# Refrigerator
# Service Manual

**RN-531N** **RN-532N** **RN-533N** **RN-534N** **RN-535N** **RN-536N**

Dongbu Daewoo Electronics

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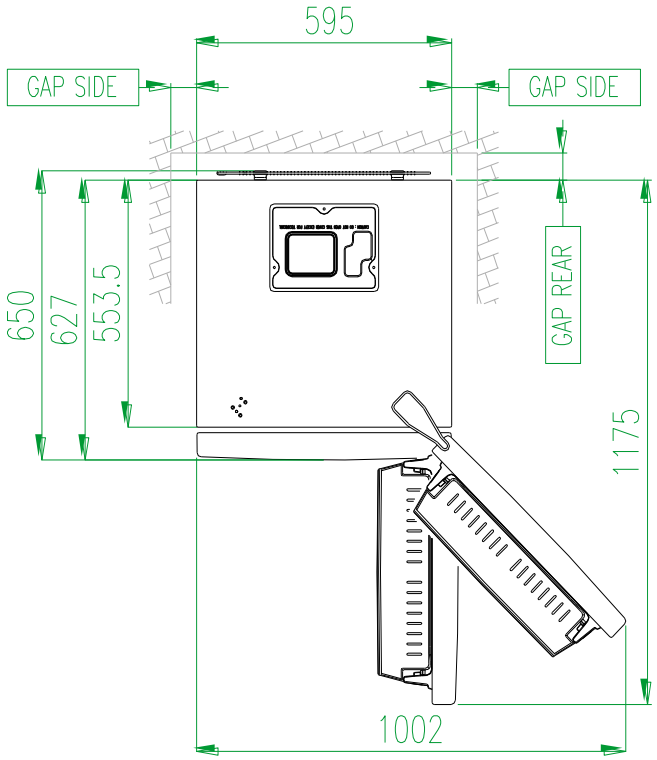
**1-1. Model Information**

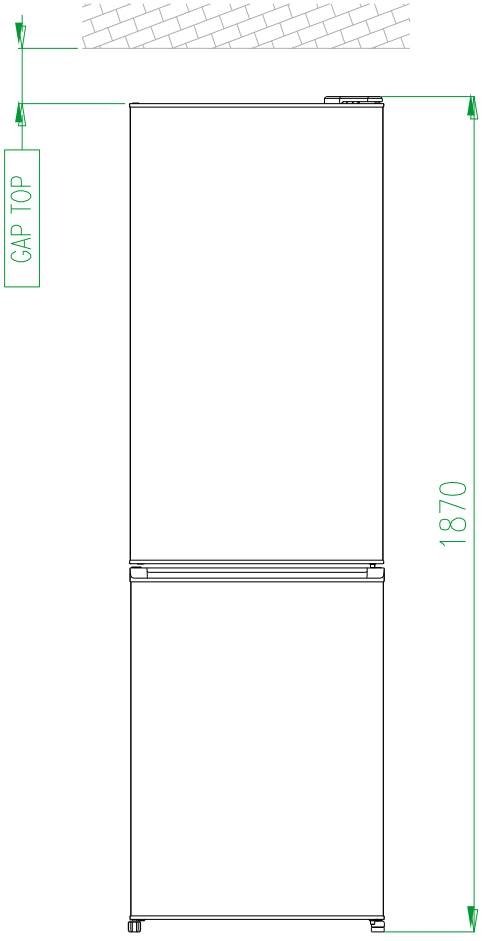
* is the Door Type

| Buyer No. | | RN-53*N |
|---|---|---|
| Factory No. | | RFP-30*N*Q8N |
| Gross Vol. ISO 15502 (unit: L) | Total | 337 |
| | Freezer | 111 |
| | Refrigerator | 226 |
| Storage Vol. ISO 15502 (unit: L) | Total | 305 |
| | Freezer | 84 |
| | Refrigerator | 221 |
| Diemension (unit: mm) | Net Width (Packing) | 595(634) |
| | Net Depth (Packing) | 650(685) |
| | Net Height (Packing) | 1870(1970) |
| Net Weight (Packing) | | 67(73)kg |
| Control Type | | KNOB & Digital Smart Control |
| Cooling Cycle | Refrigerant Type | R-600a |
| | Refrigerant Charge | 0.044kg |
| | Evaporator Type | Fin Type |
| | Condenser Type | Natural Convection Cooling System |
| | Dryer | Desiccant: Molecular Sieve xH-9 |
| | Capillary Tube (unit: mm) | ID0.7 x T0.55 x L2290 |
| Heater | Defrost Type | Automatic Start & Stop |
| | Defrost Heater | AC230V, 130W |
| | Defrost Shape | Sheath Type |
| Freezer Fan Motor | | DC12V, 2300RPM |
| Refrigerator Lighting | | Bulb 15W x 1EA |
| Blowing Agent | | C-Pentane |

### 1-2. Outside Dimensions & Interior Parts

#### 1-2-1. Outside Dimensions

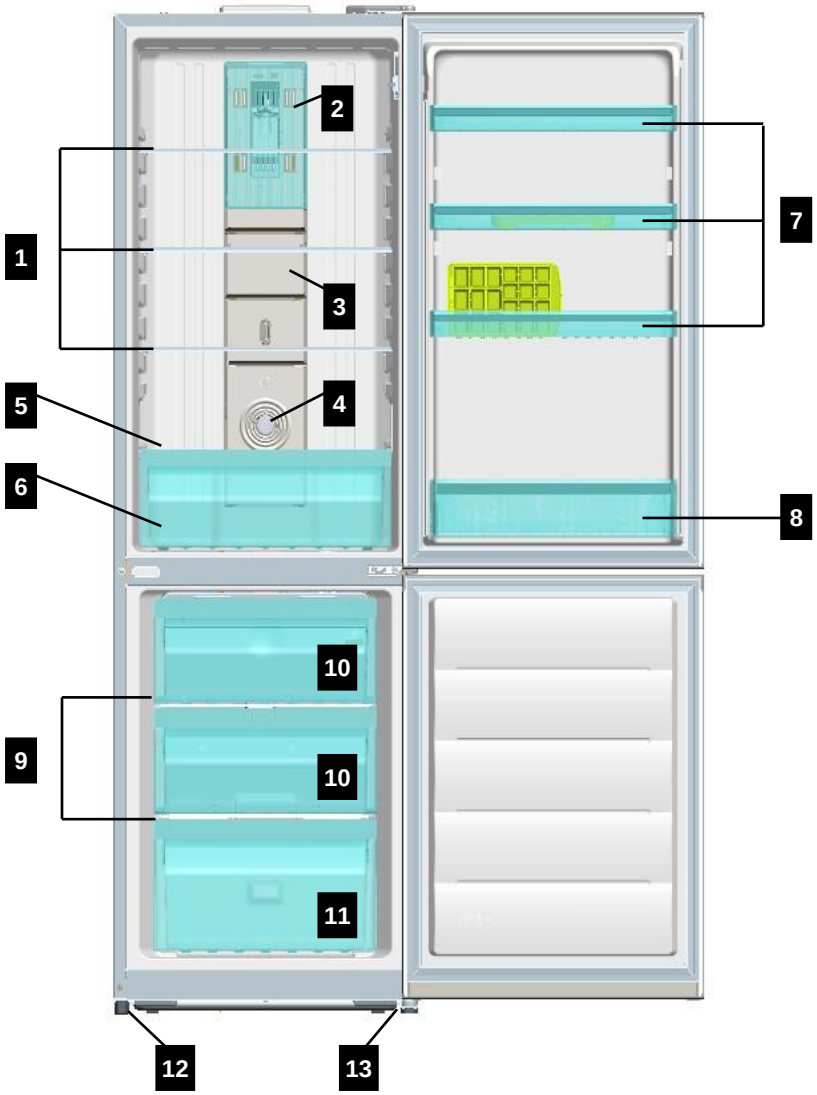



※ Allow sufficient space to the side, rear and top for air circulation (side and rear: at least 50mm, top: at least 100mm)

### 1-2. Outside Dimensions & Interior Parts

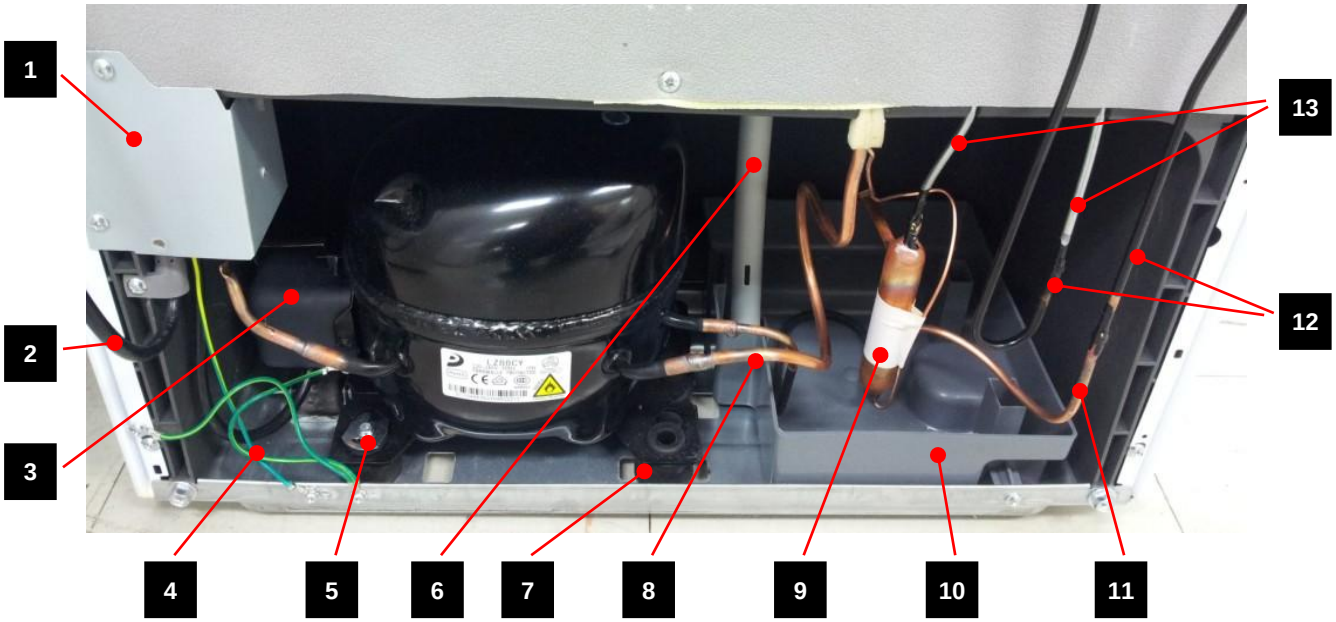
#### 1-2-2. Interior Parts




1. Refrigerator Shelves
2. Lamp Window
3. Multi Duct
4. Knob R Control
5. Cover Vegetable Case
6. Vegetable Case

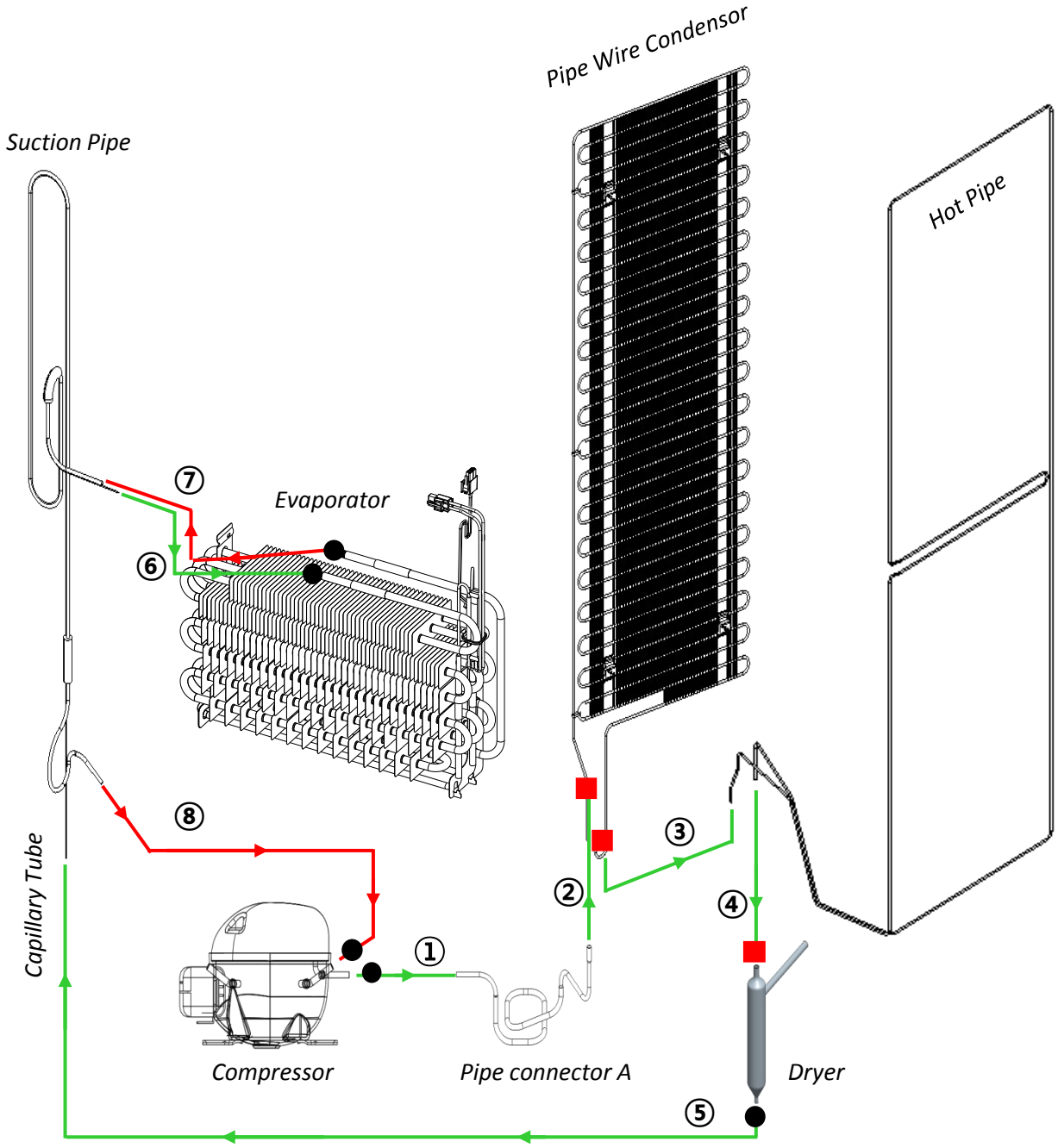
7. Refrigerator Pocket "R"
8. Refrigerator Pocket "J"
9. Freezer Shelves
10. Freezer Case "A"
11. Freezer Case "B"
12. Adjusting Leg (Left)
13. Adjusting Leg (Right)

### 1-3. Machine (Compressor) Compartment View




1.Box Power As (Capacitor Run)
2. Power Cord
3. Switch P Relay As
4. Earth Comp Wire
5. Fixture Compressor (Washer)
6. Drain Hose
7. Compressor Absorber
8. Suction Pipe As
9. Dryer As
10. Case vaporization As
11.Pipe connector A
12. Pipe Wire Condensor As
13. Pipe Hot

