

DAEWOO

# Service Manual

Side by Side Refrigerator

**MODEL : FRS-2011  
FRS-2031**

✓ **Caution :**

In this Manual, some parts can be changed for improving, their performance without notice in the parts list. So, if you need the latest parts information, please refer to PPL(Parts Price List) in Service Information Center (<http://svc.dwe.co.kr>).

**DAEWOO ELECTRONICS Corp.**

<http://svc.dwe.co.kr>

Apr. 2004

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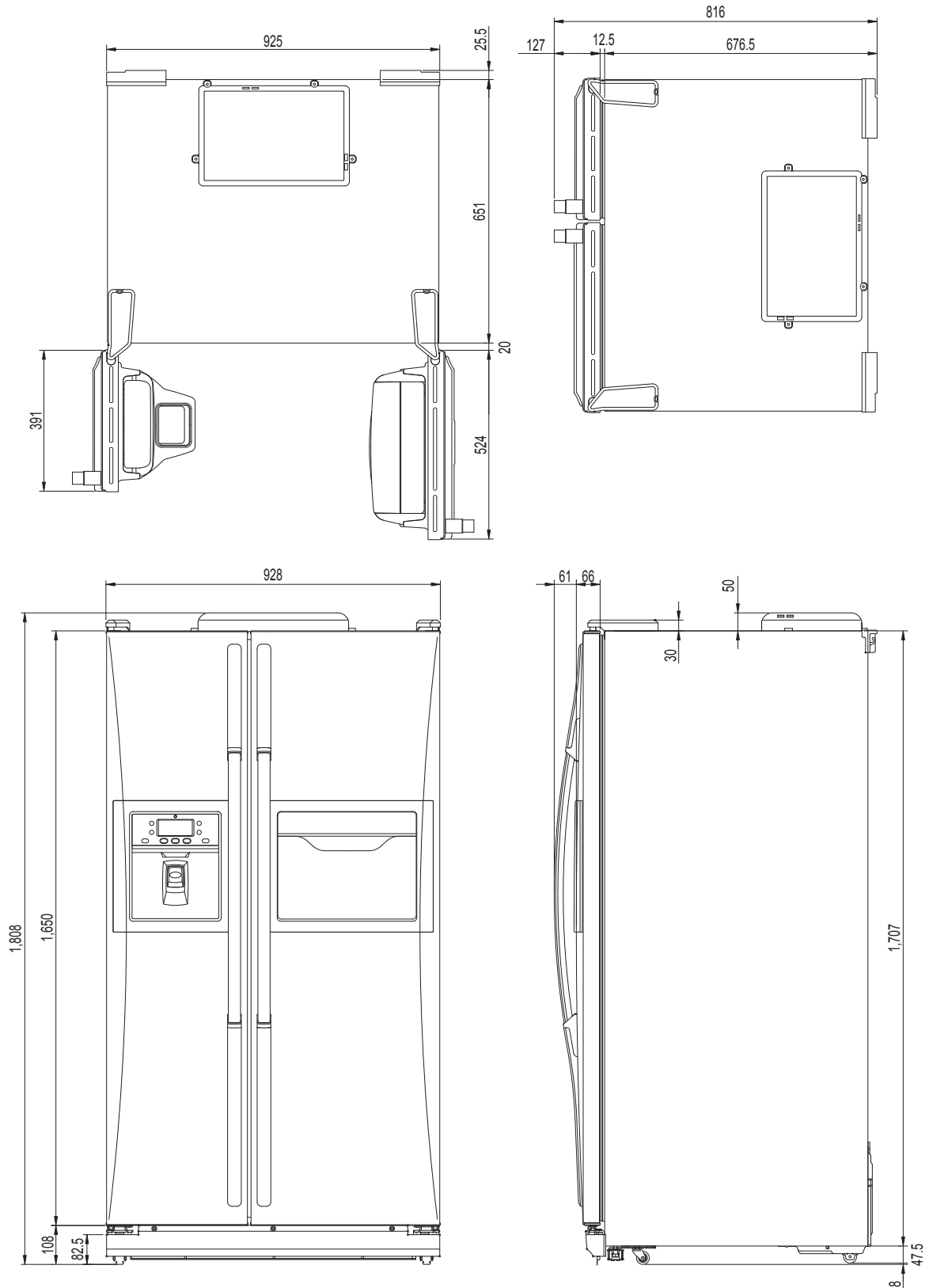
## ❖ SAFETY AND PRECAUTIONS ❖

- 1) For starters, be sure to check any chances of the leakage of electricity
- 2) You could handle a part in the vicinity of electricity after unplugging
- 3) You should put on rubber gloves to prevent an electric shock on operation test
- 4) Make sure the rated current, voltage, capacity before using an instrument
- 5) Keep your wet hands away from the metal goods in the freezer compartment not to be frostbitten
- 6) Be careful not to let water to permeate the electric part in the machine room
- 7) with the door open during your working, you might be damaged by that door
- 8) You should give a tilt to the refrigerator for your safe after removing the breakable goods inside the refrigerator
- 9) You'd better use cotton gloves if you fix it up around the evaporator

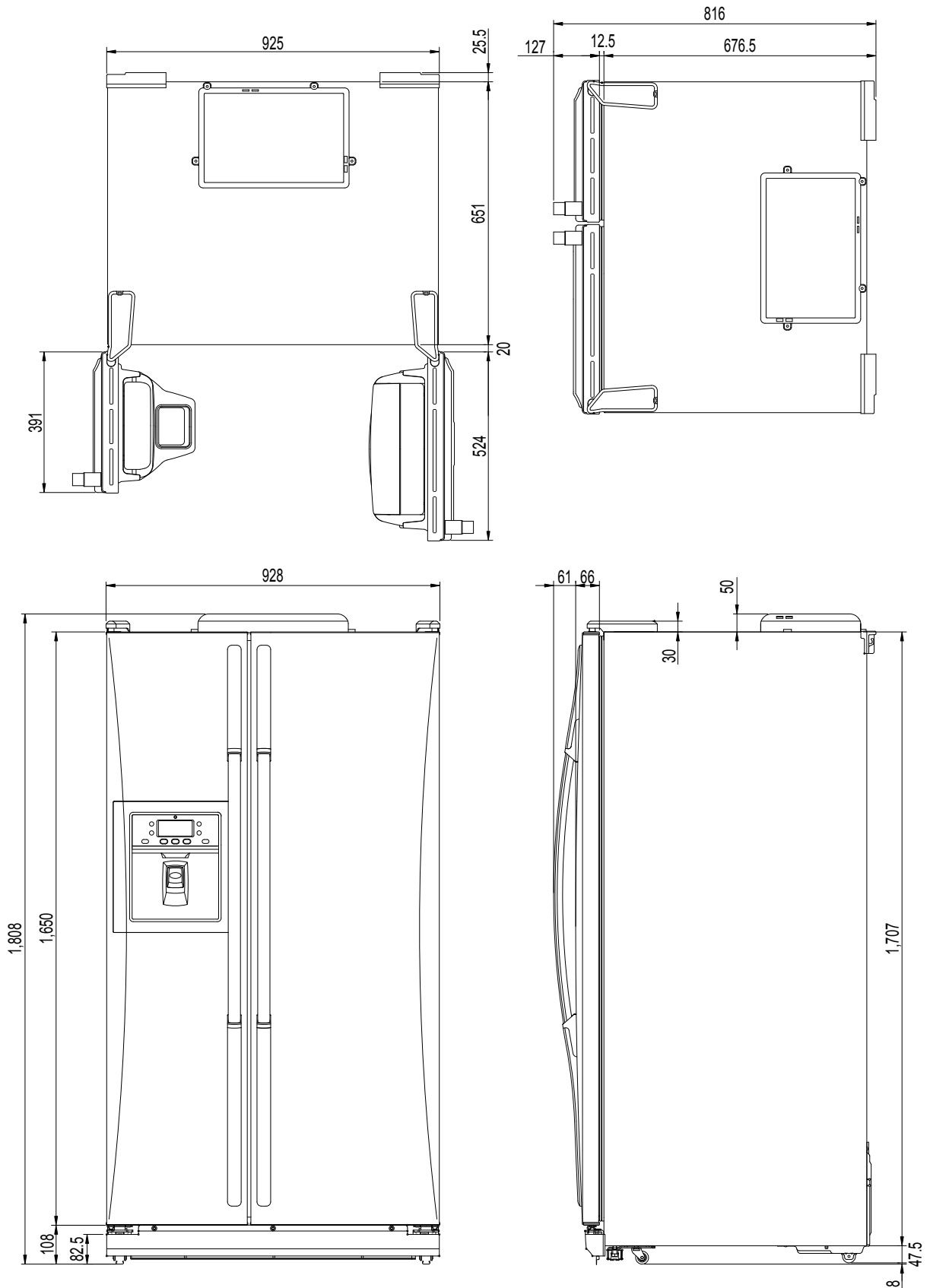
# EXTERNAL VIEWS

## 1. EXTERNAL SIZE

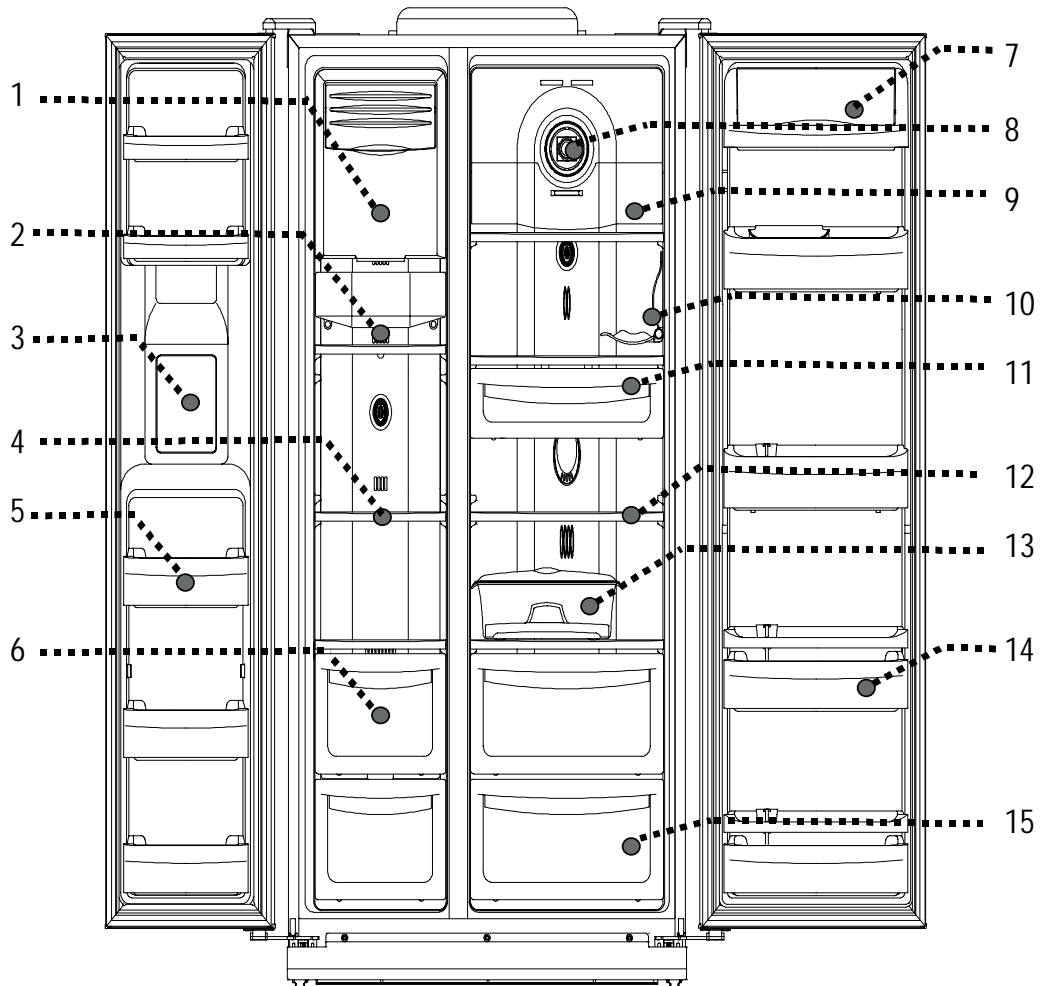
### ■ FRS-2011



■ FRS-2031



■ FRS-2031



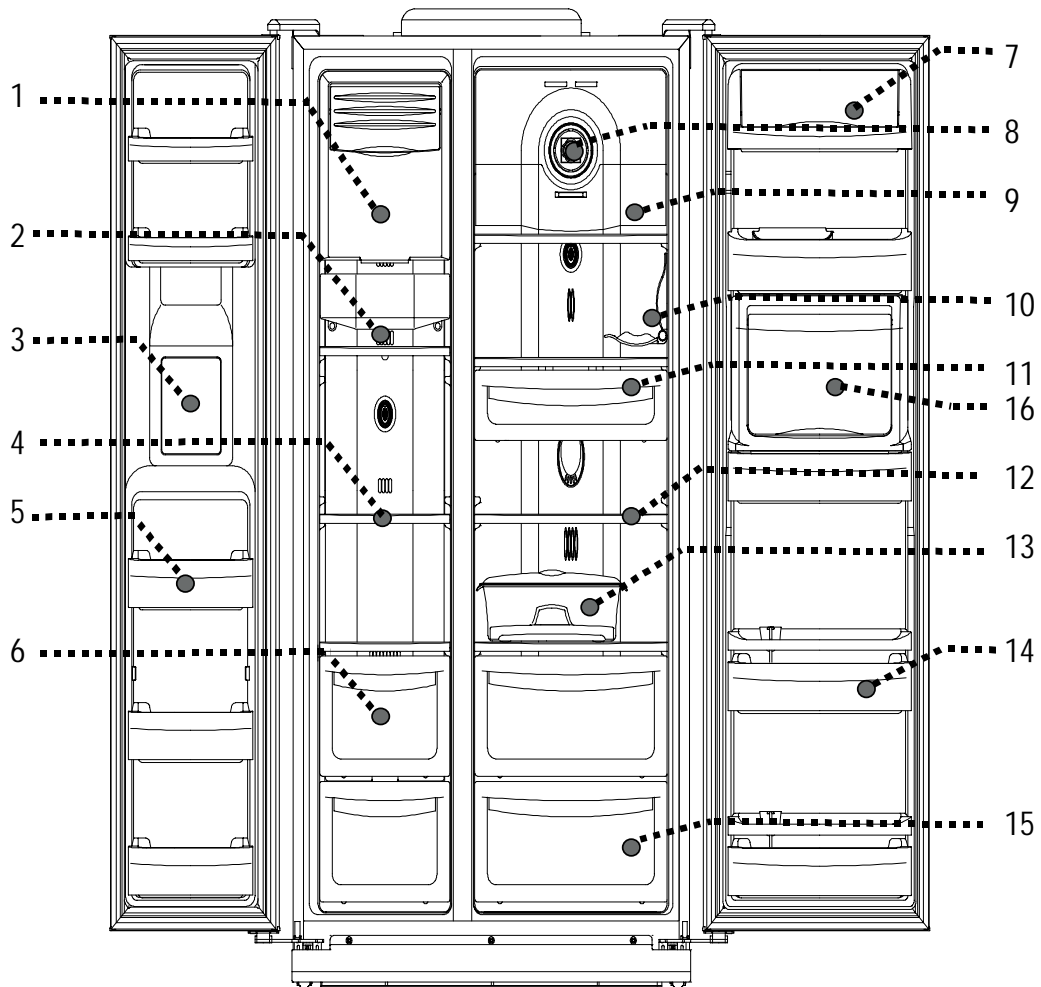
**Freezer**

- 1. Ice cubes storage case
- 2. Freezer light
- 3. Water/Ice Dispenser
- 4. Freezer shelf
- 5. Freezer pocket
- 6. Freezer case

**Refrigerator Compartment**

- 7. Dairy pocket
- 8. Deodorizer
- 9. Refrigerator light(A)
- 10. Wine holder
- 11. Chilled case
- 12. Refrigerator shelf
- 13. Movable Egg case
- 14. Refrigerator pocket
- 15. Refrigerator case

## ■ FRS-2011



## Freezer

1. Ice cubes storage case
2. Freezer light
3. Water/Ice Dispenser
4. Freezer shelf
5. Freezer pocket
6. Freezer case

## Refrigerator Compartment

7. Dairy pocket
8. Deodorizer
9. Refrigerator light(A)
10. Wine holder
11. Chilled case
12. Refrigerator shelf
13. Movable Egg case
14. Refrigerator pocket
15. Refrigerator case
16. Refreshment room(Pocket)

## 2. SPECIFICATIONS

### 2-1. OUTLINE

| DIVISION                 |                 | CONTENTS               |                   |
|--------------------------|-----------------|------------------------|-------------------|
| MODEL NAME               |                 | FRS-2031               | FRS-2011(Homebar) |
| USABLE CAPACITY (L)      | FREEZER         | 190                    |                   |
|                          | REFRIGERATOR    | 365                    |                   |
|                          | TOTAL           | 555                    |                   |
| EXTERNAL DIMENSION (mm)  | WIDTH           | 925                    |                   |
|                          | DEPTH           | 816                    |                   |
|                          | HEIGHT          | 1808                   |                   |
| REFRIGENT                | R134a           | 190                    |                   |
| COOLING & CONTROL SYSTEM | COOLING SYSTEM  | Fan Cooling System     |                   |
|                          | DEFROST SYSTEM  | Fin Evaporator Forced  |                   |
|                          | DEFORST CONTROL | Automatic Start & Stop |                   |
| NET WEIGHT (kg)          |                 | 119                    | 121               |

## 2-2 ELECTRIC PARTS

## 1) COMPRESSOR

| REFRIGERANT     | R134a      |            |            |            |            |             |                 |
|-----------------|------------|------------|------------|------------|------------|-------------|-----------------|
| VOLTAGE ( V/Hz) | 100 /50,60 | 110 / 60   | 115,120/60 | 127/60     | 220 / 60   | 220 -240/50 | 230 /50 (EUROP) |
| COMP MODEL      | X          | HBL27YG-3  | X          | HCL27YG-2  | HPL27YG-4A | HPL30YG-5   | MK183Q-L2U      |
| PART CODE       | X          | 3952127R30 | X          | 3957127R20 | 3956127R40 | 395S130R50  | 3956183D50      |
| STARTING TYPE   | X          | CSR        | X          | CSIR       | RSCR       | RSCR        | RSCR            |

## 2) RELAY

| REFRIGERANT     | R134a      |          |              |        |              |              |             |             |
|-----------------|------------|----------|--------------|--------|--------------|--------------|-------------|-------------|
| VOLTAGE ( V/Hz) | 100 /50,60 | 110 / 60 | 115,120/60   | 127/60 | 220 / 60     | 220-240 / 50 | 230 / 50    |             |
| ASSY            | TYPE NAME  | X        | 783SHB       | X      | 801SFB       | 419RHB       | 308NHB      | 265RHB      |
|                 | PART CODE  | X        | 3018119370   | X      | 3018118180   | 3018118131   | 3018119980  | 3018125210  |
| PTC             | RESISTANCE | X        | 6.8 $\Omega$ | X      | 6.8 $\Omega$ | 33 $\Omega$  | 33 $\Omega$ | 33 $\Omega$ |
| OVER LOAD       | PART CODE  | X        | 783SHB       | X      | 801SFB       | 419RHB       | 308NHB      | 265RHB      |

## 3) STARTING CAPACITOR

| REFRIGERANT       | R134a      |             |            |             |          |              |          |
|-------------------|------------|-------------|------------|-------------|----------|--------------|----------|
| VOLTAGE ( V/Hz)   | 100 /50,60 | 110 / 60    | 115,120/60 | 127/60      | 220 / 60 | 220-240 / 50 | 230 / 50 |
| PART CODE         | X          | 3016400100  | X          | 3016400100  | X        | X            | X        |
| RATED VOLTAGE     | X          | 200V        | X          | 200V        | X        | X            | X        |
| RATED CAPACITANCE | X          | 100 $\mu$ F | X          | 100 $\mu$ F | X        | X            | X        |

## 4) RUNNING CAPACITOR

| REFRIGERANT       | R134a      |            |            |        |            |              |            |
|-------------------|------------|------------|------------|--------|------------|--------------|------------|
| VOLTAGE ( V/Hz)   | 100 /50,60 | 110 / 60   | 115,120/60 | 127/60 | 220 / 60   | 220-240 / 50 | 230 / 50   |
| PART CODE         | X          | 400EL15130 | X          | X      | 3016401170 | 3016401920   | 3016401170 |
| RATED VOLTAGE     | X          | 230V       | X          | X      | 350V       | 400V         | 350V       |
| RATED CAPACITANCE | X          | 10 $\mu$ s | X          | X      | 5 $\mu$ s  | 5 $\mu$ s    | 5 $\mu$ s  |

