

Uputstvo za upotrebu (EN)

LG kombinovani frižider GBV3100DPY



Tehnoteka je online destinacija za upoređivanje cena i karakteristika bele tehnike, potrošačke elektronike i IT uređaja kod trgovinskih lanaca i internet prodavnica u Srbiji. Naša stranica vam omogućava da istražite najnovije informacije, detaljne karakteristike i konkurentne cene proizvoda.

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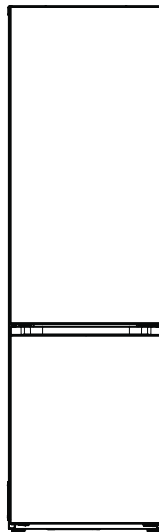


<http://biz.lgservice.com>

REFRIGERATOR

SERVICE MANUAL

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



MODEL :

COLOR :

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SAFETY PRECAUTIONS

Please read the following instructions before servicing your refrigerator.

1. Check the set for electric losses.
2. Unplug prior to servicing to prevent electric shock.
3. Whenever testing with power on, wear rubber gloves to prevent electric shock.
4. If you use any kind of appliance, check regular current, voltage and capacity.
5. Don't touch metal products in the freezer with wet hands. This may cause frostbite.
6. Prevent water from following onto electric elements in the mechanical parts.
7. When standing up after having checked the lower section of the refrigerator with the upper door open, move with care to avoid hitting the upper door.
8. When tilting the set, remove any materials on the set, especially the thin plates(ex. Glass shelf or books.)
9. When servicing the evaporator, wear cotton gloves. This is to prevent injuries from the sharp evaporator fins.
10. Leave the disassembly of the refrigerating cycle to a specialized service center. The gas inside the circuit may pollute the environment.
11. When you discharge the refrigerant, wear the protective safety glasses or goggle for eye safety.
12. When you repair the cycle system in refrigerator, the work area is well ventilated. Especially if the refrigerant is R 600 there are no fire or heat sources. (No smoking)

SERVICING PRECAUTIONS

Features of refrigerant (R600a)

- Achromatic and odorless gas.
- Flammable gas and the ignition (explosion) at 494°C.
- Upper/lower explosion limit: 1.8%~8.4%/Vol.

Features of the R600a refrigerator

- Charging of 60% refrigerant compared with a R134a model.
- The suction pressure is below 1bar (abs) during the operation.
- Because of its low suction pressure, the external air may flow in the cycle system when the refrigerant leak, and it causes malfunction in the compressor.
- The displacement of compressor using R600a must be at least 1.7 times larger than that of R134a.
- Any type of dryer is applicable (XH-5, 7, 9).
- The EVAPORATOR or any other cycle part that has welding joint is hidden in the foam. (If not hidden inside, the whole electric parts must be tested with the LEAKAGE TEST according to the IEC Standard.)
- The compressor has label of the refrigerant R600a.
- Only the SVC man must have an access to the system.

Installation place

- Must be well ventilated.
- Must be 20 m³ or larger.
- Must be no-smoking area.
- No ignitable factors must be present.

Utilities

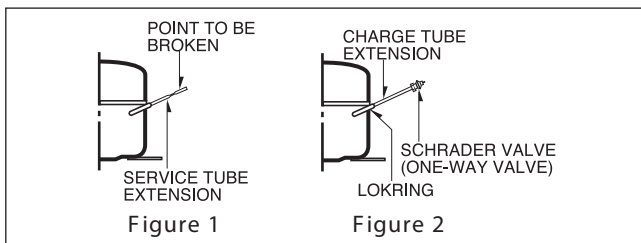
- Refrigerant cylinder (MAX NET 300g)
- Manometer
- Vacuum pump (600"/min)
- Piercing Clamp
- Quick coupler
- Hoses (5m-1EA, 1m-3EA)
- LOKRING
- Portable Leakage detector (3g/year)
- Nitrogen cylinder (for leakage test)
- Concentration gauge

Make sure before Servicing

- Refrigerant
Confirm the refrigerant by checking Name Plate and the label on the compressor, after opening the COVER ASSEMBLY, BACK-M/C.
- If the refrigerant is R600a, you must not weld or apply a heat source.

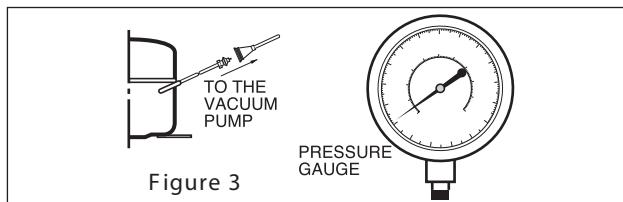
Air Recharging in Compressor

Before refilling the refrigerant, you must perform the test according to Chapter 5 (TROUBLESHOOTING CHART). When the defects are found, you must discharge the residual refrigerant (R600a) in the outdoor. For discharging the refrigerant R600a, break the narrow portion of tube extension by hand or with a pipe cutter as shown in Figure 1. Leave it for 30min in outside to stabilize the pressure with ambient. Then, check the pressure by piercing the dryer part with piercing pliers. If the refrigerant is not completely discharged, let the refrigerator alone for more 30min in outside.



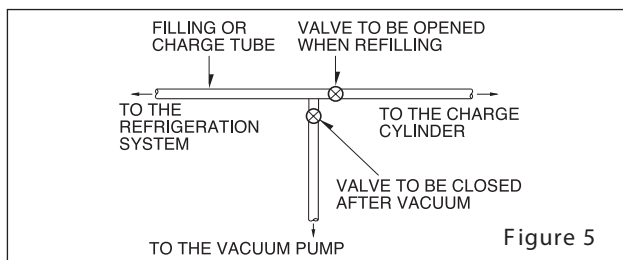
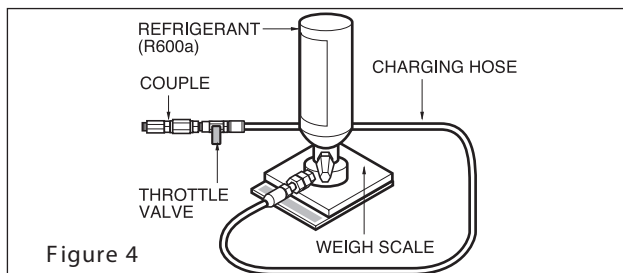
Attach the service tube installed with a Schrader valve (one-way valve) by using the LOKRING (Figure 2). Then, connect the Schrader valve (one-way valve) to the pump that is connected to the discharging hose leading to the outside. When discharging the residual refrigerant, repeat 3 cycle that includes 3min of the pump running->pump off->30sec of the compressor running.

After the refrigerant (R600a) is completely discharged, repair any defective parts and replace the dryer. At any case you must use the LOKRING for connecting or replacing any part in the cycle (No Fire, No Welding). Charge the N2 gas in order to check for leakage from welding points and the LOKRING. If leakages are found, repair the defects again. Connect the Schrader valve to pump with the coupler. And then turn the pump on for vacuum state (Figure 3). Let the pump run until the low pressure gauge indicates the vacuum (gauge pressure -1atm or -760mmHg, absolute pressure 0). Recommended vacuum time is 30 min.



After the system is completely vacuumed, fill it with the refrigerant R600a up to what has been specified at your refrigerator Name Plate. The amount of refrigerant (R600a) must be precisely measured within the error of ±2g by an electron scale (Figure 4).

If you use the manifold connected with both the refrigerant (R600a) cylinder and the vacuum pump simultaneously, make sure the pump valve is closed (Figure 5).



Connect the charging hose (that is connected to the refrigerant (R600a) cylinder) to the Schrader valve installed on the service tube. Then, charge the refrigerant (R600a) by controlling the Throttle valve. When you do so, do not fully open the Throttle valve because it may make damage to the compressor. Gradually charge the refrigerant (R600a) by changing open and close the Throttle Valve (5g at each time). The charging hose must use a one-way valve to prevent the refrigerant reflux. Close the Schrader valve cap after the refrigerant (R600a) is completely recharged.

After you completely recharge the refrigerant (R600a), perform the leakage test by using a portable leakage detector or soapy water. Test the low pressure (suction) parts in compressor on time and high pressure parts in compressor on time. If the leakages are found, restart from the refrigerant (R600a) discharging process and repairs defects of leaks.

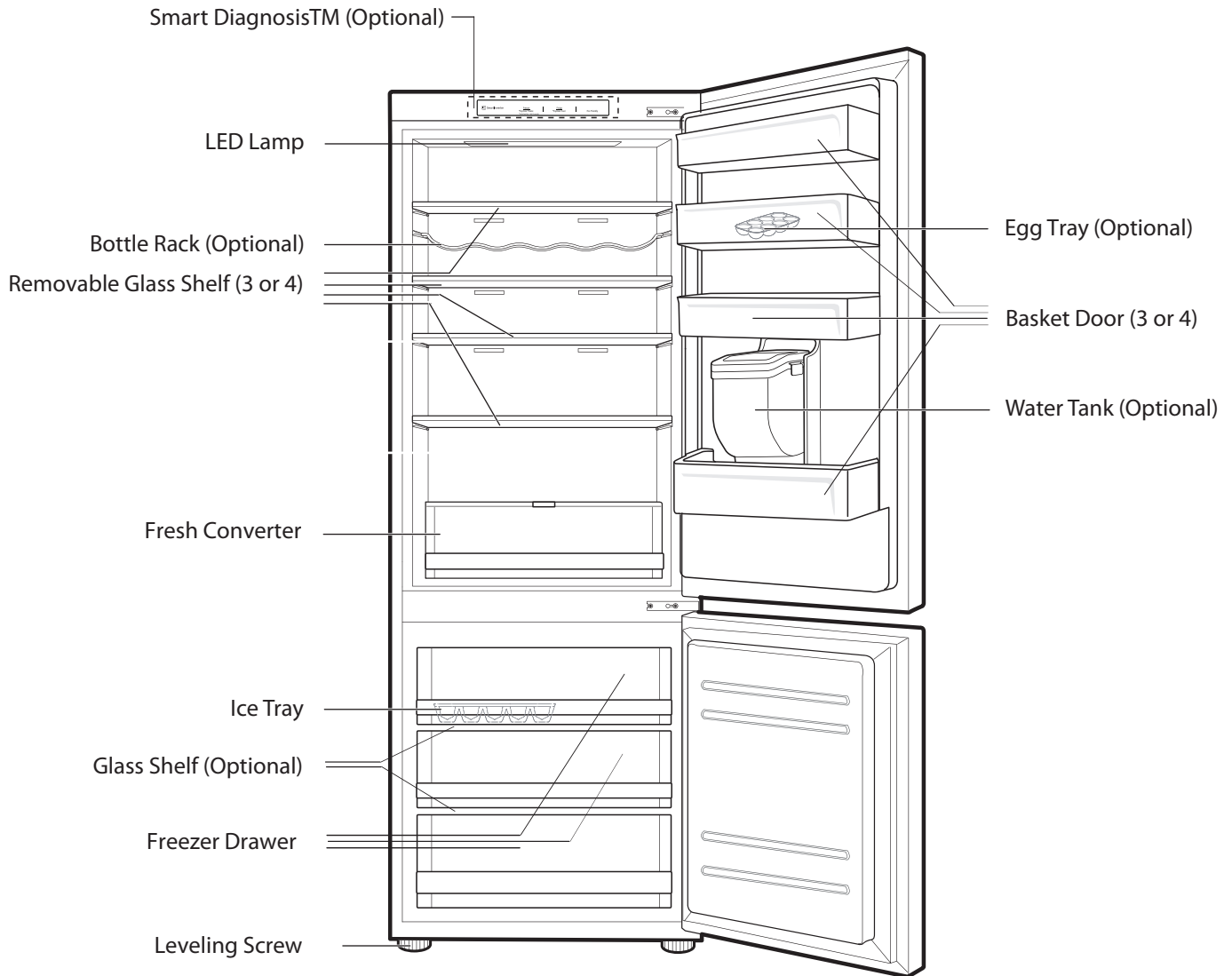
After the leakage test, check the temperature of each parts of the cycle. Check with hands if the CONDENSER and the case (HOT-LINE pipe) that is contacted to the door gasket are warm. Confirm that frost is uniform distributed on the surface of the EVAPORATOR.

SPECIFICATIONS

| ITEMS | | GBV3100D** | | | | |
|--------------------------|----------------------------|------------|--|--|--|--|
| DIMENSIONS (mm) | 595(W) X 2030(H) X 675(D) | ● | | | | |
| | 595(W) X 1860(H) X 675 (D) | - | | | | |
| COOLING SYSTEM | Indirect (Fan Cooling) | ● | | | | |
| TEMPERATURE CONTROL | Micom Control | ● | | | | |
| DEFROSTING SYSTEM | Full Automatic | ● | | | | |
| | Heater Defrost | ● | | | | |
| DEFROSTING DEVICE | Heater, S heath | ● | | | | |
| REFRIGERANT WEIGHT | R600a | 60g | | | | |
| LUBRICATION OIL | Mineral 5 HFP | 165cc | | | | |
| COMPRESSOR | PTC Starting Type | - | | | | |
| EVAPORATOR | Fin Tube Type | ● | | | | |
| CONDENSER | Spiral Condenser | - | | | | |
| | Wire Condenser | ● | | | | |
| REFRIGERATOR COMPARTMENT | Removable Glass Shelf | 2EA | | | | |
| | Cover, TV (L) | ● | | | | |
| | Cover, TV (U) | ● | | | | |
| | Fresh Converter | ● | | | | |
| | Magic Crisper (1EA) | ● | | | | |
| | Vegetable Drawer (1EA) | ● | | | | |
| | Folding Shelf | - | | | | |
| | Bottle Rack | - | | | | |
| DOOR BASKET | Egg Tray | ● | | | | |
| | Dairy Corner | - | | | | |
| | Basket | 3EA | | | | |
| | Water Tank | - | | | | |
| FREEZER COMPARTMENT | Tray Drawer (3EA) | ● | | | | |
| | Tray Ice | ● | | | | |
| | Glass Shelf (1EA) | ● | | | | |

PARTS IDENTIFICATION

Model Name : GBV3100D**



INSTRUCTIONS FOR REVERSING DOOR SWING

This refrigerator allows the owner to change the door swing if desired. The hinging of the doors can be changed to the opposite side anytime you wish.

When reversing the door swing :

Read the instructions all the way through before starting.

- Handle parts carefully to avoid scratching paint.
- Set screws down by their related parts to avoid using them in the wrong places.
- Provide a non-scratching work surface for the doors.

IMPORTANT

Once you begin, do not move the cabinet until door-swing reversal is completed.

These instructions are for changing the hinges from the right side to the left side-if you ever want to change the hinges back to the right side, follow these same instructions and reverse all references to left and right.

Before Removing the Doors, empty and Remove all the Door Baskets of both Refrigerator/Freezer Doors, including the Bank Dairy. Close both doors before removing hinge pins.

Warning Electric Shock Hazard

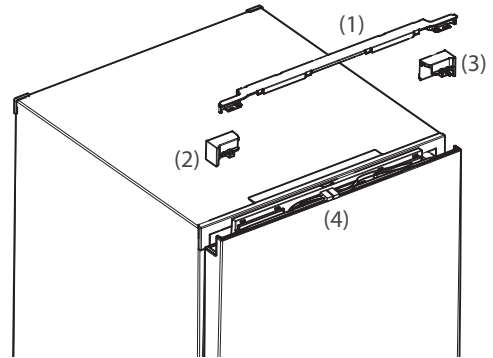
Disconnect electrical supply to refrigerator before installing. Failure to do so could result in death or serious injury.

Caution :

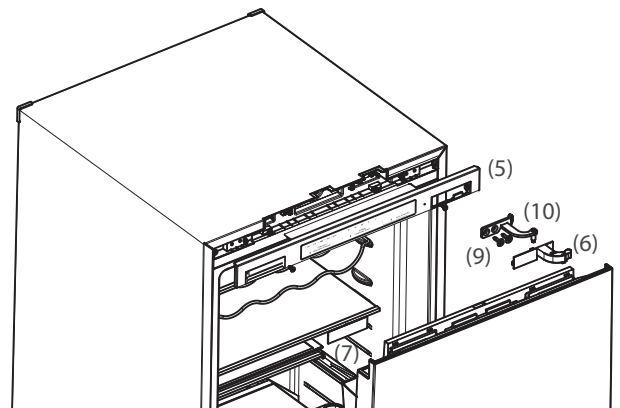
Do not let either door drop to the Door. Doing so could damage the Door Stop.

INSTRUCTIONS FOR REVERSING DOOR SWING

- 1) Remove the DÉCOR COVER(1) and COVER HINGE(2).
Assemble COVER HINGE(3) to side of DÉCOR COVER(1).

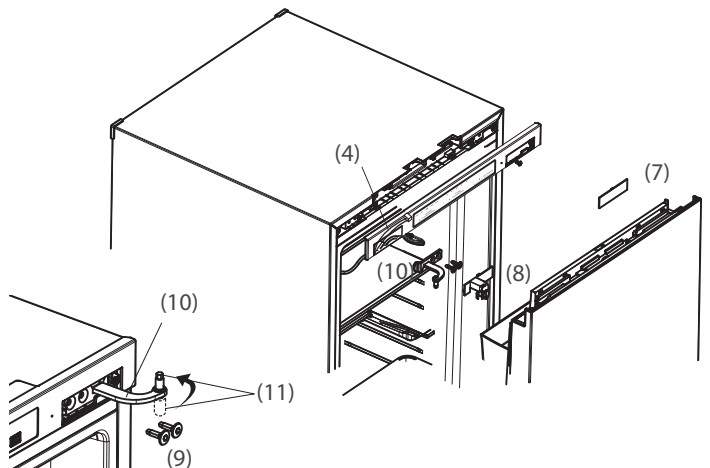


- 2) Remove the HOLDER CORD(6), (7).
Remove bolts(9) securing HINGE-U(10).



- 3) Unscrew of the hinge pin(11).
Place HINGE-U and seat hinge upside down and apply them to left side of the refrigerator. and use new HOLDER CORD(8) (placed with Owner's Manual in Refrigerator Drawer.)

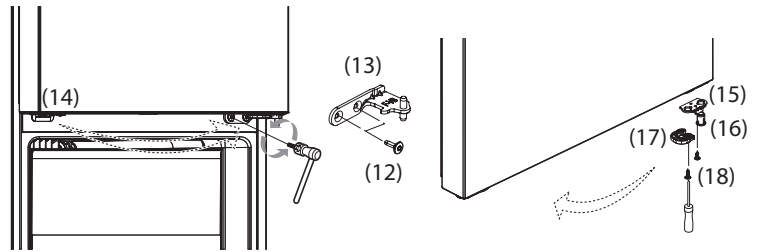
NOTE:
Seat hinge to be placed under the HINGE-U(10).



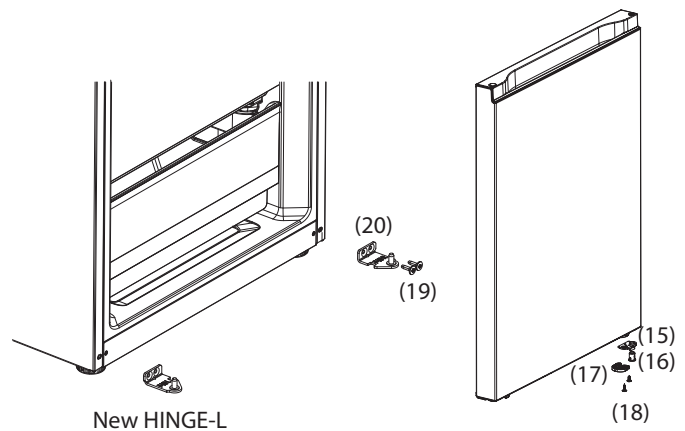
INSTRUCTIONS FOR REVERSING DOOR SWING

- 4) Remove bolts(12) securing HINGE-C(13) and then remove HINGE-C(13).
 Remove the freezer door. Move in left side of the refrigerator CAP(14).
 Move to left side of the refrigerator door screw(18), BUSH(16), STOPPER(15), (17).

Note :
 Need a hex wrench (5mm) when you disassemble the hinge center.

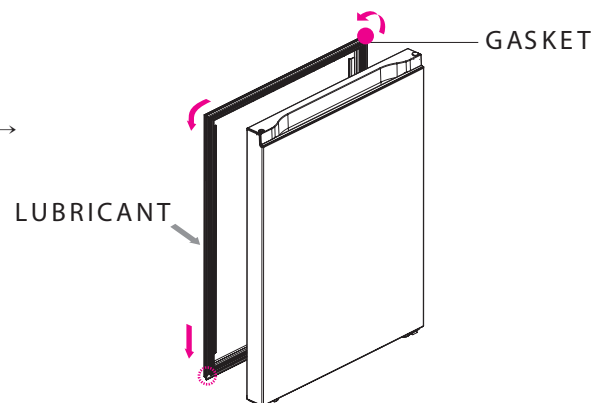


- 5) Remove HINGE-L(20), Bolts(19), BUSH(16), STOPPER(15), (17) and Lavel(21).
 Use the new HINGE-L (placed with Owner's Manual in Refrigerator Drawer.) and attach a label a screw Hole.



- 6) Assemble:
 HING E -L → F reezer Door → HINGE-C(13) → COVER FRONT (5) → Refrigerator Door → HINGE-U(19) → Connect the Housing Connector(4) → DECO COVER(1)

- 7) Remove Freezer and Refrigerator Door Gaskets and turn them 180°. Assemble them again and put some lubricant onto their surface.

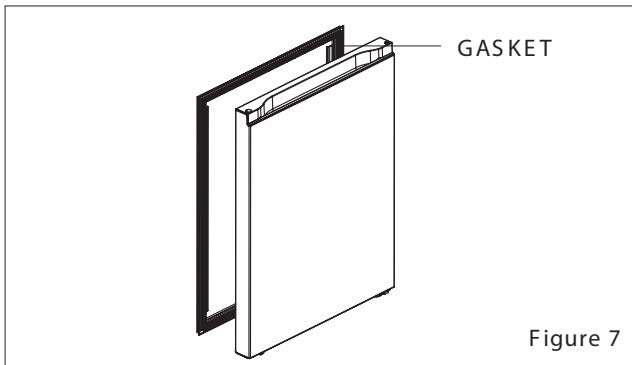


DISASSEMBLY

1. DOOR

● Freezer Door

- 1) Refer to previous chapter "Instruction for Reversing Door Swing".
- 2) Pull out Door Gasket to remove from the Door Foam Assembly, F.

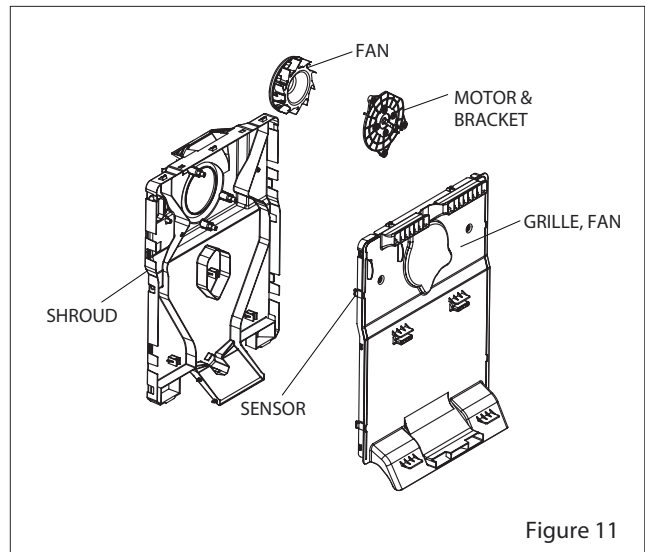


● Refrigerator Door

- 1) Refer to previous chapter "Instruction for Reversing Door Swing".
- 2) Pull out the Door Gasket to remove from the Door Foam Assembly, R.

2. FAN AND FAN MOTOR

- 1) Remove all of the freezer compartment, (Involved wire shelf, ice maker)
 - 2) Pull out the Grille Fan and Shroud F.
 - 3) Disconnect the Housing of lead wire.
 - 4) Remove three screws in Grille Fan.
 - 5) Separate Shroud, F to the Grille Fan.
 - 6) Loose three screws fixed to the Bracket.
 - 7) Pull out Bracket and then remove the Fan Motor Assembly.
- * Fan Motor Assembly can't separate.



DISASSEMBLY

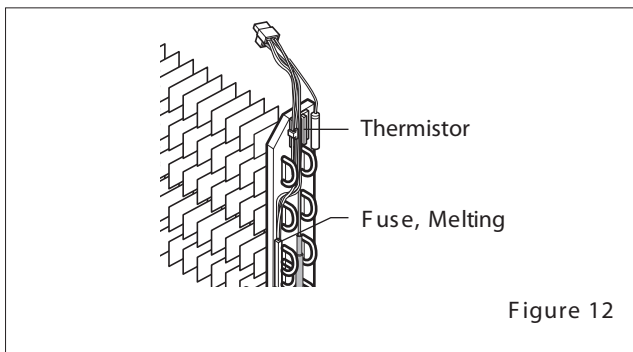
3. DEFROST CONTROL ASSEMBLY

Defrost Control Assembly consists of Thermistor and Fuse, Melting. Thermistor functions to defrost automatically and it is attached to metal side of the Evaporator and senses temperature.

Fuse, Melting is a kind of safety device for preventing overheating of the Heater when defrosting.

At the temperature of 77°C, it stops the emission of heat from the Heater.

- 1) Pull out the Shroud, F after removing the Grille.
- Freezer
Pull out the Grille. - Fridge
- 2) Separate the connector connected with the Defrost Control Assembly and replace new one.



4. FREEZER HEATER, SHEATH

In this refrigerator, Heater, Sheath is used for defrosting heater. During heating, the temperature of heater rises about 300~350°C. Therefore, be careful not to burn while servicing.

- 1) After removing the Grille and Shroud, separate the Heater, Sheath by disconnecting the connectors.
- 2) Exchanged Heater, Sheath and connected the housing.

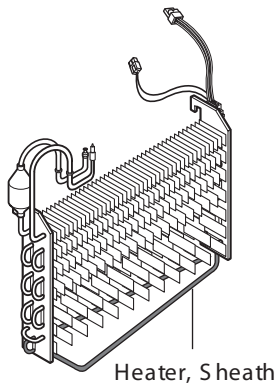


Figure 13

COMPRESSOR

1. Inverter Linear Compressor

Check for defect of the inverter linear compressor in following orders:

1) Method to Measure Compressor Winding Resistance

Normal Determination Criteria.