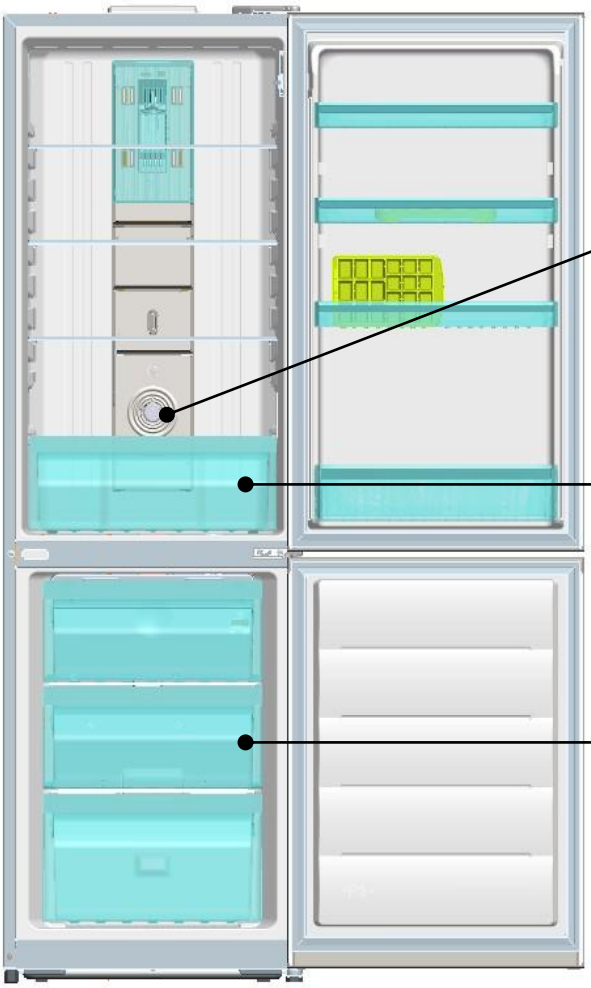
### 1-4. Refrigerant Cycle




**- Welding Point**

| | | |
|---|---|---|
| ● | Copper Welding ( Ag 5%) | 5 Point |
| ■ | Silver Welding ( Ag 30%) | 3 Point |

**1-5. Temperature Diagram**



**Refrigerator Dial Mode**

MIN: 5 ~ 8℃
MID: 2 ~ 5℃
MAX: -1 ~ 2℃

**Vegetable compartment**
: 1 ~ 5℃

**Freezer Mode**

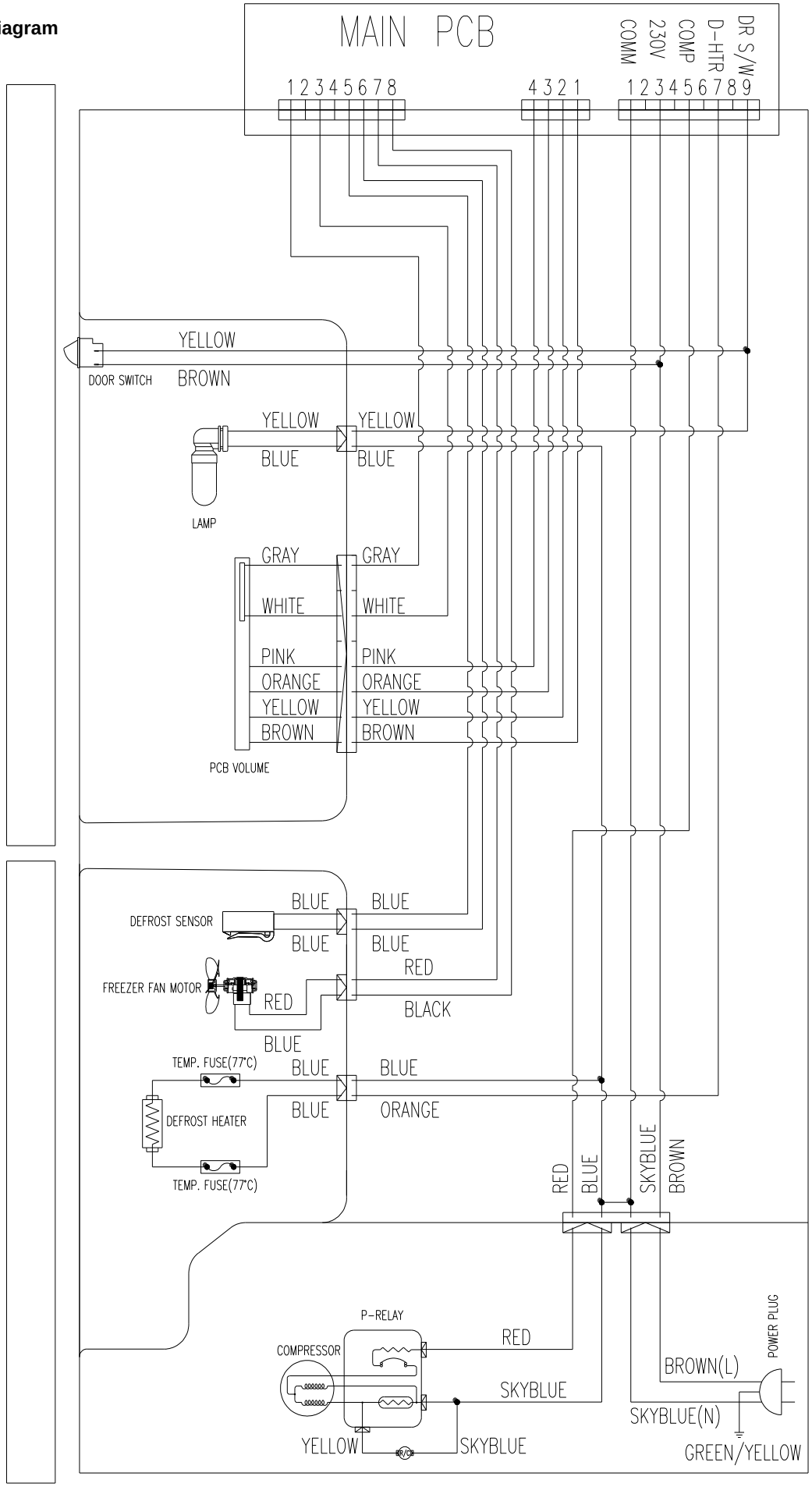
LOW: -17 ~ -19℃
MID: -19 ~ -22℃
HIGH: -22 ~ -25℃

⚠

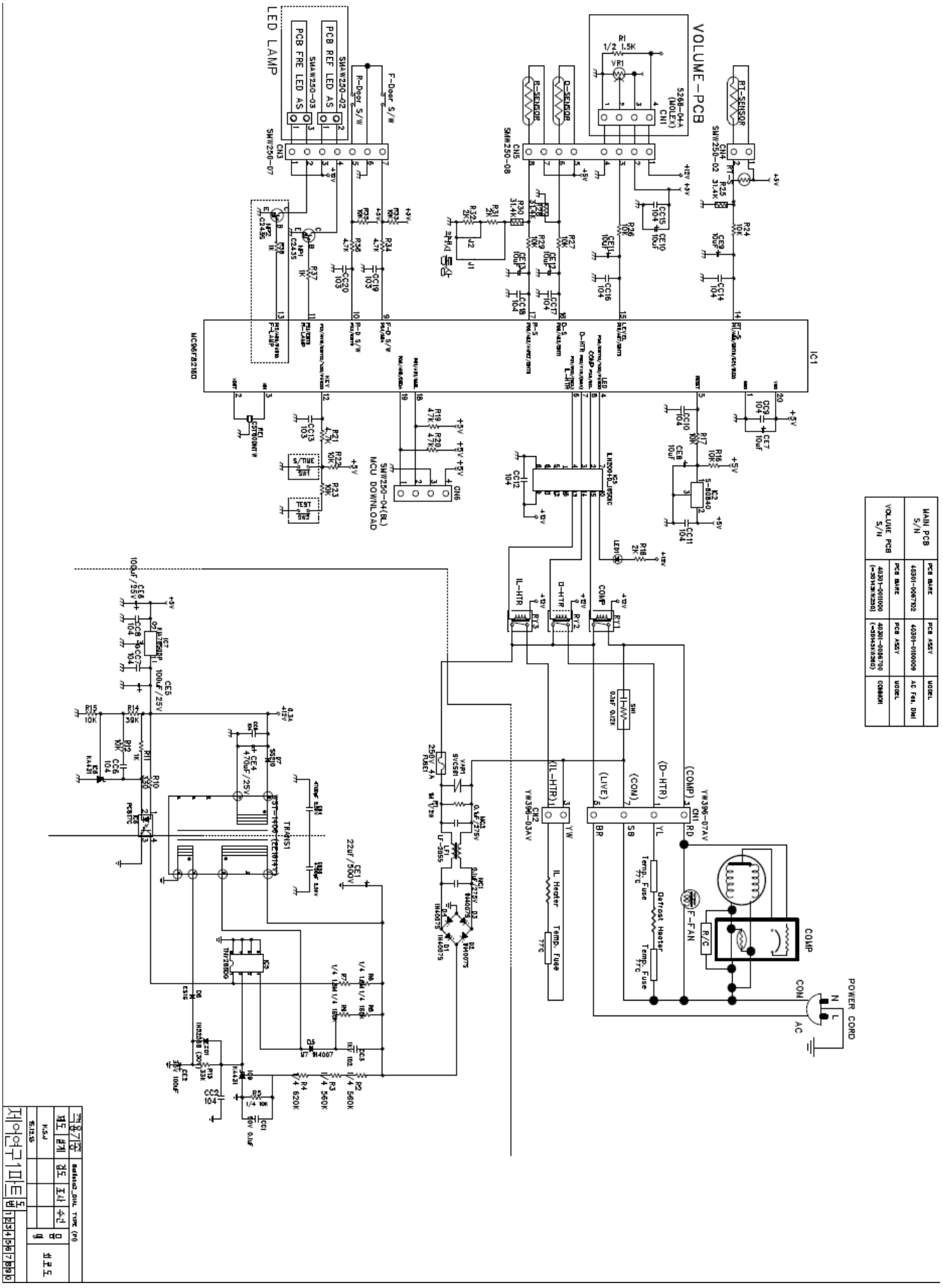
; The actual inner temperature varies depending on the food status, as the indicated setting temperature is a target temperature, not actual temperature within refrigerator.

; Refrigeration function is weak in the initial time.
Please adjust temperature as above after using refrigerator for minimum 1 ~ 2 days.

**1-6. Wiring Diagram**



### 1.7. Main PCB Circuit Diagram



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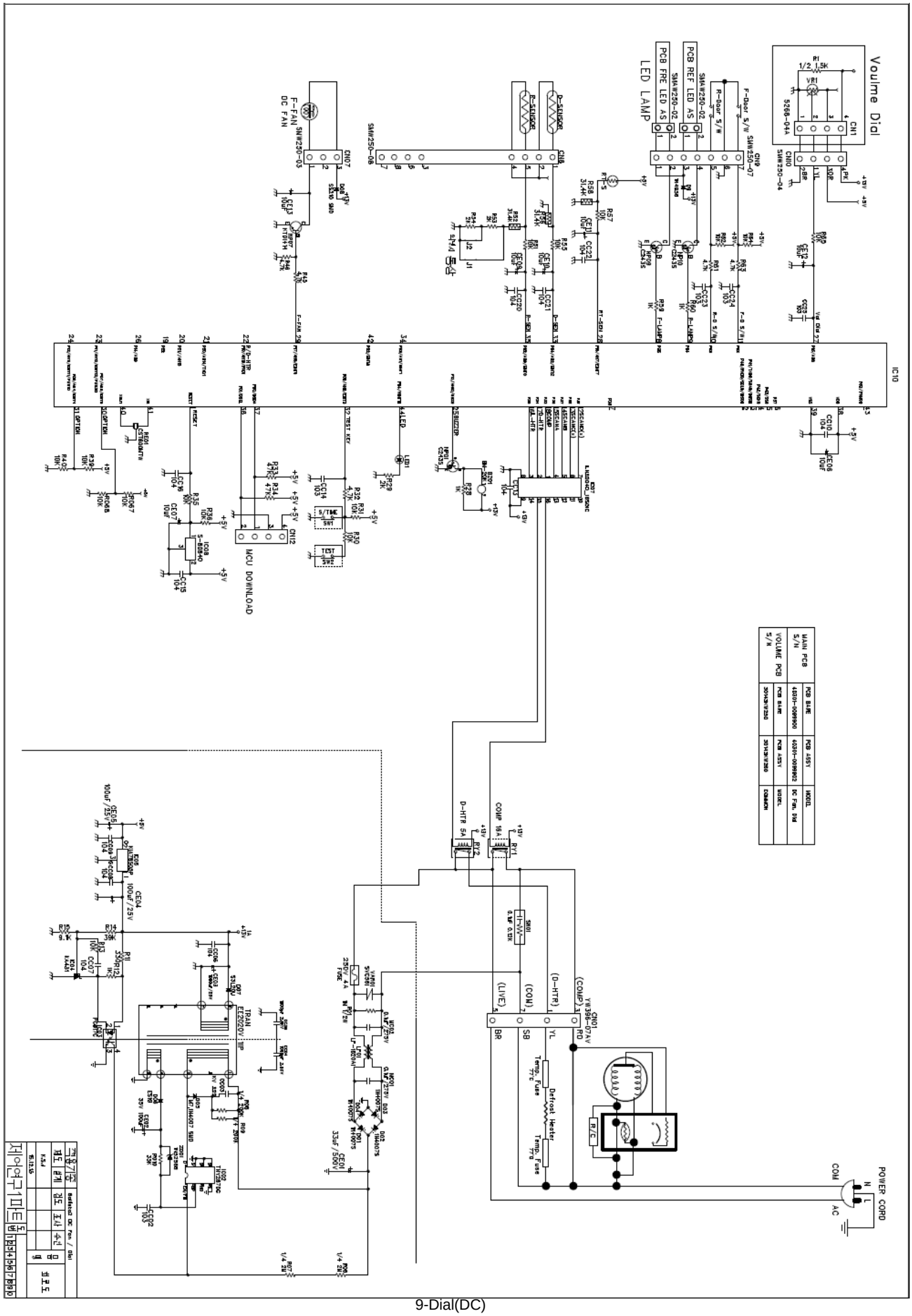

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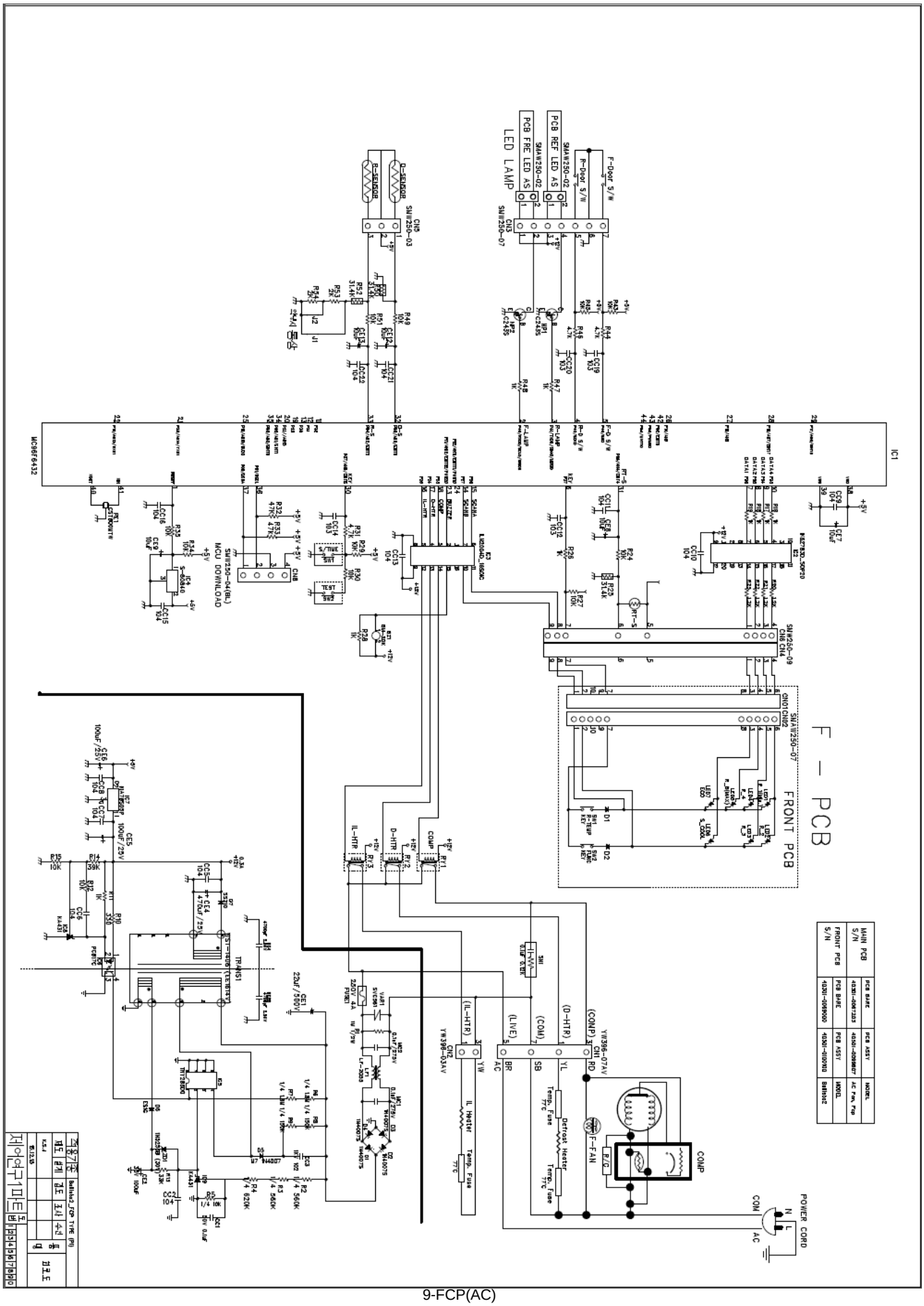