## 5) F-FAN MOTOR

| REFRIGERANT     | R134a          |          |            |        |        |              |          |
|-----------------|----------------|----------|------------|--------|--------|--------------|----------|
| VOLTAGE ( V/Hz) | 100 /50,60     | 110 / 60 | 115,120/60 | 127/60 | 220/60 | 220-240 / 50 | 230 / 50 |
| TYPE NAME       | BL-2213DWFA-1  |          |            |        |        |              |          |
| PART CODE       | 3015911300     |          |            |        |        |              |          |
| REVOLUTION      | DC 12V 2200RPM |          |            |        |        |              |          |

## 6) R-FAN MOTOR

| REFRIGERANT     | R134a          |          |            |        |        |              |          |
|-----------------|----------------|----------|------------|--------|--------|--------------|----------|
| VOLTAGE ( V/Hz) | 100 /50,60     | 110 / 60 | 115,120/60 | 127/60 | 220/60 | 220-240 / 50 | 230 / 50 |
| TYPE NAME       | BL-2213DWRA-1  |          |            |        |        |              |          |
| PART CODE       | 3015911400     |          |            |        |        |              |          |
| REVOLUTION      | DC 12V 2200RPM |          |            |        |        |              |          |



## EXTERNAL VIEWS

### 7) C- FAN MOTOR

| REFRIGERANT     | R134a          |          |            |        |        |              |          |
|-----------------|----------------|----------|------------|--------|--------|--------------|----------|
| VOLTAGE ( V/HZ) | 100 /50,60     | 110 / 60 | 115,120/60 | 127/60 | 220/60 | 220-240 / 50 | 230 / 50 |
| TYPE NAME       | BL-2213DWCA-2  |          |            |        |        |              |          |
| PART CODE       | 3015911500     |          |            |        |        |              |          |
| REVOLUTION      | DC 12V 2200RPM |          |            |        |        |              |          |

### 8) DEFROST HEATER

| REFRIGERANT     | R134a      |            |            |        |        |              |          |
|-----------------|------------|------------|------------|--------|--------|--------------|----------|
| VOLTAGE ( V/HZ) | 100 /50,60 | 110 / 60   | 115,120/60 | 127/60 | 220/60 | 220-240 / 50 | 230 / 50 |
| SPEC (W)        | X          | 140W       | ←          | ←      | ←      | ←            | ←        |
| PART CODE       | X          | 3012811200 | ←          | ←      | ←      | ←            | ←        |

### 9) DRAIN HEATER

| REFRIGERANT     | R134a      |            |            |        |            |              |          |
|-----------------|------------|------------|------------|--------|------------|--------------|----------|
| VOLTAGE ( V/HZ) | 100 /50,60 | 110 / 60   | 115,120/60 | 127/60 | 220/60     | 220-240 / 50 | 230 / 50 |
| SPEC (W)        | X          | 110V 10W   | ←          | ←      | 220V 10W   | ←            | ←        |
| PART CODE       | X          | 3012811110 | ←          | ←      | 3012811100 | ←            | ←        |

### 10) LAMP ASSEMBLY

| REFRIGERANT     | R134a      |            |            |        |              |              |          |
|-----------------|------------|------------|------------|--------|--------------|--------------|----------|
| VOLTAGE ( V/HZ) | 100 /50,60 | 110 / 60   | 115,120/60 | 127/60 | 220/60       | 220-240 / 50 | 230 / 50 |
| SPEC (W)        | X          | 120V 15W   | ←          | ←      | 240V 15W     | ←            | ←        |
| PART CODE       | X          | 3013600070 | ←          | ←      | 3013600060   | ←            | ←        |
| SPEC (W)        | X          | 120V 25W   | ←          | ←      | 230-240V 25W | ←            | ←        |
| PART CODE       | X          | 3013602020 | ←          | ←      | 3013602010   | ←            | ←        |

### 11) MAIN PCB ASSEMBLY

| REFRIGERANT     | R134a      |             |            |        |        |              |            |
|-----------------|------------|-------------|------------|--------|--------|--------------|------------|
| VOLTAGE ( V/HZ) | 100 /50,60 | 110 / 60    | 115,120/60 | 127/60 | 220/60 | 220-240 / 50 | 230 / 50   |
| TYPE NAME       | X          | SBS PREMIUM | ←          | ←      | ←      | ←            | ←          |
| PART CODE       | X          | 30143C4010  | ←          | ←      | ←      | ←            | 30143C4020 |

### 12) FUSE (PCB)

| REFRIGERANT     | R134a      |            |            |        |        |              |          |
|-----------------|------------|------------|------------|--------|--------|--------------|----------|
| VOLTAGE ( V/HZ) | 100 /50,60 | 110 / 60   | 115,120/60 | 127/60 | 220/60 | 220-240 / 50 | 230 / 50 |
| RATED CURRENT   | X          | 250V/3.15A | ←          | ←      | ←      | ←            | ←        |
| PART CODE       | X          | 5F3GB3282R | ←          | ←      | ←      | ←            | ←        |

## 13) THERMOSTAT FUSE

| REFRIGERANT           | R134a      |             |            |        |        |              |          |
|-----------------------|------------|-------------|------------|--------|--------|--------------|----------|
| VOLTAGE ( V/Hz)       | 100 /50,60 | 110 / 60    | 115,120/60 | 127/60 | 220/60 | 220-240 / 50 | 230 / 50 |
| OPERATING TEMPERATURE | x          | 77 °C       | ←          | ←      | ←      | ←            | ←        |
| PART CODE             | x          | 30127201400 | ←          | ←      | ←      | ←            | ←        |

## 14) MOTOR GEARED AS

| REFRIGERANT     | R134a      |            |            |        |            |              |          |
|-----------------|------------|------------|------------|--------|------------|--------------|----------|
| VOLTAGE ( V/Hz) | 100 /50,60 | 110 / 60   | 115,120/60 | 127/60 | 220/60     | 220-240 / 50 | 230 / 50 |
| SPEC            | x          | 120V/60Hz  | ←          | ←      | 220V/60Hz  | 230V/50Hz    | ←        |
| PART CODE       | x          | 3015914000 | ←          | ←      | 3015912800 | 3015913900   | ←        |

## 15) VALVE SOLENOID DISPENSER

| REFRIGERANT     | R134a      |               |            |        |            |              |          |
|-----------------|------------|---------------|------------|--------|------------|--------------|----------|
| VOLTAGE ( V/Hz) | 100 /50,60 | 110 / 60      | 115,120/60 | 127/60 | 220/60     | 220-240 / 50 | 230 / 50 |
| SPEC            | x          | 110-115V/60Hz | ←          | ←      | 220V/60Hz  | 230V/50Hz    | ←        |
| PART CODE       | x          | 3015403200    | ←          | ←      | 3015402100 | 3015403000   | ←        |

## 16) VALVE SOLENOID CRUSHER



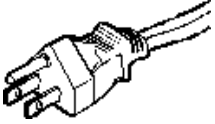
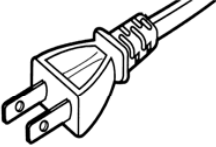
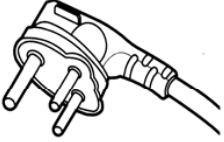
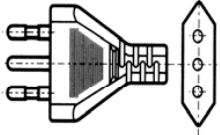
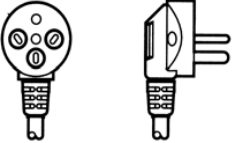
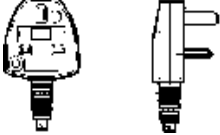

| REFRIGERANT     | R134a      |               |            |        |                  |              |          |
|-----------------|------------|---------------|------------|--------|------------------|--------------|----------|
| VOLTAGE ( V/Hz) | 100 /50,60 | 110 / 60      | 115,120/60 | 127/60 | 220/60           | 220-240 / 50 | 230 / 50 |
| SPEC            | x          | 110-127V 60Hz | ←          | ←      | 220-240V 50,60Hz | ←            | ←        |
| PART CODE       | x          | 3015402900    | ←          | ←      | 3015402000       | ←            | ←        |

## 17) VALVE WATER

| REFRIGERANT     | R134a      |               |            |        |                  |              |          |
|-----------------|------------|---------------|------------|--------|------------------|--------------|----------|
| VOLTAGE ( V/Hz) | 100 /50,60 | 110 / 60      | 115,120/60 | 127/60 | 220/60           | 220-240 / 50 | 230 / 50 |
| SPEC            | x          | 110-127V 60Hz | ←          | ←      | 220-240V 50,60Hz | ←            | ←        |
| PART CODE       | x          | 3015402800    | ←          | ←      | 3015402200       | ←            | ←        |

EXTERNAL VIEWS

2- 3. POWER CORD

| NO | SHAPE OF POWER CORD   | PART CODE  | DESCRIPTION | REMARK                                       |
|----|---|------------|-------------|--|
| 1  |    | 3011315000 | CP-2PIN     | For european country                         |
| 2  |    | 401RA17200 | CP-2PIN     | For other country                            |
| 3  |    | 4006D17101 | KP-30       | For America & El Salvador                    |
| 4  |   | 401PD17101 | KP-211      | For Japan & Taiwan                           |
| 5  |  | 3011300801 | BP-3PIN     |  |
| 6  |  | 3011303010 | # 267       | For Chile                                    |
| 7  |  | 3011315310 |             | For Israel                                   |
| 8  |  | 3011303050 | BS-1363A    | For U.K, Middle Asia<br>Singapore & Malaysia |
| 9  |  | 3011301200 | KP-551/550  | For China & Australia                        |

Upper power cord's part code is only lead wire, without any kinds of terminal or housings

## 2-4 DOOR COLOR CODE

## 1) ASSEMBLY URETHAN FREEZER DOOR

FRS-2011 / FRS-2031 (100V ~ 127V)

| Blowing Agent | Cyclo Pentane    |              |              |                      |                      |
|---------------|------------------|--------------|--------------|----------------------|----------------------|
| COLOR TYPE    | Bright White PCM | White Emboss | Beige Emboss | Inox Looking Ellio 1 | Inox Looking Ellio 2 |
| COLOR CODE    | RWB3C            | GWG1B        | FBG3B        | DSG1E                | ISG3E                |
| PART CODE     | 3000028060       | 3000028070   | 3000028050   | 3000028080           | 3000028040           |

FRS-2011 / FRS-2031 (220V/60Hz)

| Blowing Agent | Cyclo Pentane    |              |              |                      |                      |
|---------------|------------------|--------------|--------------|----------------------|----------------------|
| COLOR TYPE    | Bright White PCM | White Emboss | Beige Emboss | Inox Looking Ellio 1 | Inox Looking Ellio 2 |
| COLOR CODE    | RWB3C            | GWG1B        | FBG3B        | DSG1E                | ISG3E                |
| PART CODE     | 3000028460       | 3000028410   | 3000028010   | 3000028420           | 3000028000           |

FRS-2011 / FRS-2031 (220V~240V/50Hz)

| Blowing Agent | Cyclo Pentane    |              |              |                      |                      |
|---------------|------------------|--------------|--------------|----------------------|----------------------|
| COLOR TYPE    | Bright White PCM | White Emboss | Beige Emboss | Inox Looking Ellio 1 | Inox Looking Ellio 2 |
| COLOR CODE    | RWB3C            | GWG1B        | FBG3B        | DSG1E                | ISG3E                |
| PART CODE     | 3000028430       | 3000028440   | 3000028030   | 3000028450           | 3000028020           |

## 2) ASSEMBLY URETHAN REFRIGERATOR DOOR

FRS-2031

| Blowing Agent | Cyclo Pentane    |              |              |                      |                      |
|---------------|------------------|--------------|--------------|----------------------|----------------------|
| COLOR TYPE    | Bright White PCM | White Emboss | Beige Emboss | Inox Looking Ellio 1 | Inox Looking Ellio 2 |
| COLOR CODE    | RWB3C            | GWG1B        | FBG3B        | DSG1E                | ISG3E                |
| PART CODE     | 3000018830       | 3000018820   | 3000018810   | 3000018840           | 3000018800           |

FRS-2011 (100V ~ 127V)

| Blowing Agent | Cyclo Pentane    |              |              |                      |                      |
|---------------|------------------|--------------|--------------|----------------------|----------------------|
| COLOR TYPE    | Bright White PCM | White Emboss | Beige Emboss | Inox Looking Ellio 1 | Inox Looking Ellio 2 |
| COLOR CODE    | RWB3C            | GWG1B        | FBG3B        | DSG1E                | ISG3E                |
| PART CODE     | 3000025380       | 3000025370   | 3000025360   | 3000025390           | 3000025350           |

FRS-2011 (200V~240V)

| Blowing Agent | Cyclo Pentane    |              |              |                      |                      |
|---------------|------------------|--------------|--------------|----------------------|----------------------|
| COLOR TYPE    | Bright White PCM | White Emboss | Beige Emboss | Inox Looking Ellio 1 | Inox Looking Ellio 2 |
| COLOR CODE    | RWB3C            | GWG1B        | FBG3B        | DSG1E                | ISG3E                |
| PART CODE     | 3000025330       | 3000025320   | 3000025310   | 3000025340           | 3000025300           |

# OPERATION AND FUCTIONS

## 1. DISPLAY

| INPUT   | Control Object   |                     |                     |              |            |
|---|------------------|---------------------|---------------------|--------------|------------|
| Front PCB buttons<br>FREEZER SET. button<br>REFRIGERATOR SET. button<br>SUPER FREEZER. button<br>SUPER REFRIGERATOR. button<br>WATER / ICE button<br>LOCK Button / SLEEP button   | LCD              |                     |                     |              |            |
| CONTENTS  |                  |                     |                     | REMARKS      |            |
| 1. Normal Operation<br>1) Temperature control of Freezer / Refrigerator<br>( Initial mode : Freezer & Refrigerator Middle )<br>2) Lock mode / Sleep mode / Ice maker Lock : OFF<br>3) SPEED icon : inactive<br>4) FUZZY & DEODORIZER letters and icons : always ON<br>5) Water / Cube Ice / Crushed Ice<br>( Initial mode : Water )<br>6) Other display modes |                  |                     |                     |              |            |
| CUSTOM LCD  | Normal Operation |                     | Silent Mode         |              | Sleep Mode |
|   | Normal Mode      | Load Mode           |                     | Silence Mode |            |
| Freezer / Refrigerator BAR  | DIAL             | DIAL                | DIAL                | DIAL         | DIAL       |
| Temp. SEG.  | DIAL             | DIAL                | DIAL                | DIAL         | DIAL       |
| 1) Letters of [FRZ., REF., LOW, HIGH, SETTEMP, FUZZY, DEODO., SILENT, SLEEP, Water]<br>2) Icons of [FUZZY, DEODO., SLEEP, Water]<br>3) Temp. bars and lines   | ON               | ON                  | ON                  | ON           | ON         |
| SILENT icon   | OFF              | OFF                 | ON                  | ON           | OFF        |
| SPEED letters   | OFF              | ON                  | ON                  | OFF          | OFF        |
| SPEED bars  | OFF              | ON<br>(progressive) | ON<br>(progressive) | OFF          | OFF        |
| LOCK ON/OFF, SLEEP ON/OFF   | DIAL             | DIAL                | DIAL                | DIAL         | DIAL       |
| Water / Cube Ice / Crushed Ice  | DIAL             | DIAL                | DIAL                | DIAL         | DIAL       |

| CONTENTS  | REMARK |
|---|--------|
| <p>2. "FREEZER SET." button</p> <ul style="list-style-type: none"> <li>① Temperature control of Freezer compartment</li> <li>② 5 steps of sequential temperature mode<br/>Initial mode by power input : "MID" (Temperature and bars are shown.)<br/>* Letters are not indicated at Soft-Mid and Mid-Strong modes.<br/>(Just Setting temperatures and bars are shown.)</li> </ul> <p style="margin-left: 40px;">Temperature progress : Low →(Low-Mid) →Mid →(Mid-High) →Hlgh<br/>Temp. indication : -15°C   -17°C   -19°C   -21°C   -25°C<br/>Number of bars :   5EA   3EA   5EA   3EA   5EA</p> <p>3. "SUPER FREEZER." button<br/>When this mode is chosen, "QUICK" icon and letters of freezer flicker 3 times and ON. (The set temperature and bars are still the previous value.)</p> <p>4. "REFREGERATOR SET." button</p> <ul style="list-style-type: none"> <li>① Temperature control of Refrigerator compartment</li> <li>② 5 steps of sequential temperature mode<br/>Initial mode by power input : "MID" (Temperature and bars are shown.)<br/>Letters are not indicated at Soft-Mid and Mid-Strong modes.<br/>(Just temperatures and bars are shown.)</li> </ul> <p style="margin-left: 40px;">Temperature progress : Low →(Low-Mid) →Mid   (Mid-High) →Hlgh<br/>Temp. indication :   4°C   3°C   2°C   1°C   0°C<br/>Number of bars :   5EA   3EA   5EA   3EA   5EA</p> <p>5. "SUPER REFRIGERATOR." button<br/>When this mode is chosen, "QUICK" icon and letters of refrigerator flicker 3 times and ON. (The set temperature and bars are still the previous value.)</p> <p>6. "SLEEP" button</p> <ul style="list-style-type: none"> <li>① Start by pushing the button ("ON" lights.)</li> <li>② Stop by pushing button again ("OFF" lights.)</li> <li>③ Automaticcally terminated after maximum 12 hours ("OFF" lights.)</li> </ul> <p>7. Water/Ice button</p> <ul style="list-style-type: none"> <li>① Select Water mode or Ice mode.</li> <li>② A rectangle Line around the icon lights up to indicate your selection is on.<br/>Initial mode by power input: "Water"mode.<br/>Progress: Water →Cube Ice →Crushed Ice →Water</li> </ul> <p>8. "LOCK" button</p> <ul style="list-style-type: none"> <li>① Start by pushing the button ("LOCK" letters and icon light.)<br/>* No other buttons and modes, buzzer sound are controllable.</li> <li>② Stop by pushing button again for a second ("OFF" and icon light.)<br/>* Except "Lock"button, other buttonare inactive during "Sleep"mode.</li> </ul> |        |

| CONTENTS  | REMARK |
|---|--------|
| <p>9. "Lock Ice Maker" button</p> <ul style="list-style-type: none"> <li>① Start by pushing "Lock Ice Maker" button <ul style="list-style-type: none"> <li>▶ "Lock Icer Maker" is "ON",</li> <li>▶ The Icon &amp; Box of "Cube Ice"/"Crushed Ice" disappear</li> <li>▶ "Water" Icon &amp; Box is always "ON"</li> </ul> </li> <li>② Stop by pushing "Lock Ice Maker" button again. <ul style="list-style-type: none"> <li>▶ "Lock Icer Maker" Icon is "OFF",</li> <li>▶ The Icon &amp; Box of "Cube Ice"/"Crushed Ice" is "OFF",</li> <li>▶ "Water" Icon &amp; Box is "ON".</li> </ul> </li> </ul> <p>10. Filter information</p> <ul style="list-style-type: none"> <li>① The normal (Green LED) is on for 6 month after first power input.</li> <li>② After six month, Red LED is on.</li> <li>③ How to reset Filter information. <ul style="list-style-type: none"> <li>▶ Push "LOCK" button and push the "Lock Ice Maker" button for 3 seconds.</li> </ul> </li> </ul> |        |