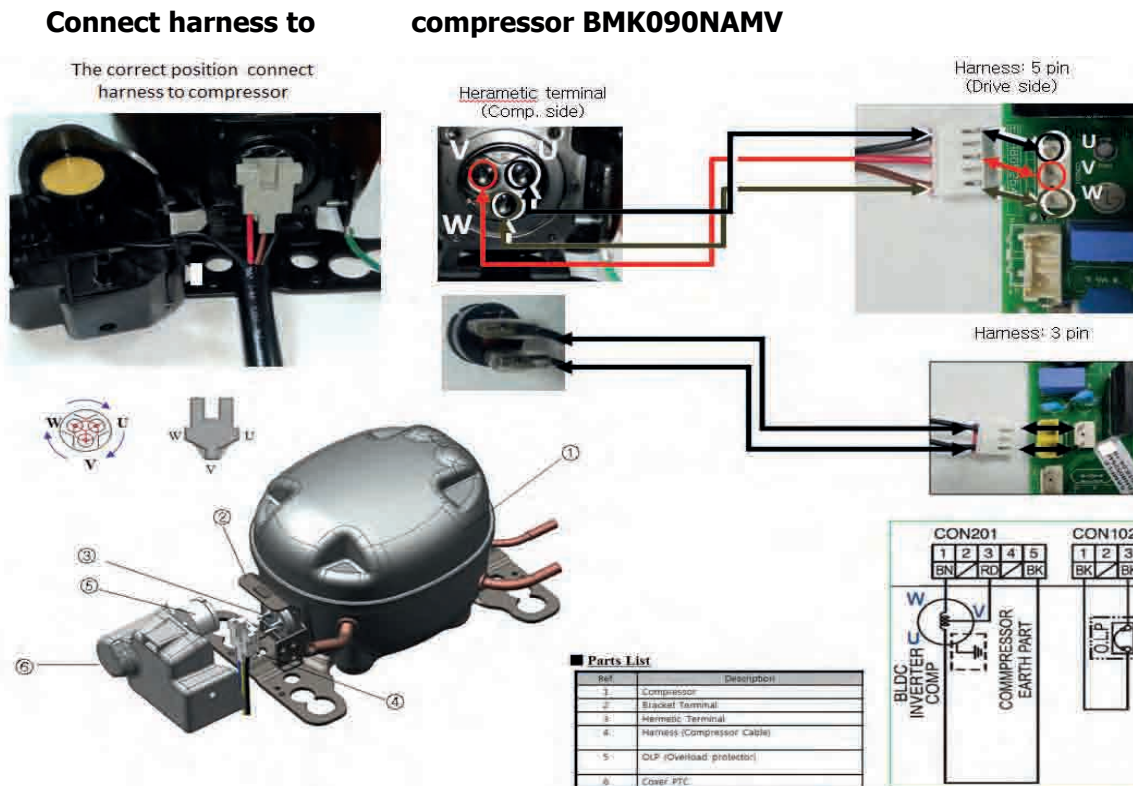
The compressor winding resistance can be determined as normal if resistance values show the values as described in below figure when measuring resistance values of the harness (connected with compressor) to connect. Connect201(CON201) of the main PWB as shown in below figure.

Defect Determination Criteria

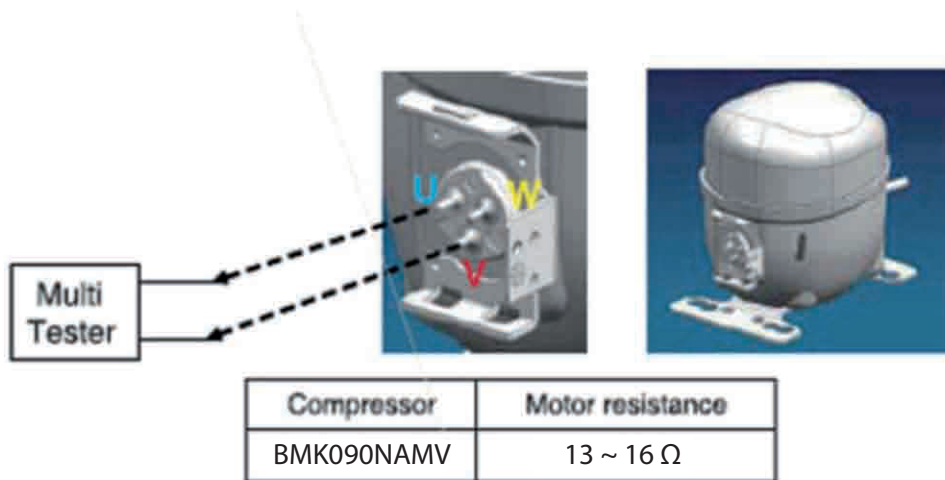
- Check connection status of the Compressor Connection Harness-P(Lead Wire) which is located at the M/C room where resistance values measured at the CON201 Housing are shown as infinite or several hundred MΩ . Separate connecting wires of the M/C room (A-point in Figure) and then measure resistance values at the connecting wires again. The compressor can be determined as normal if resistance values are shown as standard resistance value. Check connection status of a harness.
- Defect at M/C room connection contact or CON201 Housing contact, short-circuit of harness)
- Where resistance values measured at A-point are also shown as infinite or several hundred MΩ , disassemble a cover PTC of the compressor terminal and check the terminal connecting status at the B-point in Figure.
- Where there is no failure in the wiring status and resistance values are shown as infinite or several hundred MΩ , it may be determined as defect of compressor.
- Since if there is no failure in resistance values of the compressor, it may be defective Main PWB, replace the Main PCB and check for normal operation of the compressor.
- When determining any defect through resistance measuring, it can be determined as normal if resistance values show as described in the below figure by measuring ① power and ③ common terminal or ② full power and ③ common terminal. However, resistance values are measured when measuring ① power and ② full but measuring is meaningless since they cannot become criteria for determining defect (measuring not required).

Caution

1. Be sure to powering off the refrigerator and measure after several minutes has passed.
2. If not accurately measuring resistance, wrong determination may be guided. (Difference of resistance value of several W or so may occur.)



COMPRESSOR



※ There may be difference of several N in the resistance value according to the ambient temperature or operation condition.

2) Method to Determine Defect of Inverter Linear Drive

Determination of Comp Operation

Separate the back cover at the rear of refrigerator and determine for possible operation while touching the compressor with the hands with insulation gloves worn.

Comp Operation

- Determine possible trip by checking operation status if cold air comes out after opening the doors of the R-Room.

Protective Logic (Trip)

- To protect the compressor from abnormal operation, this logic is used to temporarily stop the refrigerator when abnormal operation occurs and to re-operate it after abnormal signal disappears.

Compressor protection Logic Table

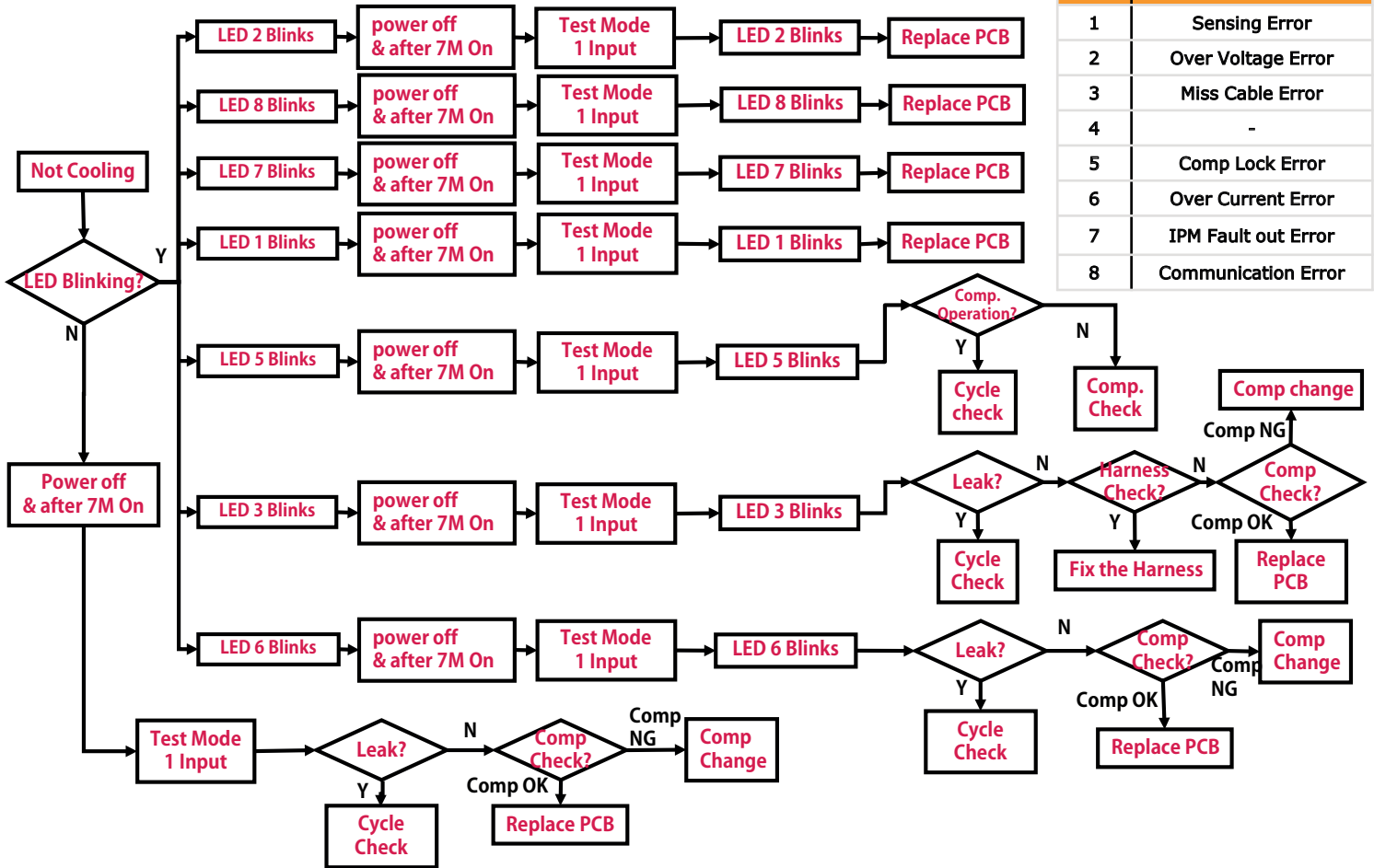
| | App. | Requirement | Waiting Time | The number of LED blinking |
|---------------------|--------|---|--------------|----------------------------|
| FCT0 Trip | A-Inv. | Initial, Motor sensing Voltage > 2.5V+20% | 30" | 1 |
| Stroke Trip | A-Inv. | Piston overruns the designed range. | 1'00" | 2 |
| No Connect | A-Inv. | IStrokeI>8.3mm & IAC Current I <0.05A 4seconds | 40s | 3 |
| Locked Piston Trip | A-Inv. | Piston is locked. | 2'30" | 5 |
| Current Trip | A-Inv. | Current overruns the designed range | 6'00" | 6 |
| IPM Fault | A-Inv. | IPM pin 14 output voltage = low (IPM Short, High current input, or low voltage input) | 20" | 7 |
| Communication Error | A-Inv. | Checksum error | - | 8 |

※ If LED of PCB is blinking, Refer to next page.

COMPRESSOR

- Simple Check flow

| LED | Trip |
|-----|---------------------|
| 1 | Sensing Error |
| 2 | Over Voltage Error |
| 3 | Miss Cable Error |
| 4 | - |
| 5 | Comp Lock Error |
| 6 | Over Current Error |
| 7 | IPM Fault out Error |
| 8 | Communication Error |



COMPRESSOR

3) LED blinks one time, then repeats (FCTO Trip)



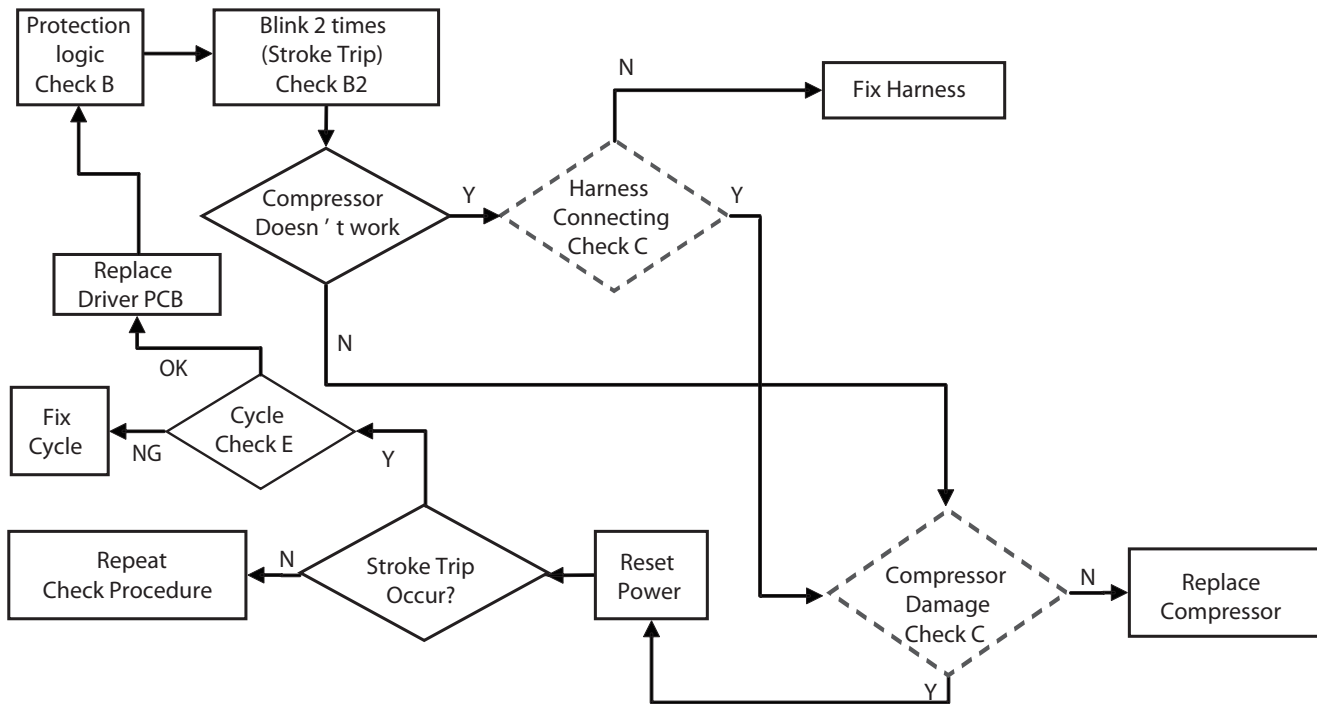
- FCTO : When same trip occurs after power reset, change PCB.
- Because it is occurred by overvoltage (more than 2.5V) at voltage and current sensing parts, PCB has to be changed.

COMPRESSOR

4) LED blinks two times, then repeats (Stroke Trip)



- Purpose: Prevent abnormally long piston strokes.
- Case 1. If compressor doesn't work and LED blinks
 - Cause: Possibly harness from compressor to PCB might be defective.
- Case 2. If compressor works intermittently and LED blinks
 - Cause: Condenser Fan or Freezer Fan is not running. Sealed system problem such as moisture restriction, restriction at capillary tube or refrigerant leak.
- Logic: Compressor is forced to o^o and then tries to restart after 1 minute.

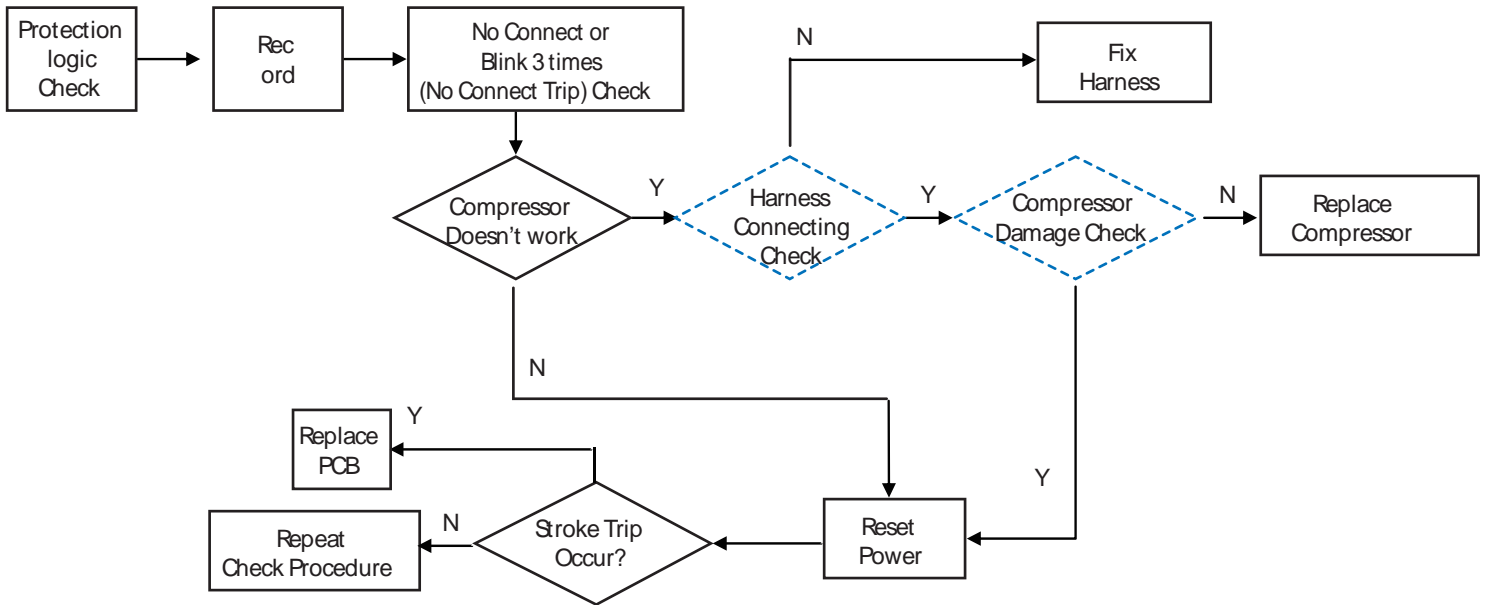


COMPRESSOR

5) No Connect Trip, LED blinks 3 times



- Purpose: Check for Connecting error. Prevent Over Current, Over Voltage.
- Cause: Harness Error between PCB and Compressor, Insulation Defect.
- Logic: Compressor is forced off and tries to restart within 40 seconds.



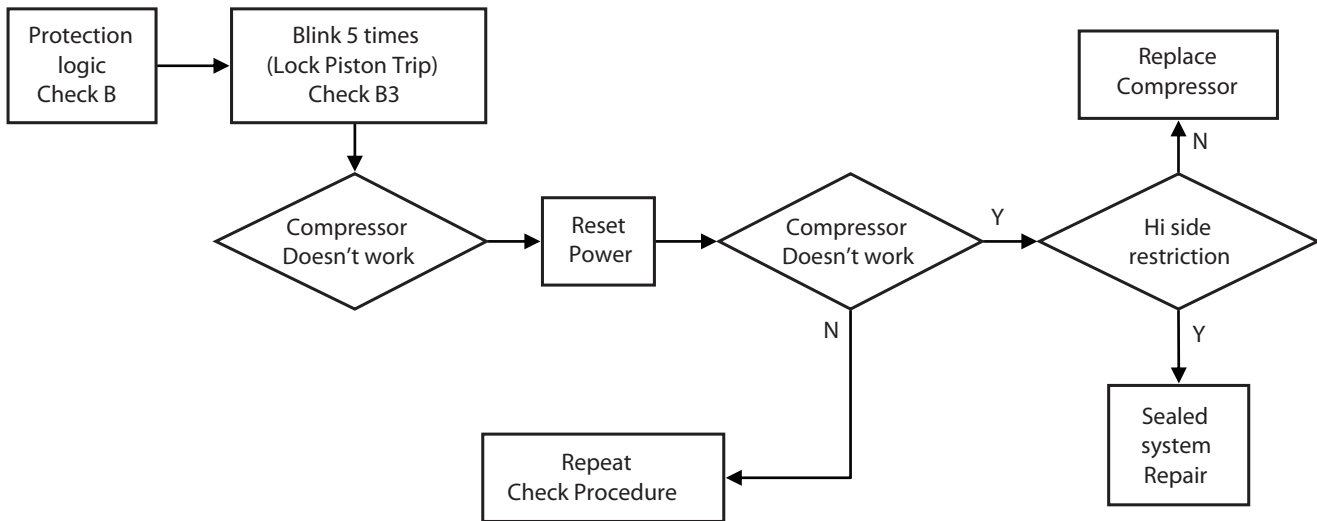
COMPRESSOR

6) LED blinks five times, then repeats (Locked Piston)



Blink Blink Blink Blink Blink OFF

- Purpose: To detect locked piston
- Cause: Lack of oil to the cylinder, cylinder or piston damaged and or restricted discharge.
A Locked Piston can also be caused by foreign materials inside the compressor.
- Logic: Compressor is forced off and tries to restart within 2.5 minutes.

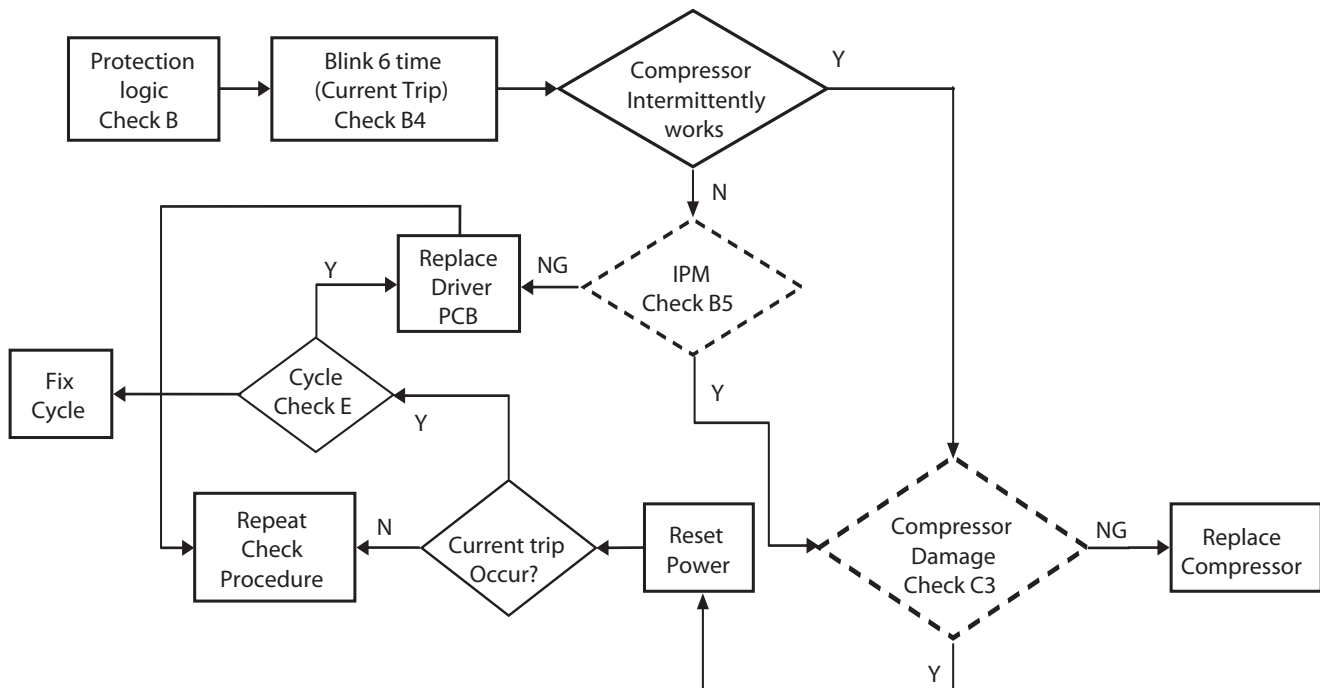


COMPRESSOR

7) LED blinks six times, then repeats (Current Trip)



- Purpose: Prevent over-current (overload protect)
- Cause: Ambient temperature is high (over 43°C) and/or refrigerator's condenser air movement is restricted.
- Condenser Fan is stopped, restricted discharge line, compressor is damaged, or IPM device is defective.
- Logic: Compressor is forced off and tries to restart after 6 min.

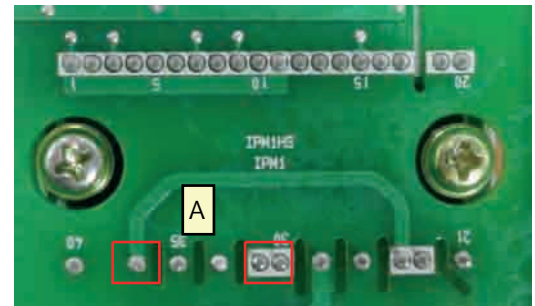
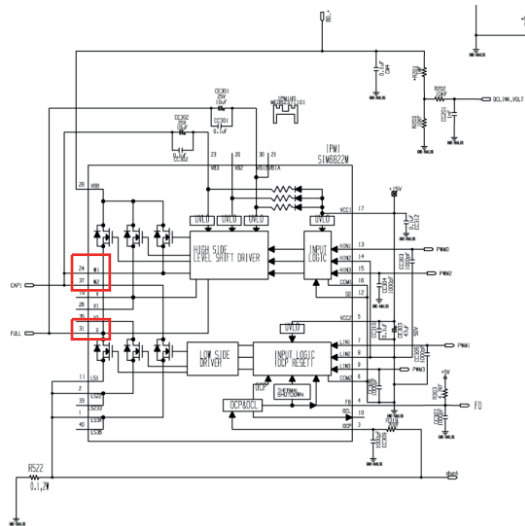
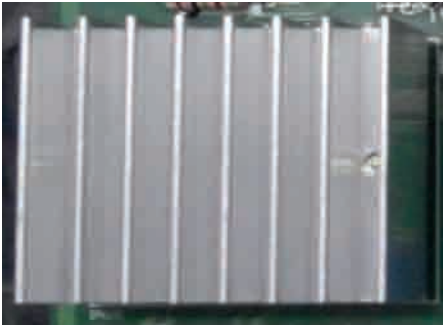


COMPRESSOR

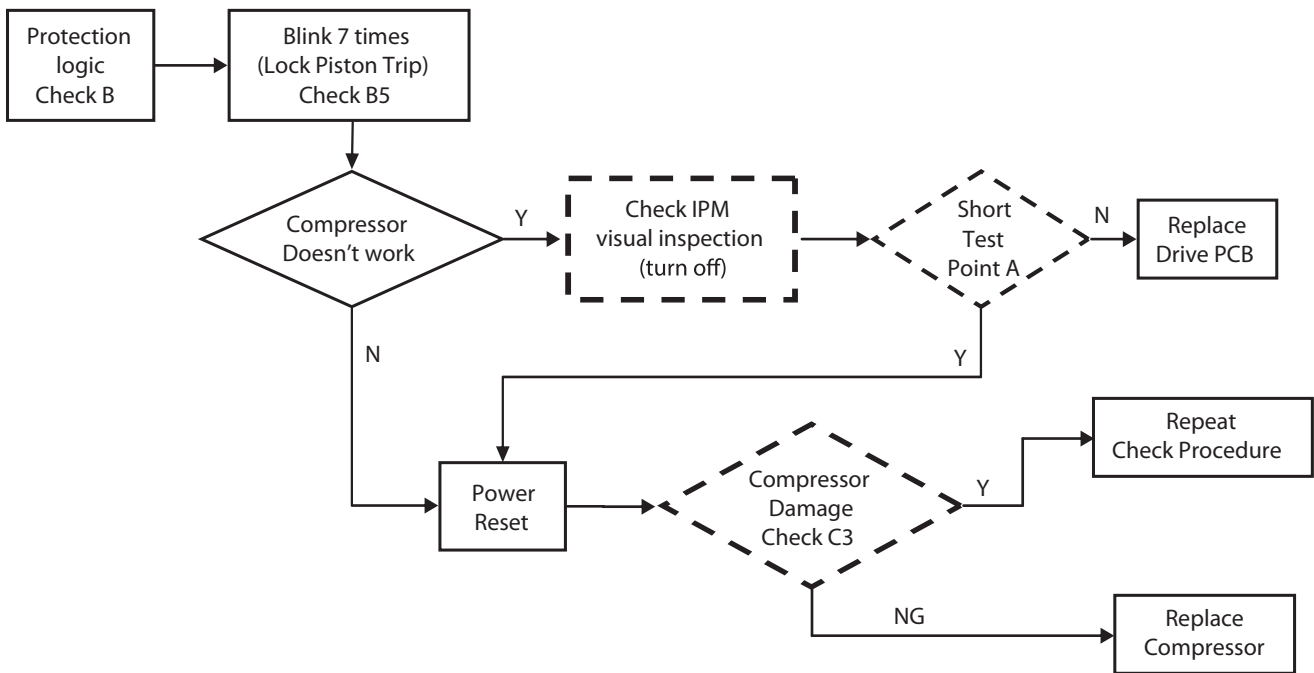
8) LED blinks seven times, then repeats (IPM Fault)



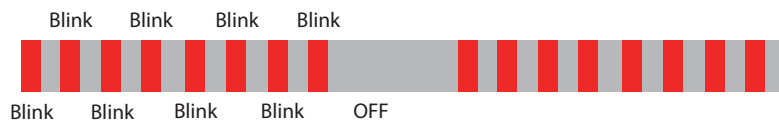
- Purpose: Prevent high current due to IPM Short
- Cause: Damaged IPM (Dead Short)
- Test for a dead short at Point A with a VOM.
- Logic: Compressor is forced off and tries to restart after 20 sec.