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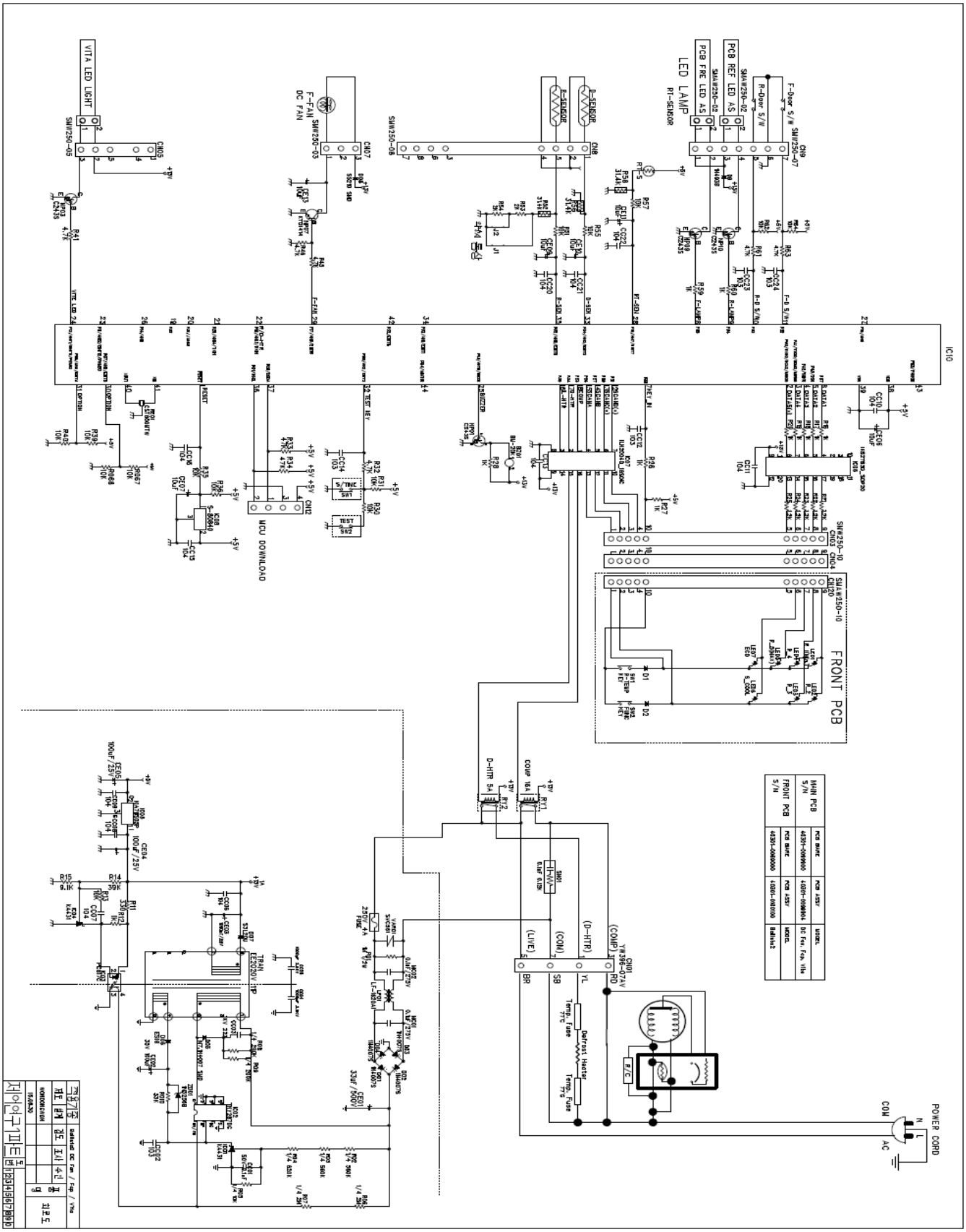
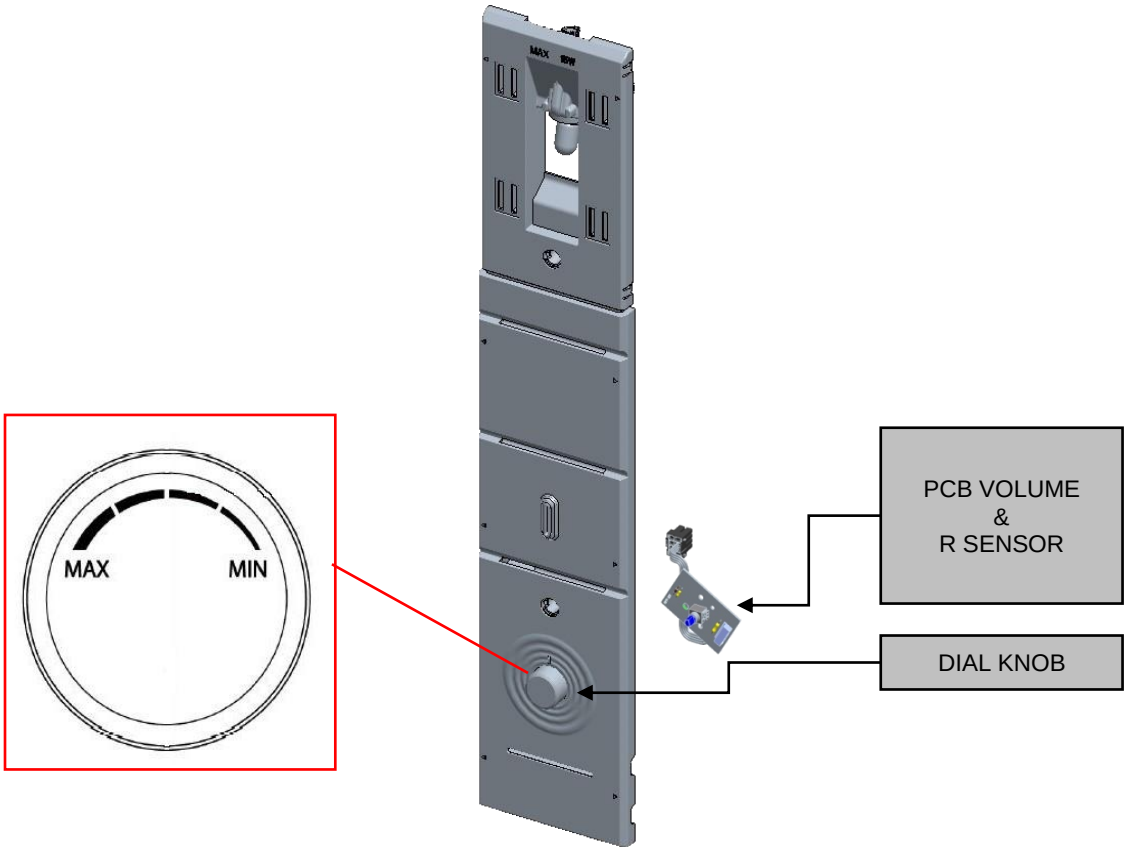


| 2-1. "PCB VOLUME" Control | |
|---|---|
| INPUT | CONTROL OBJECT |
| - Turn 'DIAL KNOB' on the 'COVER M/FLOW DUCT'. | -PCB Volume |

- Temperature is controlled by "PCB Volume" assembled with "Dial Knob".
- 7step mode of successive temperature mode

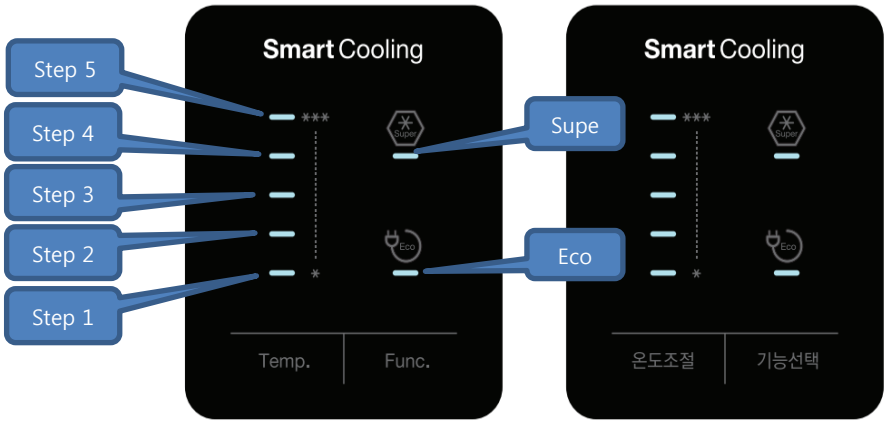
<'COVER M/FLOW DUCT AS': Air Duct Device in the Refrigerating Compartment>



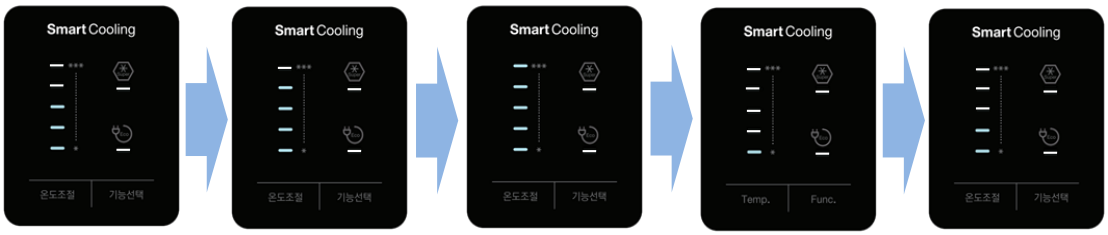
## 2-1. "PCB VOLUME" Control

| INPUT | CONTROL OBJECT |
|---|---|
| - PCB Control Panel Button | -PCB Control Panel LED |

- Temperature is controlled by "PCB Control Panel Button" assembled on the refrigeratior door.
- 5 step mode of successive temperature mode




※ Dial Display Rotation




Step 3 Step 4 Step 5 Step 1 Step 2

※ Function Display

cumulative lighting


Super Eco

## 2-2. Temperature Control of Refrigerator Compartment

| INPUT | CONTROL OBJECT |
|---|---|
| - Turn 'DIAL KNOB'<br>- R sensor | - COMPRESSOR<br>- FAN |

A. COMP and FAN will be controlled by the on/off condition of each mode.

B. Temperature Difference of Refrigerator each step :

| STEP | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|---|
| ON(℃) | 5.5 | 4.4 | 3.4 | 2.3 | 1.6 | 0.5 | -0.6 |
| OFF(℃) | -0.7 | -1.7 | -2.7 | -3.7 | -4.4 | -5.5 | -6.6 |

| MIN | | | MID | | | MAX |
|---|---|---|---|---|---|---|

C. Temperature of Refrigerator at Mid-'Dial Knob' OFF point : -3.7℃

D. Refrigerator ON/OFF Temp. Difference: 6℃

E. Temperature of Freezer Control
-It will be only controlled by using "KNOB F LOUVER" in the Freezer Comaprtment.

## 2-2. Temperature Control of Refrigerator Compartment

| INPUT | CONTROL OBJECT |
|---|---|
| - PCB Control Panel Button<br>- R sensor | - COMPRESSOR<br>- FAN |

A. COMP and FAN will be controlled by the on/off condition of each mode.

B. Temperature Difference of Refrigerator each step :

| STEP | 1 | 2 | 3 | 4 | 5 | Super |
|---|---|---|---|---|---|---|
| ON(℃) | 9.0 | 6.9 | 5.1 | 4.0 | 1.4 | 1.4 |
| OFF(℃) | 2.4 | 0.4 | -1.3 | -2.4 | -3.0 | -3.0 |

| MIN | | MID | | MAX | Super |
|---|---|---|---|---|---|

C. Temperature of Refrigerator at 'NOR' OFF point : -1.3℃

D. Refrigerator ON/OFF Temp. Difference: 6.5℃

E. Temperature of Freezer Control
-It will be only controlled by using “PCB Control Panel Button” in the Freezer Comaprtment.

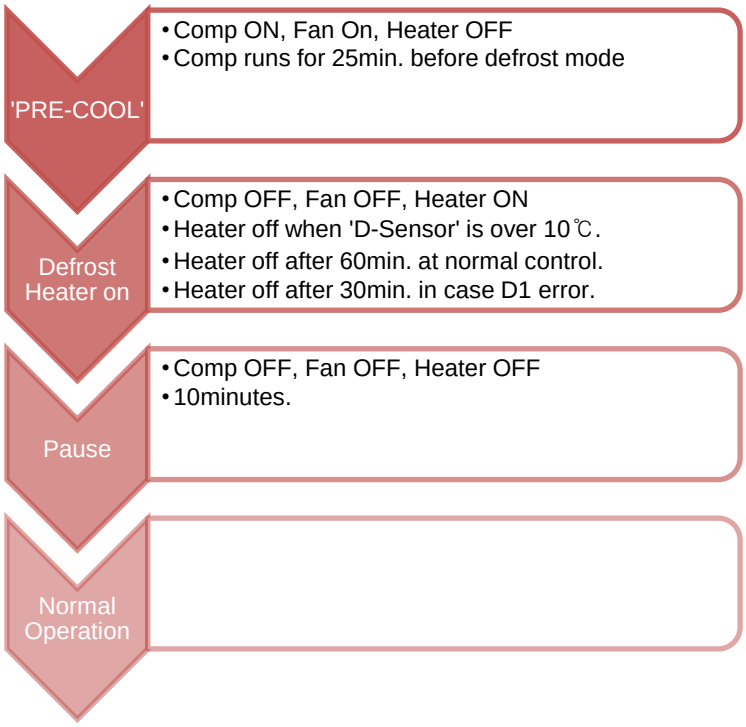
## 2-3. Defrost Mode

| INPUT | CONTROL OBJECT |
|---|---|
| - Accumulated Compressor Run Time<br>- Running Time Ratio of Compressor<br>- Accumulated Door Open Time | - Compressor<br>- F Fan<br>- Defrost Heater |

A. Defrost Mode Operation conditon
(1) In case accumulated compressor run times: 6, 8, 10, 12 hours,
- when there occur any errors:
R1, D1, C1, RT, Door SW error etc. (Check "2-9. ERROR DISPLAY")
- or, running rate of COMP (per 2hrs of accumulated operation time) is more than 90%
- or, accumulated door open time is over 2 minutes

(2) Even if the above condition is not satisfied,
- defrost mode starts immediately when accumulated compressor run time is 14hrs.
- total compressor running time ( on time + off time ) is 72hours.