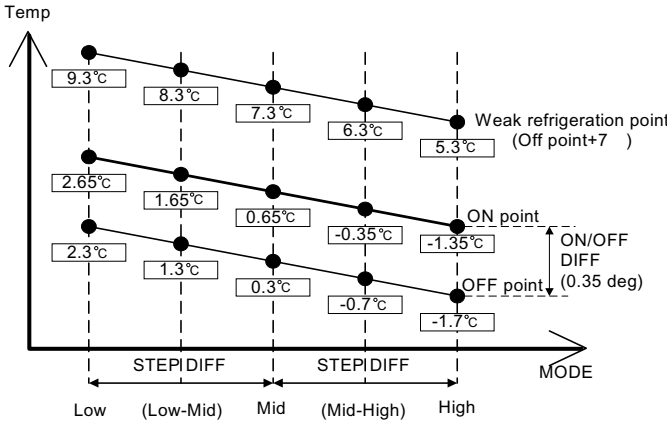
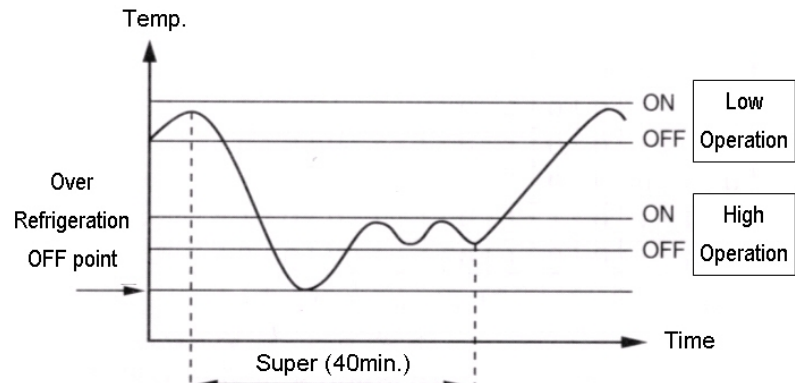
| INPUT   | Control Object      |
|---|---------------------|
| 1. FREEZER SET. button<br>2. SUPER FREEZER. button<br>3. F-sensor   | 1. COMP<br>2. F-FAN |
| CONTENTS  |                     |
| REMARKS   |                     |
| <p>1. Temperature modes change by pushing the button.</p> <p style="text-align: center;">                         Low → Low-Mid → Mid → Mid-High → High<br/> </p> <p>2. Comp. and F-fan are controlled by ON / OFF point of each mode.</p> <p>3. FC [ON / OFF] DIFF : 2 °C<br/>                     ( Freezer middle OFF point : -20.0 °C )<br/>                     ( If RT↑ 13°C, F-S OFF point is 2 °C UP. Freezer Middle OFF point : -18 °C )</p> <p>4. FC [Low → (Low-Mid) → Mid → (Mid-High)] DIFF : 2 degrees respectively<br/>                     *( [(Mid-High) → High] DIFF : 4 degrees )</p> <p>5. Control point of each mode</p> |                     |



| CONTENTS   | REMARKS  |
|--|--|
| <p>6. SUPER FREEZER. (Quick Freezing)</p> <p>1) Comp. and F-fan are ON (about 150 minutes) regardless of F-sensor.<br/>                     2) F-fan runs at 14V for the first 90 min., then at 12V for the rest time.</p> | <p>* <u>ON/OFF DIFF. :</u><br/>fixed by MICOM</p> <p>* <u>STEP DIFF. :</u><br/>fixed by MICOM</p> <p>* <u>Comp. and C-fan :</u><br/>linked</p> |

Temperature Control of Refrigerator Compartment (RC)

| INPUT   | Control Object  |
|---|---|
| 1. REFRIGERATOR SET. button<br>2. R-sensor  | 1. COMP<br>2. R-FAN   |
| CONTENTS  | REMARKS   |
| <p>1. Temperature modes change by pushing the button.</p> <p>Low → Low-Mid → Mid → Mid-High → High</p> <p>2. R-fan are controlled by ON / OFF point of each mode.</p> <p>3. RC [ON / OFF] DIFF : 0.5°C<br/>                     ( RC middle OFF point : 0.7°C )<br/>                     ( If RT ≤ 13°C, R-S OFF point is 2°C UP. Refrigerator Middle OFF point : 2.7°C )</p> <p>4. RC [Low→(Low-Mid)→ Mid →(Mid-High)] DIFF : 1 degree respectively</p> <p>5. Prevention of weak/poor-refrigeration</p> <p>1) When weak refrigeration is sensed, comp. is ON regardless of F-sensor.<br/>                     2) When R-sensor reaches R-fan OFF point, comp. is controlled by F-sensor and R-fan turns OFF.<br/>                     3) Sensing point of weak refrigeration : R-sensor OFF point of each mode + 7°C<br/>                     4) Termination point : Same as R-sensor OFF point of each mode</p> | <p>* <u>ON/OFF Diff. :</u><br/>fixed by MICOM</p> <p>* <u>STEP DIFF. :</u><br/>fixed by MICOM</p> |

| CONTENTS  | REMARKS |
|---|---------|
| <p>6. Control point of each mode</p>  <p>7. Super refrigeration proceeds for 40 minutes.<br/>         * Example of temperature change<br/>         (Refrigerator ; Low (normal) -&gt; Super refrigeration )</p>  <ol style="list-style-type: none"> <li>1) R-fan and comp. are ON until R-sensor reaches to over-refrigeration OFF point (-7°C).</li> <li>2) After reaching to the point, it goes on with HIGH mode until the end of Super refrigeration.<br/>It returns to normal after Quick refrigeration of 40 minutes.</li> </ol> |         |

| INPUT   | Control Object                                   |         |
|---|--|---------|
| 1. SLEEP button   | 1. COMP<br>2. R-FAN<br>3. F-FAN<br>4. CUSTOM-LCD |         |
| CONTENTS  |  | REMARKS |
| <p>1. This mode starts with a push of SLEEP button.</p> <p>2. Conditions to start Sleep mode</p> <ul style="list-style-type: none"> <li>① F-sensor <math>\leq -13^{\circ}\text{C}</math></li> <li>② Unless it is a restart within 40 minutes after the end of previous Sleep mode</li> <li>③ F-sensor error</li> <li>④ Door switch error</li> <li>⑤ Defrosting (Heater defrosting, pause, Fan delay)</li> <li>⑥ If the above conditions of ① ~ ⑤ are all satisfied, the sleep mode starts.</li> </ul> <p>3. Control of electrical parts</p> <ul style="list-style-type: none"> <li>1) Mode 1<br/>Once Sleep mode starts, all the electrical parts (COMP, F-FAN, R-FAN) turn OFF. ("ON" letters of SLEEP on LCD is display.)</li> <li>2) Mode 2<br/>It operates with Silent mode and ON letters of SLEEP on LCD is displayed on.)</li> </ul> <p>4. Termination of Sleep mode</p> <ul style="list-style-type: none"> <li>1) MODE 1                             <ul style="list-style-type: none"> <li>① F-sensor <math>\geq -9^{\circ}\text{C}</math></li> <li>② In case of F-sensor error</li> <li>③ When other button is pushed during this mode</li> <li>④ Total F/R door open time exceeds 30 seconds during the mode</li> <li>⑤ If Sleep mode is terminated by ① , ② and ③ , F/R-fan delay for 5 minutes and restart of this mode is prevented for 40minutes.</li> <li>⑥ It it exceeds time limit of 130 minute, Mode1 is terminated and Mode2 starts.</li> </ul> </li> <li>2) MODE 2<br/>Sleep mode is terminated 12 hours after the first start.<br/>( Speed mode and defrosting operate in normal way.)</li> </ul> <p>5. After Sleep mode stops all the electrical parts return to normal operation and Sleep icon changes from "ON" to "OFF".</p> <p>6. If Sleep mode starts during PRECOOL, it goes on again after the Sleep mode is terminated.</p> <p>7. If Sleep mode starts during Super FRZ., Super REF., it returns to previous set modeafter the Sleep mode is terminated.</p> |  |         |

**SILENT (Silence Mode)**

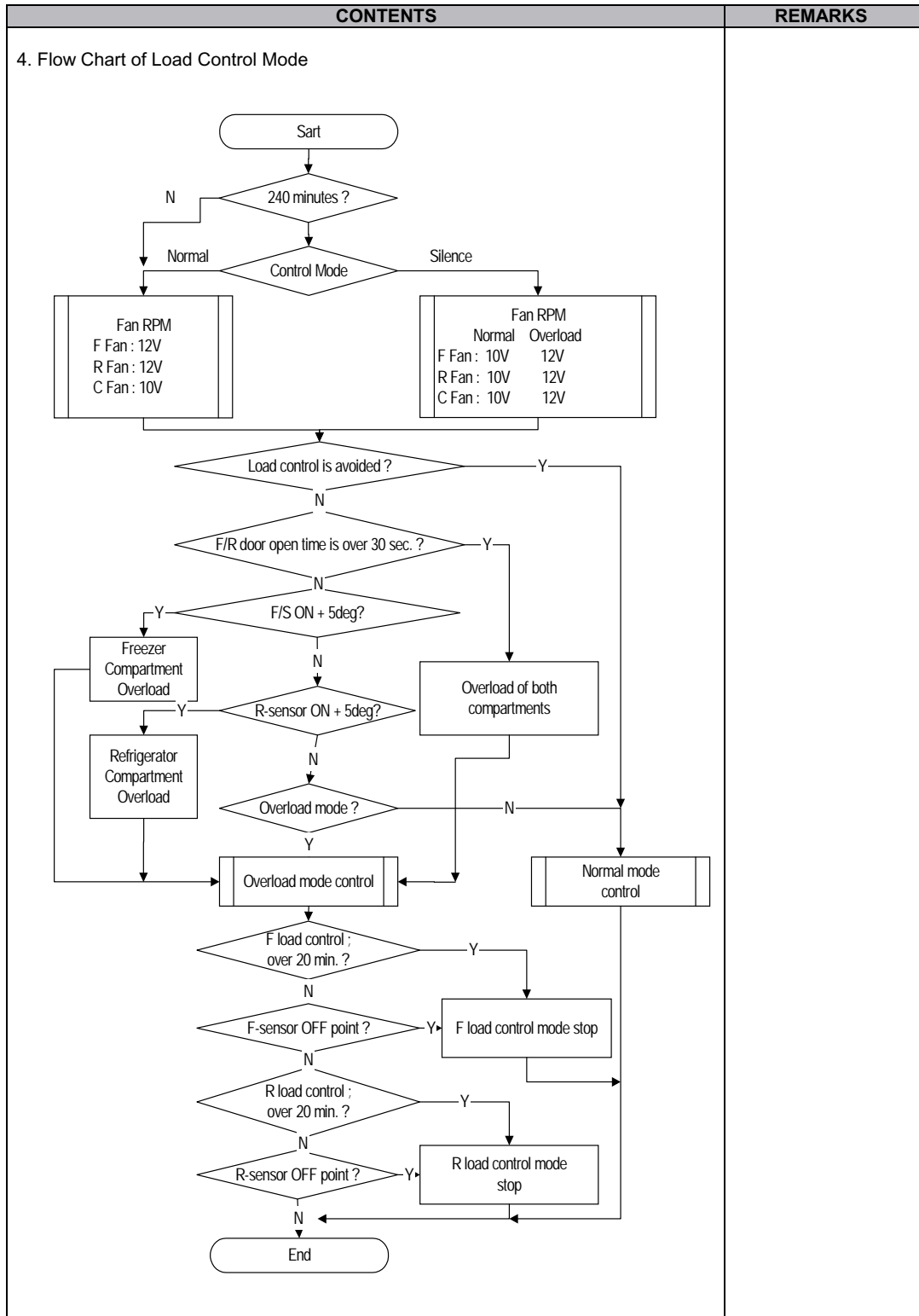
| INPUT   |              | Control Object                                   |       |              |  |       |       |       |         |        |     |     |     |              |     |     |     |  |
|---|--------------|--|-------|--------------|--|-------|-------|-------|---------|--------|-----|-----|-----|--------------|-----|-----|-----|--|
| 1. CDS SENSOR   |              | 5. COMP<br>6. R-FAN<br>7. F-FAN<br>8. CUSTOM-LCD |       |              |  |       |       |       |         |        |     |     |     |              |     |     |     |  |
| CONTENTS  |              |  |       | REMARKS      |  |       |       |       |         |        |     |     |     |              |     |     |     |  |
| <p>1. Purpose of Silence mode<br/>To reduce refrigerator noise at night by decreasing fan RPM to a minimum degree</p> <p>2. Condition to start<br/>1) The optical or light sensor in top middle of control panel senses surround light and Silence mode starts if the amount of light sensed is below the standard value for more than 1 minute.<br/>(The mode does not start for initial 240 minutes to prevent down of cooling performance.)<br/>① Standard value to decide "night" : below 5~7 Lux (optical sensor surface)<br/>② Standard value to decide "daytime" : above 4~16 Lux (optical sensor surface)</p> <p>3. Control Method</p> <table border="1"> <thead> <tr> <th colspan="2">Control Mode</th> <th>F-FAN</th> <th>R-FAN</th> <th>C-FAN</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Silence</td> <td>Normal</td> <td>10V</td> <td>10V</td> <td>10V</td> </tr> <tr> <td>Load Control</td> <td>12V</td> <td>12V</td> <td>10V</td> </tr> </tbody> </table> <p>4. Termination Condition<br/>The mode stops if lux value is above the standard for more than 1 minute.</p> |              |  |       | Control Mode |  | F-FAN | R-FAN | C-FAN | Silence | Normal | 10V | 10V | 10V | Load Control | 12V | 12V | 10V |  |
| Control Mode  |              | F-FAN  | R-FAN | C-FAN        |  |       |       |       |         |        |     |     |     |              |     |     |     |  |
| Silence   | Normal       | 10V  | 10V   | 10V          |  |       |       |       |         |        |     |     |     |              |     |     |     |  |
|   | Load Control | 12V  | 12V   | 10V          |  |       |       |       |         |        |     |     |     |              |     |     |     |  |

**Control of Each Mode**

| INPUT  |  | Control Object           |  |         |
|--|--|--------------------------|--|---------|
| 1. CDS SENSOR<br>2. R SENSOR<br>3. F SENSOR  |  | 1. F-FAN (14V, 12V, 10V) |  |         |
| CONTENTS   |  |                          |  | REMARKS |
| <p>Control of Silence mode : operation mode when the optical sensor feels that it is night</p> <p>Normal control : daytime operation mode<br/>(Refrigerator noise is relatively low at daytime.)</p> <p>Load control : operation mode when inside temperature goes up due to an increase of load (foods) or frequent door openings</p> |  |                          |  |         |

| CONTENTS   |              |       |       | REMARKS |
|--|--------------|-------|-------|---------|
| 1. Fan voltage of each control mode  |              |       |       |         |
| Control Mode   |              | F-FAN | R-FAN | C-FAN   |
| Normal   |              | 12V   | 12V   | 10V     |
| Load Control   | Normal       | 14V   | 14V   |         |
|  | Silence      | 12V   | 12V   |         |
| Silence  | Normal       | 10V   | 10V   |         |
| Sleep Mode2  | Normal       | 10V   | 10V   |         |
|  | Load control | 12V   | 12V   |         |
| 2. Control against (under) load (Load Control)   |              |       |       |         |
| 1) Purpose : To restore F/R-temperature which has risen by load (much foods in or frequent door openings) as soon as possible  |              |       |       |         |
| 2) Display : "SPEED" lights until the mode and speed icons flicker.  |              |       |       |         |
| 3) Conditions to start (from both Normal and Silence)  |              |       |       |         |
| ① F or R door open time exceeds 30 seconds at a time Freezer and Refrigerator load control starts respectively.  |              |       |       |         |
| ② Over [F-sensor On Point + 5 degree] → F load control   |              |       |       |         |
| ③ Over [R-sensor On Point + 5 degree] → R load control   |              |       |       |         |
| 4) Conditions to avoid load control  |              |       |       |         |
| ① Initial operation (right after pow   |              |       |       |         |
| ② Just after Pre-cool, Heater defrosting, Pause, Defrosting cycle<br>(After door opening, the load control enters if the condition complies with.)<br>(During Sleep Mode1, load control isn t active.) |              |       |       |         |
| 5) Control Method  |              |       |       |         |
| 5-1) Control mode by F/R-door open time (over 30 seconds)<br>F/R-fan works by 14V respectively.  |              |       |       |         |
| 5-2) Control mode by [F-sensor On Point + 5 degree]<br>F-fan works by 14V.   |              |       |       |         |
| 5-3) Control mode by [R-sensor On Point + 5 degree]<br>R-fan works by 14V.<br>C-fan works by 10V as normal.  |              |       |       |         |
| 6) Conditions to stop  |              |       |       |         |
| ① The mode works for 20 minutes.<br>(If another condition happens at the end of the mode, it starts again.)  |              |       |       |         |
| ② When it reaches to [F-sensor Off point], F-fan load control mode stops.  |              |       |       |         |
| ③ When it reaches to [R-sensor Off point], R-fan load control mode stops.  |              |       |       |         |

| CONTENTS   | REMARKS |
|--|---------|
| <p>3. Control Time Chart of Each Mode</p> <p>1) Start &amp; stop of load control mode (Normal Control)</p> <p>2) Start &amp; stop of load control mode (Silence Control)</p> <p>3) Start &amp; stop of load control mode (Normal defrosting control)</p> |         |



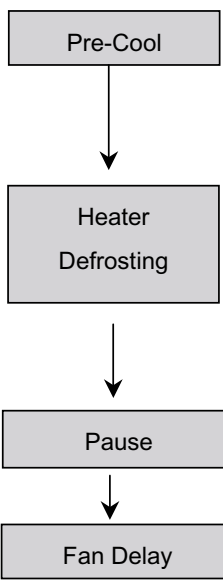
**Defrosting Cycle**

| INPUT   | Control Object     |         |
|---|--------------------|---------|
| 1. Total comp. work time<br>2. Comp. work rate<br>3. RT temperature<br>4. Total door open time  | 1. Defrosting Mode |         |
| CONTENTS  |                    | REMARKS |
| <p>1. Conditions to start defrosting cycle</p> <ol style="list-style-type: none"> <li>1) Total comp. work time : 6, 8, 10 hours</li> <li>2) Comp. work rate (by the 2 hours) : over 65%</li> <li>3) Total door open time : 3 minutes<br/>(Any door - F or R - open time is over 3 minutes.)</li> <li>4) Total time of [comp. ON + comp. OFF] : 60 hours</li> <li>5) Ambient temperature over 35°C</li> <li>6) Any error mode : R1, F1, D1, F3, RT/S, Door-switch</li> </ol> <p>2. Conditions to start defrosting mode</p> <ol style="list-style-type: none"> <li>1) The mode starts in the following conditions ;               <ol style="list-style-type: none"> <li>① Any error happens when total comp. work time is 6 or 8 or 10 hours.</li> <li>② Comp. work rate by the 2 hours is over 65%.</li> <li>③ Total door open time is over 3 minutes.<br/>(Any door - F or R - open time is over 3 minutes.)<br/>Ambient temperature is over 35°C.</li> </ol> </li> <li>2) Defrosting mode starts unconditionally as long as total comp. work time is 10 hours, even if the above conditions(①~④) are not satisfied.</li> <li>3) Defrosting mode starts immediately as long as total time of [comp. ON + comp. OFF] is over 60 hours, even if the above 1) and 2) conditions are not satisfied.</li> </ol> |                    |         |



| CONTENTS   | REMARKS |
|--|---------|
| <p><b>3. Flow Chart of Defrosting Start</b></p> <pre> graph TD     Start([Start]) --&gt; D1{Comp. work time is over 2 hours ?}     D1 -- No --&gt; End[End]     D1 -- Yes --&gt; D2{Total time is over 60 hours ?}     D2 -- Yes --&gt; StartDefrost[Defrosting mode starts.]     D2 -- No --&gt; D3{Comp. work time is over 10 hours ?}     D3 -- Yes --&gt; StartDefrost     D3 -- No --&gt; D4{Comp. work time is over 8 hours ?}     D4 -- No --&gt; End     D4 -- Yes --&gt; D5{Comp. work time is over 6 hours ?}     D5 -- No --&gt; End     D5 -- Yes --&gt; D6{Comp. work rate is over 65 % ?}     D6 -- Yes --&gt; StartDefrost     D6 -- No --&gt; D7{Total door open time is over 3 minutes ?}     D7 -- Yes --&gt; StartDefrost     D7 -- No --&gt; D8{Ambient temp. is over 35 ?}     D8 -- Yes --&gt; StartDefrost     D8 -- No --&gt; D9{Any error ?}     D9 -- Yes --&gt; StartDefrost     D9 -- No --&gt; End     </pre> |         |