COMPRESSOR



9) LED blinks eight times, then repeats (Communication Error)



- Communication Error : When same trip occurs after power reset, change PCB.
- Because Program is not matching in MICOM, program has to be rewritten or PCB has to be changed.

Heavy Repair Method of Refrigerator by Application of Refrigerant

1. Outline

1) Checkpoints before Heavy Repair

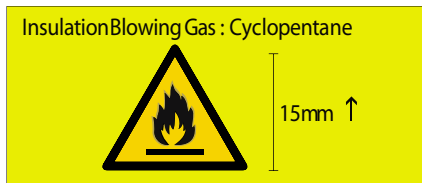
Open the Cover ASM, Back-M/C of refrigerator and check the type of refrigerant indicated on a compressor before starting work. A yellow label is adhered to the compressor for the refrigerator using R 600a as refrigerant.

2) Features of R600a Refrigerant

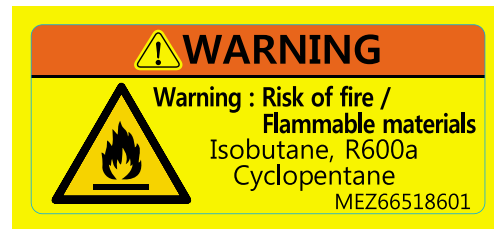
- Non-polar natural gas refrigerant (CH(CH₃)₃)
- Since R 600a is same series as butane gas, there is danger of fire when discharged into air at appropriate concentration (extreme handling is required for heavy repair of cycle).
Explosion concentration: .8% ~ 8.4%/Vol.
Burning temperature: 494°C

3) Features of R600a Refrigerant

- With refrigerant quantity of 60% or so for the refrigerator using R 134a as refrigerant
- Large vacuum level at suction pressure (at low pressure side)
- COMP capacity of the refrigerator using R 600a as refrigerant is large by 1.7 times than that of the refrigerator using R 134a.
- Labels as in Figure are displayed at the compressor of a refrigerator for R 600a and the back plate of refrigerator.



[Warning sign according to ISO 7010 021]



4) Location and Environment for Heavy Repair

- Check that drafting and air ventilation are well done at a working area and perform work after making drafting and air ventilation smooth (use refrigerant return bag indoors).
- Check that there are fire appliances or heating source around the working area and then remove them before work.
- Since R 600a refrigerant is very inflammable, they should not be discharged indoors.
- Be sure to follow heavy repair SVC procedures during work.

5) Heave Repair Work Tool

- R 600a refrigerant
- Bombe
- Pinch Pliers
- Refrigerant Discharge Hose
- Refrigerant Return Bag
- Vacuum Pump
- Handy Welding Machine
- Charging Tube
- Leakage Tester
- Drier

Heavy Repair Method of Refrigerator by Application of Refrigerant

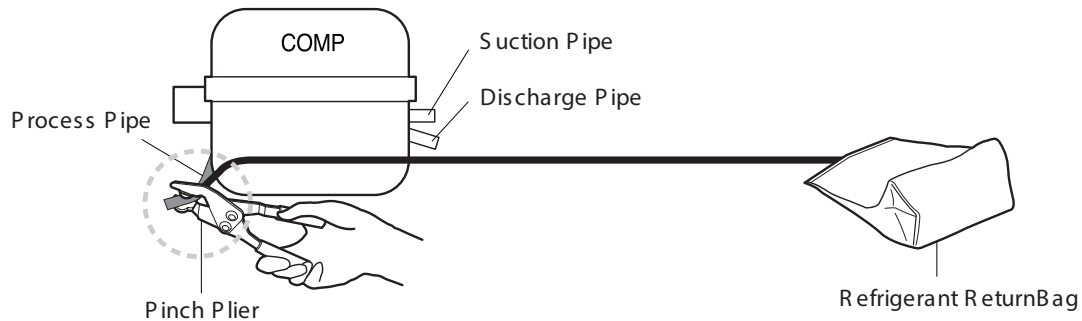
2. Heavy Repair SVC Method

For the heavier repair of R 600a type of refrigerator, perform work according to following SVC method.

1) Return of Refrigerator Refrigerant

Required equipment: Pinch pliers, refrigerant discharging hose, refrigerant returnbag

- Take power cords out and remove power between 6sec through 12sec after powering ON to open all both sides of 3way valve.
- Leave doors of a refrigerator so that they are not closed.
- Connect pinch pliers with a refrigerant discharging hose.
- Place the outlet of a refrigerant discharging hose outside.
(Remove fire appliances or heating sources near a refrigerant discharging hose.)
- Always use a refrigerant returnbag for working at the contained space.
- Bore the charging pipe of a compressor with pinch pliers.
(Remove fire appliances or heating sources near a refrigerator.)
- Perform refrigerant discharge for more than 7 minutes.

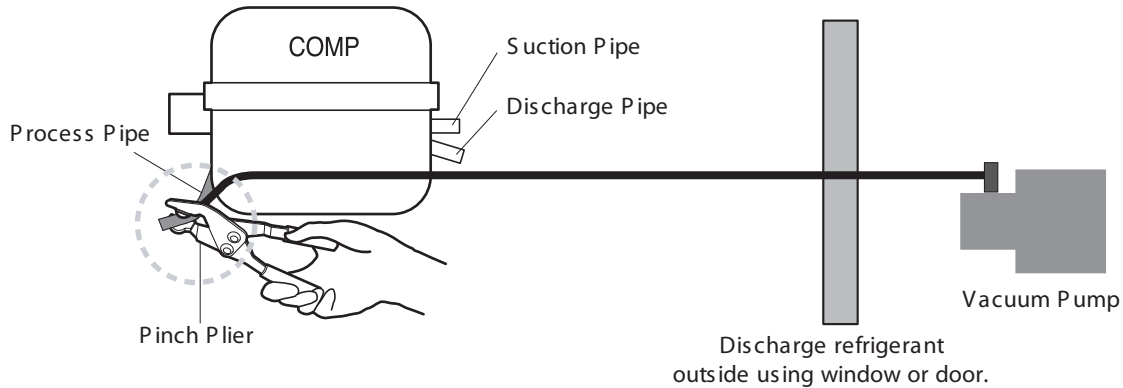


Heavy Repair Method of Refrigerator by Application of Refrigerant

2) Return of Remained Refrigerant

Required equipment: Pinch pliers, hose for refrigerant recovery, vacuum pump

- If refrigerant return time of 7 minutes has passed, connect a vacuum pump at the ends of a refrigerant return hose outdoor. (Vacuum pump must operate outdoor.)
- Operate a vacuum pump in order to return refrigerant remained in the pipe.
- Vacuum working time should be for more than 10 minutes.



3) Welding Repair Step

Required equipment: Simple welding machine

- Remove pinch pliers if remaining refrigerant return is completed.
- Cut the front part of a process pipe with a cutter. (Check that remaining refrigerant comes out.)
- Perform welding work such as replacement of compressor and dryer, or repair of leakage part. (Be cautious of fire during welding work.)

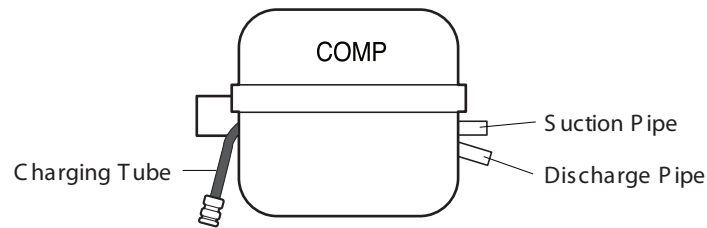


Heavy Repair Method of Refrigerator by Application of Refrigerant

4) Charging Tube Connection Step

Required equipment: Charging tube, simple welding machine

- Remove a charging pipe to recharge R600a refrigerant after completing work, and then connect a charging tube with welding



5) Vacuum Air Removal

Required equipment: Vacuum pump

- Connect a vacuum pump to a charging tube to perform vacuum cycle.
- Vacuum work should be performed for an hour. (If vacuum time is short, normal cooling performance may not be exerted due to failure of cooling cycle.)



Heavy Repair Method of Refrigerator by Application of Refrigerant

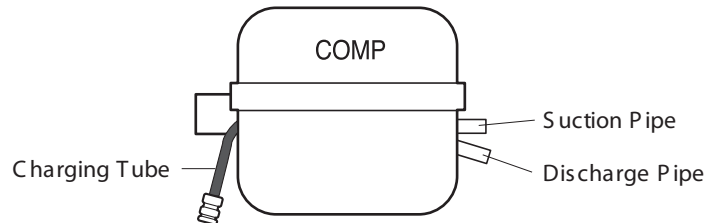
6) Refrigerant Charging

Required equipment: Bombe, R600a refrigerant (60g)

- Firstly remove fire appliances and heating source for performing work when charging scaled refrigerant. (Do not spray refrigerant indoor.)
- Measure the accurate quantity (60g) of refrigerant to charge it into a Bombe.
- Make the Bombe as vacuum status to charge refrigerant.
(If there is air or moisture in a Bombe, it may give effect on performance of a cooling cycle.)
- Please manage refrigerant quantity as $60 \text{ g} \pm 1$. Differently from R134a, R600a gives much effect on cooling performance depending on change of refrigerant quantity.

Refrigerant quantity = Weight after charging - Weight before charging (weight of vacuumed Bombe)

- Connect Bombe with a charging tube to charge refrigerant.
- Turn on power of refrigerator to operate a compressor.
- Measure Bombe weight after 5 through 10 minutes to check remained refrigerant quantity to complete charging of refrigerant.
(After charging refrigerant, never perform welding work or work using fire appliances.)



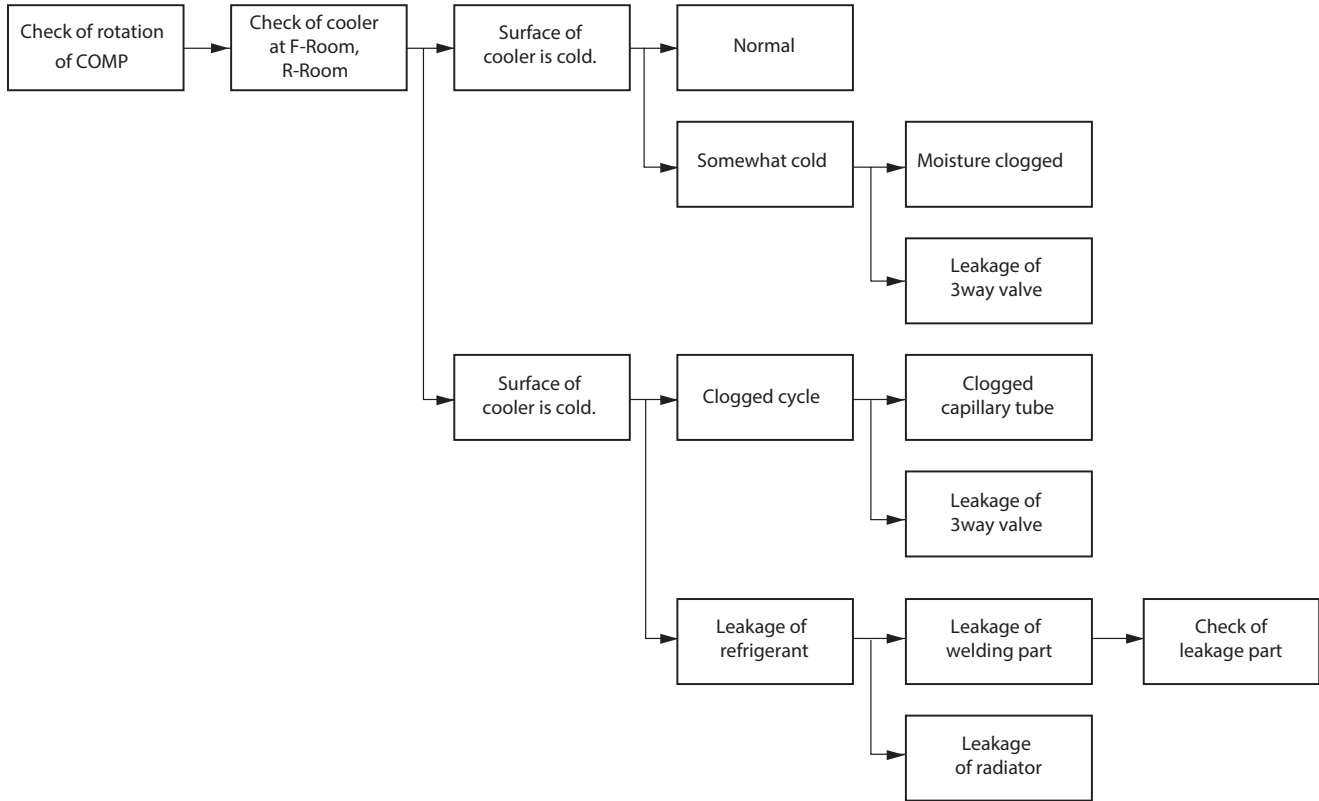
7) Leak Inspection and Cycle Check

Required equipment: Leakage checking machine (foam and leakage inspection machine)

- Check for leakage by using foam or a leakage inspection machine at the worked part if charging of refrigerant is completed.
- Check for leakage at the low pressure part with the compressor stopped, and check at the high pressure part with the compressor being operating.
- If leakage is detected, proceed to repair according to repair process again starting from "2-1. Return of Refrigerant".
(Never perform welding work or work using fire appliances.)
- Check that heat remains at a discharge pipe or condenser with the hands if leakage check is completed. If heat remains, the cooling cycle is normal.
(Take care since a discharge pipe may be hot.)

Heavy Repair Method of Refrigerator by Application of Refrigerant

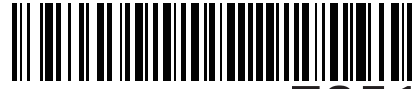
8) Failure Checking Procedures



9) Cautions in Heavy Repair Service

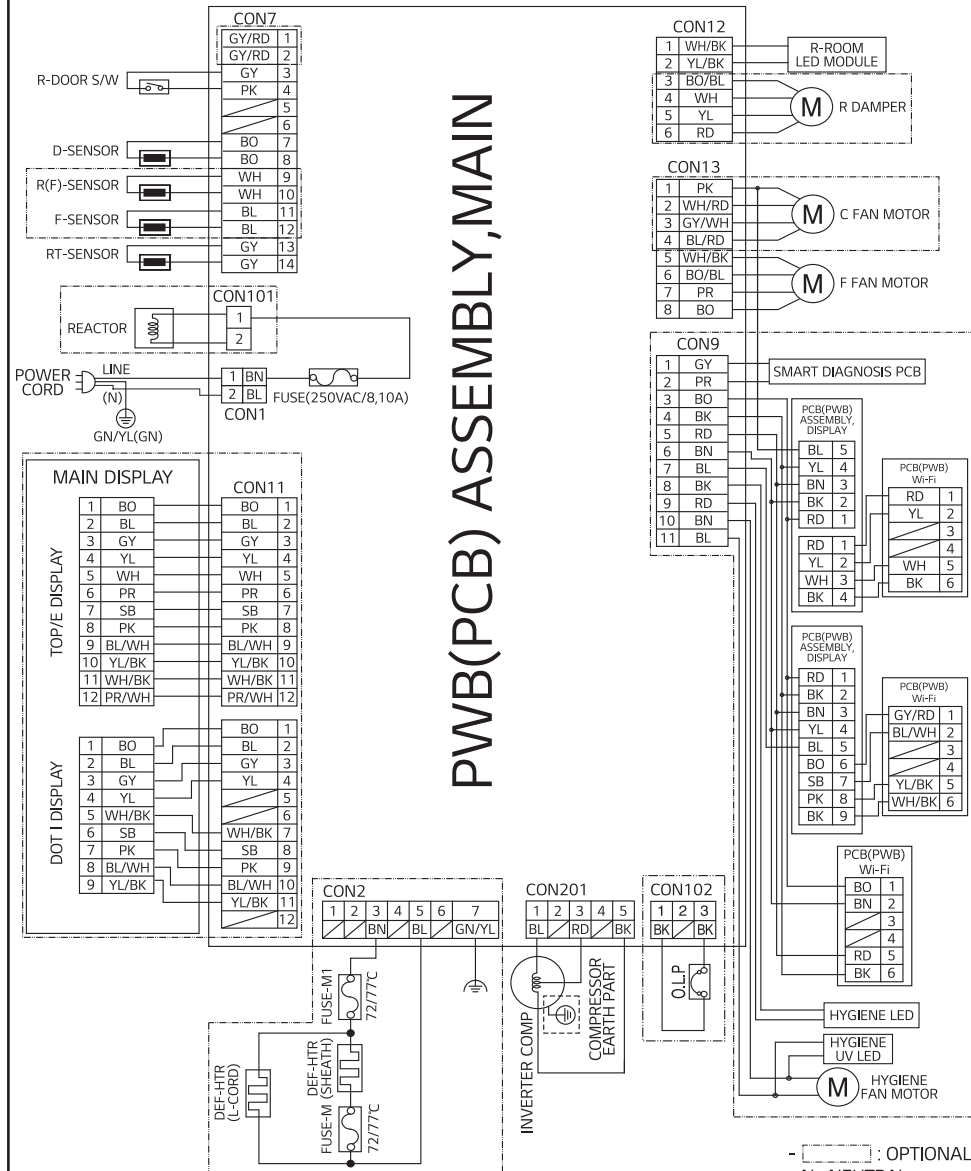
Special caution should be taken since fire may occur for welding work since refrigerant may remain as it is at the high pressure side even after vacuum air-discharge in relation with cycle clogging. Take power cords out and remove power between 6sec - 12sec after powering on in order to open both sides of 3way valve in the step of refrigerant recovery. If both sides of 3way valve will not be opened, fire may occur during welding work since refrigerant may remain during the cycle. To prevent moisture clogging, always replace dryer together during heavy repair of refrigerator.

CIRCUIT DIAGRAM



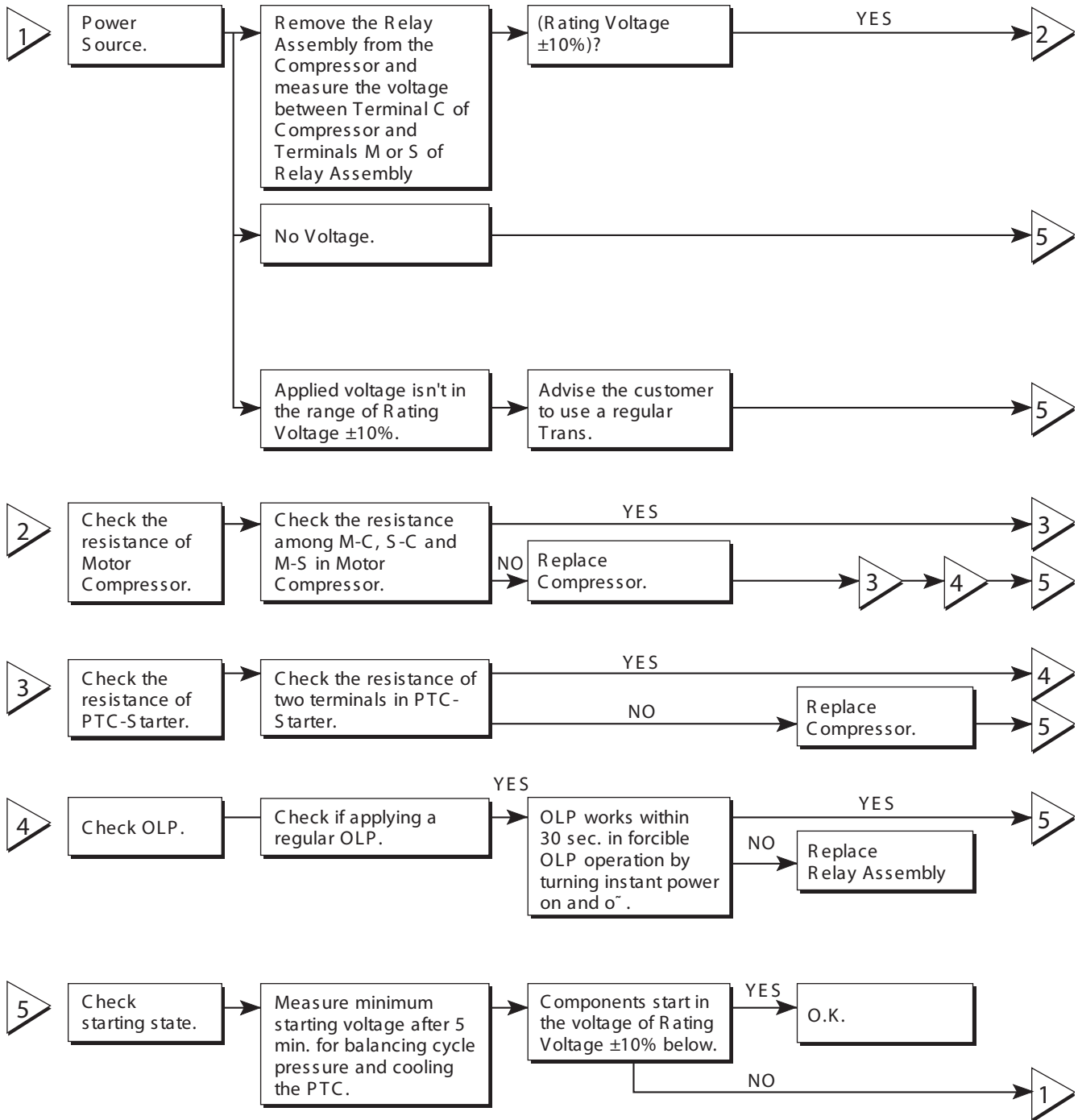
MEZ6624 7851

THIS REFRIGERATOR IS ELECTRONIC ACTIVATION TYPE, SO WHEN POWER PLUG IS UNPLUGGED FROM THE SOCKET, PLUG IT IN AGAIN AFTER AT LEAST 5 MINUTES. IF IT IS PLUGGED IN RIGHT AWAY, THE COMPRESSOR OPERATION MAY BE STRESSED AND CAUSE DISORDER.



TROUBLESHOOTING (Mechanical Part)

1. COMPRESSOR AND ELECTRIC COMPONENTS



TROUBLESHOOTING (Mechanical Part)

2. PTC AND OLP

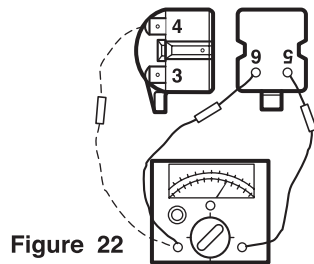
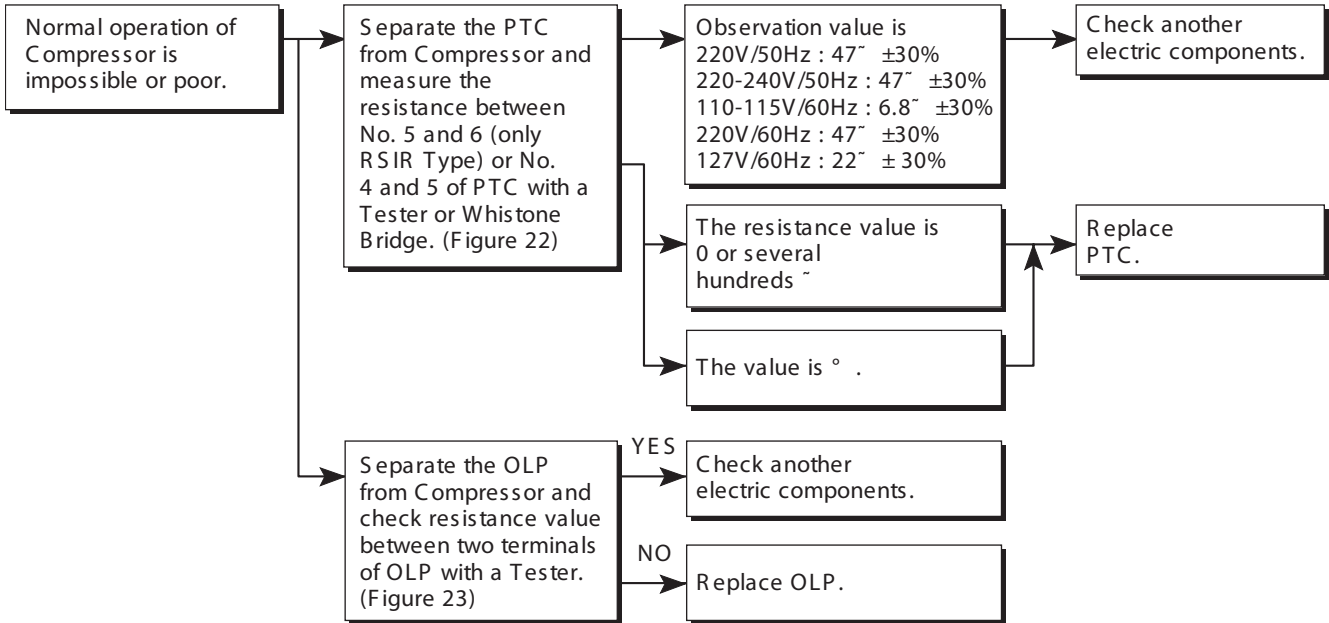


