SAMSUNG

# REFRIGERATOR

**BOTTOM MOUNT FREEZER**

**MODEL NAME : RF263TEAE****
**RF263BEAE****

# SERVICE *Manual*

## REFRIGERATOR

## CONTENTS

# WARNING

## IMPORTANT SAFETY NOTICE

The service guide is for service men with adequate backgrounds of electrical, electronic, and mechanical experience.
Any attempt to repair a major appliance may result in personal injury and property damage.
The manufacturer or dealer cannot be responsible for the interpretation of this information.

***SAMSUNG ELECTRONICS AMERICA, INC.***
**Technical Service Guide**

# Contents

# Contents

# 1. PRECAUTIONS (SAFETY WARNINGS)

- Unplug the appliance before replacing or repairing electrical parts.
  - ... Be careful to avoid electric shock.

- Always use only the correct replacement parts.
  - ...Check the model, rated voltage, rated current and running temperature rating.

- When troubleshooting, verify that wiring harnesses are connected securely.
  - ...Make sure the connectors are not separated when power is supplied.

- Check for visible traces of water on electrical parts.
  - ...Replace or secure any part that may have come in contact with water.

- Check the status of parts after replacement or troubleshooting.
  - ...All parts must be reinstalled properly.

- Check the location where the refrigerator will be used.
  - ...If the refrigerator will be used in a damp or wet space, or if installation will be unestable, the unit should be relocated.

- The refrigerator must be grounded properly.
  - ...An earth ground should be used if there is a risk of high humidity or wetness.

- The refrigerator should be plugged into a dedicated outlet.
  - ...Make sure the power cord is not damage, crushed, squeezed or burned.

- If the plug is damaged it should be replaced.
  - ...If the socket is damaged, it should not be used.

- Consumers must not try to repair the refrigerator.

- Nothing should be stored in the refrigerator except food.
  - ...Drugs requiring precise temperatures should not be stored in the refrigerator
  - ...Flammable substances (alcoohol, benzene, ether, LP gas, etc.) carry risk of explosion and should not be stored in the refrigerator.

Read all instructions before repairing the product and follow the instructions in order to prevent danger or property damage.
Plug out and remove all the items in regrigerator prior to repair.

## CAUTION/WARNING SYMBOLS DISPLAYED

| | |
|---|---|
| **Warning** | Indicates that a danger of death or serious injury exists. |
| **Caution** | Indicates that a risk of personal injury or material damage exists. |

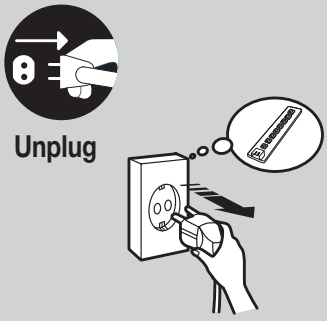
## SYMBOLS

| |
|---|
| means "Prohibited". |
| means "Do not disassemble". |
| means "No contact". |
| means "Warning or Caution". |
| means "Unplug the unit before preforming service" |
| means "Earth or Ground". |

# Warning & Caution

**Unplug to exchange the interior lamp.**

- It may cause electric shock.




**Use the rated components on the replacement.**

- Check the correct model, rated voltage, rated current, operating temperature and so on.


**On repair, make sure that the all wiring harnesses are reconnected**
**Wiring harnesses should be connected tightly and kept dry.**

- Bundle tightly wires in order not to be detached by the external force and then not to be wetted

**On repair, make sure that all parts and wires are free of dust and debris**

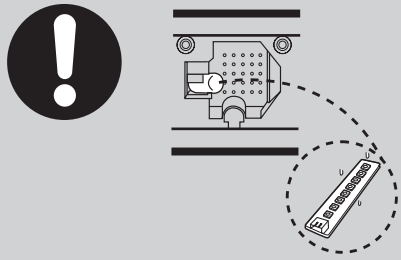
- Cleaning parts could prevent fire or shorting.

**Check the status of parts after replacement or troubleshooting.**

- All parts must be reinstalled properly.

**Check for visible traces of water on electrical parts**

- Replace or secure any part that may have come in contact with water.



Please let users know following warnings & cautions in detail.

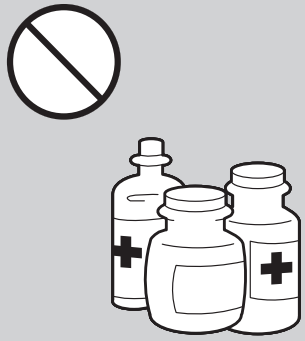
# Warning & Caution

**Customers should not store glass bottles of liquid in the freezer section. Frozen bottles could explode and cause injury.**

**Customers should not store narrow or long bottles or food in a small door shelf.**

- These items could fall when the door is opened, causing injury to the customer.

**Drugs requiring precise temperatures should not be stored in the refrigerator.**



**The refrigerator should be plugged into a dedicated outlet.**

- Multiple plugs in the outlet could cause excessive heat or fire.


**Consumers must not try to repair the refrigerator.**

- Electrical and mechanical parts could injure the consumer.


**Make sure the power cord is not damaged or crushed.**

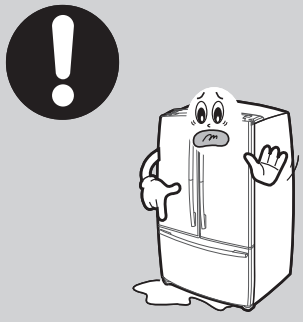
- A damaged cord could cause excessive heat or fire.

**Customer should not store articles on the product.**

- Opening or closing the door may cause things to fall down, wich may cause injury,

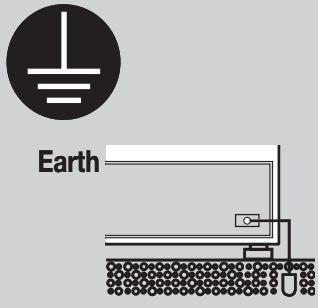

**Check the location where the refrigerator will be used.**

- If the refrigerator will be used in a damp or wet space, or if installation will be unstable, the unit should be relocated.



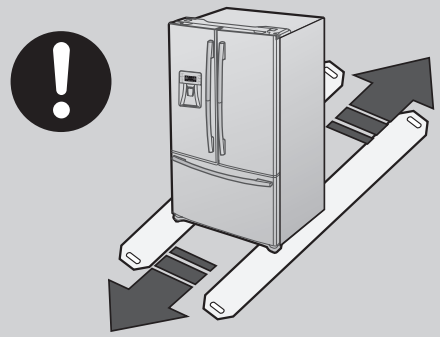
**The refrigerator must be grounded properly.**

- An earth ground should be used if there is a risk of high humidity or wetness.



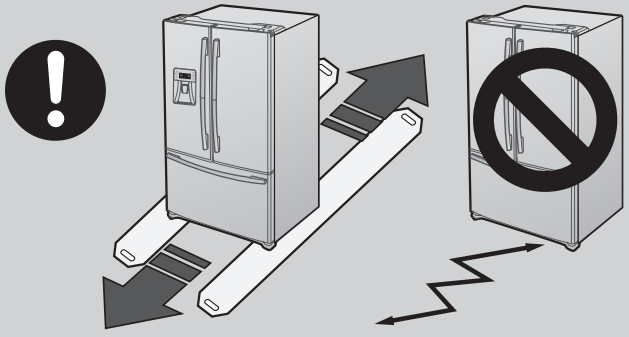
## FLOORING

For proper installation, this refrigerator must be placed on a level surface of hard material that is the same height as the rest of the flooring. This surface should be strong enough to support a fully loaded refrigerator, or approximately 152KG (335LB) .



## MOVING

Protect the finish of the flooring. Cut a large section of the cardboard carton and place under the refrigerator where you are working. When moving, be sure to pull the unit straight out and push back in straight.



# 2. PRODUCT SPECIFICATIONS

2-1) Introduction of Main Function

**• A newly developed SAMSUNG bottom mount freezer in 2012 has the following characteristics.**

| | |
|---|---|
|  | **Surround Multi Flow**<br>• Provides uniform cooling for each shelf and every corner in the fresh food section. This is accomplished by using a center positioned fan and duct with multiple cooling flow openings. |
|  | **Twin Cooling System**<br>• The refrigerator and the freezer each have an evaporator. Given this independent system, the freezer and the refrigerator are cooled individually as required and are, therefore, more efficient.<br>Food odor from the refrigerator does not affect food in the freezer due to separate air flow circulation. |
|  | **Electronic control from outside of Pantry Cover(RF263TEAE**,RF323BEAE**)**<br>• Adjustable temperature control ((around 41 (5 ) : Deli / around 38 (3 ) : Fresh / around 34 (1 ) Chilled )<br>Temperature control from outside of the Pantry : user friendly design helps keep foods fresh for longer |
|  | **One Lever Dispenser**<br>• One lever dispenser easily switches between ice and water. |
|  | **Secure Auto Close Door System**<br>• Door close tightly.<br>• Food on the doors stays cool.<br>• Prevents moisture from forming on the outside of the doors. |
|  | **Easy Handle System**<br>• Ez-open Freezer Door<br>• Ergonomic Door Design |

| | |
|---|---|
|  | **Slim Water Filtration System**<br>• Slim water filter is placed between crispers for convenient filter replacement without removing items from Refrigerator. |
|  | **Dual Ice Maker**<br>• 9 cubes ice-Maker(Refrigerator)<br>• 7 cubes ice-Maker(Freezer)<br>FOR RF263TEAE** |

2-2) Specifications

## ELECTRICAL SPECIFICATIONS

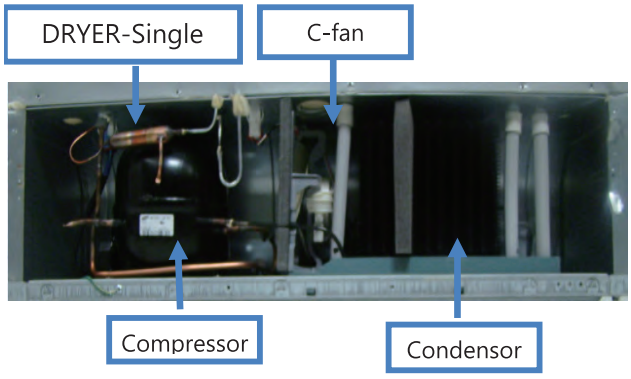
Defrost Control·····From 12 to 30hrs(comp. run time)
Thermo Bimetal Protector ···140°F(60°C)(off) 104°F(40°C)(on)
Defrost Thermistor(502AT)·····50°F(10°C)(off)
Electrical Rating····· AC115V 60Hz 11.6 Amps
Maximum Current Leakage····· 0.25 mA
Maximum Ground Path Resistance ·····0.1 Ohm
Energy Consumption····· 481 kWh/year

## NO LOAD PERFORMANCE

Refrigerator,°F ····· 44°F(7°C) ~ 34°F(1°C)
Freezer,°F ····· 5°F(-15°C) ~ -8°F(-23°C)
Run Time,% ····· < 40 ·····< 80

## REFRIGERATION SYSTEM

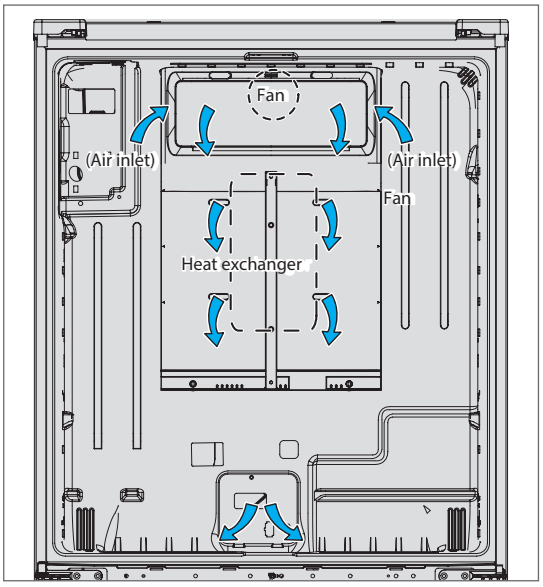
Refrigerant Charge (R134a)····· 5.64 oz(160g)
Compressor MSV172AL-2J
Compressor oil ·····Freol 5 ∝ 15c
R Capillary tube(Dia, Length) ····· 0.032 ",118"(0.82mm,3500mm)



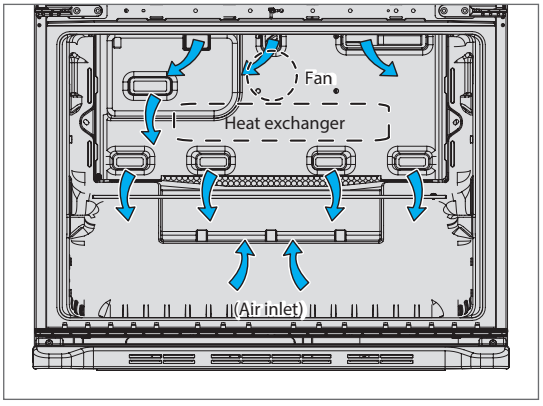

## INSTALLATION

Clearance must be provided for air circulation
AT TOP····· 1"(25mm)
AT SIDES····· 1"(25mm)
AT REAR····· 2"(50mm)

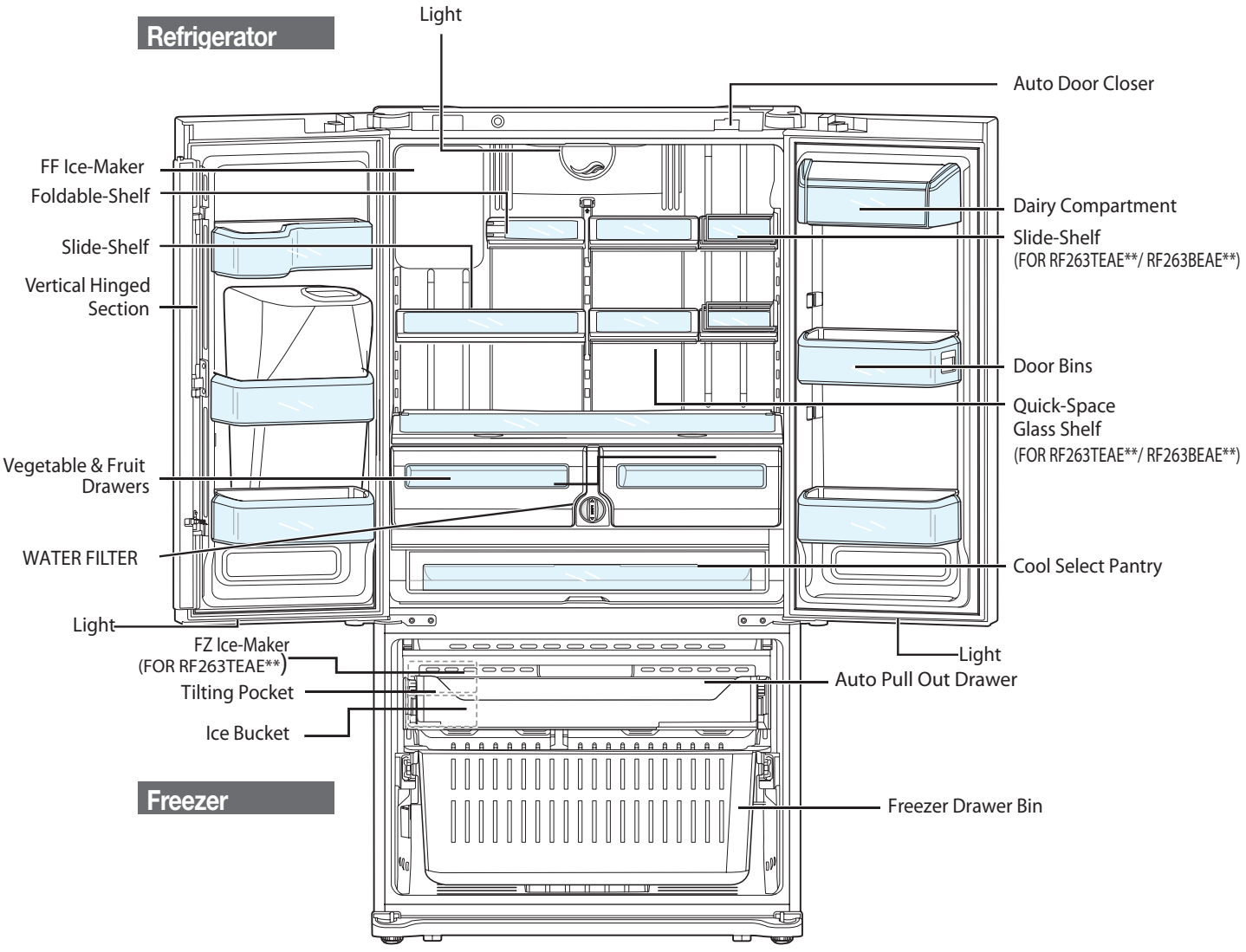
Refrigerator




Freezer



## 2–3) Interior Views



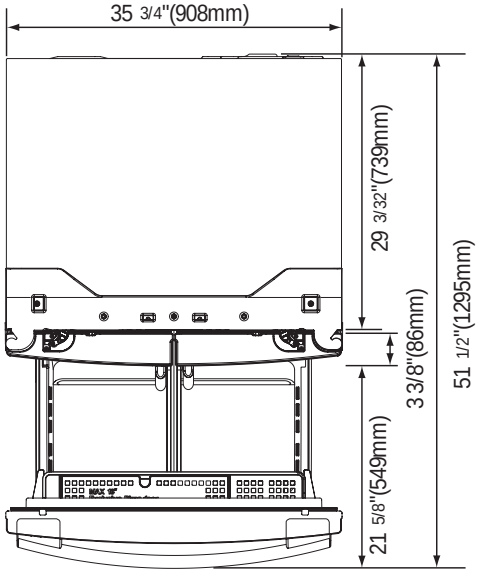
## 2-4) Model Specification &Specification Chart

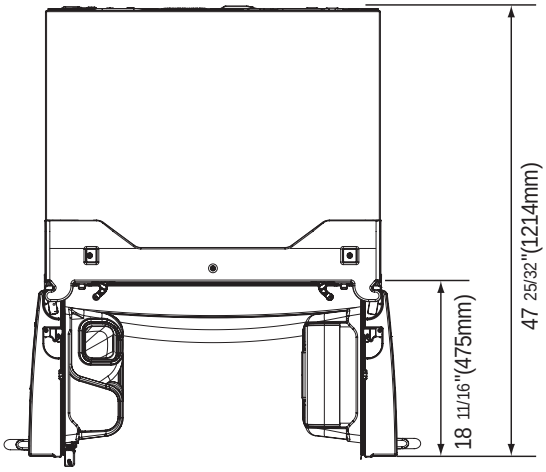
| ITEM | | | RF263TEAE** | RF263BEAE** |
|---|---|---|---|---|
| | Model | | ICE&WATER DISPENSER WITH PANTRY& TWIN ICE | ICE&WATER DISPENSER WITH PANTRY |
| | IMAGE | |  |  |
| External size | W | | 35 3/4 Inch (908mm) | 35 3/4 Inch (908mm) |
| | D | On Cabinet | 29 1/8 Inch (739mm) | 29 1/8 Inch (739mm) |
| | | W/O Handle | 32 7/8 Inch (836mm) | 32 7/8 Inch (836mm) |
| | | With Handle | 35 5/8 Inch (905mm) | 35 5/8 Inch (905mm) |
| | H | W/O Hinge Cap | 68 5/8 Inch (1744mm) | 68 5/8 Inch (1744mm) |
| | | With Hinge Cap | 70 Inch (1778mm) | 70 Inch (1778mm) |
| Net Capacity | Total | | 25.6(725.2ℓ) | 25.6(725.2ℓ) |
| | Freezer | | 7.9(222.6ℓ) | 7.9(222.6ℓ) |
| | Refrigerator | | 17.8(503.0ℓ) | 17.8(503.0ℓ) |
| Efficiency of Volume | | | 55.40% | 55.40% |
| Weight | Set | | 140kg | 140kg |
| | Packing | | 152kg | 152kg |
| Packing | Width | | 38 5/8 Inch (980mm) | 38 5/8 Inch (980mm) |
| | Depth | | 36 4/8 Inch(920mm) | 36 4/8 Inch(920mm) |
| | Height | | 75 3/4 Inch (1923mm) | 75 3/4 Inch (1923mm) |
| Compressor | | | RECIPROCATE | RECIPROCATE |
| Rated Frequency and Frequency | | | AC 115V/60Hz | AC 115V/60Hz |
| Refrigerant | | | R134a | R134a |
| Foaming Agent | | | C-PENTANE | C-PENTANE |
| Refrigerant Input Amount | | | 5.29 oz (160g) | 5.29 oz (160g) |
| Type Refrigerator | | | INDIRECT COOLING METHOD REFRIGERATOR | INDIRECT COOLING METHOD REFRIGERATOR |
| Motor Rated Consumption Power | | | 140W | 140W |
| Electric Heater Rated Consumption Power | | | 517.8W | 517.8W |

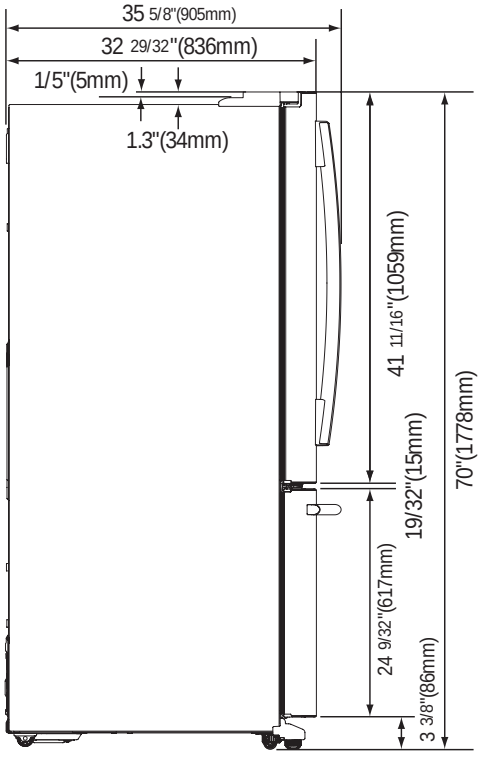
| Items | | | | Specification | |
|---|---|---|---|---|---|
| Model | | | | RF263TEAE** / RF263BEAE** | |
| Components for Freezer | Compressor | | Model | MSV172AL2J/SM1 | |
| | | | Starting type | BLDC | |
| | | | Oil Charge | FREOL α - 15c | |
| | Evaporator | | Freezer | SPLIT FIN TYPE | |
| | | | Refrigierator | SPLIT FIN TYPE | |
| | Condenser | | | Forced and Natural Convection Type | |
| | Dryer | | | Molecular shieve XH-9 | |
| | Capillary tube (Dia x Length) | | | R:0.032" (0.082mm x 3500mm) | |
| | Refrigerant | | | R134a | |
| Room Temperature Sensor Components | Freezer | Model | Temperature Selection | On(°F) | Off(°F) |
| | | THERMISTOR (F-SENSOR) | -8°F (-23°C) | -5°F (-21°C) | -11°F (-24°C) |
| | | | -0°F (-18°C) | 3°F (-16°C) | -3°F (-19°C) |
| | | | 5°F (-15°C) | 8°F (-12°C) | 2°F (-17°C) |
| | Refrigerator | Model | Temperature Selection | On(°F) | Off(°F) |
| | | THERMISTOR (R-SENSOR) 502AT | 34°F (1°C) | 36°F (2°C) | 32°F (0°C) |
| | | | 37°F (3°C) | 39°F (4°C) | 35°F (2°C) |
| | | | 44°F (7°C) | 46°F (8°C) | 42°F (6°C) |
| Defrost Related Components | Defrost Cycle | First Defrost Cycle (Concurrent defrost of F and R) | | 6hr ± 10min | |
| | | Defrost Cycle (FRE) | | 12~30hr (vary according to the conditions used) | |
| | | Defrost Cycle (REF) | | 6~15hr (vary according to the conditions used) | |
| | | Pause Time | | 12 ± 1min | |
| | Defrost Sensor | F Defrost-Sensor | Model | THERMISTOR (502AT) | |
| | | | SPEC | 5.0 ☒ at 77°F (25°C) | |
| | | R Defrost-Sensor | Model | THERMISTOR (502AT) | |
| | | | SPEC | 5.0 ☒ at 77°F (25°C) | |
| | Bimetal | F Bimetal-thermo Protector | Rated | AC 125V, 6A | |
| | | | Operating temperature | Off : 140°F (60°C) / On : 104°F (40°C) | |
| | | R Bimetal-thermo Protector | Rated | AC 125V, 6A | |
| | | | Operating temperature | Off : 140°F (60°C) / On : 104°F (40°C) | |

| Items | | | Specification |
|---|---|---|---|
| Model | | | RF263TEAE** / RF263BEAE** |
| Electric Components | Defrost Heater (FRE) | Heated at F Defrost | AC 120V, 240W |
| | Defrost Heater (REF) | Heated at R Defrost | AC 120V, 120W |
| | DISPENSER Heater | Interlock with French Heater | AC 120V, 2.5W |
| | FRENCH Heater | – | AC 120V, 10W |
| | ICE Duct Heater | Drain Heater (FRE) | DC12V, 2W |
| | Water Tank Heater | Drain Heater (REF) | DC12V, 2.3W |
| | Bimetal thermo for Preventing Overheating of Refrigerator Lamp | | AC 125V 6A / AC 350V 3A<br>Off : 140˚F (60˚C) / On : 104˚F (40˚C) |
| | Over Load Relay | Model | 4TM445PHBYY–82 |
| | | Temp. ON | 156.2 ± 16.2˚F (69 ± 9˚C) |
| | | Temp. OFF | 257 ± 9˚F (125 ± 5˚C) |
| | Rated Voltage | | AC 115V/60Hz |
| | Motor–BLDC (FRE) | | DC12V / DREP5020LC |
| | Moror–Brushless DC Box Fan | | DC12V 0.1A / 2606JL–04W–S39–UQ1 |
| | Motor–Brushless DC Box Fan | | DC12V 0.3A / 3612JL–04W–S49–G51 |
| | Moror–BLDC(CIRCUIT) | | DC12V 0.14A / DRCP8020LA |
| | Moror–DAMPER(PANTRY) | | DC12V / NSBY001TK1 |
| | Lamp LED (FRE) | | DC12V / 85~130mA |
| | Lamp LED (REF) | | DC12V / 510~780mA |
| | Lamp LED (VEG) | | DC 12V, 95~145mA |
| | Door Switch | FRE | AC 125V 1.5A (1EA) |
| | | REF | DC200V 1.5A / MS–406–SS–01 (2EA) |
| | | REF (ICE ROOM) | 125~250v / 5A, PARKEco |
| | Power Cord | | AC 125V 15A |
| | Earth Screw | | BSBN (BRASS SCREW) |

## 2-5) Dimensions of Refrigerator (Inches)



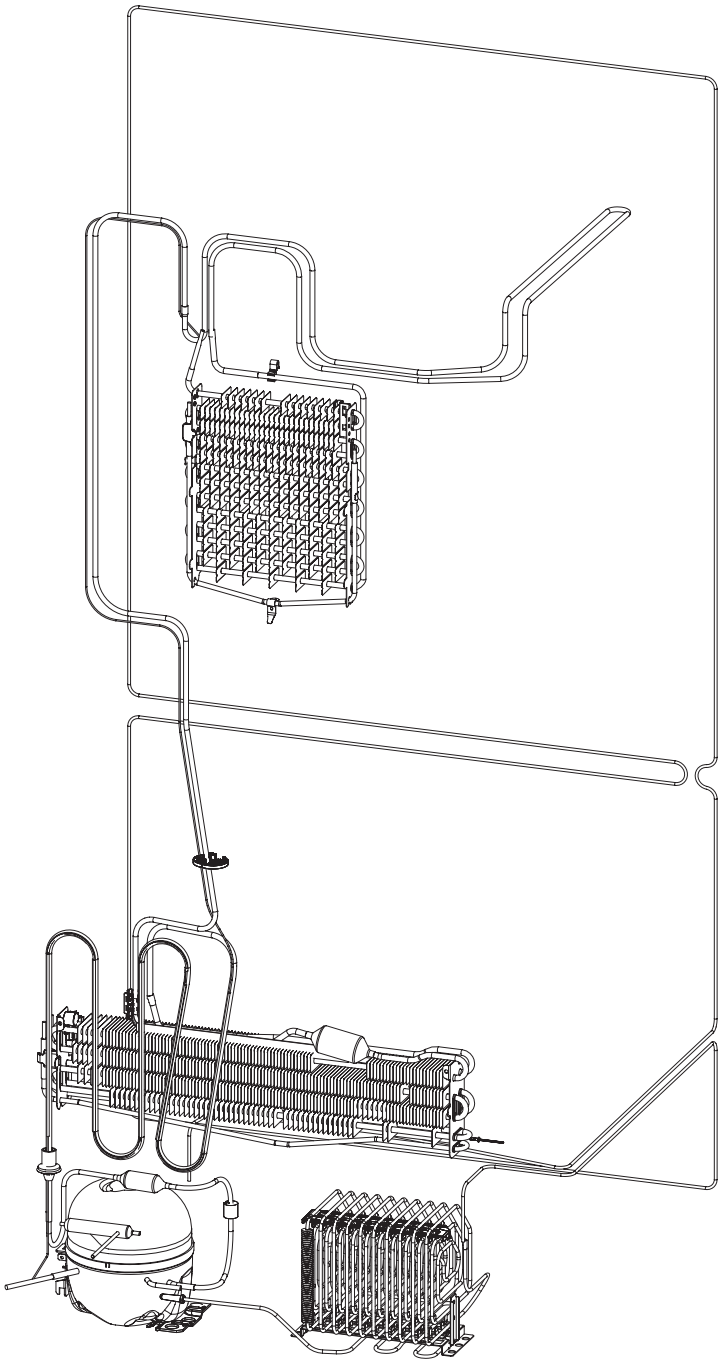




## 2-6) Optional Material Specification

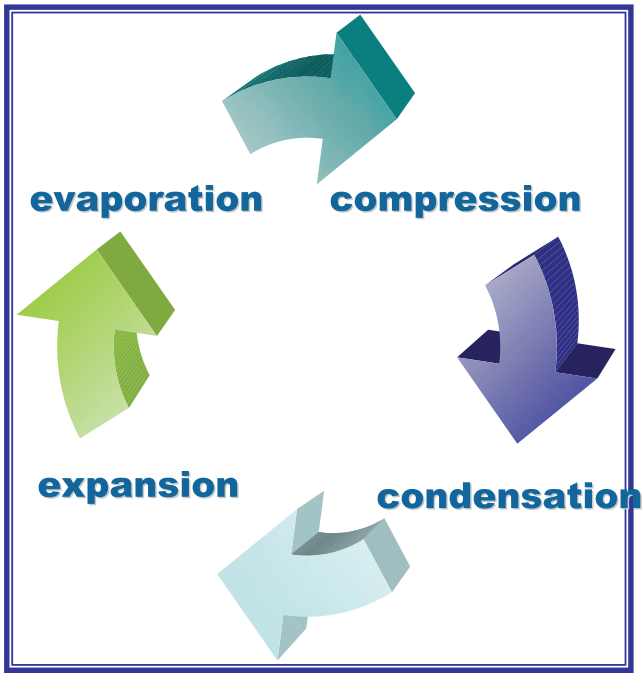
| Image | Part Name | Part Code | AMOUNT |
|---|---|---|---|
|  | FILTER WATER-ASSY | DA29-00019A | 1 |
|  | FIXER HANDLE<br>WRENCH SPANNER<br>ASSY LABEL HANDLE<br>INSTRUCTION<br><br>* The components are included in Assy Cushion Handle | DA61-03734A<br>DA80-00026B<br>DA99-03429J | 4<br>1<br>1 |
|  | LED LAMP REF | DA41-00676G | 4 |
|  | LED LAMP CASE-VEG R, L | DA47-00519S | 1 |

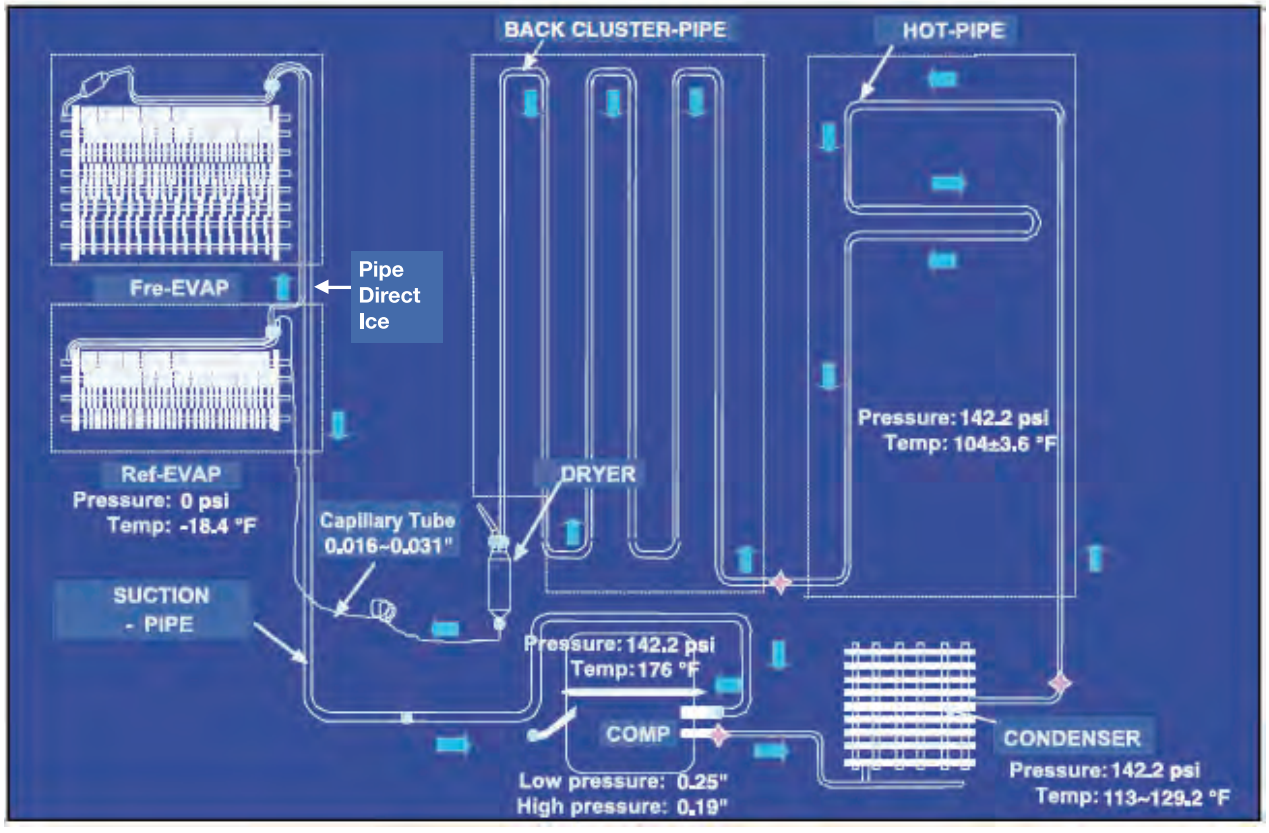
### 2-7) Refrigerant Route in Refrigeration cycle

Compressor → Conden → Hot Pipe → Dryer → Capillary Tube → Refrigerator Evaporator → Pipe Direct Ice → Freezer Evaporator → Suction Pipe → Compressor



## 2–7–1. Principle of freezeer



2-7-2. Operation theory of refrigeration cycle components

 Condenser

1) Role: A device which radiates heat to the outside of the refrigerator. As this heat is dispersed, the high temperature / high pressure vapor refrigerant changes to a liquid state.