B. Normal Defrost Mode




C. Forced Defrost Mode
- How to start:
(1) by press Door S/W for continuously and Control 'Dial Knob'(MIN -> MAX) 1 times.
(2) or, by press 'Test Key' 3 times on Main PCB
- If appliance has any error, Forces Defrost Mode don't start.
- Process: same as Normal Defrost Mode except 'PRE-COOL'
※ Heater is supposed to be on Initial 30sec. even though the temp. at “D SENSOR” is over 10℃. (for TEST)
- How to confirm: If Force Defrost Mode start, you can buzzer sound

## 2-3. Defrost Mode

| INPUT | CONTROL OBJECT |
|---|---|
| - Accumulated Compressor Run Time<br>- Running Time Ratio of Compressor<br>- Accumulated Door Open Time | - Compressor<br>- F Fan<br>- Defrost Heater |

A. Defrost Mode Operation conditon
(1) In case accumulated compressor run times: 6, 8, 10, 12 hours,
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- or, accumulated door open time is over 2 minutes

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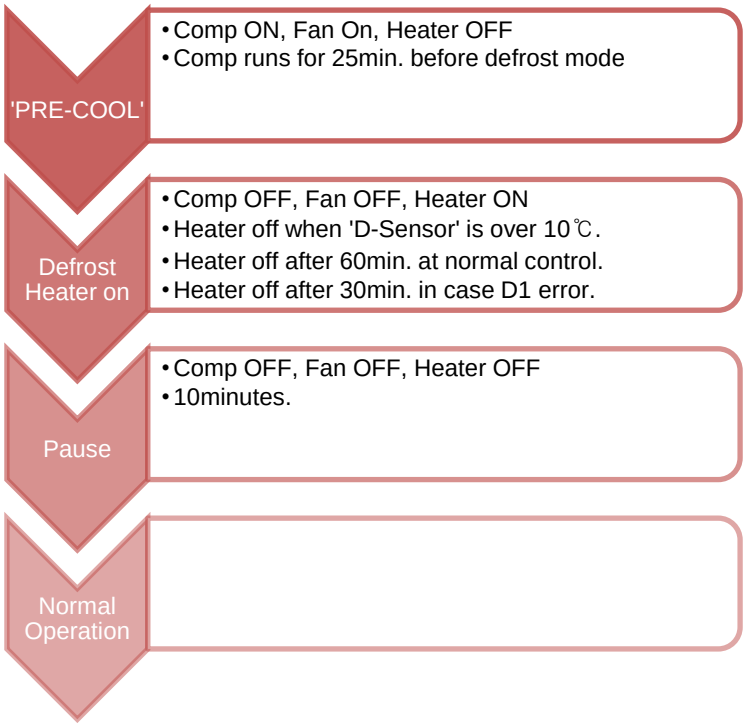
- defrost mode starts immediately when accumulated compressor run time is 14hrs.
- total compressor running time ( on time + off time ) is 72hours.

B. Normal Defrost Mode




C. Forced Defrost Mode
- How to start:
(1) by press “TEMP” button for continuously and “FUNC” button 5 times.
(2) or, by press 'Test Key' 3 times on Main PCB
- If appliance has any error, Forces Defrost Mode don't start.
- Process: same as Normal Defrost Mode except 'PRE-COOL'
※ Heater is supposed to be on Initial 30sec. even though the temp. at “D SENSOR” is over 10℃. (for TEST)
- How to confirm: If Force Defrost Mode start, you can buzzer sound

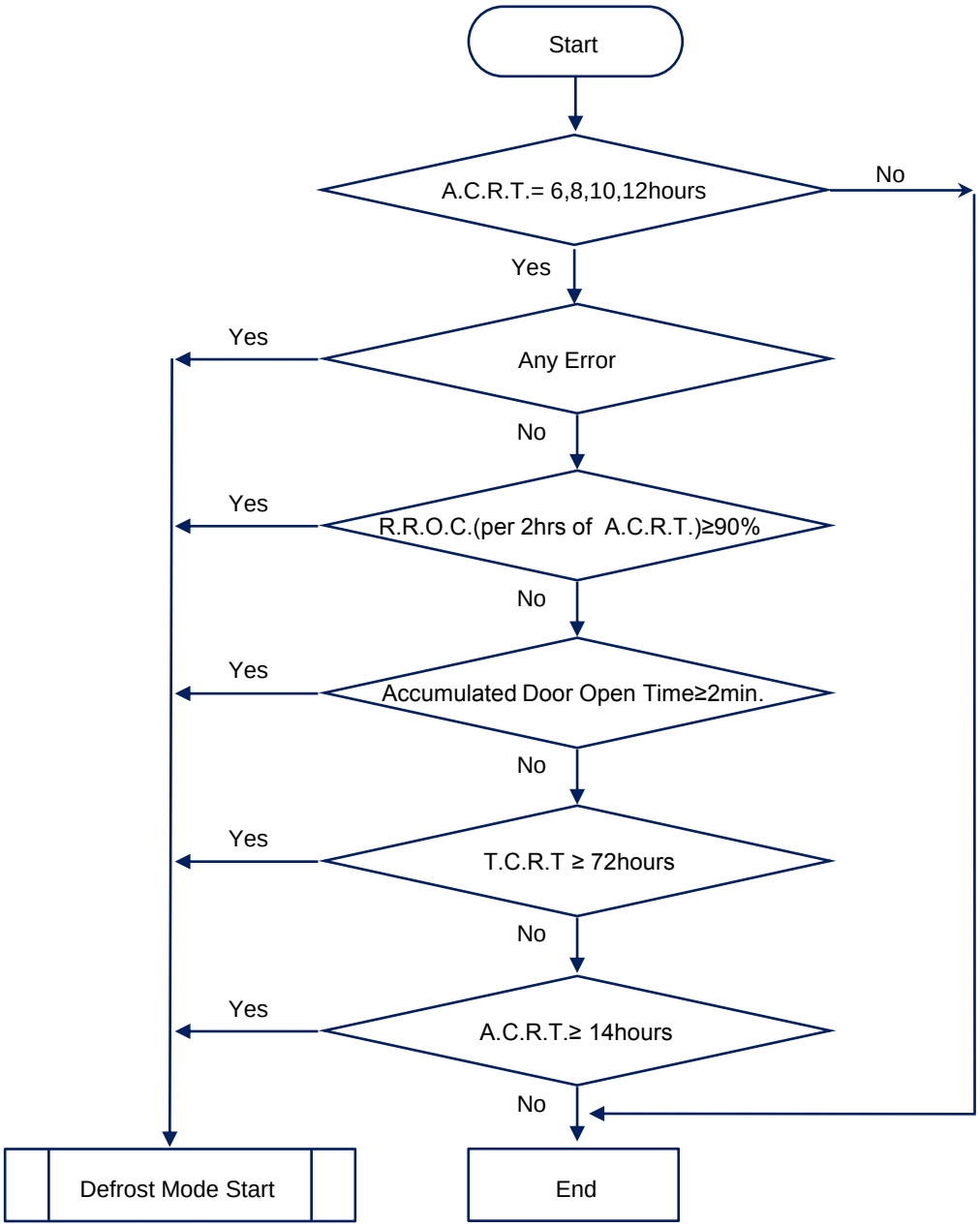
## 2-3. Defrost Mode

D. Flow chart of How to Start Defrost Mode

※ A.C.R.T. : Accumulated Compessor Run Times

※ R.R.O.C. : Running Rate of Compressor

※ T.C.R.T. : Total Compressor Running Time (on time + off time)



| 2-4. Function of Low Ambient Temperature (RT) | |
|---|---|
| INPUT | CONTROL OBJECT |
| RT | - COMP |

A. Condition of LOW RT
- RT sensor below 21℃
- When the RT sensor is over 21℃, the system comes to be “General Operation Mode”.
- When the RT sensor is between 20.5°C to 21°C, the system keeps the previous mode.

B. Control
- When the temp of RT sensor is between 13°C to 21°C, COMP on temp is 1.5°C DOWN and off Temp is 2.0°C UP
- When the temp of RT sensor is below 13°C, COMP on temp is 2.5°C DOWN and off Temp is 1.5°C UP

| 2-5. Prevention of Compressor Restart | |
|---|---|
| INPUT | CONTROL OBJECT |
| N/A | COMP |

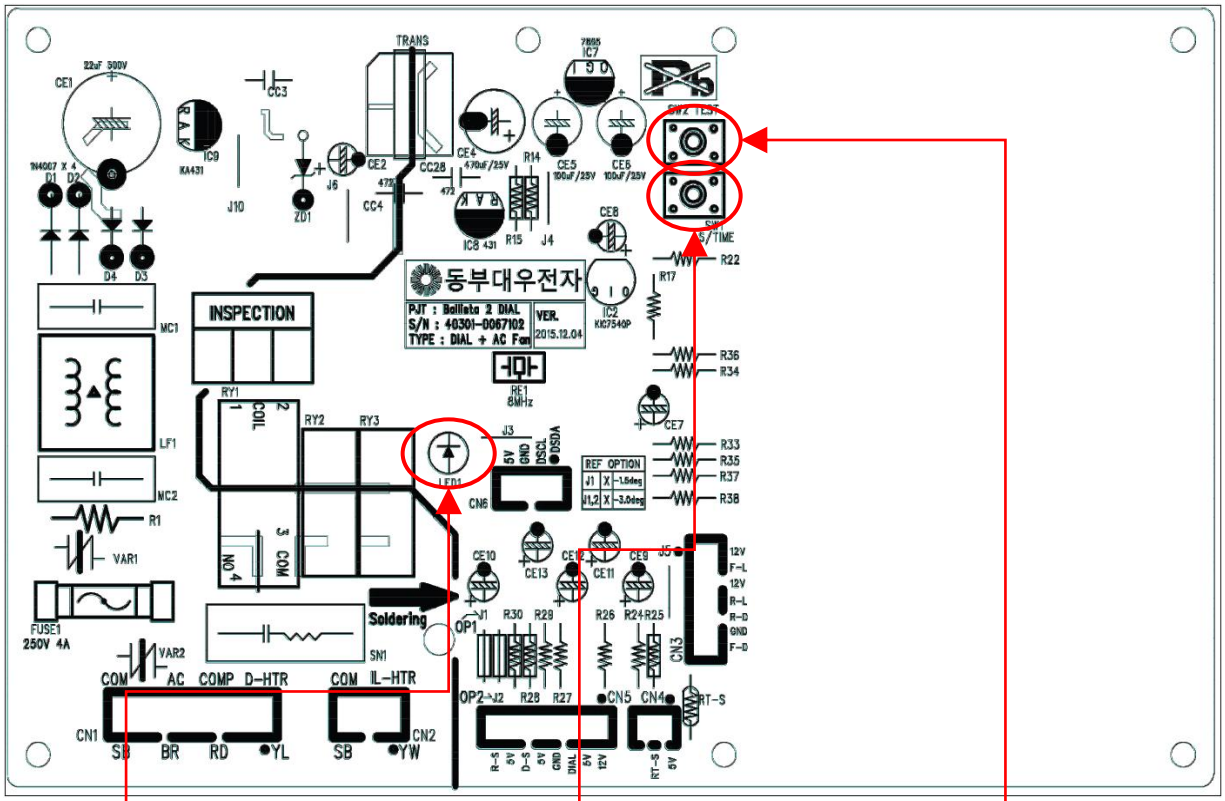
It takes several minutes to protect Compressor:
- 6 minutes after Comp off

| 2-6. Buzzer Sound | |
|---|---|
| INPUT | CONTROL OBJECT |
| - Forced Defrost Mode start<br>- Door Switch<br>- Initial Power Input | Buzzer |

A. When Forced Defrost Mode start, the buzzer rings 3 times.
B. After 2 seconds power’s on, the buzzer rings 3 times.
C. At Short Circuit Test, the buzzer rings 1 times.
D. When door opens, the buzzer rings every 1 minute for 5 minutes.

| 2-7. Time Saving Function | |
|---|---|
| INPUT | CONTROL OBJECT |
| ”FAST KEY” | |
| A. How to Save<br>- 1 min : Click FAST KEY one time on MAIN PCB.<br>- 30 min : If you press FAST KEY continuously, you can reduce 30 minutes on each 2.5 seconds.<br>B. Example for usage: when reduce test time | |

MAIN PCB



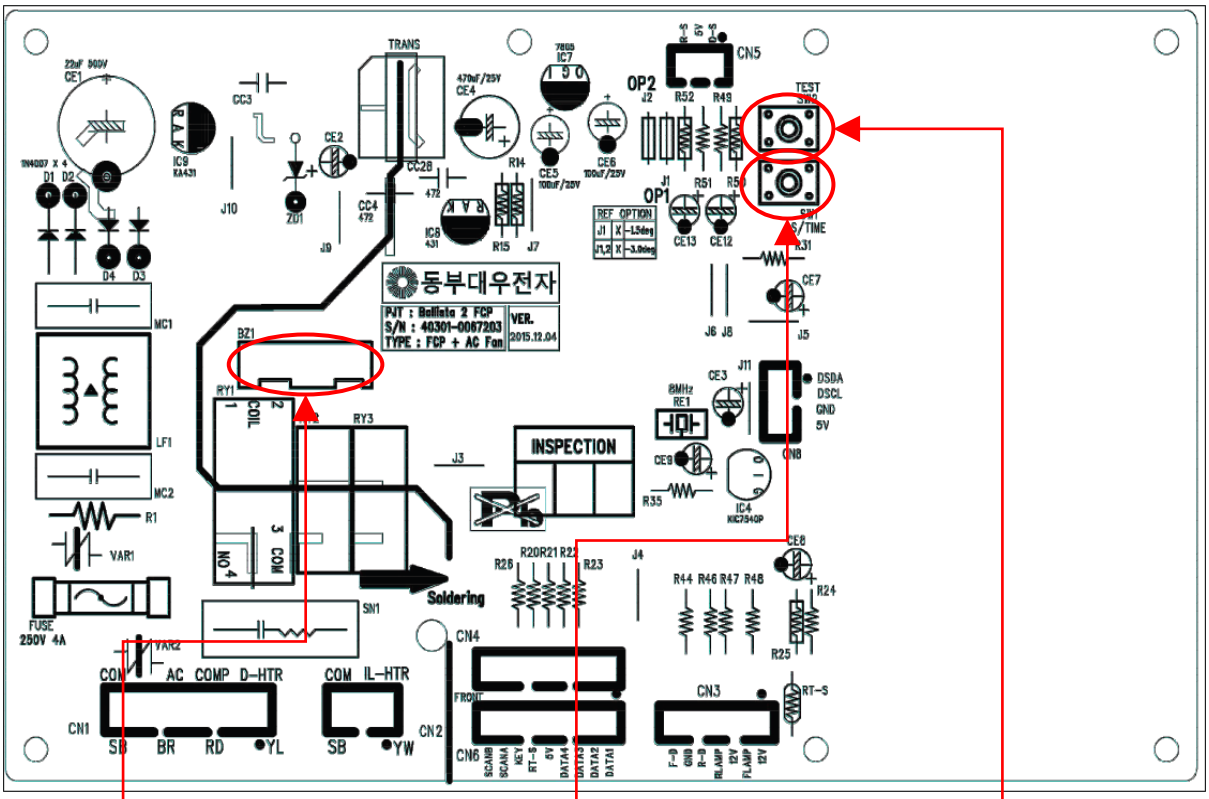

LED

Fast Key
(purchased separately)

Test Key
(purchased separately)

| 2-7. Time Saving Function | |
|---|---|
| INPUT | CONTROL OBJECT |
| ”FAST KEY” | Buzzer |
| A. How to Save<br>- 1 min : Click FAST KEY one time on MAIN PCB.<br>- 30 min : If you press FAST KEY continuously, you can reduce 30 minutes on each 2.5 seconds with buzzer.<br>B. Example for usage: when reduce test time | |

MAIN PCB




Buzzer

Fast Key
(purchased separately)

