & PIN NO.27) |
|---|-------------------------|
| Closed | 5 V |
| Open | 0 V |

8-2-5 Temperature Sensor Circuit



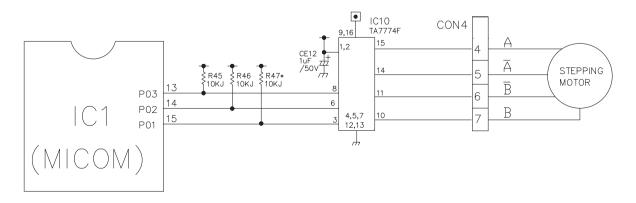
The upper circuit reads refrigerator temperature, freezer temperature, and defrost sensor temperature for defrosting and the indoor temperature for compensating for the surrounding temperature into MICOM.

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 | | | |
| Refrigerator sensor | POINT B Voltage | 057/457/ | 0.1/ | 5.1/ |
| Defrosting sensor | POINT © Voltage | 0.5 V ~ 4.5 V | 0 V | 5 V |
| Room Temperature sensor | POINT D Voltage | | | |

8-2-6 Refrigeration Compartment Stepping Motor Damper Circuit

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



8-3 RESISTANCE SPECIFICATION OF SENSOR

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

[•] The resistance of the SENSOR has a ±5% tolerance.

[•] 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.

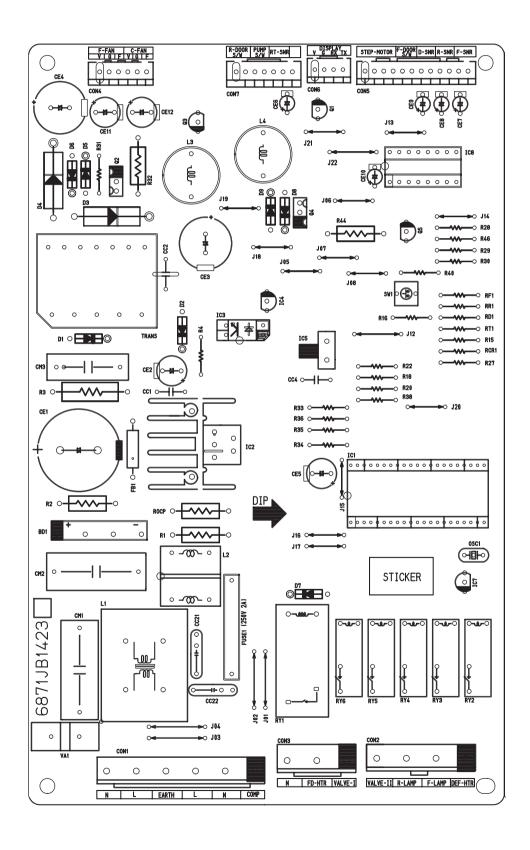
8-4 TROUBLESHOOTING

| PROBLEM | INDICATED BY | CHECK | CHECKING METHOD | CAUSE | SOLUTION |
|-----------------------|--|-----------------------------------|--|-------------------------------|--|
| Power source is poor. | 1. The whole DISPLAY LED/SEVEN SEGMENT DISPLAY is off. | 1. FREEZER/ REFRIGERATOR. | Check if freezer or refrigerator door is open and check display. | Power source is poor. | Check outlet voltage. |
| | 2. DISPLAY LED/ | 2. If lamp is dim. | Check visually. | Applied voltage error. | Use boosting transformer. |
| | SEVEN SEGMENT DISPI AY operates | 3. The connection of the main PWB | Check connection of connector | connector connection | Reconnect connector. |
| | abnormally | connector. | | Transformer fuse is open. | Replace transformer. |
| Cooling is poor. | No cooling. | If the compressor operates. | Use Test Mode1 (forced cooling). | Compressor locked or blocked. | Replace compressor. |
| | | | If less than 7 minutes pass | OLP, PTC, or | Replace OLP, PTC. |
| | | | after compressor shuts off, don't press the key and | compressor are failed. | Replace main PWB. |
| | | | wait. | Connection wire is defective. | Check the connection of the |
| | | | | | black wire of the main PWB connector (CON2). |
| | | 2. If refrigerant is leaking. | Measure the amount of frost | Refrigerant leakage. | Replace the leaking part and |
| | | • | sticking on evaporator | | replace any lost refrigerant. |
| | | | and the surface temperature of the condenser pine. | | |
| | Freezer | 1. If fan motor | Use Test Mode 1 | Fan motor is defective. | Replace the fan motor. |
| | temperature is | operates. | (forced cooling). | | |
| | incorrect | | | Connection wire is defective. | Refer to 8-2-4. 2 and check |
| | | 2. If defrosting | Check the amount of frost | Defrosting is poor. | See DEFROSTING |
| | | is normal. | sticking on the evaporator. | | is poor, page 34. |
| | | 3. If sensor | Check the resistance | Sensor resistance is | Replace sensor. |
| | | is normal. | of the refrigerator | incorrect. | |
| | | | sensor. | | |
| | | 4. Gasket seal incorrect. | Check the seal when the door is closed. | Door liner damaged. | Replace door liner. |