2) Types

A. Air-cooling Type : Condense air by circulating naturally or manually.

1) Natural Convection Type : Used for the household refrigerator which has small condensing capacity.

2) Manual Convection Type : Circulate air manually (Large capacity)

B. Water-cooling Type : Make cooling water pass through the pipe in the condenser (Large capacity)

 Location

① CLUSTER heat-radiating type : All Pipes effective for radiating heat are formed in the right/ left, and front side of refrigerator with hard urethanes and radiate heat through the whole surfaces of cabinet to ambient air.

② Install the condenser on the outside of the product. (An old model)

③ Make them cluster at the lower part of product and radiate heat manually by fan.

 Radiate condensed potential heat up to liquefy completely and make change the state without changing the gas temperature itself.

 Pipe thickness

① Low pressure: 6.3mm ② High pressure : 4.7mm ③ Capillary : About 0.4-0.8mm

 Condenser length (Based on 300ℓ): 26.5 M

① Assistance : 5 M ② HOT-PIPE: 6.6 M ③ CLUSTER-PIPE: 4.17 M

 Capillary

1. Role: A device which makes low temperature and pressure refrigerant by reducing the pressure the normal temperature / high pressure liquid refrigerant condensed from condenser, and supply it to the evaporator.

A. To evaporate more lower temperature in case of evaporation.

B. It flows to the evaporator without back flowing to condenser, if compressor stops, and the difference of pressure between high pressure and low pressure is small so it is easy to operate the compressor again.

2. Outline

A. Thickness : About 0.4-0.8ßÆ

B. Length : It is changeable to low temperature and pressure (10->5ß∏/ß≤) depends on the 2M of thin and long copper pipe wall resistance.

■ Evaporator

1. Role: As the low pressure liquid refrigerant flowed from capillary absorbs heat inside of the refrigerator, it becomes low pressure gas and refrigerate the foods.
2. Theory: The low pressure refrigerant flowed to evaporator operates cooling which takes ambient evaporated potential heat with maintaining the evaporation up to evaporate completely.
3. Types of Evaporator

A. ROLL-BOND Evaporator ···› Direct Cooling ONE-DOOR Type

☞ Rolled and adhere the 2 aluminum plate and then make refrigerant passage.

B. PIN-PIPE Type ···› Indirect cooling TWO-DOOR Type

☞ a small aluminum plate on the aluminum pipe to increase the cooling effect.

■ Compressor

1. Role: It operates same as pump which pull out the subterranean water. It inhales the low temperature and pressure refrigerant gas (flowed out) from evaporator and make high temperature and pressure refrigerant liquid in the compressor and send it to the condenser.
2. Type of Condenser

a. Back-and-forth motion type: A method that pistol makes back-and-forth motion through shaft and cylinder of motor rotation and compresses. ※ Used for household refrigerant

b. Rotary Type: A method that inhales the refrigerant gas through the gap between the outside of rotor electric attached on the shaft and the inside of cylinder and compresses.

c. Centrifugal Type

3. Please insert the explanation of inverter comp operation theory.

■ Dryer

1. Role: Absorb the moisture from the refrigerant that refrigeration cycle circulates and eliminate the foreign substance.
2. Structure: If even some moisture is included refrigerant is impossible to circulate by freezing the small capillary outlet, so silica gel or molecular sieve is (included and) sealed to absorb the internal moisture, and install a minute net to eliminate the foreign substance.

※. Influence of moisture

① Moisture precipitation - Blocked by ice

② Refrigerant and reaction

③ Life reduction of oil

④ Acceleration of oxidization

⑤ Copper plating phenomenon

⑥ Gas dissolution by the interaction of synthetic insulating material (insulator)

※. Influence of foreign substance

① Increase of condensed temperature.

② Increase of temperature.

③ Decrease of cooling efficiency

④ Shorten the life by friction between oil and foreign substance in the compressor.

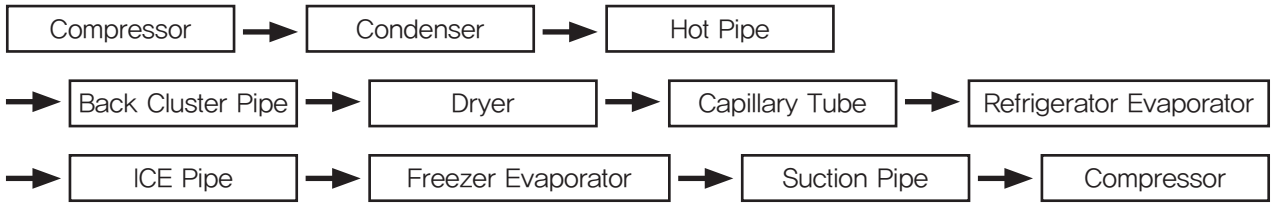
■ Accumulator

1. Role : To send a pure refrigerant gas to compressor by removing completely the refrigerant liquid from evaporator.

※ If a refrigerant liquid go into the compressor, overload is occurred.

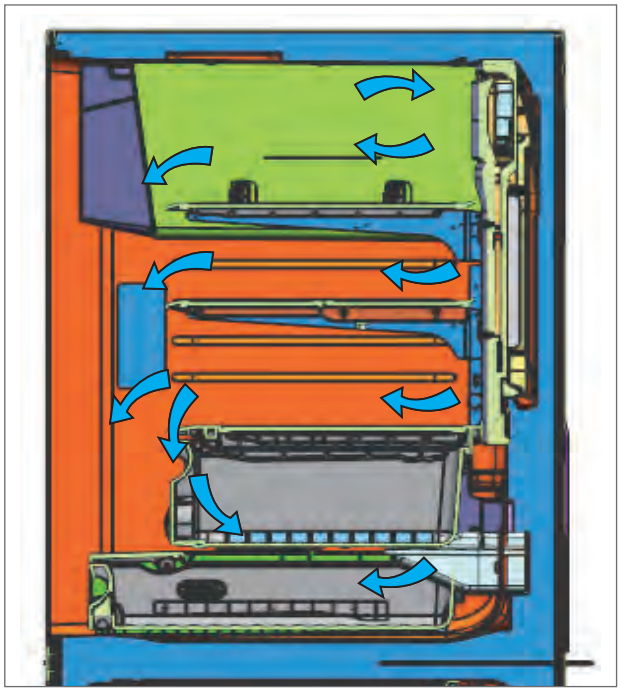
## 2-7-3. Refrigeration Cycle Type

### HM Cycle

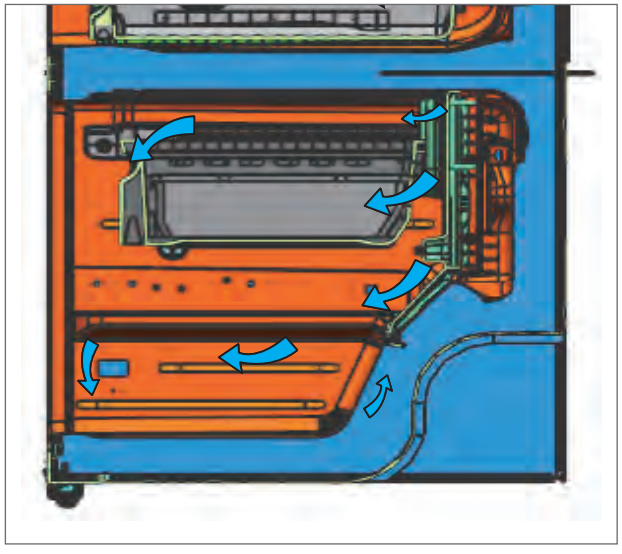


## 2-8) Cooling Air Circulation

### Refrigerator



### Freezer



# 3. DISASSEMBLY AND REASSEMBLY

## 3-1) PRECAUTION

- Unplug the refrigerator before cleaning and making repairs.
- Remove any foreign matter or dust from the power plug pins.
  - Otherwise there is a risk of fire.
- Do not use a cord that shows cracks or abrasion damage along its length or at either end.
- Do not plug several appliances into the same multiple power board. The refrigerator should always be plugged into its own individual electrical which has a voltage rating that matched the rating plate.
  - This provides the best performance and also prevents overloading house wiring circuits, which could cause a fire hazard from overheated wires.
- Do not install the refrigerator in a damp place or place where it may come in contact with water.
  - Deteriorated insulation of electrical parts may cause an electric shock or fire.
- The refrigerator must be grounded.
  - You must ground the refrigerator to prevent any power leakages or electric shocks caused by current leakage from the refrigerator.
- Do not put bottles or glass containers in the freezer.
  - When the contents freeze, the glass may break and cause personal injury.
- Do not store volatile or flammable substances in the refrigerator.
  - The storage of benzene, thinner, alcohol, ether, LP gas and other such products may cause explosions.

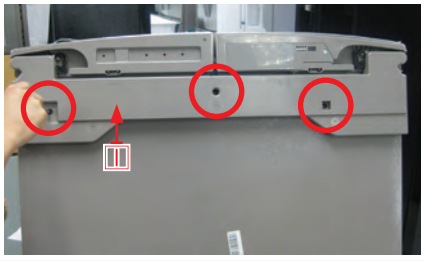
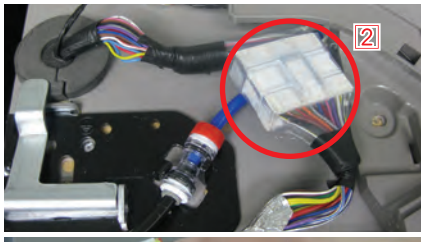
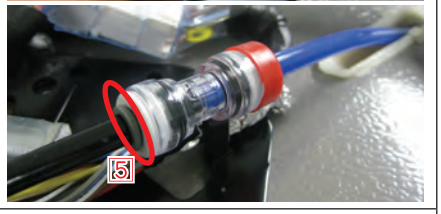
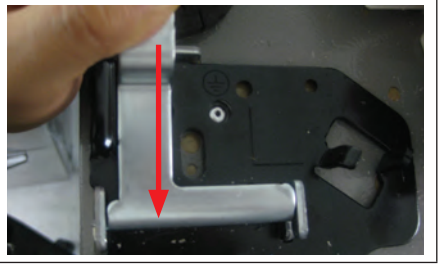
### - Required Tools

| IMAGE | ITEM | USE |
|---|---|---|
|  | Phillips Head Driver | Use for assembling and disassembling of screw |
|  | Flat Head Driver | Use for assembling and disassembling of HomeBar, Dispenser, Deli Cartessen Box, Main PBA etc... |
|  | Hex Wrench 2mm | Use for assembling and disassembling of Handle |
|  | Socket Wrench 10mm | Use for assembling and disassembling of Door Hinge |

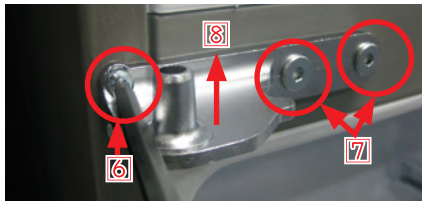
### - Water whitening phenomenon

All water provided to refrigerators flows through the core filter which is an alkaline water filter. In this process, the pressure in the water that has flowed out of the filter gets increased, and massive oxygen and nitrogen become saturated. When this water flows out in the air, the pressure plummets and the oxygen and nitrogen get supersaturated so that they turn into gas bubbles. The water could look misty due to these oxygen bubbles. It is not because dust or chemicals, just a few seconds later, it will be clean again.

## 3-2) Refrigerator Door

| Part Name | How To Do | Descriptive Picture |
|---|---|---|
| Refrigerator Door | 1. Remove the 3 screws holding down the Top Table and remove the Top Table (1) |  |
| | 2. Disconnect the electrical (2) above the upper left door hinge To disconnect the connector (2) more easily, press the end of the hook (3) and pull connector.<br>CAUTION Make sure unit is unplugged. |  <br>  |
| | 3. As shown in the picture, remove water tube from hinge(4)by holding at the both sides of the Tube Fitting and pulling it out. And, remove the Tube Fitting (5) by pulling the water hose after pushing in the locking ring tab at the end of the Tube Fitting. |  <br>  |
| | 4. After pulling the Hinge Lever, remove the Hinge. |  |

## 3-2) Refrigerator Door

| Part Name | How To Do | Descriptive Picture |
|---|---|---|
| Refrigerator Door | 5. Lift the door straightly up to remove.<br>CAUTION Be careful not to drop the door. |  |
| | 6. Lift the grommet hinge straightly up to remove. |  |
| | 7. With a Philips head screwdriver, remove the screw (6) attatched to the lower left and right door hinges. With a 0.4in Hex wrench, remove the 2 flat head screws (7) Remove the lower left and right door hinges (8). |  |

## 3-3) Door Handle Refrigerator

| Part Name | How To Do | Descriptive Picture |
|---|---|---|
| Door Handle Fridge | 1. Loosen the Set Screw situated at the end of the inner part of handle about 0.1in by using Hex wrench. |  |
| | 2. Pull the Set handle out by moving it straight down.<br>CAUTION Be careful not to scratch or break the parts. |  |

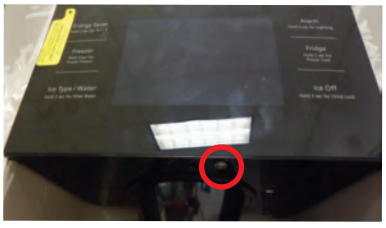
## 3-4) Door Handle Freezer

| Part Name | How To Do | Descriptive Picture |
|---|---|---|
| Door Handle Freezer | 1. Loosen the Set Screw situated at the bottom right of the appliance about 0.1in by using Hex wrench. |  |
| | 2. Pull the Set handle out by moving it to the left side.<br>CAUTION Be careful not to scratch or break the parts. |  <br>  |

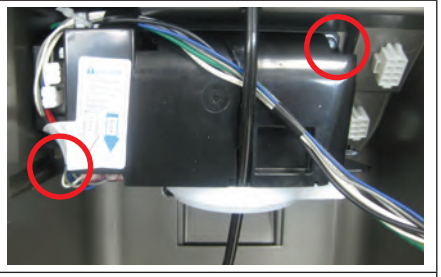
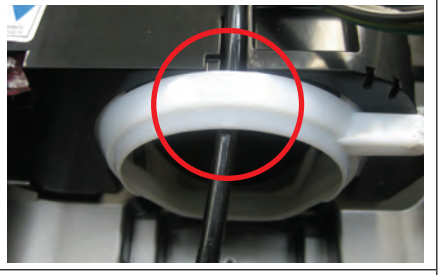
## 3-5) Refrigerator Light

| Part Name | How To Do | Descriptive Picture |
|---|---|---|
| Refrigerator Light | 1. Press the tabs on the back of the Lamp Cover and take it off. |  |
| | 2. Remove the 2 screws And separate the LED panel. |  |

## 3-6) Cover-Display & Water-Dispenser

| Part Name | How To Do | Descriptive Picture |
|---|---|---|
| Cover-Display | 1. Remove a screw under the display cover. |  |
| | 2. Remove the display cover by pulling it up. |  |
| | 3. Disengage the housing connector of display cover. |  |

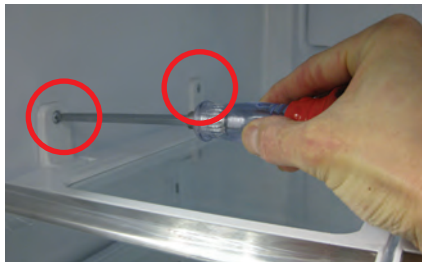
## 3-7) Water-Dispenser

| Part Name | How To Do | Descriptive Picture |
|---|---|---|
| Water-Dispenser | 1. Disengage the Housing Connector by pushing a flat-blade screwdriver. |  |
| | 2. Remove 2 screws of the Case Ice Route Assy. |  |
| | 3. Pull the Case Ice Route Assy. |  |
| | 4. Assembly shall be in order from the disassembly. Case-Ice and Route shall be assembled inside of hose. Otherwise, assemble cannot be accomplished. |  |
| | 5. When assembling Cover-Display, first insert it from leftside and then assemble to rightside.<br>Otherwise, the hook can be broken. |  |

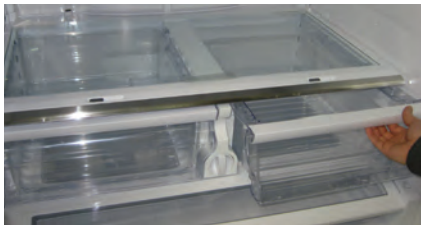
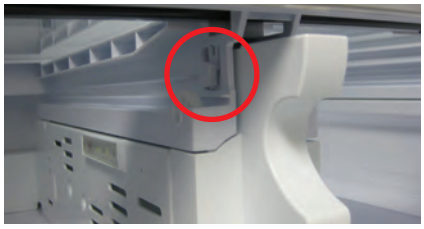
## 3-8) Glass Shelf

| Part Name | How To Do | Descriptive Picture |
|---|---|---|
| **Glass Shelf** | Remove the shelf by lifting the front part of the shelf up and pulling it out. |  |

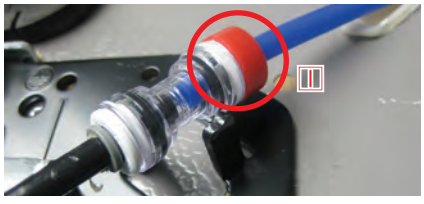
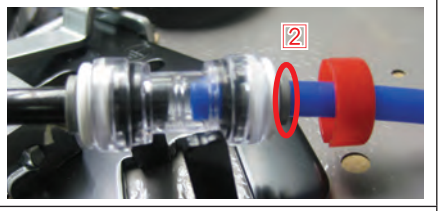
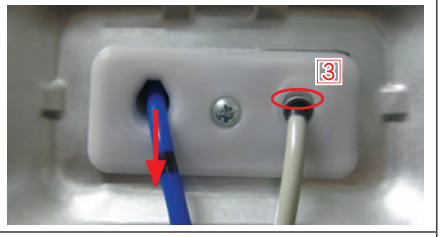
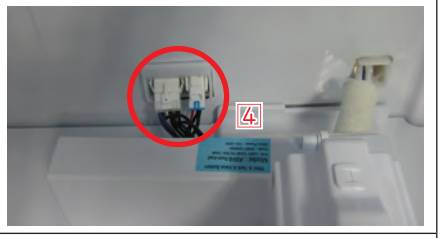
## 3-9) Foldable Glass Shelf

| Part Name | How To Do | Descriptive Picture |
|---|---|---|
| **Foldable Glass Shelf** | Remove 2 screws of the Folderble Glass Shelf |  |

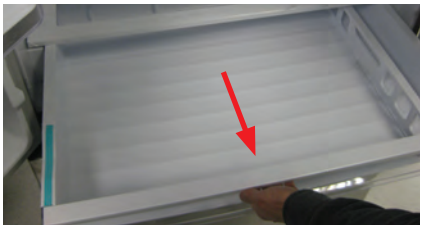
## 3-10) Vegetable & Fruit Drawers Shelf

| Part Name | How To Do | Descriptive Picture |
|---|---|---|
| Vegetable & Fruit Drawers Shelf | 1. Remove the vegetable & fruit drawer |  |
| | 2. Push the button on the left side of the shelf and lift up to release from the Assembly. (Refer to the picture) |  |
| | 3. Remove the vegetable & fruit drawer shelf by pulling it out. (Refer to the picture) |  |

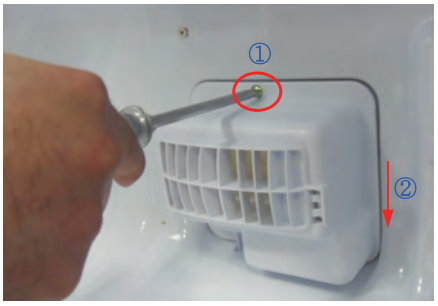
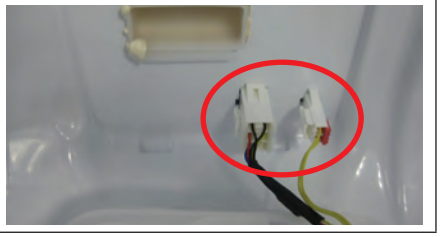
## 3-11) Case Water Filter

| Part Name | How To Do | Descriptive Picture |
|---|---|---|
| Case Water Filter | To disassemble the Case Water Filter, remove the water filter and all drawers and shelves. |  |
| | 1. a. Remove Cover Tube Fitting (1).<br>b. Remove the water tube (blue) from the tube fitting by pushing in on the locking ring (2) and pulling out the tube. |  <br>  |
| | 2. Remove 4 screws securing the water tubes. |  |
| | 3. a. Pull the Water blue hose out.<br>b. Push the Tube Fitting (3) and pull the grey hose out. |  |
| | 4. Disconnect the 2 Housing connectors (4). |  |
| | 5. Lift and pull the Case Water Filter out. |  |

## 3–12) Cool Select Pantry

| Part Name | How To Do | Descriptive Picture |
|---|---|---|
| Cool Select Pantry | 1. Remove the cool select pantry by pulling the roller part and lifting it up. |  |
| Cool Select Pantry Cover | 1. Remove the cool select pantry cover by lifting the central part of the cover while pushing it to the left. |  |
| Cool Select Pantry Shelf | 1. Remove the cool select pantry shelf by lifting the front part of the shelf while pulling it. |  |

## 3–13) Motor Damper

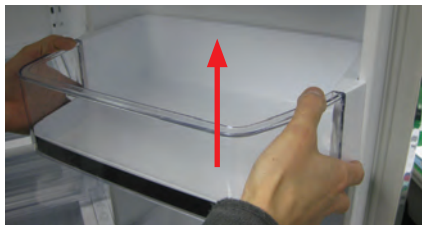
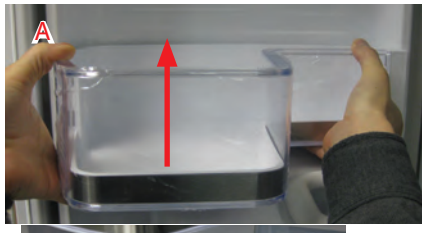
| Part Name | How To Do | Descriptive Picture |
|---|---|---|
| Motor Damper | 1. Remove the cool select pantry.<br>Remove the screw of motor damper part and than push the motor damper down. |  |
| | 2. Disengage 2 housing connectors from the rear motor damper.<br>(Refer to the picture) |  |

## 3–14) Water Filter (Assembly & Disassembly)

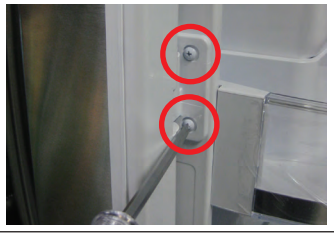
| Part Name | How To Do | Descriptive Picture |
|---|---|---|
| Water Filter | 1. Turn the water filter count–clockwise. (Refer to the picture) |  |
| | 2. Remove the water filter by pulling it. (Refer to the picture) |  |
| | 3. Push the water filter directly. |  |
| | 4. Turn the water filter clockwise until it locked. |  |

**CAUTION** Be sure to flush the dispenser thoroughly (approx. 6 to 7 minutes), otherwise water may drip from the dispenser. This means that there is still air in the line.

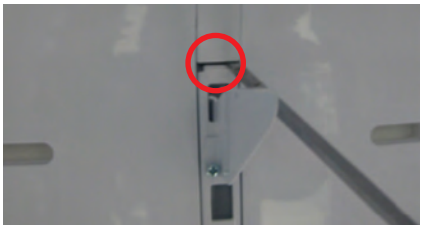
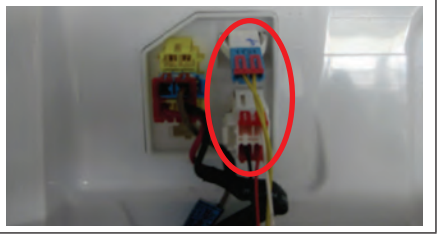
## 3-15) Gallon Door Bin

| Part Name | How To Do | Descriptive Picture |
|---|---|---|
| Gallon Door Bin (Right) | 1. Remove the door bin by moving straight up. |  |
| Gallon Door Bin (Left) | 2. a. Remove dis door bin by moving straight up.<br>b. Remove by moving up the left side of door bin. |  <br>  |

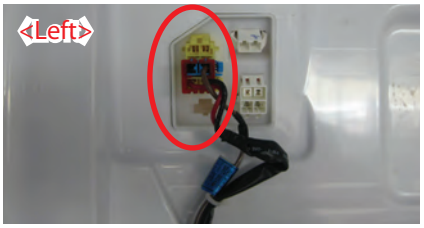
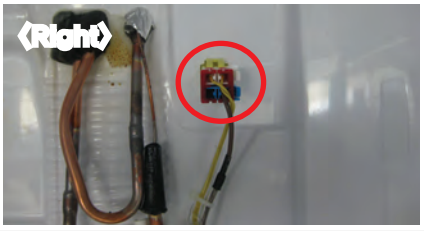
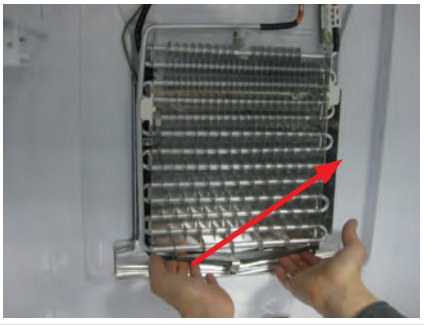
## 3-16) Vertical Hinged Section

| Part Name | How To Do | Descriptive Picture |
|---|---|---|
| Vertical Hinged Section<br>(center mullion attached to left side refrigerator door) | 1. Unscrew 2 screws. |  |
| | 2. Disengage the internal housing connector of the vertical hinge.<br>CAUTION Before doing the above, make sure that the unit is unplugged |  |
| | 3. Remove the vertical hinged section by lifting the vertical hinge up.<br>(Refer to the picture) |  |

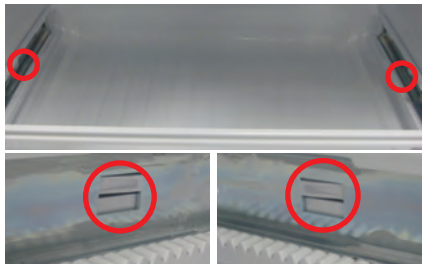
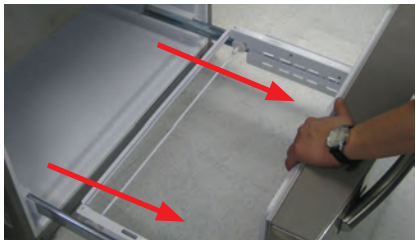
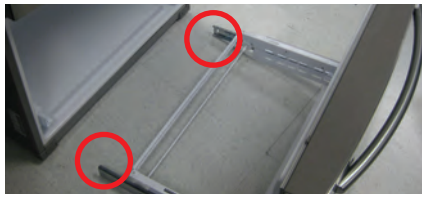
## 3-17) Evaporator Cover In Refrigerator

| Part Name | How To Do | Descriptive Picture |
|---|---|---|
| Evaporator Cover In Refrigerator | 1. Remove the angle cap with a flat-blade screwdriver. (Refer to the picture)<br>CAUTION Be careful not to scratch or break the parts |  |
| | 2. Loosen the 4 screws, which fix the Evaporator cover |  |
| | 3. Remove the the lower part of angle mid by pulling it out and pushing it down. (Refer to the picture) |  |
| | 4. Lift up the evaporator cover. |  |
| | 5. Disconnect the 2 housing connectors. (Refer to the picture)<br>CAUTION Before doing the above, make sure that the unit is unplugged |  |

## 3-18) Evaporator In Refrigerator

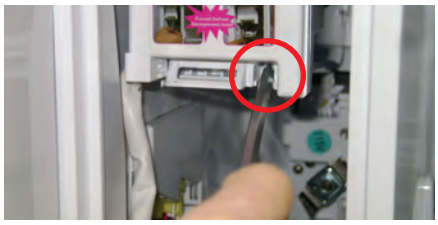
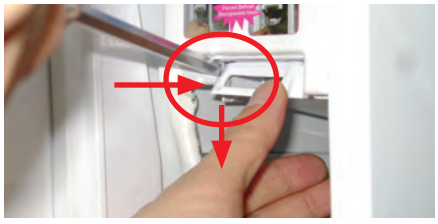
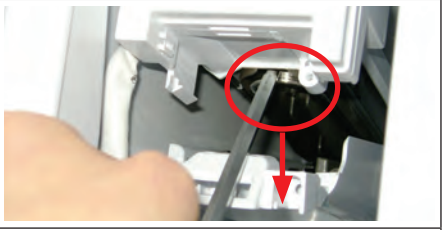
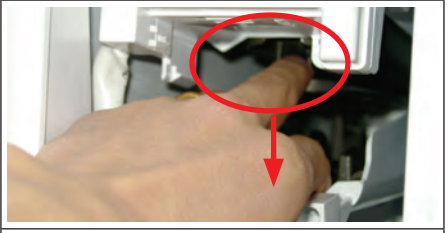
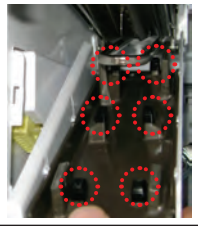
| Part Name | How To Do | Descriptive Picture |
|---|---|---|
| Evaporator In Refrigerator | 1. Disconnect the housing connector part on left side.<br>CAUTION Before doing the above, make sure that the unit is unplugged. |  |
| | 2. Disconnect the housing connector on right side. |  |
| | 3. The Evaporator is soldered you will need Special equipment for solders again |  |

## 3–19) Freezer Door

| Part Name | How To Do | Descriptive Picture |
|---|---|---|
| Freezer Door | 1. Pull out the Pull Out Drawer by maximum. |  |
| | 2. After lifting the Pull Out Drawer up holding both sides, remove it at the rail system. |  |
| | 3. Remove the Tilting Pocket(①) by lifting it up |  |
| | 4. After lifting the Freezer Guard up holding both sides, remove it at the rail system. |  |
| | 5. Press the fixing hook (L & R) of rail system. |  |
| | 6. After holding and pulling out the top of Freezer Door, remove it at the rail system. |  |
| | CAUTION Make sure there is no scratch at the end of Sliding Rail by being dented from the floor . |  |

## 3-20) Ice-Maker

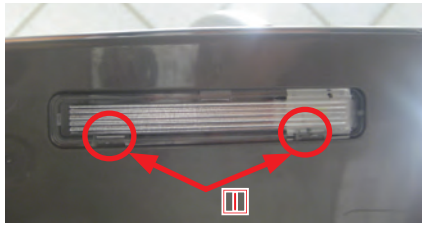
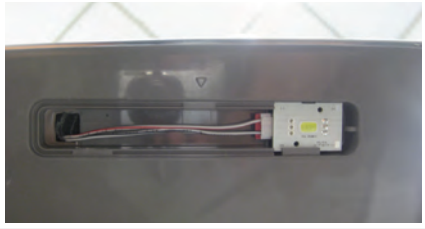
| Part Name | How To Do | Descriptive Picture |
|---|---|---|
| Ice Maker | 1. When pressing the Energy-Saver and the Fridge buttons on the Display together for 8 seconds at the same time, it will convert to the Test Mode and the entire Display function will be off. |  |
| | 2. When pressing any button within 15 seconds after it is shifted to the Test Mode, its function will change in the following order. Manual operation1 (FF) Manual operation 2 (OF-r) ->Manual defrost of fresh food compartments (rd) ->manual defrost of fresh and freezer compartments(fd)->cancel(Display all off).<br>- Shet unit to Fd for 5 minutes. This will allow for easy removal of the ice maker. |  |
| | 3. While pressing the tab on the top right side, lift up the Ice Bucket and pull it out<br>CAUTION Be sure pull up for avoid broken the part |  |
| | 4. Remove the screw from the Wire Housing Cover. |  |
| | 5. Remove the Wire Housing Cover. |  |
| | 6. Disconnect the Ice Maker Housing Connector. |  |

| Part Name | How To Do | Descriptive Picture |
|---|---|---|
| Ice Maker | 7. Remove the screw from the Duct Tray-ice. |  |
| | 8. With a flat blade screwdriver, push the duct to the right and remove it from the locking tab. |  |
| | 9. With a flat blade screwdriver, pry down on the refrigerant tube to separate it from the bottom of the ice maker. |  |
| | 10. Push down the refrigerant pipe slightly and separate the refrigerant pipe and the Ice Maker Assembly completely. |  |
| | 11. While pressing the Hook, pull out the Ice Maker. |  |
| | 12. While pushing down the Duct-Tray-Ice, pull out the Ice Maker carefully and remove it. When removing the Ice Maker, be careful not to damage the grommets on the tray or the refrigerant tube. (Refer to the dotted parts on the right side photo.) |   |