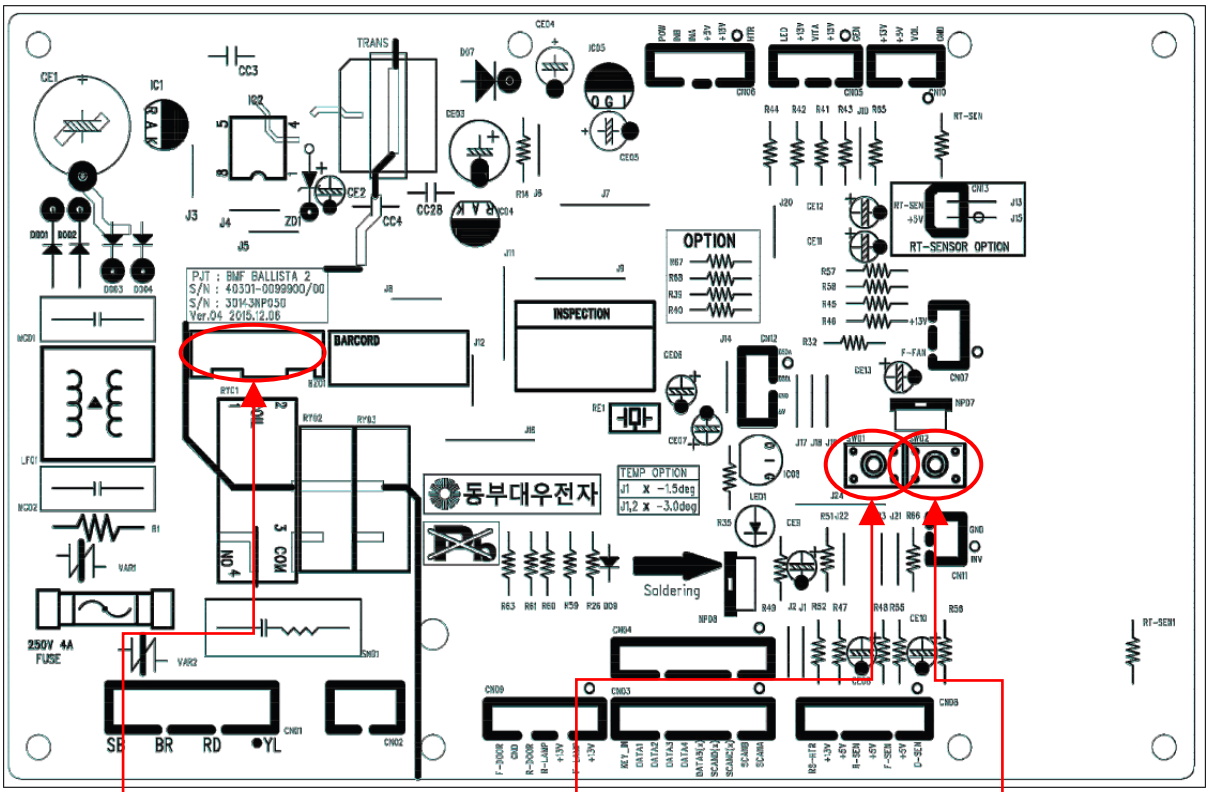
Test Key
(purchased separately)

| 2-7. Time Saving Function | |
|---|---|
| INPUT | CONTROL OBJECT |
| ”FAST KEY” | Buzzer |

A. How to Save
- 1 min : Click FAST KEY one time on MAIN PCB.
- 30 min : If you press FAST KEY continuously, you can reduce 30 minutes on each 2.5 seconds with buzzer.

B. Example for usage: when reduce test time

MAIN PCB




Buzzer

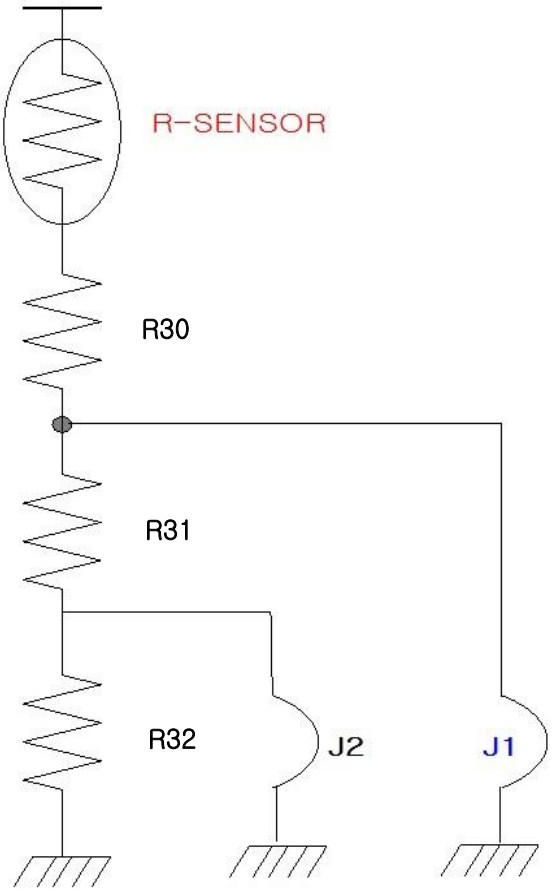
Fast Key
(purchased separately)

Test Key
(purchased separately)

| 2-8. Control of R-sensor OFF Point | |
|---|---|
| INPUT | CONTROL OBJECT |
| ”J1” , “J2” On Main PCB | Control Resistance of R sensor OFF Point |

- When the refrigeration of refrigerator is poor or weak though Fan and COMP are working continuously, the following actions are recommended for service.
  (1) Resistance (R30) : Default resistance (31.4Kohms)
  (2) Resistance (R30+R31) :
  Cut the “J1” off to reduce Default R sensor OFF Point by 1.5°C. (2Kohms up)
  (3) Resistance (R30+R31+R32) :
  Cut the “J2” off additionally to reduce Default R sensor OFF Point by 3.0°C. (total 4Kohms up)

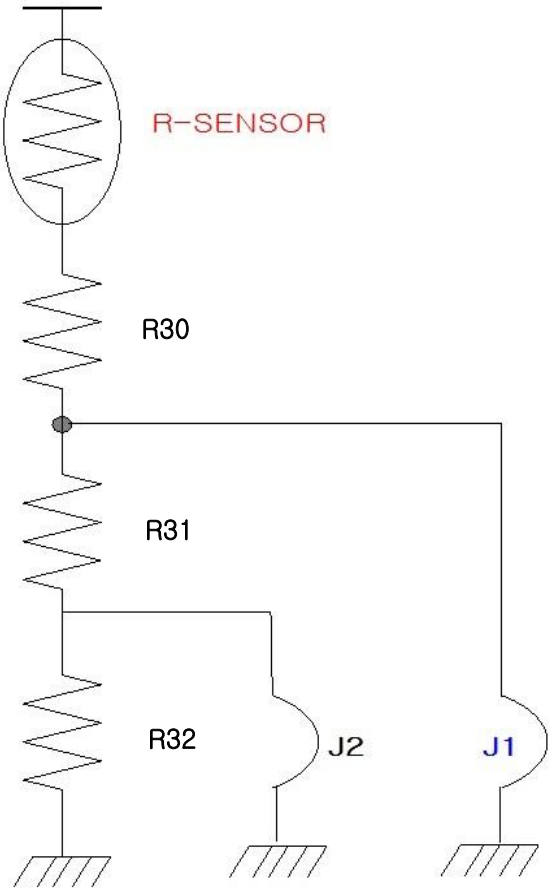
※ R30 = R-SENSOR OFF point
R30 + R31 = R-SENSOR OFF point - 1.5°C
R30 + R31 + R32 = R-SENSOR OFF point - 3°C



| 2-8. Control of R-sensor OFF Point | |
|---|---|
| INPUT | CONTROL OBJECT |
| ”J1” , “J2” On Main PCB | Control Resistance of R sensor OFF Point |

- When the refrigeration of refrigerator is poor or weak though Fan and COMP are working continuously, the following actions are recommended for service.
  (1) Resistance (R52) : Default resistance (31.4Kohms)
  (2) Resistance (R53+R54) :
  Cut the “J1” off to reduce Default R sensor OFF Point by 1.5°C. (2Kohms up)
  (3) Resistance (R52+R53+R54) :
  Cut the “J2” off additionally to reduce Default R sensor OFF Point by 3.0°C. (total 4Kohms up)

※ R52 = R-SENSOR OFF point
R52 + R53 = R-SENSOR OFF point - 1.5°C
R52 + R53 + R54 = R-SENSOR OFF point - 3°C



## 2-9. Error Display

| INPUT | CONTROL OBJECT |
|---|---|
| Sensor Error | LED Lamp |

- ERROR DISPLAY
  - If appliance has any errors, LED on the Main PCB is flickering.
  - If the appliance is normal (no error), LED IS off.

A. 'R1' ERROR
: It happens when R-Sensor is OPEN or SHORT.
(1) LED DISPLAY: Shortly flickering(0.3sec.) 1 times.
(2) CONTROL:
Controlled by the following condition of RT

| RT sensor TEMP (unit: ℃) | ~13 | ~21 | ~30 | ~40 | ~43 | 43~ | RT-S Error |
|---|---|---|---|---|---|---|---|
| COMP. Operating ON/OFF TIME (unit: | 7/50 | 10/35 | 25/35 | 30/26 | 50/15 | 50/15 | 30/26 |

※ If 'RT ERROR' happens at the same time, “COMP. ON/OFF Operating Time” is 30min/26min.
(3) RELEASE: When R-Sensor is working normally.

B. 'RT' ERROR
: It happens when RT-Sensor is OPEN or SHORT.
(1) LED DISPLAY: Shortly flickering(0.3sec.) 2 times.
(2) CONTROL: Delete the conditions of 'RT-sensor Control' and operate normally.
(3) RELEASE: When RT-Sensor is working normally.

C. 'd1' ERROR
: It happens when D-Sensor is OPEN or SHORT.
(1) LED DISPLAY: Shortly flickering(0.3sec.) 3 times.
(2) CONTROL: Return to next limit defrost time (30 min)
(3) RELEASE: When D-Sensor is working normally.

D. 'DR' / 'DF' ERROR
: It happens when the system senses R/F door opens more than 1 hour.
(1) LED DISPLAY: Shortly flickering(0.3sec.) 4 times / 5 times.
(2) CONTROL: Delete function relating to R/F door switch sensing
(3) RELEASE: When sensing close from R/F door S/W.

E. 'F3' ERROR
: It happens when Defrost Heater off after 60min.
(1) LED DISPLAY: Shortly flickering(0.3sec.) 6 times.
(2) CONTROL: Skip the step 'PRE-COOL' of Defrost Mode.
(3) RELEASE: Defrost Heater off by D-Sensor.

※ When pusing 'TEST KEY' on the main PCB,
LED is long(1.0sec.) flickering several times.
ex. 'Forced Defrost Mode:' long flickering 2 times

flicker

| CODE | LED | ERROR |
|---|---|---|
| R1 | 1time | R sensor |
| RT | 2times | RT sensor |
| d1 | 3times | D sensor |
| DR | 4times | DR Switch |
| DF | 5times | DF Switch |
| F3 | 6times | Defrost |

- To Confirm Errors:
Check LED on the main PCB

- The Priorities of Error :
R1→RT→D1→DR→DF→F3

## 2-9. Error Display

| INPUT | CONTROL OBJECT |
|---|---|
| PCB Control Panel Buttons on Door | LED DISPLAY |

- Error Check Mode
  (1) How to start: Push "FUNC" button for continuously and "TEMP" button 5 times .
  (2) What happen: LED "ECO" flickering, and if any errors occur, the related LEDs on.
  (3) CANCEL: Push "TEMP" button 1 time, or wait 4 minutes.
  ※ After operations back to normal, the displays come to be reset.

A. "R1" ERROR
: It happens when R-Sensor is OPEN or SHORT.
(1) LED DISPLAY: LED "1" flickering (OPEN) / LED "1" on (SHORT)
(2) REACTION: Controlled by the following condition of RT

| RT sensor TEMP (unit: ℃) | ~13 | ~21 | ~30 | ~40 | ~43 | 43~ | RT-S Error |
|---|---|---|---|---|---|---|---|
| COMP. Operating ON/OFF TIME (unit: | 7/50 | 10/35 | 25/35 | 30/26 | 50/15 | 50/15 | 30/26 |

※ If 'RT ERROR' happens at the same time, “COMP. ON/OFF Operating Time” is 30min/26min.
(3) RELEASE: When R-Sensor is working normally.

B. "RT" ERROR
: It happens when RT-Sensor is OPEN or SHORT.
(1) LED DISPLAY: LED "2" flickering (OPEN) / LED "2" on (SHORT).
(2) REACTION: Delete the conditions of RT-sensor Control and operate normally.
(3) RELEASE: When RT-Sensor is working normally.

C. "d1" ERROR
: It happens when D-Sensor is OPEN or SHORT.
(1) LED DISPLAY: LED "3" flickering (OPEN) / LED "3" on (SHORT).
(2) REACTION: Return to next limit Defrost Time (30 min).
(3) RELEASE: When D-Sensor is working normally.

D. "DR" / "DF" ERROR
: It happens when the system senses R/F door opens more than 1 hour.
(1) LED DISPLAY: LED "4 / 5" on.
(2) REACTION: Delete function relating to R/F door switch sensing.
(3) RELEASE: When sensing close from R/F door S/W.

E. 'F3' ERROR
: It happens when Defrost Heater off after 60min.
(1) LED DISPLAY: : LED "Super" on.
(2) CONTROL: Skip the step 'PRE-COOL' of Defrost Mode.
(3) RELEASE: Defrost Heater off by D-Sensor.

### 3-1. Door Switch

| No | Procedure | No | Procedure |
|---|---|---|---|
| 1 | Inuput a thin driver in the upper part as above picture.<br>And lift up 'Door Switch' carefully. | 3 | |
| 2 | Inuput a thin driver in the lower part as above picture.<br>And lift up 'Door Switch' carefully. | | Disconnect the wire housing. |

**3-2. Cover Multi-Flow Duct As (in Fresh food Compartment)**

<table>
<tr><th>No</th><th>Procedure</th><th>No</th><th>Procedure</th></tr>
<tr><td>1</td><td>Unlock the lamp window<br>(1) Push the window right side<br>(2) Lever two window lock with flat driver</td><td rowspan="3">4</td><td rowspan="3">Unlock the 'COVER M/FLOW DUCT'<br>(1) Check the marks of locking position on 'Cover'.<br>(Number of the marks are model dependent)<br>(2) Push the 'cover' inside and Unlock.</td></tr>
<tr><td>2</td><td>Open window turning on the axis 'A'</td></tr>
<tr><td>3</td><td>Remove two screw cap with flat driver.<br>Unscrew 2 points</td></tr>
<tr><td></td><td></td><td>5</td><td>Disconnect the Lamp & Sensor wire housing.</td></tr>
</table>

### 3-3. Louver F As (in Frozen Food Compartment)

| No | Procedure | No | Procedure |
|---|---|---|---|
| 1 | Unscrew to disassemble the 'Louver F As' from Freezer. | 4 | Unscrew to disassemble as each component part. |
| 2 | Remove the 'Louver F As' pulling the top side. | 5 | Unlock carefully. (especially, inside 3 locks) |
| 3 | Disconnect Fan motor wire housing. | | ※Default position of 'KNOB F' is 'MID' |