| יח כטר הוצי | INDICATED BY | | | CAOSE | SOLOTION |
|-----------------------|-----------------|-------------------------------|-------------------------------|------------------------------|-----------------------------|
| COOLING is defective. | If refrigerator | 1. If frezzer temperature | Check is frezzer | | Make sure the |
| | temperature | is normal. | temperature is too low. | | door is attached. |
| | is too low. | 2. If amount of cool air from | Make sure that the amount | FAN motor is defective. | Replace fan motor. |
| | | fan motor is | and speed of cool air are | Passage of cool air | Remove impurities. |
| | | sufficient. | sufficient by touching the | is blocked. | |
| | | | check supplied on the | Evaporator frozen. | See defrosting is poor, |
| | | | refrigerator. | | below. |
| | | 3. Door gasket contact. | Check door seal when | Door liner damaged. | Replace door liner. |
| DEFROSTING is | NO defrosting. | 1. If heater emits heat. | USE TEST MODE3 | Heater disconnection. | Replace heater. |
| defective. | | | (forced defrosting). | | |
| | | | | Temperature fuse | Replace temperature |
| | | | | is blown. | fuse. |
| | | | | Connection is poor. | Check evaporator |
| | | | | | connection and wire of main |
| | | | | | PWB connector. |
| | | | | Defrost sensor is defective. | Replace defrost sensor. |
| | | | | Heater relay is poor. | Replace RY2 of main PWB. |
| | | 2. If drain pipe is | Check drain pipe. | Drain pipe is blocked. | Remove ice and impurities. |
| | | blocked. | | | Check heater plate |
| | | | | | resistance. |
| | | 3. If ice remains after | Make sure that defrost | Connection is poor. | Reassemble the |
| | | defrosting. | sensor is connected. | | defrost sensor. |
| | | | Make sure that frezzer and | Door does not close | Reassemble door. |
| | | | refrigerator doors are dosed. | properly. | Replace gasket. |