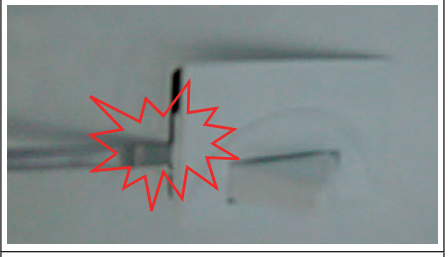
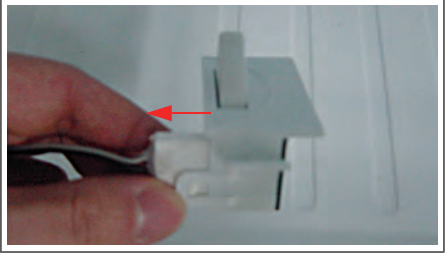
## 3-21) Auger Motor Fan

| Part Name | How To Do | Descriptive Picture |
|---|---|---|
| Auger Motor Fan | 1. Disconnect the FAN-AUGER-ASSY Connector. |  |
| | 2. Hold the Hook on the bottom of the FAN-AUGER-ASSY and lift it up to make it free from the Locking Tab. |  |
| | 3. While lifting it up, take the FAN-AUGER-ASSY out of the Ice Maker Compartment. |  |

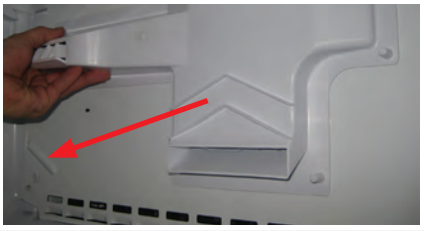
## 3-22) Freezer Light

| Part Name | How To Do | Descriptive Picture |
|---|---|---|
| Freezer Light | 1. Remove the cover Freezer lamp (Ⅰ) using a flat-blade screwdriver. |  |
| | 2. Disengage the housing.<br>CAUTION Before doing the above, make sure that the unit is unplugged out. |  |

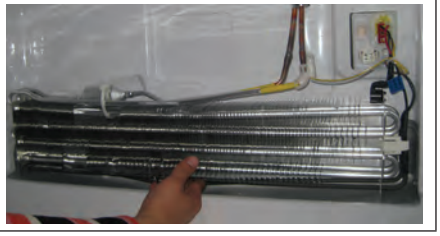
## 3-23) Door Switch In Freezer

| Part Name | How To Do | Descriptive Picture |
|---|---|---|
| Door Switch In Freezer | 1. Remove the freezer drawer bin by using a flat-blade(-) screwdriver.(Refer to Section 3-19 Freezer Door). Then remove the freezer light switch. |  |
| | 2. Disconnect the housing connector part.<br>CAUTION Before doing the above, make sure that the unit is unplugged out. |  |

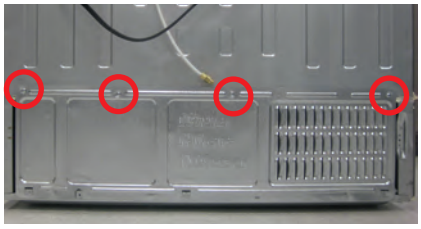
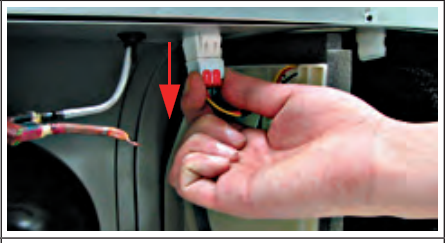
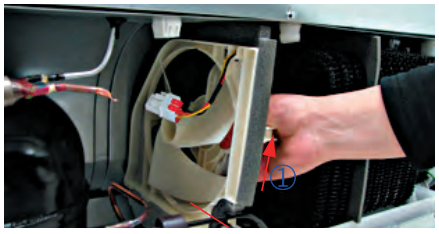
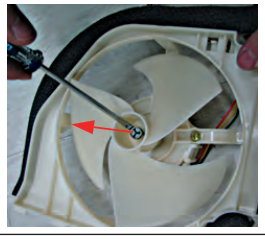
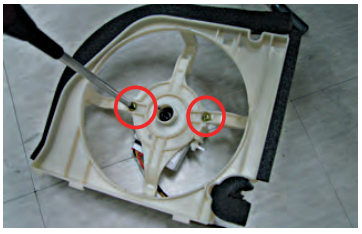
## 3-24) Evaporator Cover In Freezer

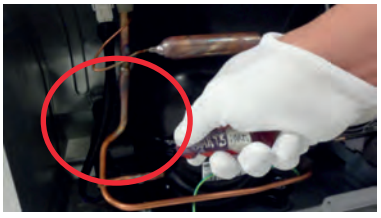
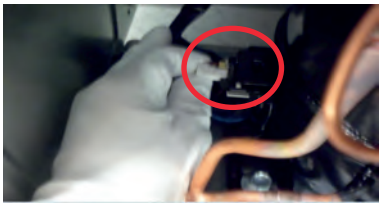
| Part Name | How To Do | Descriptive Picture |
|---|---|---|
| Evaporator Cover In Freezer | 1. Loosen the 4 screws, which fix the Evaporator cover. |  |
| | 2. Lift up the evaporator cover. |  |
| | 3. Disconnect the housing connector on right and remove the evaporator cover.<br>CAUTION Before doing the above, make sure that the unit is unplugged |  |

## 3-25) Evaporator In Freezer

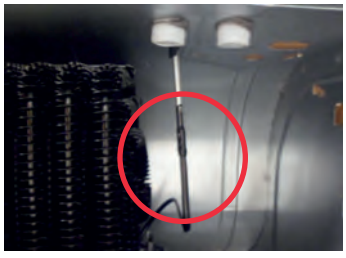
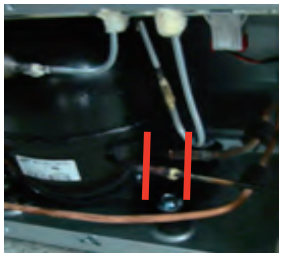
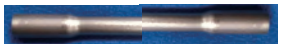
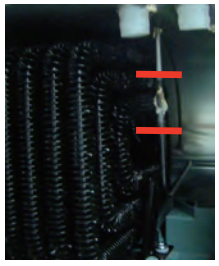
| Part Name | How To Do | Descriptive Picture |
|---|---|---|
| Evaporator In Freezer | 1. Disconnect the 2 housing connectors on right side.<br>CAUTION Before doing the above, make sure that the unit is unplugged |  |
| | 2. The Evaporator is soldered, you will need Special aquipment for solder again . |  |

## 3-26) Machine Compartment

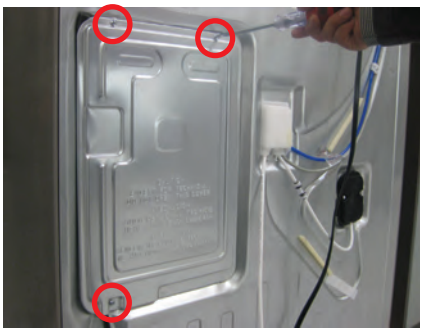
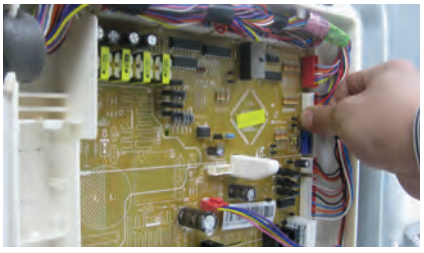
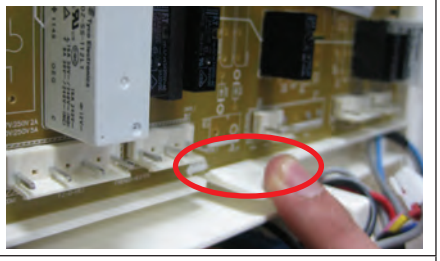
| Part Name | How To Do | Descriptive Picture |
|---|---|---|
| Motor Fan | 1. Unscrew 6 screws of cover compressor. |  |
| | 2. Disengage the housing connector. (Refer to the picture)<br>CAUTION Before doing the above, make sure that the unit is unplugged |  |
| | 3. Remove the bracket of support circuit motor by lifting the bracket up and pulling it out. |  |
| | 4. Remove the spring with a flat-blade screwdriver. (Refer to the picture)<br>CAUTION When you reassembly the spring in fan, you need add green glue for ensure the assembly |  |
| | 5. Remove the motor fan by pulling the fan out while holding the motor part. (Refer to the picture) |  |
| | 6. Unscrew 2 spring fixed in the motor. |  |
| | 7. Remove the hook of the motor cover with a flat-blade (-) screwdriver and then remove the motor. |  |

| Part Name | How To Do | Descriptive Picture |
|---|---|---|
| Relay O/L | 1. Disengage the housing connector. |  |
| | 2. Remove Cover Relay. |  |
| | 3. Remove the relay O/L with a flat-blade Your fingers . (Refer to the picture) |  |

## 3-27) COMPRESSOR

| Part Name | How To Do | Descriptive Picture |
|---|---|---|
| COMPRESSOR | 1. Cut off the SOLDER connecting the COMP and the CONDENSER with a Pipe Cutter. (Red-line marking points) |  |
| | 2. Cut off the SOLDER connecting the CONDENSER and the HOT PIPE with a Pipe Cutter. (Red-line marking points) |  |
| | 3. Link the COMP and the CONDENSER with a PIPE-CONNECTOR (DA81-05659A) by brazing the joint areas.   |  |
| | 4. Link the CONDENSER and the HOT PIPE with a PIPE-CONNECTOR (DA81-05659B) by brazing the joint areas.  |  |

## 3-28) Electric Box

| Part Name | How To Do | Descriptive Picture |
|---|---|---|
| PBA Main | 1. Remove the 3 screw attached to the upper left and right Case PCB Panel with a phillips screwdriver(+). |  |
| | 2. Disengage all housing connectors from the main PCB.<br>CAUTION Before doing the above, make sure that the unit is unplugged |  |
| | 3. Press the lower locking hook down and remove the Main PBA by pulling it out. (Refer to the picture) |  |
| PBA SMPS | 1. Remove the SMCS PCB by lifting the upper part of the hook up. |  |

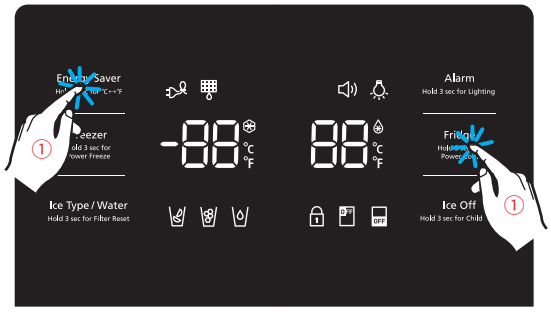
# 4. TROUBLESHOOTING

## 4-1) Function for failure diagnosis

### 4-1-1. Test mode (manual operation / manual defrost function)

- If Energy Saver Key + Fridge Key on the front of panel are pressed simultaneously for 8 seconds , it will be chang to the test mode and all displays on the front of panel will be off.
- If any key on the front of panel is pressed within 15 seconds after the test mode, it will be operated as below sequence :
  Manual operation1(FF) Manual operation2(0F-r) -> manual defrost of fresh food compartments(rd) -> manual defrost of fresh and freezer compartments(fd) -> cancel(Display all off).
- If any key on the front of panel is not pressed within 15 seconds after the test mode, the test mode will be canceled and it will be returned to previous mode.

#### 1) Manual operation function



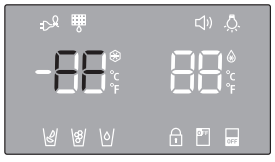

① Energy Saver Key + Fridge Key are pressed simultaneously for 8 seconds, (displays are all off)
It will be changed to the test mode (manual operation) by pressing any key

1-1) If any key is pressed once in test mode, blinks "FF" on the display and it indicates the refrigerator has entered the manual operation. At this moment, buzzer beeps as an alarm.

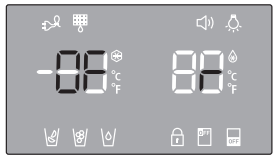
1-2) If any key is pressed once at the manual operation1 status, OF-r will be displayed.
FF and OF-r means manual operation 1 and 2 separately. These 2 functions operate with same RPM of COMP.

1-3) If manual operation is selected, compressor will run at once without 7 minutes delay in any mode.
If the refrigerator is on the defrost cycle at the moment, defrost will be finished and manual operation will begin.
(Be careful if manual operation get started at the moment of compressor off, over load could be occurred)

Compulsion working 1 : 3600RPM



Compulsion working : 3600RPM



1-4) If manual operation works, compressor & f-fan operate continuously for 24 hours and fresh food compartment will be controlled by the setting temperature.

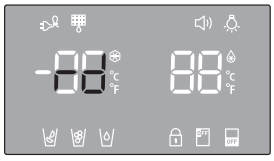
1-5) When the manual operation runs, setting temperature will be selected automatically as below: freezer compartment -8°F(-22°C), fresh food compartment 34°F(1°C).

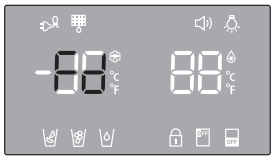
1-6) During manual operation, Freezer Key & Power Cool function will not be work.
If a function is selected, the power function icon of the selected function will be off automatically after 10 seconds.

1-7) Manual operation can be canceled by removing power from the unit, then resupplying power.

1-8) Alarm(0.25 sec ON/ 0.75 sec OFF) will beep continuously until manual operation is completed and there is no function to make the sound stop.

### 2) Forced Defrost





2-1) When you press any key one more time at Fridge off Forced Operation [OF r], rd lights up on the Display Panel. At this time, the Forcd Operation stops immediately and R-Defrost will be performed at the same time.

2-2) When you press any key one more time at Forced R-Defrost [rd], Fd lights up on the Display Panel. At this time, FR-Defrost will be performed at the same time.

2-3) At this time, it will send out "Beep" sound for 2 seconds and then it will perform Forced F/R Defrost while sending out "0.5 sec On and 0.5 sec Off" sound.

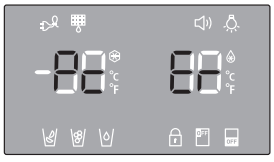
### 3) Test cancel mode

3-1) During the simultaneous defrosting of fresh food and freezer compartments, if the display panel change to the test mode and test button is pressed one more time, defrosting of fresh food and freezer compartments will be canceled and the unit will return to the normal operation.
Or, all test functions will be canceled by turning main power ON and OFF.

## 4-1-2. Display function of Communication error

### 1) Display function when Panel MAIN MICOM communication has error

1-1) If there is no answer for 10 seconds after the panel micom received the requirement of communication, "Pc - Er" display on the panel PCB will be ON/OFF alternately until the communication error is canceled. (0.5 sec ALL ON, 0.5 sec ALL OFF alternately)



1-2) "Pc - Er" display on the Pantry Room Display will be ON/OFF alternately until the communication error is canceled. (0.5 sec ALL ON, 1.5 sec ALL OFF alternately)

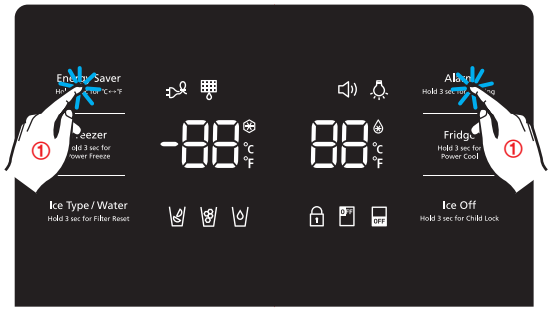
### 2) Display function when Panel MAIN MICOM OPTION has error

2-1) "OP - Er" code is repeatedly ON/OFF until Option error settles down.

## 4-1-3. Self-diagnostic function

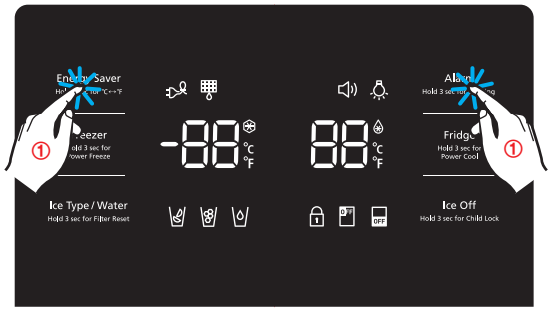
### 1) Self-diagnostic function in the Initial power ON

1-1) Micom operates self-diagnostic function to check the temperature sensor condition within 1 second when the refrigerator turned On initially.
1-2) If bad sensor is detected by the self-diagnostic function, the applicable display LED will blink for 0.5 sec. At this moment, there is no beep sound.(Refer to self-diagnostic CHECK LIST)
1-3) Self-diagnostic button is recognized only when the error is displayed by the bad sensor. Display does not operate normally but temperature control will be controlled by the emergency operation.
1-4) When the error is detected by self-diagnosis, the error can be canceled automatically if all troubled sensors are corrected or Self-diagnostic function key (Energy Saver Key + Alarm ) are pressed simultaneously for 8 seconds.
(Return to normal display mode)




① If Energy Saver Key + Alarm are pressed simultaneously for 8 seconds, the error mode by self-diagnosis will be canceled.

### 2) Self-diagnostic function during normal operation




② If Energy Saver Key + Alarm are pressed simultaneously for 8 seconds, the error mode by self-diagnosis will be canceled.

2-1) If Energy Saver Key + Alarm are pressed simultaneously for 6 seconds during normal operation, the temperature setting display will operate for 2 seconds (ON/OFF 0.5sec each).
If Energy Saver Key + Alarm are pressed simultaneously for 8 seconds (including above 2 seconds), self-diagnostic function will be selected.
2-2) At this moment, self-diagnostic function will be returned with buzzer sound 'ding-dong'.
If there is an error, display of error will be operated for 30 seconds and then return to normal condition whether problem is corrected or not.
(Refer to self-diagnosis CHECK LIST)
2-3) Input by button is not accepted during self-diagnostic function.

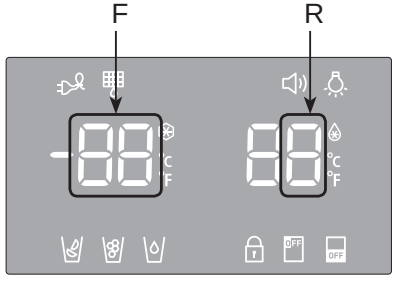
※ R Self-diagnostics check list

| LED | | Item | Trouble contents | Diagnostic method |
|---|---|---|---|---|
| F | R | | | |
| 01 | 0E | FZ–Sensor Error | Display error : separation of sensor housing part, contact error, disconnection, short circuit. Display error of detecting temperature of sensor : more than 149°F(+65°C) or less than –58°F(–50°C) | When measuring the voltage between the Main PCB CN30–"4" ↔ CN76–"1", it should read between 4.5V~1.0V. |
| 02 | | FF–Sensor Error | | When measuring the voltage between the Main PCB CN30–"5" ↔ CN76–"1", it should read between 4.5V~1.0V. |
| 04 | | FZ–DEF–Sensor Error | | The voltage of MAIN PCB CN30– "5"↔ N76–"1": shall be between 4.5V~1.0V |
| 05 | | FF–DEF–Sensor Error | | When measuring the voltage between the Main PCB CN30–"8" ↔ CN76–"1", it should read between 4.5V~1.0V. |
| 06 | | Ambient–Sensor Error | | The voltage of MAIN PCB CN78– "8"↔ CN78–" 12": shall be between 4.5V~1.0V |
| 07 | | PANTRY–Sensor Error | | The voltage of MAIN PCB CN78– "9"↔ CN76–" 1": shall be between 4.5V~1.0V |
| 08 | | Ice Maker(F) Sensor Error | Display error : separation of sensor housing part, contact error, disconnection, short circuit Display error of detecting temperature of sensor: more than 149°F (+65°C) or less than –58°F(–50°C) | The Voltage of MAIN PCB CN90 #8〈–〉#9: Shall be between 4.5v ~ 1.0v |
| 13 | | Humidity–Sensor Error | Separation of sensor housing part, contact error, disconnection, short circuit | When measuring the voltage between the Main PCB CN30–"3" ↔ CN76–"1", it should read between 4.5V~1.0V. |
| 14 | | Ice Maker(FF) Sensor Error | Display error : separation of sensor housing part, contact error, disconnection, short circuit. Display error of detecting temperature of sensor : more than 149°F(+65°C) or less than –58°F(–50°C) | The voltage of MAIN PCB CN90– "1"↔ CN90–" 7": shall be between 4.5V~1.0V |
| 15 | | Ice Room Sensor Error | | When measuring the voltage between the Main PCB CN78–"10" ↔ CN78–"12", it should read between 4.5V~1.0V. |
| 21 | | FZ–FAN Error | Display error during operation of applicable fan motor : Feed back signal line contact error, motor wire separation, motor error | The voltage of MAIN PCB CN76– "3"(Yellow) ↔ CN76–"1"(Gray): shall be between 7V~12V |
| 22 | | FF–FAN Error | Display error during operation of applicable fan motor : Feed back signal line contact error, motor wire separation, motor error | The voltage of MAIN PCB CN76– "4"(Orange) ↔ CN76–"1"(Gray): shall be between 7V~12V |
| 23 | | C–FAN Error | Display error during operation of applicable fan motor : Feed back signal line contact error, motor wire separation, motor error | The voltage of MAIN PCB CN76– "5"(Sky–blue) ↔ CN76–"1"(Gray): shall be between 7V~12V |
| 24 | | FZ–DEF Error | Separation of freezer compartment defrost heater housing part, contact error, disconnection, short circuit or temperature fuse error. Display error : the defrosting does not finish though freezer compartment defrost is heating continuously for more than 80 minutes. | After separating MAIN PCB CN70 wire from PCB, resistance value between CN70 Brown ↔ CN70 Gray shall be 63(230) ohm ± 7%.(Resistance value is varied by input power) 0 ohm : heater short, ∞ ohm : wire/bimetal open (Must power off) |
| 25 | | FF–DEF Error | Separation of fresh food compartment defrost heater housing part, contact error, disconnection, short circuit or temperature fuse error. Display error : the defrosting does not finish though fresh food compartment defrost is heating continuously for more than 80 minutes. | After separating MAIN PCB CN70 wire from PCB, resistance value between CN70 White ↔ CN70 Gray shall be 120(440) ohm± 7%.(Resistanc e value is varied by input power) 0 ohm : heater short, ∞ ohm : wire/bimetal open (Must power off) |

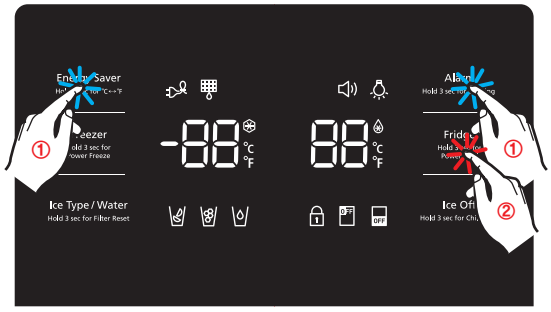
# TROUBLESHOOTING

※ R Self-diagnostics check list

| LED | | Item | Trouble contents | Diagnostic method |
|---|---|---|---|---|
| F | R | | | |
| 26 | 8E | Ice Maker(FZ) Function Error | When the Freezer Ice Maker error occurs more than 3 times, the error will be displayed. | After replacing the Ice Maker, check if it operates normal. |
| 29 | | "Flex Zone–Damper–Heater Error" | Display error when open error is detected by damper heater : separation of Damper Heater housing part, contact error, disconnection, short circuit. | After separating MAIN PCB CN77 wire from PCB, resistance value between Black ↔ Brown wire shall be 135 ohm± 7%.<br>0 ohm : heater short, ∞ Ohm : wire / bimetal Open. |
| 33 | | FZ–Ice Pipe Heater Error | The error occurs when there is a wire connector slip–out of the Water Supply Pipe Heater, a contact error or a breakage in the wiring. | When measuring the resistance of the Main PCB CN79 Yellow–Pink wires, it should be within 102Ω ±7%.<br>0Ω : heater short, ∞Ω : Check for Wire Open or Connector Slip–out |
| 39 | | Ice Maker(FF) Function Error | Display error when open error is detected by Heater : separation of Ice Pipe Heater housing part, contact error, disconnection, short circuit. | After changing the Ice Maker(R), plug the refrigerator power code again, and check the operation. |
| 40 | | Ice Room–FAN Error | Display error during operation of applicable fan motor : Feed back signal line contact error rnotor wire separation motor error. | When measuring the voltage between the Main PCB CN76–"5" ↔ CN76–"1", it should read between 7.0V∼12V. |
| 41 | | Panel ↔ Main Communication Error | Display pc – Er in the panel with alarm : MICOM MAIN ↔ PANEL communication error. | Actually, If there is not a problem, it is desirable to replace Main and Panel PCB With the oscilloscope after a cable problem confirming. |
| 68 | | FF Ice Duct Heater Error | The Error will be displayed when the Ice Duct Heater is detected as being open due to the followings.<br>– Ice Maker Duct Heater Connector Slip–Out, Contact Defect or Wire–Breakage | The resistance between CN79 ORG and CN51 BRN on the Main PCB shall be within 135Ω ± 7%. And, when the resistance reads 0Ω or ∞ Ω, check the followings.<br>0Ω : Heater Short<br>∞Ω : Wire–Breakage or Wire Slip–Out |
| 81 | | Comp starting Failure Error | When the Compressor fails starting | Check if there is a short between compressor terminals. Check IPM Voltage [Under 13.5V] Check if there is a short between IPM Pins [#1∼33]<br>Check the Compressor and the Cycle |
| 82 | | IPM Fanlt Error | When there is a IPM Fault error | |
| 83 | | Comp Abnormal current Detection Error | When ther is abnormal crrunt detected at the Compressor | Check the Compressor connections<br>Check the voltage of Resistance of R308 [0.09Ohm] Check the Compressor and the Cycle |
| 84 | | Motor Locked Over RPM Error | When there is a Compressor restriction error | Check the voltage of Resistance of R308 [Short/Open] Check the voltage of both of C103 terminals [Unstable Voltage] Check the Compressor and the Cycle |
| 85 | | Comp under voltage Error | When there is a low voltage error | Check the voltage of Resistance of R513 [Short/Open] |
| 86 | | Comp over voltage Eroor | When there is a over voltage error | Check the voltage of Resistance of R501, R505, R509 [Short/Open] |

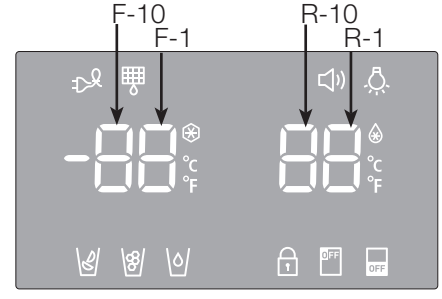


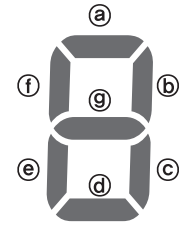
## 4-1-4. Display function of Load condition




① If Energy Saver Key + Alarm are pressed simultaneously for 6 seconds, ALL ON/OFF will blink with 0.5interval for 2 seconds.
② If take the finger off from above keys and press Fridge, load condition mode will be started.

1) If Power Energy Saver Key + Alarm are pressed simultaneously for 6 seconds during normal operation, the temperature setting display of fresh food and freezer compartments will blink ALL ON/OFF with 0.5 for 2 seconds.
2) At this moment, If Fridge Key after Energy Saver Key + Alarm is pressed, load condition display mode will be returned with alarm. At LED all on state, only load condition display will blink ON/OFF with 0.5 seconds interval.
3) Load condition display mode shows the load that micom signal is outputting.
   However, It means that micom signal is outputting, it does not mean whether load is operating or not. That is to say that though load operation is displayed, load could not be operated by actual load error or PCB relay error etc. (This function would be applied at A/S.)
4) Load condition display function will maintain for 30 seconds and then normal condition will be returned automatically.
5) Load condition display is as below.



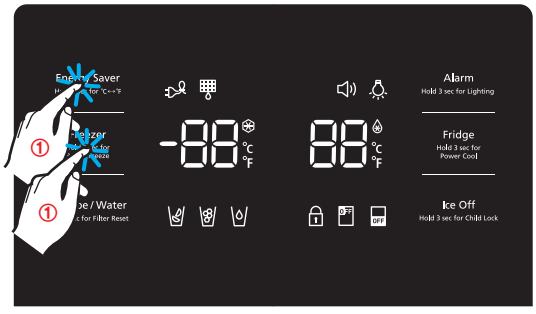



# TROUBLESHOOTING

※ R Load mode Check list

| Display LED | Display contents | Operation contents |
|---|---|---|
| R–1–ⓐ | R–FAN High | When FF compartment FAN operates with high speed, applicable LED ON |
| R–1–ⓑ | R–FAN Low | When FF compartment FAN operates with low speed, applicable LED ON |
| R–1–ⓒ | R–DEF Heater | When FF compartment defrost heater operates, LED ON |
| R–1–ⓓ | Start Mode | When refrigerator is plugged initially, LED ON |
| R–1–ⓔ | Overload condition | When ambient temperature is more than 93℉(34℃), LED ON |
| R–1–ⓕ | Low temperature condition | When ambient temperature is less than 72℉(22℃), LED ON |
| R–1–ⓔ,ⓕ (ALL LED Off) | Normal Condition | When ambient temperature is between 73℉(23℃) and 91℉(33℃) |
| R1–ⓖ | Exhibition Mode | LED ON at the display mode. |
| F–1–ⓐ | COMP. | When COMP operates, applicable LED ON. |
| F–1–ⓑ | F–FAN High | When FZ compartment FAN operates with high speed, applicable LED ON. |
| F–1–ⓒ | F–FAN Low | When FZ compartment FAN operates with low speed, applicable LED ON. |
| F–1–ⓓ | F–DEF Heater | When FZ compartment defrost heater operates, LED ON |
| F–1–ⓔ | C–FAN High | When compressor FAN operates with high speed, applicable LED ON. |
| F–1–ⓕ | C–FAN Low | When compressor FAN operates with low speed, applicable LED ON. |
| F–10–ⓓ | Ice Room–FAN High | When Ice Room–FAN operates with high speed, applicable LED ON. |
| F–10–ⓔ | Ice Room–FAN Low | When Ice Room–FAN operates with low speed, applicable LED ON. |
| F–10–ⓖ | French Heater | When French heater operates, applicable LED ON |
| R–10–ⓐ | Pantry Room Damper Open | When damper open, applicable LED ON |
| R–10–ⓓ | Ice maker full | When the Ice Maker's Bucket is full, applicable LED ON in FF–room |
| R–10–ⓔ | Ice maker full | When the Ice Maker's Bucket is full, applicable LED ON in RZ–room |
| R–10–ⓕ | More Heater | Add to Assy Water Pipe Heater in Fre–room |

## 4-1-5. Exhibition mode setting function



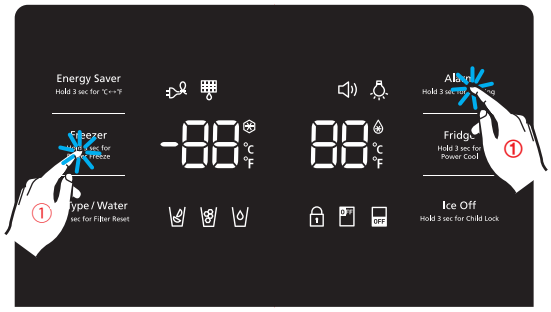

① If Energy Saver Key + Freezer Key are pressed for 5 seconds, Exhibition mode will be started.

1) If Energy Saver Key + Freezer are pressed simultaneously for 5 seconds during normal operation, Exhibition mode will be started with buzzer sound(ding-dong).
2) If above Energy Saver Key + Freezer Key are pressed one more time, Exhibitoin mode will be canceled.
3) If Exhibition mode is selected, blinks "OF-OF" on the temperature setting display of . The panel and it indicates the refrigerator has entered the Cooling Off mode.
4) During Exhibition mode, if fresh food and freezer compartments sensors are higher than 149℉(65℃). Exhibition will be canceled automatically and freezing operation will be returned.
(There is no buzzer sound when the Exhibition mode is canceled by the temperature.)
5) Operation contents of Exhibition Mode
   - Display, Fan motor and etc operate normally, not to operate compressor only.
   - Defrost is not operated. (including french heater)
   - Display function of the initial real temperature is finished.
   - Under the condition of Exhibition mode, Exhibition mode will be operated when Power On after Power OFF.

## 4-1-6. Option setting function

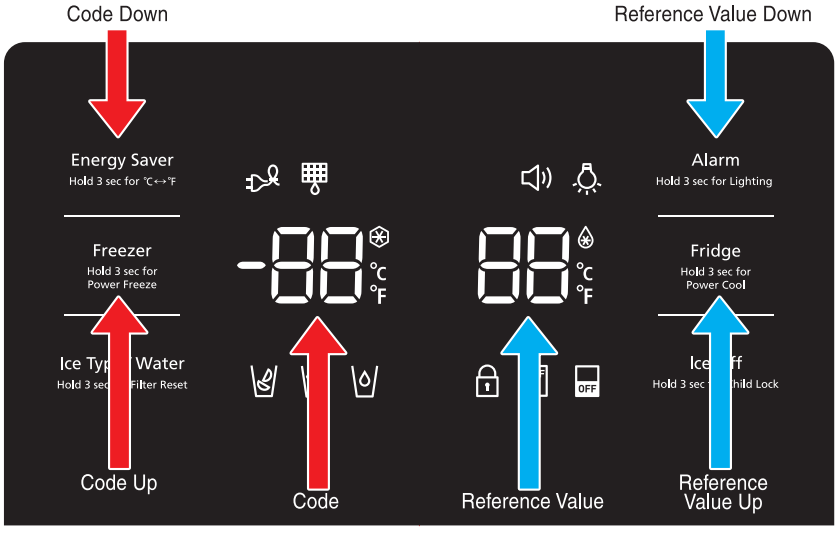
- If Freezer Key+ Alarm are pressed simultaneously for 12 seconds during normal operation, fresh food and freezer compartments temperature display will be changed to option setting mode.