**Defrosting Mode**

| INPUT  | Control Object                               |   |        |           |
|--|--|---|--------|-----------|
| 1. Defrosting Cycle  | 1. COMP<br>2. F-FAN<br>3. R-FAN<br>4. HEATER |   |        |           |
| CONTENTS   |  | REMARKS   |        |           |
| 1. Defrosting Mode<br><br> <pre>                     graph TD                         A[Pre-Cool] --&gt; B[Heater Defrosting]                         B --&gt; C[Pause]                         C --&gt; D[Fan Delay]                     </pre> |  | 1) Time ; 50 minutes<br>2) Comp. / F-fan : ON<br>R-fan : Control<br>Heater : OFF<br>3) If F-sensor ≤ - 27°C, PRE-COOL becomes OFF.<br><br>1) If D-sensor ≥ 10°C, Heater becomes OFF.<br>2) In case of Heater return by time limit of 40 or 80 min (F3-Error)<br>3) Heater is ON for 30 minutes (time limit) in case of D-sensor error.<br>4) Time limit<br>① 30 seconds : Heater is ON regardless of D-sensor temperature right after defrosting start.<br>② 30 minutes : in case of D1-Error<br>③ 80 minutes : in normal control state<br><br>1) Time : 7 minutes<br>Comp., F-fan, R-fan, Heater : OFF<br><br>1) Time : 5 minutes<br>Comp. : ON<br>F/R-fan, Heater : OFF |        |           |
| Output control and time limit of each defrosting mode  |  |   |        |           |
|  | PRE-COOL                                     | Heater Defrosting   | Pause  | Fan Delay |
| COMP   | ON   | OFF   | OFF    | ON        |
| F-FAN  | ON   | OFF   | OFF    | OFF       |
| R-FAN  | Control                                      | OFF   | OFF    | OFF       |
| HEATER   | OFF  | ON  | OFF    | OFF       |
| Time Limit   | 50 min.                                      | ① 80 min.<br>② 30 min.<br>(in case of D1-Error)   | 7 min. | 5 min.    |
|  |  | C-fan and comp. are linked.   |        |           |

**Error Display (LCD Display of F-PCB)**

| INPUT  | Control Object                                       |
|--|--|
| 1. Temperature Control Buttons   | CUSTOM LCD   |
| CONTENTS   |  |
| <p>1. How to start<br/>                     1) Set "LOCK ON" first.<br/>                     2) Push "LOCK" button 3 times while pushing "REF SET." button at the same time.</p> <p>2. Display<br/>                     Error code is displayed on Freezer temperature display part.</p> <p>3. How to stop<br/>                     1) Push "LOCK" button 3 times while pushing "REF SET." button.<br/>                     2) It stops automatically 4 minutes after the start.</p> <p>4. All the error Ccdes are reset if they turn to be normal.</p> <p>5. Error Code</p> |  |
| ERROR CODE   | CONTENTS   |
| F1   | F-sensor ; disconnection, short(pull-down)           |
| r1   | R-sensor ; disconnection, short(pull-down)           |
| rt   | RT-sensor ; disconnection, short(pull-down)          |
| d1   | D-sensor ; disconnection, short(pull-down)           |
| dr   | R-Door Switch ; defective                            |
| dF   | F-Door Switch ; defective                            |
| dH   | Homebar (Refreshment Center) Door Switch ; defective |
| C1   | Cycle ; abnormal or defective.                       |
| F3   | Return after defrosting ; abnormal or defective      |
| d2   | Forced defrosting mode for A/S                       |
| REMARKS  |  |

|           |                                     |
|-----------|-------------------------------------|
| <b>E1</b> | I sensor; disconnection, short      |
| <b>EF</b> | FLOW sensor; disconnection, short   |
| <b>Et</b> | Level sensor sw error               |
| <b>E9</b> | Water supply Error                  |
| <b>EA</b> | Continuously Ice drop 3times at Et. |
| <b>Eu</b> | Fully Ice sensor sw error           |

| CONTENTS   | REMARKS  |          |            |            |            |        |           |        |        |        |        |        |        |  |  |  |  |  |  |
|--|----------|----------|------------|------------|------------|--------|-----------|--------|--------|--------|--------|--------|--------|--|--|--|--|--|--|
| <p>6. Control Way of Errors (if any)</p> <p>1) "F1" ERROR<br/>           Cause : F-sensor disconnection / short (pull-down)<br/>           Control : Comp. / F-fan ON for 25min., OFF for 25min.<br/>           if F-sensor is normal, the error is terminated automatically.</p> <p>2) "r1" ERROR<br/>           Cause : R-sensor disconnection / short (pull-down)<br/>           Control : Condition of ambient temperature</p> <table border="1" style="margin-left: 40px;"> <thead> <tr> <th>RT/S</th> <th>In ERROR</th> <th>~13°C</th> <th>14°C ~19°C</th> <th>20°C ~29°C</th> <th>29°C ~</th> </tr> </thead> <tbody> <tr> <td>Work rate</td> <td>8 / 12</td> <td>7 / 13</td> <td>8 / 12</td> <td>8 / 12</td> <td>9 / 11</td> </tr> <tr> <td>ON/OFF</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p style="margin-left: 40px;">If R-sensor is normal, the error is terminated automatically.</p> <p>3) "rt" ERROR<br/>           ① Cause : RT-sensor disconnection / short (pull-down)<br/>           ② Control : Normal operation, deletion of control condition by RT-sensor<br/>           ③ If RT-sensor is normal, the error is terminated automatically.</p> <p>4) "d1" ERROR<br/>           ① Cause : D-sensor disconnection / short (pull-down)<br/>           ② Control : Time limit (30min.) of defrosting-return<br/>           ③ If D-sensor is normal, the error is terminated automatically.</p> <p>5) Door ERROR("dF","dR","dH" on display)<br/>           ① Cause : in case it senses that door is open for more than 1<br/>           ② Control : Deletion of function related door switch sensing<br/>           ③ If door switch (open &amp; close) is sensed, the error is terminated automatically.<br/>           ④ After displaying on LCD the mode is terminated.</p> <p>6) "C1" ERROR<br/>           ① Cause : in case comp. works for over 3 hours when D-sensor temp. is over -5°C<br/>           ② Control : Normal operation<br/>           ③ When D-sensor temp. is below -5°C in comp. OFF, it is terminated.</p> <p>7) "F3" ERROR<br/>           ① Cause : in case defrosting-return is done by time limit of 80min.<br/>           ② Control : Deletion of Pre-cool mode in defrosting mode<br/>           ③ If defrosting-return is done by D-sensor, it is terminated.</p> <p>8) "d2" MODE (A/S forced defrosting mode)<br/>           ① Set "LOCK ON" first, then push "REFRIGERATOR SET." button 5 times while pushing "FREEZER SET." button simultaneously.<br/>           ② Control : A/S forced defrosting control (Pre-cool is deleted.)<br/>           ③ If D-sensor temp. is over 10°C, the mode is terminated automatically.</p> | RT/S     | In ERROR | ~13°C      | 14°C ~19°C | 20°C ~29°C | 29°C ~ | Work rate | 8 / 12 | 7 / 13 | 8 / 12 | 8 / 12 | 9 / 11 | ON/OFF |  |  |  |  |  |  |
| RT/S   | In ERROR | ~13°C    | 14°C ~19°C | 20°C ~29°C | 29°C ~     |        |           |        |        |        |        |        |        |  |  |  |  |  |  |
| Work rate  | 8 / 12   | 7 / 13   | 8 / 12     | 8 / 12     | 9 / 11     |        |           |        |        |        |        |        |        |  |  |  |  |  |  |
| ON/OFF   |          |          |            |            |            |        |           |        |        |        |        |        |        |  |  |  |  |  |  |

| CONTENTS  | REMARKS |
|---|---------|
| <p>9) "EI" ERROR</p> <ul style="list-style-type: none"> <li>① Cause : I-SENSOR disconnection / short (pull-down)</li> <li>② Control : After water supply, Ice drop every 4.8hour.</li> <li>③ Termination : When I-SENSOR is normal.</li> </ul> <p>10) "Ft" ERROR</p> <ul style="list-style-type: none"> <li>① Cause : When Level SW is ERROR</li> <li>② Control : Time control (Skip water supply mode)</li> <li>③ Termination : Normal</li> </ul> <p>11) "EF" Error</p> <ul style="list-style-type: none"> <li>① Cause : When Flow-sensor is ERROR(There is no Pulse during some time.)<br/>When water supply valve is "ON" Pulse input is below 10 during 1s.</li> <li>② Control : Time control(By Vector time recorded EEPROM.)<br/>(Generally, Water is supplied about 5.5s.)</li> <li>③ Termination : Exchang Flow-Sensor.</li> </ul> <p>12) "Eg" Error</p> <ul style="list-style-type: none"> <li>① Cause : I-Sensor temp(5M after Water supply) dosen t get high.</li> <li>② Control : Normal control</li> <li>③ Termination : Normal</li> </ul> <p>13) Dispenser S/W Error</p> <ul style="list-style-type: none"> <li>Cause : When it senses 1M continuously.</li> <li>Control : Stop Dispenser &amp; Crusher function.</li> <li>Display : Relative ICON BOX is "OFF".</li> <li>Termination : Normal</li> </ul> <p>14) Malfunction of Ice Drop Motor</p> <ul style="list-style-type: none"> <li>① Cause : Malfunction of Ice Drop Motor.<br/>[Check the Motor by pushing Test S/W.]</li> <li>② Termination : Exchange Motor</li> </ul> <p>15) "Eu" Error</p> <ul style="list-style-type: none"> <li>① Cause : Fully TM position is Error</li> <li>② Control : When dropping the Ice, the motor just rotates 90 degree.</li> <li>③ Termination : Fully sensor is normal.</li> </ul> <p>16) "EA" Error</p> <ul style="list-style-type: none"> <li>① Cause : When sensing Ice dropping 3 times with level sensor SW Error.</li> <li>② Control : Pause Ice Maker.</li> <li>③ Termination : With level sensor SW is normal,<br/>Reset the Power or Push TEST S/W.</li> </ul> <p>* When all ERROR CODE is normal, the Refrigerator reset.</p> |         |

**Forced Defrosting**

| INPUT  | Control Object  |
|--|-----------------|
| 1. "FREEZER SET." Button<br>2. "REFRIGERATOR SET." button<br>3. "LOCK" button  | Defrosting Mode |
| CONTENTS   |                 |
| 1. How to start<br>Set "LOCK ON" first, then push "REFRIGERAOTR SET." button 5 times while pushing "FREEZER SET." button simultaneously.   |                 |
| 2. How to proceed<br>1) Delete Pre-cool mode. (Others are same as normal defrosting.)<br>2) Heater is ON regardless of D-sensor temp. at first 30 seconds.<br>( Check of defrosting current) |                 |
| REMARKS  |                 |

**6-11. Initial Defrosting**

| INPUT   | Control Object   |
|---|--|
| D-sensor<br>Initial or first power input (power plugin)   | Defrosting Mode  |
| CONTENTS  |  |
| If D-sensor temp. $\leq 3.5^{\circ}\text{C}$ , defrosting mode starts from Pre-cool at first power input. | Comp. is delayed for 6 min. at the initial defrosting. |
| REMARKS   |  |

**6-12. Buzzer or Alarm**

| INPUT  | Control Object |
|--|----------------|
| F-PCB buttons<br>Door Switch<br>Initial Power Input  | BUZZER         |
| CONTENTS   |                |
| 1. Buzzer sounds if any button of F-PCB is pushed.<br>2. Buzzer sounds 3 times 3 minutes after initial power input.<br>3. Buzzer sounds for 1 second in case of A/S forced defrosting, short (pull-down) operation, explanation mode.<br>4. If door is open, buzzer sounds continually 3 times for 5 seconds.<br>(Door open alarm) |                |
| REMARKS  |                |

**LCD Background Light**

| INPUT   | Control Object |
|---|----------------|
| F-PCB buttons<br>Door Switch<br>Initial Power Input | LCD BACK LIGHT |

## OPERATION AND FUCTIONS

| CONTENTS   | REMARKS |
|--|---------|
| 1. Conditions to turn on LCD Light<br>1) Power input (plugin)<br>2) When any button on the panel is pushed, first the back light turns on, then button control is done.<br>3) When F/R door is open, the light turns on.<br><br>2. Conditions to turn off the light<br>1) The back light turns off 10 seconds after F/R door is closed<br>2) 1 minute after button control |         |

### Explanation After Delivery

| INPUT  | Control Object                |
|--|-------------------------------|
| "FREEZER SET." button<br>"REFRIGERATOR SET." button<br>Power Cord  | Electrical components and LCD |
| CONTENTS   | REMARKS                       |
| 1. Start<br>Push "REFRIGERATOR SET." button for 3 seconds within 10 seconds just after power input.<br><br>2. Control<br>1) Electrical components are OFF for 3 hours.<br>2) Display operates in normal way. |                               |

### Prevention of Compressor Restart

| INPUT   | Control Object |
|---|----------------|
| None    Comp.   |                |
| CONTENTS  | REMARKS        |
| Comp. does not start again for 6 minutes though F-sensor is ON. | 6min. delay    |

### Back Up Function

| INPUT  | Control Object |
|--|----------------|
| None   |                |
| CONTENTS   | REMARKS        |
| 1. Filter Exchange Information : Record as a realtime from the point of Power Input.<br>2.P FACTOR (Information about Ice Maker)<br><br>3.Ice Maker Lock |                |

**Delay Function of Electric Components**

| INPUT  | Control Object |                 |
|--|----------------|-----------------|
| COMP ON/OFF  | COMP<br>F-FAN  | <b>CONTENTS</b> |
|  |                | <b>REMARKS</b>  |
| <p>1) F-fan delay by comp. ON/OFF<br/>F-fan is ON/OFF 1 minute after comp. is ON/OFF.</p>  |                |                 |
| <p>2) F an Delay and Priority</p>  |                |                 |
| <p>3) F /R-fan delay by door open/close for easy door opening.<br/>Inspection : checkup door opening 2 hours after initial start.<br/>First R is ON, 1 second later F is ON to protect DC fan against over current at initial start.</p> |                |                 |



**Home Bar (Refreshment Center) Heater**

| INPUT                   |      | Control Object |  |
|-------------------------|------|----------------|--|
| None                    | COMP |                |  |
| CONTENTS                |      | REMARKS        |  |
| It is linked with comp. |      |                |  |

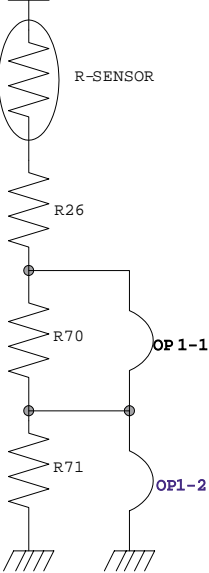
**Control of Interior Lights**

| INPUT  |  | Control Object |  |
|--|--|----------------|--|
| Refrigerator Door<br>Freezer Door<br>Home-Bar Door<br>(Refreshment Center)   |  | COMP           |  |
| CONTENTS   |  | REMARKS        |  |
| 1) Control of Refrigerator Compartment Lights<br>R lights turn ON/OFF by R-door switch (ON/OFF).<br>10 minutes after sensing door open, the lights turn off automatically though door close is not sensed. |  |                |  |
| 2) Control of Freezer Compartment Lights<br>F lights turn ON/OFF by F-door switch (ON/OFF).<br>10 minutes after sensing door open, the lights turn off automatically though door close is not sensed.      |  |                |  |
| 3) R-lights ON/OFF by Home-Bar door opening<br>R-lights turn ON for 1 minute after sensing HOME-BAR switch open.<br>(If the switch is pushed again within 1 minute, the light turns on another 1 minute.)  |  |                |  |
| 4) DISPENSER LAMP CONTROL<br>DISPENSER LAMP turns ON/OFF by DISPENSER SW.<br>Dispenser Lamp turns ON for 5 seconds after sensing switch close.   |  |                |  |

**Demonstration Function**

| INPUT  |  | Control Object         |  |
|--|--|------------------------|--|
| "LOCK" button<br>"REFRIGERATOR SET." button<br>"SLEEP" button  |  | COMP<br>F-FAN<br>R-FAN |  |
| CONTENTS   |  | REMARKS                |  |
| 1. Start<br>1) Set "LOCK ON" first.<br>2) Push "SLEEP" button 5 times while pushing "REF SET." button simultaneously.  |  |                        |  |
| 2. Control<br>1) All other electrical components are OFF except for F-fan / R-fan.<br>2) Fan Control<br>DOOR OPEN → FAN ON / DOOR CLOSE → FAN OFF<br>3) Display : Normal mode (3.8sec.) → SPEED(3sec.) → Silent mode(3sec.) → Sleep mode (3sec.) |  |                        |  |
| 3. Stop or Termination<br>1) During Demo mode push "SLEEP" button 5 times while pushing "REF SET." button simultaneously.<br>2) Power in again.  |  |                        |  |

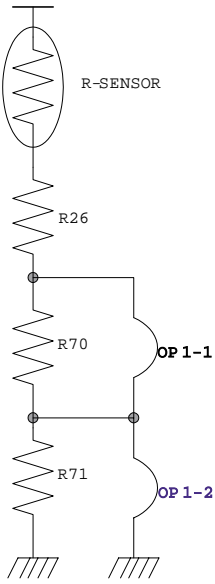
**Regulation of R-sensor OFF Point**

| INPUT   | Control Object                       |
|---|--------------------------------------|
| J18, 22 on Main PCB   | Resistance of R-sensor Mid OFF Point |
| CONTENTS  |                                      |
| <p>Regulation of R-sensor OFF point (1.5degree DOWN)<br/>                     In case refrigeration of refrigerator is weak or insufficient, take the following action.</p>  <p>R26 : R-SENSOR standard resistance in normal mode (31.4K )<br/>                     R70 : In case of weak ref., cut J18 to down the standard resistance by 1.5deg(2K)<br/>                     R71 : In case of weak ref., cut J22 to down the standard resistance by 1.5deg(2K)</p> <p>R26 = Mid OFF point<br/>                     R26 + R70 = Mid OFF point - 1.5 deg<br/>                     R26 + R70 + R71 = Mid OFF point - 3.0 deg</p> |                                      |
| REMARKS   |                                      |

**Summary of Function**

| CONTENTS   | REMARKS   |
|--|---|
| <p>How to start function modes<br/>                     All the modes are started with "LOCK ON" except for "explanation after delivery &amp; installation".</p> |   |
| A/S forced defrosting  | "FREEZER SET." + "REFRIGERATOR SET." 5 times              |
| Demonstration  | "REFRIGERATOR SET." + "SLEEP" 5 times                     |
| Explanation after delivery & installation  | "REFRIGERATOR SET." for 3 sec. Right after first power in |
| ERROR display  | "REFRIGERATOR SET." + "LOCK" 3 times                      |

**Regulation of R-sensor OFF Point**

| INPUT   | Control Object                       |
|---|--------------------------------------|
| J18, 22 on Main PCB   | Resistance of R-sensor Mid OFF Point |
| CONTENTS  |                                      |
| <p>Regulation of R-sensor OFF point (1.5degree DOWN)<br/>                     In case refrigeration of refrigerator is weak or insufficient, take the following action.</p>  <p>R26 : R-SENSOR standard resistance in normal mode (31.4K )<br/>                     R70 : In case of weak ref., cut J18 to down the standard resistance by 1.5deg(2K)<br/>                     R71 : In case of weak ref., cut J22 to down the standard resistance by 1.5deg(2K)</p> <p>R26 = Mid OFF point<br/>                     R26 + R70 = Mid OFF point - 1.5 deg<br/>                     R26 + R70 + R71 = Mid OFF point - 3.0 deg</p> |                                      |
| REMARKS   |                                      |