8-5 MAIN PWB ASSEMBLY AND PARTS LIST

8-5-1 Main PWB Assembly



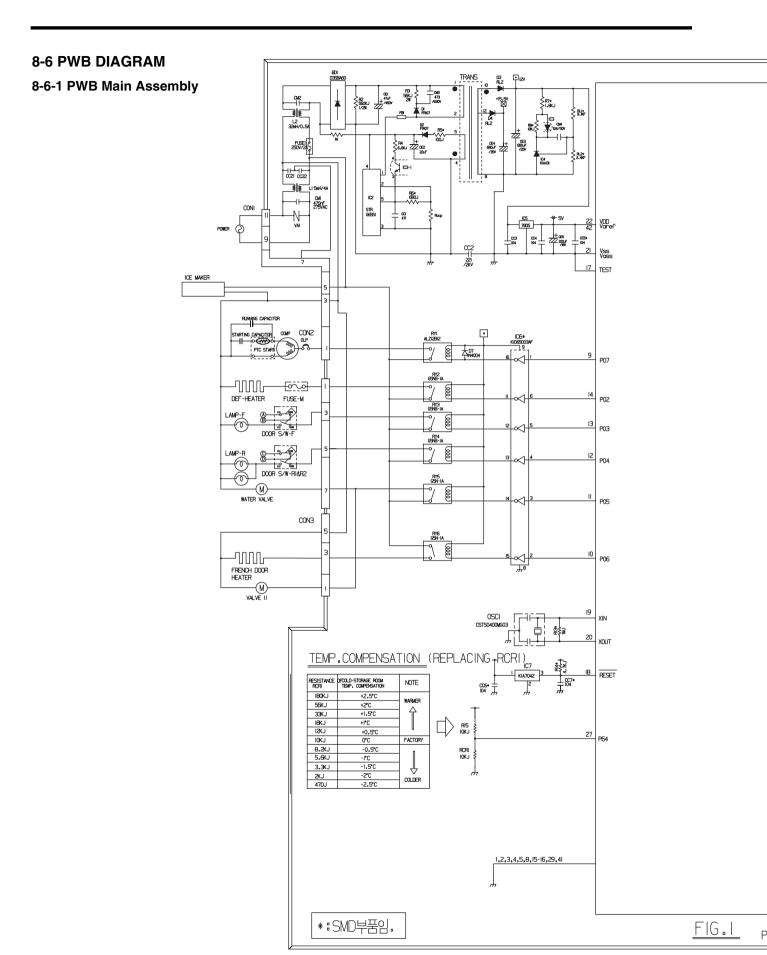
8-5-2 Replacement Parts List

| B WORK SO: | | | | |
|---|---|---|---|--|
| BRANDI PUT BEST DC-BLD APPLICAÇION | | | | |
| 0ty, No P/N0 IA I 6870JB8239 | DESCRIPTION PNB (PCB) | SPEC | MAKER DOO SAN | REMARK T=1.6 |
| 1 2 6170JB2012B 6170JB2012C | TRANSFORMER, SMPSI COIL 1 | EEST ERAVO-PJT DL-PJT 2,5M4/20W | SAM IL | TRANS |
| 1 4 6630A09106E 1 5 6630A09106C 1 6 6630A09106B | CONNECTOR (CIRC), WAFER CONNECTOR (CIRC), WAFER CONNECTOR (CIRC), WAFER | YM396-1IAV YM396-07AV YM396-05AV | YEON HO YEON HO YEON HO | CONI CON2 CONG |
| 1 7 6630JB8004E | CONNECTOR (CIRC), WAFER | SMI/250 YEONHO 6P 2,5MM STRAIGHT SN | YEON HO YEON HO | C0N4 C0N5 |
| 1 9 6630JBB004C 1 10 6630JBB004F | CONNECTOR (CIRC), WAFER CONNECTOR (CIRC), WAFER CONNECTOR (CIRC), WAFER | SMIZEO YEONHO IZP Z. SMM STRAIGHT SN SMIZEO YEONHO AP Z. SMM STRAIGHT SN SMIZEO YEONHO 7P Z. SMM STRAIGHT SN | YEON HO YEON HO | C0N6 C0N7 |
| 0 ZZJB2067K 2 0 SK635100A 3 0 PMGNE001A | IC, DRAWING IC, POWER MANAGEMENT IC, POWER MANAGEMENT | TMP87C846N 42P SDIP BK WASK BRAV033-PJT BEST/BETTER STR-6655I SPIN BK SHS 2, APIN FORM PSZ56ILI-I-V NEC 4P, DIP BK : TLP72IF | TOSHIBA SANKEN NEC | 101 102 103 |
| 1 14 OIKE431000A 1 15 OIKE780500Z | IC,KEC IC,LINEAR | KIA43I (TP) KIA780FPI 3DIP BK 5V IA REFORM | KEC CHANGJIANG KEC CHANGJIANG | 1C4 1C5 |
| - 16 OIKE650030B 1 17 OIKE704200D | IC,KEC | KIDESOGAP ISP, SDIP BK DRIVE IC KIA7042P ZK/TP 4.2 RESET KEC | KEC KEC | 106 107 |
| 17 OIKE7042000 18 OIT0777400A 19 6920000001A 6920JB2005B | IC, DRAWING FELAY | TA7774AP 16, SDIP BK DRIVE, IC STEPPING MOTOR ALEISBIZ 250/VAC IGA 12VUC 1A NO VENTING GS.55-1A-NT 250/VAC IGA 12VUC 1A NO VENTING | TOSHIBA MATSUSHITA OMFON | IOS RYI |
| 3 20 6920JB2003A | RELAY | DHIU II 250VAC IGA IZVDC IA VENTING IGSN-IA NARON 250VAC I SA IZVDC IA IAPAN | 제일전기 OMPON | RY3,RY5,RY6 |
| 6920JB2003E 6920JB2003F 6920JB2003F | | GSNB-TA-ETCHINAT OMPON 250VAC SA TZYDC TA NO VENTING GSNB-TA-ETJRPANT OMPON 250VAC SA TZYDC TA NO VENTING FCC-TEZDBHOOLINAT 250VAC SA TZYDC TA NO VENTING FCC-TEZDBHOOLINAT 250VAC SA TZYDC TA NO VENTING | OMPON OMPON TYCO | |
| 6920A90002A 6920 W 5A007A | | ALDIIZUAPANI 250VAC 3A IZVOC IA NO VENTING ALDIIZ MATSUSHITA 250VAC 3A IZVOC IA NO VENTING | MATSUSHITA MATSUSHITA | 1 |
| 6920A09054B 2 20 6920JB2003E | RELAY | GSN-1A OWRON 250VAC 3A 12VDC 1A GSNB-1A-ETCHINAT OWRON 250VAC 5A 12VDC 1A NO VENTING | OMPON OMPON OMPON | RY2,RY4 |
| 6920JB20030 - 22 6920JB2009B - 23 - | RELAY | (ESNB-TA-E (JAPAN) OMPON 250VAC 5A 12VDC TA NO VENTING (ESSB-T4 OMPON 250VAC 5A 12VDC TC NO VENTING | OMPON - | |
| 1 24 6212BA304IA | RESONATOR, CERAMIC | CSTLS4M00G53-A0 MURATA 4.00MHZ +/- 0.5% TA ISPF 3 | MURATA | OSCI |
| - 25 6102JB9001B | VARISTOR | INRI40621 ILJIN UL/VDE BK 620V SV06210-14A | IL JIN/ 이모텍 심화 | VAI |