Figure 22

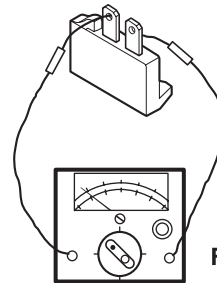
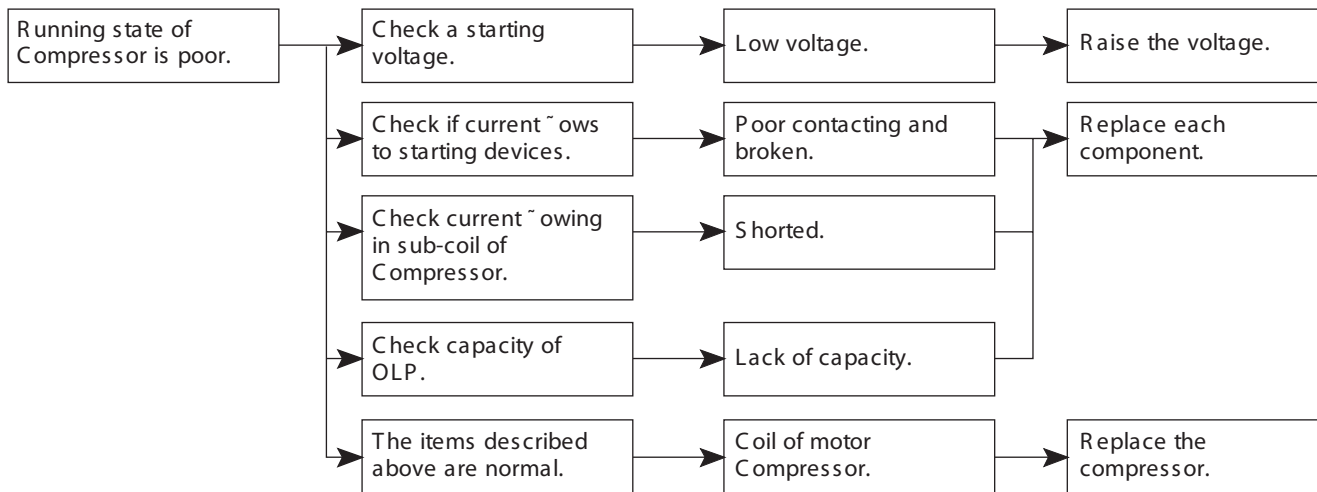
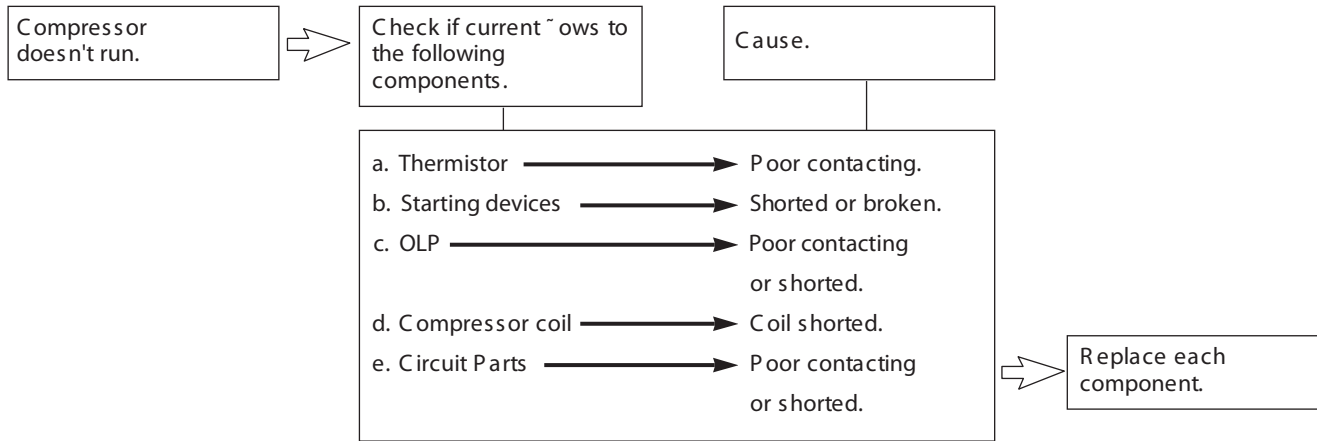


Figure 23

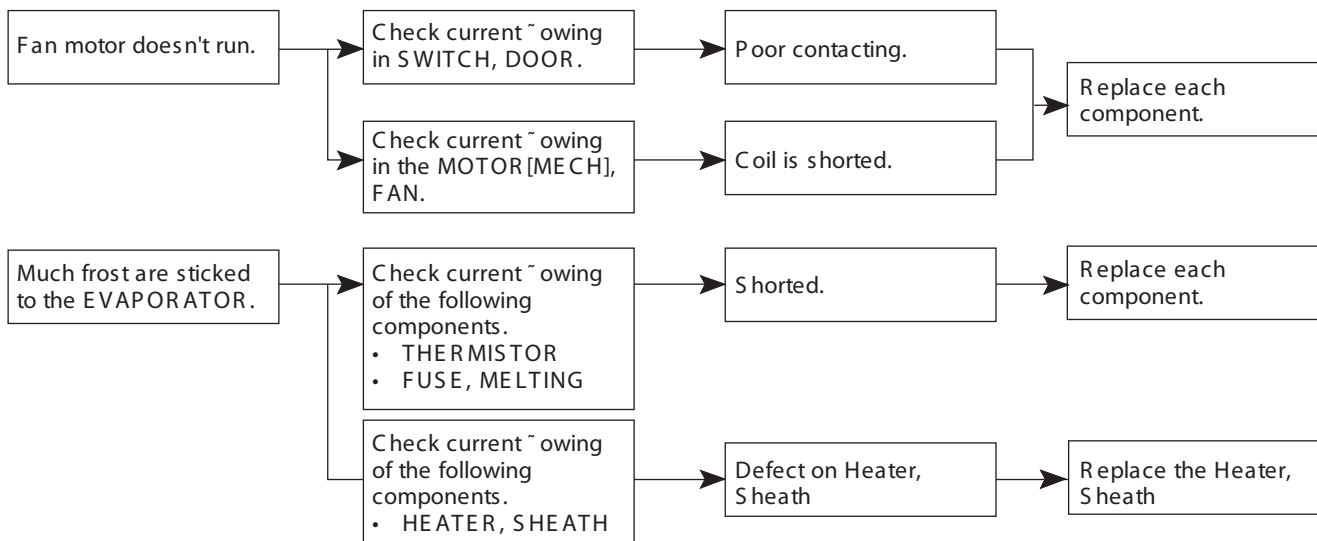
TROUBLESHOOTING (Mechanical Part)

3. ANOTHER ELECTRIC COMPONENTS

☒ Cooling is impossible



☒ Cooling ability is poor

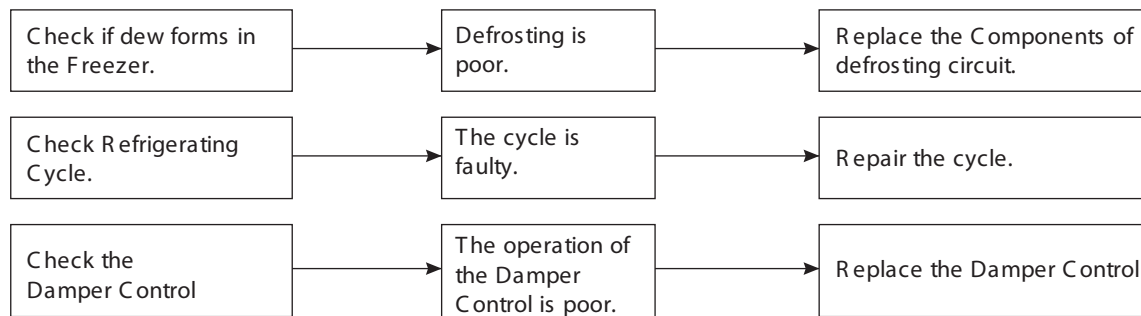


TROUBLESHOOTING (Mechanical Part)

4. SERVICE DIAGNOSIS CHART

| COMPLAINT | POINTS TO BE CHECKED | REMEDY |
|---|---|--|
| Cooling is impossible. | <ul style="list-style-type: none"> ☒ Is the power cord unplugged from the outlet? ☒ Check if the power switch is set to OFF. ☒ Check if the fuse of power switch is shorted. ☒ Measure the voltage of power outlet. | <ul style="list-style-type: none"> ☒ Plug to the outlet. ☒ Set the switch to ON. ☒ Replace a regular fuse. ☒ If voltage is low, wire newly. |
| Cooling ability is poor. | <ul style="list-style-type: none"> ☒ Check if the set is placed close to wall. ☒ Check if the set is placed close to stove, gas cooker and direct rays. ☒ Is the ambient temperature high or the room door closed? ☒ Check if put in is hot. ☒ Did you open the door of the set too often or check if the door is closed up? ☒ Check if the Damper Control is set to "cold-position". | <ul style="list-style-type: none"> ☒ Place the set with the space of about 10cm. ☒ Place the set apart from these heat appliances. ☒ Make the ambient temperature below. ☒ Put in foods after cooled down. ☒ Don't open the door too often and close it firmly. ☒ Set the control to mid-position. |
| Foods in the Refrigerator are frozen. | <ul style="list-style-type: none"> ☒ Is foods placed in cooling air outlet? ☒ Check if the control is set to "cold-position". ☒ Is the ambient temperature below 5°C? | <ul style="list-style-type: none"> ☒ Place foods in high temperature section. (Front Part) ☒ Set the control to "mid-position". ☒ Set the control to "warm-position". |
| Dew or ice forms in the chamber of the set. | <ul style="list-style-type: none"> ☒ Is liquid food stored? ☒ Check if put in is hot. ☒ Did you open the door of the set too often or check if the door is closed up. | <ul style="list-style-type: none"> ☒ Seal up liquid foods with wrap. ☒ Put in foods after cooled down. ☒ Don't open the door too often and close it firmly. |
| Dew forms in the Exterior Case. | <ul style="list-style-type: none"> ☒ Check if ambient temperature and humidity of surrounding air are high. ☒ Is there gap in the door packed? | <ul style="list-style-type: none"> ☒ Wipe dew with a dry cloth. This occurrence is solved naturally in low temperature and humidity. ☒ Fill up the gap. |
| Abnormal noise generates. | <ul style="list-style-type: none"> ☒ Are the set positioned in a firm and even place? ☒ Are any unnecessary objects set in the back side of the set? ☒ Check if the Tray Drip is not firmly fixed. ☒ Check if the cover of mechanical room in below and front side is taken out. | <ul style="list-style-type: none"> ☒ Adjust the Adjust S crew, and position in the firm place. ☒ Remove the objects. ☒ Fix it firmly on the original position. ☒ Place the cover at the original position. |
| To close the door is not handy. | <ul style="list-style-type: none"> ☒ Check if the door packing is dirty with oil such as juice. ☒ Is the set positioned in a firm and even place? ☒ Is too much food putted in the set? | <ul style="list-style-type: none"> ☒ Clean the door packing. ☒ Position in the firm place and adjust the Adjust S crew. ☒ Keep foods not to reach the door. |
| Ice and foods smell unpleasant. | <ul style="list-style-type: none"> ☒ Check if the inside of the set is dirty. ☒ Did you keep smelly foods without wrapping? ☒ It smells of plastic. | <ul style="list-style-type: none"> ☒ Clean the inside of the set. ☒ Wrap smelly foods. ☒ The new products smells of plastic, but it is eliminated after 1-2 weeks. |

☒ In addition to the items described left, refer to the followings to solve the complaint.



TROUBLESHOOTING (Mechanical Part)

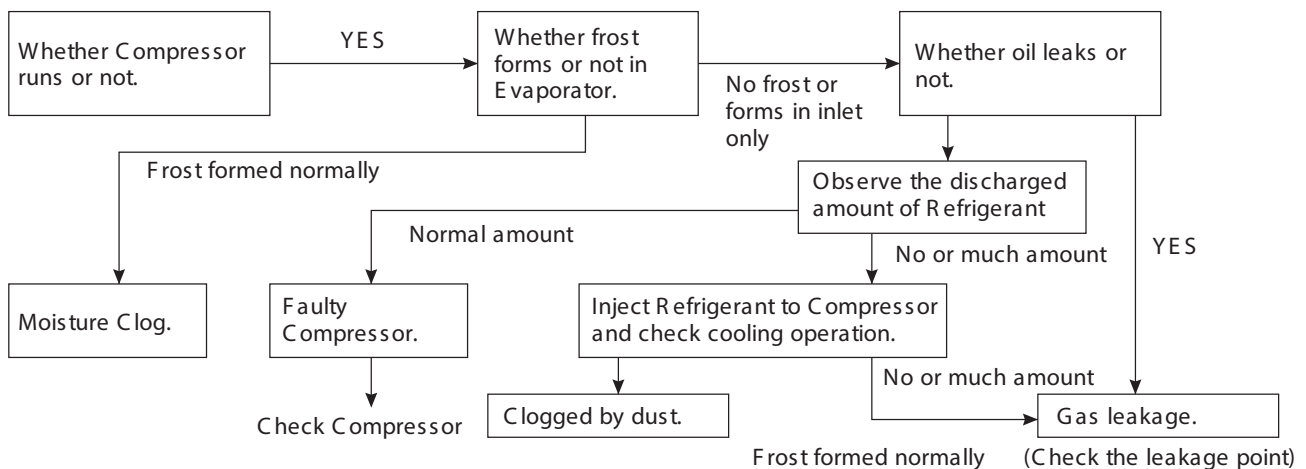
5. REFRIGERATING CYCLE

▼ Troubleshooting Chart

| CAUSE | | STATE OF THE SET | STATE OF THE EVAPORATOR | TEMPERATURE OF THE COMPRESSOR | REMARKS |
|-----------------------|-----------------|--|--|--|--|
| LEAKAGE | PARTIAL LEAKAGE | Freezer room and Refrigerator don't cool normally. | Low ~ owing sound of Refrigerant is heard and frost forms in inlet only | A little high more than ambient temperature. | <ul style="list-style-type: none"> A little R efrigerant discharges. Normal cooling is possible when injecting of R efrigerant the regular amount. |
| | WHOLE LEAKAGE | Freezer room and Refrigerator don't cool normally. | Flowing sound of Refrigerant is not heard and frost isn't formed. | E qual to ambient temperature. | <ul style="list-style-type: none"> No discharging of R efrigerant. Normal cooling is possible when injecting of R efrigerant the regular amount. |
| CLOGGED BY DUST | PARTIAL CLOG | Freeze room and Refrigerator don't cool normally. | Flowing sound of Refrigerant is heard and frost forms in inlet only. | A little high more than ambient temperature. | <ul style="list-style-type: none"> Normal discharging of refrigerant. The capillary tube is faulty. |
| | WHOLE CLOG | Freezer room and Refrigerator don't cool. | Flowing sound of Refrigerant is not heard and frost isn't formed. | E qual to ambient temperature. | <ul style="list-style-type: none"> Normal discharging of R efrigerant. |
| MOISTURE CLOG | | Cooling operation stops periodically. | Flowing sound of Refrigerant is not heard and frost melts. | Low than ambient temperature | <ul style="list-style-type: none"> Cooling operation restarts when heating the inlet of capillary tube. |
| DEFECTIVE COMPRESSION | COMP-RESSION | Freezer and Refrigerator don't cool. | Low ~ owing sound of Refrigerant is heard and frost forms in inlet only. | A little high than ambient temperature. | <ul style="list-style-type: none"> The pressure of high pressure part in compressor is low. |
| | NO COMP-RESSION | No compressing operation. | Flowing sound of Refrigerant is not heard and no frost. | E qual to ambient temperature. | <ul style="list-style-type: none"> No pressure of high pressure part in the compressor. |

▼ Leakage Detection

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



TROUBLESHOOTING (Mechanical Part)

General Control of Refrigerating Cycle

| NO. | ITEMS | CONTENTS AND SPECIFICATIONS | REMARKS |
|-----|----------------------------|--|--|
| 1 | WELDING ROD | (1)H 30 <ul style="list-style-type: none"> Chemical Ingredients Ag : 30%, Cu : 27%, Zn : 23%, Cd : 20% Brazing Temperature : 710~840°C (2)Bcup-2 <ul style="list-style-type: none"> Chemical Ingredients Cu : About 93% P : 6.8~7.5% The rest : within 0.2% Brazing Temperature : 735~840°C | <ul style="list-style-type: none"> Recommend H34 containing 34% Ag in the Service Center. |
| 2 | FLUX | <ul style="list-style-type: none"> Ingredients and how to make Borax 30% Borax 35% Fluoridation kalium : 35% Water : 4% Mix the above ingredients and boil until they are transformed into liquid. | <ul style="list-style-type: none"> Make amount for only day. Holding period : 1 day Close the cover of container to prevent dust putting in the FLUX. Keep it in a stainless steel container. |
| 3 | LOKRING (Figure 23, 24) | (1)Both of the tube is inserted up to the stop. (2)Both of the LOKRING is pushed up to the stop (3)The bending point is not too close to the joint ending. (4)During the assembly it is important that both ends remain completely within the joint. | <ul style="list-style-type: none"> For a hermetically sealed metal/metal connection, the tube ends have to be clean. LOKPREP is distributed all of out-surface of the tube ends. |
| 4 | DRIER ASM | (1)Assemble the drier within 30min. after unpacking. (2)Keep the unpacked drier at the temperature of 80~100°C. | <ul style="list-style-type: none"> Don't keep the drier in a outdoors because humidity damages to it. |
| 5 | VACUUM | (1)When measuring with pirant Vacuum gauge the charging M/C, vacuum degree is within 1 Torr. (2)If the vacuum degree of the cycle inside is 10 Torr. below for low pressure and 20 Torr. for high pressure, it says no vacuum leakage state. (3)Vacuum degree of vacuum pump must be, 0.05 Torr. below after 5 min. (4)Vacuum degree must be same to the value described item above for more than 20 min. | <ul style="list-style-type: none"> Apply M/C Vacuum Gauge without fail. Perform vacuum operation until a proper vacuum degree is built up. If a proper vacuum degree isn't built up, check the leakage from the Cycle Pipe line part and Quick Coupler Connecting part. |
| 6 | DRY AND AIR NITROGEN GAS | (1)The pressure of dry air must be more han 12~16kg/cm ² (2)Temperature must be more than -20~-70°C. (3)Keep the pressure at 12~6kg/cm ² also when substituting dry air for Nitrogen Gas. | |
| 7 | NIPPLE AND COUPLER | (1)Check if gas leaks with soapy water. (2)Replace Quick Coupler in case of leakage. | <ul style="list-style-type: none"> Check if gas leaks from joint of the Coupler. |
| 8 | PIPE | <ul style="list-style-type: none"> Put all Joint Pipes in a clean box and cover tightly with the lid so that dust or humidity is not inserted. | |

TROUBLESHOOTING (Mechanical Part)

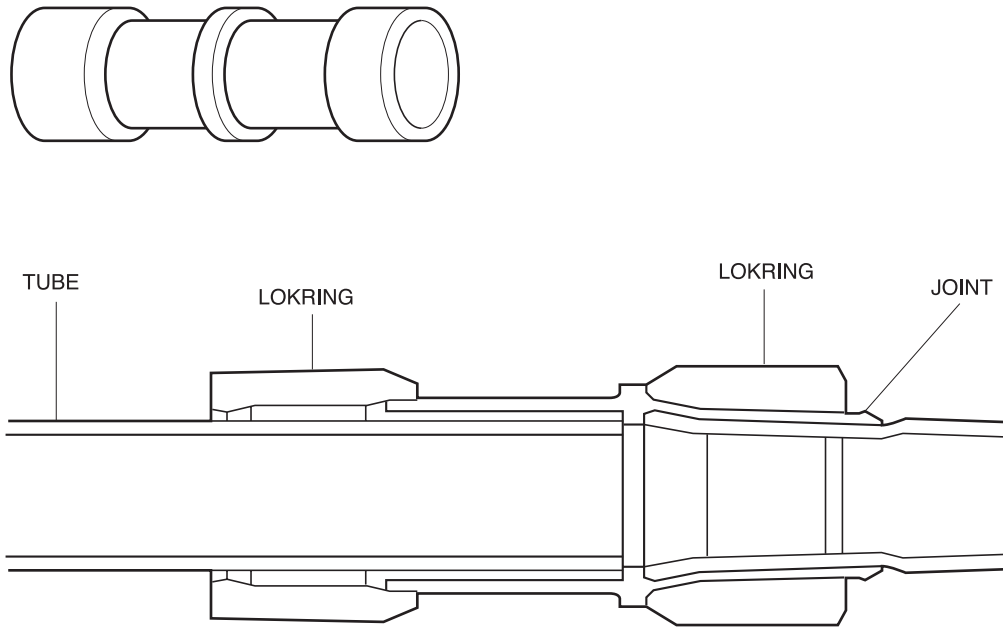


Figure 23. LOKRING

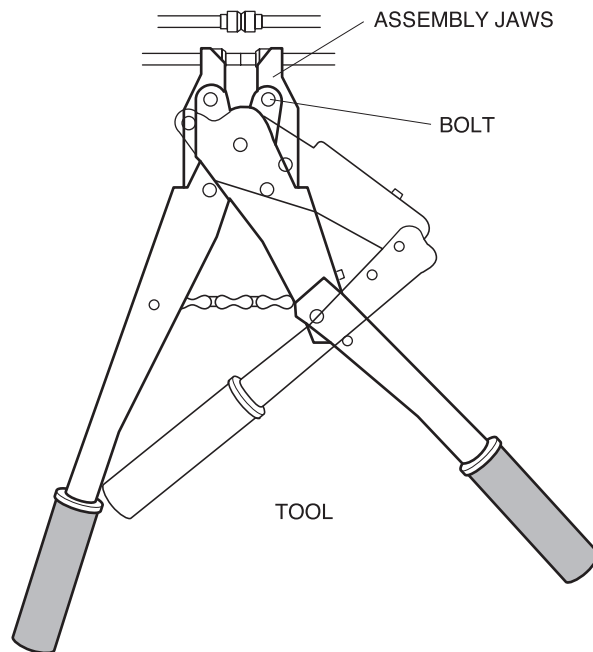


Figure 24. LOKRING TOOL

MICOM FUNCTION & PCB CIRCUIT EXPLANATION

1. FUNCTION EXPOSITION

1) FUNCTION

(1) When the appliance is plugged in, it is set to 3°C for the Refrigerator and -20°C for the Freezer. You can adjust the Refrigerator and the Freezer control temperature by pressing the FRZ. Temp button or REF. Temp button.

| Model Variety | ITEM |
|---|--|
| <p>Dot LED Tact *Color : White</p> <p>DOT Display ACQ90401823 ACQ90401824 ACQ90401825 ACQ90401847 ACQ90401850</p> <p>Exterior Display ACQ90419231 ACQ90419233</p> | <p>The diagram illustrates the control interface. At the top, a horizontal panel displays 'Freezer Temperature' and 'Refrigerator Temperature'. Below this, a central display shows temperature ranges and current settings: Freezer at -18°C and Refrigerator at 3°C. It includes 'Smart Inverter' branding and buttons for 'Express Freeze', 'Express Cool', and 'Eco Friendly'. Below the main panel is a vertical 'ThinQ' exterior display. This display shows two temperature readouts: the top one for Refrigerator Temperature and the bottom one for Freezer Temperature. It also features indicators for 'Express Cool', 'Express Freezing', 'Eco Friendly', and 'Display Lock'. A note at the bottom of the exterior display states '*Extra Function : Hold 3 seconds' and includes the 'Smart Inverter' logo.</p> |

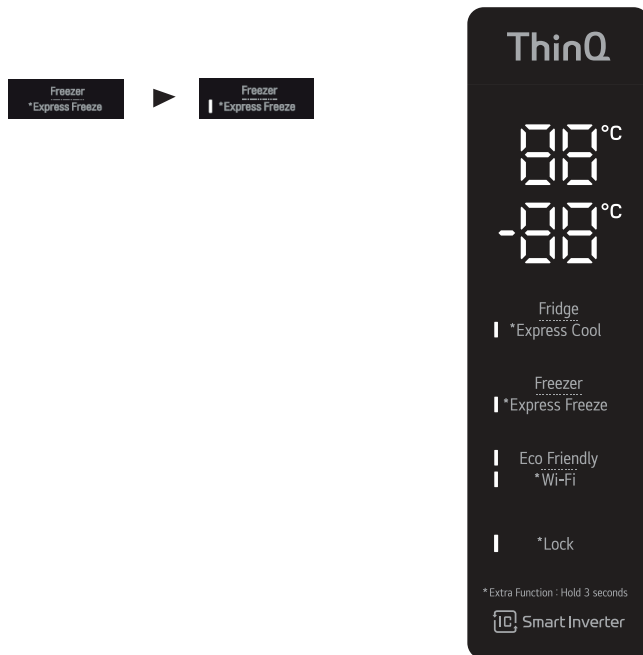
⊠ Display Power saving Mode

The display is always OFF, until door is opened.

MICOM FUNCTION & PCB CIRCUIT EXPLANATION

2) Express Frz.

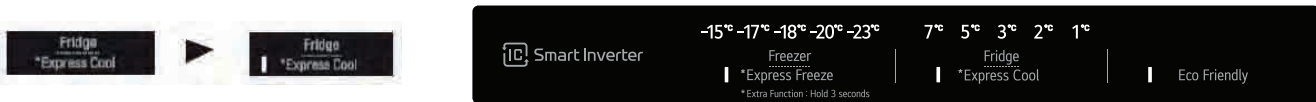
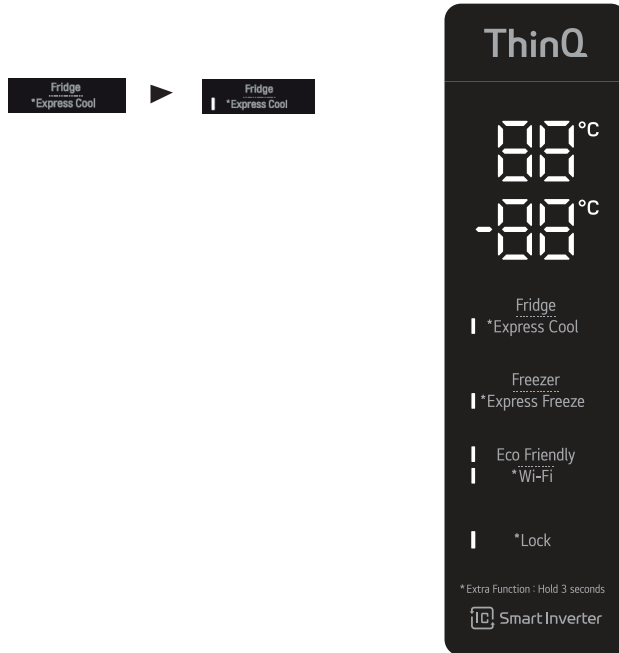
- Please select this function for prompt freezing.
- This function is used when you want to freeze the foods quickly. Press the Freezer Temp button for 3 seconds, and then the quick freeze operation starts with the lamp on.
- The Express Frz. operation takes about 24 hours. When its operation ends, it automatically returns to the previous temperature setting. If you want to stop the quick freeze operation, press the Freezer Temp button for 3 seconds, the lamp goes out, and the Express Frz. operation stops and the refrigerator returns to the previous temperature setting.



MICOM FUNCTION & PCB CIRCUIT EXPLANATION

3) Express Cool.

- Please select this function for prompt cool.
- This function is used when you want to cool the foods quickly. Press the Fridge Temp button for 3 seconds, and then the quick cooling operation starts with the lamp on.
- The Express cool. operation takes about 7 hours. When its operation ends, it automatically returns to the previous temperature setting. If you want to stop the quick cooling operation, press the Fridge Temp button for 3 seconds, the lamp goes out, and the Express Cool. operation stops and the refrigerator returns to the previous temperature setting.

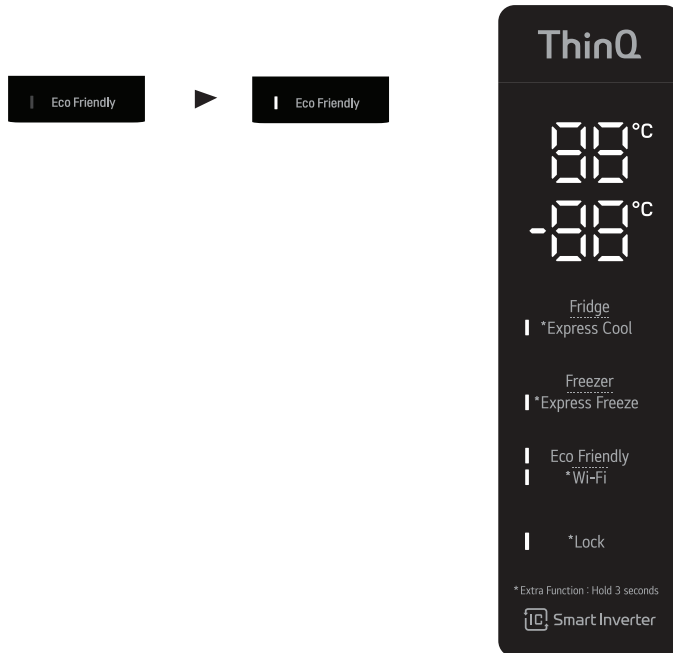


MICOM FUNCTION & PCB CIRCUIT EXPLANATION

4) Eco Friendly

This function makes the fridge-freezer work in a power saving mode which is useful for when you are away on holiday, by reducing energy consumption.