**Summary of Function**

| CONTENTS   | REMARKS   |
|--|---|
| <p>How to start function modes<br/>                     All the modes are started with "LOCK ON" except for "explanation after delivery &amp; installation".</p> |   |
| A/S forced defrosting  | "FREEZER SET." + "REFRIGERATOR SET." 5 times              |
| Demonstration  | "REFRIGERATOR SET." + "SLEEP" 5 times                     |
| Explanation after delivery & installation  | "REFRIGERATOR SET." for 3 sec. Right after first power in |
| ERROR display  | "REFRIGERATOR SET." + "LOCK" 3 times                      |

| Input  | Control Object       |         |
|--|----------------------|---------|
| Fully Ice Sensor<br>Ice Maker Lock   | Ice seperation Motor |         |
| CONTENTS   |                      | REMARKS |
| <p>1-1. Ice Maker FLOW</p> <pre> graph TD     START([START]) --&gt; ICE_MAKER[ICE MAKER Mode]     ICE_MAKER --- IM[ICE Making]     ICE_MAKER --&gt; ICE_DROP[ICE DROP Mode]     ICE_DROP --- ID[ICE Drop]     ICE_DROP --&gt; WATER_INPUT[Water Input Mode]     WATER_INPUT --- WI[Supply water into the Ice maker]     WATER_INPUT --&gt; CHECK[Check Mode]     CHECK --- C[Check water input is normal.]     CHECK --&gt; RETURN([RETURN])     ICE_DROP -- "STOP the water input mode" --&gt; ICE_DROP             </pre>  |                      |         |
| <p>1) By Pushing of Ice Maker ASS'Y TEST S/W (Over 1 Sec.):<br/>TEST Mode Convert<br/>(Ice Drop Mode Start with Test Mode Proceed)</p> <p>2) Initial Power input =&gt; Ice Maker is horizontal =&gt; Proceed from Ice maker Mode</p> <p>3) Water-Input hose HTR Control<br/>                 ① Normal operation -: ON<br/>                 ② Ice Marker Operation -: OFF<br/>                 ③ Ice Marker Stop- : OFF<br/>                 ④ Demo Mode -: OFF</p> <p>4) Water Input Ready State<br/>                 ① Condition : Full Sensing of Ice<br/>                 ② Operation : Processing to Ice Markder Mode during Ice Marker Flow( Ice Drop, Water Input mode Stop)<br/>                 ③ Stop: If Normal operation Proceed =&gt; Auto -Stop</p> <p>5) Crusher Function<br/>                 ① F-DOOR OPEN : Function stop<br/>                 ② F-DOOR CLOSE : Function Normal Start</p> |                      |         |

| CONTENTS  | REMARKS |
|---|---------|
| <p>1-2. Ice Maker MODE</p> <pre> graph TD     START([START]) --&gt; D1{130 min passed?}     D1 -- NO --&gt; START     D1 -- YES --&gt; D2{I-S &lt; -12.5°C}     D2 -- YES --&gt; ICE([ICE Drop mode.])     D2 -- NO --&gt; D3{I-S &lt; -9.5°C}     D3 -- YES --&gt; D4{15 min passed?}     D4 -- YES --&gt; ICE     D4 -- NO --&gt; D1     D3 -- NO --&gt; D1     </pre> <p>1) I-S is <math>-12.5^{\circ}\text{C}</math> and below after 130 min. =&gt; Ice maker complete</p> <p>2) Although I-S isn't <math>-12.5^{\circ}\text{C}</math> below for 130 min, I-S maintains <math>-9.5^{\circ}\text{C}</math> below continuously =&gt; Ice maker complete</p> <p>3) I-Sensor Error: Ice Maker Complete after 4.8HR</p> <p>2. Ice Drop MODE</p> <p>1) Each Section's Time used in S/W ERROR Confirm</p> <p>2) Ice Drop MOTOR Rotation is Sensible by Each Sections</p> <p>3) S/W ERROR: Ice Drop Every Time</p> <p>4) Ice Drop MOTOR ERROR: Stop to the Status</p> |         |

| CONTENTS   | REMARKS |       |       |       |       |       |      |     |       |      |      |      |      |      |  |
|--|---------|-------|-------|-------|-------|-------|------|-----|-------|------|------|------|------|------|--|
| <p>3. Water-Input MODE</p> <pre> graph TD     START([START]) --&gt; InletON[Inlet value ON]     InletON --&gt; Count0[Water input pulse Count=0]     Count0 --&gt; D1{1 Sec passed after inlet value on?}     D1 -- N --&gt; Count0     D1 -- Y --&gt; D2{Water input pulse &gt;10}     D2 -- N --&gt; Error[Flow-Sensor Error mode]     D2 -- Y --&gt; D3{Water input pulse &gt;target pulse}     D3 -- Y --&gt; Error     D3 -- N --&gt; D4{time &gt; target time}     D4 -- Y --&gt; Error     D4 -- N --&gt; D3     Error -.-&gt; InletOff[Inlet value off]     InletOff --&gt; STOP([STOP])     </pre> <p>1) Convert of Water-Input Mode After Ice Drop:<br/>Water-Input Valve Open.</p> <p>2) Flow Sensor Error: Water-Input is Controlled by Time</p> <p>3) Variable Factor Value : Using for A/S Steps</p> <p>①Flow Sensor Normal Operation : Flow Pulse Value sets "238"<br/>(Water input by Time -: Maximum Water Inut Time =&gt; 15 sec.</p> <p>②Flow Sensor error : Water input time =&gt; 5.5 sec.</p> <p>4. Water-Input Confirm MODE</p> <p>I-S Temp. Rising Value with RT-S Temp. Mode after 5 min. : Estimate of Water Input</p> <table border="1" data-bbox="304 1850 1024 1917"> <tr> <td>RT-S</td> <td>7°C</td> <td>~13°C</td> <td>~19°C</td> <td>~29°C</td> <td>~39°C</td> <td>39°C</td> </tr> <tr> <td>I-S</td> <td>-10°C</td> <td>-9°C</td> <td>-8°C</td> <td>-7°C</td> <td>-6°C</td> <td>-5°C</td> </tr> </table> | RT-S    | 7°C   | ~13°C | ~19°C | ~29°C | ~39°C | 39°C | I-S | -10°C | -9°C | -8°C | -7°C | -6°C | -5°C |  |
| RT-S   | 7°C     | ~13°C | ~19°C | ~29°C | ~39°C | 39°C  |      |     |       |      |      |      |      |      |  |
| I-S  | -10°C   | -9°C  | -8°C  | -7°C  | -6°C  | -5°C  |      |     |       |      |      |      |      |      |  |

Dispenser Control Function

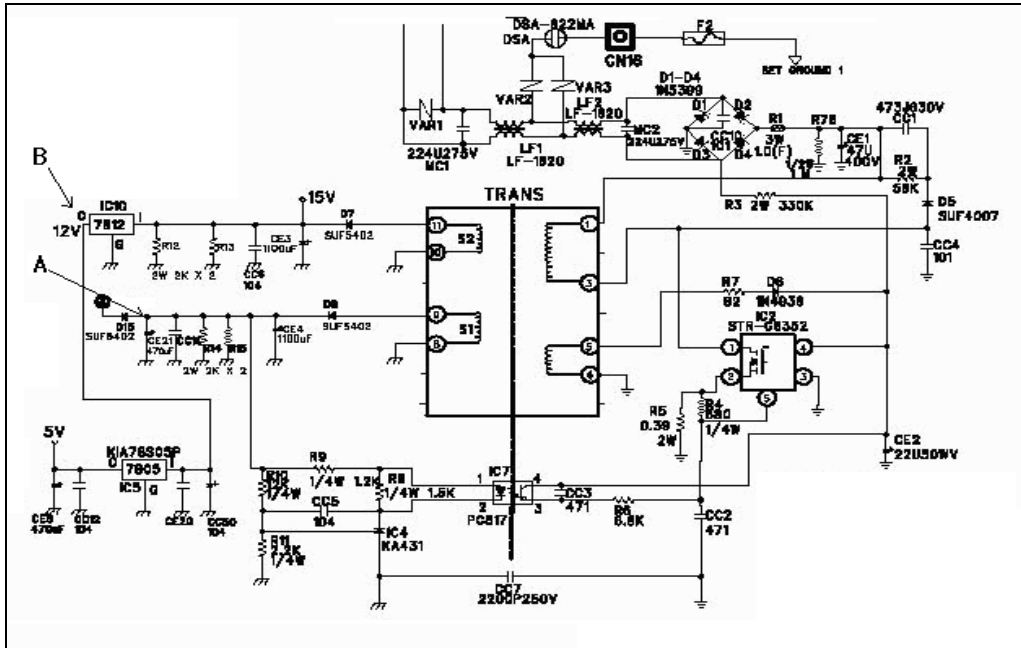
| Input  | Control Object  |
|--|---|
| Dispenser SW<br>Water/Ice Button<br>Lock Ice Maker Button<br>Freezer Door SW   | Dispenser Lamp<br>Crusher Motor<br>Flat Solenoid<br>Crusher Solenoid<br>Dispenser Water Valve |
| Contents   | Remark  |
| <p>1) Water/Ice Selection Button</p> <p>* Initial Mode : Water<br/>                     Progress : Water → Ice Cube → Crushed Ice → Water</p> <p>* Pushing the dispenser value, water/Ice cube/crushed Ice is dispensed as your selection.</p> <p>2) Lock Ice Maker Button</p> <p>① Start by pushing "Lock Ice Maker" button<br/>                     " Lock Icer Maker" is "ON",<br/>                     The Icon &amp; Box of "Cube Ice"/"Crushed Ice" disappear,<br/>                     "Water"Icon &amp; Box is always "ON"</p> <p>② Stop by pushing "Lock Ice Maker" button again.<br/>                     "Lock Icer Maker" Icon is "OFF",<br/>                     The Icon &amp; Box of"Cube Ice"/"Crushed Ice"is "OFF",<br/>                     "Water"Icon &amp; Box is "ON".</p> <p>3) Display</p> <ul style="list-style-type: none"> <li>- Initial Mode : Wateer ICON &amp; Letter is "ON".</li> <li>- A rectangle Line around the icon lights up to indicate your selection is on.</li> <li>- The Icon of water, Ice Cube, Crushed Ice is always "ON".( Exception, Dispenser S/W Error)</li> <li>- When pushing ' Lock Ice Maker':<br/>                     Lock Ice Maker LED is "ON" , The letters of crushed, cube Ice are "OFF"</li> <li>- There is no input during 1 hour, Dispeser transform into Water Mode.</li> </ul> |   |

| Contents  | Remark |
|---|--------|
| <p>4) Control Flow &amp; Timing Chart</p> <p>4-1)Crushed Ice</p> <p>4-2) Ice Cube</p> <p>4-3) Water</p> <p>Delay Time : A = 500ms, B = 500ms, C = 2.0s D = 5.0s</p> |        |

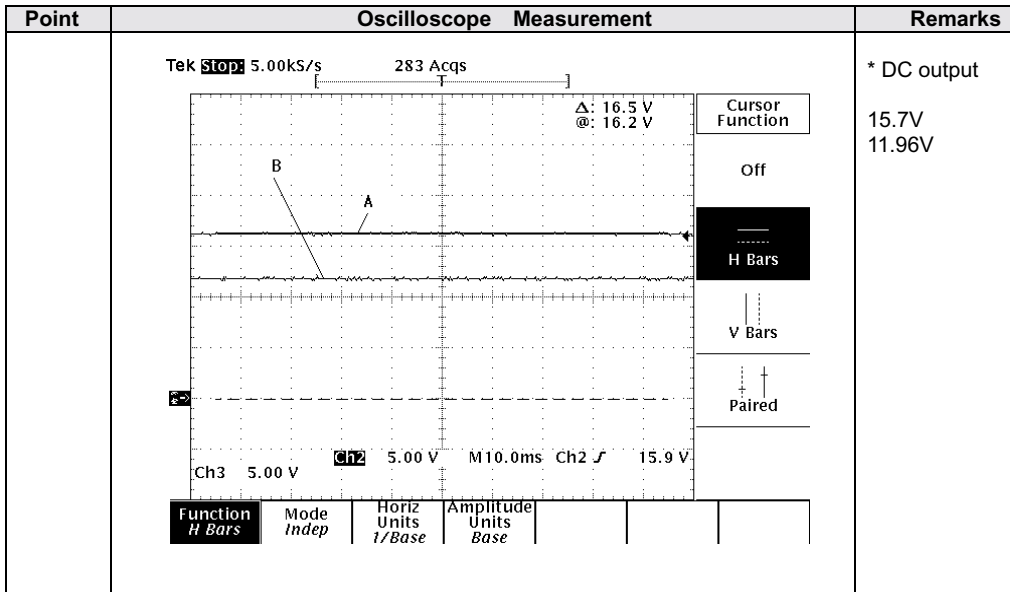


**MICOM Circuit**

**Power  
Circuit**



**DC Output Power (Voltage)**



**SMPS Movement Wave**

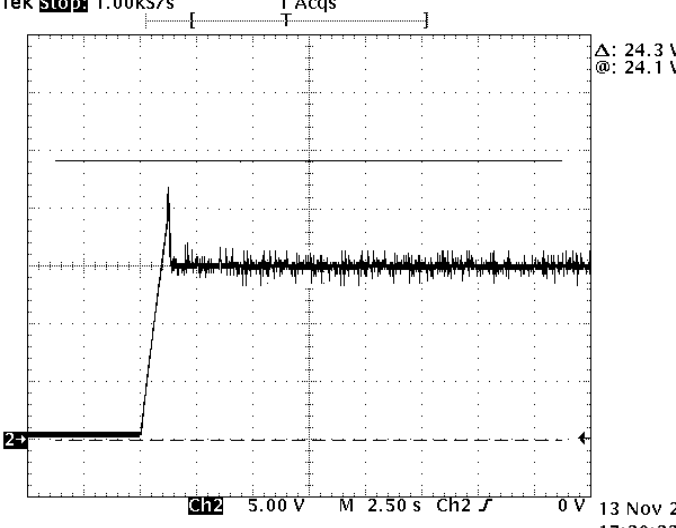
**Drain to Source Break Voltage**

| Point                    | Oscilloscope Measurement  | Remarks  |
|--------------------------|---|--|
| SMP<br>SIC<br>PIN<br>1,2 | <p>Tek Run: 50.0MS/s PK Detect <b>1194</b></p> <p>100 V M 5.00µs Ch2 J 586 V 13 Nov 2002 18:00:55</p> | *Voltage between DRAIN and SOURCE : below 650V |

**OVP(Overvoltage Protection) Wave at power input**

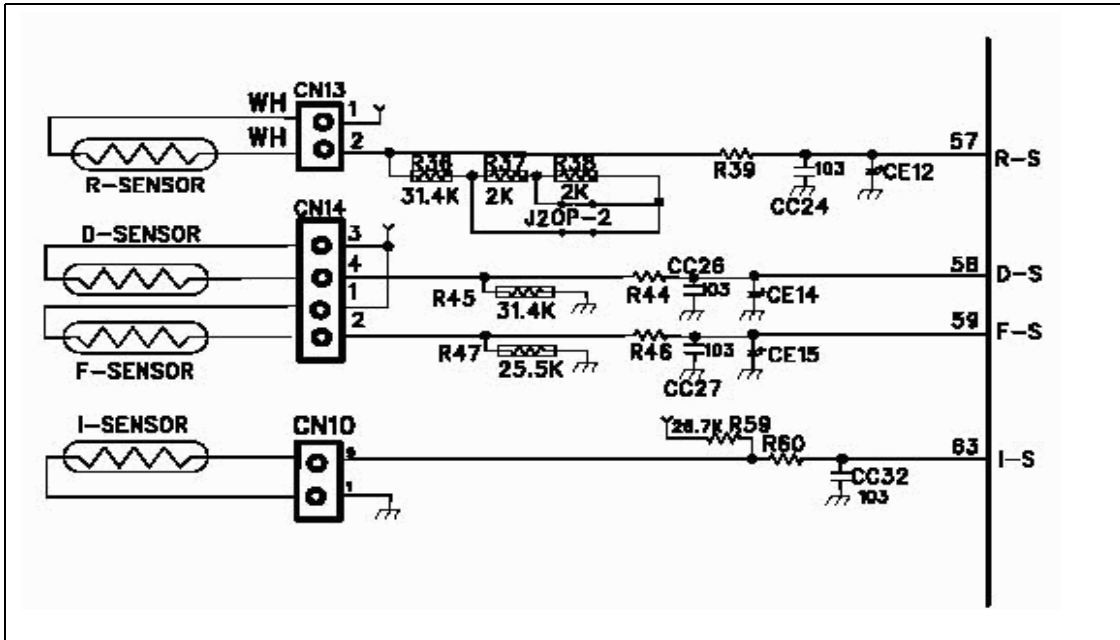
| Point                 | Oscilloscope Measurement  | Remarks  |
|-----------------------|---|--|
| SMPS<br>IC PIN<br>3,4 | <p>Tek <b>Stop</b>: 1.00kS/s 1 Acqs</p> <p>5.00 V M 2.50 s Ch2 J 0 V 13 Nov 2002 17:35:32</p> | *Minimum standard voltage at OVP start : 23.2V |

Initial Power Wave of Switching Power IC

| Point                 | Oscilloscope Measurement   | Remark |
|-----------------------|--|--------|
| SMPS<br>IC PIN<br>3,4 |  <p>             Tek <b>Stop</b>: 1.00kS/s<br/>             1 Acqs<br/> <math>\Delta</math>: 24.3 V<br/>             @: 24.1 V<br/>             ch2 5.00 V M 2.50 s Ch2 J 0 V<br/>             13 Nov 2002 17:39:23         </p> |        |

**Sensors**

**Circuit Diagram**



**Fncion of Each Sensor**

[ F-sensor ]

- 1) It senses the temperature of freezer compartment and controls Comp., F-fan ON / OFF.
- 2) How it works ;

|                 |                  |                  |                  |
|-----------------|------------------|------------------|------------------|
| Working Point   | Low ON           | Mid OFF          | High OFF         |
| Working Temp.   | -11.0°C          | -20.0°C          | - 26.0°C         |
| Resistance      | 14.74k $\Omega$  | 22.33k $\Omega$  | 30.92k $\Omega$  |
| Sensing Voltage | $\approx$ 3.50 V | $\approx$ 3.00 V | $\approx$ 2.14 V |

[ D-sensor ]

It senses return point of defrosting heater.

|                 |                                   |
|-----------------|-----------------------------------|
| Working Point   | Return point of defrosting heater |
| Working Temp.   | 10°C                              |
| Resistance      | 19.53k $\Omega$                   |
| Sensing Voltage | $\approx$ 3.1 V                   |

[ R-sensor ]

- 1) It senses the temperature of refrigerator compartment and controls R-fan ON / OFF.
- 2) How it works ;

|                 |                 |                 |                 |
|-----------------|-----------------|-----------------|-----------------|
| Working Point   | Low ON          | Mid OFF         | High OFF        |
| Working Temp.   | 2.65°C          | 0.3°C           | -1.7°C          |
| Resistance      | 26.88k $\Omega$ | 29.34k $\Omega$ | 32.00k $\Omega$ |
| Sensing Voltage | $\approx$ 2.90V | $\approx$ 2.81V | $\approx$ 2.74V |

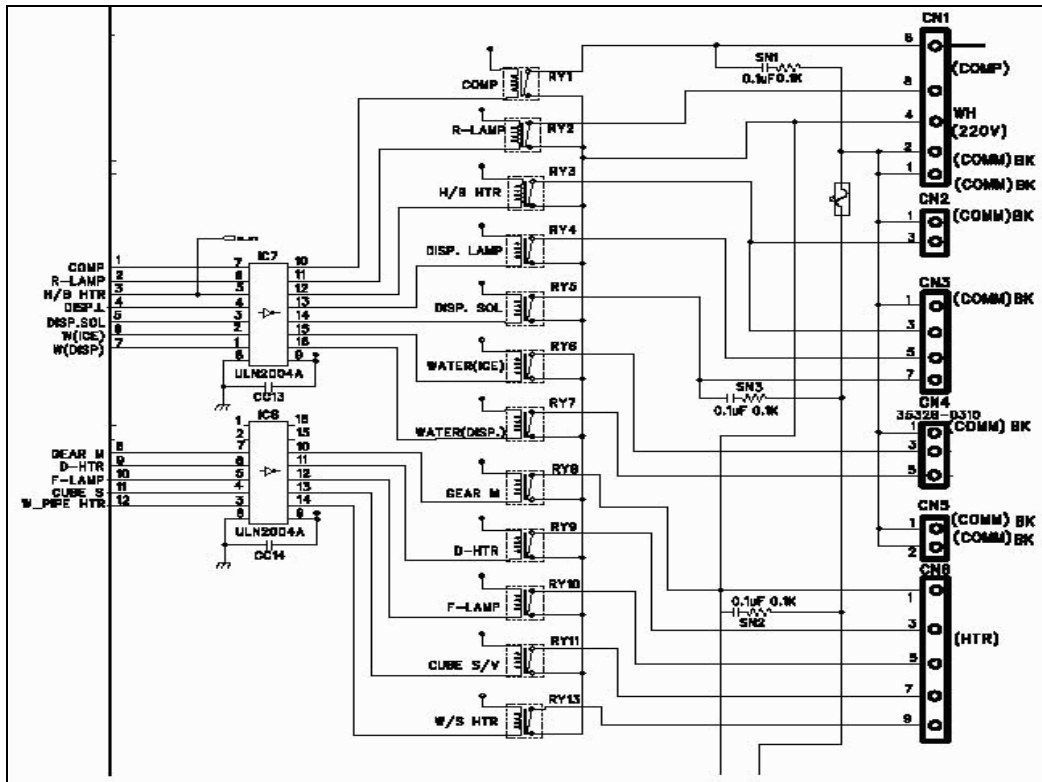
## OPERATION AND FUCTIONS

\* In case refrigeration of refrigerator compartment is poor or insufficient though comp. and R-fan operate in normal way ;

- 1) Cut J18 on M-PCB, then temp. is lowered -2 °C than [Mid OFF point].
- 2) In addition to 1) action, cut J22 on M-PCB, then the temp. is lowered -1°C more.