| 1 26 6102W5V007A 1 27 0DB360000AA | VARISTOR DIONE DECTIFIEDS | TVRI2621 INRI4031K IL JIN UL/CSA/VDE BK OSCOLAGO DE CHINDENCEN - 670V AA 90A - 10 IA | THINKING IL JIN /OPE | VAI |
| 1 28 0DD400409AC 6 29 0DR107009AA | DIODE, RECTIFIERS DIODE, RECTIFIERS DIODE, RECTIFIERS | D35BAGO BK SHINDENGEN - 600V 4A 80A - 10UA RECTINACOA ITP FRIOT TP RECTRON DOAL 1000V IA 30A 500NSEC 5A | SHINDENGEN DELTA DELTA | BDI D7 D1,D2,D5,D6,D8,D9 |
| 2 30 ODRSA00070A 1 31 OCEI05BK638 | DIODE, RECTIFIERS CAPACITOR, FIXED ELECTROLYTIC | RL2 SANKEN BK NON 400V 2A 40A 50NSEC IOUA IUF KNE,RG,YX 50V 0.2 FN5 TP 5 (YXA/SM) | SANKEN SAM WHA /삼영/쿠비콘/G-LUXON | CEIO |
| 4 32 00E106EK638 1 33 00E227BF638 1 34 00E227BH638 | CAPACITOR, FIXED ELECTROLYTIC CAPACITOR, FIXED ELECTROLYTIC CAPACITOR, FIXED ELECTROLYTIC | IOUF NNG 50V 20X, FNG TP 5 | SAM WHA /심앙/쿠브론/G-LUXON SAM WHA /심앙/루브론/G-LUXON SAM WHA /심앙/쿠브론/G-LUXON | 056-059 055 051 |
| 1 35 00E6879H638 1 36 | CAPACITOR, FIXED ELECTROLYTIC CAPACITOR, FIXED ELECTROLYTIC | 680.F (ME, IR6 25V 20X PMS TP 5 (YXA/SH) 47LF 22.F (ME, YYEE 55V 20X PMS TP 5 47LF 4.50V 20X BLM SWP N (KLTAMC/HW) | SAM WHA /삼영/루비콘/G-LUXON SAM WHA | CEI2 CE2 |
| 1 37 00E476ZV6E0 1 38 00E687YH6E0 1 39 00E687YJ6J8 | CAPACITOR, FIXED ELECTROLYTIC CAPACITOR, FIXED ELECTROLYTIC | IBBOUF HX 25V 2U% BOUK SWAP IN (KXL/YXG/LU) | SAM WHA /심영/쿠비콘/G-LUXON SAM WHA /심영/루비콘/G-LUXON | CEI CE3 CE4 |
| 1 39 00E687YJ6I8 2 40 00KI02DK96A - 41 00KI040K949 | CAPACITOR, FIXED ELECTROLYTIC CAPACITOR, FIXED CERAMIC(HIGH DIELECTRIC) CAPACITOR, FIXED CERAMIC(High dielectric) | [#80LF PX 39V 20X TP 5 FL (KXL/YXG/LU) INF 2012 50V 80X,-20X R/TP X/7R O, IUF D 50V 80X,-20X F FYSV) TAS2 | SAM WHA /삼영/쿠터콘/G-LUXON MURATA SAM WHA | 0017,0020 003,004,006,007 |
| - 42 OCKIO4DK9BA I 43 OCK22IO25IO | CAPACITOR, FIXED CERAMIC (High dielectric) CAPACITOR, FIXED CERAMIC (High dielectric) | 0.IUF 2012 50V 80%,-20% R/TP UE 220P 2KV K B S | MURATA SAM WHA /HONG MING | 005,0010 002 |
| - 44 0CK2230K949 10 45 0CK223DK96A 1 46 0CK47IQK5I9 | CAPACITOR, FIXED CERAMIC(High dielectric) CAPACITOR, FIXED CERAMIC(HIGH DIELECTRIC) CAPACITOR, FIXED CERAMIC(High dielectric) | 22NF 50V Z F TAS2 22NF 2012 50V 80%, -20% R/TP X/R 470FF 50V K B TAS2 | SAM WHA MURATA SAM WHA | 008,009,0011-16,0018-19 001 |
| - 47 0CQI04IN509 - 48 | CAPACITOR, FIXED FILM | 0.IUF D 100V 10% PE TP5 | SAM WHA | OM4 |
| 1 48 00F473IY470 48 1 49 000474IB670 | CAPACITOR, FIXED FILM | 0.047/F D 630V 0.05 BULK M/PP NI | PILKOR | CW3 |
| 2 50 OLRIOOIM4F0 - 51 ORDIOOIG609 | CAPACITOR, FIXED FILM INDUCTOR, RADIAL LEAD RESISTOR, FIXED CAPBON FILM RESISTOR, FIXED CAPBON FILM | 0.47\F D 275\ 20X M/PP NI R 1000UH 20X R 6XI2.5 BULX IX OHI I/4 W 5X TAS2 | SAM WHA TNC SWART | CMI L3,L4 RI9 |
| - 52 0FD1002G609 - 53 0FD2001G609 - 54 0FD3901G609 | RESISTOR, FIXED CARBON FILM RESISTOR, FIXED CARBON FILM RESISTOR, FIXED CARBON FILM | TOK OM 1/4 W SX TAS2 2K OM 1/4 W SX TAS2 3.9K OM 1/4 W SX TAS2 | SMART SMART SMART | R29,R35,RCRI R17,R20,R21,R22,R26,R27,R36,R45 R34,R4I |