### KEY operation method for changing to option mode




① If Freezer Key+ Alarm are pressed simultaneously for 12 seconds, option setting mode will be started.

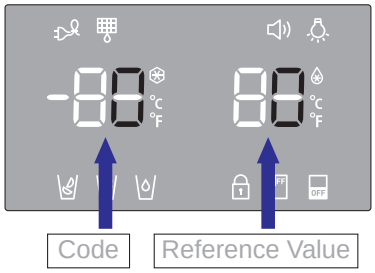
### KEY control method after converting to option mode




R Key control in option mode

| | |
|---|---|
| Energy Saver Key | Code Down key |
| Freezer Key | Code Up key |
| Alarm | Reference Value down key |
| Fridge key | Reference Value Up key |

- If the display changes to option setting mode, all displays wil l be off except freezer and fridge compartments temperature display as below.
  (Fresh food and freezer compartments case will be explained only because all options are operated with the same method according to the option table.)



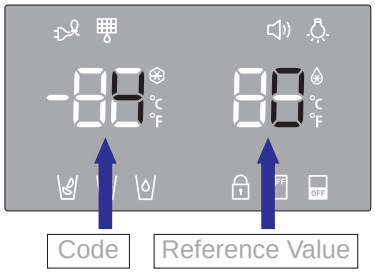

1) For example, if you want to change freezer compartment standard temperature to -4℉(-2°C) by operating option, do as below. This function is for changing the standard temperature.
In -2℉(-19°C) of current temperature of freezer compartment, if you make the temperature lower to -4℉(-2°C) by the option, the standard temperature would be controlled -6℉(-21°C)
Therefore, if you change the setting of temperature option to -2℉(-19°C) on the panel, the appliance will be operated with -6℉(-21°C). It means that standard temperature is controlled -4℉(-2°C) less than setting temperature in the display.

**NOTE**

Basically, all the data in option has cleared from the factory.
Therefore, almost all setting value are "0".
But, some setting values could be changed for the purpose of improving performmance.
You need to check the product manual and/or specification.

2) After changing to the option mode, fresh food compartment "0" , freezer compartment "0" will be displayed.
( Basically fresh food compartment "0", freezer "0" would be set at shipping process, but setting value could be changed for the purpose of improving product at mass producing process.)
- If fresh food compartment "0" shows only, temperature reference value of freezer compartment will be set and current freezer compartment temperature code will be displayed on the freezer temperature display.

3) If freezer compartment "4" is set as below freezer compartment code after fresh food compartment "0 is set, standard temperature of freezer compartment will be lower than -4℉(-2.0°C).
(Refer to the picture "changing the freezer compartment temperature")




: If you wait for 20 seconds after completing the setting, MICOM will save the setting value to the EEPROM and normal display will be returned and the option setting mode will be canceled.

4) Option changing method as above is the same as all RFG29** model.
5) By the same method as above, it is possible to control the fresh food compartment temperature, water supply, ice-maker harvest temperature/time, defrost return time, hysteresis by temperature, notch gap by temperature etc.
6) Option function is set in the EEPROM at shipping process in the factory.
You would better not to change the option of your own.
Completing the setting is that option function return to normal display after 20 seconds.
Do not turn off the appliance before returning to the normal display mode.

**NOTE**

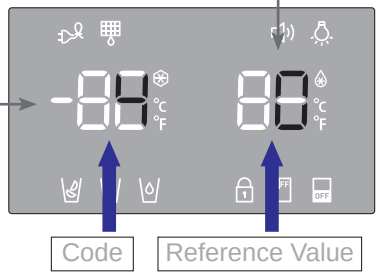
Option setting function exists in the other items.
We will skip the explanation of the other functions by the option because it is associated with refrigerator control function and is not needed at SERVICE.
(Please do not set the other options except above SERVICE Manual.)

## 4-1-7. Option TABLE

### 1) Temperature changing table of freezer compartment

| Set item | Freezer Temp Shift |
|---|---|
| MODEL | RF263TEAE**, RF263BEAE** |
| Reference | Fridge Room 7-SEG |
| Value | 0 |

| Setting value<br>FZ compartment Code | Temp. compensation |
|---|---|
| 0 | 0℉(0.0℃) |
| 1 | -1℉(-0.5℃) |
| 2 | -2℉(-1.0℃) |
| 3 | -3℉(-1.5℃) |
| 4 | -4℉(-2.0℃) |
| 5 | -5℉(-2.5℃) |
| 6 | -6℉(-3.0℃) |
| 7 | -7℉(-3.5℃) |
| 8 | +1℉(+0.5℃) |
| 9 | +2℉(+1.0℃) |
| 10 | +3℉(+1.5℃) |
| 11 | +4℉(+2.0℃) |
| 12 | +5℉(+2.5℃) |
| 13 | +6℉(+3.0℃) |
| 14 | +7℉(+3.5℃) |
| 15 | +8℉(+4.0℃) |



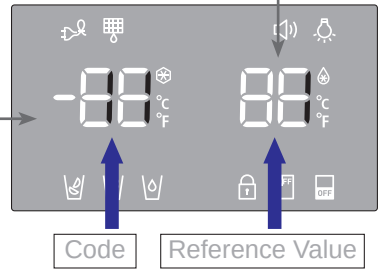

ex) If you want to change the freezer standard temperature to -4℉(-2°C)

### 2) Temperature changing table of fresh food compartment

| Set item | Freezer Temp Shift |
|---|---|
| MODEL | RF263TEAE**, RF263BEAE** |
| Reference | Fridge Room 7-SEG |
| Value | 1 |

| Setting value<br>FZ compartment Code | Temp. compensation |
|---|---|
| 0 | 0℉(0.0℃) |
| 1 | -1℉(-0.5℃) |
| 2 | -2℉(-1.0℃) |
| 3 | -3℉(-1.5℃) |
| 4 | -4℉(-2.0℃) |
| 5 | -5℉(-2.5℃) |
| 6 | -6℉(-3.0℃) |
| 7 | -7℉(-3.5℃) |
| 8 | +1℉(+0.5℃) |
| 9 | +2℉(+1.0℃) |
| 10 | +3℉(+1.5℃) |
| 11 | +4℉(+2.0℃) |
| 12 | +5℉(+2.5℃) |
| 13 | +6℉(+3.0℃) |
| 14 | +7℉(+3.5℃) |
| 15 | +8℉(+4.0℃) |

ex) If you want to change the freezer compartment standard temperature to 4℉(2°C)

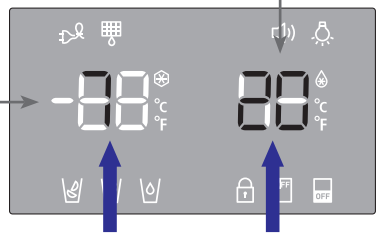


3) Temperature changing table of ICE ROOM compartment .

| Set item | ICE ROOM Temp shift |
|---|---|
| MODEL | RF263TEAE**, RF263BEAE** |
| Reference | Fridge Room 7-SEG |
| Value | 20 |

| Setting value | |
|---|---|
| FZ compartment Code | Temp. compensation |
| 0 | 8.6℉(-13℃) |
| 1 | 6.8℉(-14℃) |
| 2 | 5℉(-15℃) |
| 3 | 3.2℉(-16℃) |
| 4 | 1.4℉(-17℃) |
| 5 | -0.4℉(-18℃) |
| 6 | -2.2℉(-19℃) |
| 7 | 10.4℉(-12℃) |

ex) If you want to change the freezer compartment standard temperature to 10.4℉(-12℃).



Code Reference Value

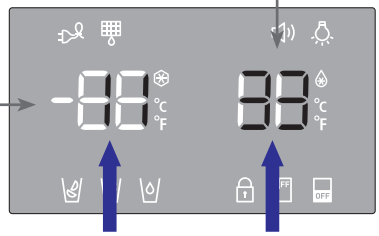
4) Temperature changing table of Pantry Room compartment

- Could change the temperature of Pantry Room in fresh food compartment.

| Set item | PANTRY ROOM Temp shift |
|---|---|
| MODEL | RF263TEAE**, RF263BEAE** |
| Reference | Fridge Room 7-SEG |
| Value | 33 |

| Setting value | |
|---|---|
| FZ compartment Code | Temp. compensation |
| 0 | 0℉(0.0℃) |
| 1 | -1℉(-0.5℃) |
| 2 | -2℉(-1.0℃) |
| 3 | -3℉(-1.5℃) |
| 4 | -4℉(-2.0℃) |
| 5 | -5℉(-2.5℃) |
| 6 | -6℉(-3.0℃) |
| 7 | -7℉(-3.5℃) |
| 8 | +1℉(+0.5℃) |
| 9 | +2℉(+1.0℃) |
| 10 | +3℉(+1.5℃) |
| 11 | +4℉(+2.0℃) |
| 12 | +5℉(+2.5℃) |
| 13 | +6℉(+3.0℃) |
| 14 | +7℉(+3.5℃) |
| 15 | +8℉(+4.0℃) |

ex) If you want to change the freezer compartment standard temperature to 4℉(2°C).



Code Reference Value

## 4-2) Diagnostic method according to the trouble symptom(Flow Chart)

DATA1.Temperature table
Resistance value and MICOM port voltage of sensor according to the temperature
SENSOR CHIP : based on PX41C, PX41C, 502AT/ 103**(ICE MAKER SENSOR(MOLD)/FULL UP, 20Kohm
( Actual measurement = value of the table below X 2 )

| ℃ | ℉ | Voltage | Resistance | ℃ | ℉ | Voltage | Resistance | ℃ | ℉ | Voltage | Resistance |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -50 | -58 | 4.694 | 153319 | -5 | 23 | 3.107 | 16419 | 40 | 104 | 1.153 | 2997 |
| -49 | -56.2 | 4.677 | 144794 | -4 | 24.8 | 3.057 | 15731 | 41 | 105.8 | 1.124 | 2899 |
| -48 | -54.4 | 4.659 | 136798 | -3 | 26.6 | 3.006 | 15076 | 42 | 107.6 | 1.095 | 2805 |
| -47 | -52.6 | 4.641 | 129294 | -2 | 28.4 | 2.955 | 14452 | 43 | 109.4 | 1.068 | 2714 |
| -46 | -50.8 | 4.622 | 122248 | -1 | 30.2 | 2.904 | 13857 | 44 | 111.2 | 1.040 | 2627 |
| -45 | -49 | 4.602 | 115631 | 0 | 32 | 2.853 | 13290 | 45 | 113 | 1.014 | 2543 |
| -44 | -47.2 | 4.581 | 109413 | 1 | 33.8 | 2.802 | 12749 | 46 | 114.8 | 0.988 | 2462 |
| -43 | -45.4 | 4.560 | 103569 | 2 | 35.6 | 2.751 | 12233 | 47 | 116.6 | 0.963 | 2384 |
| -42 | -43.6 | 4.537 | 98073 | 3 | 37.4 | 2.700 | 11741 | 48 | 118.4 | 0.938 | 2309 |
| -41 | -41.8 | 4.514 | 92903 | 4 | 39.2 | 2.649 | 11271 | 49 | 120.2 | 0.914 | 2237 |
| -40 | -40 | 4.490 | 88037 | 5 | 41 | 2.599 | 10823 | 50 | 122 | 0.891 | 2167 |
| -39 | -38.2 | 4.465 | 83456 | 6 | 42.8 | 2.548 | 10395 | 51 | 123.8 | 0.868 | 2100 |
| -38 | -36.4 | 4.439 | 79142 | 7 | 44.6 | 2.498 | 9986 | 52 | 125.6 | 0.846 | 2036 |
| -37 | -34.6 | 4.412 | 75077 | 8 | 46.4 | 2.449 | 9596 | 53 | 127.4 | 0.824 | 1973 |
| -36 | -32.8 | 4.385 | 71246 | 9 | 48.2 | 2.399 | 9223 | 54 | 129.2 | 0.803 | 1913 |
| -35 | -31 | 4.356 | 67634 | 10 | 50 | 2.350 | 8867 | 55 | 131 | 0.783 | 1855 |
| -34 | -29.2 | 4.326 | 64227 | 11 | 51.8 | 2.301 | 8526 | 56 | 132.8 | 0.762 | 1799 |
| -33 | -27.4 | 4.296 | 61012 | 12 | 53.6 | 2.253 | 8200 | 57 | 134.6 | 0.743 | 1745 |
| -32 | -25.6 | 4.264 | 57977 | 13 | 55.4 | 2.205 | 7888 | 58 | 136.4 | 0.724 | 1693 |
| -31 | -23.8 | 4.232 | 55112 | 14 | 57.2 | 2.158 | 7590 | 59 | 138.2 | 0.706 | 1642 |
| -30 | -22 | 4.199 | 52406 | 15 | 59 | 2.111 | 7305 | 60 | 140 | 0.688 | 1594 |
| -29 | -20.2 | 4.165 | 49848 | 16 | 60.8 | 2.064 | 7032 | 61 | 141.8 | 0.670 | 1547 |
| -28 | -18.4 | 4.129 | 47431 | 17 | 62.6 | 2.019 | 6771 | 62 | 143.6 | 0.653 | 1502 |
| -27 | -16.6 | 4.093 | 45146 | 18 | 64.4 | 1.974 | 6521 | 63 | 145.4 | 0.636 | 1458 |
| -26 | -14.8 | 4.056 | 42984 | 19 | 66.2 | 1.929 | 6281 | 64 | 147.2 | 0.620 | 1416 |
| -25 | -13 | 4.018 | 40938 | 20 | 68 | 1.885 | 6052 | 65 | 149 | 0.604 | 1375 |
| -24 | -11.2 | 3.980 | 39002 | 21 | 69.8 | 1.842 | 5832 | 66 | 150.8 | 0.589 | 1335 |
| -23 | -9.4 | 3.940 | 37169 | 22 | 71.6 | 1.799 | 5621 | 67 | 152.6 | 0.574 | 1297 |
| -22 | -7.6 | 3.899 | 35433 | 23 | 73.4 | 1.757 | 5419 | 68 | 154.4 | 0.560 | 1260 |
| -21 | -5.8 | 3.858 | 33788 | 24 | 75.2 | 1.716 | 5225 | 69 | 156.2 | 0.546 | 1225 |
| -20 | -4 | 3.816 | 32230 | 25 | 77 | 1.675 | 5039 | 70 | 158 | 0.532 | 1190 |
| -19 | -2.2 | 3.773 | 30752 | 26 | 78.8 | 1.636 | 4861 | 71 | 159.8 | 0.519 | 1157 |
| -18 | -0.4 | 3.729 | 29350 | 27 | 80.6 | 1.596 | 4690 | 72 | 161.6 | 0.506 | 1125 |
| -17 | 1.4 | 3.685 | 28021 | 28 | 82.4 | 1.558 | 4526 | 73 | 163.4 | 0.493 | 1093 |
| -16 | 3.2 | 3.640 | 26760 | 29 | 84.2 | 1.520 | 4369 | 74 | 165.2 | 0.481 | 1063 |
| -15 | 5 | 3.594 | 25562 | 30 | 86 | 1.483 | 4218 | 75 | 167 | 0.469 | 1034 |
| -14 | 6.8 | 3.548 | 24425 | 31 | 87.8 | 1.447 | 4072 | 76 | 168.8 | 0.457 | 1006 |
| -13 | 8.6 | 3.501 | 23345 | 32 | 89.6 | 1.412 | 3933 | 77 | 170.6 | 0.446 | 978 |
| -12 | 10.4 | 3.453 | 22320 | 33 | 91.4 | 1.377 | 3799 | 78 | 172.4 | 0.435 | 952 |
| -11 | 12.2 | 3.405 | 21345 | 34 | 93.2 | 1.343 | 3670 | 79 | 174.2 | 0.424 | 926 |
| -10 | 14 | 3.356 | 20418 | 35 | 95 | 1.309 | 3547 | 80 | 176 | 0.414 | 902 |
| -9 | 15.8 | 3.307 | 19537 | 36 | 96.8 | 1.277 | 3428 | 81 | 177.8 | 0.404 | 877 |
| -8 | 17.6 | 3.258 | 18698 | 37 | 98.6 | 1.253 | 3344 | 82 | 179.6 | 0.394 | 854 |
| -7 | 19.4 | 3.208 | 17901 | 38 | 100.4 | 1.213 | 3204 | 83 | 181.4 | 0.384 | 832 |
| -6 | 21.2 | 3.158 | 17142 | 39 | 102.2 | 1.183 | 3098 | 84 | 183.2 | 0.375 | 810 |

## 4-2) Diagnostic method according to the trouble symptom(Flow Chart)

DATA2. Humidity Sensor table
- Voltage output table @23°..., 5Vdc --- HTG3515CH/HTG3535CH
RH(Temperature compensate ) = RH (Relative Humidity ) + ( Temp(°C) °© 23°C) x 0.05

| ℃ | ℉ | Voltage | Resistance | ℃ | ℉ | Voltage | Resistance | ℃ | ℉ | Voltage | Resistance |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 909 | 186 | 744 | 46 | 2246 | 460 | 1839 | 92 | 3452 | 706 | 2827 |
| 1 | 943 | 193 | 772 | 47 | 2272 | 465 | 1861 | 93 | 3478 | 712 | 2848 |
| 2 | 977 | 200 | 800 | 48 | 2298 | 470 | 1882 | 94 | 3504 | 717 | 2870 |
| 3 | 1010 | 207 | 827 | 49 | 2324 | 475 | 1903 | 95 | 3530 | 722 | 2891 |
| 4 | 1043 | 213 | 854 | 50 | 2350 | 481 | 1925 | 96 | 3566 | 730 | 2920 |
| 5 | 1076 | 220 | 881 | 51 | 2376 | 486 | 1946 | 97 | 3595 | 735 | 2944 |
| 6 | 1109 | 227 | 908 | 52 | 2402 | 491 | 1967 | 98 | 3624 | 741 | 2968 |
| 7 | 1141 | 233 | 935 | 53 | 2428 | 497 | 1989 | 99 | 3653 | 747 | 2992 |
| 8 | 1173 | 240 | 961 | 54 | 2454 | 502 | 2010 | 100 | 3683 | 754 | 3016 |
| 9 | 1205 | 247 | 987 | 55 | 2480 | 507 | 2031 | | | | |
| 10 | 1235 | 253 | 1011 | 56 | 2505 | 513 | 2052 | | | | |
| 11 | 1266 | 259 | 1037 | 57 | 2530 | 518 | 2072 | | | | |
| 12 | 1297 | 265 | 1062 | 58 | 2555 | 523 | 2093 | | | | |
| 13 | 1328 | 272 | 1088 | 59 | 2580 | 528 | 2113 | | | | |
| 14 | 1359 | 278 | 1113 | 60 | 2605 | 533 | 2133 | | | | |
| 15 | 1390 | 284 | 1138 | 61 | 2630 | 538 | 2154 | | | | |
| 16 | 1420 | 291 | 1163 | 62 | 2655 | 543 | 2174 | | | | |
| 17 | 1450 | 297 | 1188 | 63 | 2680 | 548 | 2195 | | | | |
| 18 | 1480 | 303 | 1212 | 64 | 2705 | 553 | 2215 | | | | |
| 19 | 1510 | 309 | 1237 | 65 | 2730 | 559 | 2236 | | | | |
| 20 | 1540 | 315 | 1261 | 66 | 2756 | 564 | 2257 | | | | |
| 21 | 1569 | 321 | 1285 | 67 | 2782 | 569 | 2278 | | | | |
| 22 | 1598 | 327 | 1309 | 68 | 2808 | 575 | 2300 | | | | |
| 23 | 1627 | 333 | 1333 | 69 | 2834 | 580 | 2321 | | | | |
| 24 | 1656 | 339 | 1356 | 70 | 2860 | 585 | 2342 | | | | |
| 25 | 1685 | 345 | 1380 | 71 | 2886 | 590 | 2364 | | | | |
| 26 | 1713 | 350 | 1403 | 72 | 2912 | 596 | 2385 | | | | |
| 27 | 1741 | 356 | 1426 | 73 | 2938 | 601 | 2406 | | | | |
| 28 | 1769 | 362 | 1449 | 74 | 2964 | 606 | 2428 | | | | |
| 29 | 1797 | 368 | 1472 | 75 | 2990 | 612 | 2449 | | | | |
| 30 | 1825 | 373 | 1495 | 76 | 3017 | 617 | 2471 | | | | |
| 31 | 1852 | 379 | 1517 | 77 | 3044 | 623 | 2493 | | | | |
| 32 | 1879 | 384 | 1539 | 78 | 3071 | 628 | 2515 | | | | |
| 33 | 1906 | 390 | 1561 | 79 | 3098 | 634 | 2537 | | | | |
| 34 | 1933 | 395 | 1583 | 80 | 3125 | 639 | 2559 | | | | |
| 35 | 1960 | 401 | 1605 | 81 | 3152 | 645 | 2581 | | | | |
| 36 | 1986 | 406 | 1627 | 82 | 3179 | 650 | 2604 | | | | |
| 37 | 2012 | 412 | 1648 | 83 | 3206 | 656 | 2626 | | | | |
| 38 | 2038 | 417 | 1669 | 84 | 3233 | 661 | 2648 | | | | |
| 39 | 2064 | 422 | 1690 | 85 | 3260 | 667 | 2670 | | | | |
| 40 | 2090 | 428 | 1712 | 86 | 3288 | 673 | 2693 | | | | |
| 41 | 2116 | 433 | 1733 | 87 | 3316 | 678 | 2716 | | | | |
| 42 | 2142 | 438 | 1754 | 88 | 3344 | 684 | 2739 | | | | |
| 43 | 2168 | 444 | 1776 | 89 | 3372 | 690 | 2762 | | | | |
| 44 | 2194 | 449 | 1797 | 90 | 3400 | 696 | 2785 | | | | |
| 45 | 2220 | 454 | 1818 | 91 | 3426 | 701 | 2806 | | | | |

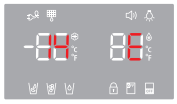
# TROUBLESHOOTING

## 4-2-1. If the trouble is detected by self-diagnosis

- The error of sensor will be displayed on the front of display.
  when the error of sensor is detected at initial power ON, the appliance will not operated and display of abnormal sensor part will blink.
- The appliance will not stop operating when the error of sensor is detected during operation of the appliance.
  But normal freezing might be not operated if the appliance is operated by the emergency operation mode. You would better to check the appliance according to the self-diagnosis of the manual.

### 1) If ICE Maker(R) Sensor has troubled

ERROR Code



DATA1.
Temperature table

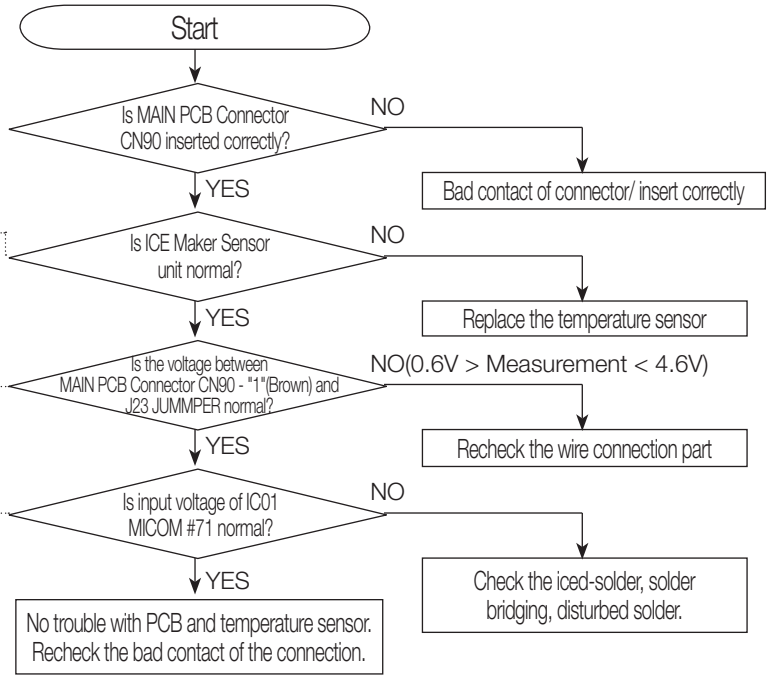
** Measuring point of resistance value according to Sensor **
ICE MAKER: CN90 "1"↔ "7" measuring resistance value ** 0Ω: Short trouble / Ω∞: Open trouble

Refer to circuit diagram in the manual

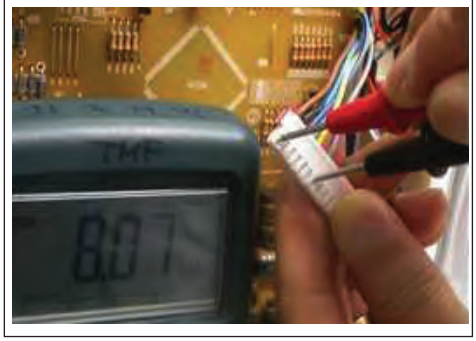
| Sensor MICOM/Connector number | |
|---|---|
| ICE Maker | Connector CN90-"1"(Brown)and J23 JUMMPER PCB typical Ground |

Voltage measured between 4.6V ~ 0.6V.

Measuring voltage of IC01 MICOM #71, CN90 - "1" (Brown) and J23 JUMMPER from PCB typical Ground part are similar.
→ Check the measure on the voltage of Resistance, R914 DUE to the SMD MICOM

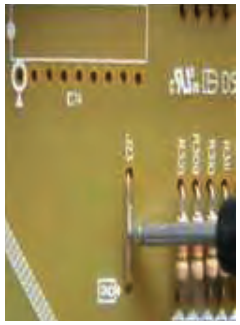



☞ Checking method of ICE Maker Sensor resistance
CN90 "1"(Brown) ↔ "7"(Gray)
- Compare the temperature table after the measure.



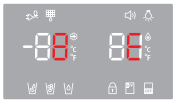
☞ Checking method of ICE Maker Sensor resistance
- Measure the voltage of Resistance R914(IC01 MICOM #71) on PCB or CN90 "1"(Brown) ↔ J23 JUMMPER
- Compare the temperature table after the measure.
  Measuring voltage of CN90-"1"(Brown) ↔ J23 JUMMPER are as below.


PCB Typical Ground
J23 JUMMPER



## 2) ICE Maker(FZ) Sensor has troubled

ERROR Code



This refrigerator has Dual Ice Maker, so controlled two Ice Makers.

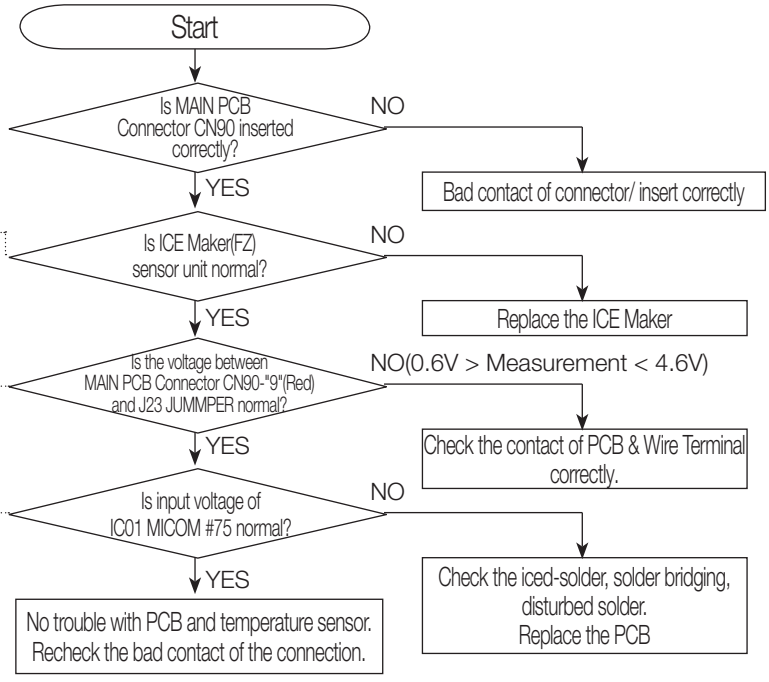
DATA1.
Temperature table

** Measuring point of resistance value according to Sensor **
ICE MAKER(FZ) : CN90 9 ↔ 8 measuring resistance value
** 0Ω : Short trouble / Ω ∞ : Open trouble

Refer to circuit diagram in the manual

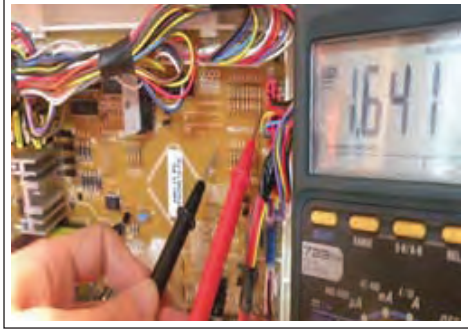
| Sensor MICOM/Connector number | |
|---|---|
| ICE Maker(F) | Connector CN90-"9"(Red) and J23 JUMMPER PCB common Ground |
| Voltage measured between 4.6V ~ 0.6V. | |

Measuring voltage of IC01 MICOM #75, CN90-"9"(Red) and J23 JUMMPER PCB typical Ground part are similar.
→ Check the measure on the Resistance R904 due to the SMD MICOM.




☞ Checking Method of ICE MAKER(R) Senser resistance CN90 "9"(Red) ↔ 8"(White)
- Compare the temperature table after the measure.

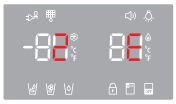
☞ Checking method of ICE Maker Seneor
- Measure the voltage of Resistance R904(IC01 MICOM #75) or CN90-"9"(Red) ↔ J23 JUMMPER.
- Compare the temperature table after the measure. Measuring voltage of CN90-"9"(Red) ↔ J23 JUMMPER.



typical PCB Ground
J23 JUMMPER

## 3) If R Sensor has trouble

ERROR Code



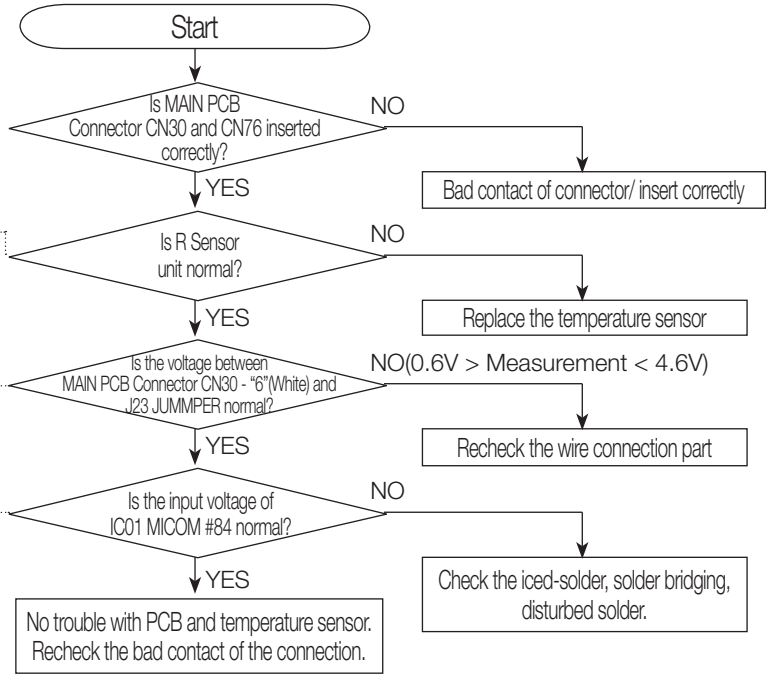
DATA1.
Temperature table

** Measuring point of resistance value according to Sensor **
R : CN30 - "6" ↔ CN76-"1" measuring resistance value
** 0Ω : Short trouble / Ω ∞ : Open trouble

Refer to circuit diagram in the manual

| Sensor MICOM/Connector number | |
|---|---|
| R | Connector CN30 - "6"(White) to J23 JUMMPER PCB typical Ground |
| Voltage measured between 4.6V ~ 0.6V. | |

Measuring voltage IC01 MICOM #84, CN30 - "6"(White) and J23 JUMMPER from PCB typical Ground part are similar.
→ Check the measure on the voltage of Resistance, R311 due to the SMD MICOM



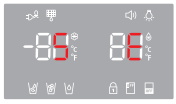

☞ Checking method of R Sensor resistance
CN30 - "6"(White) ↔ CN76-"1"(Gray) Compare the temperature table after measurment.

☞ Checking method of R Sensor resistance
- Measure the voltage of Resistance R311(IC01 MICOM #84) on PCB or CN30 - "6"(White) ↔ J23 JUMMPER
- Compare the temperature table after measurement. Measuring voltage of CN30 - "6"(White) ↔ J23 JUMMPER are as below.