Pressing 'ECO FRIENDLY' starts operation with lamp on and pressing it again stops the operation.



NOTE :

When the Eco Friendly mode is "ON", the other buttons will not operate. When you come back from Eco Friendly, press the Eco Friendly mode off so that other buttons work and the refrigerator returns to previous temperature setting.

MICOM FUNCTION & PCB CIRCUIT EXPLANATION

5) Lock

For Exterior Display

- Pressing this button stops operation of other buttons.
- "Locking" or "Un-Locking" is repeated whenever pressing the LOCK button.
(For "Locking" press the "LOCK" button for 3 sec. For "Un-Locking" press the "LOCK" button for 3 sec.)
- When 'LOCK' is activated, pressing the other buttons would not work.



6) WI-FI Function

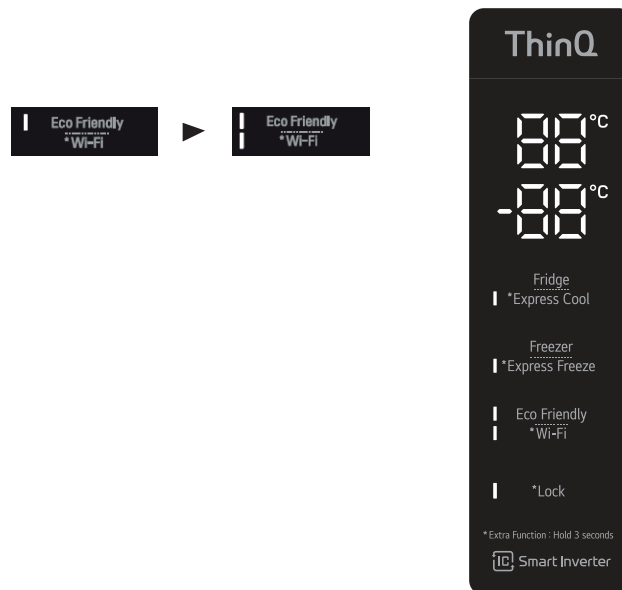
For Exterior Display

This is the function to monitor your unit's status with your smart-phone.

Press and hold Eco-Friendly button more than 3 sec. to register your unit to .

If the unit is registered to the smart-phone's app. WIFI Icon of the unit turns on.

*NOTE: This function is applied only to some model which have this function.



MICOM FUNCTION & PCB CIRCUIT EXPLANATION

7) Exhibition(Demo)Mode

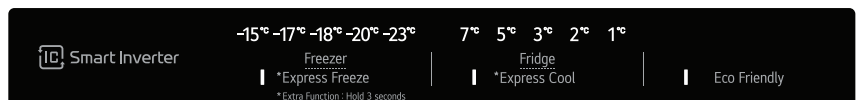
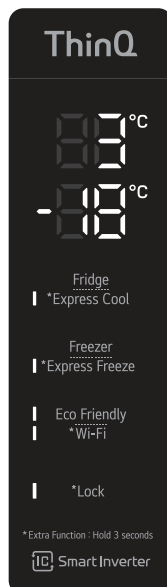
For Exterior Display

- Demo mode is available for displaying the refrigerator in a sales setting or similar condition.
- It allows the display, dispenser, and lights to operate without running the compressor and fan.
- To apply the DEMO mode, open the door and press and hold the REFRIGERATOR and press 3 times EXPRESS FRZ. buttons
- To exit the DEMO mode and return to normal operation, press and hold the REFRIGERATOR and press 3 times EXPRESS FRZ.



8)High Temperature alarm

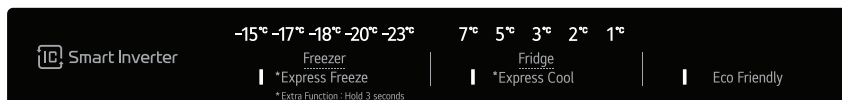
- When the freezer temperature is high, because of power failure, the freezer temperature LED blinks and alarm sounds.
- Press Freezer button to stop.
- This function could occur:
 - When the refrigerator is turned on.
 - When the freezer compartment is too warm.
 - When there is a power outage during long period.
 - When large amounts of warm food are placed in freezer.
 - When the freezer door is open too long or too frequently.



MICOM Error Code

▶ A+++ , A++ , A+

Show error mode when push 'Freezer temp' and 'express Freezing' button, simultaneously for 1 sec. (All on Mode)



| NO | Item | Error Code | | Contents | Remarks |
|----|-----------------------------------|--------------------|--------------|--|---|
| | | ●:LED ON ○:LED OFF | Freezer | | |
| | | Dot-Display | Exterior | | |
| 1 | Normal | temperature. | temperature. | - | Display Switch is normal |
| 2 | Failure of Freezer Sensor | ●●●●● ○○○○○ | EFS | Cut or short circuit wire | Check the connection of each sensor |
| 3 | Failure of Refrigerator Sensor | ●●●●● ○○○○○ | ErS | Cut or short circuit wire | |
| 4 | Failure of Freezer Defrost Sensor | ●●●●● ○○○○○ | EdS | Cut or short circuit wire | |
| 5 | Failure of outdoor Sensor | ○●●●● ○○○○○ | Ert | Cut or short circuit wire | |
| 6 | Poor of Freezer Defrost | ●●●●○ ○○○○○ | E dH | 120min later After starting defrost. If sensor doesn't be over 8°C. | |
| 7 | Failure of BLDC FAN Motor | ○○○○○ ○●●●● | EFF | Feedback signal was not detected with in 65 sec from BLDC Fan motor | BLDC Motor wire disconnection, Drive IC and TR Error |
| 8 | Failure of BLDC C-FAN Motor | ○○○○○ ●●●●● | ECF | | |
| 9 | Cycle Error | ●●●●● ○○○○○ | EFU | The difference of D-Sensor temperature isn't under the 3.5deg within 10min, after LQC mode started | Check the Compressor Cooling power |
| 10 | Wi-Fi Module Error | - | EOd | If there is no signal for communication between main and display PCB and Wi-Fi Module. | Lead wire short between main and Display PCB and Wi-Fi Module. transmission TR and receiving part |

MICOM Error Code

1. Error Code Summary



WARNING

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

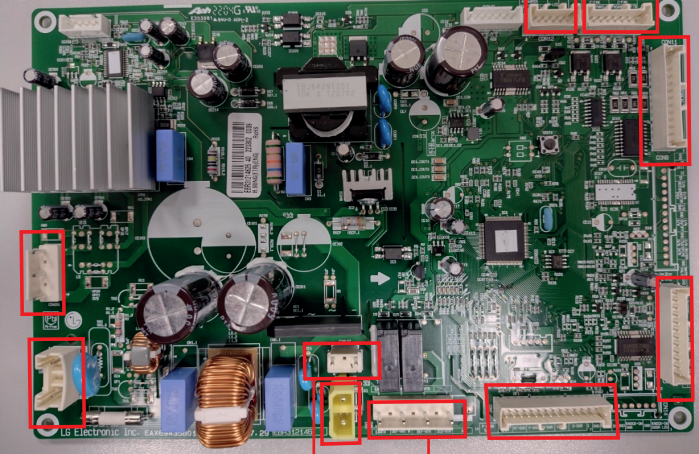
(1) FAILURE DIAGNOISS FUNCTION

○ : Normality

| NO | Item | Load control | | | | |
|----|---|---------------------|---------------------|-----------------|------------------------------------|----------------------------|
| | | COMP | C-FAN | F-FAN | Defrost Heater | R Damper |
| 1 | Normal | ○ | ○ | ○ | ○ | ○ |
| 2 | Failure of Freezer Sensor | 15M ON / 15M OFF | 15M ON / 15M OFF | ○ | ○ | ○ |
| 3 | Failure of Fridge Sensor | ○ | ○ | ○ | ○ | 10min OPEN/ 15mon CLOSE |
| 4 | Failure of Freezer Defrost Sensor | ○ | ○ | ○ | No Defrost (return immediately) | ○ |
| 5 | Failure of outdoor Sensor | ○ | ○ | ○ | ○ | ○ |
| 6 | Poor of Freezer Defrost | ○ | ○ | ○ | ○ | ○ |
| 7 | Failure of BLDC F-FAN Motor | ○ | ○ | Periodic ON/OFF | ○ | ○ |
| 8 | Failure of BLDC C-FAN Motor | ○ | Periodic ON/OFF | ○ | ○ | ○ |
| 9 | Cycle Error | ○ | ○ | ○ | ○ | ○ |
| 10 | Communication Error (External Display only) | ○ | ○ | ○ | ○ | ○ |

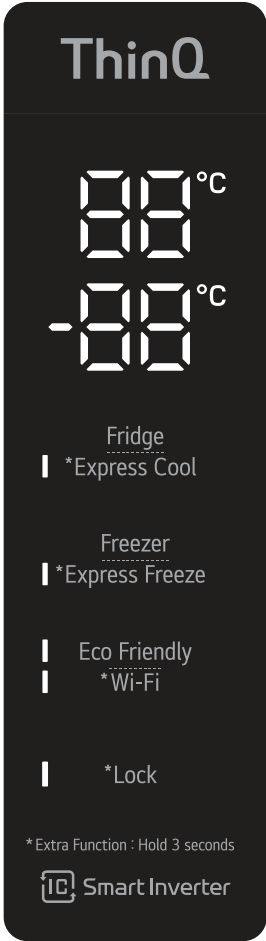
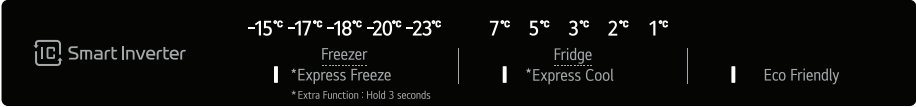
PCB Picture

1. Main PCB

| P/No & MFG | Picture |
|-------------|---|
| EBR312146xx |  |

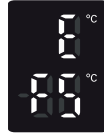
PCB Picture

2. Display PCB

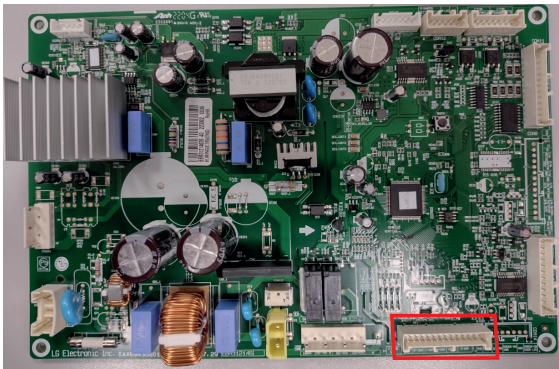
| P/No | Picture |
|------------|---|
| ACQ904192 |  <p>The image shows a vertical display PCB for the ThinQ refrigerator model ACQ904192. At the top, the 'ThinQ' logo is displayed. Below it are two digital temperature displays: the top one shows '00°C' and the bottom one shows '-00°C'. Under the top display, there is a 'Fridge' label and an indicator bar for '*Express Cool'. Under the bottom display, there is a 'Freezer' label and an indicator bar for '*Express Freeze'. Below these are two more indicator bars: one for 'Eco Friendly' with '*Wi-Fi' below it, and another for '*Lock'. At the bottom of the display area, it says '*Extra Function : Hold 3 seconds' and features the 'Smart Inverter' logo.</p> |
| ACQ904018` |  <p>The image shows a horizontal display PCB for the ThinQ refrigerator model ACQ904018. On the left is the 'Smart Inverter' logo. In the center, there are two sets of temperature indicators: the top set for the 'Freezer' shows '-15°C -17°C -18°C -20°C -23°C' with an indicator bar for '*Express Freeze' below it; the bottom set for the 'Fridge' shows '7°C 5°C 3°C 2°C 1°C' with an indicator bar for '*Express Cool' below it. On the right, there is an indicator bar for 'Eco Friendly'. At the bottom center, it says '*Extra Function : Hold 3 seconds'.</p> |

Troubleshooting With Error Display

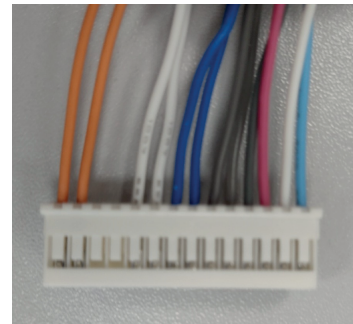
1. Freezer Sensor Error (EFS)



| Symptom | Check Point |
|---------|--|
| 1. EFS | 1. Check for a loose connection 2. Check Sensor or Resistance |



CON7

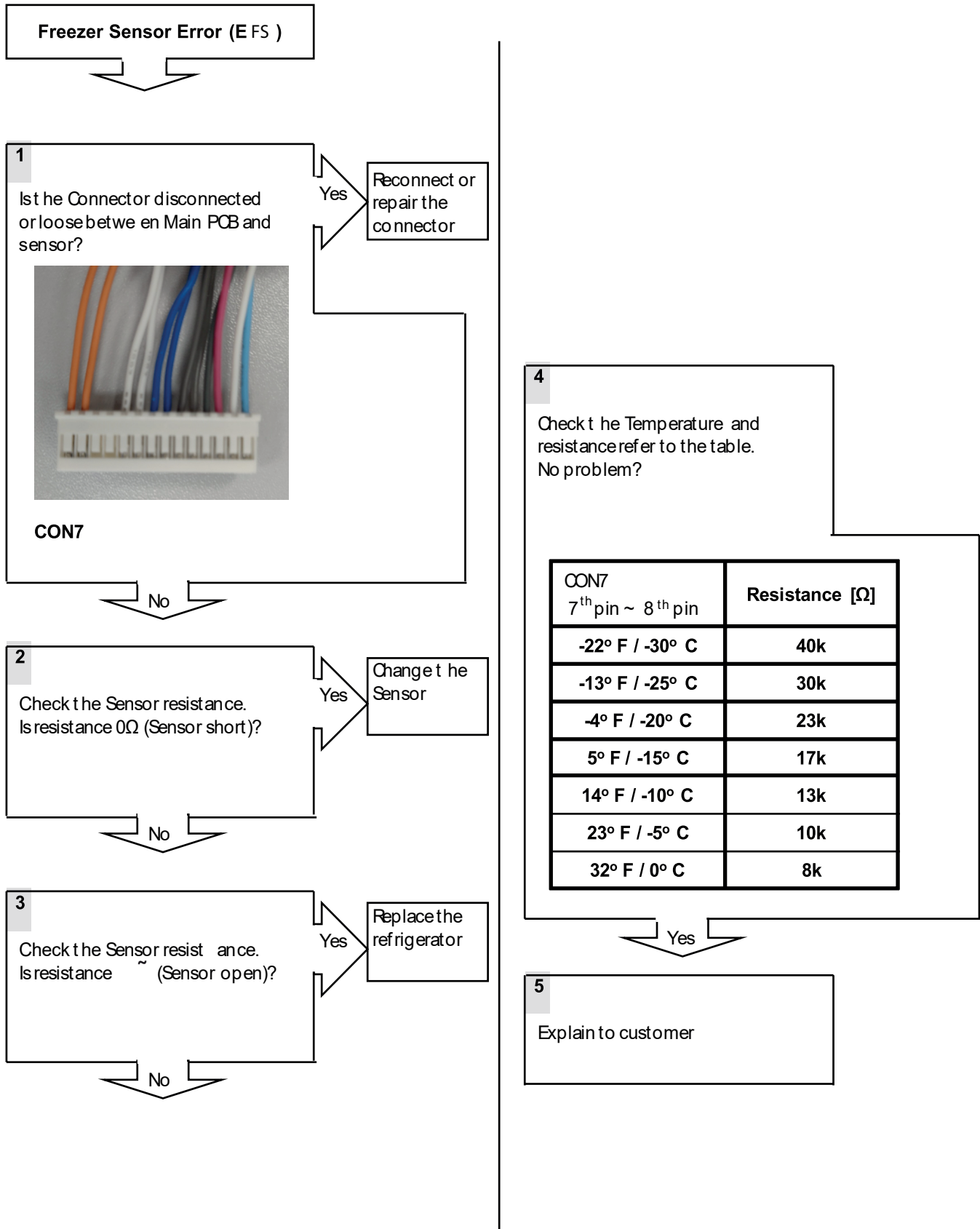


| | | Resistance [Ω] | |
|---|--|-------------------------|--------|
| CON7 7 th pin & 8 th pin | | Short | 0 |
| | | Open | OFF |
| | | Other | Normal |

| CON7 | | Resistance [Ω] |
|---|--|-------------------------|
| CON7 7 th pin & 8 th pin | | Resistance [Ω] |
| -22° F / -30° C | | 40k |
| -13° F / -25° C | | 30k |
| -4° F / -20° C | | 23k |
| 5° F / -15° C | | 17k |
| 14° F / -10° C | | 13k |
| 23° F / -5° C | | 10k |
| 32° F / 0° C | | 8k |

| CON7 | | |
|---------|--|------------|
| 1 BO | | D-SENSOR |
| 2 BO | | D-SENSOR |
| 3 WH/RD | | M/C-SENSOR |
| 4 WH/RD | | M/C-SENSOR |
| 5 WH | | R-SENSOR |
| 6 WH | | R-SENSOR |
| 7 BL | | F-SENSOR |
| 8 BL | | F-SENSOR |
| 9 GY | | RT-SENSOR |
| 10 GY | | RT-SENSOR |
| 11 GY | | R-DOOR S/W |
| 12 PK | | R-DOOR S/W |
| 13 WH | | F-DOOR S/W |
| 14 SB | | F-DOOR S/W |

Troubleshooting With Error Display

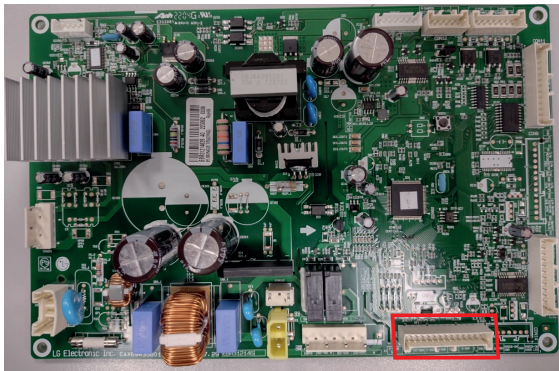


Troubleshooting With Error Display

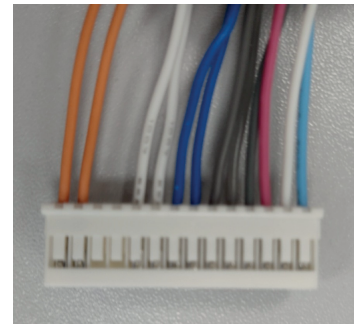
2. Refrigerator Sensor Error (ErS)



| Symptom | Check Point |
|---------|---|
| 1. ErS | 1. Check for a loose connection 2. Check Sensor Resistance |



CON7

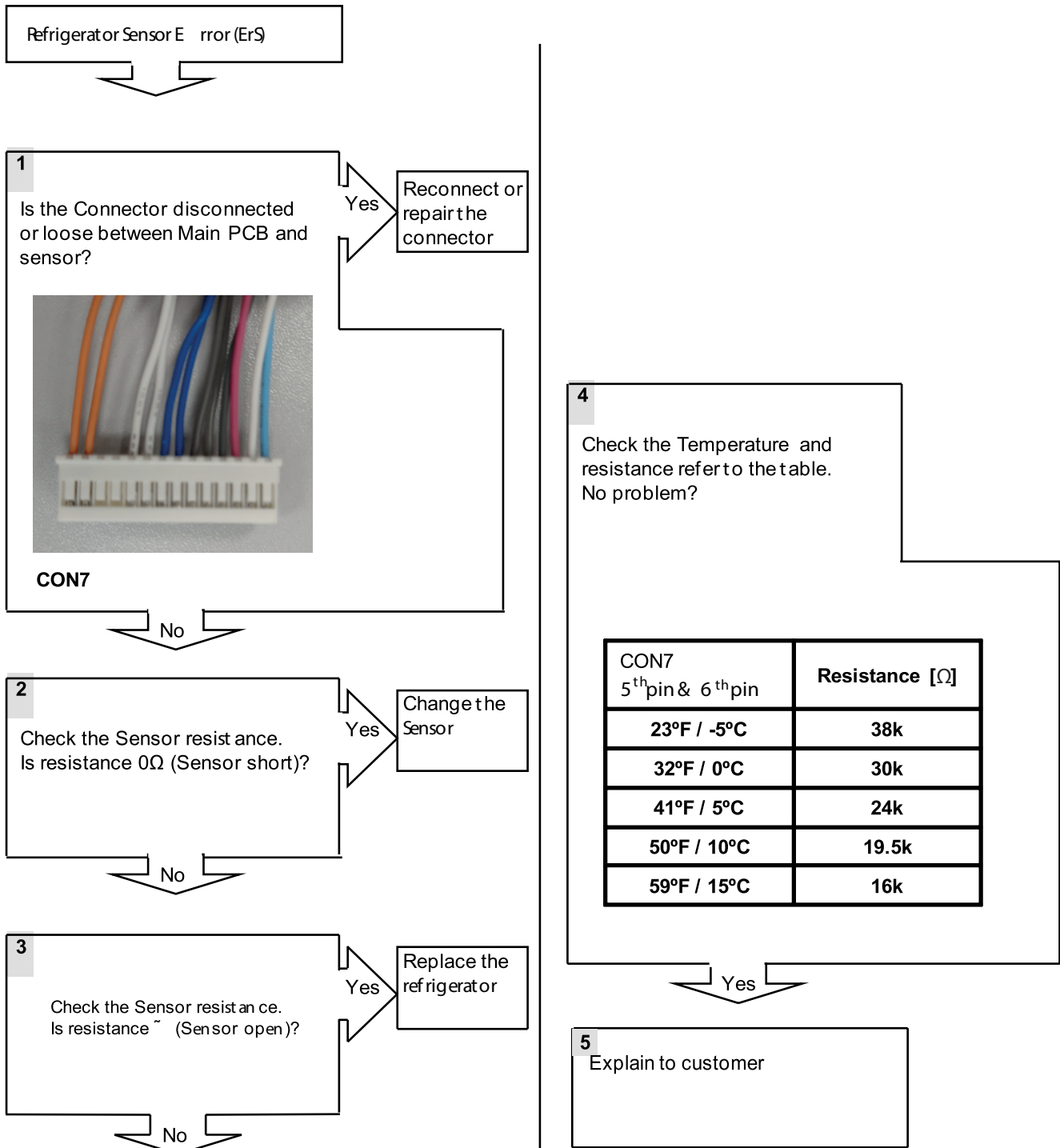


| CON7 5 th pin & 6 th pin | Resistance [Ω] | |
|---|-------------------------|-----|
| | Short | 0 |
| | Open | OFF |
| Other | Normal | |

| CON7 | | | |
|------|-------|--|------------|
| 1 | BO | | D-SENSOR |
| 2 | BO | | |
| 3 | WH/RD | | M/C-SENSOR |
| 4 | WH/RD | | |
| 5 | WH | | R-SENSOR |
| 6 | WH | | |
| 7 | BL | | F-SENSOR |
| 8 | BL | | |
| 9 | GY | | RT-SENSOR |
| 10 | GY | | |
| 11 | GY | | R-DOOR S/W |
| 12 | PK | | |
| 13 | WH | | F-DOOR S/W |
| 14 | SB | | |

| CON7 5 th pin & 6 th pin | Resistance [Ω] |
|---|-------------------------|
| 23° F / -5° C | 38k |
| 32° F / 0° C | 30k |
| 41° F / 5° C | 24k |
| 50° F / 10° C | 19.5k |
| 59° F / 15° C | 16k |

Troubleshooting With Error Display

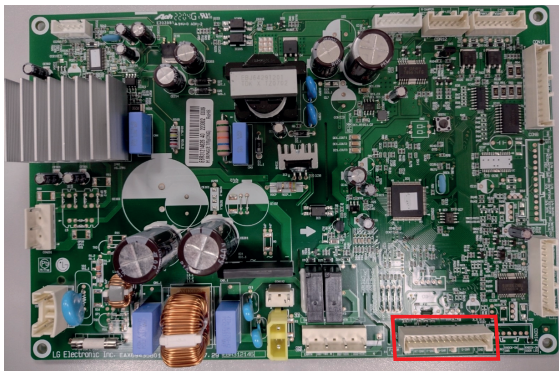


Troubleshooting With Error Display

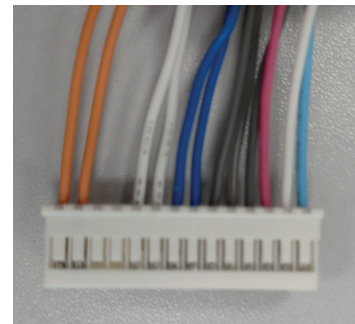
3. Refrigerator Sensor Error(Ert)



| Symptom | Check Point |
|---------|---|
| 1. Ert | 1. Check for a loose connection 2. Check Sensor Resistance |