| - 55 ORD47016609 1 56 ORD5603H609 | RESISTOR, FIXED CARBON FILM RESISTOR, FIXED CARBON FILM | 4.7K OHM 1/4 W 5K TAS2 560K OHM 1/2 W 5K TAS2 | SMART SMART | RIB,R33,R40,R46 R2 |
| 57 58 - 59 ORJ270IL622 | RESISTOR,METAL GLAZED(CHIP) | 2.7% OHM 1/8 W 5% 2012 B/TP | ROHM | |
| - 60 ORJI002E672 I 6I ORJI002E672 | RESISTOR, METAL GLAZED (CHIP) RESISTOR, METAL GLAZED (CHIP) RESISTOR, METAL GLAZED (CHIP) | 2.7K OHM 1/8 W 5X 2012 R/TP 10KOHM 1/8 W 5X 2012 R/TP 10KOHM 1/8 W 5X 2012 R/TP 100 OHM 1/8 W 5X 2012 R/TP | ROHM ROHM | RI5,R28,R30,R42,R8 RI3 |
| - 62 0RJI00IE672 - 63 0RJ200IE672 - 64 | RESISTOR, METAL GLAZEDIOHIPI RESISTOR, METAL GLAZEDIOHIPI RESISTOR, METAL GLAZEDIOHIPI | 100 CHN 1/8 W 5X, 2012 R/TP 2X CHN 1 / 8 W 5X, 2012 R/TP 330 CHN 1/8 W 5X, 2012 R/TP | ROHM ROHM ROHM | R7 R21,R23-R25,R38,R39 R31,R43 |
| - 65 ORJ470IE672 I 66 ORDI200E672 | RESISTOR, METAL GLAZED (CHIP) RESISTOR, METAL GLAZED (CHIP) | 14.7K OHM I/8 W 5% 2012 R/TP | ROHM ROHM | RI4,RI6,R37 R5 R32,R44 |
| 2 67 0FDI50IH609 - 68 0RJ0000E672 I 69 0RJ240IE472 | RESISTOR, FIXED CARBON FILM RESISTOR, METAL GLAZED (CHIP) RESISTOR, METAL GLAZED (CHIP) | 120 OHM 1/3 W 57, 2012 R/TP 1.5K OHM 1/3 W 57, 7452 0 OHM 1/8 W 57, 2012 R/TP 12.4K OHM 1/8 W 17, 2012 R/TP | SMART ROHM ROHM | R32,R44 RJI RL2 |
| 1 70 ORJ6800E672 1 71 ORD680IG609 | RESISTOR, METAL GLAZED (CHIP) RESISTOR, FIXED CARBON FILM | 680 OHM I/8 W 5% 2012 R/TP 6.8K OHM I/4 W 5% TA52 | ROHM SMART | R6 R4 |
| 1 72 ORJ9101E472 - 73 ORJ1002E472 | RESISTOR, METAL GLAZED (CHIP) RESISTOR, FIXED METAL FILM RESISTOR, FIXED METAL FILM | 9.1K OHM 1/8 W 1% 2012 R/TP 10K OHM 1/8 W 1.00% 2012 R/TP | ROHM ROHM | RLI RTI |
| 1 74 OFNI622G409 2 75 OFN26I2G409 - 76 OFS0I5IJ609 | RESISTOR, FIXED METAL FILM RESISTOR, FIXED METAL FILM RESISTOR, FIXED METAL OXIDE FILM | 16.2K OHN 1/4 W 1,00% TAS2 25.1K OHN 1/4 W 1,00% TAS2 11.5 OHN 1 W 5,00% TAS2 | SMART SMART SMART | RFI RRI,RDI ROCP |
| 1 77 ORSOI0IJ609 - 78 ORS8202J609 | RESISTOR, FIXED METAL OXIDE FILM RESISTOR, FIXED METAL OXIDE FILM | I OHM I W 5% TAS2 B2K OHM I W 5,00% TAS2 | SWART SWART | ROCP RI R3 |
| 1 79 0FS5602K64I 1 80 0FS3903J609 2 81 0TR3I9809AB | RESISTOR, FIXED METAL OXIDE FILM RESISTOR, FIXED METAL OXIDE FILM TRANSISTOR | SSK CHM 2 W 5,00X F20 330K OHM I W 5,00X FAS2 KTC3I9B(KTCBIS) KEC TP T092 NA NA | SMART SMART KEC | R3 RI 03,05 |
| 2 81 OTRGIGBOGAB OTRGIGBOGAB 2 82 OTRKE0000BA 1 83 OTRKEB00I6A | TRANSISTOR TRANSISTOR, BIPOLARS TRANSISTOR, BIPOLARS TRANSISTOR, BIPOLARS | KTC3ISBIKTCIBIS KEC TP T032 NA NA KEC KTBIISI BK T0126 60V SA KEC KRDIOSS R/TP SOT23 50V 100MA | KEC CHANGJIANG KEC KEC | 02,04 01 |
| - 84 6200.BB004A | FILTER(CIRC) JEWC FILTER(CIRC) JEWC | ICV940050 TNC IUVII-05320 TNC BK 0.5A 320MH | TNC TNC /EUROTRONIX | LI L2 |