PCB Typical Ground
J23 JUMMPER

## 4) If R DEF Sensor has trouble

ERROR Code



DATA1.
Temperature table

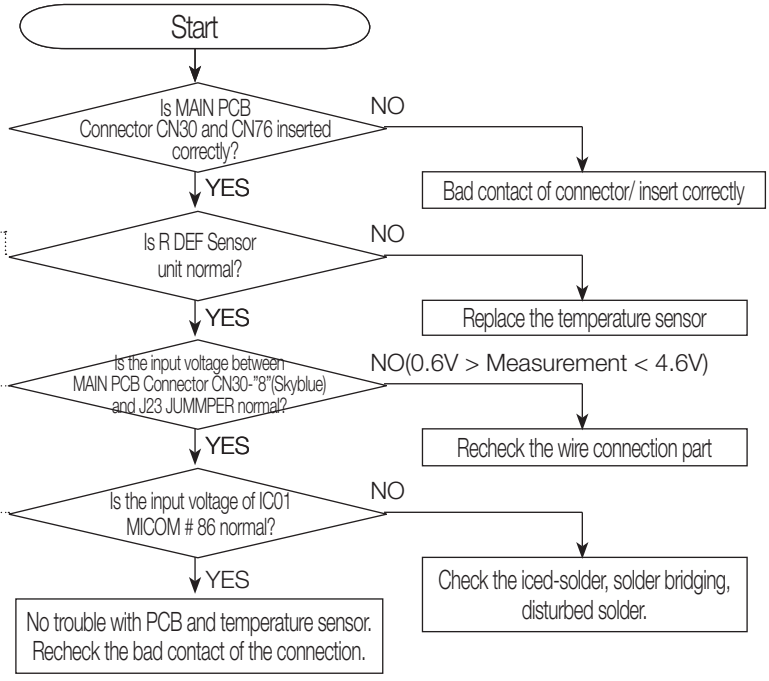
** Measuring point of resistance value according to Sensor **
R-DEF : CN30-"8" ↔ CN76-"1" measuring resistance value
** 0Ω : Short trouble Ω ∞: Open trouble

Refer to circuit diagram in the manual

| Sensor MICOM/Connector Number | |
|---|---|
| R DEF | Connector CN30-"8"(Sky-blue) and J23 JUMMPER PCB typical Ground |

Voltage measured between 4.6V ~ 0.6V.

Measuring voltage of IC01 MICOM #86 CN30-"8"(Sky-blue) and J23 JUMMPER from PCB typical Ground part are similar.
→ Check the measure on the voltage of Resistance R313 due to the SMD MICOM



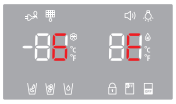

☞ Checking method of R Sensor resistance CN30-"8"(Sky-blue) ↔ CN76-"1"(Gray)
- Compare the temperature table after measurement.


☞ Checking method of R DEF Sensor resistance
- Measure the voltage of Resistance R313(IC01 MICOM #86) on PCB or CN30-"8"(Sky-blue) ↔ J23 JUMMPER
- Compare the temperature table after measurement.
Measuring voltage of CN30-"8"(Sky-blue) ↔ J23 JUMMPER are as below.


PCB Typical Ground
J23 JUMMPER

## 5) If Ambient Sensor has trouble

ERROR Code



DATA1.
Temperature table

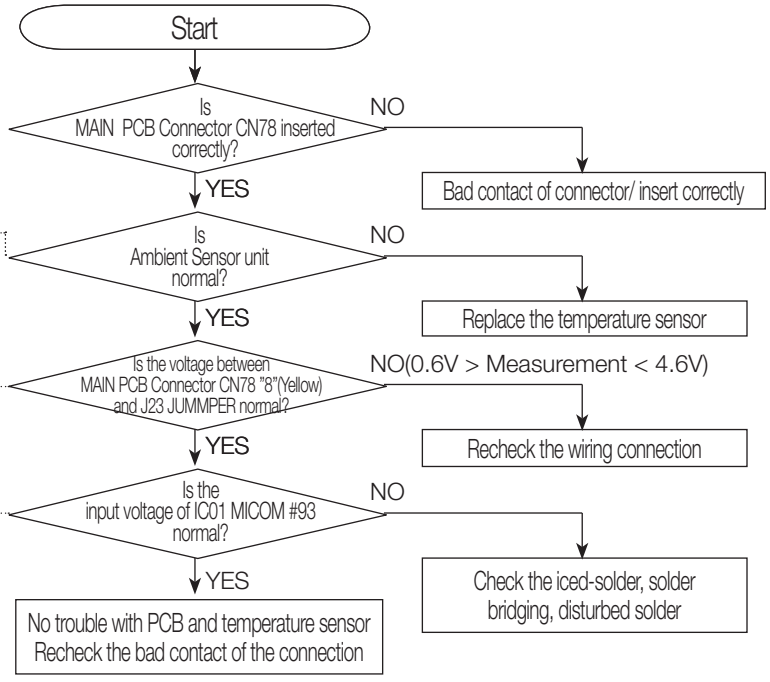
** Measuring point of resistance value according to Sensor **
Ambient : CN78-"8"↔ "12" measuring resistance value
** Placed in the right top table of upper hinge.
** 0Ω : Short trouble / Ω ∞: Open trouble

Refer to circuit diagram in the manual

| Sensor MICOM/Connector number | |
|---|---|
| Ambient | Connector CN78-"8"(Yellow) to J23 JUMMPER PCB typical Ground |

Voltage measured between 4.6V ~ 0.6V.

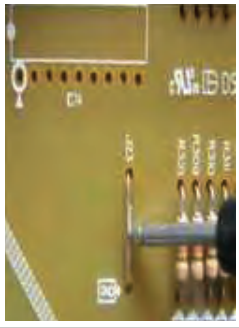
Measuring voltage of IC01 MICOM #93
CN78-"8"(Yellow) and J23 JUMMPER from
PCB typical Ground part are similar.
→ Check the measure on the voltage of Resistance,
R315 due to the SMD MICOM




☞ Checking method of Ambient Sensor resistance
CN78-"8"(Yellow) ↔ "12"(Yellow)
- Compare the temperature table after measurement.

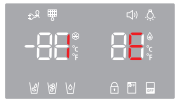
☞ Checking method of Ambient Sensor voltage
- Measure the voltage of Resistance R315(IC01 MICOM #93) on PCB or CN78-"8"(Yellow) ↔ J23 JUMMPER
- Compare the temperature table after measurement.
Measuring voltage of CN78-"8"(Yellow) ↔ J23 JUMMPER are as below

PCB Typical Ground
J23 JUMMPER



## 6) If F Sensor has trouble

ERROR Code



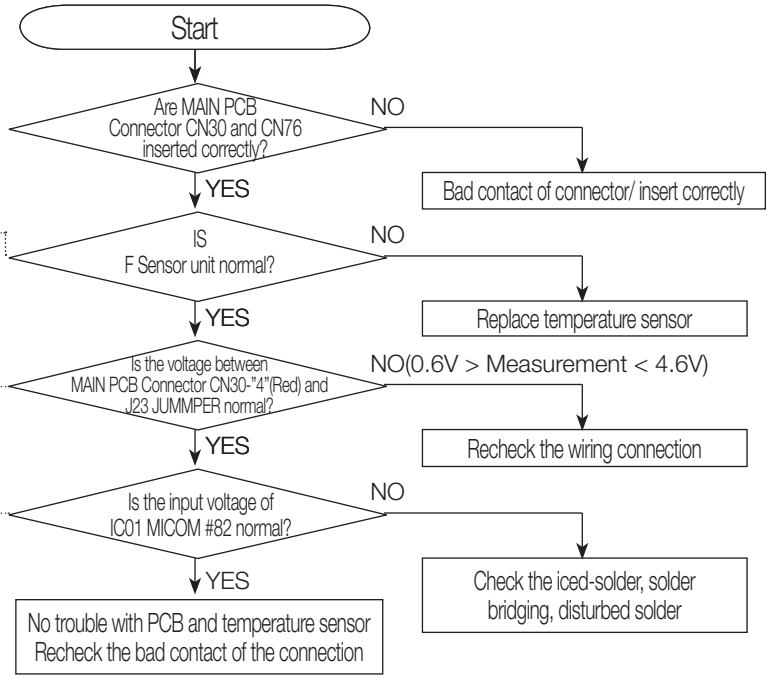
DATA1.
Temperature table

** Measuring point of resistance value according to Sensor **
F : CN30-"4" ↔ CN76-"1" measuring resistance value
** 0Ω : Short trouble / Ω∞ : Open trouble

Refer to circuit diagram in the manual

| Sensor MICOM/Connector number | |
|---|---|
| F | Connector CN30-"4"(Red) to J23 JUMMPER PCB typical Ground |
| Voltage measured between 4.6V ~ 0.6V. | |

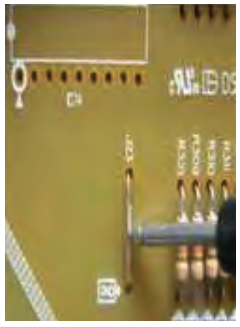
Measuring voltage of IC01 MICOM #82, CN30-"4"(Red) and J23 JUMMPER from PCB typical Ground part are similar.
→ Check the measure on the voltage of Resistance, R309 due to the SMD MICOM




☞ Checking method of F Sensor resistance CN30-"4"(Red) ↔ CN76-"1"(Gray)
- Compare the temperature table after measurement.

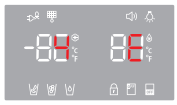

☞ Checking method of F Sensor voltage
- Measure the voltage of Resistanec, R309(IC01 MICOM #82) on PCB or CN30-"4"(Red) ↔J23 JUMMPER
- Compare the temperature table after measurement.
Measuring voltage of CN30-"4"(Red)↔J23 JUMMPER are as below.


PCB Typical Ground
J23 JUMMPER



## 7) If F DEF Sensor has trouble

ERROR Code




DATA1.
Temperature table

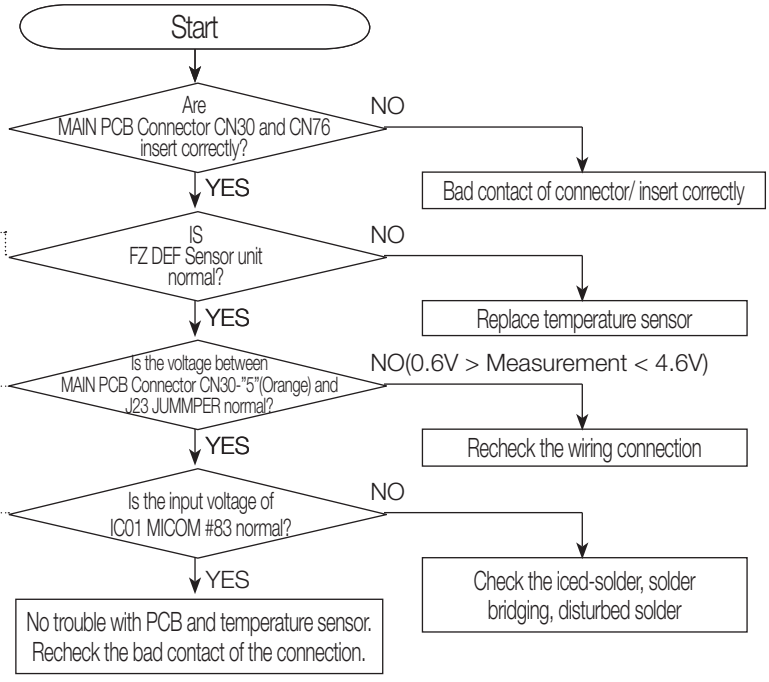
** Measuring point of resistance value according to Sensor **
F-DEF : CCN30-"5" ↔ CN76-"1" measuring resistance value
** 0Ω : Short trouble / Ω∞ : Open trouble

Refer to circuit diagram in the manual

| Sensor MICOM/Connector number | |
|---|---|
| F DEF | Connector CN30-"5"(Orange) to J23 JUMMPER PCB typical Ground |

Voltage measured between 4.6V ~ 0.6V.

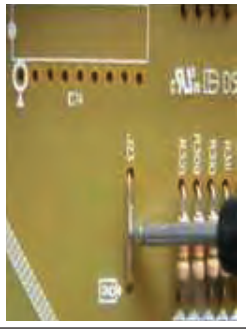
Measuring voltage of IC01 MICOM #83, CN30-"5"(Orange) and J23 JUMMPER from PCB typical Ground part are similar.
→ Check the measure on the voltage of Resistance, R310 due to the SMD MICOM




☞ Checking method of F DEF Sensor resistance
CN30-"5"(Orange) ↔ CN76-"1"(Gray)
- Compare the temperature table after measurement.

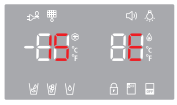

☞ Checking method of F DEF Sensor voltage
- Measure the voltage of Resistance, R310(IC01 MICOM #83) on PCB or CN30-"5"(Orange) ↔ J23 JUMMPER
- Compare the temperature table after measurement.
Measuring voltage of CN30-"5"(Orange) ↔ J23 JUMMPER are as below


PCB Typical Ground
J23 JUMMPER



## 8) If Ice Room Sensor has trouble

ERROR Code



DATA1.
Temperature table

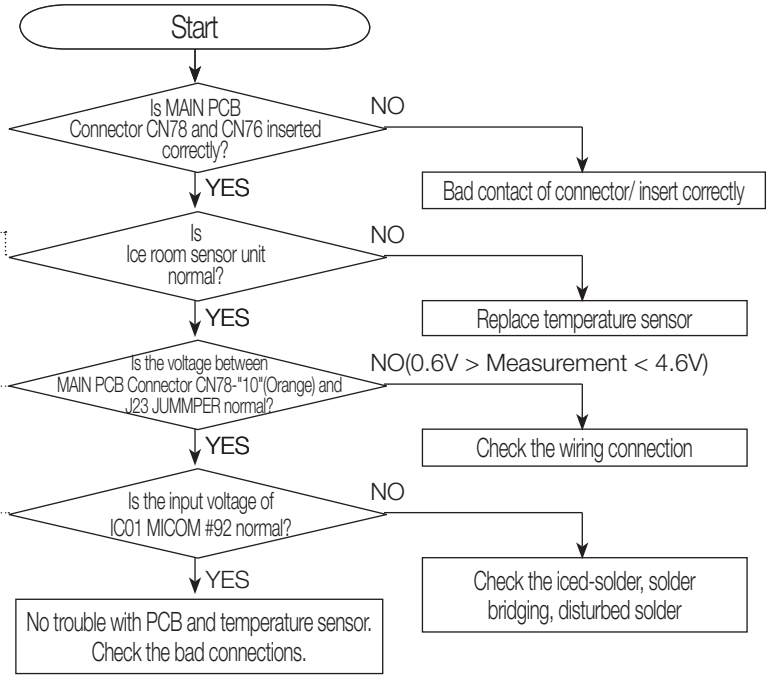
** Measuring point of resistance value according to Sensor **
Ambient : CN78 "10"↔ CN76-"1" Measure the voltage of Resistance value
** 0Ω : Short trouble / Ω ∞: Open trouble

Refer to the circuit diagram in this manual

| Sensor MICOM/Connector number | |
|---|---|
| Ice Room | Connector CN78-"10"(Orange) and J23 JUMMPER from PCB Typical Ground |

Voltage measured between 4.6V ~ 0.6V.

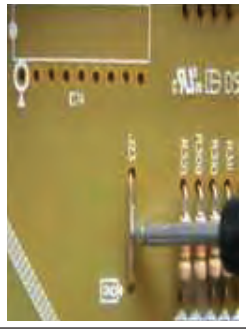
Measuring voltage of IC01 MICOM #92, CN78-"10"(Orange) and J23 JUMMPER from PCB Typical Ground are similar.
→ Check the measure on the voltage of Resistance, R316 due to the SMD MICOM




☞Checking Mehod of Ice Room Sensor voltage
CN78-"10"(Orange)↔ CN76-"1" (Gray)
- Compare with the temperature table after measurement.

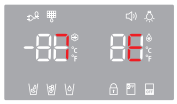
☞Checking Method of Ice Room Sensor Voltage
- Measure the voltage of Resistance, R316(IC01 MICOM #92) on PCB or CN78-"10"(Orange) ↔J23 JUMMPER
- Compare with the temperature table after measurement.
Measured voltage of CN78-"10"(Orange) ↔ J23 JUMMPER are as below


PCB Typical Ground
J23 JUMMPER



## 9) If PANTRY Sensor has trouble

ERROR Code



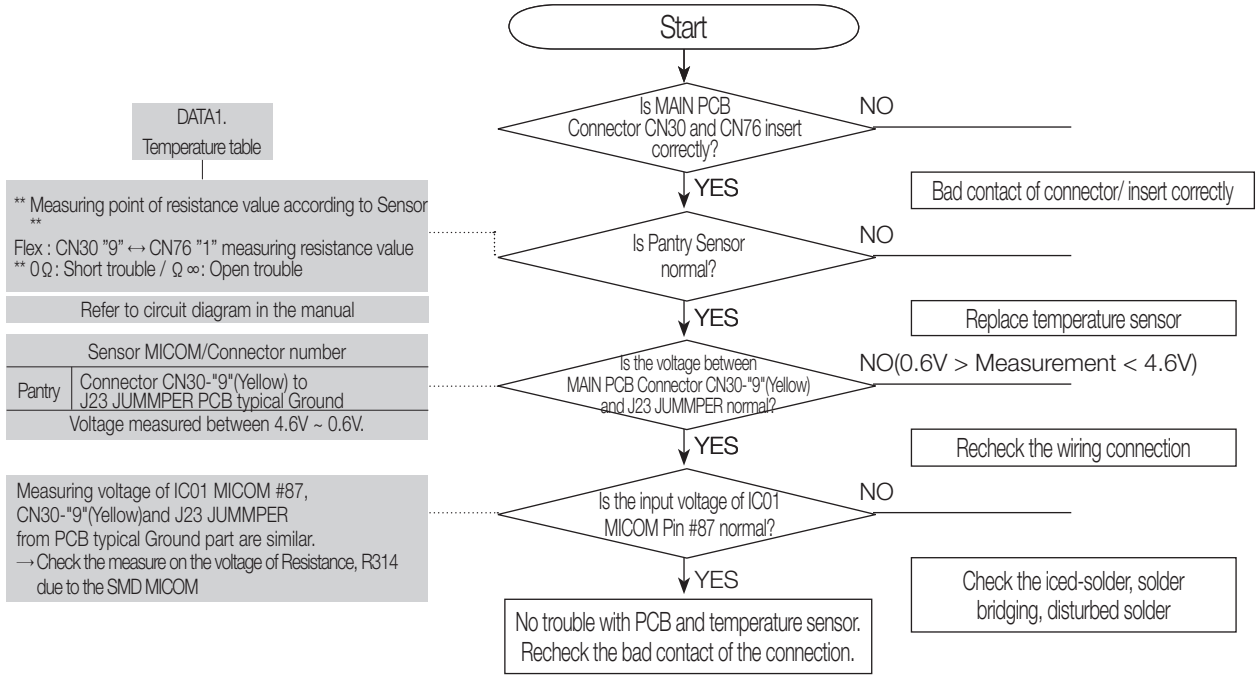
DATA1.
Temperature table

** Measuring point of resistance value according to Sensor
**
Flex : CN30 "9" ↔ CN76 "1" measuring resistance value
** 0Ω : Short trouble / Ω ∞ : Open trouble

Refer to circuit diagram in the manual

| Sensor MICOM/Connector number | |
|---|---|
| Pantry | Connector CN30-"9"(Yellow) to J23 JUMMPER PCB typical Ground |
| Voltage measured between 4.6V ~ 0.6V. | |

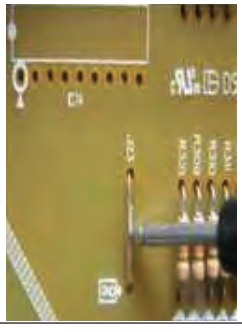
Measuring voltage of IC01 MICOM #87,
CN30-"9"(Yellow)and J23 JUMMPER
from PCB typical Ground part are similar.
→ Check the measure on the voltage of Resistance, R314
due to the SMD MICOM




☞ Checking method of PANTRY Sensor resistance
CN30-"9"(Yellow) ↔ CN76-"1" (Gray)
- Compare the temperature table after measurement.

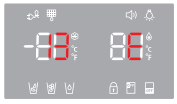

☞ Checking method of PANTRY Sensor resistance CN30-"9"(Yellow) ⟷ CN76-"1" (Gray)
- Compare the temperature table after measurement.
Measuring voltage of CN30-"9"(Yellow)⟷J23 JUMMPER are as below

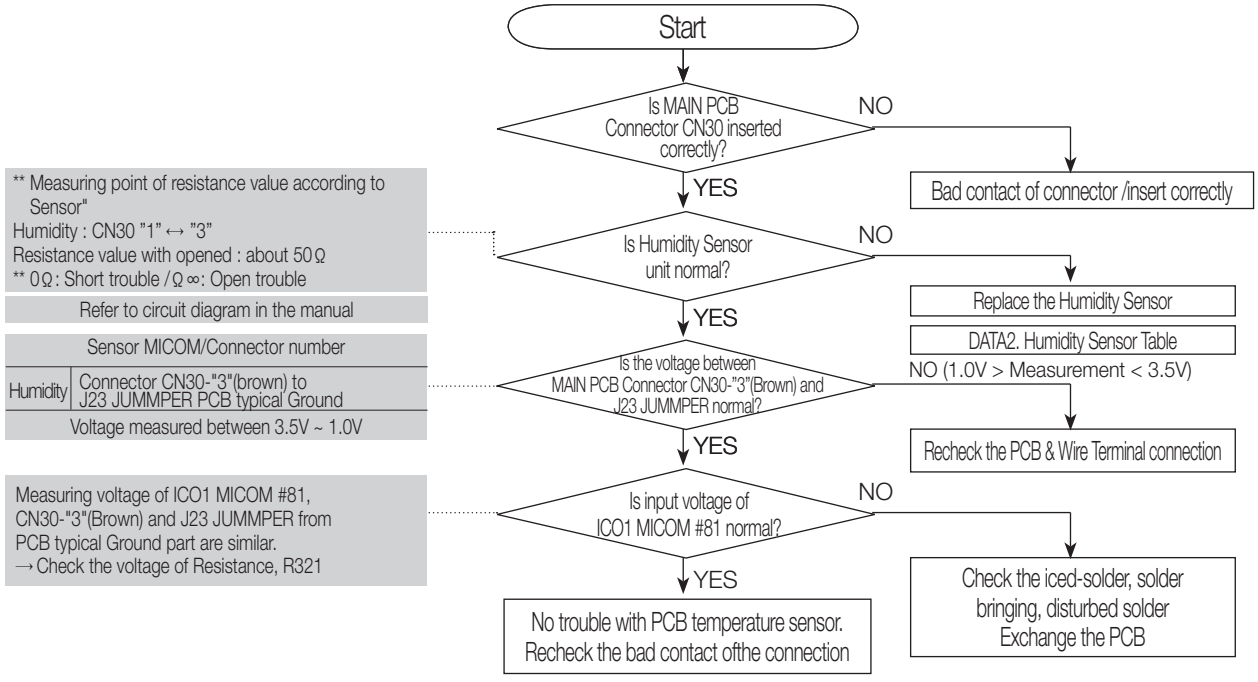

PCB Typical Ground
J23 JUMMPER



## 10) If Humidity Sensor has trouble

ERROR Code





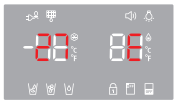

☞ Checking method ofHumidity Sensor resistance
CN30-"3"(Brown) ↔ "1"(Gray)
- Compare the temperature table after the measure.

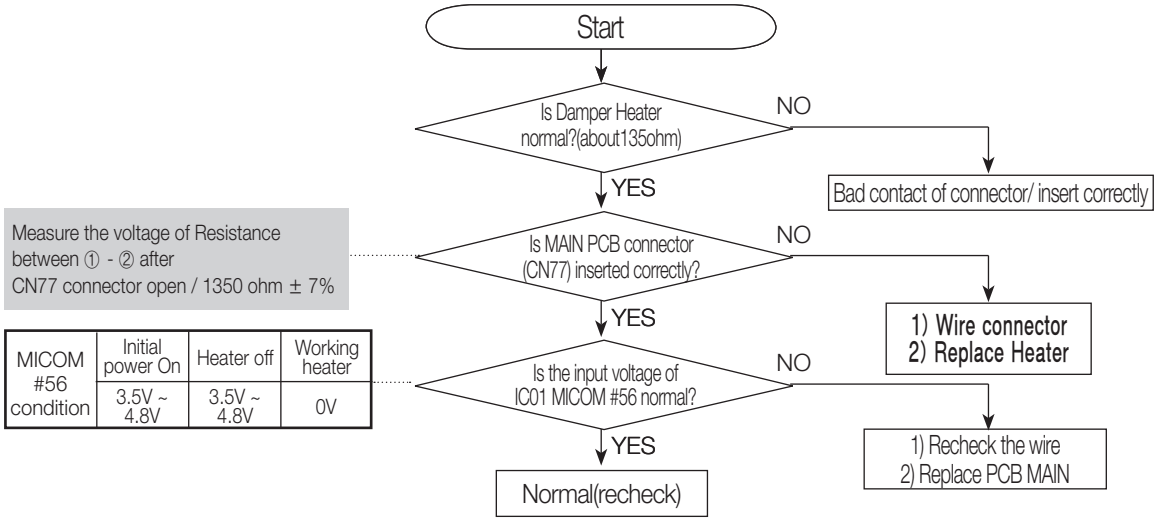

☞ Checking method ofHumidity Sensor voltage.
- Measure the voltage of Resistance, R321(IC01 MICOM #81) on PCB or CN30-"3"(Brown) ↔ J23 JUMMPER
- Compare the temperature table after the measure.
Measuring voltage of CN30-"3"(Brown) ↔ J23 JUMMPER are below


PCB Typical Ground
J23 JUMMPER

## 11) PANTRY Room Damper Heater has trouble(OPTION)

ERROR Code

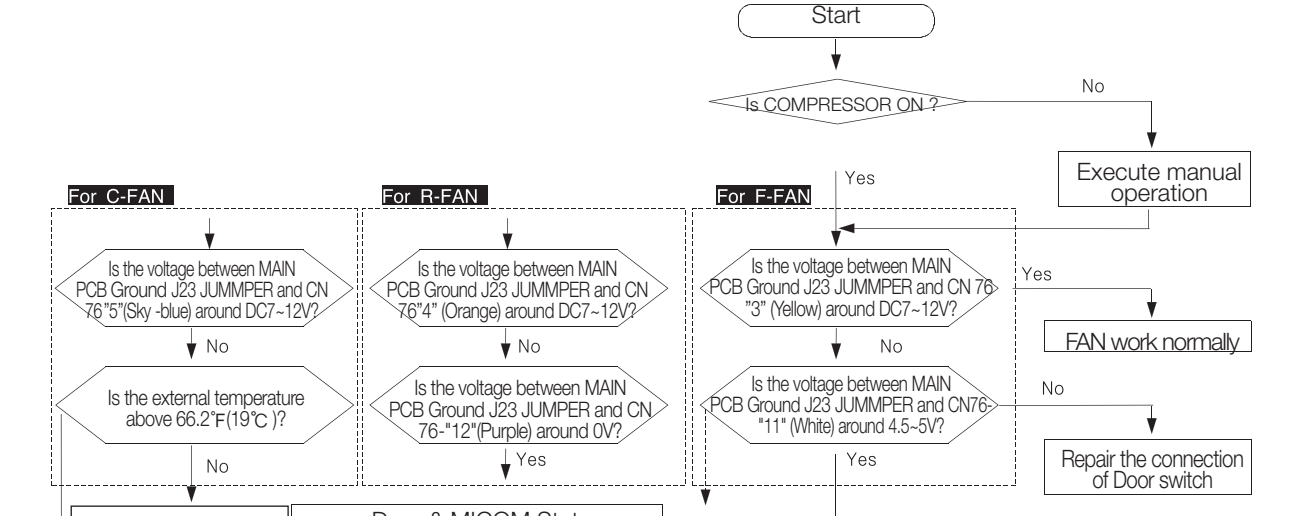





☞ Checking method of Flex Zone Room Damper resistance CN77-"1"(Black) ↔ "2"(Brown)
** Ω ∞: Open (wire disconnection, heater disconnection) trouble / 0Ω: Short trouble

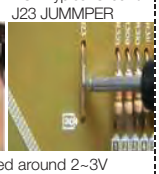
## 4-2-2. If FAN does not operate

- The refrigerator of this model has BLDC FAN motor. BLDC motor is driven by DC 7~12V.
- On the normal condition of COMP ON, it operates together with F-FAN motor.
  If door is opened and closed once at a high ambient temperature, it will be operated after 1 minute delay.
  Therefore, you are advised not to taken it for an error.
-. If there is a trouble, you should select the self-diagnostic function to check the trouble before power off.




F FAN pulse voltage CN76 "7"(Brown)

PCB Typical Ground J23 JUMMPER



The voltage measured around 2~3V with multi-meter though the voltage is very weak because of pulse signal

**Reference**

CN76-7(F),8(R),9(C)will generate the pulse signal when motor rotates.
These signals will be inputted into MICOM.
Unless signals are not inputted during motor operating, will be ON 10 seconds after fan Off. But if signals are not still entered, the above operation will restart four times more.
If signals are not entered continuously, the motor will be restarted after 10 Minutes. This function is effective when the normal operation of motor would be restrained by foreign matters such as ice.

- Expected causes
  ① Check that if FAN-MOTOR has failure itself.
  ② Check that if wiring connection has bad contact.
  ③ Check the input of the fan motor rotation pulse when motor fan operates.

☞ Display for checking the self-diagnostic function

| R FAN ERROR (Option) | F FAN ERROR | C FAN ERROR |
|---|---|---|

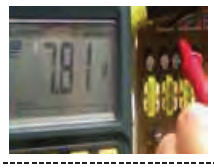
The voltage between PCB typical Ground J23 JUMMPER and
F FAN ; CN76 "3"(Yellow) shall be less than DC 7~12V.
R FAN ; CN76 "4"(Orange) shall be less than DC 7~12V.
C FAN ; CN76 "5"(Sky-blue) shall be less than DC 7~12V.
- Recheck if resistance values are different after measuring.

PCB Typical Ground J23 JUMMPER

1) F-FAN

2) R-FAN

3) C-FAN

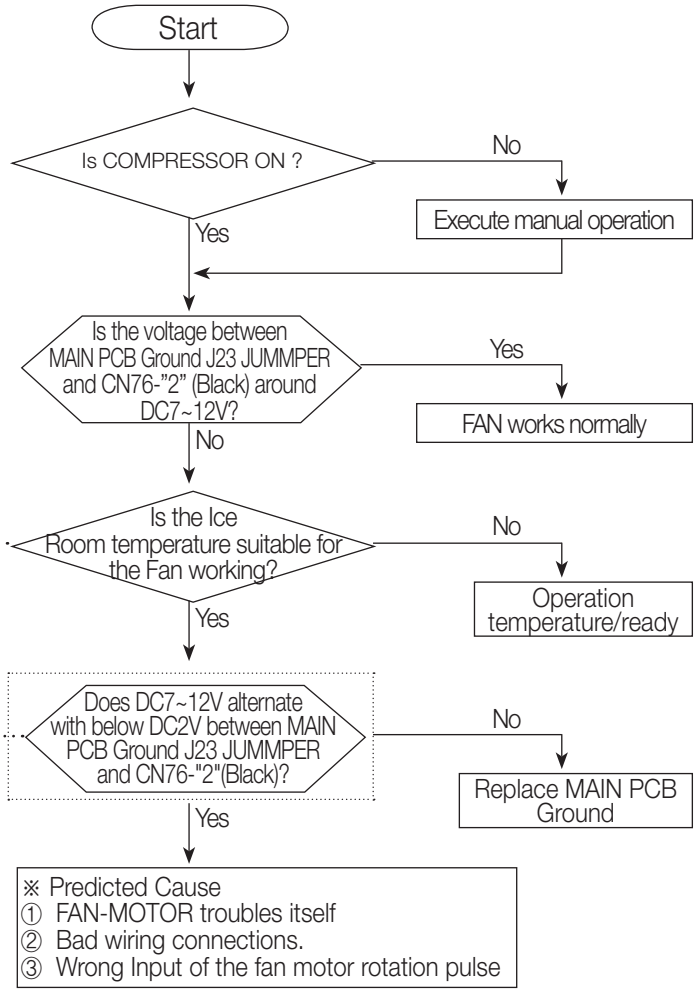


## 4-2-3. If ICE Room Fan does not operate

- This refrigerator has BLDC FAN motor. BLDC motor is driven by DC7~12V.
- When COMP ON, normally operates with F-FAN motor.
- If there is any trouble, you should select the self-diagnostic function to check the trouble before power off.

- When pressing the ICE TEST S/W for a certain period of time (over 1.5sec), the function is accomplished. After beginning of TEST mode, Ice maker heater turns on for initial 2 minutes, if the ice making temperature is below 0℃.
- If it exceeds 0℃, Ice maker heater turns on for initial 30 seconds.
- After Ice maker heater turns on for 30 seconds, it turns off and then Ice maker motor turns on.
- As the Ice maker motor turns on, TEST MODE COUNT operates. (6 minutes count)

Condition
- Ambient temperature : 32℃/75%
- Notch : 2℉/38℉(-19.0℃/3.3℃)
  Initial full of ice bucket capacity : 794 g, 58ea




| Ice Room control temperature | |
|---|---|
| Ice ON | 8.6℉(-13℃) |
| Ice OFF | 26.6℉(-3℃) |

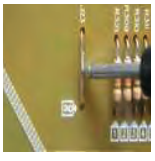
Reference

CN76 "6" will generate the pulse signal when motor rotates.
These signals will be input into MICOM.
Unless signals are not input during motor operating, will be ON 10seconds after fan OFF. But if signals are not still taken, the above operation will be retried four times more. If signals are not taken continuously, the motor will be restarted after 10 minutes.
This function is against the case that motor movement would be restrained by foreign matters like ice.

※ Predicted Cause
① FAN-MOTOR troubles itself
② Bad wiring connections.
③ Wrong Input of the fan motor rotation pulse

FAN pulse voltage CN76-"6"(Pink)

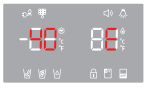
PCB Typical Ground J23 JUMMPER



The voltage is variable due to pulse signal but measured about 2~3V with the Multi-Meter.