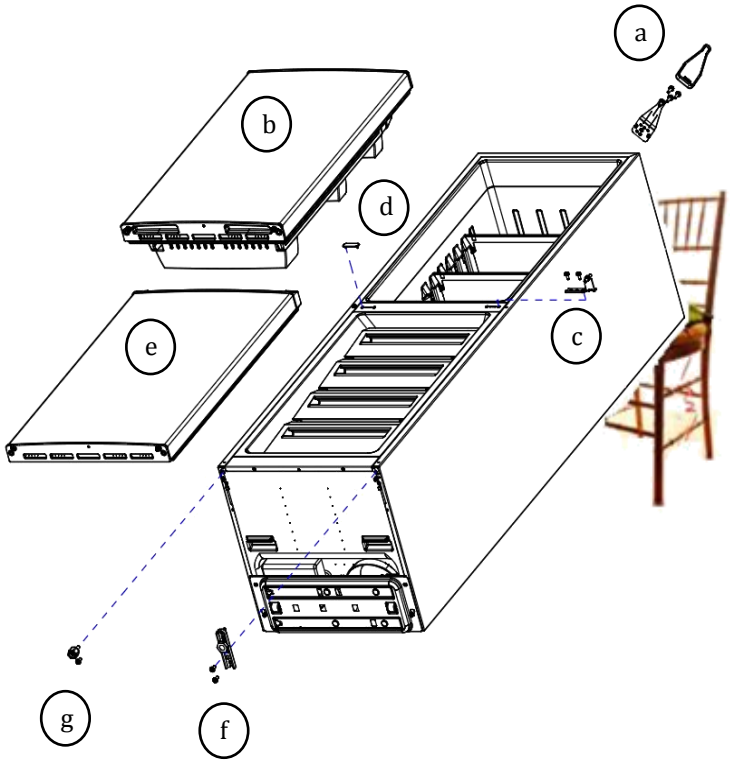
### 3-4. DOOR F/R

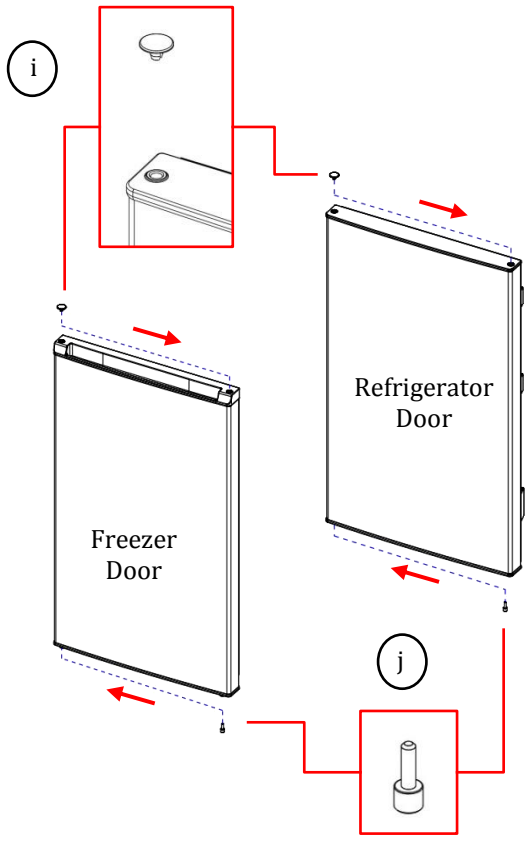
| No | Procedure | No | Procedure |
|---|---|---|---|
| 1 | Tilt down the appliance to the rear. | 4 | Remove door in fresh food compartment.<br>And unscrew middle hinge.<br>※ Don't forget the washer for middle hinge. |
| 2 | Lift up top cover hinge to remove. | | |
| 3 | Unscrew and remove top hinge. | 5 | Lift up middle cover hinge to remove. |

**3-4. DOOR F/R**

| No | Procedure | No | Procedure |
|---|---|---|---|
| 6 | *Unscrew and remove under hinge.*<br><br>※ *Don't forget the washer for under hinge.*<br>※ *The washer for under hinge's bigger than* middle one. | 7 | Turn the 'Adjusting Leg (Left)' CCW and Remove. |
| | | 8 | *Remove door in frozen food compart ment.* |

**Features are model dependent ( Below is RN-271 model )**




1-1> Tilt down the appliance to the rear.
(Watch out for "Pipe Wire Condensor" damage.)

1-2> Disassemble following parts in order.

- 'Top Cover Hinge' and 'Top Hinge'(a)
- -'Refrigerator Door'(b)
- 'Middle Hinge'(c)
- 'Middle Cover Hinge'(d)
- 'Freezer Door'(e)
- 'Under Hinge'(f)
- 'Adjusting Leg '(g)

1-3> Move following 'Door Accessories' in the opposite position:

- 'Cover Bushings'(i)
- 'Door Stoppers'(j)

1-4> Change the position of following parts each other and assemble them:

'Adjusting Leg '(g) & 'Under Hinge'(f)

1-5> Level and assemble the 'Freezer Door'(e)

1-6> Change the position of following parts each other and assemble them:

'Middle Cover Hinge'(d) & 'Middle Hinge'(c)

1-7>
Level and assemble the 'Refrigerator Door'(b).

1-8>
Assemble following parts on the opposite side:

'Top Cover Hinge' and 'Top Hinge'(a)

**5-1. Safety Warning ( R-600a Refrigerant Models Only)**


This appliance contains a certain amount of isobutane refrigerant (R600a) a natural gas with high environmental compatibility that is, however, also combustible.

When transporting and installing the appliance, care should be taken to ensure that no parts of the refrigerating circuit are damaged.

Refrigerant squirting out of the pipes could ignite or cause an eye injury. If a leak is detected, avoid any naked flames or potential sources of ignition and air the room in which appliance is standing for several minutes.

- In order to avoid the creation of a flammable gas-air mixture if a leak in the refrigerating circuit occurs, the size of the room in which the appiance may be sited depends on the amount of refrigerant used. The room must be 1m3 in size for every 8g of R600a refrigerant inside the appliance. The amount of refrigerant is shown on the identification plate inside the appliance.
- Never start up an appliance showing any sings of damage. If in doubt, consult your dealer.

**5-2. Tools**

| 1. R-600a ref. Can | 2. Can adapter | 3. Pinch Plier |
|---|---|---|
|  |  |  |
| **4. Ref. discharging hose** | **5. Vacuum pump** | **6. Welder** |
|  |  |  |
| **7. Coupling Pipe** | **8. Leakage Tester** | **9. Electronic-scale** |
|  |  |  |

### 5-3. Process Summary

**1st Step.**
R-600a ref.
discharging

- Connect the dis-charging hose to the outdoors.
- Time : 7 min.

**2nd Step.**
Removing
the remaning refrigerant

- For removing of remaning refrigerant., connect the discharging hose to the vacuum pump
-Time : 10min

**3th Step.**
Exchanging comp.
& dryer / pipe welding

- Exchange Comp. and Dryer
- Welding the Pipe
- Copper-Copper : 5% rod
- Copper-Steel : 30% rod

**4th Step.**
Welding
coupling pipe

Coupling cap and gas charging cap should be seperated before welding.

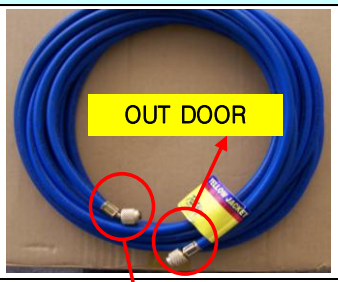
**5th Step.**
Vacuum

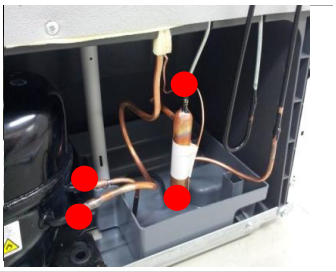
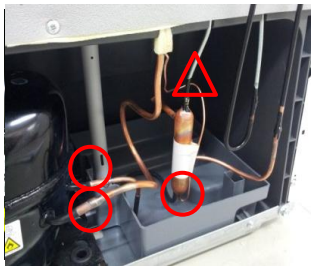
- Check the vacuum with (mani-polder) gauge
- Time : 60~80min

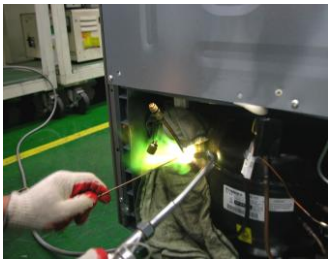
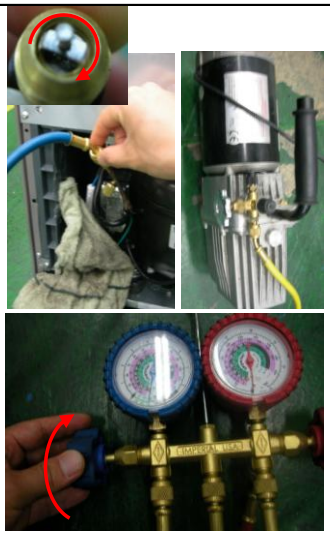
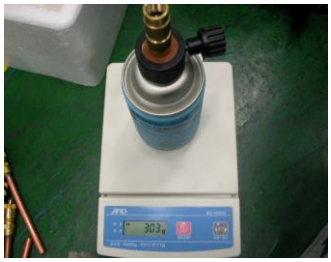
**6th Step.**
Charge R-600a

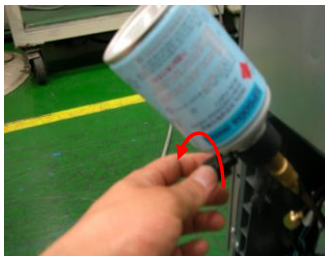
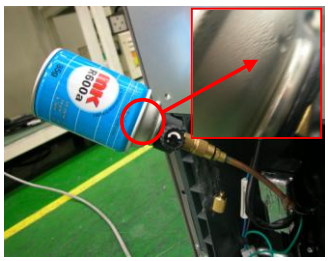
- Charging the ref. on POWER ON
- Time : 10min

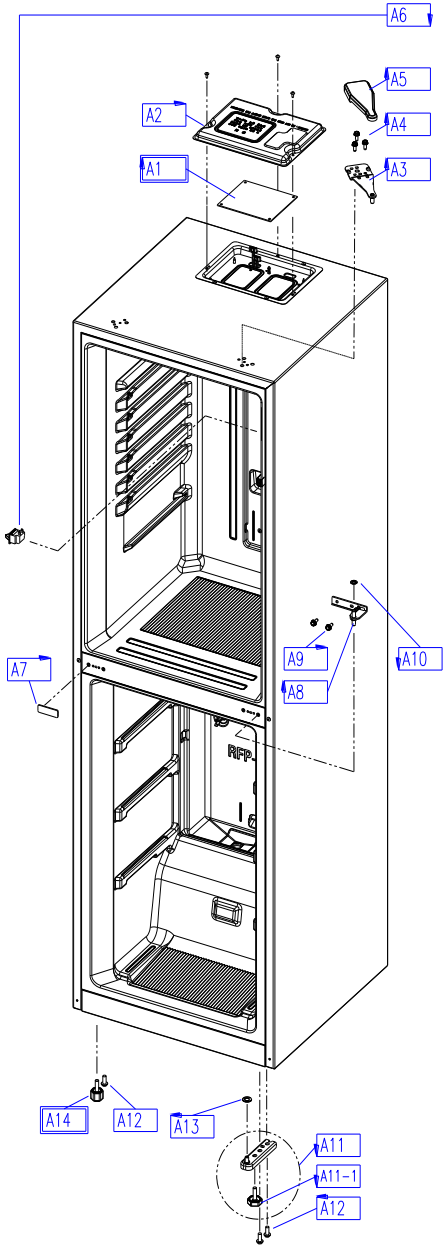
### 5-4. In Detail Precess

| NO. | SVC process | Image | Details |
|---|---|---|---|
| 1 | Connecting the pinch-plier & discharging hose |  | 1. Connect the discharging hose to the pinch-plier<br>2. The outlet of discharging hose should be placed to the outdoor(window) |
| 2 | Fixing the pinch-plier & charging pipe |  | 1. Fix the pinch-plier to the compressor charging pipe.<br>2. Pinch-plier should not be moving freely.<br>※ If that is moving freely, it would cause fire/explosion as leakage gas in the room. |
| 3 | **Discharging the R-600a ref.** |  | 1. Discharge the R-600a ref. to outdoor.<br>[Befor connecting the vacuum pump]<br>※ It should have enough time more than 7 minutes to discharge. |

| NO. | SVC process | Image | Details |
|---|---|---|---|
| 4 | Removing the remaining ref. |  | 1. And then, connect the vacuum pump to the outlet of discharging hose<br>※Vacum pump should be placed at the outdoor where is able to clear air easily.<br>※ It should have enough time more than 10 minutes to discharge. |
| 5 | Removing the pinch-plier & pipe |  | 1. Disassembe the each pipe (Del-pipe, Suc-pipe, Capi-pipe, Dryer & Hot-pipe)<br>※ Caution ; A part is easily damaged by flame so that disassemly should be done carefully. |
| 6 | Exchanging comp & dryer |  | 1. Change the comp. & dryer.<br>※ You should check the comp. spec. and assemble correctly. |
| 7 | Welding |  <br>  | 1. Weld the each pipe.<br>※ O Copper-Copper welding - 5% rod<br>△ Copper-Steel welding - 35% rod |
| 8 | Disassembly of charging valve (Coupling pipe) |  | 1. Decap the couplig pipe cap and disassemble the vlave ass'y.<br>※ If you don't disassemble, the coupling rubber would be melted. |

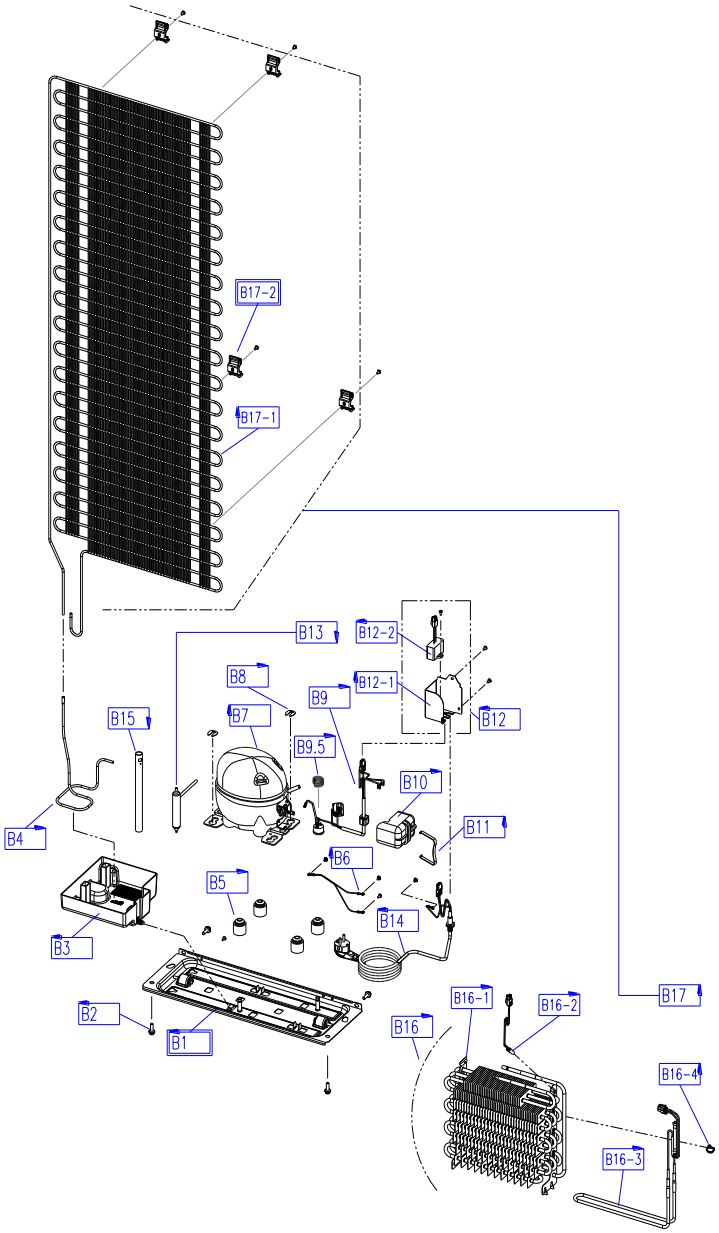
| NO. | SVC process | Image | Details |
|---|---|---|---|
| 9 | Coupling pipe welding |  | 1. Weld after inserting the coupling pipe to the compressor.<br>※ Use the wet cloth for preventing the other part of machinery-room from damage. |
| 10 | Valve reass'y & guage connecting |  | 1. Reassemble the valve ass'y with coupling pipe to clockwise.<br>2. Connect the blue hose of the guage to the coupling pipe and the yellow hose to the vacuum pump.<br>3. Open the blue guage lever and start the vacuum pump |
| 11 | Vacuum |  | 1. Be vacuumed the cycle with pump.<br>※ Time : 60~80min<br>=> If the vacuum time is less than 60min, ref. COP & air coolong would be weak. |
| 12 | Check |  | 1. Check the guage : -76㎝Hg<br>※ If the cycle is not vacuumed, it would be leak. |
| 13 | **Adjusting the amounts of refrigerants (R-600a can)** |  | 1. Check the amounts of R-600a can with scale and discharge the surplus ref.<br>※ Discharging is surely done at the outdoor where is able to clear air.<br>※ Tip of adjusting.<br>- Can total weight :160g(Can 75g+Ref. 85g)<br>- Adapter : 145g<br>=> Total : 305g<br>- The amounts of charging : 79g<br>=> Discharging : 6g => Total : 299g |

| NO. | SVC process | Image | Details |
|---|---|---|---|
| 14 | Connecting of coupling pipe & adapta |  | 1. Conect can adapter to the coupling pipe.<br>2. Charge the ref. with open lever slowly.<br>※ Refrigerant should never leak in the room. |
| 15 | Charging |  | 1. On the power of refrigerator and then start to charge the ref. (10min)<br>※ Charge the ref. until going out the water vapour condensing on the can outlet. |
| 16 | Leakage Test |  | 1. Check the leakage.<br>※ You must rework from Step.1 when the leakage is detected. |
| 17 | Finish |  | 1. Clean and clear around the machinery room when the service is finished.<br>2. Assemble the machinery room cover. |