| 86 6210,B9001A 87 6600RRT001Z - 88 00ZWR00029A | FILTER(CIRC) , EMC SWITCH, TACT DIODE , ZENERS | EFSSIOAO SAMHA TIFSZ BEAD FILTER JIPIZBOAG JEL IZVOZ 50M4 - NSCZBB MOTORRA IP DOM4 - NSW 5.6V BIMA "PF | JEIL SAM WHA | FBI SWI |
| | | 0,6MM T2MM TP TAPING SN | DEL TA | ZDI J03,J04,J06-JI2,JI5(IOMM) |
| 5 0 | JUMP WIRE | U.BMM SEAM IP TAPING SM 2A 250V - SLOW-BLOW LITTELFUSE,TRIAD | DAE A LEAD | JI3,JI4(8MM) J01,J02,J05(I2,5MM) |
| 90 OFZZJB900IA 91 ISBF03024IB - 92 | FUSE, DRAWING SCREW TAP TITE(S), BINDING HEAD | + D3.0 L8.0 MSWF3/FZY | SAM JU KYO YUK HAENG SUNG | FUSÉI |
| . 93 4920JB300/A . 94 SSWZU-L05AA | HEAT SINK SOLDER, SOLDERING | 23.3°7.25 DRIVE IC 5TR R-564,65,73 ZPIN I-SCREW 3MM - L/N-38, SN 3.046-0,50.Xf 3.086+0.003 | (IC2) - | (IC2) - |
| 95 7245ZB0004A 96 SS000000BAA 2 97 OCK22I02SI0 | FLUX SOLDER (ROSIN WIRE) RSO CAPACITOR, FIXED CERAMIC IC, STANDARD LOGIC | 39**FBF *-UD N.SK 12,5 W1% U.815+*-U.0U3 SR-34 PB FREE, L.FM-48 SZ20F* D ZKV 10% B179P) R | SAM WHAZHONG MING | - - - - - - |
| 1 98 OIKE650030C 8 99 ORJ200IE672 | HESISTUR, METAL GLAZEDTUHPT | 55*79F** 06 RSN 12.5 WLX 0.480***0.000 57*34 HB FREE, LTM-48 220F* D ZW 10X B 10*9 H 220F* D ZW 10X B 10*9 H 25 QM 1 / 8 W 5X 2012 R/TP | KEC ROHM | 106 R21,R23-R25,R39,R17,R26,R45 R20,R22,R27,R36,R38 |
| 1 101 ORJ1001E672 | RESISTOR, FIXED CARBON FILM RESISTOR, METAL GLAZED (CHIP) DICOG ZENERS | 2X O+M I/4 W 5X TAS2 100 O+M I/9 W 5X 2012 R/TP NSZ22B UNDROPAR 2 TO 0004 D 5W 5 6V RIMA PF | SMART ROHM | R7 |
| I 103 0RD3901G609 I 104 0RJ3901E672 | DIODE, ZENERS RESISTOR, FIXED CARBON FILM RESISTOR, METAL GLAZEDIOHIPI RESISTOR, METAL GLAZEDIOHIPI | 2K OM L/Y 8 TSC TASC TO OM L/B B S 2012 R/TP NASZ2B DIOTOGOR TSC TASS J.SK OM L/B S TASS J.SK OM L/B W SC Z012 R/TP NOWN L/B W SC Z012 R/TP NOWN L/B W SC Z012 R/TP | DEL TA SWART ROHM | ZDI R34 R4I |
| 6 105 ORJ1002E672 1 106 ORD1002G609 | RESISTOR, METAL GLAZED (CHIP) RESISTOR, FIXED CARBON FILM RESISTOR, FIXED CARBON FILM | OKO+M 1/8 W 5X 2012 P/TP IOK O+M 1/4 W 5X TAS2 4-7K O+M 1/4 W 5X TAS2 | ROM SMART SMART | RI5,R28-30,RCRI,R42 R35 RI6,RI8,R33,R40,R46 |
| 5 107 0RD4701G609 2 108 0RJ4701E672 1 109 0CKIQ40K949 | RESISTOR, METAL GLAZED (CHIP) | 14.7K OHM I/4 W 5K TAS2 4.7K OHM I/8 W 5K 2012 R/TP 0.IUF D 50V 80X, -20X FIYSVI TAS2 | ROHM SAM WHA | RI6,RI8,R33,R40,R46 RI4,R37 CC4 |
| 6 III OCKIO4DK9BA | CAPACITOR, FIXED CEPAMIC (High dielectric) RESISTOR, FIXED METAL OXIDE FILM RESISTOR, METAL GLAZED (CHIP) | 0.1UF 2012 50V 80%,-20% R/TP JE 10K 0HM 1/6 W 1.00% TA52 | MURATA SMART | CC3,CC5-7,CC10,CM4 |
| | RESISTOR,METAL GLAZED(CHIP) RESISTOR,FIXED CARBON FILM FILTER(CIRC),EMC | 330 OHM I/4 W 5X 2012 R/TP 330 OHM I/4 W 5.00X TA52 PAC-ALL GPP PAC 00 LGETA | ROHM SMART SANGSHIN ELEC. | R43 R3I LI |
| - 1 BZUUASUUUIM | II ILIENTONO/SEMO | ILINO NEE SOOT FIND SOU LOCAN SOU US 22000 | JANGSTHIN ELECT | 1 5 |