☞ Display for checking the self-diagnostic function

Ice Room FAN ERROR



☞ Checking method of Ice Room FAN Motor Voltage with the voltage between Ice Room FAN ; CN76-"1"(Gry) shall be less than DC 7~12V.
- Ice Room FAN Motor Voltage shall be less than DC 7~12V.

1) Ice Room - FAN

PCB Typical Ground J23 JUMMPER

## 4-2-4. When ICE MAKER(FF) does not operate

1. Water will be automatically supplied to the Ice Maker depending on temperature & time conditions, and ice will be produced to dispense.
2. Power is applied to one end of the wires. So, make sure to refer to its Exploded View whenever doing the disassembly.
3. The operation of the Ice Maker shall be done after pressing the Ice Maker Test Button. (Fridge Ice Maker) It is not possible to check when the power is off.
4. Since both of the PCB and the Ice Maker are located at the front and the back each other, make sure to have two people check them.
5. It may cause burn when the Ice Maker Heater heats up. So, please take an extra caution.
6. The Ice Maker has a counter-clockwise rotation function. So, its counter-clockwise rotation is normal.

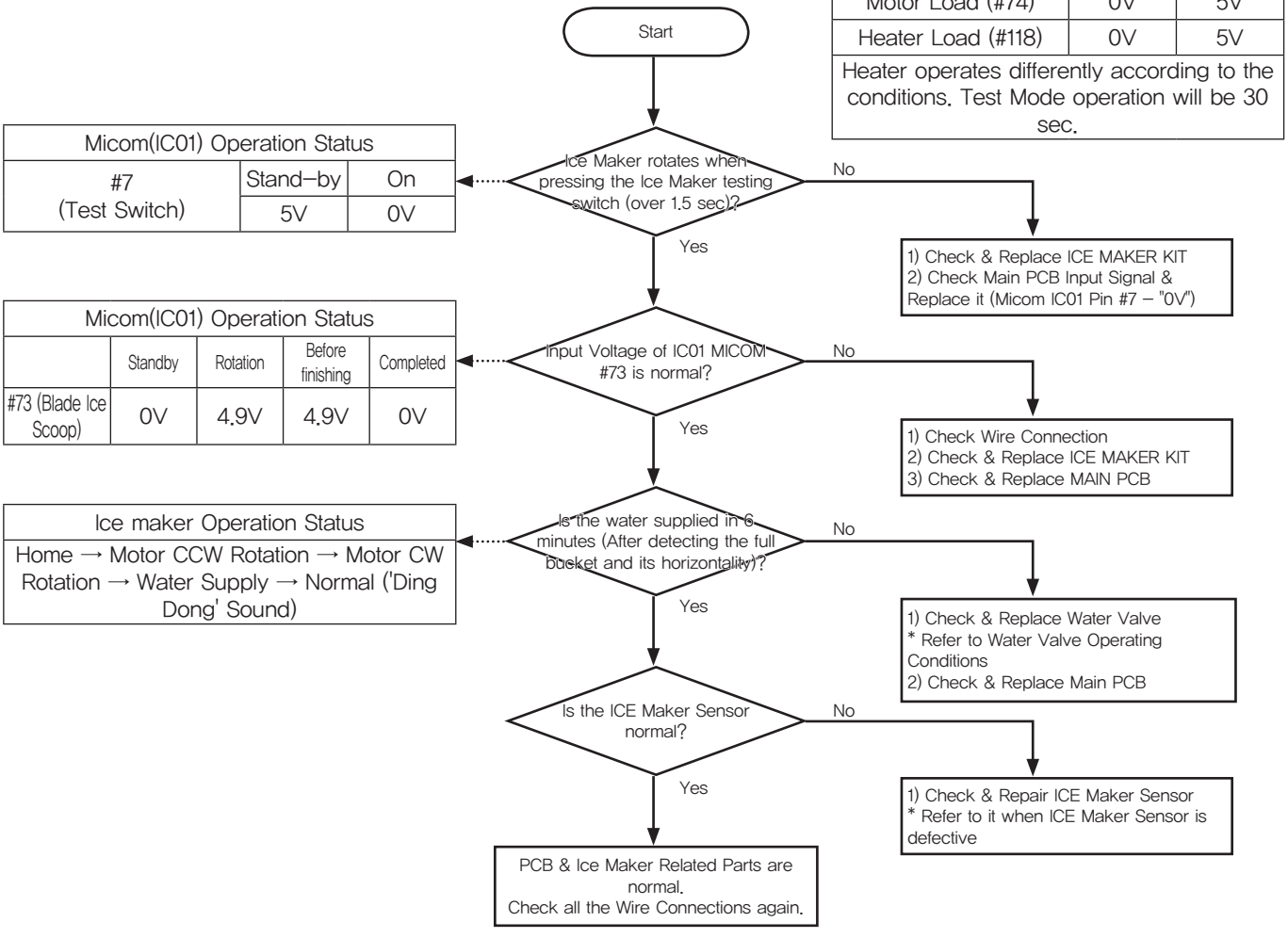
Displays ERROR Code


| Opration Condition while Motor is rotating Micom(IC01) Operation Status | | |
|---|---|---|
| | Stand-by | On |
| Motor Load (#74) | 0V | 5V |
| Heater Load (#118) | 0V | 5V |
| Heater operates differently according to the conditions. Test Mode operation will be 30 sec. | | |

| Micom(IC01) Operation Status | | |
|---|---|---|
| #7 (Test Switch) | Stand-by | On |
| | 5V | 0V |

| Micom(IC01) Operation Status | | | | |
|---|---|---|---|---|
| | Standby | Rotation | Before finishing | Completed |
| #73 (Blade Ice Scoop) | 0V | 4.9V | 4.9V | 0V |

| Ice maker Operation Status |
|---|
| Home → Motor CCW Rotation → Motor CW Rotation → Water Supply → Normal ('Ding Dong' Sound) |

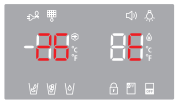


# TROUBLESHOOTING

## 4-2-5. When ICE MAKER(FZ) does not operate

1. Water will be automatically supplied to the Ice Maker depending on temperature & time conditions, and ice will be produced to dispense.
2. Power is applied to one end of the wires. So, make sure to refer to its Exploded View whenever doing the disassembly.
3. The operation of the Ice Maker shall be done after pressing the Ice Maker Test Button. (Freezer Ice Maker) It is not possible to check when the power is off.
4. Since both of the PCB and the Ice Maker are located at the front and the back each other, make sure to have two people check them.

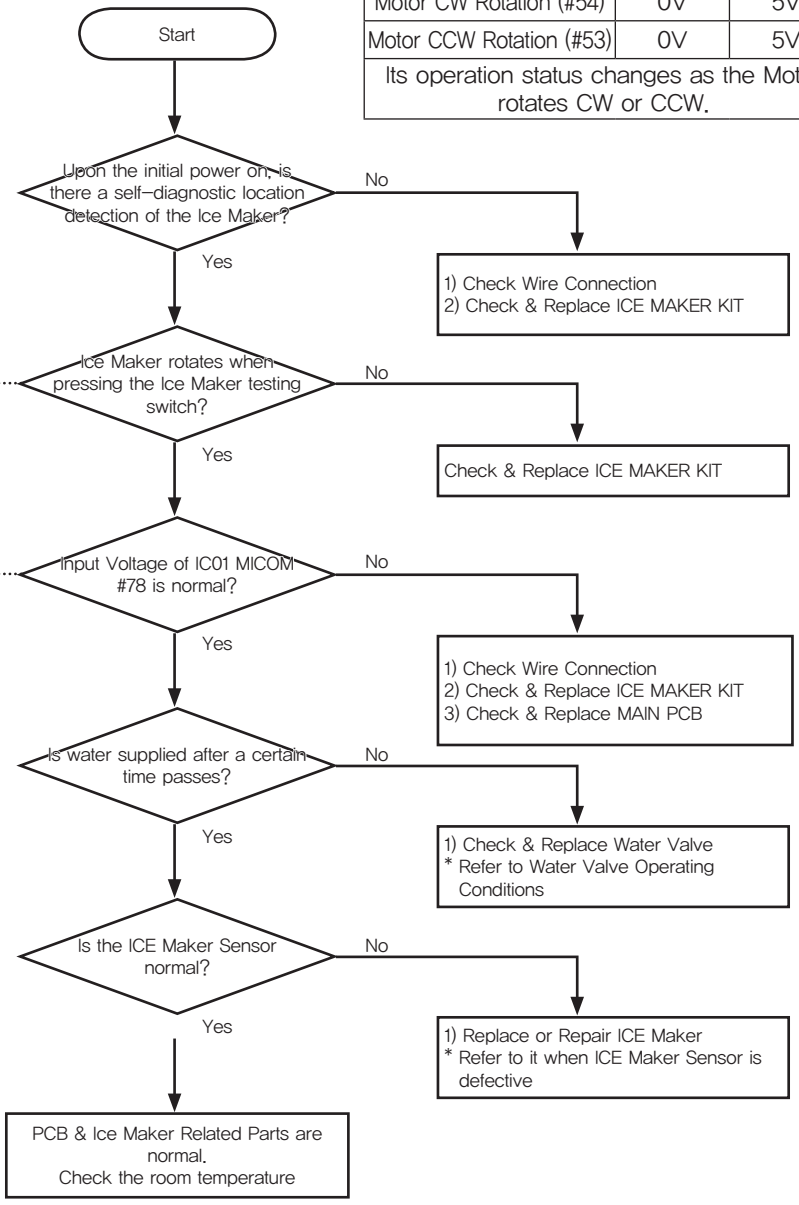
ERROR Code



| Opration Condition while Motor is rotating Micom(IC01) Operation Status | | |
|---|---|---|
| | Stand-by | On |
| Motor CW Rotation (#54) | 0V | 5V |
| Motor CCW Rotation (#53) | 0V | 5V |
| Its operation status changes as the Motor rotates CW or CCW. | | |

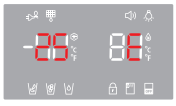
| Micom(IC01) Operation Status | | |
|---|---|---|
| #76 (Test Switch) | Stand-by | On |
| | 5V | 0V |

| Micom(IC01) Operation Status | | | | | |
|---|---|---|---|---|---|
| | Stand-by | Rotation | Back Rotation | Return Rotation | Stand-by |
| #78 | 5V | 0V | 5V | 0V | 5V |

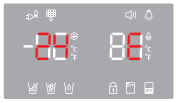


## 4-2-6. If defrost does not operate (F,R DEF Heater)

R DEF ERROR



F DEF ERROR



Start

Are the all deforst heater normal?

No → Check the bimetal, heater disconnection, wiring connection etc.

Yes

**Measuring point of resistance value according to heater**
F-DEF : CN70 "3"(Brown) ↔ CN72 "3" (Gray) measuring resistance value(63 ohm ± 7%)
R-DEF : CN70 "1"(White) ↔ CN72 "3"(Gray) measuring resistance value(120 ohm ± 7%)
** 0Ω : Short trouble / Ω ∞ : Open(bimetal, heater) trouble

Is defrost sensor by self-diagnostic normal?

Reference to the manual "Self-Diagnostic"

No → Refer to self-diagnostic function in the manual

No → Replace the applicable sensor

Yes

**Measuring point of resistance value according to sensor **
F-DEF : CCN30-"5" ↔ CN76-"1" measuring resistance value
R-DEF : CN30-"8" ↔ CN76-"1" measuring resistance value
** 0Ω : Short trouble / Ω ∞ : Open trouble

Is the temperature of defrost sensor lower than 53.6°F(12°C)?

No → manual operation for a certain time

Yes

| Resistance value of sensor according to temperature | | |
|---|---|---|
| 86°F(30°C) | 4.22kΩ | If you need the temperature with detail, refer to DATA1. temperature table |
| 68°F(20°C) | 6.05kΩ | |
| 50°F(10°C) | 8.87kΩ | |
| 32°F(0°C) | 13.29kΩ | |
| 14°F-10°C) | 20.42kΩ | |
| -4°F-20°C) | 32.23kΩ | |
| -22°F(-30°C) | 52.41kΩ | |

Manual defrosting of fresh food and freezer compartments operate simultaneously.

If Energy Saver + Fridge Key are pressed simultaneously for 8 seconds and then select any key, 3rd test mode(manual defrosting) will be operated.

Is power applied to each defrost heaters?

No

Yes

Does the system return to cooling operation after heating for specified time?

No → Recheck the applicable sensor.

Reference If defrost sensor temperatures of fresh food and freezer compartments are higher than 50°F(10°C), 53.6°F(12°C) by the heating from heater, heating would be finished and will return to cooling operation after a pause.

Yes → Normal

Is connection terminal of MAIN PCB part normal?

No → Repair connection terminal

Yes

Check bimetal, heater itself, disconnection etc.

Replace failure Relay or replace PCB ASS'Y

☞ Checking method of F,R DEF Heater resistance value
CN70-"3"(Brown) ↔ CN72 "3"(Gray)
CN70-"1"(White) ↔ CN72 "3"(Gray)
- Recheck if resistance values are different after the test

1) F DEF Heater

2) R DEF Heater

## 4-2-7. When Power is not applied

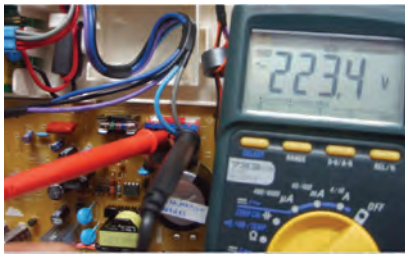
**CAUTION**

There are AC Input Voltage and over DC300V at the INVERTER PCB Power Circuit. So, be cautious when repairing the unit or measuring values.

When checking the MAIN PCB, refer to the Operation descriptions and the "Reference" section.

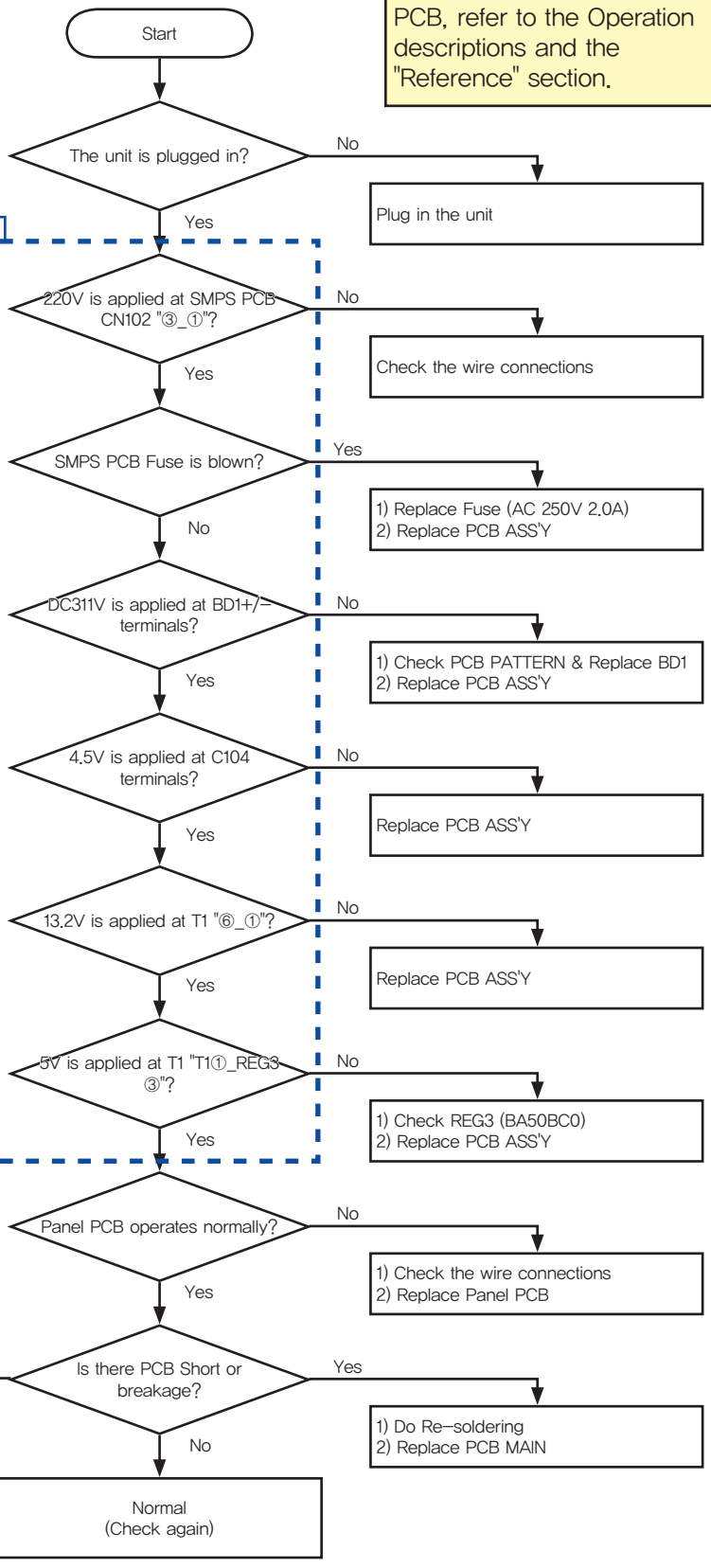
Check at SMPS

☞ How to Check Voltage CN102 – "3" (Grey) ↔ "1" (Gray) AC Voltage

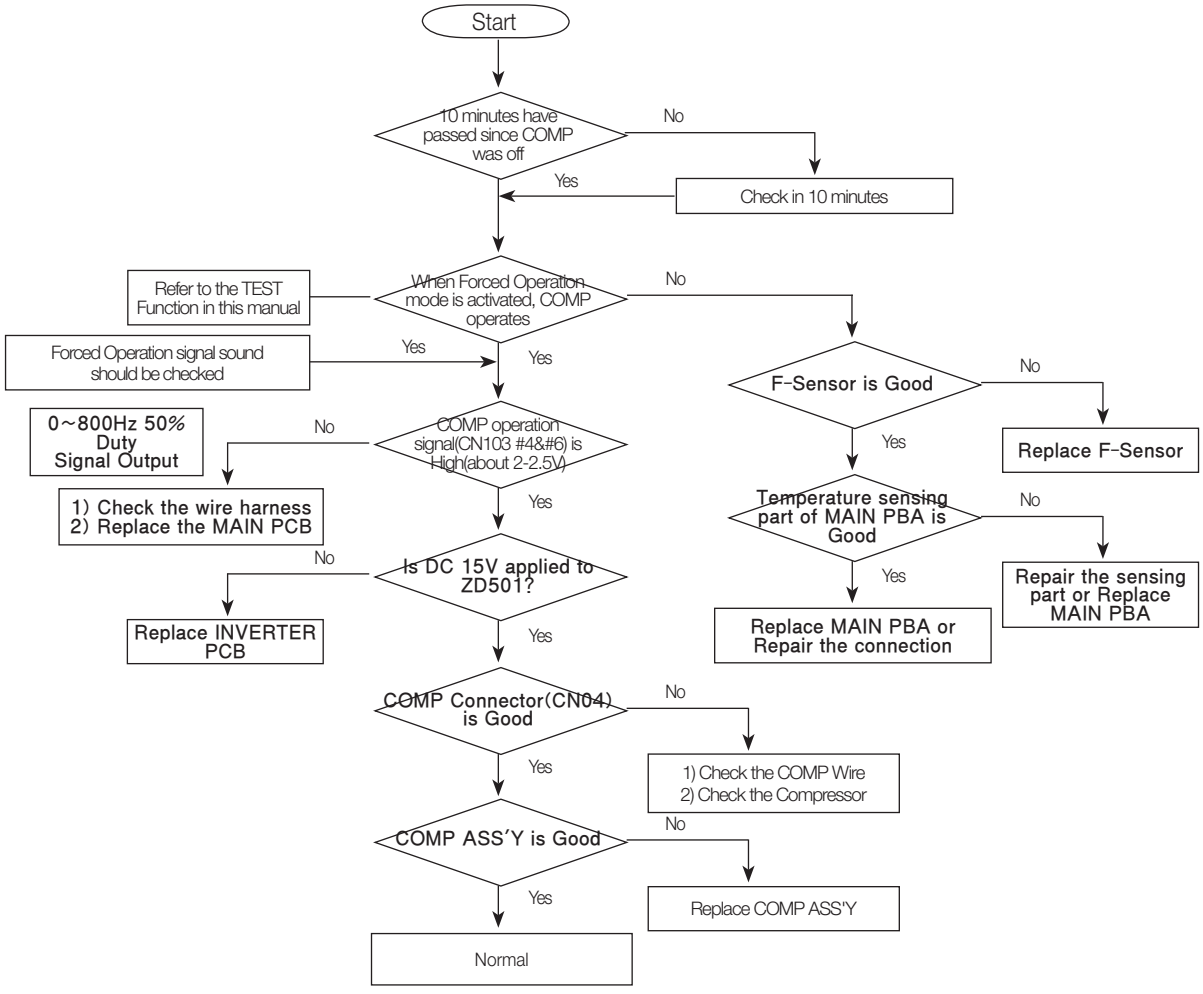


☞ How to Check DC Secondary Voltage Between Trans Pin #1 and Pin #6 → Same as both terminals of C121.
DC 13.2V ± 0.7V

☞ How to Check DC Secondary Voltage REG3 Output ; Regulator 7805 Input → Same as both terminals of C118.
DC 5V ± 0.2V

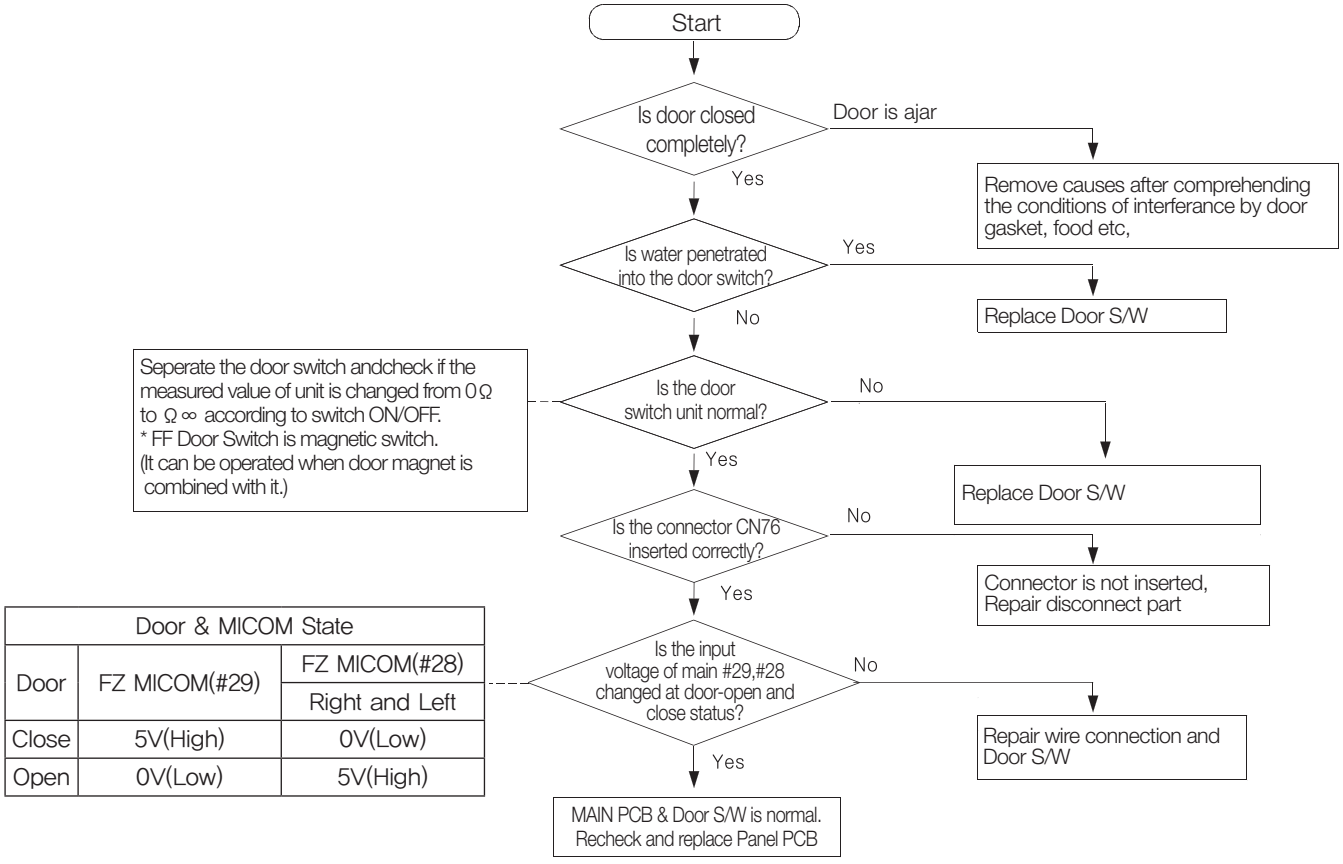


## 4-2-8. When Compressor does not run (Inverter COMP.)



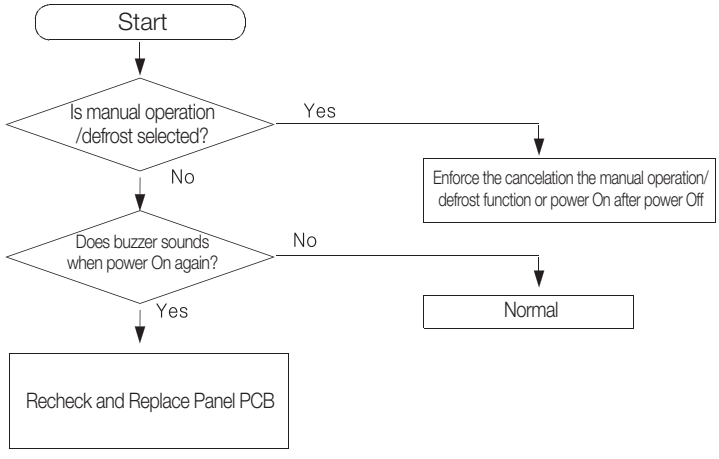
## 4-2-9. When alarm sounds continuously without stop(related with buzzer sound)

① If 'ding-dong'sound continuously



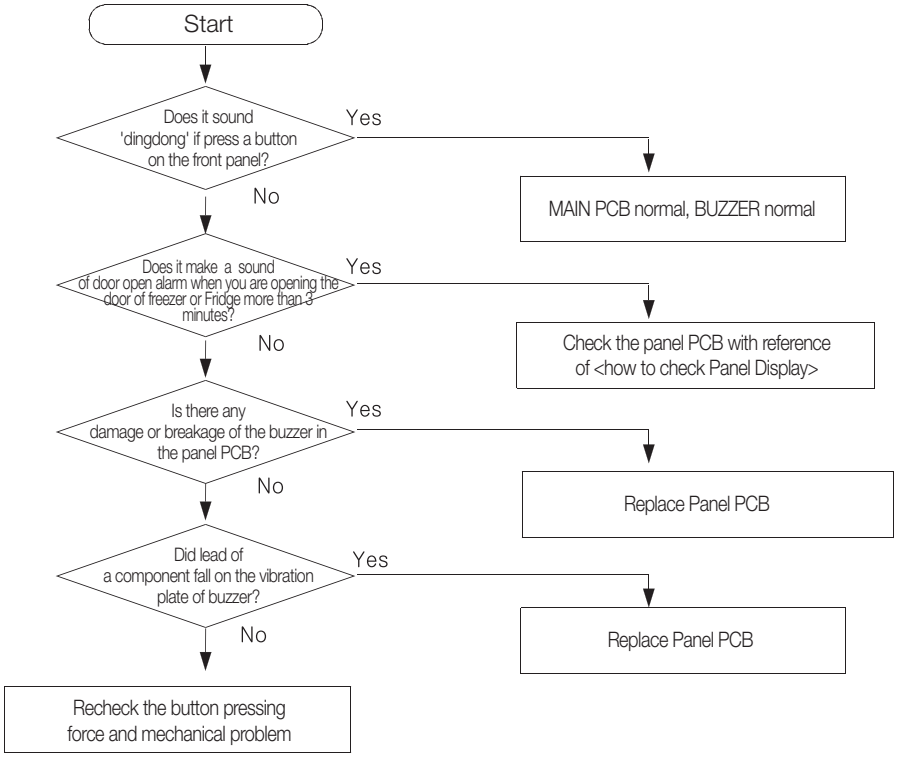

| Door & MICOM State | | |
|---|---|---|
| Door | FZ MICOM(#29) | FZ MICOM(#28) |
| | | Right and Left |
| Close | 5V(High) | 0V(Low) |
| Open | 0V(Low) | 5V(High) |

② If 'beep-beep' sounds continuously



③ If buzzer does not sound

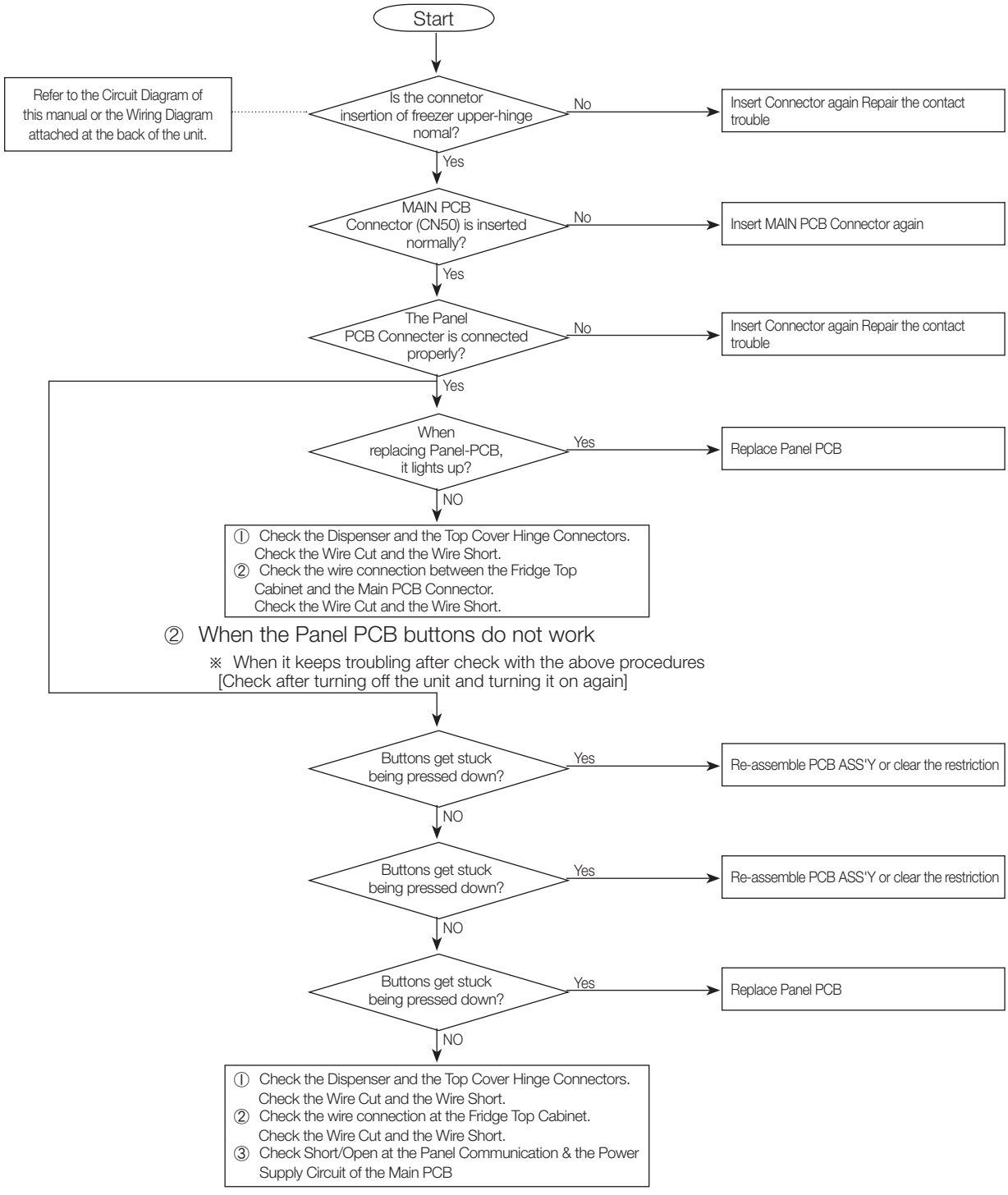
Buzzer is installed on the panel PCB in this model.
If buzzer does not sound even though the button is pressed, manual operation is started and door is opened, it should separate panel PCB and check the breakage of buzzer and bad soldering.
It is very hard to repair the panel PCB because it consists of SMD assemblies.
It is recommended to replace PCB assembly when the failure associated with panel is occurred except the minor error such as switch pressing error, surface peeling off and so on.



## 4-2-10. When the Panel PCB does not operate normally

① When the entire or a certain section of the Panel PCB does not light up

- There is a MICOM embedded in the Panel PCB. So, take care when doing repairs. And, except the Solder Touch, replace the PCB.




② When the Panel PCB buttons do not work

※ When it keeps troubling after check with the above procedures [Check after turning off the unit and turning it on again]




Since all Touch is used for the Panel PCB Switch, be sure to turn off the unit and turn it on again after doing a repair. [It is to adjust the sensitivity of the Touch Panel.]

## 4-2-11. If Pantry Panel PCB is not working normally

You should check the display after door opening because the display of this model operates only when the fresh food compartment door is opened.