CON7

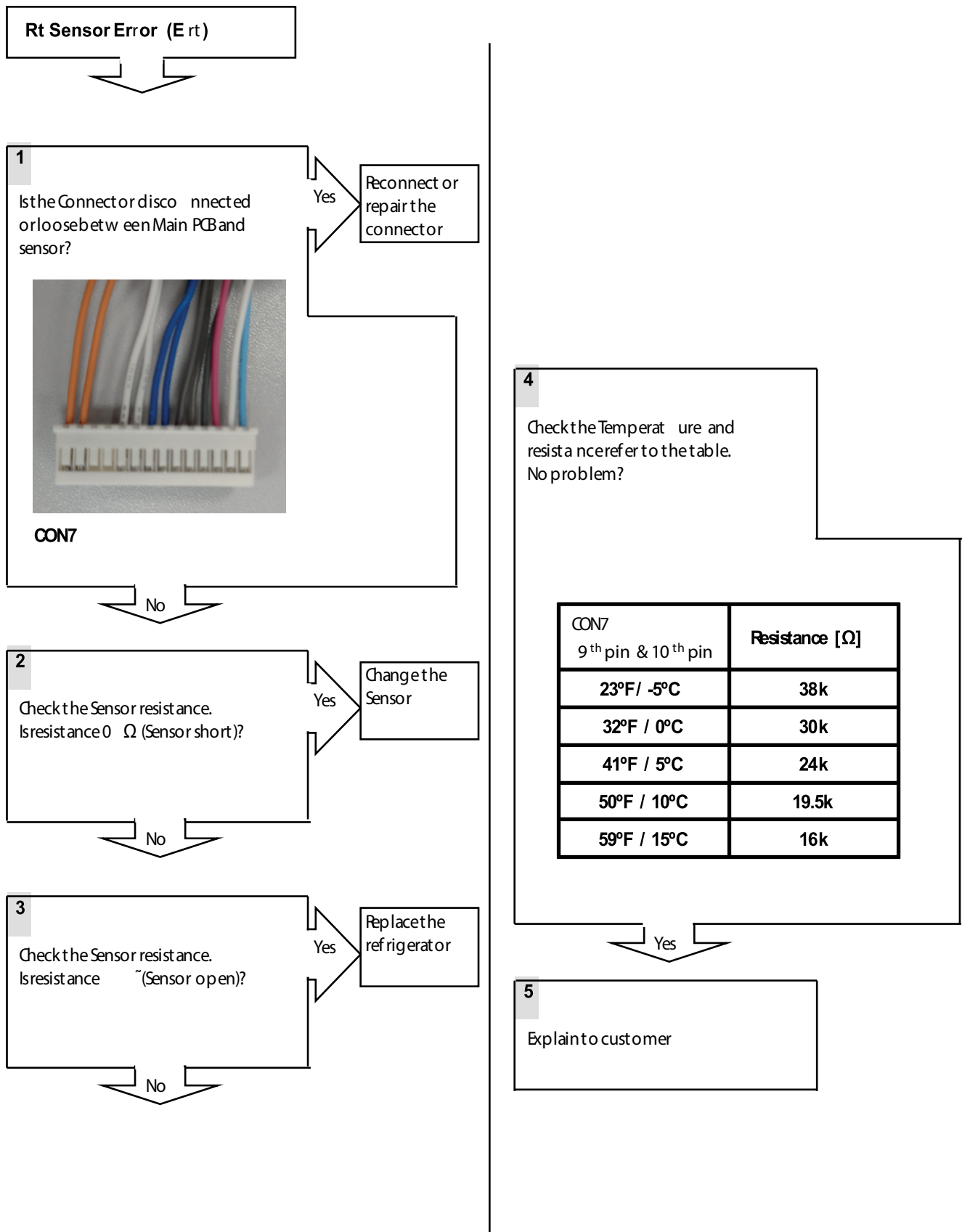


| | | Resistance [Ω] | |
|--|-------|----------------|--|
| CON7 9 th pin & 10 th pin | Short | 0 | |
| | Open | OFF | |
| | Other | Normal | |

| CON7 | | Resistance [Ω] |
|--|--|----------------|
| 9 th pin & 10 th pin | | |
| 23°F / -5°C | | 38k |
| 32°F / 0°C | | 30k |
| 41°F / 5°C | | 24k |
| 50°F / 10°C | | 19.5k |
| 59°F / 15°C | | 16k |

| Pin | Color | Component |
|-----|-------|------------|
| 1 | BO | D-SENSOR |
| 2 | BO | |
| 3 | WH/RD | M/C-SENSOR |
| 4 | WH/RD | |
| 5 | WH | R-SENSOR |
| 6 | WH | |
| 7 | BL | F-SENSOR |
| 8 | BL | |
| 9 | GY | RT-SENSOR |
| 10 | GY | |
| 11 | GY | R-DOOR S/W |
| 12 | PK | |
| 13 | WH | F-DOOR S/W |
| 14 | SB | |

Troubleshooting With Error Display

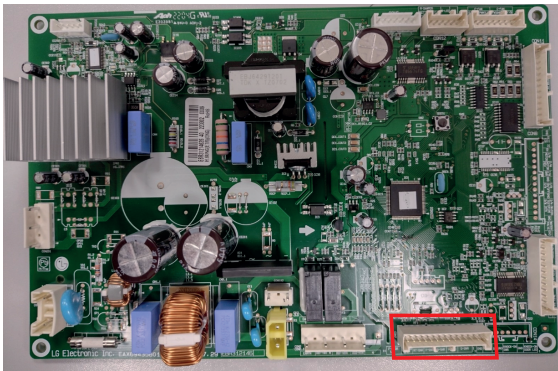


Troubleshooting With Error Display

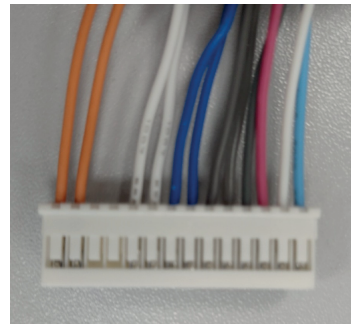
4. Defrost Sensor Error (FdS)



| Symptom | Check Point |
|---------|---|
| 1. FdS | 1. Check for a loose connection 2. Check Sensor Resistance |



CON7

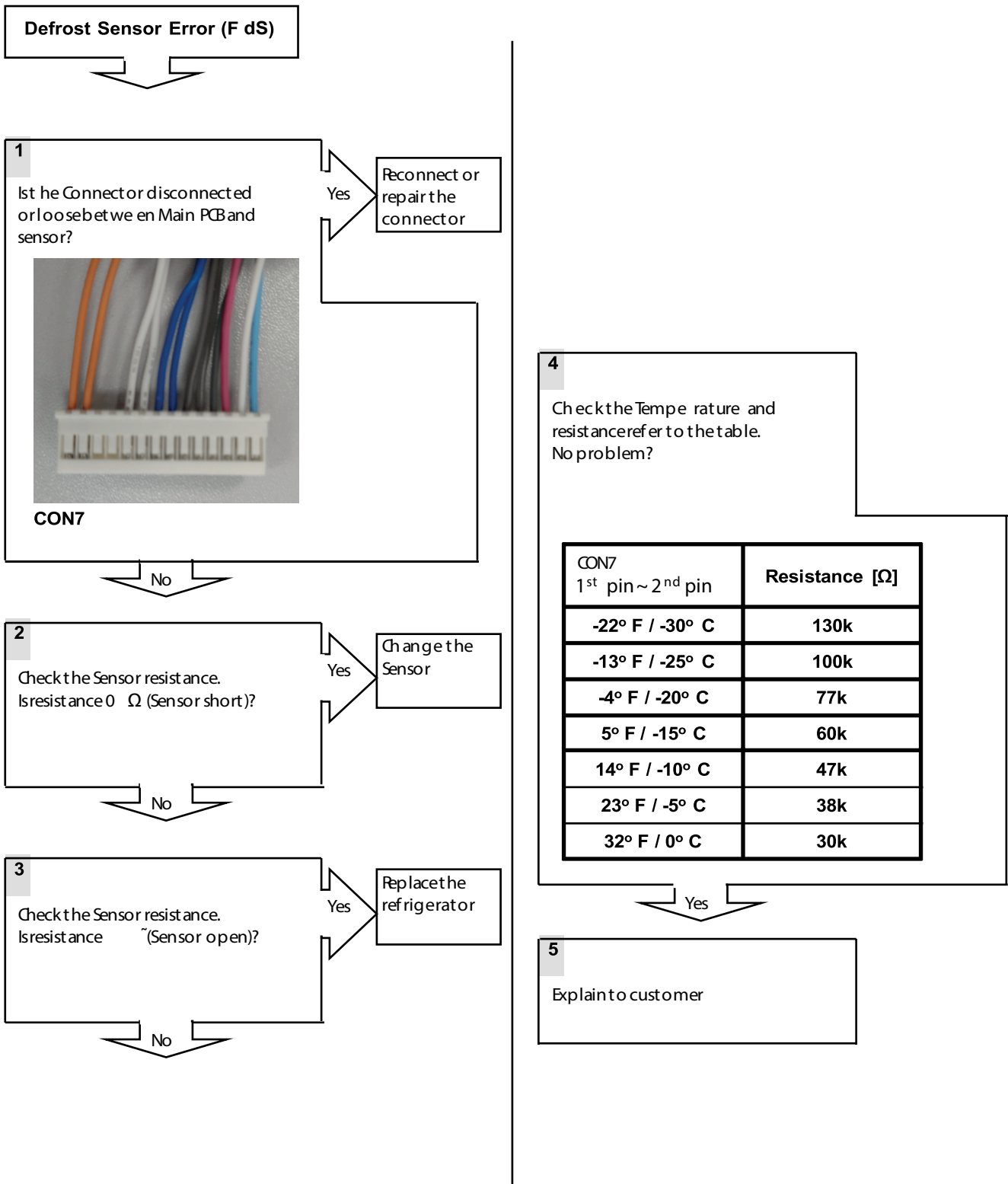


| | | Resistance [Ω] | |
|---|--|-------------------------|--------|
| CON7 1 st pin & 2 nd pin | | Short | 0 |
| | | Open | OFF |
| | | Other | Normal |

| CON7 | | Resistance [Ω] |
|---|--|-------------------------|
| 1 st pin ~ 2 nd pin | | |
| -22° F / -30° C | | 130k |
| -13° F / -25° C | | 100k |
| -4° F / -20° C | | 77k |
| 5° F / -15° C | | 60k |
| 14° F / -10° C | | 47k |
| 23° F / -5° C | | 38k |
| 32° F / 0° C | | 30k |

| Pin | Color | Component |
|-----|-------|------------|
| 1 | BO | D-SENSOR |
| 2 | BO | M/C-SENSOR |
| 3 | WH/RD | R-SENSOR |
| 4 | WH/RD | F-SENSOR |
| 5 | WH | RT-SENSOR |
| 6 | WH | R-DOOR S/W |
| 7 | BL | F-DOOR S/W |
| 8 | BL | |
| 9 | GY | |
| 10 | GY | |
| 11 | GY | |
| 12 | PK | |
| 13 | WH | |
| 14 | SB | |

Troubleshooting With Error Display

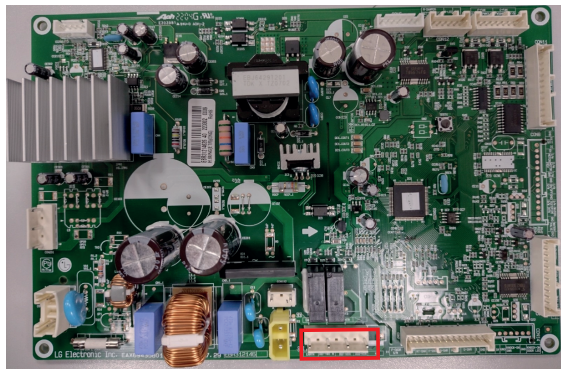


Troubleshooting With Error Display

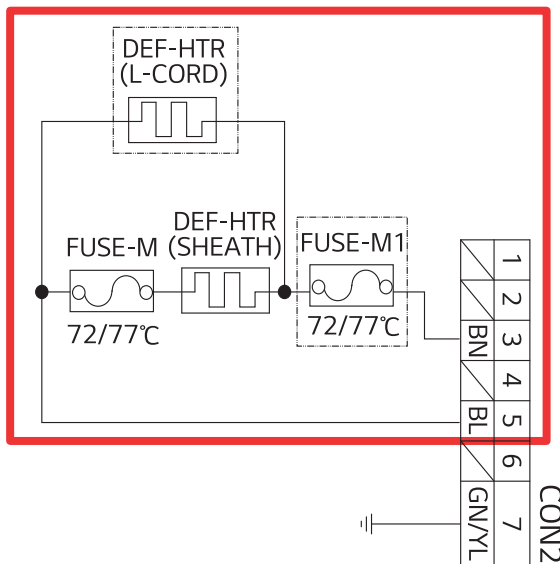
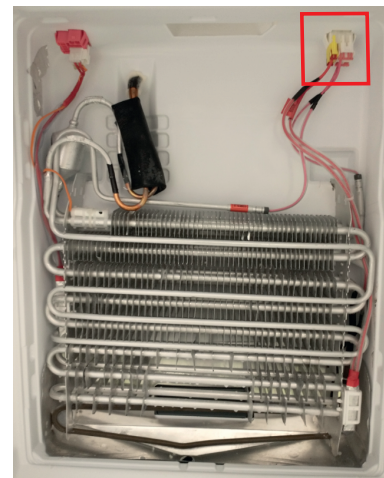
5. Defrost Heater Error (FdH)



| Symptom | Check Point |
|---------|--|
| 1. FdH | <ol style="list-style-type: none"> 1. Check the door gasket 2. Check the Defrost control part 3. Check the PCB output voltage |



CON2

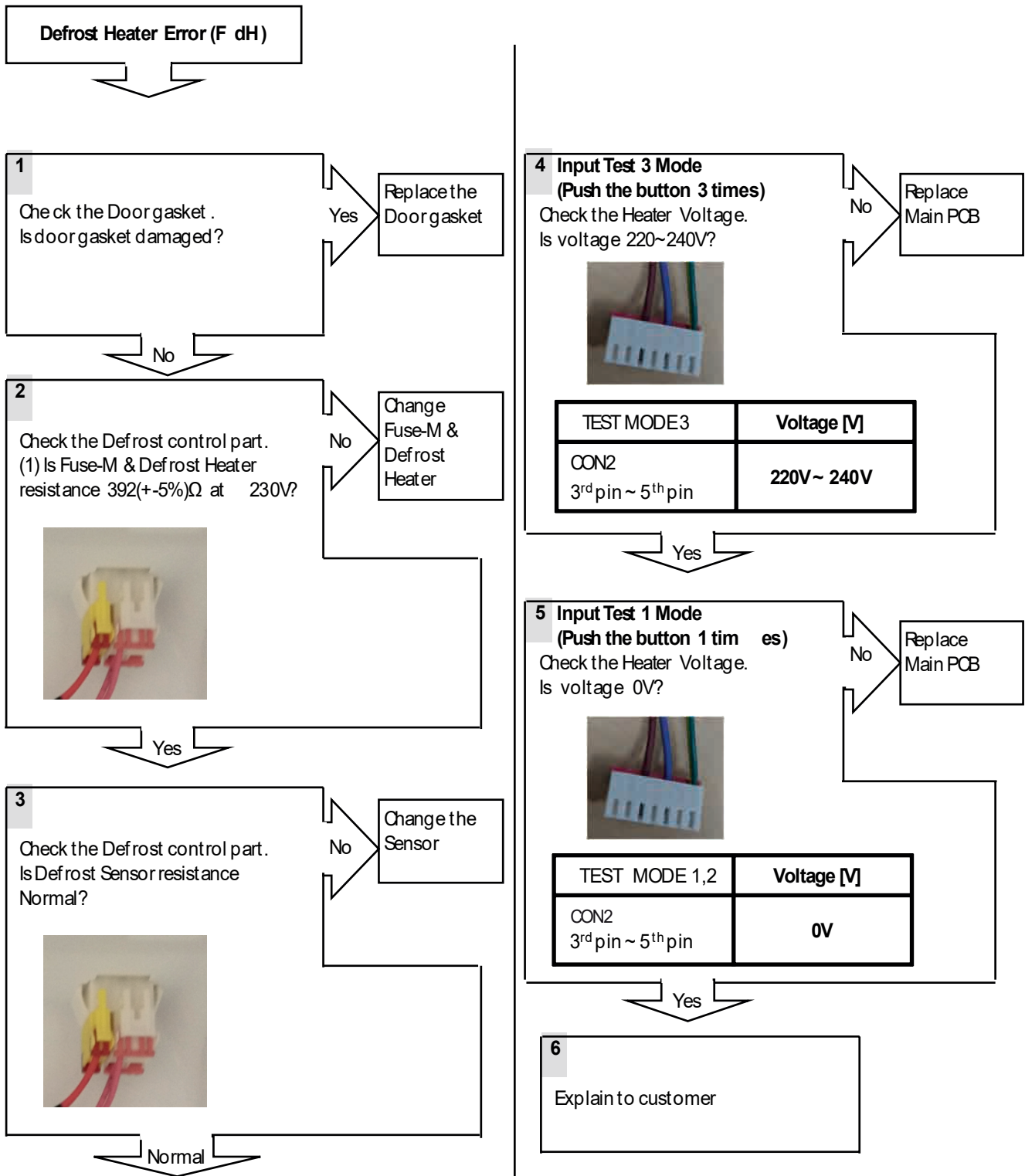


| Part | Resistance [Ω] |
|-------------------------|-------------------------------|
| FUSE-M & Defrost Heater | 230V : 392(+/-5%) Ω |
| Defrost Sensor | Normal |

| TEST MODE 1,2 | Voltage [V] |
|---|-------------|
| CON2 3 rd pin ~ 5 th pin | 0V |

| TEST MODE 3 | Voltage [V] |
|---|-------------|
| CON2 3 rd pin ~ 5 th pin | 220V~ 240V |

Troubleshooting With Error Display

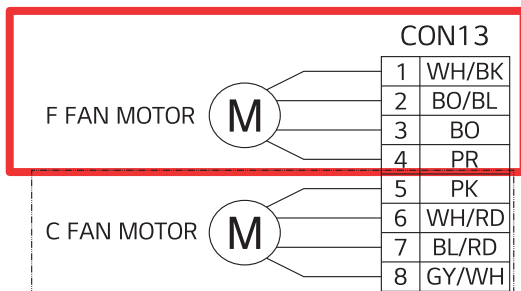
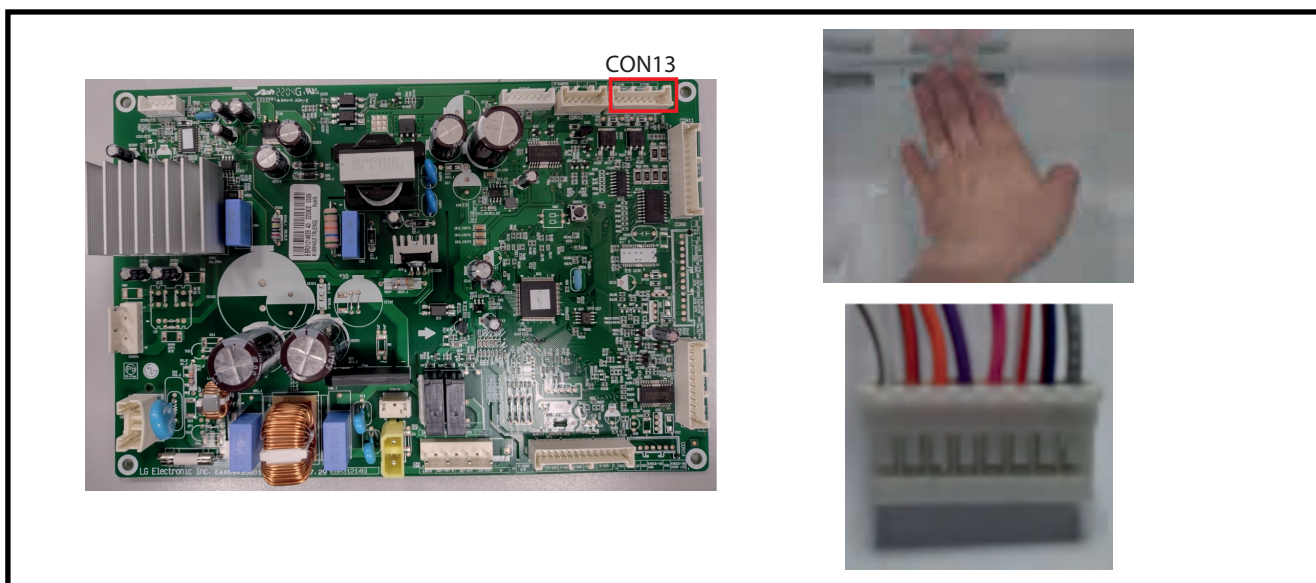


Troubleshooting With Error Display

6. Freezer Fan Error (E FF)

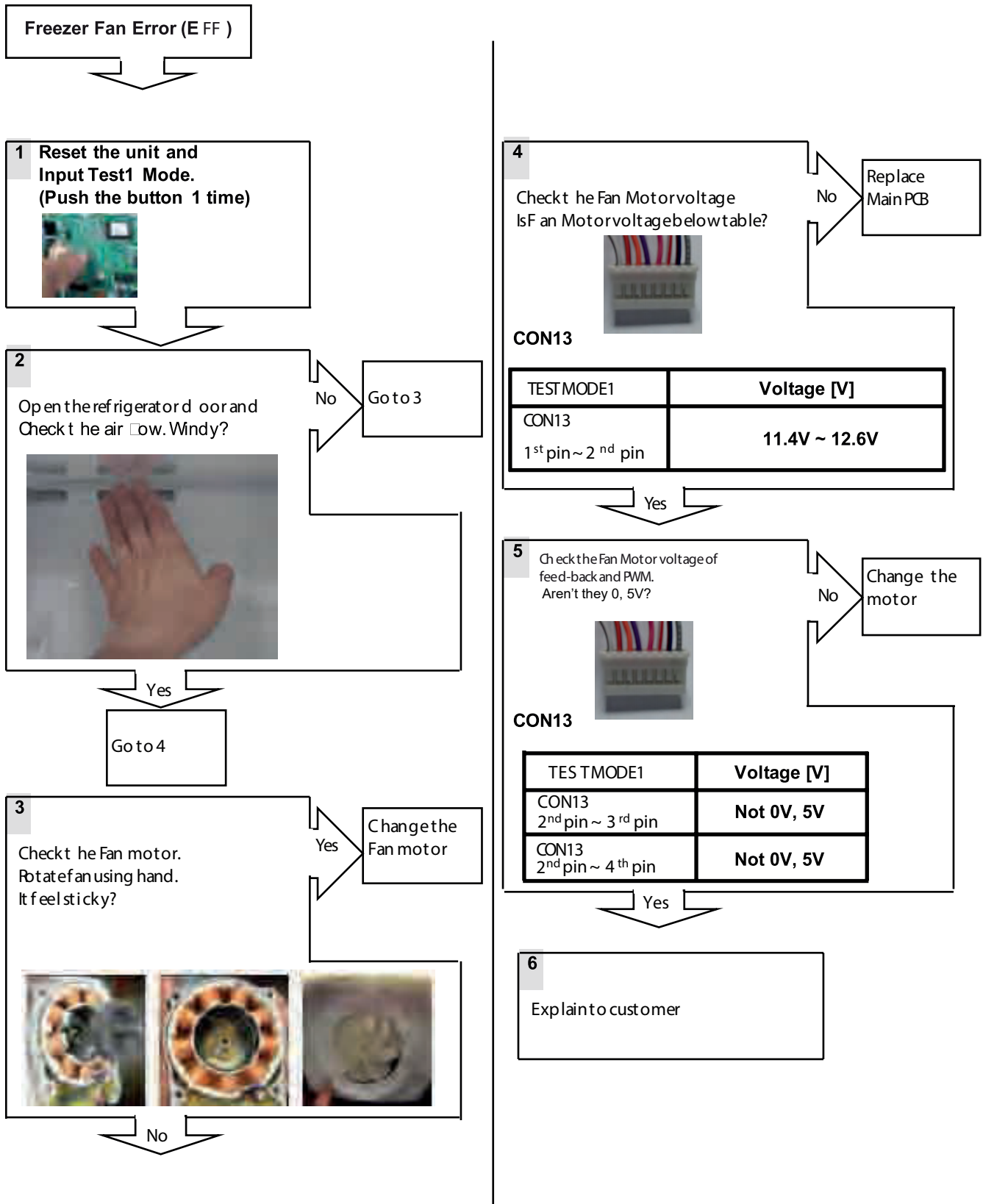


| Symptom | CheckPoint |
|---------|---|
| 1. E FF | 1. Check the air flow 2. Check the PCB Fan motor voltage |



| TEST MODE 1 | Voltage [V] |
|--|--------------|
| CON13 1 st pin & 2 nd pin | 11.4V~ 12.6V |
| CON13 2 st pin & 3 rd pin | Not 0V, 5V |
| CON13 2 nd pin & 4 th pin | Not 0V, 5V |

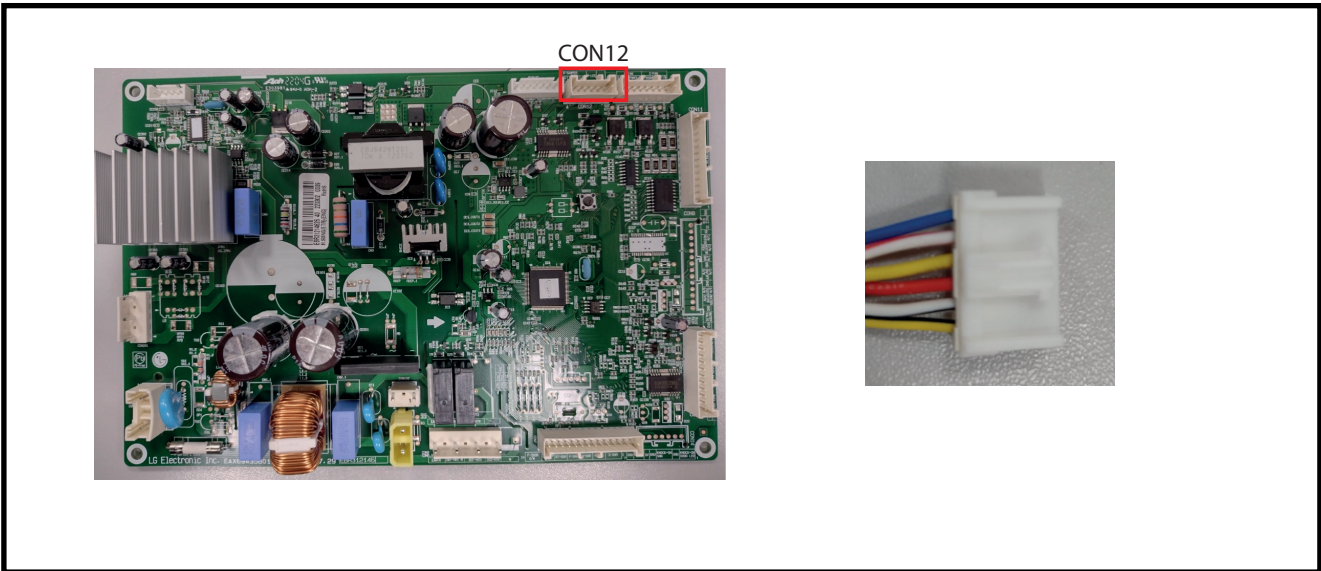
Troubleshooting With Error Display



Troubleshooting Without Error Display

1. Refrigerator room lamp doesn't work

| Symptom | CheckPoint |
|--|---|
| 1. Refrigerator room lamp doesn't work | 1. Check the refrigerator door switch sticky 2. Check the door S/W resistance 3. Check the LED Lamp |