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



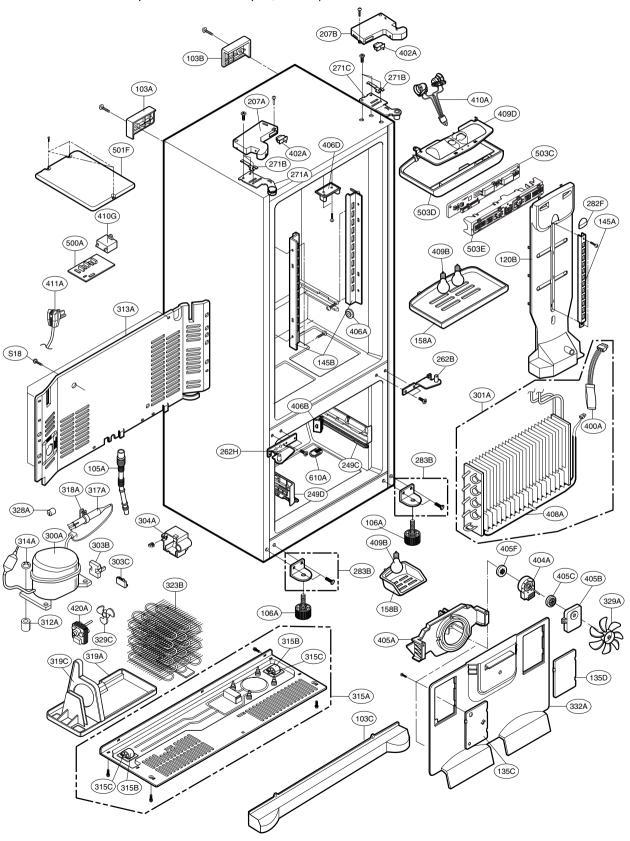
| Dty. | No | P/N0 | DESCRIPTION | SPEC | MAKER | REMARK |
|----------------|------------------|----------------------------|---|---|--------------------|--------------------|
| 9 | ~ | 6870JB8199A | PWB (PCB) | BRAVO 33 DISPLAY | DOOSAN | I.6T |
| : | 2 | - | - | - BWO 33 DISTEN | - DOCSAN | - |
| - 1 | 3 | | - | | - - | |
| . | 4 | - | - | - | | |
| H | 5 | | - | | | |
| ÷H | 6 | - | - | | - - | |
| ! | 7 | | + | - | | |
| - | 8 | - | | | | |
| - | 9 | | +1 | • | | |
| ÷ | 10 | 6630JB8005C | CONNECTOR (CIRC), WAFER | CHANGEO OA | VEW LIN | CONOI |
| ' | H | OIZZJB2050A | IC, DRAWING | SMANZ50-04 TMP870809M 28, S0P28-P-450 BRAVO 33 | YEON HO TOSHIBA | ICI |
| . | 12 | 01ZZJB2050P | IC, DRAWING | | TOSHIBA | ICI |
| ' | 13 | UIZZJBZUJUF | ic, promiso | TMP870809M 28, S0P28-P-450 BRAVO BLDC-BETTER | IUSHIBA | ICI |
| - | 14 | = | - | | | <u> </u> |
| <u>' </u> | | | | | | |
| - | 15 | - | - | * | | |
| - | 16 | - OICT MICOLA | - | - | - | - |
| ⊹⊢ | 17 | OISTLMIOOIA | IC, STANDARD LOGIC | M54563FP MITSUBISHI 20 R/TP CONVERT | MITSUBISHI | IC4 |
| ' | 18 | OIKE650030C OISTL00066A | IC, DRIVE | KID65003AF I6SOP BK 7CH DRIVER ULN2003A TOFHIBA I6PINSOP TAPPING NPN TRARRAY | KEC TOSHIBA | 105, 106 |
| _ | 19 | OISTLKE002A | IC, STANDARD LOGIC | KIA78LOSF KEC SOT-89 TP REGULATOR | KEC | IC2 |
| 1 | " | SIGILILOVEN | is, sinere con | MINIOLOGI NEO SOT OS IF NEOUENTON | NEG | IC3 |
| П | 20 | OISTLKE003A | IC, STANDARD LOGIC | KIA7042AF KEC SOT-89 TP RESET IC | KEC | 01 |
| П | 21 | OISTLKE005A | IC, STANDARD LOGIC | KRCIO6S KEC SOT-23 TP TRANSISTOR | KEC, CHAHGJIANG | 1. |
| - 1 | 22 | | - | - | | |
| - 1 | 23 | | - | | | T T |
| _ | 24 | 6212983245A | RESONATOR CERAMIC | CSTCR4M00G53-R0 MURATA 4,0MHZ +/- 0,5% T/R SMD | MURATA | OSCI |
| ÷ | 25 | OCE476VH6DC | CAPACITOR FIXED ELECTR | 47UF MV 25V 20% R/TP(SMD) SMD | SAMHWA | 0E2 |
| : | 26 | OCEIO7VF6DC | CAPACITOR, FIXED ELECTR | 100UF MV 16V 20V RVTP(SMD) SMD | SAMHWA | Œ |
| : | 27 | OCEIO/VI OCC | CAPACITOR, I IAED ELECTR | 1000F MV 10V 20% PV IP (SMD) SMD | SAMTINA | UEI . |
| 7 | 28 | OCKIO4DK94A | CAPACITOR, FIXED CERAMIC | 100NF 2012 50V 80%, -20% R/TP F(Y5V) | MURATA | 001.007 |
| 2 | 29 | OCKIO2DK96A | CAPACITOR, FIXED CERAMIC | INF 2012 50V 80%, -20% R/TP X/R | MURATA | CC1-CC7 CC8-CC9 |
| - | 30 | - UCKIUZDKOGK | CAFACITOR; FIXED CERAMIC | INF 2012 30V 80%, -20% RV IP X/R | MURATA | us-us |
| - | 30 | - | | • | | - |
| ÷ | | 0FH2200L622 | DECICTOR METAL CLAZED (CUID) | 200 ON LO W 2012 F 00V D | - | - |
| | 32 | 0RDI00IE672 | RESISTOR METAL GLAZED (CHIP) RESISTOR METAL GLAZED (CHIP) | 220 0HM I/8 W 2012 5.00% D | ROHM | R5 |
| - | 33 | 0RD200IE672 | RESISTOR METAL GLAZED (CHIP) | IK OHM I/8 W 5% 2012 R/TP | ROHM | R3, R4 |
| 6 | 34 | 0RD470IE672 | RESISTOR METAL GLAZED (CHIP) | 2K OHM I/8 W 5% 2012 R/TP | ROHM | R2 |
| 위 | 35 | 0RDI004E672 | | 4.7K OHM I/8 W 5% 20I2 R/TP | ROHM | RI, R7, R2I-R24 |
| 9 | 36 | 0RJB200H572 | RESISTOR METAL GLAZED (CHIP) RESISTOR METAL GLAZED (CHIP) | IM OHM I/8 W 5% 2012 R/TP | ROHM | R6 |
| | 37 | | | 820 OHM 1/2 W 5% 2012 R/TP | ROHM | R8-RI6 |
| 2 | 38 | 0RH200IL622 | RESISTOR METAL GLAZED (CHIP) | 2K OHM I/8 W 2012 5.00% D | ROHM | RI7,RI9 |
| 2 | 39 | 0FH1000L622 | RESISTOR METAL GLAZED (CHIP) | 100 OHM 1/2 W 5% 2012 R/TP | ROHM | RIB-R20 |
| ÷ | 40 | - 007010001 | - IDIONE 30 FDE | | - | - |
| 빆 | 41 | ODZRMOOIBBA | DIODE ZENERS | RLZ OHM R/TP LLDS(LL-34) 500MW 5.6V 20MA .PF | ROMH | ZDI |
| 7 | 42 | 0DSRM00068A | DIODE SWITCHING | RLS4148 ROHM R/TP LLDS(LL-34) 75V 450MA 2000MA | ROHM | DI07-DI13 |
| - | 43 | 00D414809AA | DIODE SWITCHING | IN4149 26 MM | PYUNG CHANG DELTA | - |
| ÷۱ | 44 | COOT POSSIA | - Income to the technique | - Livings tomos complicated by the page | - | - |
| 4 | 45 | 6327JB800IA | DISPLAY LED ASSEMBLY | LN4023-I3EWRS GREEN 2.IV 1.7MCD | LEDTECH | SEGI, SEG2 |
| 5 | 46 | ODLLEO059AA | LED | LTB323-4I-BON 2.IV D3 TP GREEN | LEDTECH | LI02-LI06 |
| - | 47 | ODLLE0059AA | LED | LT8323-41-BON 2, IV D3 TP GREEN | LEDTECH | LIOI,LIO7 |
| | 48 | 6908JB3002D | BUZZER | P0272207PL-20C-2000 SUNWAY PIEZO 2KHZ 800B (CHINA) | SUNWAY | BUZZER |
| - | 49 | - | - | - | | |
| - | 50 | 6600RRT005A | SWITCH TACT | KPS-1105AM KYUNG IN(HK) 12VCD 50 MA SMD | KYUNG IN | - |
| 5 I | 51 | 6600JB8004A | SWITCH TACT | KPT-II9R | KYUNG IN | SWI02-SWI06 |
| | | 6600RRT002K | | JTP1230A JEIL 12V DC 50MA | JEIL | |
| 2 | 52 | 6600JB8004A | SWITCH TACT | KPT-II9R | KYUNG IN | SWI01,SWI07 |
| _ | ш | 6600RRT002K | | JTP1230A JEIL 12V DC 50MA | JEIL | |
| 29 | 53 | SS000000BAA | | SR-34 PB FREE, LFM-48 | HUISUNG | - |
| ᅴ | - | | | | LANGING | |
| | 54 | SS0000019AA | Metal cream | LFM-48W TM-TS PB FREE HEESUNG METAL CREAM SNAGCU SN+3.0AG+0.5CU% | HUISUNG | 15 |
| 59 | | | | | I | |