Start

Does R room Door switch operate normally?
- No → Check and repair the switch * Refer to <how to repair door switch>
- Yes ↓

Is the connector of pantry room inserted correctly
- No → Reinsert Connector, Repair bad contact
- Yes ↓

Is MAIN PCB Connector (CN51) inserted correctly?
- No → Reinsert connector in MAIN PCB
- Yes ↓

Is signal of MAIN PCB CN51 normal?
- No → Check voltage/Replace MAIN PCB
- Yes ↓

Is the lighting operated when replace Pantry Panel-PCB?
- Yes → Panel PCB itself has trouble.
- No ↓

① Check the wires of Pantry Room - disconnection, short between wires
② Recheck the control circuit of MAIN PCB Pantry Panel
③ Check the wire assembling between Panel and MAIN

If Panel Key is not selected

← ② If Panel PCB Key is not selected

※ If it is not repaired with the above basic checking method

PCB Typical Ground J23 JUMMPER

The Voltage of KEY is Working every 2msec/4min

☞ Checking method of voltage Based on PCB typical Ground J23 JUMMPER
1) Key voltage ; CN51-"11"(Sky Blue)
a) Working: 2V±0.5V b) Normal: 0V



Is a key pressed continuously?
- Pressed → Reassemble PCB ASS'Y / Enforce the cancelation of pressed keys
- No ↓

Is the PCB system still operated by separating of the mechanism?
- Operated by separation → Reassemble PCB ASS'Y / Enforce the cancelation of pressed keys
- No ↓

Is the lighting operated after replacing the Pantry Panel-PCB?
- Yes → Convertible compartment Panel PCB itself has trouble.
- No ↓

Is a normal voltage outputted from MAIN PCB IC51 during the key operating?
- No → ① Replace MAIN PCB ② Check the short of MAIN Panel wire
- Yes ↓

① Check the wire of Pantry Room - disconnection, short between wires
② Check the short/open of the pantry panel lighting circuit in MAIN PCB.

## 4-2-12. When refrigerator ROOM Lamp does not light up

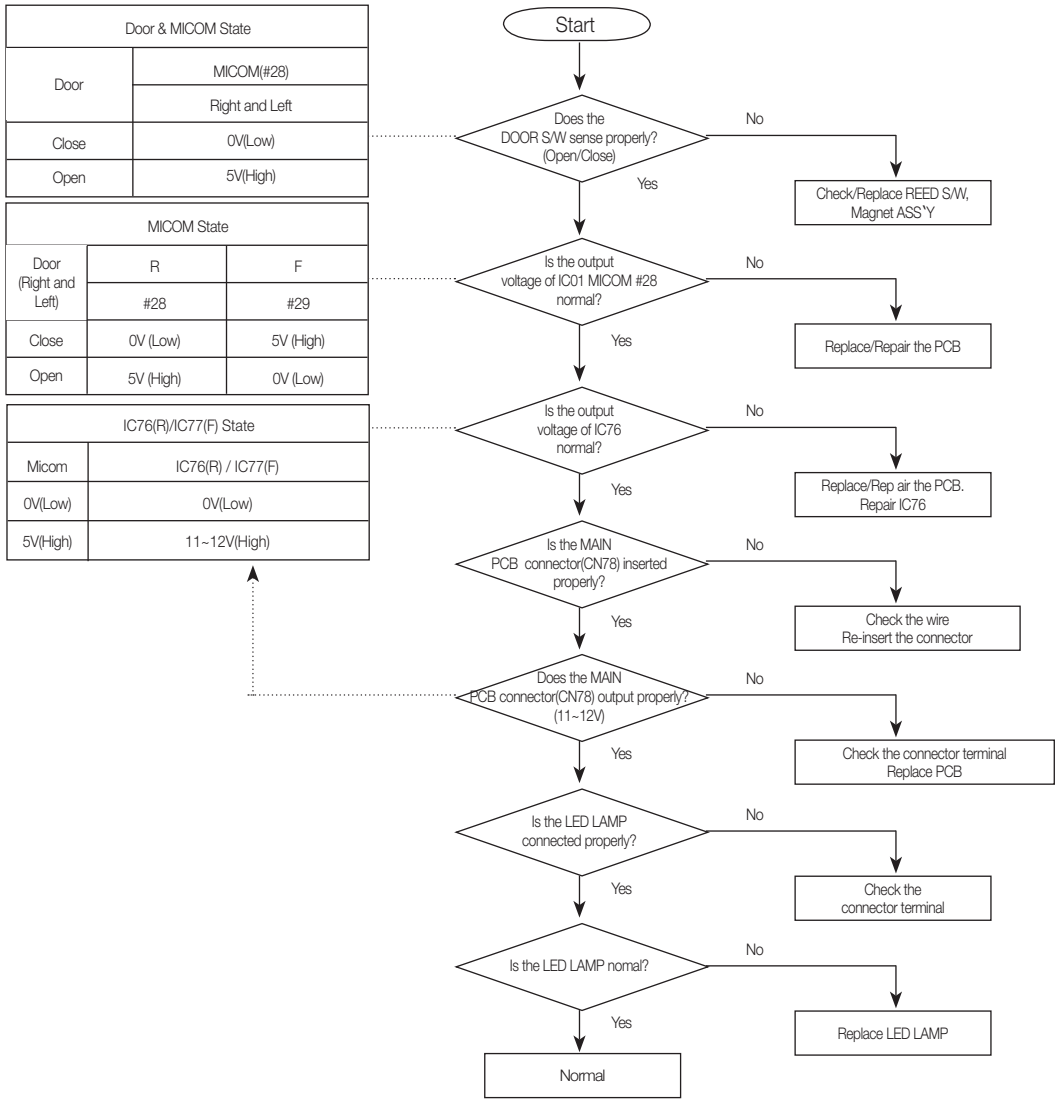
When controlling the regrigerator light with Regulator(12V) : LED LAMP
⟶ Applying to the F/R Room compartment (Option)

* If the Vegetable Lamp does not work properly, check the R compartment LED Lamp because it is connected with the R compartment LED Lamp in parallel. Refer to the circuit diagram to repair.

| Door & MICOM State | |
|---|---|
| Door | MICOM(#28) |
| | Right and Left |
| Close | 0V(Low) |
| Open | 5V(High) |

| MICOM State | | |
|---|---|---|
| Door (Right and Left) | R | F |
| | #28 | #29 |
| Close | 0V (Low) | 5V (High) |
| Open | 5V (High) | 0V (Low) |

| IC76(R)/IC77(F) State | |
|---|---|
| Micom | IC76(R) / IC77(F) |
| 0V(Low) | 0V(Low) |
| 5V(High) | 11~12V(High) |




1) Measuring output voltage
- Measuring the voltage of PCB typical Ground J23 JUMMPER and IC76 voltage( CN78-"3"(Red)/R LED), IC77 voltage (CN78-"1"(Brown)/F LED)

R LED Lamp ON

R LED Lamp OF

Checking method of Door switch voltage.
- Measuring voltage of CN76-"12")(Purple) ⟷ PCB typical Ground J23 JUMMPER

Close

Open

PCB Typical Ground J23 JUMMPER

## 4-2-13. If ICE Water is not supplied

1. Please shut the water supplying prior to repair.
2. Power is applied to the one end of wires. Be careful when disassembling not to get an electric shock.

### 2) Ice Water(R) Valve

PCB Typical Ground J23 JUMMPER

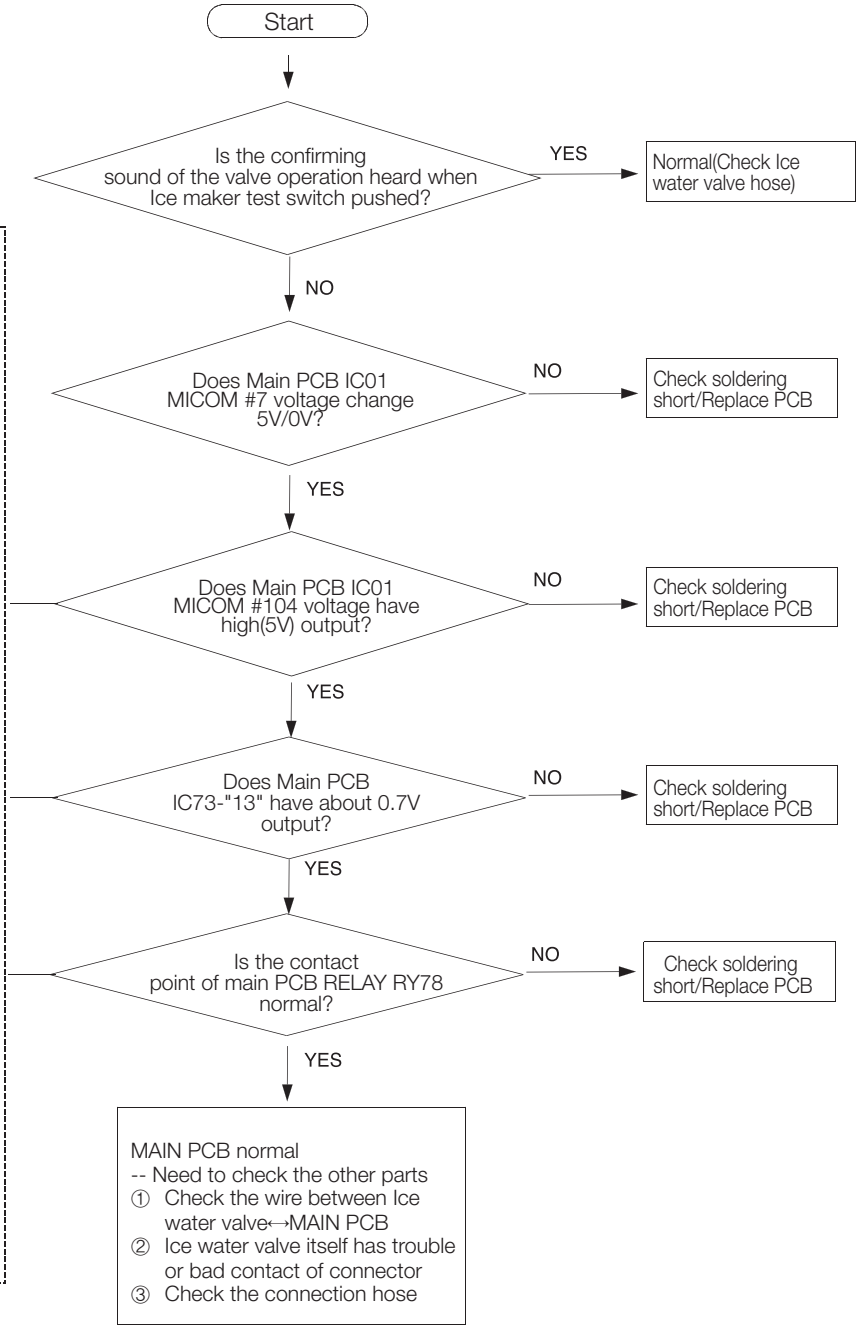
☞ Checking method of voltage Based on PCB typical Ground J23 JUMMPER

1) Check the voltage of IC73-"4"(same voltage as IC01 "104")
- ICE Water valve waiting (about 0V)

Based on PCB typical Ground J23 JUMMPER

2) IC73-"13" voltage
- ICE Water valve Waiting (about 12V±0.8V)
- ICE Water valve operating (about 0.7V±0.5V)

3) Check the voltage of Water Valve operating (AC voltage)
=> For checking the Relay RY78 operating.
CN70-"5"(Red) ↔ CN73_1-"1"(Purple)
- ICE Water valve waiting (about AC 0V)



## 2) Ice Water(F) Valve

Typical PCB Ground J23 JUMMPER

☞ Checking method of voltage Based on PCB typical Ground J23 JUMMPER

1) Check the voltage of IC75 -"6"(same voltage as IC01 #116)

- ICE Water valve operating (about 5V±0.5V)

Based on PCB typical Ground J23 JUMMPER

2) IC75 -"11" voltage

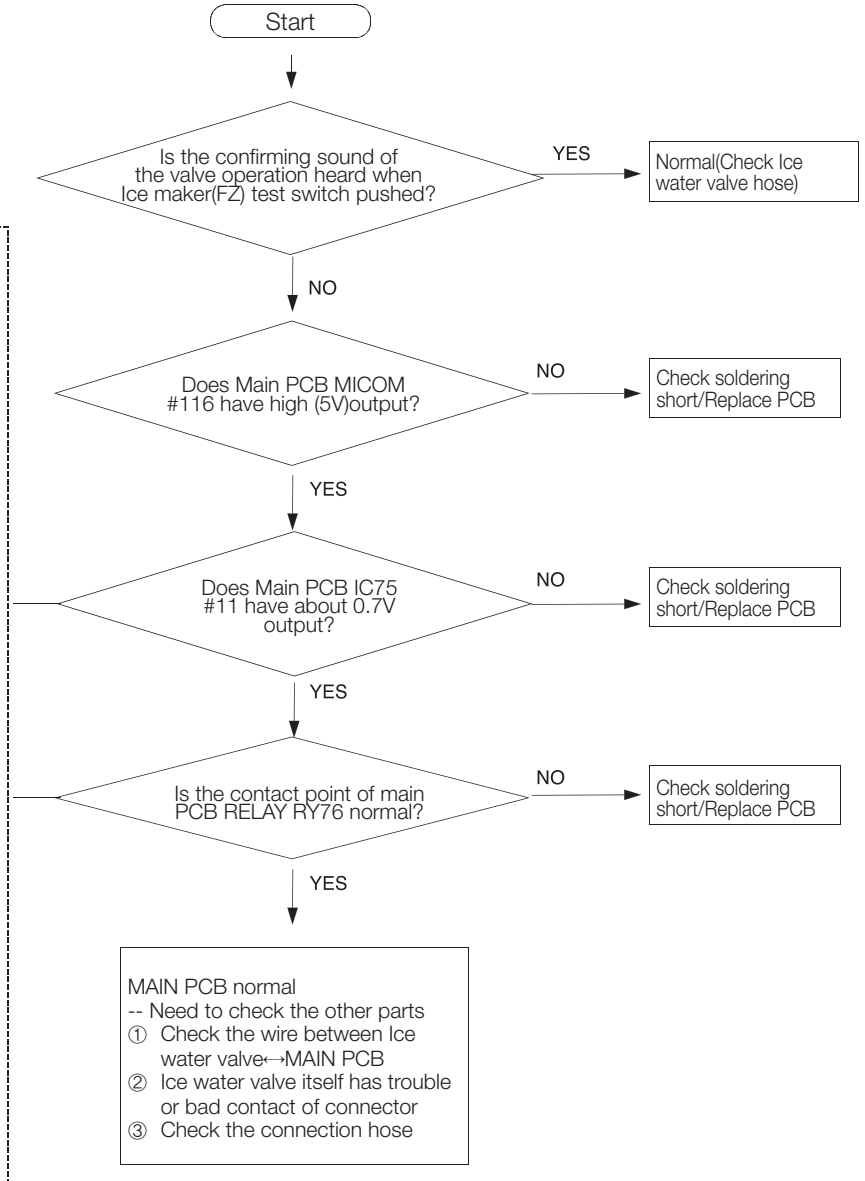
- ICE Water valve Waiting (about 13V±0.8V)
- ICE Water valve operating (about 0.7V±0.5V)

3) Check the voltage of Fridge Ice Water(F) Valve operating(AC voltage)

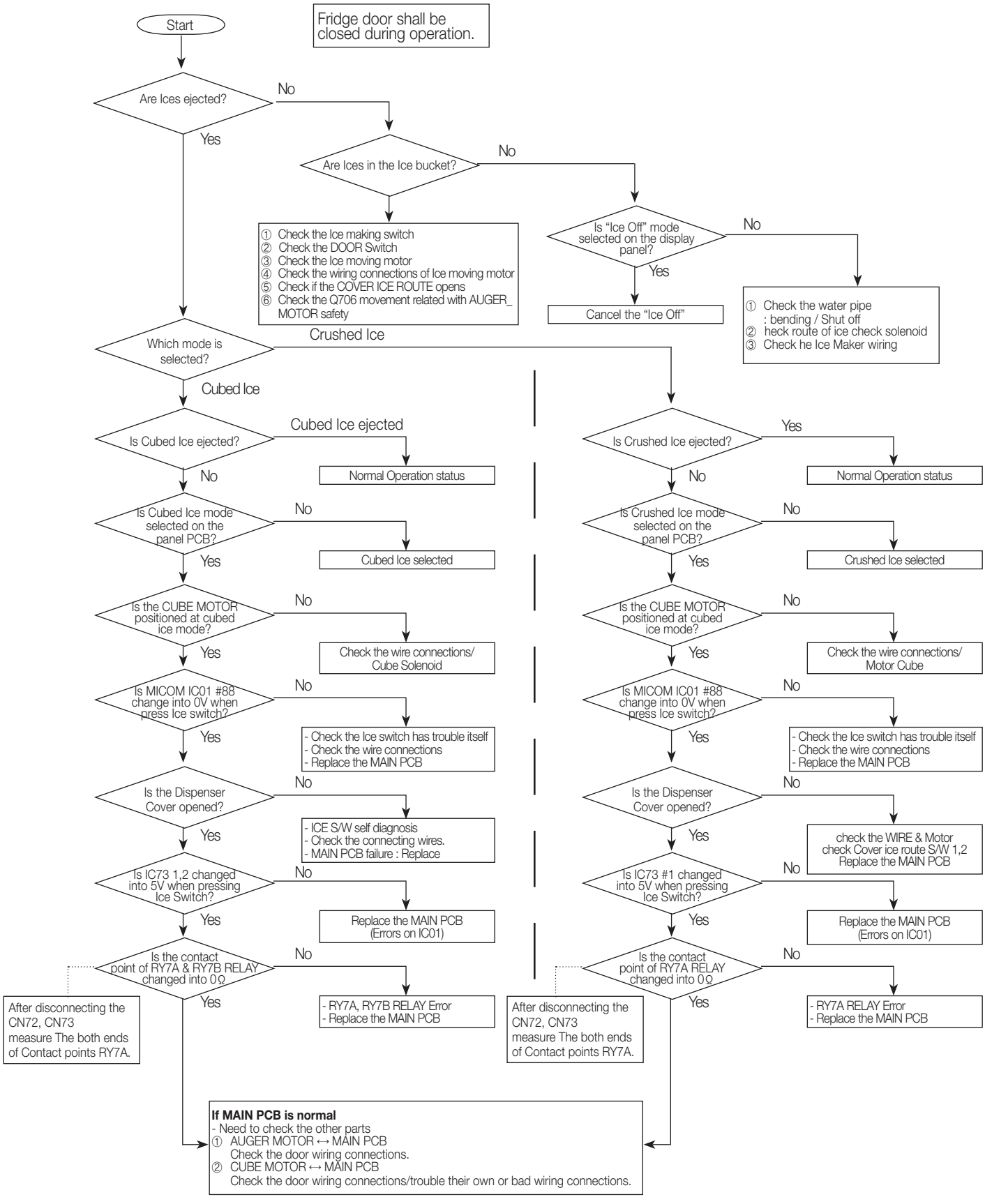
=> For checking the Relay RY76
CN70-"5"(Red) ↔ CN72-"1"(Brown)

- ICE Water valve waiting (about AC 0V)

- ICE Water valve operating (about AC 115V± 20%)



## 4-2-14. If Cubed or Crushed Ice is not supplied



## 4-2-15. If Cover Ice Route Motor(Geared Motor) is not working normally

Caution
1. When replacing the Cover Ice Motor, pull out the plug to avoid an electric shock.
2. Be careful! When disassemble the Cover Ice Motor, spring can jumped out and may cause personal injury.
3. Motor will rotate continuously when the Motor Switch is not sensed.

☞ Checking Mehod of Cover Ice Route Motor Resistance
(Make sure to work after Power Off)
the voltage of Resistance is variable according to the input voltage.
CN70 -"5" (Red) ↔ CN73_1 -"3" (Blue)
** 0Ω: Short trouble / Ω∞: Open trouble

Start

Does GEARED MOTOR work properly?
- No → Replace the MOTOR
- Yes ↓

Is Cubed or Crushed Ice mode selected on the LED PANEL?
- No → Cubed or Crushed Ice is selected on the LED PANEL PCB
- Yes ↓

Is the DISPENSER switch selected?
- No → Select the DISPENSER switch
- Yes ↓

Does the wiring at the both sides of motor connected properly?
- No → Check the WIRE
- Yes ↓

When the MOTOR rotates.

Is the AC input voltage applied to the both ends of the motor?
- Yes → Check the MOTOR/Check any interference on MOTOR rotation
- No ↓

① Check CN73_1-"3" Connector / Re-connect
② Check the short/open for the SSR75 of Cover Ice Motor on Main PCB.
③ Check the voltage of Resistance of parallel Connector CN73 -"3", CN70 -"5"
(Definitely plug out prior to repair)

Is the sensing SWITCH connection normal?
- No → Check/Repair the Housing connector
- Yes ↓

Is the switch pressed area normal when motor rotates?
- No → Check/Repair the Motor Rotation pressing area
- Yes ↓

Are the voltage J23 JUMMPER and CN50-"9", "10" normal?
- Yes → Normal
- No ↓

Operating Condition of Dispenser Open/Close
CN50 - Switch 1,2 Operating

| | Close | ing | Open |
|---|---|---|---|
| Ice Route Switch 1 CN50 - "9" (Purple) | 0V | 5V | 0V |
| Ice Route Switch 2 CN50 - "10" (White) | 0V | 5V | 0V |

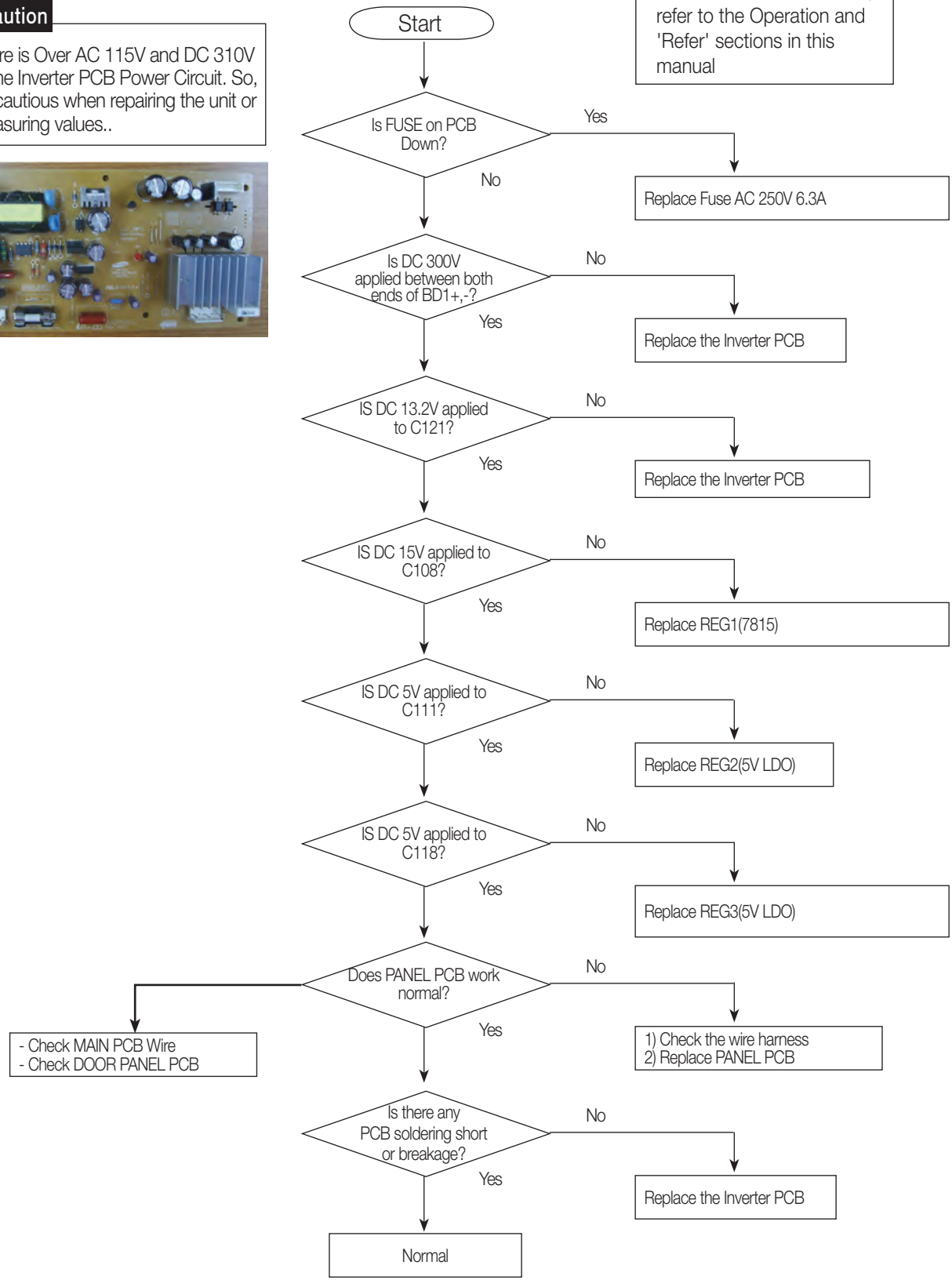
① Main PCB - Check the wire OPEN/SHORT between the Cover Ice Motor Rotation sensing switches.
② Check the Short of Cover Ice Motor Control Circuit SSR75 in the MAIN PCB.
③ Replace the MAIN PCB or the Dispenser Cover Motor.

## 4-2-16. When there is no power at Inverter PCB

**Caution**

There is Over AC 115V and DC 310V at the Inverter PCB Power Circuit. So, be cautious when repairing the unit or measuring values..

- To check the Inverter PCB, refer to the Operation and 'Refer' sections in this manual



## 4-2-17. LED blinking frequency depending on protecting functions

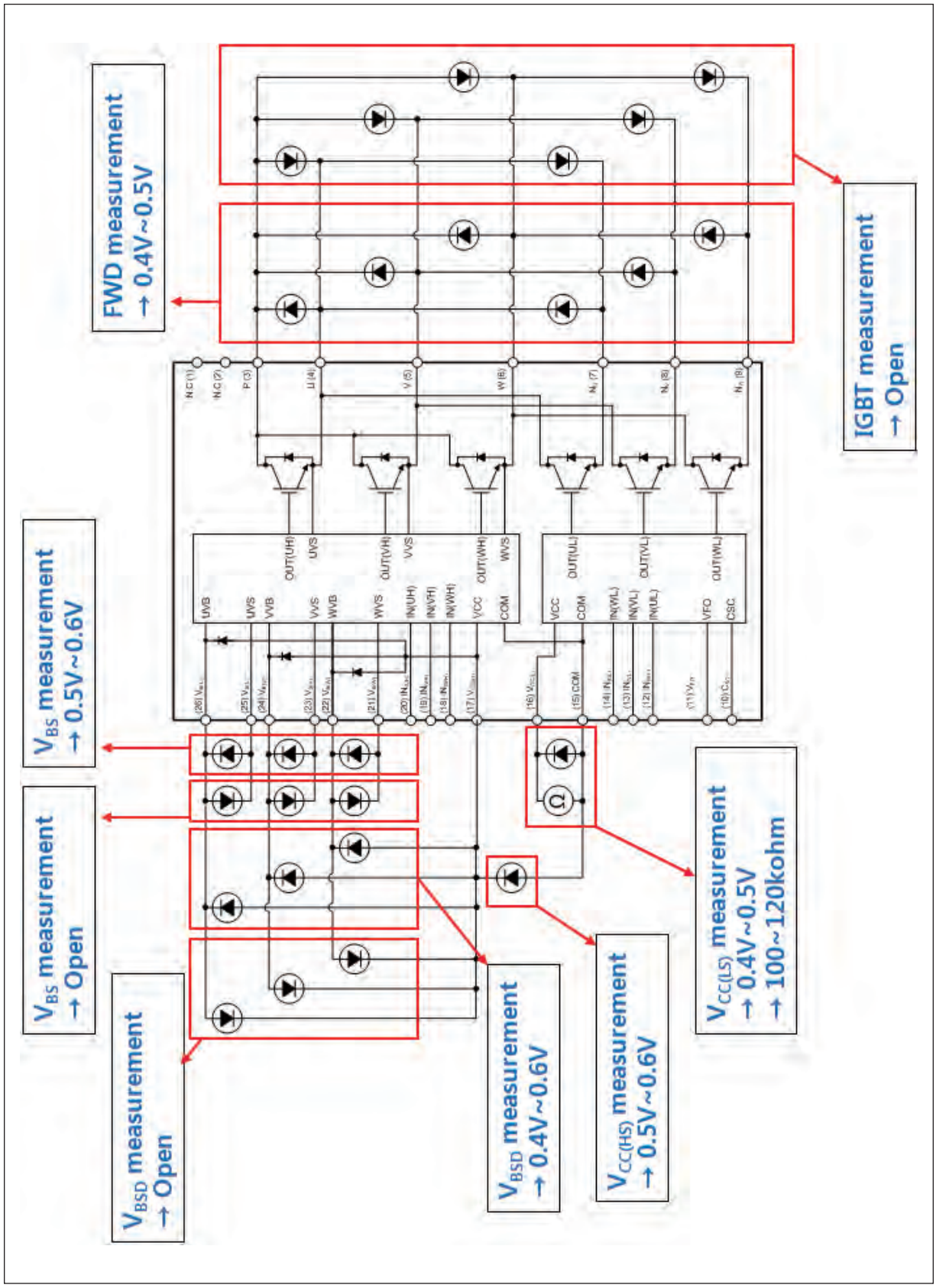
If Failure Condition is detected during compressor is operating, immediately stop Compressor operating and stand by 5 minutes. During this 5 minutes, RPM command signal is not available. It means, even if available RPM command signal is applied to the compressor, it does not work and keep standing by.

Blinking time is 1 second and dwell time is 2 seconds.