### Relay Function

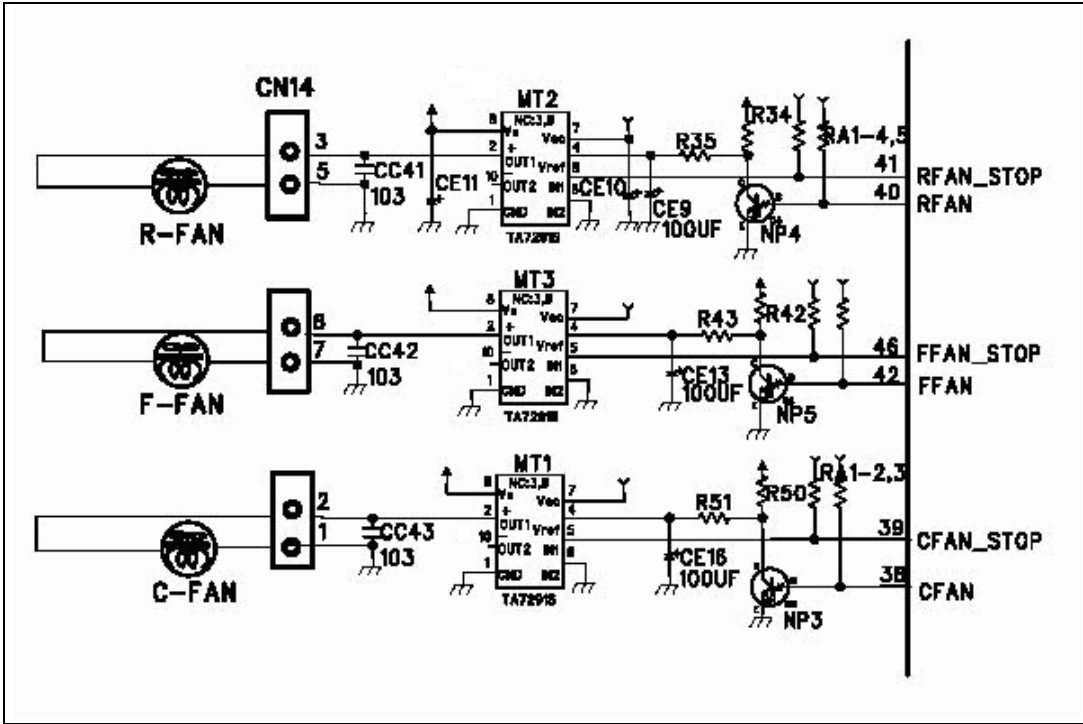
#### Circuit Diagram



How it works :

| Control    | Control Method | ON Condition |                 | OFF Condition |                 |
|------------|----------------|--------------|-----------------|---------------|-----------------|
|            |                | MICOM PORT   | IC 2 Output PIN | MICOM PORT    | IC03 Output PIN |
| COMP       | REPLAY         | #1 ≅ 3.7V    | #10 ≅ 0.7V      | #1 ≅ 0V       | #10 ≅ 12V       |
| R-LAMP     | REPLAY         | #4 ≅ 3.7V    | #11 ≅ 0.7V      | #4 ≅ 0V       | #11 ≅ 12V       |
| DIS-LAMP   | REPLAY         | #3 ≅ 3.7V    | #12 ≅ 0.7V      | #3 ≅ 0V       | #12 ≅ 12V       |
| DISP-SOL   | REPLAY         | #5 ≅ 3.7V    | #13 ≅ 0.7V      | #5 ≅ 0V       | #13 ≅ 12V       |
| WATER(ICE) | REPLAY         | #1 ≅ 3.7V    | #10 ≅ 0.7V      | #1 ≅ 0V       | #10 ≅ 12V       |
| WATER(DIS) | REPLAY         | #4 ≅ 3.7V    | #11 ≅ 0.7V      | #4 ≅ 0V       | #11 ≅ 12V       |
| GEAR-M     | REPLAY         | #3 ≅ 3.7V    | #12 ≅ 0.7V      | #3 ≅ 0V       | #12 ≅ 12V       |
| D-HTR      | REPLAY         | #5 ≅ 3.7V    | #13 ≅ 0.7V      | #5 ≅ 0V       | #13 ≅ 12V       |
| F-LAMP     | REPLAY         | #4 ≅ 3.7V    | #11 ≅ 0.7V      | #4 ≅ 0V       | #11 ≅ 12V       |
| CUBE-SOL   | REPLAY         | #4 ≅ 3.7V    | #11 ≅ 0.7V      | #4 ≅ 0V       | #11 ≅ 12V       |
| W/S HTR    | REPLAY         | #2 ≅ 3.7V    | #14 ≅ 0.7V      | #2 ≅ 0V       | #14 ≅ 12V       |

Fan Function



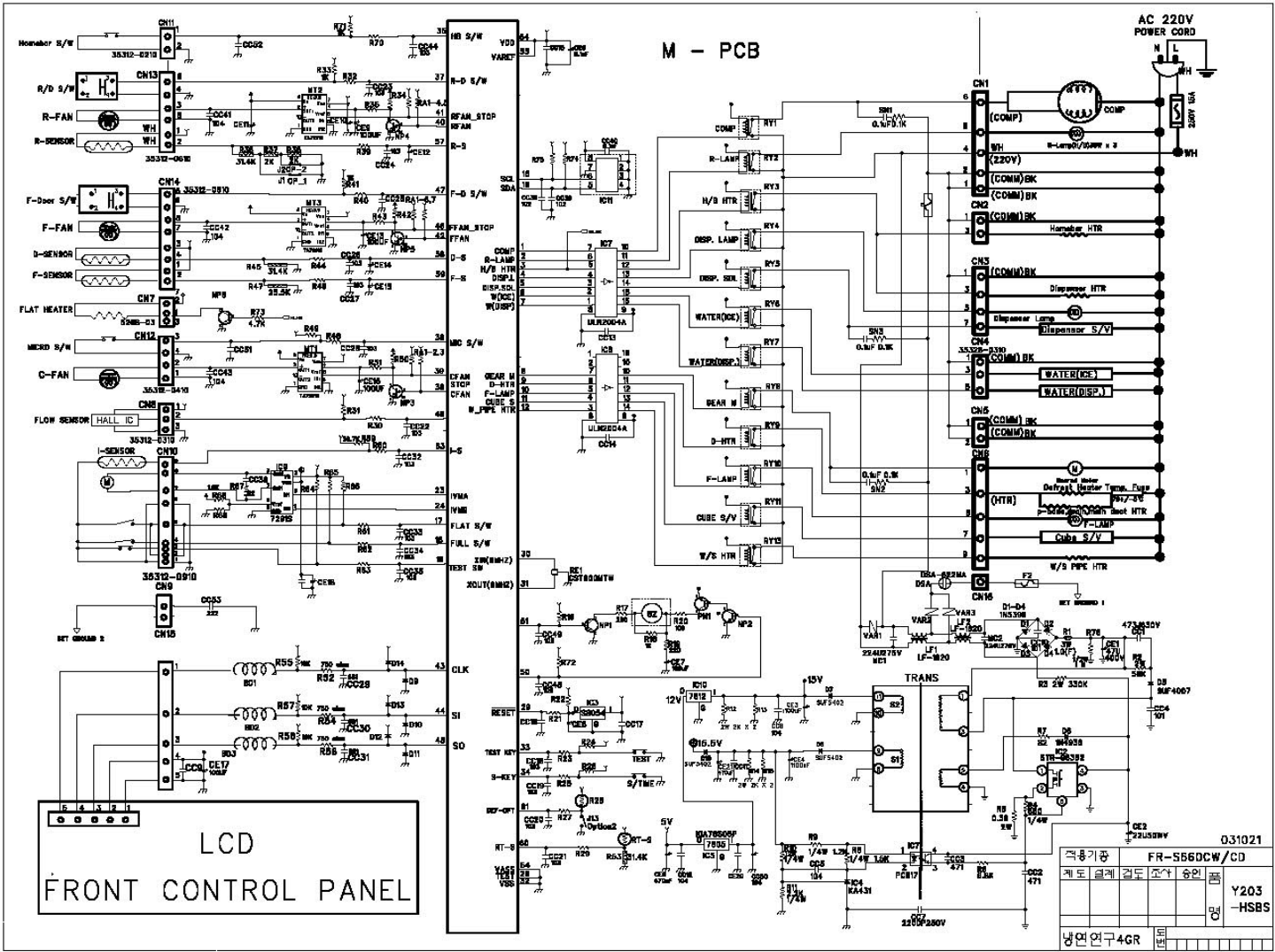
How it works ;

| Control Object | Control Method       | ON Condition |    |    |              | OFF Condition |    |    |              |
|----------------|----------------------|--------------|----|----|--------------|---------------|----|----|--------------|
|                |                      | MICOM Port   |    |    | IC Collector | MICOM Port    |    |    | IC Collector |
|                |                      | 31           | 32 | 33 |              | 31            | 32 | 33 |              |
| F-FAN          | Low (10V) operation  | 5V           | 0V | 0V | 10.35V       | 5V            | 5V | 5V | 0V           |
|                | Mid (12V) operation  | 0V           | 5V | 0V | 12.19V       |               |    |    | 0V           |
|                | High (14V) operation | 0V           | 0V | 0V | 14.38V       |               |    |    | 0V           |

| Control Object | Control Method       | ON Condition |    |    |              | OFF Condition |    |    |              |
|----------------|----------------------|--------------|----|----|--------------|---------------|----|----|--------------|
|                |                      | MICOM PORT   |    |    | IC Collector | MICOM Port    |    |    | IC Collector |
|                |                      | 39           | 40 | 41 |              | 39            | 40 | 41 |              |
| R-FAN          | Low (10V) operation  | 0V           | 5V | 5V | 10.38V       | 0V            | 0V | 0V | 0V           |
|                | Mid (12V) operation  | 5V           | 0V | 5V | 12.24V       |               |    |    | 0V           |
|                | High (14V) operation | 5V           | 5V | 5V | 14.42V       |               |    |    | 0V           |

| Control Object | Control Method       | ON Condition |    |              | OFF Condition |    |              |
|----------------|----------------------|--------------|----|--------------|---------------|----|--------------|
|                |                      | MICOM Port   |    | IC Collector | MICOM Port    |    | IC Collector |
|                |                      | 37           | 38 |              | 37            | 38 |              |
| C-FAN          | High (14V) operation | 0V           | 0V | 14.54V       | 5V            | 5V | 0V           |
|                | Low (10V) operation  | 5V           | 0V | 10.45V       |               |    | 0V           |