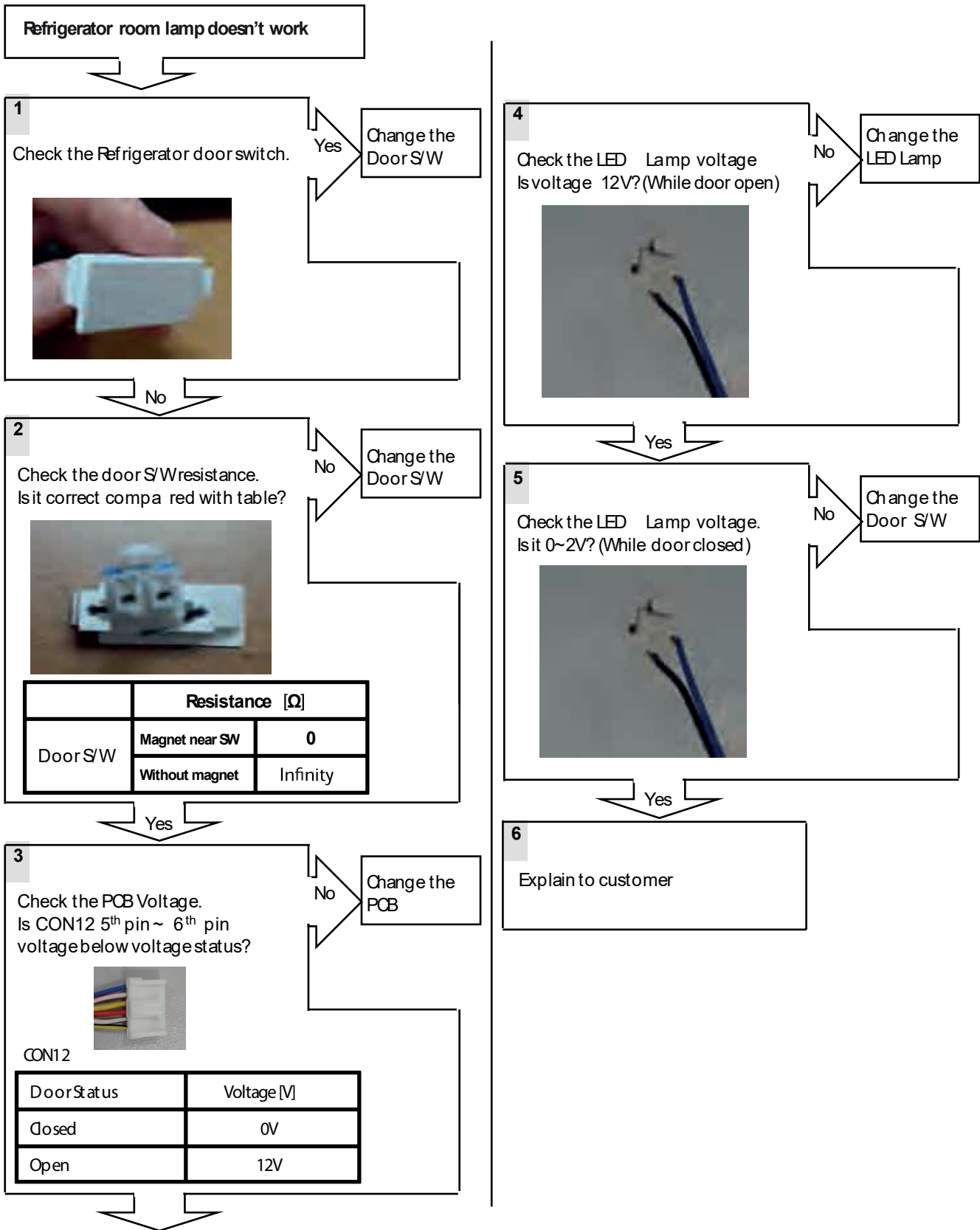
CON12

| | | |
|---|---------|--|
| 1 | BL | |
| 2 | WH/RD | |
| 3 | YL | |
| 4 | RD | |
| 5 | WH/BK | |
| 6 | YL / BK | |

| | Resistance(Ω) | |
|---------------------|------------------------|-----------|
| Door S/W Resistance | Door close | Door open |
| | 0 Ω | Infinity |

| | Voltage(V) | |
|--|------------|-------------|
| CON12 5 th pin & 6 th pin | Door Open | Door Closed |
| | 12V | 0V |

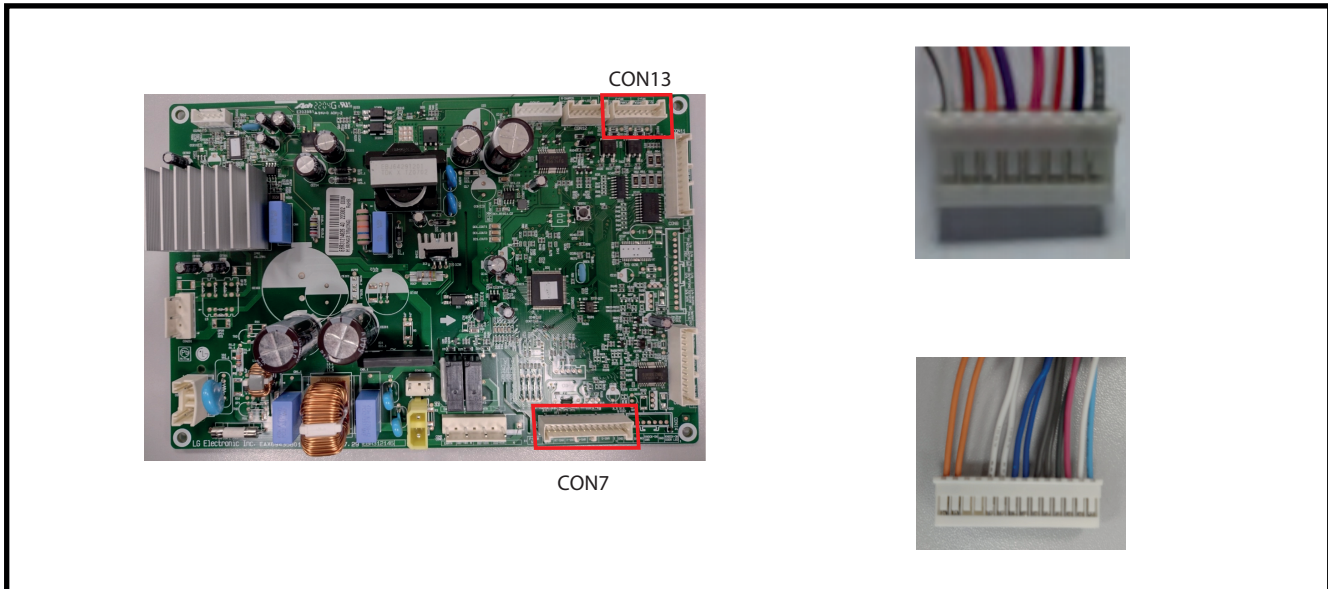
Troubleshooting Without Error Display



Troubleshooting Without Error Display

2. Poor cooling in Freezer compartment

| Symptom | Check Point |
|---------------------------------|---|
| 1. Poor cooling in freezer room | 1. Check the F-sensor resistance 2. Check the air flow 3. Check the air Temperature 4. Check the F-Fan motor voltage |



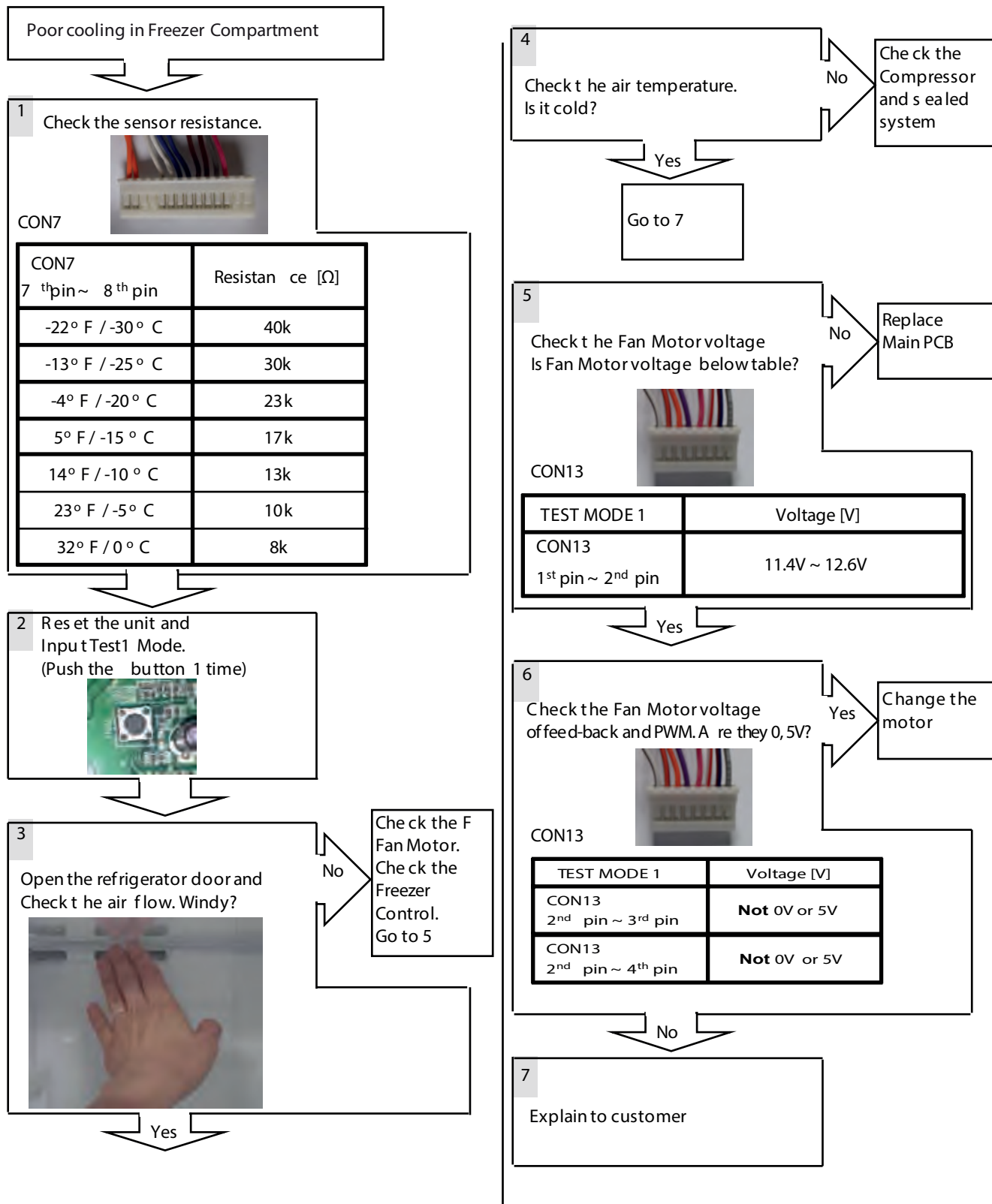
| CON7 | Resistance [Ω] | |
|---------|------------------|--|
| 1 BO | | |
| 2 BO | | |
| 3 WH/RD | | |
| 4 WH/RD | | |
| 5 WH | | |
| 6 WH | | |
| 7 BL | | |
| 8 BL | | |
| 9 GY | | |
| 10 GY | | |
| 11 GY | | |
| 12 PK | | |
| 13 WH | | |
| 14 SB | | |

| TEST MODE 1,2 | Voltage [V] |
|--|--------------|
| CON13 1 st pin ~ 2 nd pin | 11.4V-12.6V |
| CON13 2 nd pin ~ 3 rd pin | Not 0V or 5V |
| CON13 2 nd pin ~ 4 th pin | Not 0V or 5V |

| CON7 | | Resistance [Ω] | |
|---------------------------------------|--|------------------|-----|
| 7 th ~ 8 th pin | | -22° F / -30° C | 40k |
| | | -13° F / -25° C | 30k |
| | | -4° F / -20° C | 23k |
| | | 5° F / -15° C | 17k |
| | | 14° F / -10° C | 13k |
| | | 23° F / -5° C | 10k |
| | | 32° F / 0° C | 8k |

| CON13 | |
|-----------------|---------|
| F FAN MOTOR (M) | 1 WH/BK |
| | 2 BO/BL |
| | 3 BO |
| | 4 PR |
| | 5 PK |
| C FAN MOTOR (M) | 6 WH/RD |
| | 7 BL/RD |
| | 8 GY/WH |

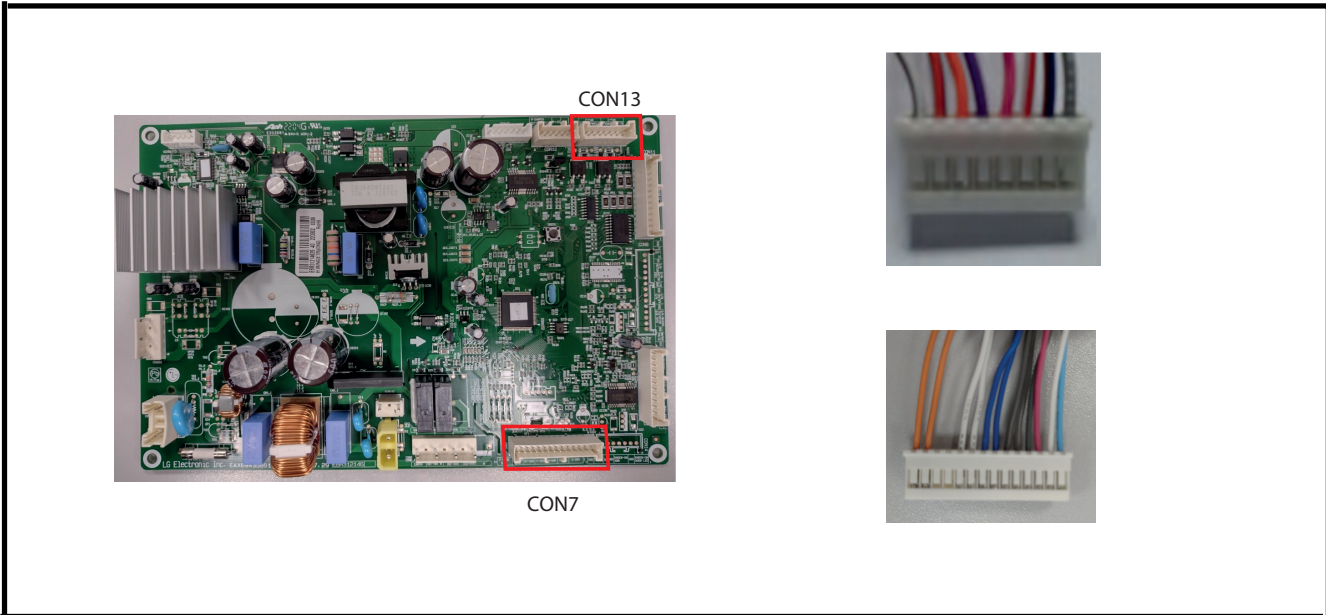
Troubleshooting Without Error Display



Troubleshooting Without Error Display

3. Poor cooling in Refrigerator compartment

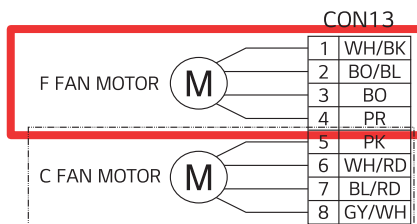
| Symptom | Check Point |
|-------------------------------------|---|
| 1.Poor cooling in refrigerator room | 1.Check the R-sensor resistance 2.Check the air flow 3.Check the air Temperature 4.Check the F-Fan motor voltage |



CON7

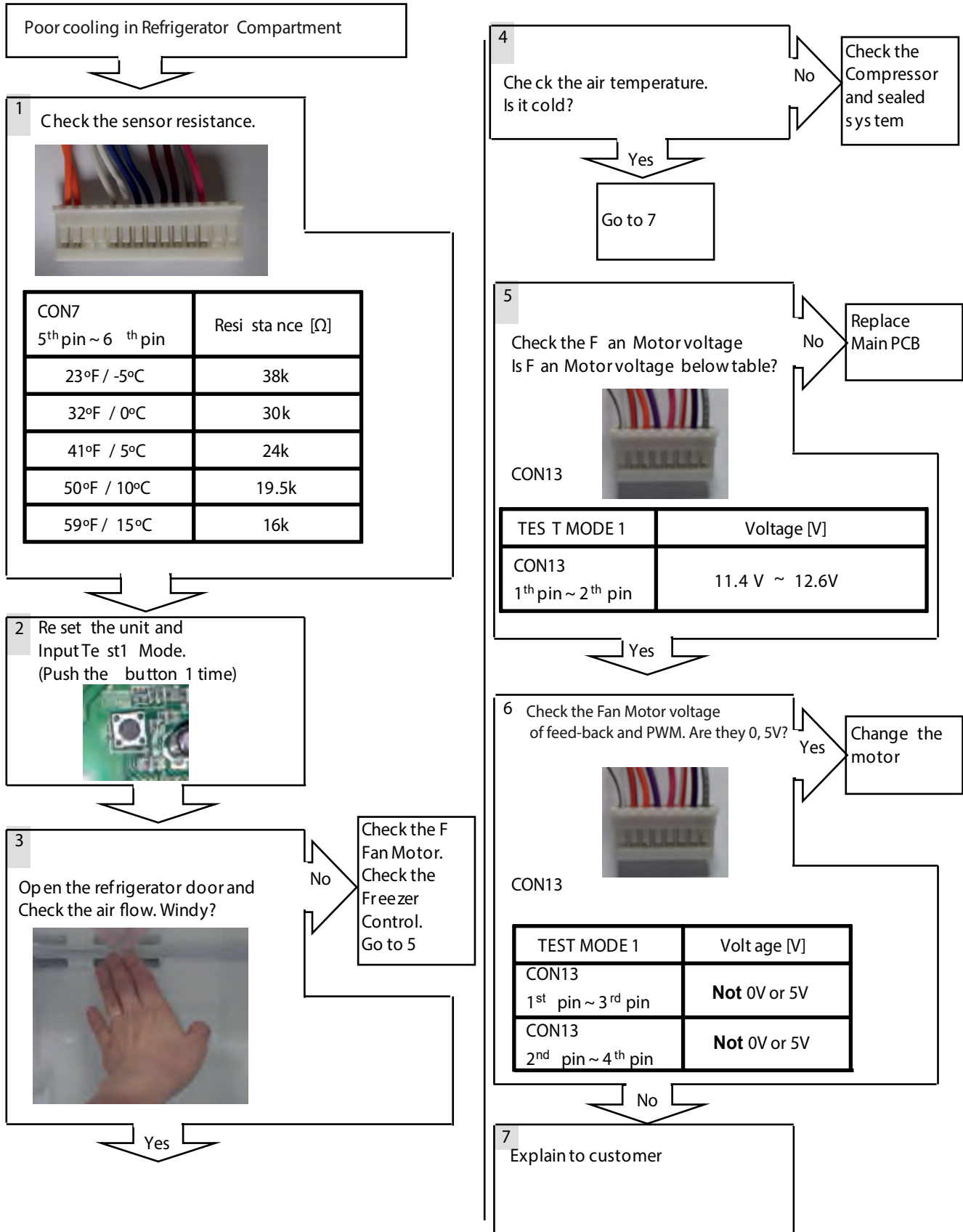
| | | | |
|----|-------|--|------------|
| 1 | BO | | D-SENSOR |
| 2 | BO | | |
| 3 | WH/RD | | M/C-SENSOR |
| 4 | WH/RD | | |
| 5 | WH | | R-SENSOR |
| 6 | WH | | |
| 7 | BL | | F-SENSOR |
| 8 | BL | | |
| 9 | GY | | RT-SENSOR |
| 10 | GY | | |
| 11 | GY | | R-DOOR S/W |
| 12 | PK | | |
| 13 | WH | | F-DOOR S/W |
| 14 | SB | | |

| CON7 5pin~6pin | Resistance[Ω] |
|-------------------|---------------|
| 23°F/-5°C | 38k |
| 32°F/0°C | 30k |
| 41°F/5°C | 24k |
| 50°F/10°C | 19.5k |
| 59°F/15°C | 16k |



| TEST MODE 1,2 | Voltage [V] |
|--|--------------|
| CON13 1 st pin ~ 2 nd pin | 11.4~12.6V |
| CON13 2 nd pin ~ 3 rd pin | Not 0V or 5V |
| CON13 2 nd pin ~ 4 th pin | Not 0V or 5V |

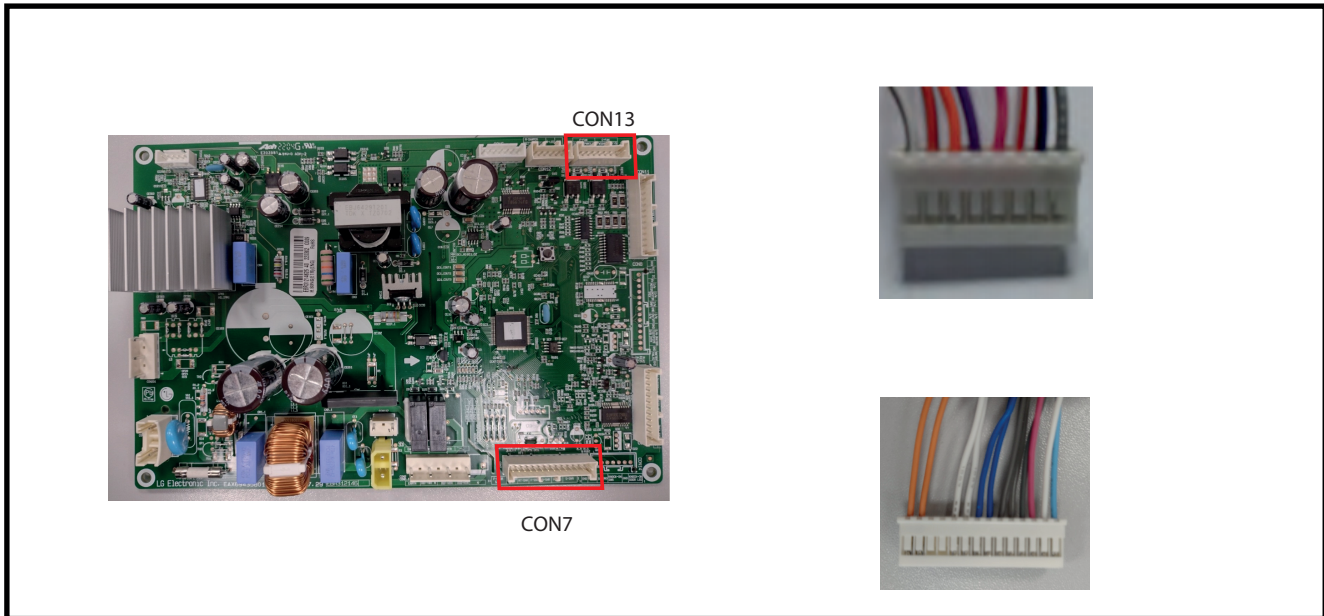
Troubleshooting Without Error Display



Troubleshooting Without Error Display

4. Over cooling in freezer compartment

| Symptom | Check Point |
|--------------------------------|--|
| 1.Over cooling in freezer room | 1.Check the F- sensor resistance 2.Check the air flow 3.Check the air Temperature 4.Check the F-Fan motor voltage |



| CON7 | Resistance [Ω] |
|---------------------------------------|------------------|
| 7 th ~ 8 th pin | |
| -22° F / -30° C | 40k |
| -13° F / -25° C | 30k |
| -4° F / -20° C | 23k |
| 5° F / -15° C | 17k |
| 14° F / -10° C | 13k |
| 23° F / -5° C | 10k |
| 32° F / 0° C | 8k |

| TEST MODE 1,2 | Voltage [V] |
|--|--------------|
| CON13 1 st pin ~ 2 nd pin | 11.4V~42.6V |
| CON13 2 nd pin ~ 3 rd pin | Not 0V or 5V |
| CON13 2 nd pin ~ 4 th pin | Not 0V or 5V |


| CON7 | Component |
|---------|------------|
| 1 BO | D-SENSOR |
| 2 BO | |
| 3 WH/RD | M/C-SENSOR |
| 4 WH/RD | |
| 5 WH | R-SENSOR |
| 6 WH | |
| 7 BL | F-SENSOR |
| 8 BL | |
| 9 GY | RT-SENSOR |
| 10 GY | |
| 11 GY | |
| 12 PK | R-DOOR S/W |
| 13 WH | F-DOOR S/W |
| 14 SB | |

| CON13 | Component |
|---------|-----------------|
| 1 WH/BK | F FAN MOTOR (M) |
| 2 BO/BL | |
| 3 BO | C FAN MOTOR (M) |
| 4 PR | |
| 5 PK | |
| 6 WH/RD | |
| 7 BL/RD | |
| 8 GY/WH | |

Troubleshooting Without Error Display

Over cooling in Freezer Compartment


1 Check the sensor resistance.




CON7

| CON7 7 th pin ~ 8 th pin | Resistance [Ω] |
|---|----------------|
| -22° F / -30 ° C | 40k |
| -13° F / -25 ° C | 30k |
| -4° F / -20 ° C | 23k |
| 5° F / -15 ° C | 17k |
| 14° F / -10 ° C | 13k |
| 23° F / -5 ° C | 10k |
| 32° F / 0 ° C | 8k |

2 Re set the unit and Input Test1 Mode. (Push the button 1 time)



3 Open the refrigerator door and Check the air flow. Windy?




Check the F Fan Motor. Check the Freezer Control. Go to 6

No

Yes

4 Input Test 2 Mode and Check the air flow. Windy? (Push the button 1 time)




No

Go to 7

Yes

5 Check the Fan Motor voltage Is Fan Motor voltage below table?



CON13


| TEST MODE 1 | Voltage [V] |
|--|---------------|
| CON13 1 th pin ~ 2 th pin | 11.4V ~ 12.6V |

No

Replace Main PCB

Yes

6 Check the Fan Motor voltage of feed-back and PWM. Are they 0, 5V?



Yes

Change the motor

CON13

| TEST MODE 1 | Voltage [V] |
|--|---------------------|
| CON13 2 nd pin ~ 3 th pin | Not 0V or 5V |
| CON13 2 nd pin ~ 4 th pin | Not 0V or 5V |