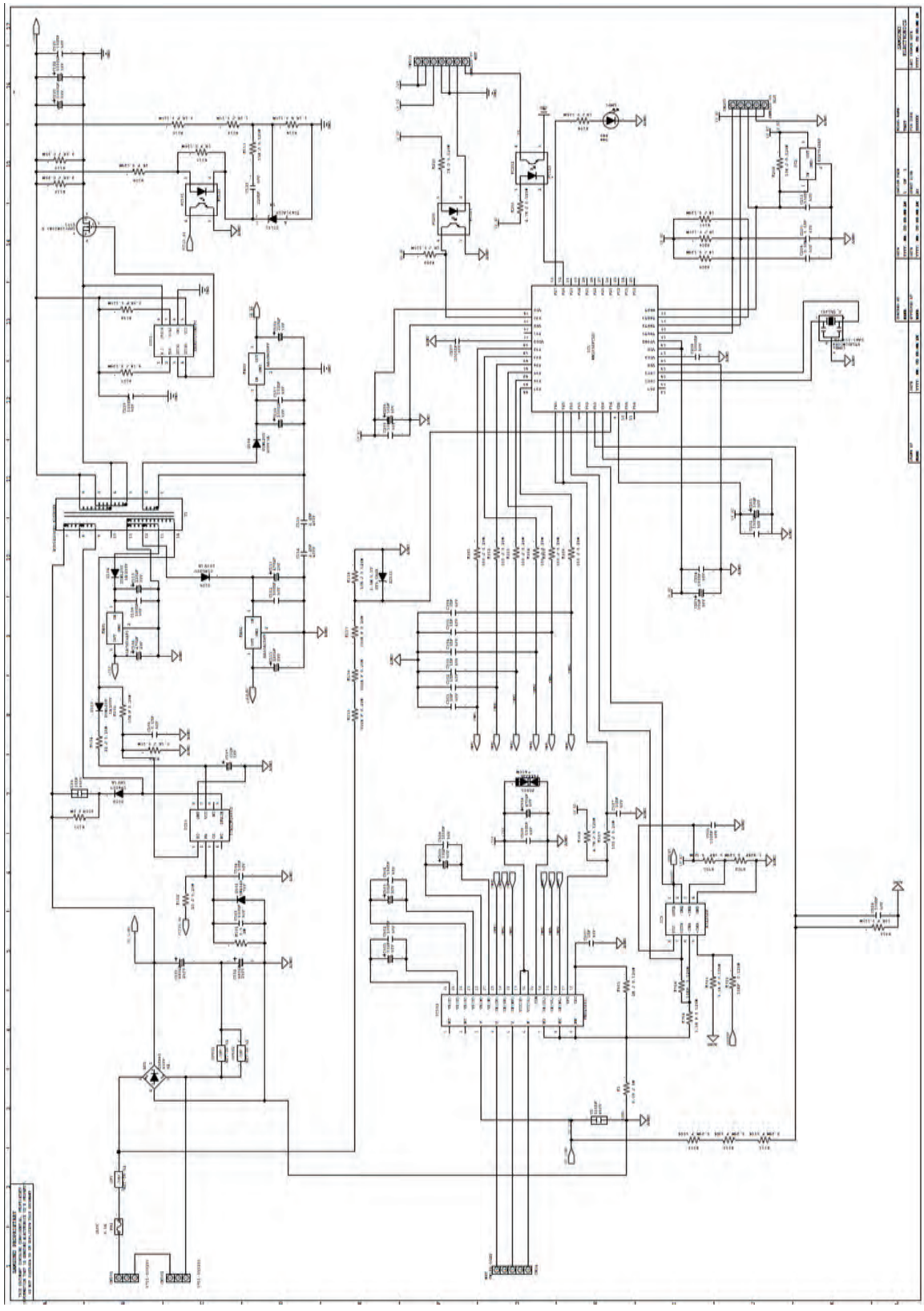
| LED Blinking Frequency | Protecting Functions | Remarks |
|---|---|---|
|  | Normal Operation | N/A |
|  | Starting Failure | 1. Short between COMP U,V, and W phase(CN301)<br>2. Short among IPM Pins(No, #1~33) |
|  | SPM Fault | 3. Drop the IPM operating Voltage under DC 13.5V<br>4. Other cases, cjeck the COMP, cycle, etc. |
|  | Abnormal Current Detection | 1. Open the COMP wire(CN301)<br>2. Bad condition of R 308(ex. Bad soldering)<br>3. Other cases, cjeck the COMP, cycle, etc. |
|  | Motor Locked / Over RPM | 1. Operating the locked rotor COMP with in 5 second.<br>2. Operating the COMP under 1000RPM more than 5secod.<br>3. Short the shunt resistor between leads.<br>4. Occur the huge change of input voltage in a moment<br>5. Other cases, check the COMP, cycle,etc. |
|  | Under Voltage | 1. Drop the input voltage under AC 53V<br>2. Short resistor R513(DC link resistor) |
|  | Over Voltage | 1. Increase the input voltage over AC 154V<br>2. Short resistor among R501, R505 and R509 (DC link resistor) |

LED blinking frequency depending on protecting functions
If the same blinking, After 5 minutes, Follow the Remarks

## SPM FREEWHEELING DIODE VOLTAGE VALUE

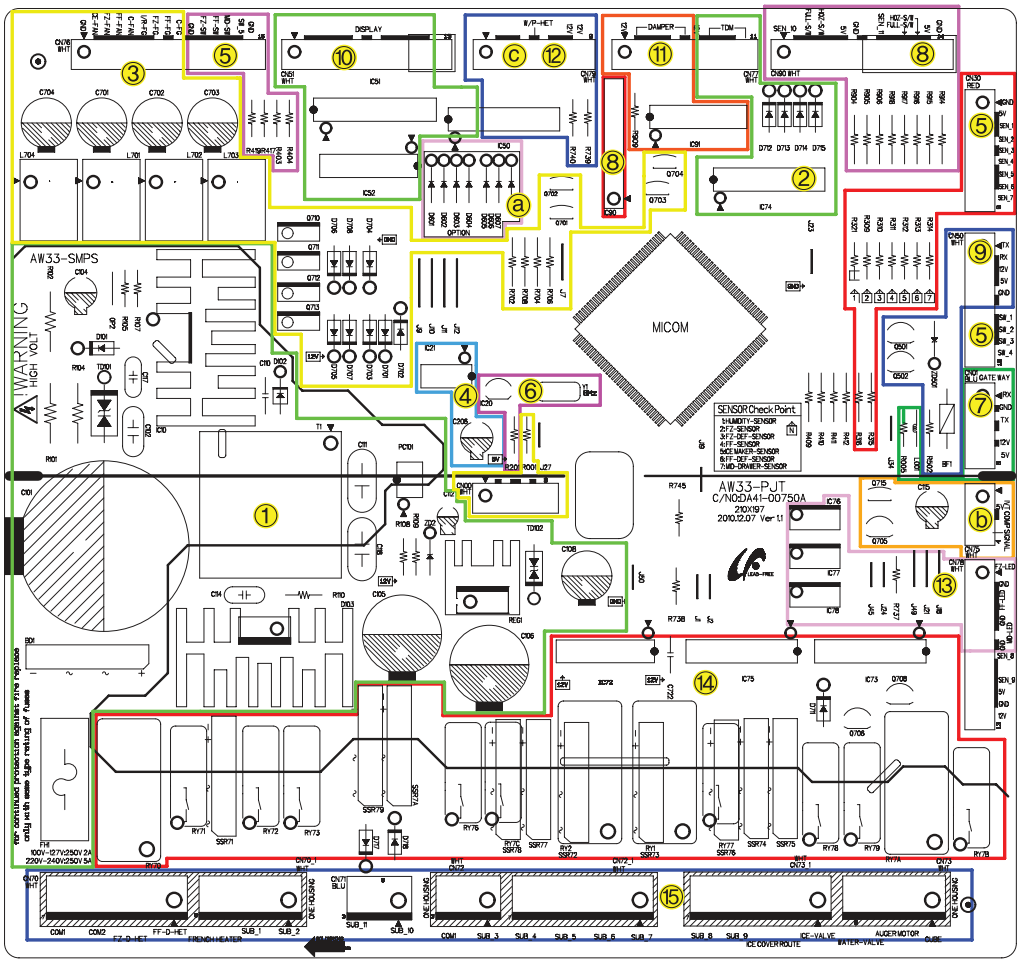


## INVERTER PCB Circuit Diagram



# 5. PCB DIAGRAM

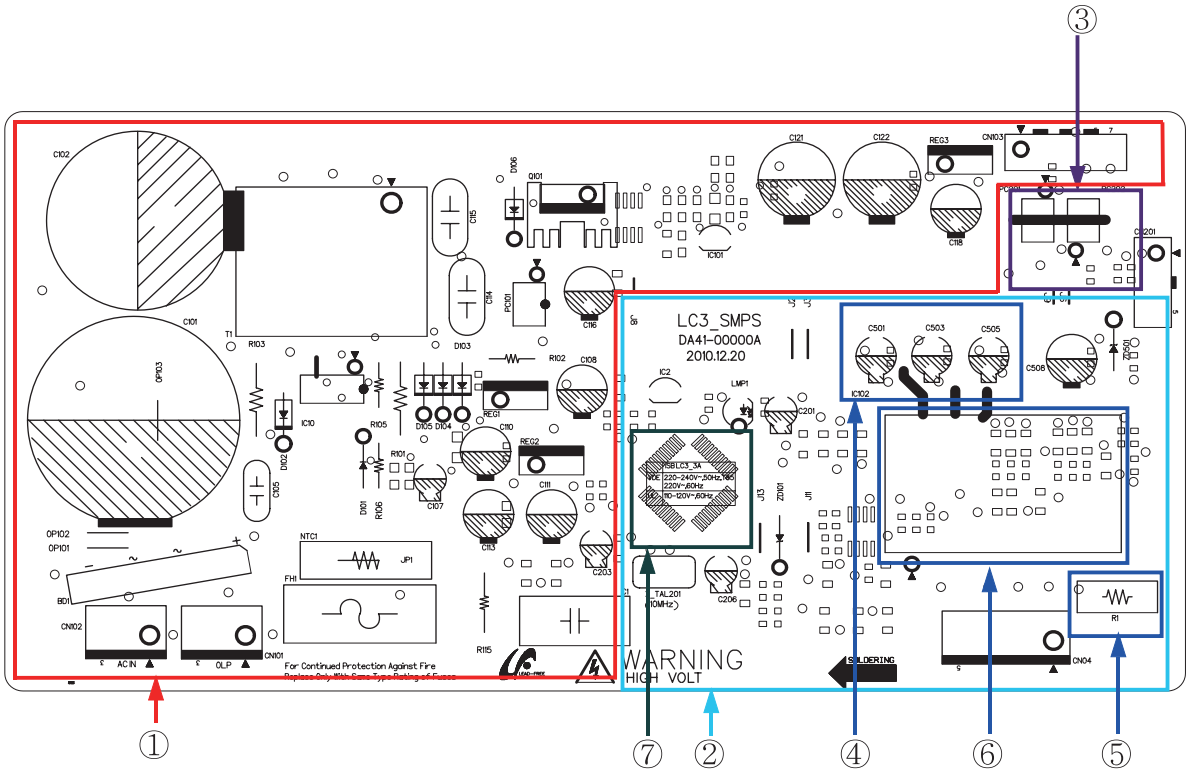
## 5-1) PCB Layout with part position




1. DC12V, 5V, GND supplied from SMPS PCB (Not Used)
2. Circuit for controlling Step-Valve (3-Way Valve) * Option
3. FAN MOTOR control part : To supply the power from 8.3V ~ 12V according to the motor types. (F,R,C,ICE)
4. EEPROM : Save and record every kinds of data.
5. Transmit inputted signals from every sensor into MICOM after eliminate the noise.
6. Micom : control the regrigerator Ceramic resonator : generate the basic frequency of Micom operation. Reset IC : make Micom reset if input voltage of Micom is detected less than the specified voltage
7. PLC input/output
   - PLC (Power Line communication) * Option (PLC module is not inserted unless specified occasion)
8. Operate ICE-MAKER, supply power to MOTOR, and sense the variation of switch.
9. Main Micom ↔ Panel Micom serial communication circuit - Dispenser option input part (Water & Cover Ice route switch)
10. PANTRY Room display control part : display LED, detect KEY state.
11. Control PANTRY Room damper & Damper heater
12. Water Tank Heater Controls (also controls other options)
13. LED LAMP Control Circuit (F,R room Lamp)
14. Relay parts that controls AC load and receives Micom operating signal through Sink IC.
15. Connector with AC load
    a. Diode option setting area
    b. Inverter COMP controlling signal
    c. Flow Sensor controlling signal

# PCB DIAGRAM

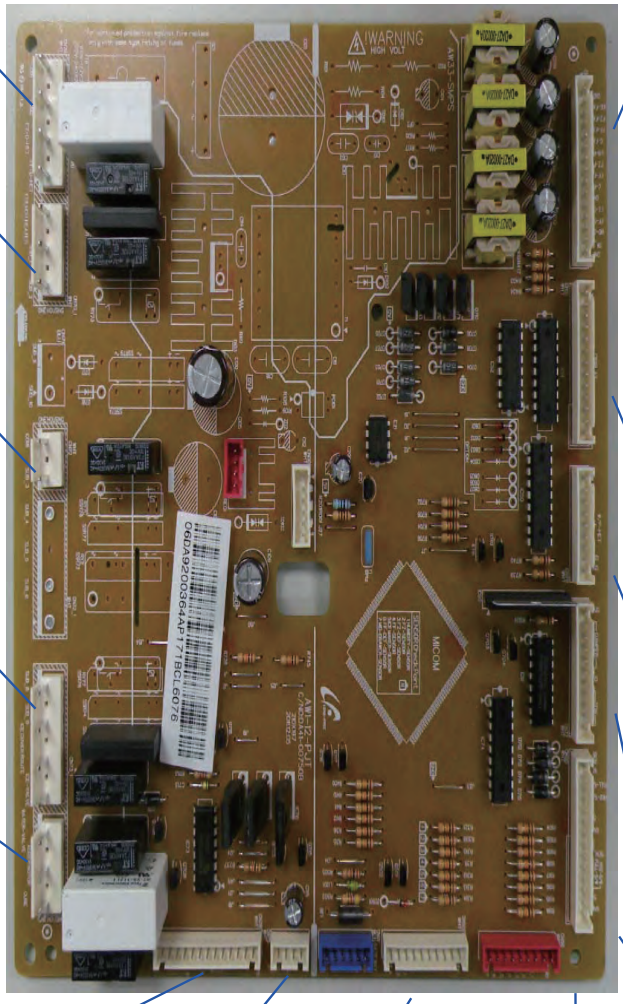
## 5-2) PCB Layout with part position (Inverter Board)




1. PCB Power Supply : From the SMPS circuit, it supplies 15V and 5V for the Main PBA control and supplies 15V and 5V to the Inverter circuit for the Compressor control.
2. Inverter Control Circuit : Fridge Compressor Control Circuit.
3. COMP Driving / Feedback Circuit
   It receives the COMP operation signals from the Main PBA and feedbacks the inverter errors to the Main PBA.
4. BOOTSTRAP Charger : It is an independent power circuit for the driving of the IMP High-Phase IGBT.
5. Current Pickup Circuit : It pickups the currents taken by the Shunt resistance and does the PWM DUTY control.
6. IPM (FNE41060)
7. Micom (MN103SFC2D)

## 5–3) Connector Layout with part position (Main Board)

### 5-3-1. RF263TEAE**, RF263BEAE**



**CN70 - AC LOAD**
① : FF-DEF-HEATER
③ : FZ-DEF-HEATER
ICE DUCT HEATER
⑤ : COMMON2 LINE(L)
⑦ : COMMON1 LINE(N)

**CN70_1 - AC LOAD**
① : Open
③ : ICE MAKER HEATER(FF)
⑤ : FRENCH-HEATER
DISPENSER-HEATER

**CN72 - AC LOAD**
① : ICE WATER
SOLENOIDE VALVE(FZ)
③ : COMMON1 LINE(N)

**CN73_1 - AC LOAD**
① : ICE WATER
SOLENOIDE VALVE(FF)
③ : ICE COVER ROUTE
⑤ : Open
⑦ : Open

**CN73 - AC LOAD**
① : CUBE SOLENOIDE
VALVE
③ : AUGER MOTOR
⑤ : WATER SOLENOIDE
VALVE

**CN78 – LAMP(LED)/Sensor**
① : FZ LAMP(LED)
② : GND
③ : FF LAMP(LED)
④ : Open
⑤ : GND
⑥ : Open
⑦ : Open
⑧ : AMBIENT Sensor
⑨ : Open
⑩ : ICE ROOM Sensor
⑪ : +5V
⑫ : GND
⑬ : +12V

**CN75 – Inverter**
① : COMP. SIGNAL INPUT
② : +5V
③ : GND
④ : COMP. SIGNAL OUTPUT

**CN50**
① : LED PANEL TX
② : LED PANEL RX
③ : +12V
④ : +5V
⑤, ⑥ : GND
⑦ : ICE Switch
⑧ : WATER Switch
⑨ : ICE Route Switch 1
⑩ : ICE Route Switch 2

**CN30 - Sensor**
① : GND
② : +5V
③ : Humidity
④ : FZ-Sensor
⑤ : FZ-DEF-Sensor
⑥ : FF-Sensor
⑦ : IR-Sensor
⑧ : FF-DEF-Sensor
⑨ : Pantry Room-Sensor

**CN90 - Ice Maker**
① : Sensor(FF)
② : Motor Driver INB
③ : Horizontal Switch
④ : Motor Driver Vs2B
⑤ : +5V
⑥ : Open
⑦ : GND
⑧ : GND
⑨ : Sensor(FZ)
⑩ : Test Switch(FZ)
⑪ : Motor Driver INA
⑫ : Hall IC Output
⑬ : +5V
⑭ : GND

**CN77 - Damper & Valve**
①~② : Damper Heater
③~⑥ : Damper Motor
⑦ : +12V
⑧~⑪ : Step Valve

**CN79**
① : +5V
② : GND
③ : Flow Sensor Out
④ : Test Switch(FF)
⑤ : Ice Water Pipe Heater(FZ)
⑥ : Open
⑦ : Open
⑧ : +12V
⑨ : +12V

**CN51 – PANTRY ROOM Display**
① : Open
② : Ice Water Pipe Heater(FF)
③~ ⑦ : Pantry Room LED Driver
⑧~⑩ : Open
⑪ : Pantry Room Switch
⑫ : ICE MAKER(FZ) MOTOR CCW
⑬ : ICE MAKER(FZ) MOTOR CW

**CN76 - BLDC Motor & door Switch**
① : GND
② : Ice Room-FAN operation signal
③ : FZ-FAN operation signal
④ : FF-FAN operation signal
⑤ : C-FAN operation signal
⑥ : Ice Room-FAN signal input volt
⑦ : FZ-FAN signal input volt
⑧ : FF-FAN signal input volt
⑨ : C-FAN signal input volt
⑩ : GND
⑪ : FZ-Door Switch
⑫ : FF-Door Switch
⑬ : Open
⑭ : Open
⑮ : Open

# PCB DIAGRAM

## 5-4) Connector Layout with part position (Inverter Board)

AC 115V

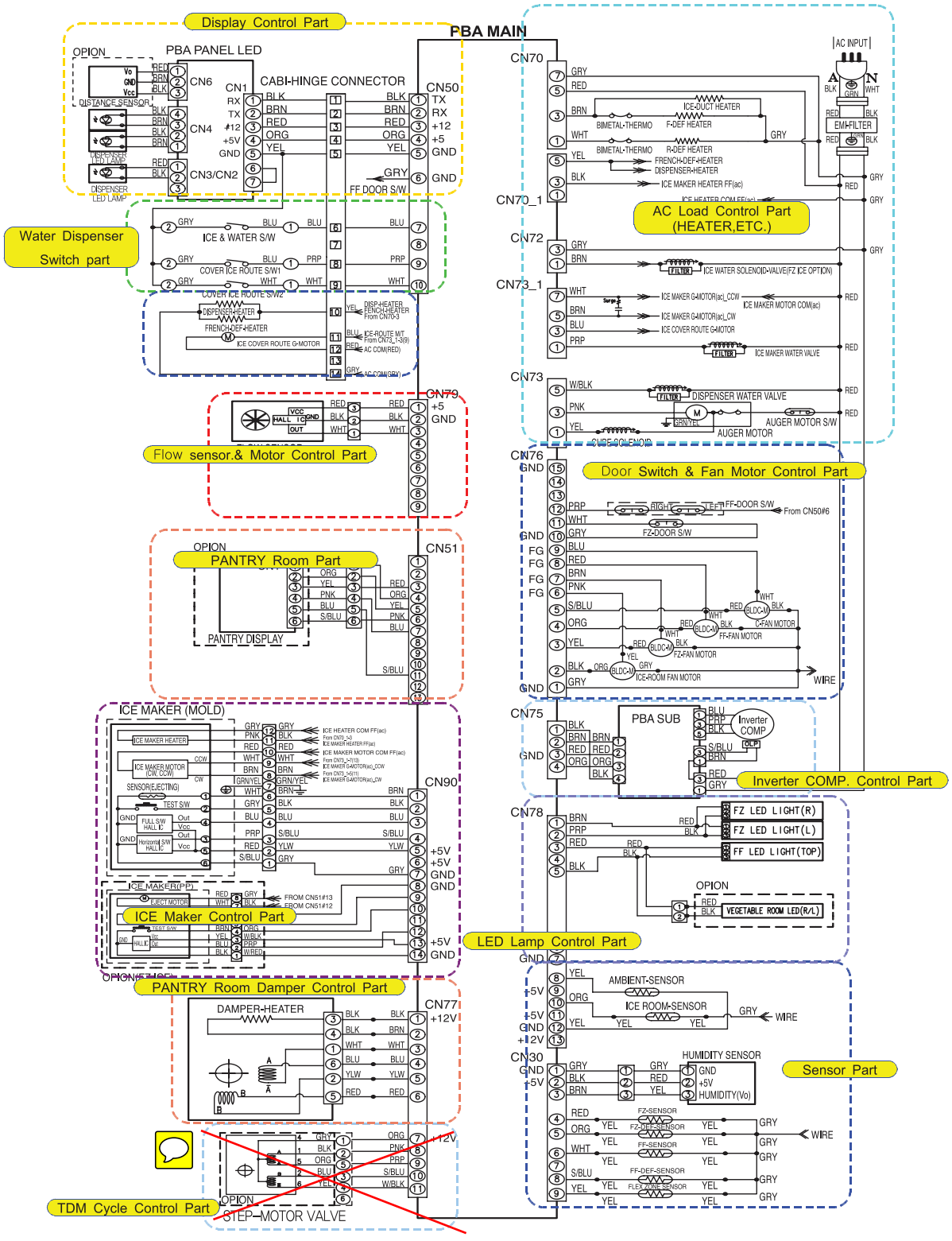
①② 13.2V ③ 5V
④⑤ GND ⑥ RPM ⑦FB

POWER(115V) OLP

⑤W ③V ①U

# 6. WIRING DIAGRAM

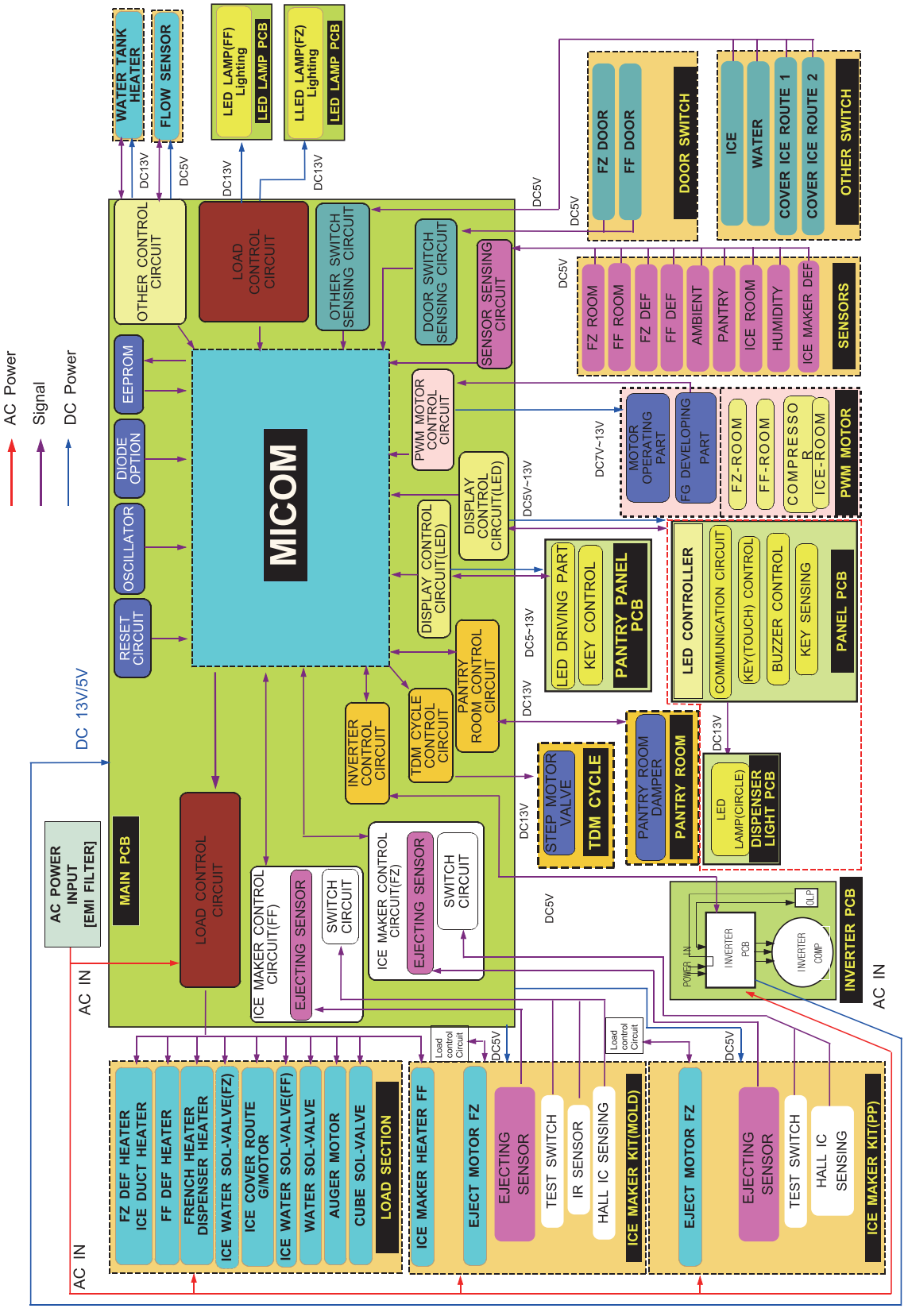
## 6–1) Model : RF263TEAE**, RF263BEAE**



# 7. SCHEMATIC DIAGRAM

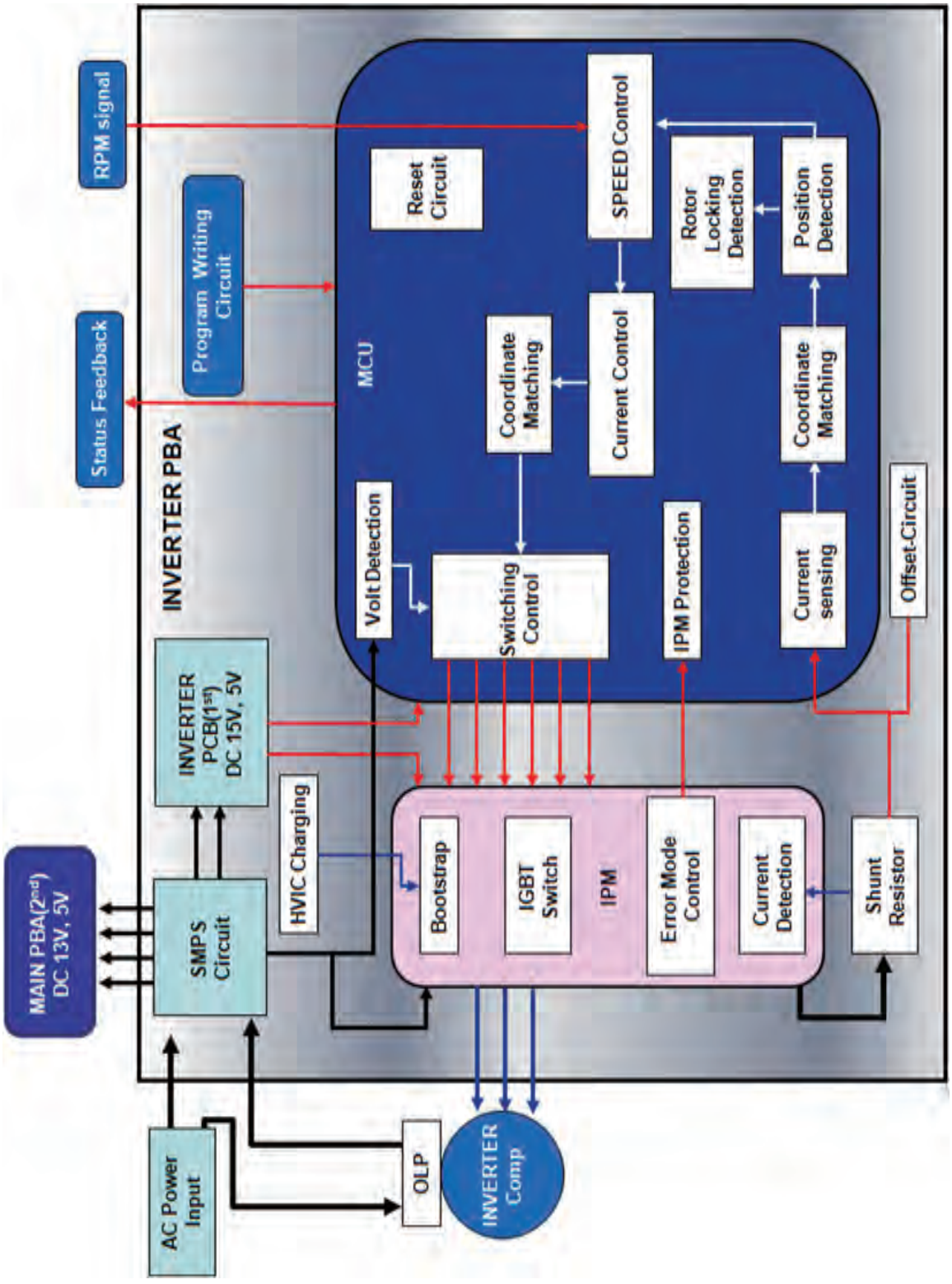
## 7–1) Whole block diagram

### 6-1. MODEL : RF263TEAE**, RF263BEAE**



## 7–2) Whole block diagram

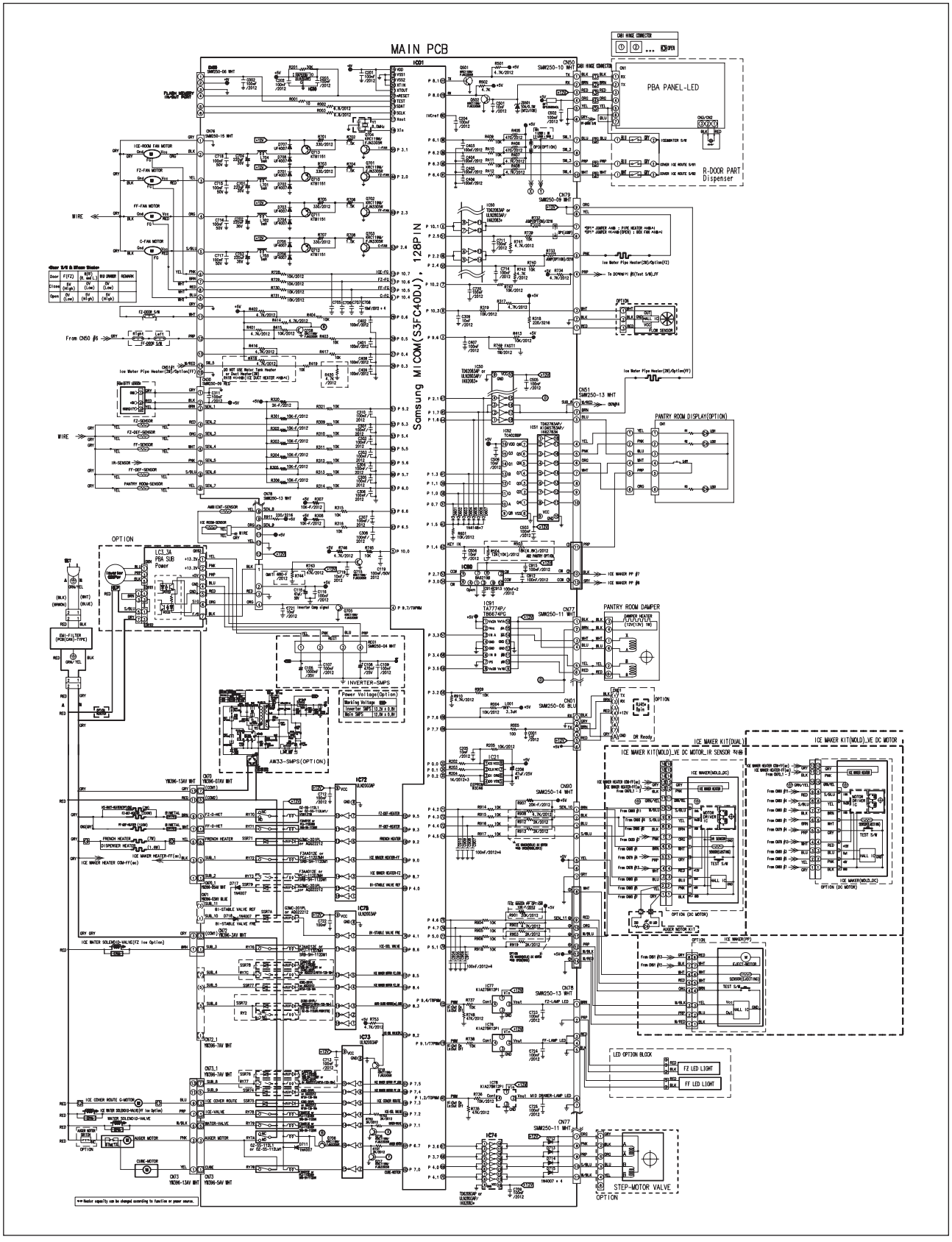
7-2. MODEL : RF263TEAE**, RF263BEAE**



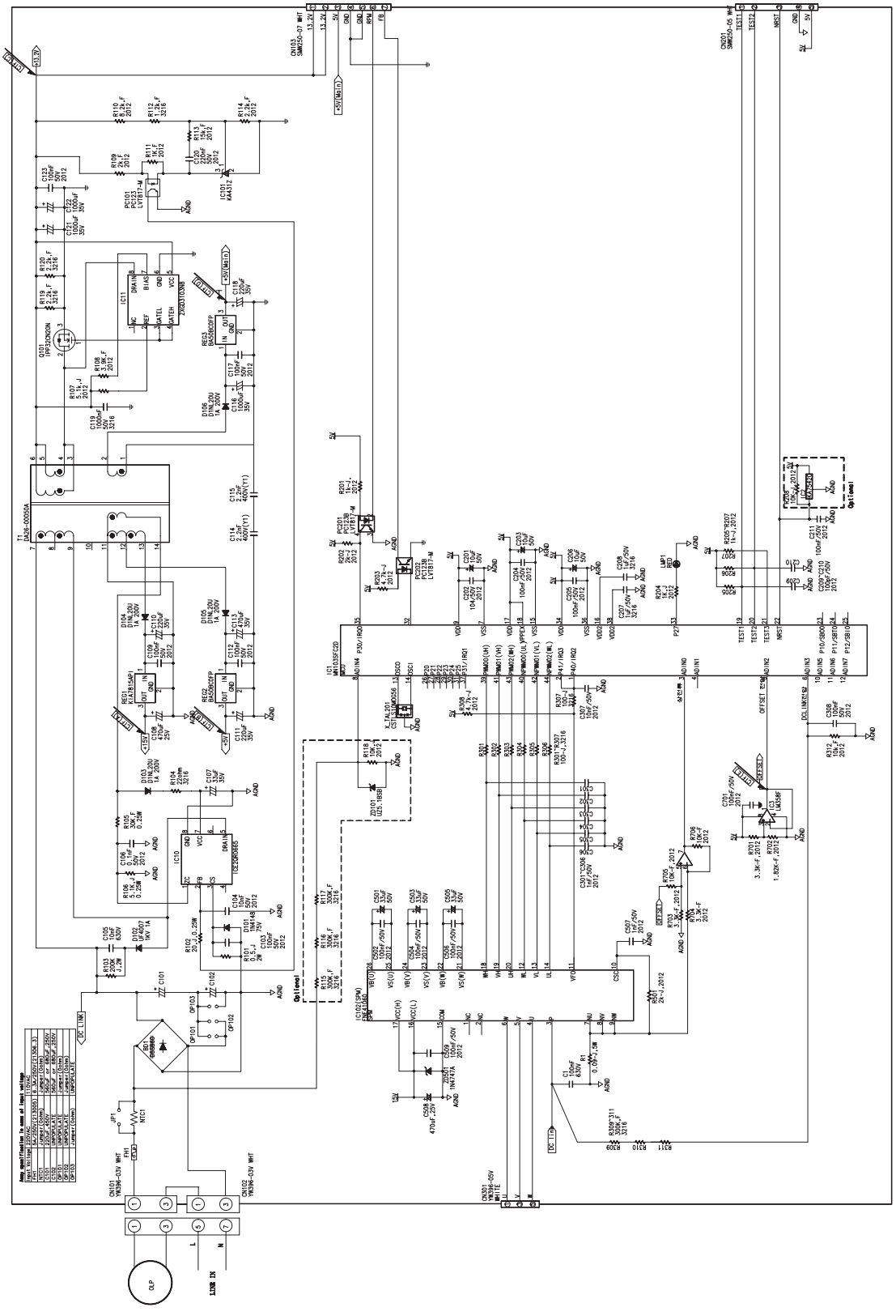
# SCHEMATIC DIAGRAM

## 7-3) CIRCUIT DIAGRAM

### 7-3-1. Main



## 7-3-2. INVERTER



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