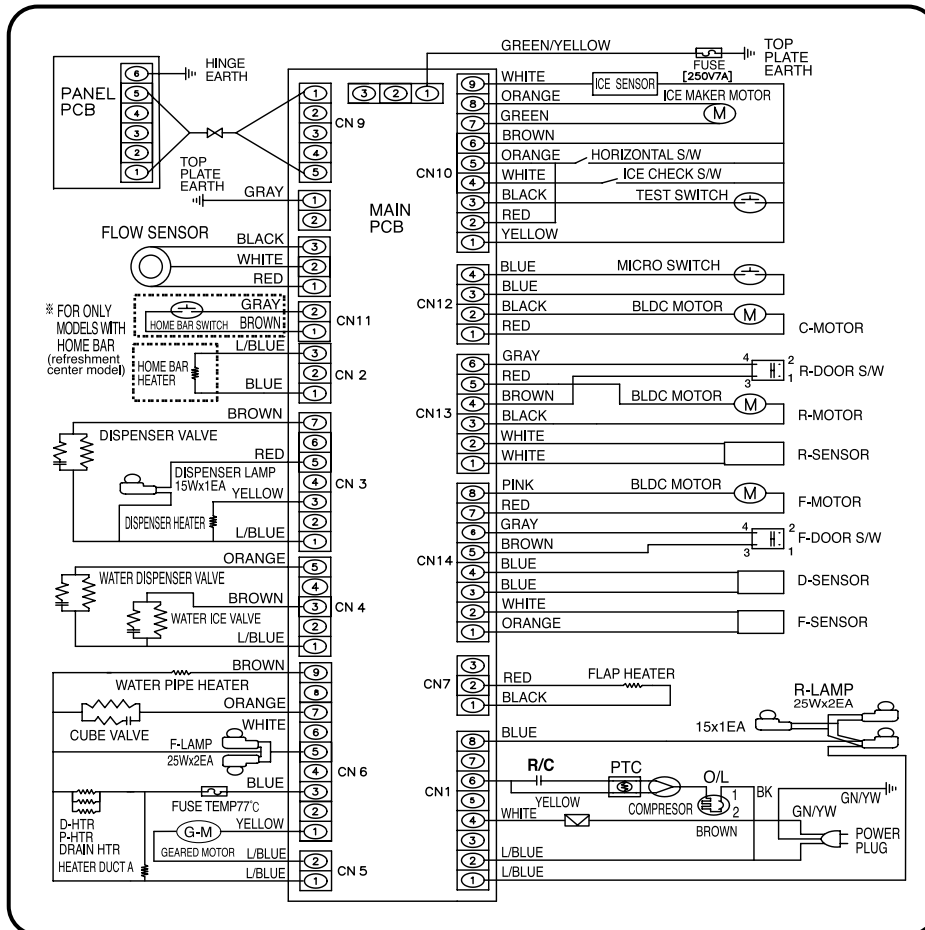
Circuit Diagram of Main PCB



# DIAGRAM

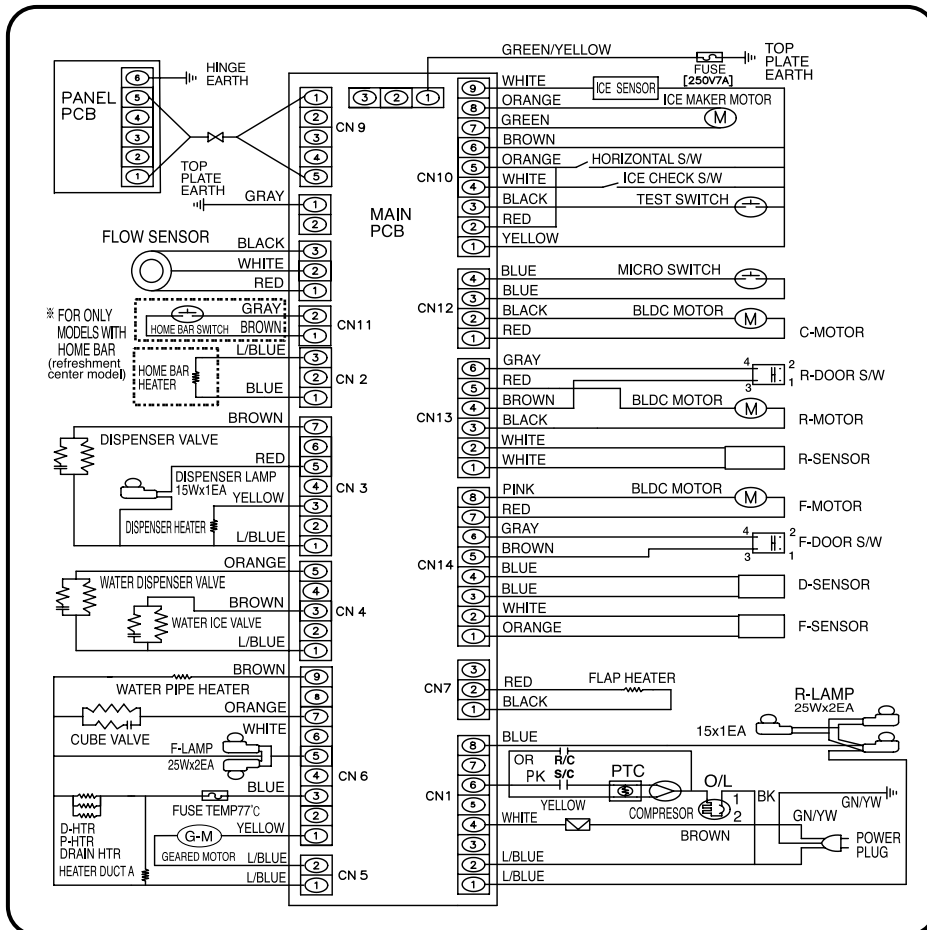
## WIRING DIAGRAM

< RSCR TYPE >



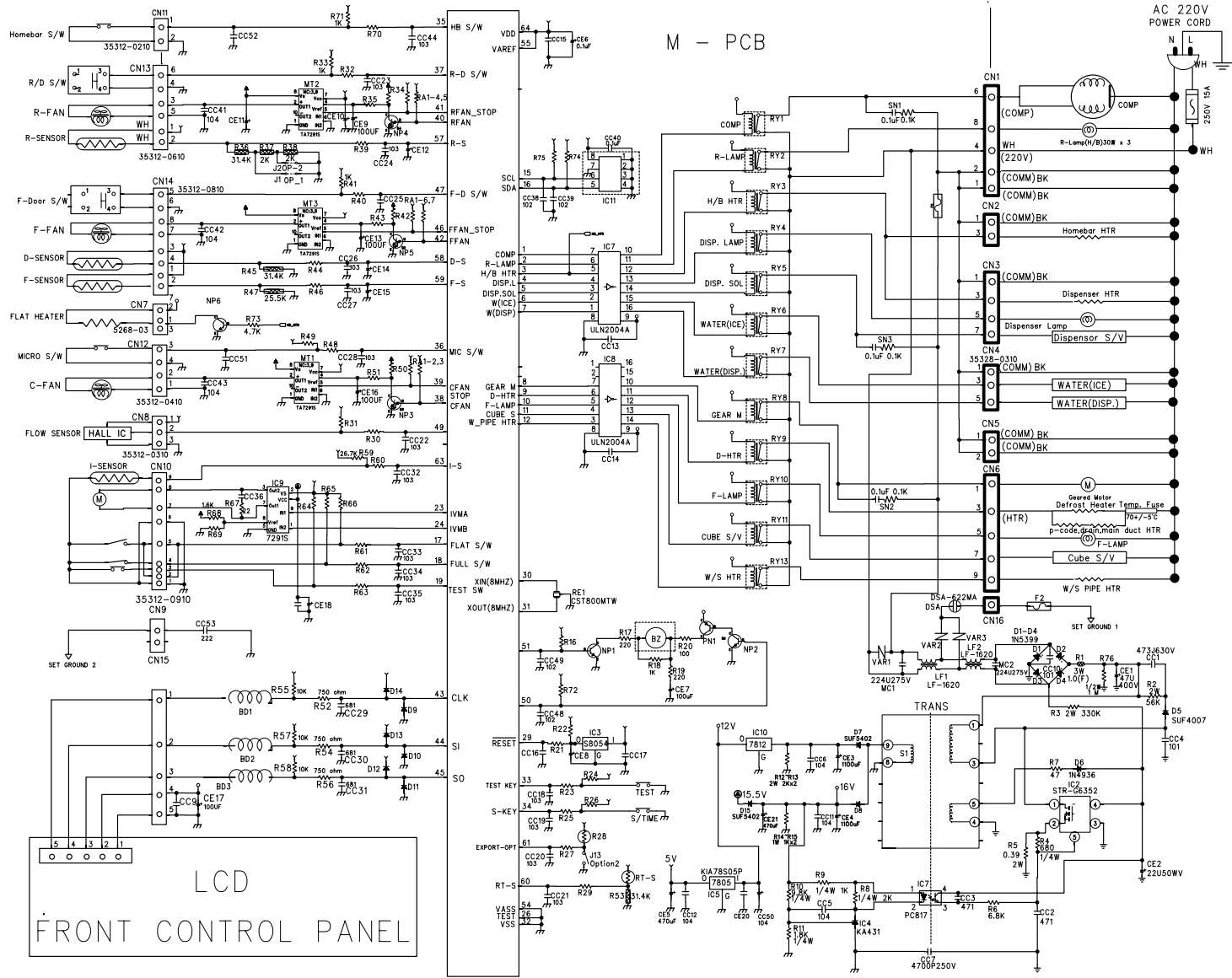


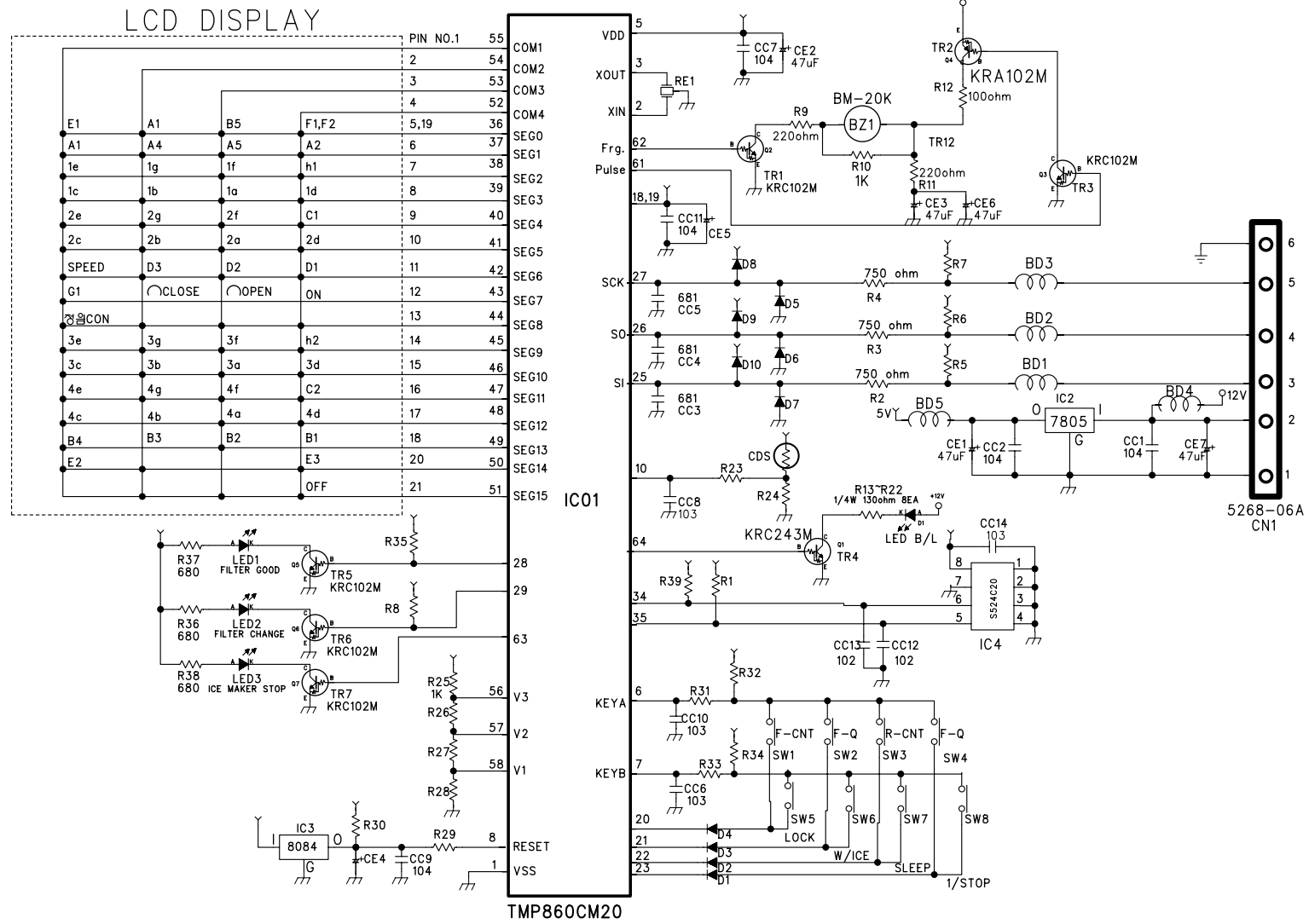
< CSR TYPE >



# CIRCUIT WIRING DIAGRAM

Main PCB



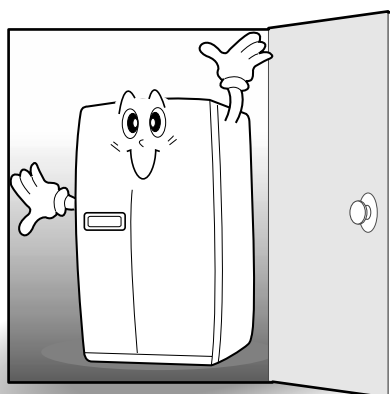


# INSTALLATION GUIDE

## Installation Preparation

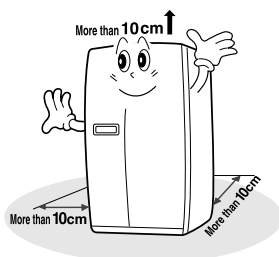
● Check if the refrigerator can pass a doorway or enter a door first. ●

|            | Dimensions( including Door Handles)         |
|------------|---|
| FRS-20**** | (Width*Depth*Height) 928mm × 816mm × 1808mm |
| FRS-24**** | (Width*Depth*Height) 928mm × 896mm × 1808mm |

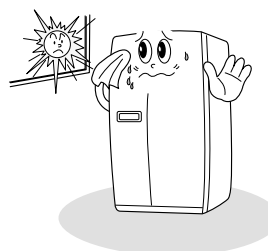


● Find a suitable place to install ●

※Sufficient space from refrigerator back to the wall for free air ventilation



※Avoid direct sunlight.

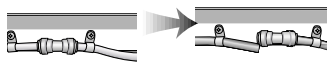
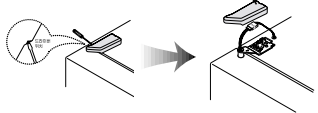
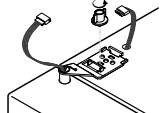
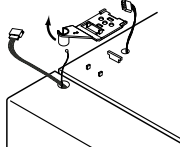
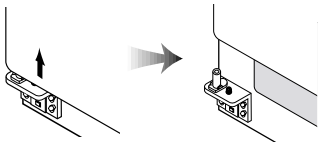


●Once the installation place is ready follow the installation instructions.  
If surround temperature of refrigerator is low (below 5 °C), foods can be frozen or the refrigerator can work in abnormal way.

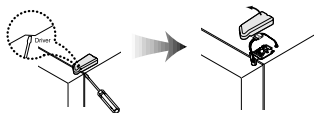
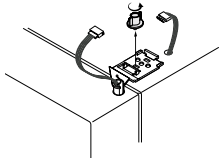
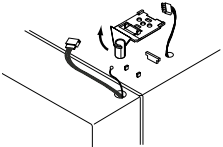
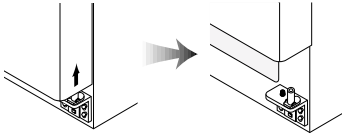
If the refrigerator can not enter the door, follow these steps.

### ● Removing Freezer Door ●

※Remove front bottom cover first, if it is attached.

|   |  |   |
|---|--|---|
| <p><b>1</b> Remove the bottom cover first.<br/>Pull out the left collar of the coupling first, then hold the coupling and pull out the left water tube.</p>  | <p><b>2</b> Unscrew top hinge cover with a screw driver.<br/>Insert a thin screw driver into the side groove of the cover to remove.</p>  | <p><b>3</b> Turn top hinge fastener counterclockwise 3~4 times.<br/>Disconnect the harness wires.</p>  |
| <p><b>4</b> Lift up the front of hinge to remove.<br/>( After the hinge is removed the door can fall down forward. Be careful !)</p>                        | <p><b>5</b> Be careful not to damage the water line when removing the door.</p>    |   |

### ● Removing Refrigerator Door ●

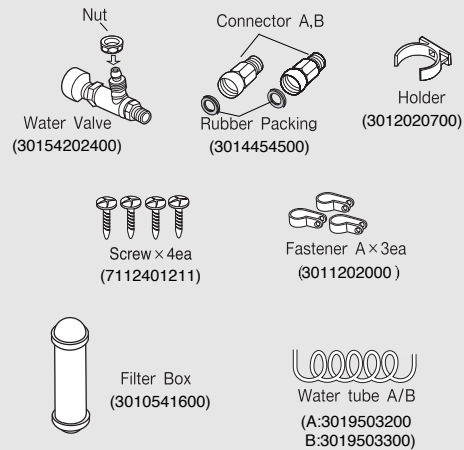
|  |   |   |
|--|---|---|
| <p><b>1</b> Unscrew top hinge cover with a screw driver.<br/>Insert a thin screw driver into the side groove of the cover to remove.</p>  | <p><b>2</b> Turn top hinge fastener counterclockwise 3~4 times.<br/>Disconnect harness wires.</p>  | <p><b>3</b> Lift up the front of hinge to remove.<br/>(After the hinge is removed the door can fall down forward. Be careful !)</p>  |
| <p><b>4</b> Lift the door straight up to remove.</p>    |   |   |

## How to install Water Line

- The water pressure should be 3kgf/cm<sup>2</sup> or more to run the automatic icemaker .  
 ※ Checkup your tap water pressure ; if a cup of 180cc is full within 10 seconds, the pressure is OK.
- When installing the water tubes, ensure they are not close to any hot surfaces.
- The water filter only " filters " water ; it does not eliminate any bacteria or microbes.
- If the water pressure is not so high to run the icemaker , call the local plumber to get an additional water pressure pump.
- The filter life depends on the amount of use. We recommend you replace the filter at least once every 6months.  
 ※ When attaching the filter, place it for easy access (removing & replacing)
- After installation of refrigerator and water line system, select [WATER] on your control panel and press it for 2~3 minutes to supply water into the water tank and dispense water.
- Use sealing tape to every connection of pipes/tubes to ensure there is no water leak.
- The water tube should be connected to the cold water line.

### WATER SUPPLY KIT

※ Check the parts below for installing water supply.  
 Some other necessary parts are available at your local service agents.

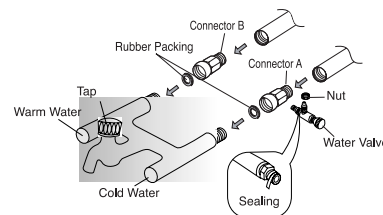


## Installation Procedure

### 1. Join [Connector A], [Connector B] and [Water Valve] to the tap water lines.

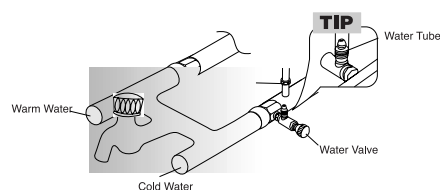
- Switch off the main water line(valve).
- Connect [Water Valve] and [Connector A].
- Join [Connector A], [Connector B] to the tap water lines  
 ※ Use only [Connector A + Water Valve] in case there's only one tap water line.  
 ※ Apply the sealing tape to all the joints as the figure shows.  
 ※ If the connectors(valves) do not fit the existing water line, call your service agent for additional guidance and action.

**Achtung** The water valve should be connected to the cold water line, otherwise there can be a problem of cold water supply."



### 2. Connect the Water Tube to the Water Valve.

- Insert the Nut to the Water tube.
- Insert the Tube to the Valve as the figure shows.
- Fasten the nut to join firmly.

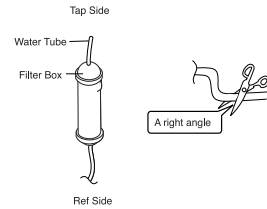


### 3. Get ready to install the Water Filter

- 1) Measure an approximate distance between the filter and the Water Tube and cut the tube off filter vertically.
- 2) Connect the tubes to the filter as the figure shows.

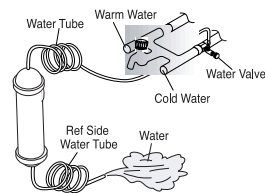


Leave a sufficient distance when cutting the tubes.



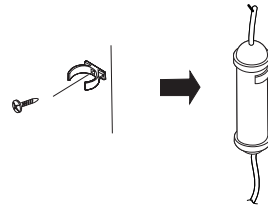
### 4. Remove any substances in the filter.

- 1) Open the main tap water valve and check if water comes out of the Water Tube.
- 2) Check if the Water Valve is open in case water does not come out.
- 3) Leave the valve open until clean water is coming out.  
 ※ Initial water may contain some substances out of filter (manufacturing process).



### 5. Attach the Filter Box

- 1) Screw and fasten the filter holder to the left/right side of the back of refrigerator.  
 ※ In case the holder is not fastened well, remove the back paper of the tape on the filter holder and attach it."
- 2) Insert the filter box into the holder.

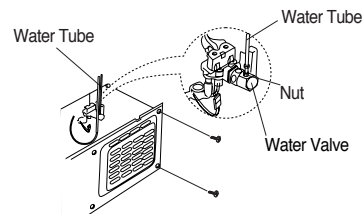


### 6. Connect the Water Tube to the refrigerator.

- 1) Remove the rear cover at the bottom back of the refrigerator.
- 2) Insert the fastening ring into the Water tube. (Be careful to follow the direction of the nut.)
- 3) Insert the Water Tube into the top of Water Valve, turn the nut clockwise to fasten it. (The Water valve is to the right of the motors.)
- 4) Check for any bent tubes or water leaks; if so, re-check installation procedure.
- 5) Replace the rear cover. (The Water Tube should be placed between the groove of the refrigerator back and motor cover.)

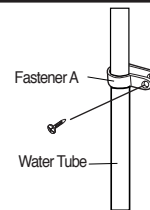


Set the tube upright as the figure shows.



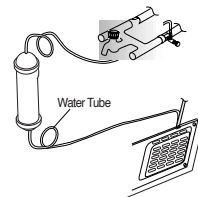
### 7. Fasten the Water Tube.

- 1) Fasten the Water Tube with the [Fastener A].
- 2) Check if the tube is bent or squeezed. If so, set it right to prevent any water leak.



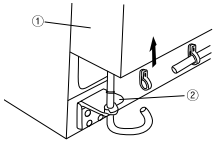
### 8. After installation of Water Supply System

- 1) Plug the refrigerator, press the [WATER] button on the control panel for 2~3 minutes to remove any air (bubble) in the pipes and drain out the initial water.
- 2) Check the water leak again through the water supply system (tubes, connectors and pipes) Rearrange the tubes again and do not move the refrigerator.

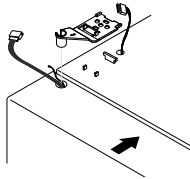


## ● Replacing Freezer Door ●

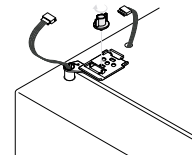
**1** Insert the water tube into the hole of the bottom hinge pin first, then insert the bottom of freezer door into the bottom hinge pin.



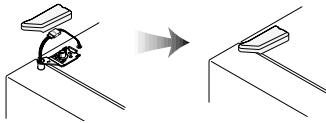
**2** Insert the bottom hole of freezer door straight to the bottom hinge pin.



**3** Let the top of door close to the cabinet and insert the top hinge pin to the top hole of freezer door. (Insert the back of hinge to the groove of protrusion first, then front to the top hole of door.)



**4** Turn the hinge fastener tightly to the end. Connect harness wirings and screw ground wire.

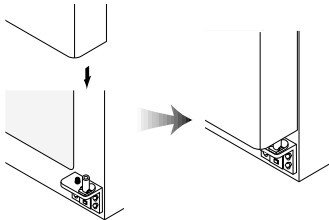


**5** Insert the water tube far into the coupling.

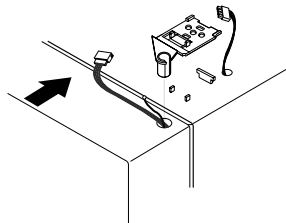


## ● Replacing Refrigerator Door ●

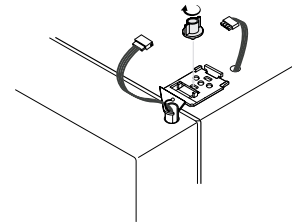
**1** Insert the bottom hole of refrigerator door straight to the bottom hinge pin



**2** Let the top of door close to the cabinet and insert the top hinge pin to the top hole of freezer door (Insert the back of hinge to the groove of protrusion first, then front to the top hole of door.)



**3** Turn the hinge fastener tightly to the end. Connect harness wirings and screw ground wire. Click and screw the top hinge cover.

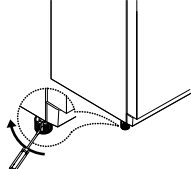
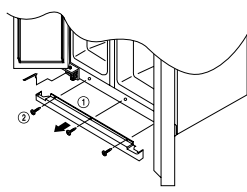
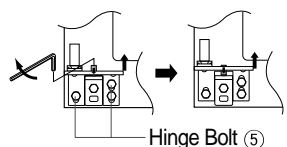




## Refrigerator Leveling & Door Adjustment( If needed.)

Refrigerator must be level in order to maintain optimal performance and desirable front appearance.  
(If the floor beneath the refrigerator is uneven, freezer and refrigerator doors look unbalanced.)

### ● In case freezer door is lower than refrigerator door ... ●

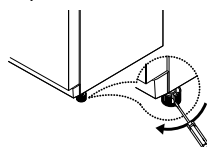
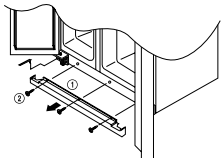
|  |  |  |
|--|--|--|
| <p><b>1</b> Insert a screw driver (flat tip) into a groove of the left wheel (bottom of freezer) and turn it clockwise until the door is balanced. (clockwise to raise freezer door ; counterclockwise to lower)<br/>※ Unless the freezer door is balanced by step 1, then follow the next steps.</p>  | <p><b>2</b> Open the doors, unscrew the front cover and remove, if it is attached.</p>  | <p><b>3</b> Loosen 3 hinge bolts(1 on the left + 2 on the right) a little. (Do not unfasten them completely.) Insert a hexagonal wrench into the groove of adjusting nut and turn clockwise until the door is level.</p> <p><b>4</b> Once the door is balanced, fasten the hinge bolts tightly and screw the front cover.</p>  <p>Hinge Bolt ⑤</p> |
|--|--|--|



**Caution**

• The front of refrigerator needs to be higher just a little than the back for easy door closing, but if the wheel is raised too much for door balance, i.e. front of refrigerator is too higher than the back, it can be difficult to open the door.

### ● In case refrigerator door is lower than freezer door ... ●

|   |  |  |
|---|--|--|
| <p><b>1</b> Insert a screw driver (flat tip) into a groove of the right wheel (bottom of refrigerator) and turn it clockwise until the door is balanced. (clockwise to raise refrigerator door ; counterclockwise to lower)<br/>※ Unless the refrigerator door is balanced by step 1, then follow the next steps.</p>  | <p><b>2</b> Loosen 3 hinge bolts(2 on the left + 1 on the right) a little. (Do not unfasten them completely.) Insert a hexagonal wrench into the groove of adjusting nut and turn clockwise until the door is level.</p>  | <p><b>3</b> Once the door is balanced, fasten the hinge bolts tightly.</p> |
|---|--|--|

#### Front Cover

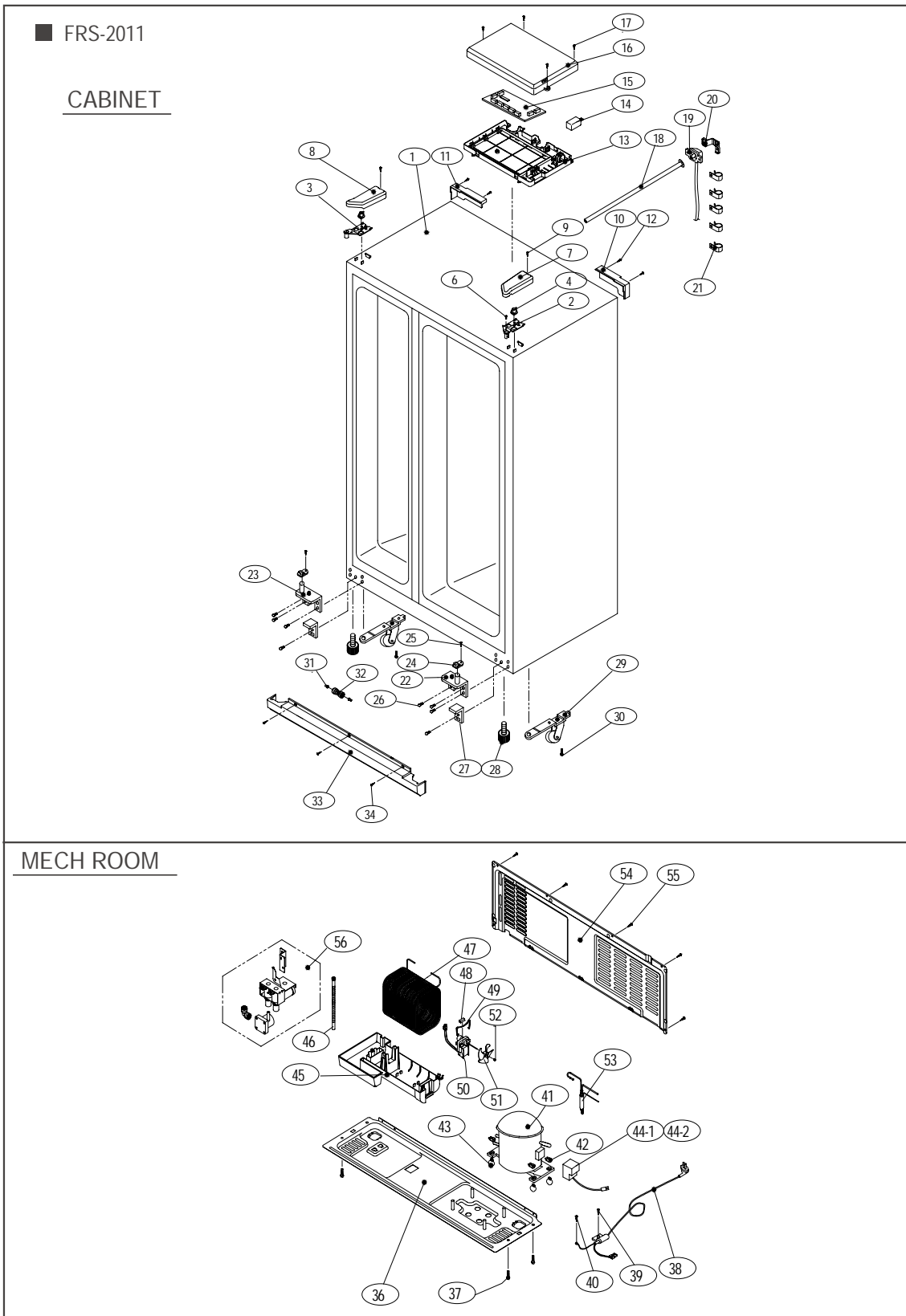
After installation and/or door leveling, fasten front cover with screws.(Remove the screws on the front bottom panel first. Click and screw the cover)

#### Attaching of Water Filter Holder

Remove the back paper of the tape on the filter holder and attach the filter holder on a suitable place.