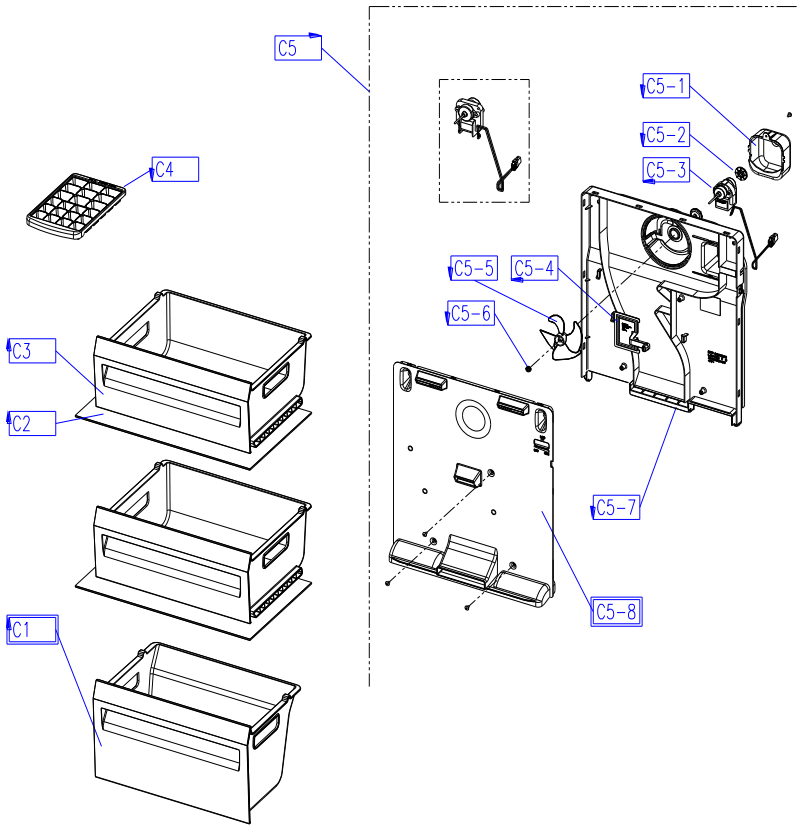



| NO | PART-CODE | PART NAME | SPEC. | Q'ty |
|---|---|---|---|---|
| | | | | RN-53* |
| A1 | 30143KW0C0 | PCB MAIN AS | RFP-301 A++(VE) | 1 |
| | 30143KW080 | | RFP-301 A++ | |
| A2 | 3001416600 | COVER M/PCB BOX AS | RFP-241/301(VE), SECC (WHITE) | 1 |
| | 3001416610 | | RFP-241/301(VE), SECC (SILVER) | |
| | 3001416620 | | RFP-241/301(VE), SECC (T/SILVER) | |
| | 3001416630 | | RFP-241/301(VE), SECC (BLACK) | |
| | 3001416640 | | RFP-241/301(VE), SECC (BACK COATING) | |
| | 301149CB00 | | RFP-241/301, SECC (WHITE) | |
| | 301149CB10 | | RFP-241/301, SECC (GRAY) | |
| | 301149CB20 | | RFP-241/301, SECC (BLACK) | |
| A3 | 3012937900 | HINGE *T AS | RFP-301 | 1 |
| A4 | 3016001250 | SPECIAL BOLT *M | 6X15 SWCH22A(WH) | 3 |
| A5 | 3001448500 | COVER HI *T | PP (WHITE) | 1 |
| | 3001448510 | | PP (GRAY) | |
| | 3001448520 | | PP (BLACK) | |
| A6 | 301179DP00 | DOOR S/W AS | HC-050K4 250V2.5A | 1 |
| A7 | 3010937720 | CAP DV HI HOLE *M | HIPS | 1 |
| A8 | 3012938000 | HINGE *M AS | RFP-301 | 1 |
| A9 | 3016001250 | SPECIAL BOLT *M | 6X15 SWCH22A(WH) | 2 |
| A10 | 3016044410 | SPECIAL WASHER *M HI | SGCC, T1.0 x I.D9.0 x O.D15 | 1 |
| A11 | 3012938100 | HINGE *U AS | RFP-301 | 1 |
| A11-1 | 3012105300 | FOOT ADJ AS | PP+INSERT | 1 |
| A12 | 30160A1700 | SPECIAL BOLT | SWCH10A M8*L18 | 3 |
| A13 | 3816000200 | SPECIAL WASHER | SPCC T1.0 x O.D21 x I.D8 MFZN | 1 |
| A14 | 3012106500 | FOOT ADJ *L AS | PP+INSERT | 1 |

* Please check the color, some parts code color dependent.

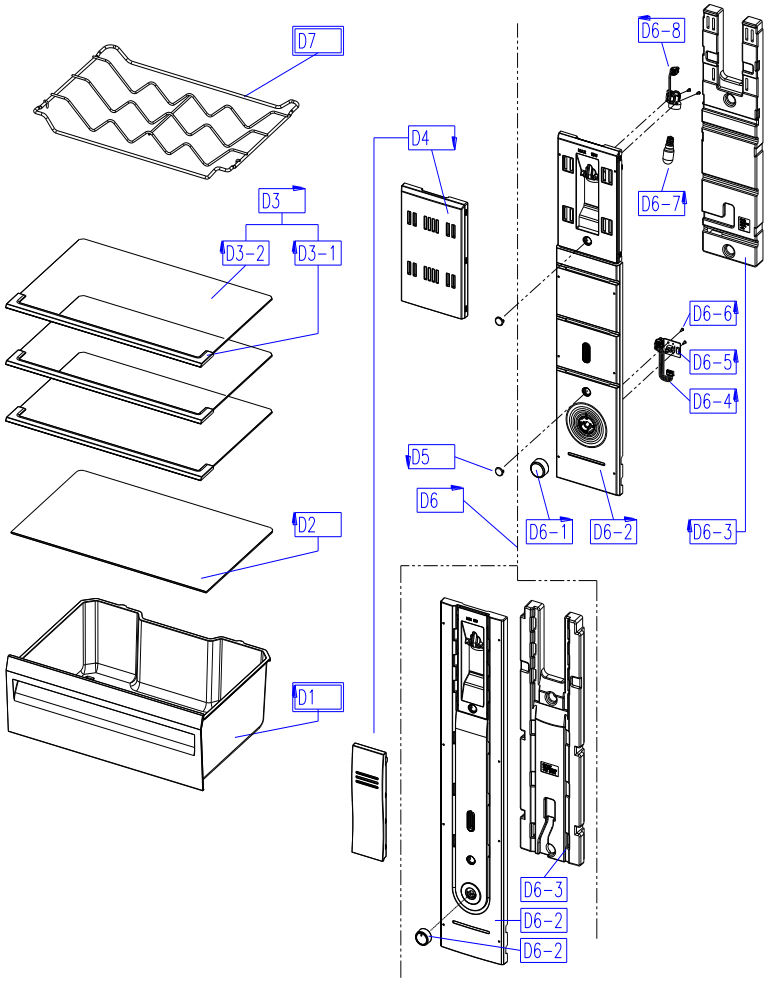



| NO | PART-CODE | PART NAME | SPEC. | Q'ty |
|---|---|---|---|---|
| | | | | RN-53* |
| B1 | 3010365500 | BASE COMP AS | RFP-301 | 1 |
| B2 | 3016003300 | SPECIAL BOLT | T2 M6.5*20 | 4 |
| B3 | 301119VJ10 | CASE VAPORI AS | RFP-301, PP(NATURAL) | 1 |
| B4 | 3014479430 | PIPE CONN A | DUCT1-0 OD4.76*T0.5 | 1 |
| B5 | 3010103400 | ABSORBER COMP | RUBBER | 4 |
| B6 | 3012763210 | HARNESS EARTH COMP | FRM-241, L140 | 1 |
| B7 | 3956182M80 | COMPRESSOR | LR82CY 230V 50HZ | 1 |
| B8 | 4019H09031 | SPECIAL WASHER | SWRH | 2 |
| B9 | 3018134600 | SWITCH P RELAY AS | B60-120, QP2-15C(RSCR DONPER) | 1 |
| B9.5 | 3015103900 | SPRING OVERLOAD PROTECTOR | LZ88CY OLP FIXING | 1 |
| B10 | 3811402600 | COVER RELAY | LZ88CY | 1 |
| B11 | 3015103800 | SPRING COVER RELAY | LZ88CY COVER RELAY FIXING | 1 |
| B12 | 3010583740 | BOX POWER AS | GI+400V,3UF | 1 |
| B12-1 | 3010552101 | BOX POWER | GI/T0.5 | 1 |
| B12-2 | 3016407000 | CAPACITOR RUN AS | 400V,3UF,HOUSING | 1 |
| B13 | 3016808230 | DRYER AS | 10G, SINGLE TUBE | 1 |
| B14 | 3011348111 | CORD POWER | FR-290, 250V 10/16A | 1 |
| B15 | 3012513950 | HOSE DRN B | PVC | 1 |
| B16 | 3017070020 | EVA AS | RFP-301(DC F MOTOR), 230V,130W | 1 |
| B16-1 | 3017070100 | EVA SAS | RFP-301 | 1 |
| B16-2 | 3012764110 | HARNESS D SENS | NBC-K43-24, MOLEX35965-0200 | 1 |
| B16-3 | 3012831220 | HEATER SHEATH AS | RFP-301(DC F MOTOR), 230V,130W | 1 |
| B16-4 | 4856813100 | CABLE TIE | DA-140 | 1 |
| B17 | 3014480010 | PIPE WI-CON AS | RFP-301 | 1 |
| B17-1 | 3014480000 | PIPE WI-CON SAS | RFP-301 | 1 |
| B17-2 | 3012041500 | FIXTURE W-ICON | HIPS | 4 |



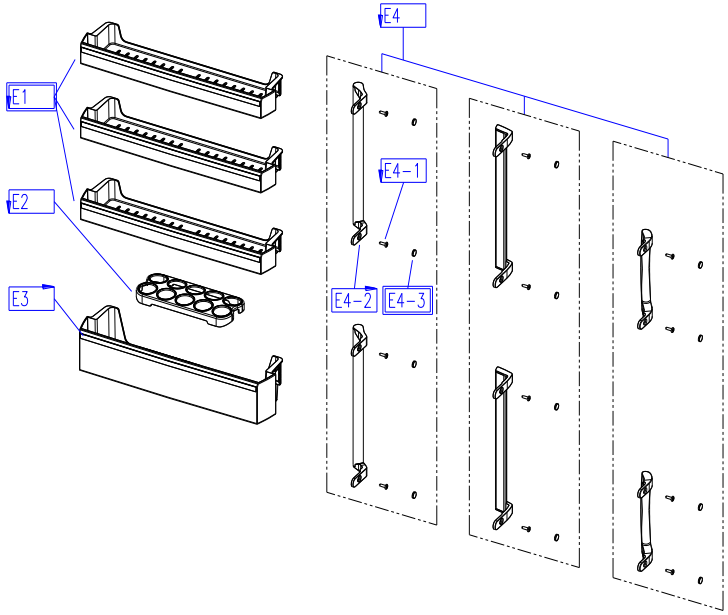

| NO | PART-CODE | PART NAME | SPEC. | Q'ty |
|---|---|---|---|---|
| | | | | RN-53* |
| C1 | **301119V200** | CASE F B | RFP-301, GPPS(CRYSTAL) | 1 |
| | **301119V210** | | RFP-301, GPPS(GRAY) | |
| | **301119V220** | | RFP-301, GPPS(BLUE) | |
| C2 | **3017861500** | SHELF GLAS F | GLASS T3.2 RFP-301 | 2 |
| C3 | **301119V100** | CASE F A | RFP-301, GPPS(CRYSTAL) | 2 |
| | **301119V110** | | RFP-301, GPPS(GRAY) | |
| | **301119V120** | | RFP-301, GPPS(BLUE) | |
| C4 | **3011187310** | CASE ICING AS | CASE+VINYL | 1 |
| C5 | **3018932540** | LOUVER F AS | RFP-301(DC 13V) | 1 |
| C5-1 | **3010664710** | BRACKET FAN MOTR | PP(NATURAL), T2.0 | 1 |
| C5-2 | **3010107100** | ABSORBER F MOTR | NBR | 2 |
| C5-3 | **3015905360** | MOTOR F AS | D4612AAA33 | 1 |
| C5-4 | **3013415800** | KNOB F CONTL | PP | 1 |
| C5-5 | **3011835900** | FAN | OD100,SHAFT OD3.17 | 1 |
| C5-6 | **3011200510** | CLAMP FAN | SUS 304 (SPRING) | 1 |
| C5-7 | **3018932400** | LOUVER F B | RFP-301, PP | 1 |
| C5-8 | **3018932300** | LOUVER F A | RFP-301, PP | 1 |