9. EXPLODED VIEW & REPLACEMENT PARTS LIST

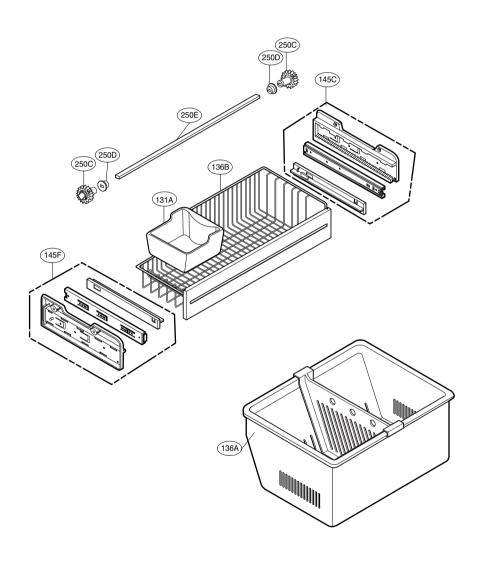
CASE PARTS

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



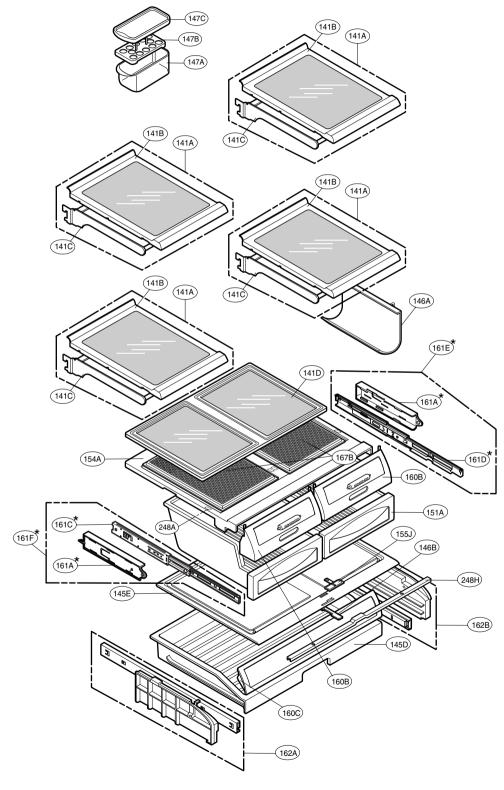
FREEZER PARTS

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



REFRIGERATOR PARTS

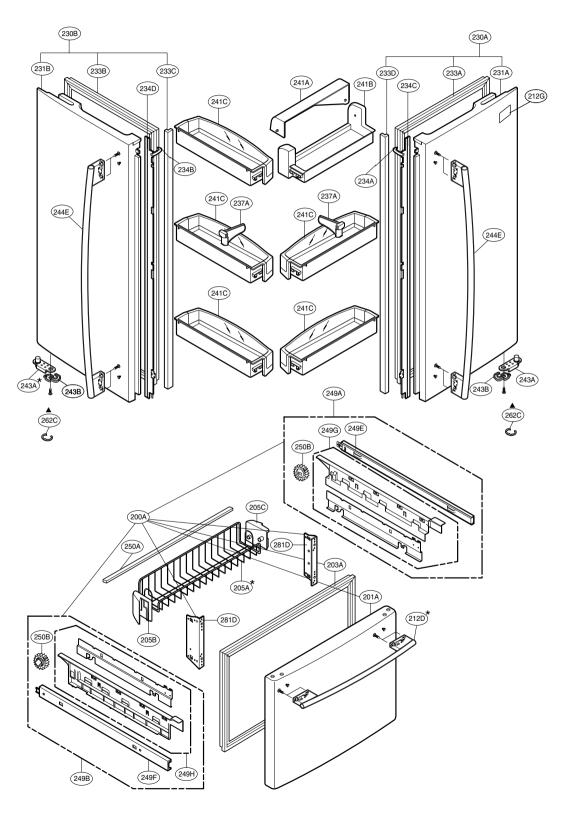
CAUTION: Use the part number to order part, not the position number.



*: on some models

DOOR PARTS

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

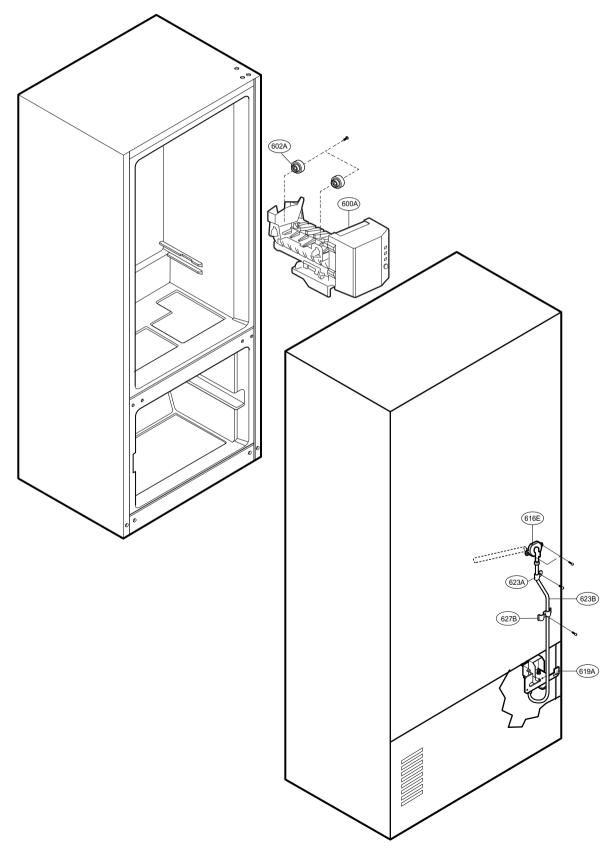


* : on some models

▲ Only for the service

WATER AND ICEMAKER PARTS

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





P/No. 3828JD8990C

MAR., 2006 Printed in Korea