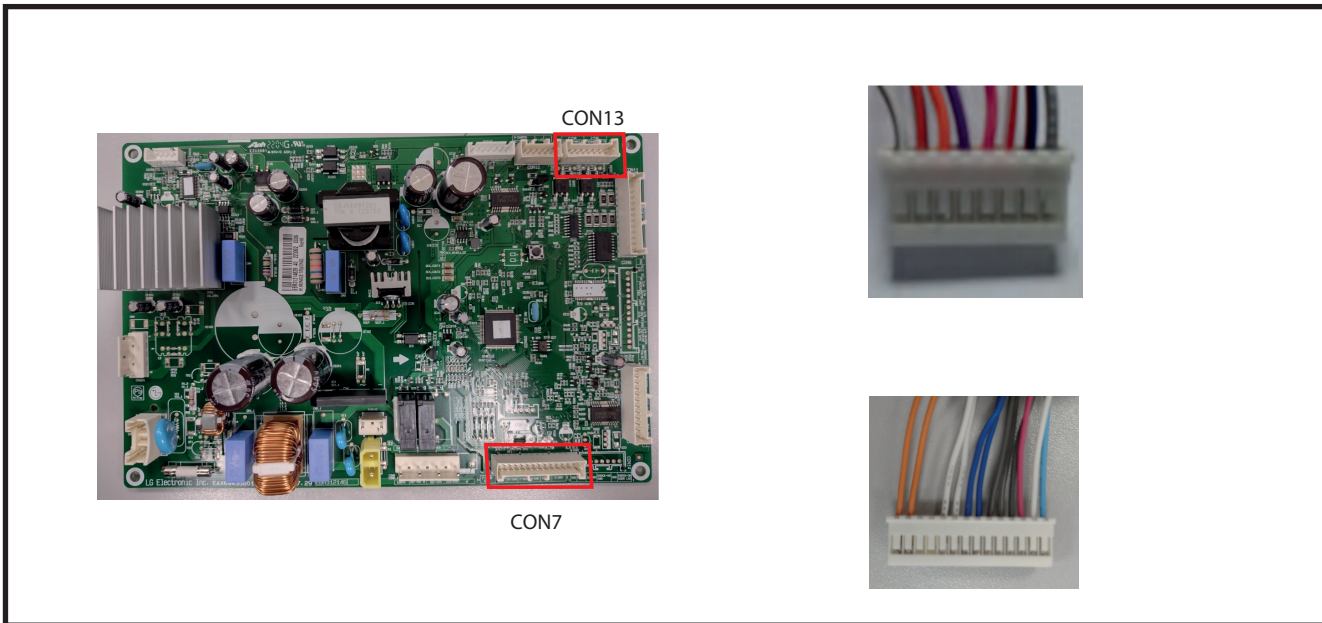
No

7 Explain to customer

Troubleshooting Without Error Display

5. Over cooling in refrigerator compartment

| Symptom | Check Point |
|--------------------------------------|--|
| 1. Over cooling in refrigerator room | 1. Check the F-sensor resistance 2. Check their flow. 3. Check the air Temperature 4. Check the F-Fan motor voltage |




| CON7 | Resistance [Ω] | TEST MODE 1,2 | Voltage [V] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|------------------|---------------|-----------------|---------|----|---------|-------|------------|---|-------|---|------|-----------------|---------|----|---------|----|----------|---|----|---|----|-----------|----|----|----|----|------------|----|----|----|----|------------|----|----|---|---|--|-----------------|-----|-----------------|-----|----------------|-----|---------------|-----|----------------|-----|---------------|-----|--------------|----|---|---------------|-------------|--|-------------|--|--------------|--|--------------|--|
| <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>1</td><td>BO</td><td rowspan="2">D-SENSOR</td></tr> <tr><td>2</td><td>BO</td></tr> <tr><td>3</td><td>WH/RD</td><td rowspan="2">M/C-SENSOR</td></tr> <tr><td>4</td><td>WH/RD</td></tr> <tr><td>5</td><td>WH</td><td rowspan="2">R-SENSOR</td></tr> <tr><td>6</td><td>WH</td></tr> <tr style="border: 2px solid red;"><td>7</td><td>BL</td><td rowspan="2">F-SENSOR</td></tr> <tr style="border: 2px solid red;"><td>8</td><td>BL</td></tr> <tr><td>9</td><td>GY</td><td rowspan="2">RT-SENSOR</td></tr> <tr><td>10</td><td>GY</td></tr> <tr><td>11</td><td>GY</td><td rowspan="2">R-DOOR S/W</td></tr> <tr><td>12</td><td>PK</td></tr> <tr><td>13</td><td>WH</td><td rowspan="2">F-DOOR S/W</td></tr> <tr><td>14</td><td>SB</td></tr> </table> | 1 | BO | D-SENSOR | 2 | BO | 3 | WH/RD | M/C-SENSOR | 4 | WH/RD | 5 | WH | R-SENSOR | 6 | WH | 7 | BL | F-SENSOR | 8 | BL | 9 | GY | RT-SENSOR | 10 | GY | 11 | GY | R-DOOR S/W | 12 | PK | 13 | WH | F-DOOR S/W | 14 | SB | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>CON7 7th ~ 8th pin</td><td></td></tr> <tr><td>-22° F / -30° C</td><td>40k</td></tr> <tr><td>-13° F / -25° C</td><td>30k</td></tr> <tr><td>-4° F / -20° C</td><td>23k</td></tr> <tr><td>5° F / -15° C</td><td>17k</td></tr> <tr><td>14° F / -10° C</td><td>13k</td></tr> <tr><td>23° F / -5° C</td><td>10k</td></tr> <tr><td>32° F / 0° C</td><td>8k</td></tr> </table> | CON7 7 th ~ 8 th pin | | -22° F / -30° C | 40k | -13° F / -25° C | 30k | -4° F / -20° C | 23k | 5° F / -15° C | 17k | 14° F / -10° C | 13k | 23° F / -5° C | 10k | 32° F / 0° C | 8k | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>TEST MODE 1,2</td><td>Voltage [V]</td></tr> <tr><td>CON13 1st pin ~ 2nd pin</td><td>11.4V-42.6V</td></tr> <tr><td>CON13 2nd pin ~ 3rd pin</td><td>Not 0V or 5V</td></tr> <tr><td>CON13 2nd pin ~ 4th pin</td><td>Not 0V or 5V</td></tr> </table> | TEST MODE 1,2 | Voltage [V] | CON13 1 st pin ~ 2 nd pin | 11.4V-42.6V | CON13 2 nd pin ~ 3 rd pin | Not 0V or 5V | CON13 2 nd pin ~ 4 th pin | Not 0V or 5V | |
| 1 | BO | D-SENSOR | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | BO | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | WH/RD | M/C-SENSOR | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | WH/RD | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | WH | R-SENSOR | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | WH | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | BL | F-SENSOR | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | BL | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | GY | RT-SENSOR | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | GY | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | GY | R-DOOR S/W | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | PK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | WH | F-DOOR S/W | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | SB | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CON7 7 th ~ 8 th pin | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -22° F / -30° C | 40k | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -13° F / -25° C | 30k | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| -4° F / -20° C | 23k | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5° F / -15° C | 17k | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14° F / -10° C | 13k | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23° F / -5° C | 10k | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 32° F / 0° C | 8k | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| TEST MODE 1,2 | Voltage [V] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CON13 1 st pin ~ 2 nd pin | 11.4V-42.6V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CON13 2 nd pin ~ 3 rd pin | Not 0V or 5V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CON13 2 nd pin ~ 4 th pin | Not 0V or 5V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td colspan="2" style="text-align: center;">CON13</td></tr> <tr><td style="width: 50%;">F FAN MOTOR (M)</td><td>1 WH/BK</td></tr> <tr><td></td><td>2 BO/BL</td></tr> <tr><td></td><td>3 BO</td></tr> <tr style="border: 2px solid red;"><td></td><td>4 PR</td></tr> <tr><td></td><td>5 PK</td></tr> <tr><td style="border: 1px dashed black;">C FAN MOTOR (M)</td><td>6 WH/RD</td></tr> <tr><td></td><td>7 BL/RD</td></tr> <tr><td></td><td>8 GY/WH</td></tr> </table> | CON13 | | F FAN MOTOR (M) | 1 WH/BK | | 2 BO/BL | | 3 BO | | 4 PR | | 5 PK | C FAN MOTOR (M) | 6 WH/RD | | 7 BL/RD | | 8 GY/WH | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CON13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| F FAN MOTOR (M) | 1 WH/BK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2 BO/BL | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 3 BO | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 4 PR | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 5 PK | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C FAN MOTOR (M) | 6 WH/RD | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 7 BL/RD | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 8 GY/WH | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Troubleshooting Without Error Display


Overcooling in Refrigerator Compartment

1 Check the sensor resistance.




| CON7 5 th pin ~ 6 th pin | Resistance [Ω] |
|---|----------------|
| 23°F / -5°C | 38k |
| 32°F / 0°C | 30k |
| 41°F / 5°C | 24k |
| 50°F / 10°C | 19.5k |
| 59°F / 15°C | 16k |

2 Reset the unit and Input Test 1 Mode.
(Push the button 1 time)



3 Open the refrigerator door and Check the air flow. Windy?




Yes

No

Check the F Fan Motor.
Check the Freezer Control.
Go to 6

4 Input Test 2 Mode and Check the air flow. Windy?
(Push the button 1 time)




No

Go to 7

Yes

5 Check the Fan Motor voltage
Is Fan Motor voltage below table?




| TEST MODE 1 | Voltage [V] |
|--|---------------|
| CON13 1 st pin ~ 2 nd pin | 11.4V ~ 12.6V |

No

Replace Main PCB

Yes

6 Check the Fan Motor voltage of feed-back and PWM. Are they 0V, 5V?



| Test Mode 1 | Voltage (V) |
|--|--------------|
| CON13 2 nd pin~3 rd pin | Not 0V or 5V |
| CON13 2 nd pin~4 th pin | Not 0V or 5V |

Yes

Change the motor

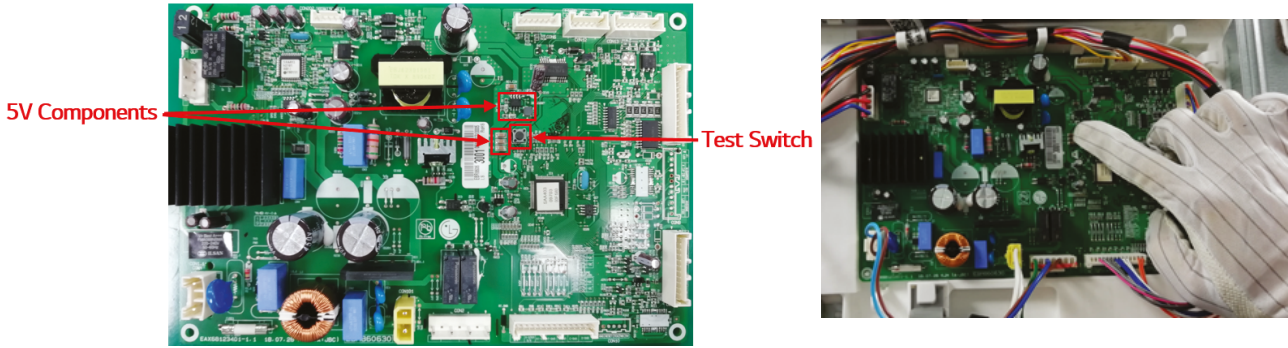
No

7 Explain to customer

Reference

1. TEST MODE and Removing TPA

※ Wear the electrical gloves when handling the main PC



1. How to make TEST MODE

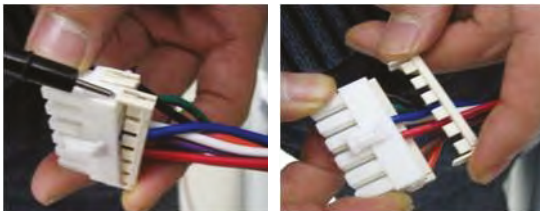
If you push the test button on the Main PCB, the refrigerator will be enter the TEST MODE



- * 1time : Force operation mode (All things displayed)
 - * 2times : Damper check mode
(Close damper during Force operation mode)
(External Display : 2 22 displayed
Internal Display : [F]●●●●○[R]○●●●●)
 - * 3times : Force defrost mode
(External Display : 3 33 displayed
Internal Display : [F]●●●○[R]○●●●●)
- ※ ● : LED On, ○ : LED off

2. How to remove Terminal Position Assurance (TPA)

<AC TPA>



<DC TPA>



* After measure the value, you should put in the TPA again

Reference

2. TEMPERATURE CHART - FRZ AND ICING SENSOR

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

Reference

3. TEMPERATURE CHART - REF AND DEF SENSOR

| TEMP | RESISTANCE | VOLTAGE |
|---------------|------------------|---------|
| -39°F (-40°C) | 225.1 k Ω | 4.48 V |
| -30°F (-35°C) | 169.8 k Ω | 4.33 V |
| -21°F (-30°C) | 129.3 k Ω | 4.16 V |
| -13°F (-25°C) | 99.30 k Ω | 3.95 V |
| -4°F (-20°C) | 76.96 k Ω | 3.734 V |
| 5°F (-15°C) | 60.13 k Ω | 3.487 V |
| 14°F (-10°C) | 47.34 k Ω | 3.22 V |
| 23°F (-5°C) | 37.55 k Ω | 2.95 V |
| 32°F (0°C) | 30 k Ω | 2.67 V |
| 41°F (5°C) | 24.13 k Ω | 2.40 V |
| 50°F (10°C) | 19.53 k Ω | 2.14 V |
| 59°F (15°C) | 15.91 k Ω | 1.89 V |
| 68°F (20°C) | 13.03 k Ω | 1.66 V |
| 77°F (25°C) | 10.74 k Ω | 1.45 V |
| 86°F (30°C) | 8.89 k Ω | 1.27 V |
| 95°F (35°C) | 7.40 k Ω | 1.10 V |
| 104°F (40°C) | 6.20 k Ω | 0.96 V |

Reference

4. TEMPERATURE CHART - AMBIENT SENSOR

| TEMP | RESISTANCE | VOLTAGE |
|---------------|------------------|---------|
| -39°F (-40°C) | 225.1 k Ω | 4.79 V |
| -30°F (-35°C) | 169.8 k Ω | 4.72 V |
| -21°F (-30°C) | 129.3 k Ω | 4.64 V |
| -13°F (-25°C) | 99.30 k Ω | 4.54 V |
| -4°F (-20°C) | 76.96 k Ω | 4.43 V |
| 5°F (-15°C) | 60.13 k Ω | 4.29 V |
| 14°F (-10°C) | 47.34 k Ω | 4.13 V |
| 23°F (-5°C) | 37.55 k Ω | 3.95 V |
| 32°F (0°C) | 30 k Ω | 3.75 V |
| 41°F (5°C) | 24.13 k Ω | 3.54 V |
| 50°F (10°C) | 19.53 k Ω | 3.31 V |
| 59°F (15°C) | 15.91 k Ω | 3.07 V |
| 68°F (20°C) | 13.03 k Ω | 2.83 V |
| 77°F (25°C) | 10.74 k Ω | 2.59 V |
| 86°F (30°C) | 8.89 k Ω | 2.35 V |
| 95°F (35°C) | 7.40 k Ω | 2.13 V |
| 104°F (40°C) | 6.20 k Ω | 1.91 V |
| 113°F (45°C) | 5.21 k Ω | 1.71 V |

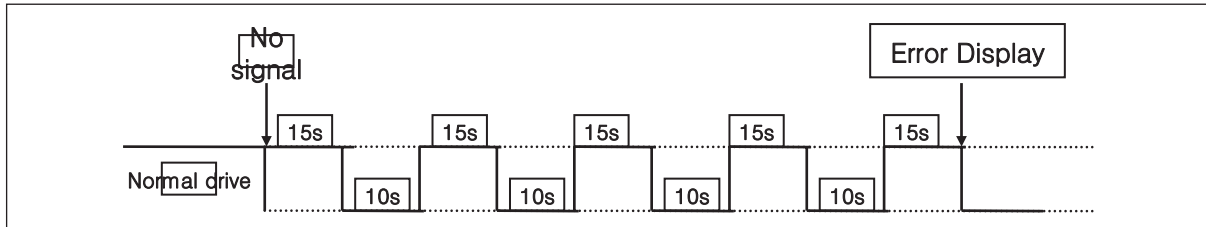
Reference

5. How to check the Fan-Error

(1) ~ July 2007

After sending a signal to the fan, the MICOM checks the BLDC fan motor's lock status. If there is no feedback signal from the BLDC fan, the fan motor stops for 10 seconds and then is powered again for 15 seconds. To determine that there is a fan motor malfunction, this process is repeated 5 times. If the fan motor is determined to be defective, the error code will be shown continuously in the display.

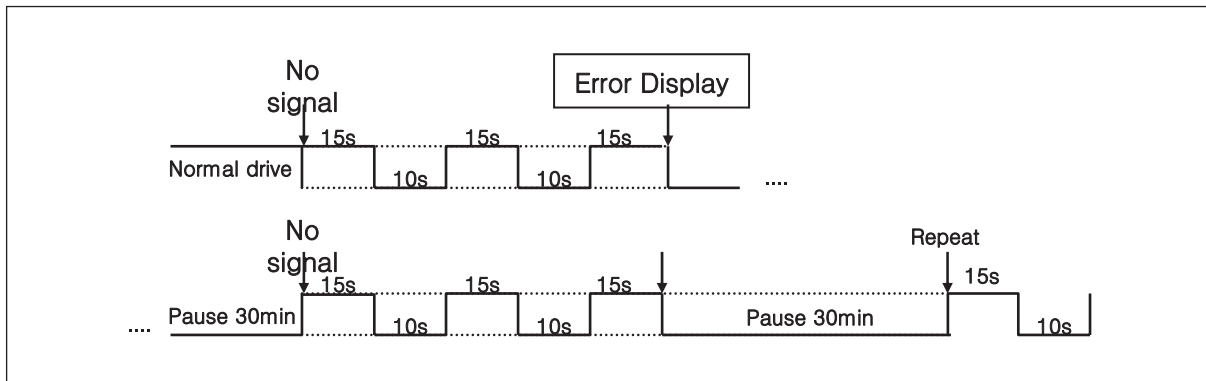
At this point, there is no further check of the fan motor.



(2) Aug 2007 ~

After sending a signal to the fan, the MICOM checks the BLDC fan motor's lock status. If there is no feedback signal from the BLDC fan, the fan motor stops for 10 seconds and then is powered again for 15 seconds. To determine that there is a fan motor malfunction, this process is repeated 3 times. If the fan motor is determined to be defective, the error code will be shown in the display for 30 minutes.

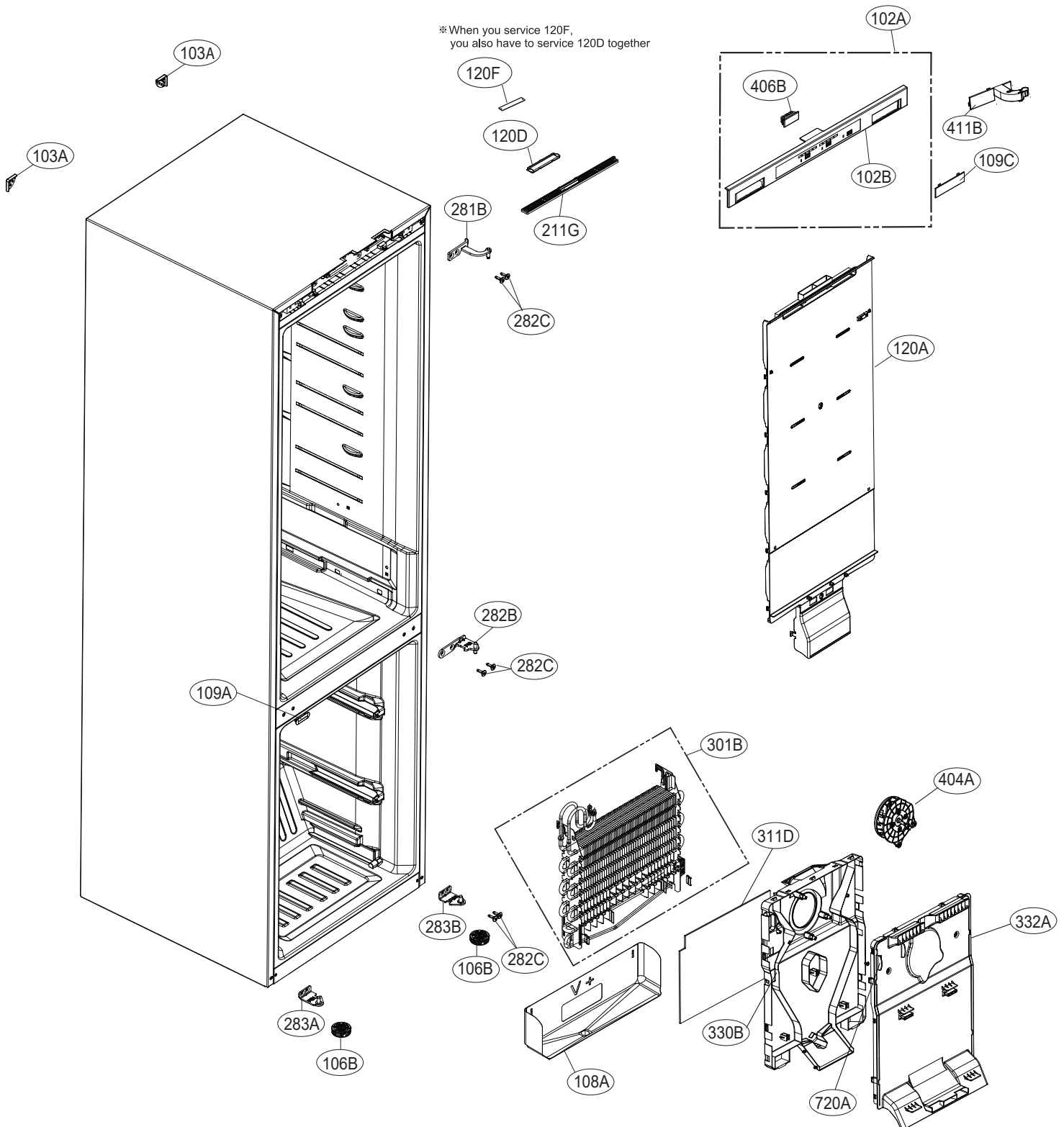
At this point, the process will be repeated until the fan motor operates normally. If normal operation is achieved, the error display is erased and the MICOM is reset automatically.



EXPLODED VIEW

Ref. No : GBV3100D**

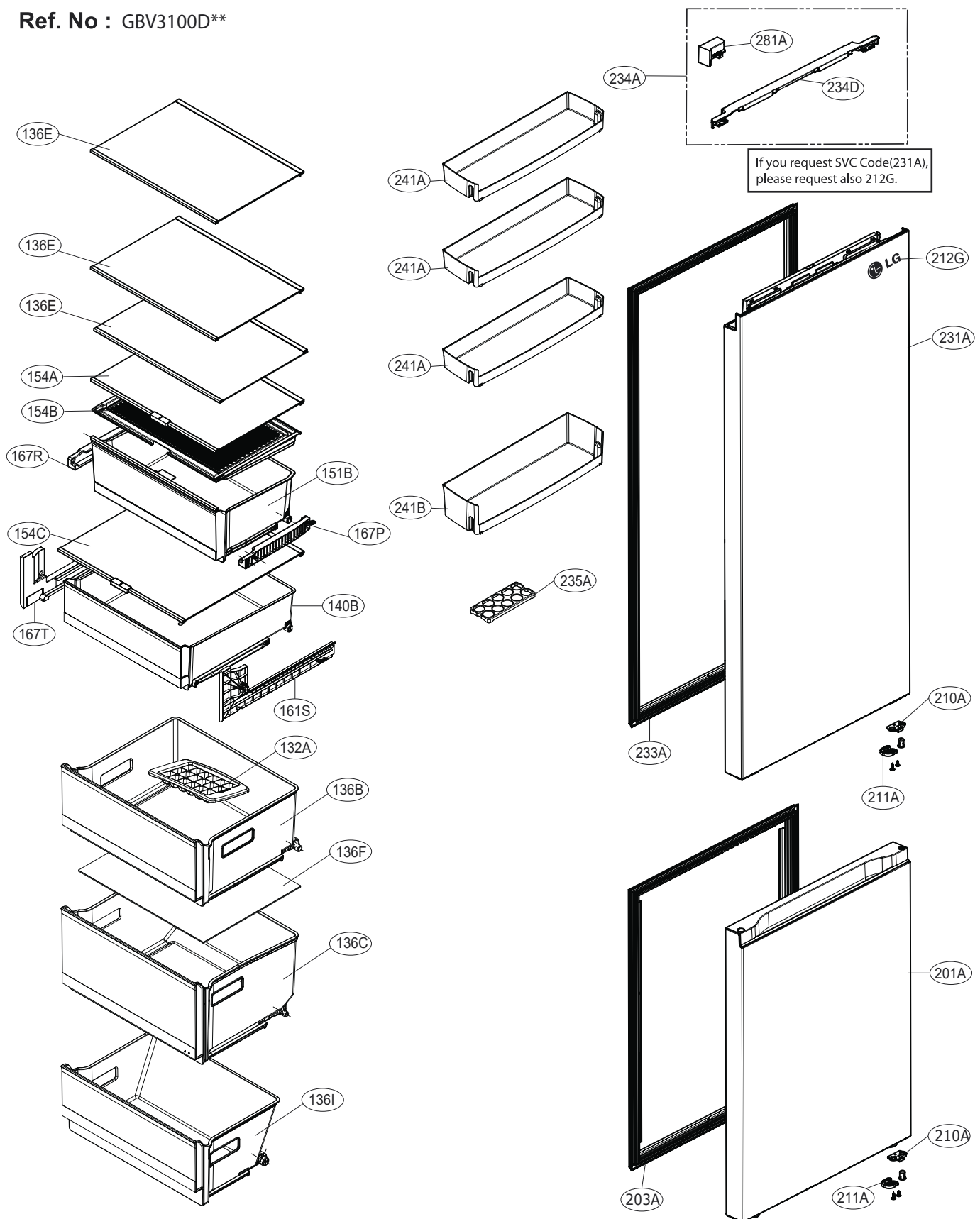
※ When you service 120F,
you also have to service 120D together



Location 283A includes entire set for reversing doors

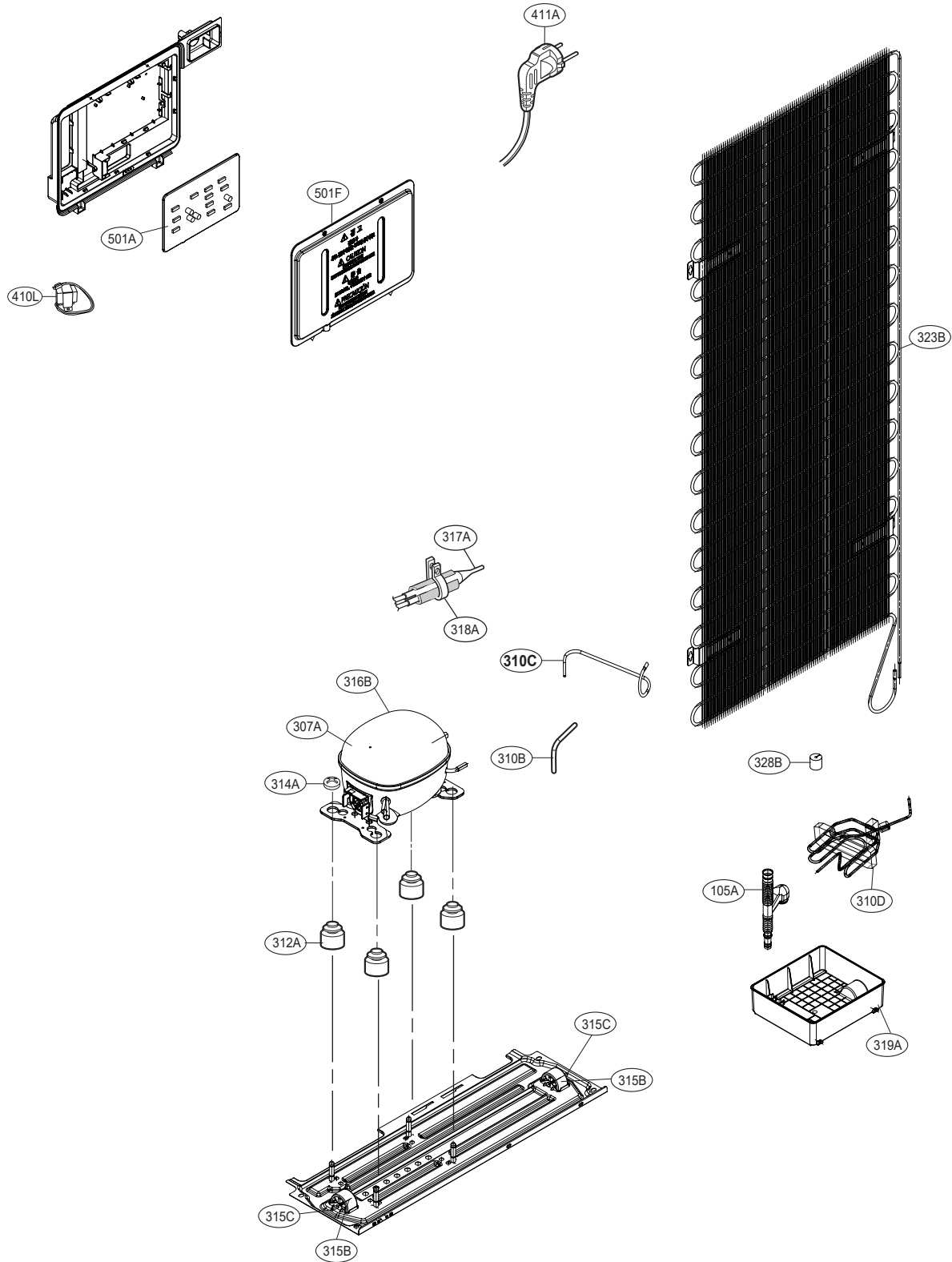
EXPLODED VIEW

Ref. No : GBV3100D**



EXPLODED VIEW

Ref. No: GBV3100D**



☒ The parts of refrigerator and the shape of each part are subject to change in different localities.



P/No. MFL69407201

FEB., 2011 Printed in Poland

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Za najnovije informacije o ceni, dostupnim akcijama i tehničkim karakteristikama proizvoda koji se pominje u ovom dokumentu, molimo posetite našu stranicu klikom na sledeći link:

<https://tehnoteka.rs/p/lg-kombinovani-frizider-gbv3100dpy-akcija-cena/>