**** Please check the color, some parts code color dependent.***



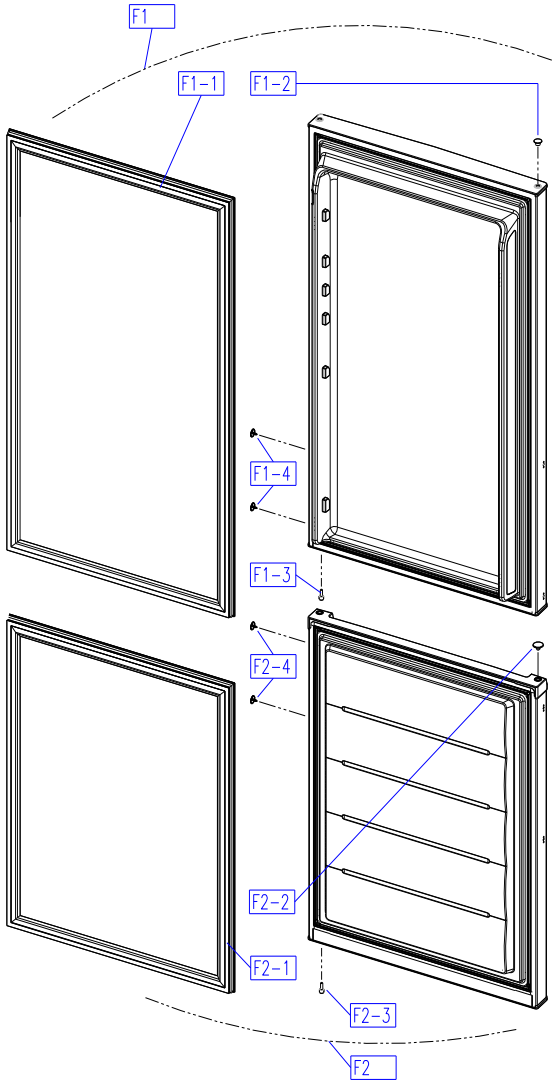

| NO | PART-CODE | PART NAME | SPEC. | Q'ty |
|---|---|---|---|---|
| | | | | RN-53* |
| D1 | 301119V000 | CASE VEGTB | RFP-301, GPPS(CRYSTAL) | 1 |
| | 301119V010 | | RFP-301, GPPS(GRAY) | |
| | 301119V020 | | RFP-301, GPPS(BLUE) | |
| D2 | 301119V400 | CASE GLAS VEGTB | T3.2 | 1 |
| D3 | 3017861100 | SHELF R AS | RFP-301 | 3 |
| D3-1 | 3011664700 | DECO SHELF *F | HIPS | 1 |
| D3-2 | 3017861200 | SHELF GLAS R | T3.2 | 1 |
| D4 | 3015523800 | WINDOW M/FLOW DUCT | RFP-241/301, GPPS | 1 |
| | 3015523900 | | RFP-30F, GPPS | |
| D5 | 3010924600 | CAP F LOUVER | HIPS T2.3 | 2 |
| D6 | 300149DR00 | COVER M/FLOW DUCT AS | RFP-301(VE)+BULB 15W | 1 |
| | 300149DR20 | | RFP-301(VE)+LED 1.2W | |
| | | | RFP-30F(VE)+BULB 15W | |
| | 301149C400 | | RFP-301+BULB 15W | |
| | 301149C420 | | RFP-301+LED 1.2W | |
| | 301149CE00 | | RFP-30F+BULB 15W | |
| D6-1 | 3013415700 | KNOB R CONTL | RFP-241/301, PRINT(EN) | 1 |
| | 3013415900 | | RFP-30F, NO PRINT | |
| D6-2 | 301149C300 | COVER M/FLOW DUCT | RFP-301, HIPS | 1 |
| | 301149CD00 | | RFP-30F, HIPS | |
| D6-3 | 3013387900 | INSU M/FLOW DUCT | RFP-301, F-PS | 1 |
| | 3013388300 | | RFP-30F, F-PS | |
| D6-4 | 3012783310 | HARNESS PCB VOLUME AS | RFP-241/301(VE) | 1 |
| | 3012783300 | | RFP-241/301 | |
| D6-5 | 30143KW460 | PCB VOLUME AS | RFP-241/301(VE) | 1 |
| | 30143KW260 | | RFP-241/301 | |
| D6-6 | 7121300811 | SCREW TAPPING | T2S PAN 3X8 MFZN | 4 |
| D6-7 | 3013600020 | LAMP AS | BULB 15W, 240V | 1 |
| | 3017908400 | SOCKET LED LAMP | LED 1.2W, 230V | |
| D6-8 | 3017903900 | SOCKET LAMP AS | | 1 |
| D7 | 3017861910 | SHELF WINE | RFP-301, SUS 204 | 1(OPTION) |

**** Please check the color, some parts code color dependent.***



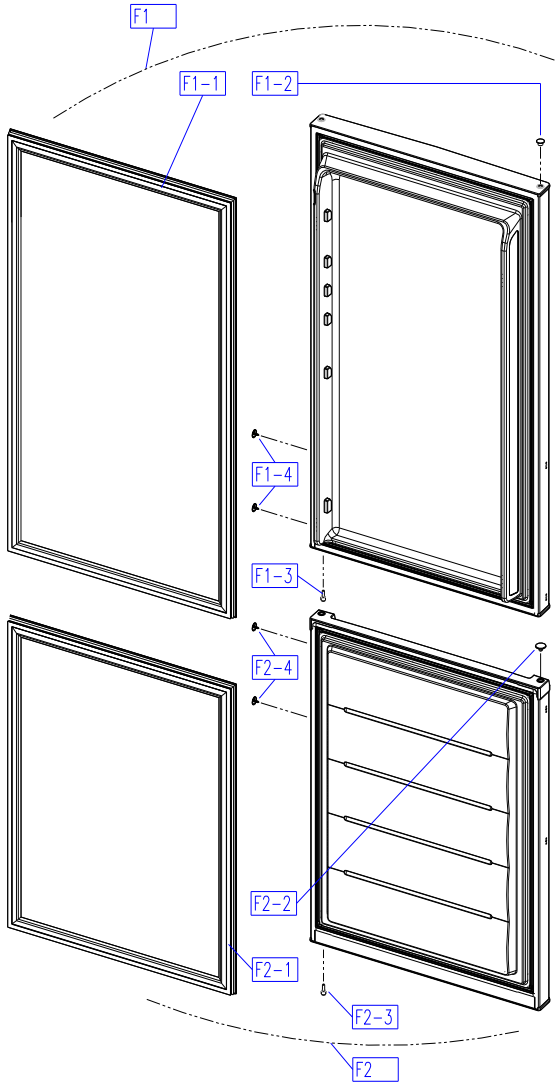

| NO | PART-CODE | PART NAME | SPEC. | Q'ty RN-53* |
|---|---|---|---|---|
| | 3019068700 | POCKET R | RFP-301, GPPS(CRYSTAL) | 3 |
| | 3019068710 | | RFP-301, GPPS(GRAY) | |
| | 3019068720 | | RFP-301, GPPS(BLUE) | |
| E2 | 3011190800 | CASE EGG TRAY | GPPS(CRYSTAL) | 1 |
| | 3019068800 | POCKET J | RFP-301, GPPS(CRYSTAL) | 1 |
| | 3019068810 | | RFP-301, GPPS(GRAY) | |
| | 3019068820 | | RFP-301, GPPS(BLUE) | |
| E4 | 3014011300 | PACKING HNDL AS | AL BAR, MACHING WHITE DOOR(RFP-242/302) | 1(OPTION) |
| | 3014011310 | | AL BAR, MACHING BLACK DOOR(RFP-242/302) | |
| | 3014011320 | | AL BAR, MACHING SILVER DOOR(RFP-242/302) | |
| | 3014011330 | | AL BAR, MACHING T/SILVER DOOR(RFP-242/302) | |
| | 3014011400 | | ABS BAR, MACHING WHITE DOOR(RFP-243/303) | |
| | 3014011410 | | ABS BAR, MACHING BLACK DOOR(RFP-243/303) | |
| | 3014011420 | | ABS BAR, MACHING SILVER DOOR(RFP-243/303) | |
| | 3014011430 | | ABS BAR, MACHING T/SILVER DOOR(RFP-243/303) | |
| | 3014007820 | | ABS BAR(VE), MACHING WHITE DOOR(RFP-243/303) | |
| | 3014007860 | | ABS BAR(VE), MACHING BLACK DOOR(RFP-243/303) | |
| | 3014007850 | | ABS BAR(VE), MACHING SILVER DOOR(RFP-243/303) | |
| | 3014007830 | | ABS BAR(VE), MACHING T/SILVER DOOR(RFP-243/303) | |
| | 3014011100 | | ONE PIECE HANDLE, MACHING WHITE(RFP-244/304) | |
| | 3014011110 | | ONE PIECE HANDLE, MACHING SILVER(RFP-244/304) | |
| | 3014011120 | | ONE PIECE HANDLE, MACHING BLACK(RFP-244/304) | |
| E4-1 | 3011190800 | SPECIAL GRIP HNDL | M5xL16 MFZN | 4 |
| E4-2 | 3012659700 | HANDLE BAR AS | AL BAR, MACHING WHITE DOOR(RFP-242/302) | 2 |
| | 3012659710 | | AL BAR, MACHING BLACK DOOR(RFP-242/302) | |
| | 3012659720 | | AL BAR, MACHING SILVER DOOR(RFP-242/302) | |
| | 3012659730 | | AL BAR, MACHING T/SILVER DOOR(RFP-242/302) | |
| | 3012659800 | | ABS BAR, MACHING WHITE DOOR(RFP-243/303) | |
| | 3012659810 | | ABS BAR, MACHING BLACK DOOR(RFP-243/303) | |
| | 3012659820 | | ABS BAR, MACHING SILVER DOOR(RFP-243/303) | |
| | 3012659830 | | ABS BAR, MACHING T/SILVER DOOR(RFP-243/303) | |
| | 3012658100 | | ABS BAR(VE), MACHING WHITE DOOR(RFP-243/303) | |
| | 3012658130 | | ABS BAR(VE), MACHING BLACK DOOR(RFP-243/303) | |
| | 30126581230 | | ABS BAR(VE), MACHING SILVER DOOR(RFP-243/303) | |
| | 3012658110 | | ABS BAR(VE), MACHING T/SILVER DOOR(RFP-243/303) | |
| | 3012659300 | HANDLE | ONE PIECE HANDLE, MACHING WHITE(RFP-244/304) | |
| | 3012659310 | | ONE PIECE HANDLE, MACHING SILVER(RFP-244/304) | |
| | 3012659320 | | ONE PIECE HANDLE, MACHING BLACK(RFP-244/304) | |
| E4-3 | 3010985200 | CAP HNDL DR | WHITE | 4 |
| | 3010985210 | | SILVER | |
| | 3010985220 | | BLACK | |
| | 3010985230 | | T/SILVER | |

**** Please check the color, some parts code color dependent.***




| NO. F1 | | NO. F2 | | SPEC. | Q'ty |
|---|---|---|---|---|---|
| PART CODE | PART NAME | PART CODE | PART NAME | | RN-53* |
| 30100B9Y00 | ASSY R DR | 30100B9X00 | ASSY F DR | RFP-301, PCM WHITE(DWG1C) | 1 |
| 30100B9Y40 | | 30100B9X30 | | RFP-301, PCM SILVER(ASG4P) | |
| 30100B9Y50 | | 30100B9X40 | | RFP-301, PCM T/SILVER(TSH1P) | |
| 30100B9Y60 | | 30100B9X50 | | RFP-301, PCM BLACK(BLH1C) | |
| 30100B9Y70 | | 30100B9X60 | | RFP-301, PCM PLATINUM SILVER(PSH1P) | |
| 30100B9Y30 | | 30100B9X20 | | RFP-302/303, PCM WHITE(DWG1C) | |
| 30100B9YL0 | | 30100B9YA0 | | RFP-302/303, VCM WHITE(DWH1C) | |
| 30100B9YC0 | | 30100B9Y80 | | RFP-302/303, PCM SILVER(ASG4P) | |
| 30100B9YD0 | | 30100B9XD0 | | RFP-302/303, PCM T/SILVER(TSH1P) | |
| 30100B9YE0 | | 30100B9YA0 | | RFP-302/303, PCM BLACK(BLH1C) | |
| - | | 30100B9XC0 | | RFP-302/303, PCM BLACK(BLH1C)+ DOOR CAP(RED) | |
| 30100B9YF0 | | 30100B9YB0 | | RFP-302/303, PCM PLATINUM SILVER(PSH1P) | |
| 30100B9Y20 | | 30100B9X10 | | RFP-304, PCM WHITE(DWG1C) | |
| 30100B9YG0 | | 30100B9X70 | | RFP-304, PCM SILVER(ASG4P) | |
| 30100B9YH0 | | 30100B9X80 | | RFP-304, PCM T/SILVER(TSH1P) | |
| 30100B9YJ0 | | 30100B9X90 | | RFP-304, PCM BLACK(BLH1C) | |
| 30100B9YK0 | | 30100B9XA0 | | RFP-304, PCM PLATINUM SILVER(PSH1P) | |
| 30000CPM00 | | 30000CPN00 | | RFP-305, PCM WHITE(DWG1C) | |
| 30000CPM10 | | 30000CPN10 | | RFP-305, PCM SILVER(ASG4P) | |
| 30000CPM20 | | 30000CPN20 | | RFP-305, PCM T/SILVER(TSH1P) | |
| 30000CPM30 | | 30000CPN30 | | RFP-305, PCM BLACK(BLH1C) | |
| 30000CPM40 | | 30000CPN40 | | RFP-305, PCM PLATINUM SILVER(PSH1P) | |
| 30000CPP00 | | 30000CPQ00 | | RFP-306, PCM WHITE(DWG1C) | |
| 30000CPP10 | | 30000CPQ10 | | RFP-306, PCM SILVER(ASG4P) | |
| 30000CPP20 | | 30000CPQ20 | | RFP-306, PCM T/SILVER(TSH1P) | |
| 30000CPP30 | | 30000CPQ30 | | RFP-306, PCM BLACK(BLH1C) | |
| 30000CPP40 | | 30000CPQ40 | | RFP-306, PCM PLATINUM SILVER(PSH1P) | |
| 30100B9YM0 | | - | | RFP-30V, PCM WHITE(DWG1C), HIDDEN TYPE | |
| 30100B9YN0 | | - | | RFP-30V, PCM SILVER(ASG4P), HIDDEN TYPE | |

*** Please check the color, some parts code color dependent.***



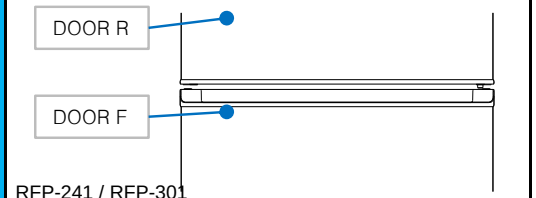

| NO | PART-CODE | PART NAME | SPEC. | Q'ty |
|---|---|---|---|---|
| | | | | RN-53* |
| F1-1 | 3012331000 | GASKET R DR | RFP-301, GRAY | 1 |
| | 3012331010 | | RFP-301, BLACK | |
| F1-2 | 3011450300 | COVER CAP HOLE A | ABS, WHITE | 1 |
| | 3011450310 | | ABS, SILVER | |
| | 3011450340 | | ABS, BLACK | |
| F1-3 | 3016047410 | SPECIAL STOPPER DR BOLT | TAP-TITE 5*16 | 1 |
| F1-4 | 3010985100 | CAP DR | ABS, WHITE | 2(OPTION) |
| | 3010985110 | | ABS, SILVER | |
| | 3010985120 | | ABS, BLACK | |
| F2-1 | 3012331000 | GASKET F DR | RFP-301, GRAY | 1 |
| | 3012331010 | | RFP-301, BLACK | |
| F2-2 | 3011450300 | COVER CAP HOLE A | ABS, WHITE | 1 |
| | 3011450310 | | ABS, SILVER | |
| | 3011450340 | | ABS, BLACK | |
| | 3011450360 | | ABS, RED(SPRAY) | |
| F2-3 | 3016047410 | SPECIAL STOPPER DR BOLT | TAP-TITE 5*16 | 1 |
| F2-4 | 3010985100 | CAP DR | ABS, WHITE | 2(OPTION) |
| | 3010985110 | | ABS, SILVER | |
| | 3010985120 | | ABS, BLACK | |

*** Please check the color, some parts code color dependent.**

## 6. PART LIST

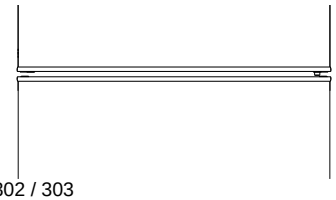
DOOR FRONT LOOKING

A



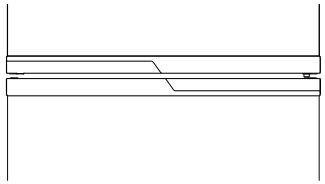

RFP-241 / RFP-301

B



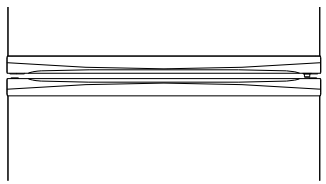
RFP-242 / 243/ 302 / 303

C



RFP-305

D



RFP-306

E


RFP-30V (HIDDEN HINGE TYPE)

***Some parts can be changed for improving without notice.***

| Date | Note |
|---|---|
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