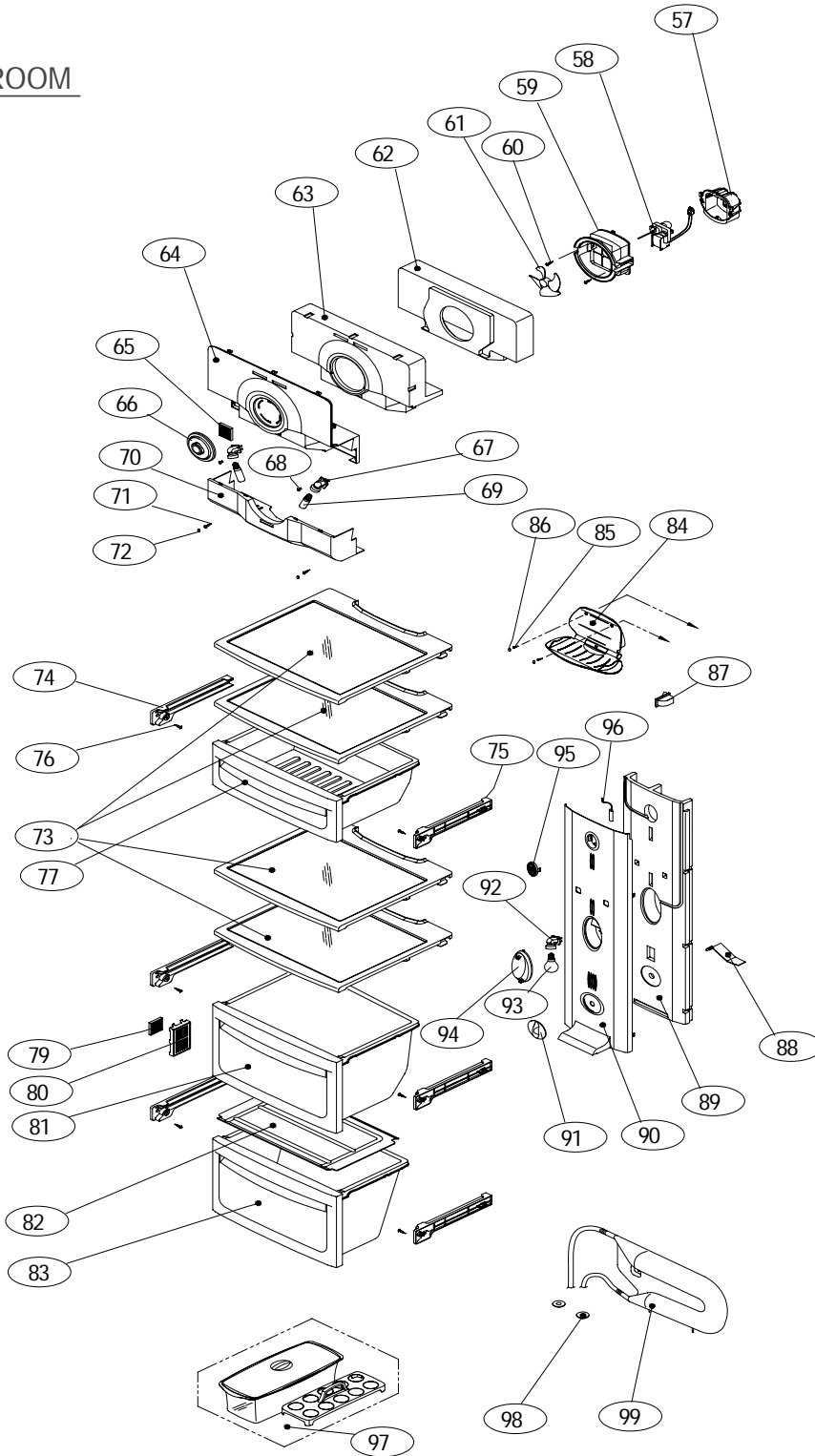
# EXPLODED VIEW AND PARTS LIST

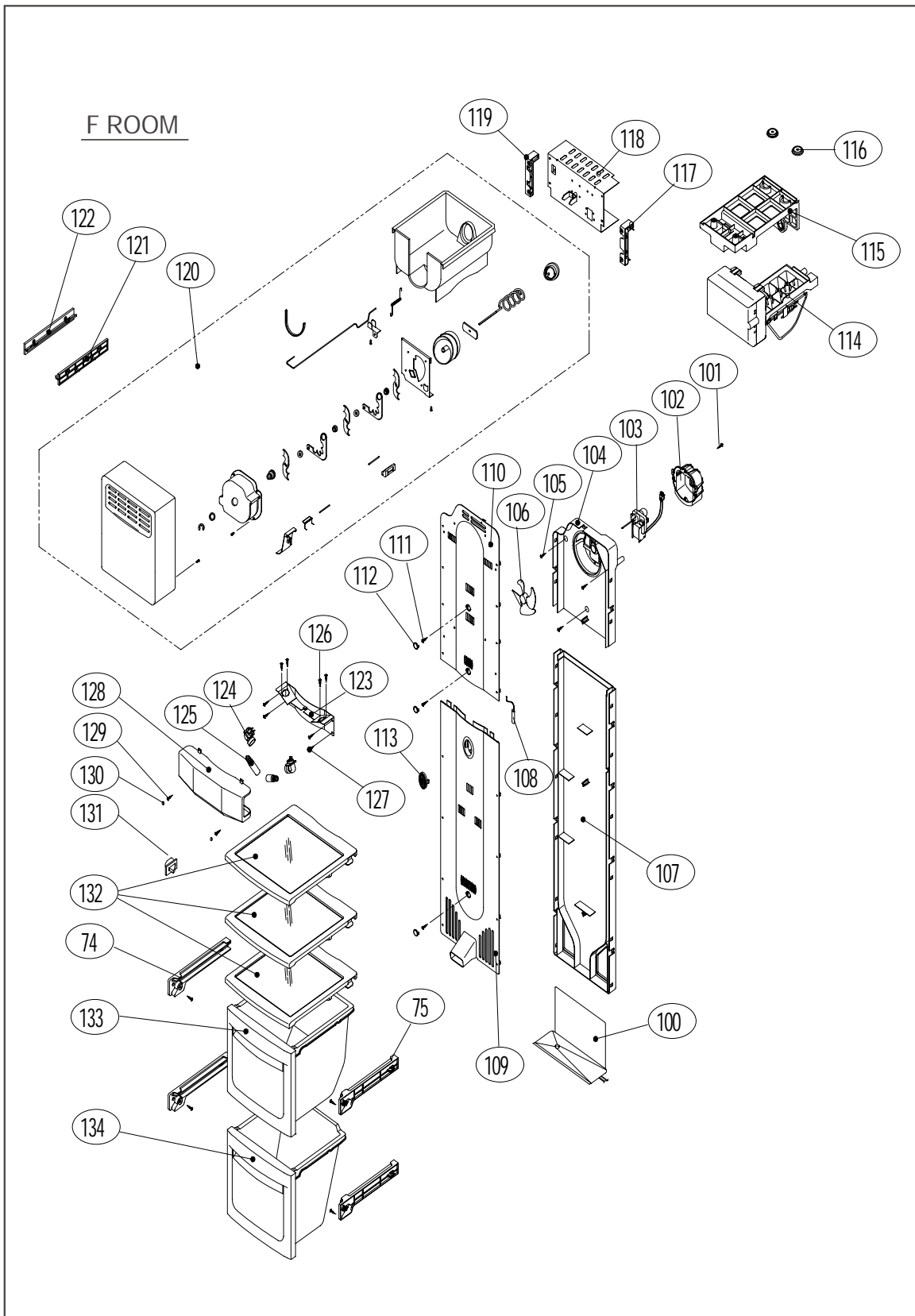
## Total Exploded View



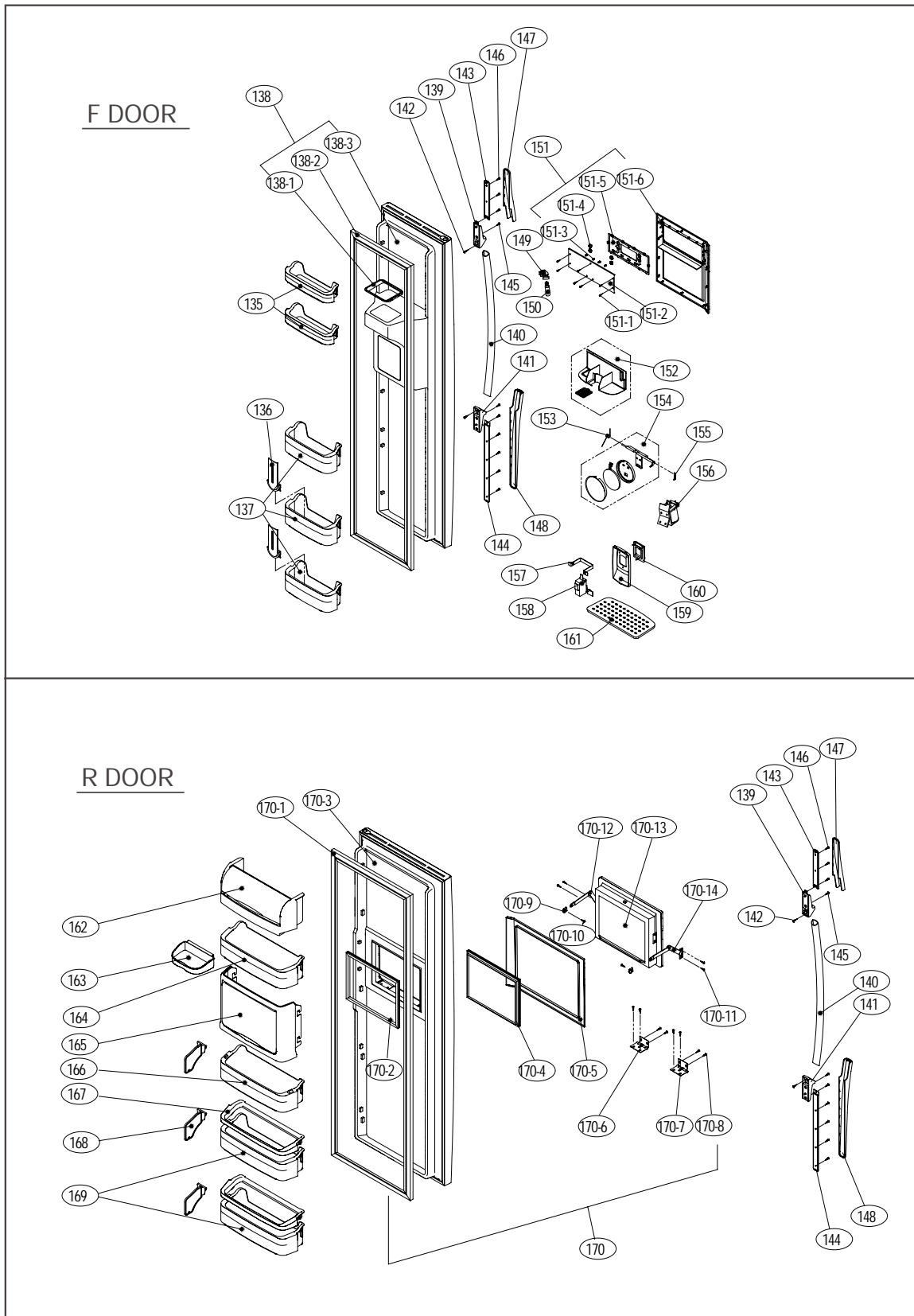
FRS-2011

R ROOM





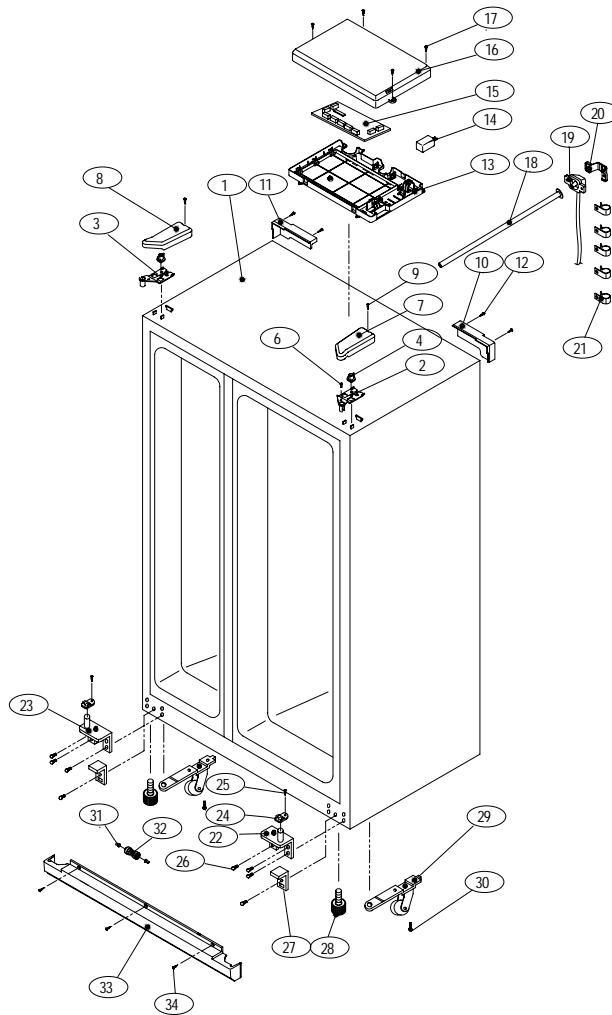
FRS-2011



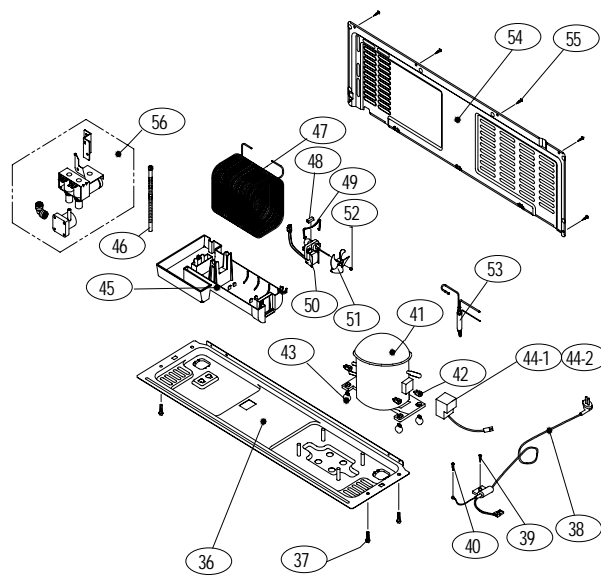
# EXPLODED VIEW AND PARTS LIST

■ FRS-2031

## CABINET

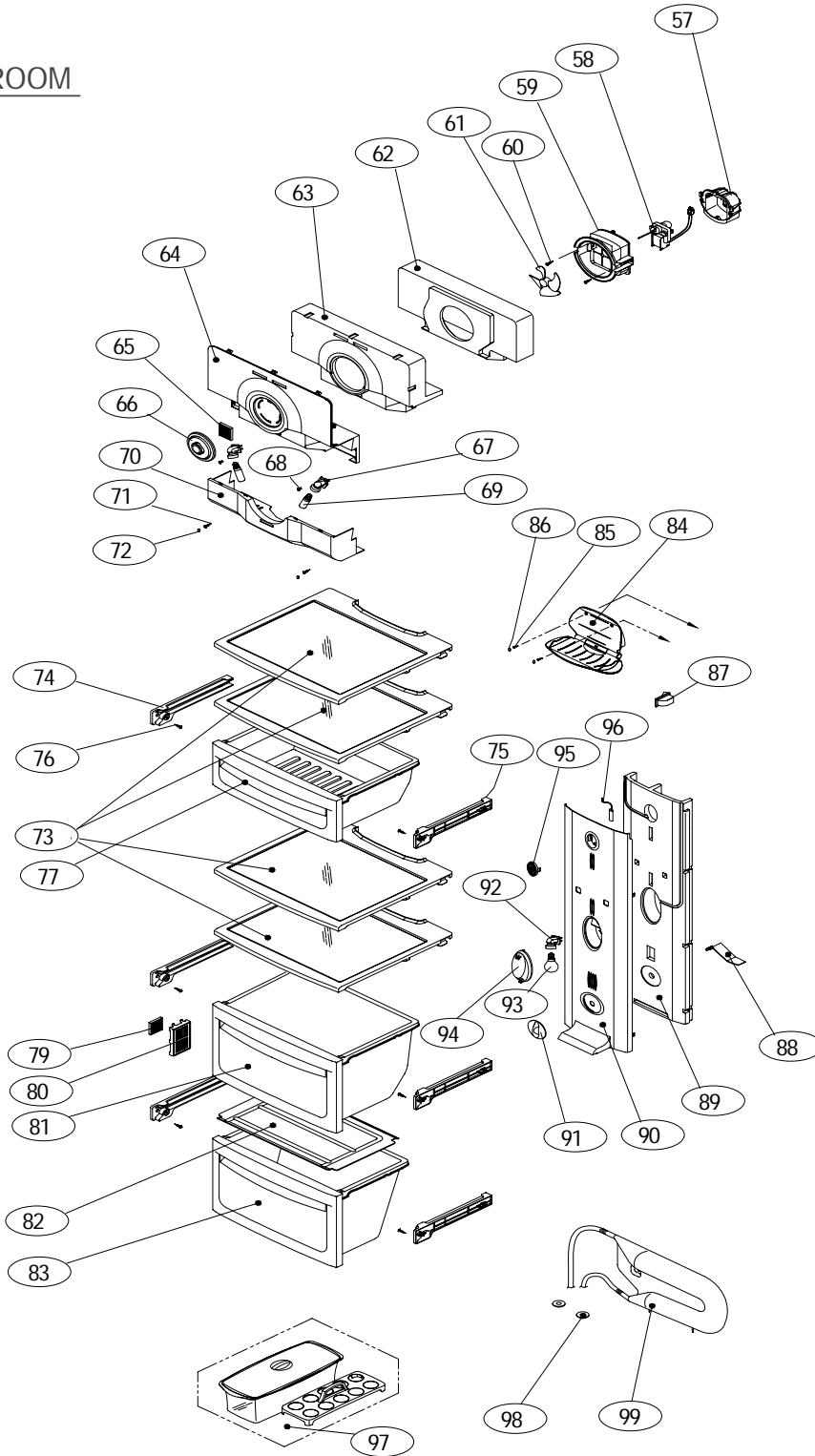


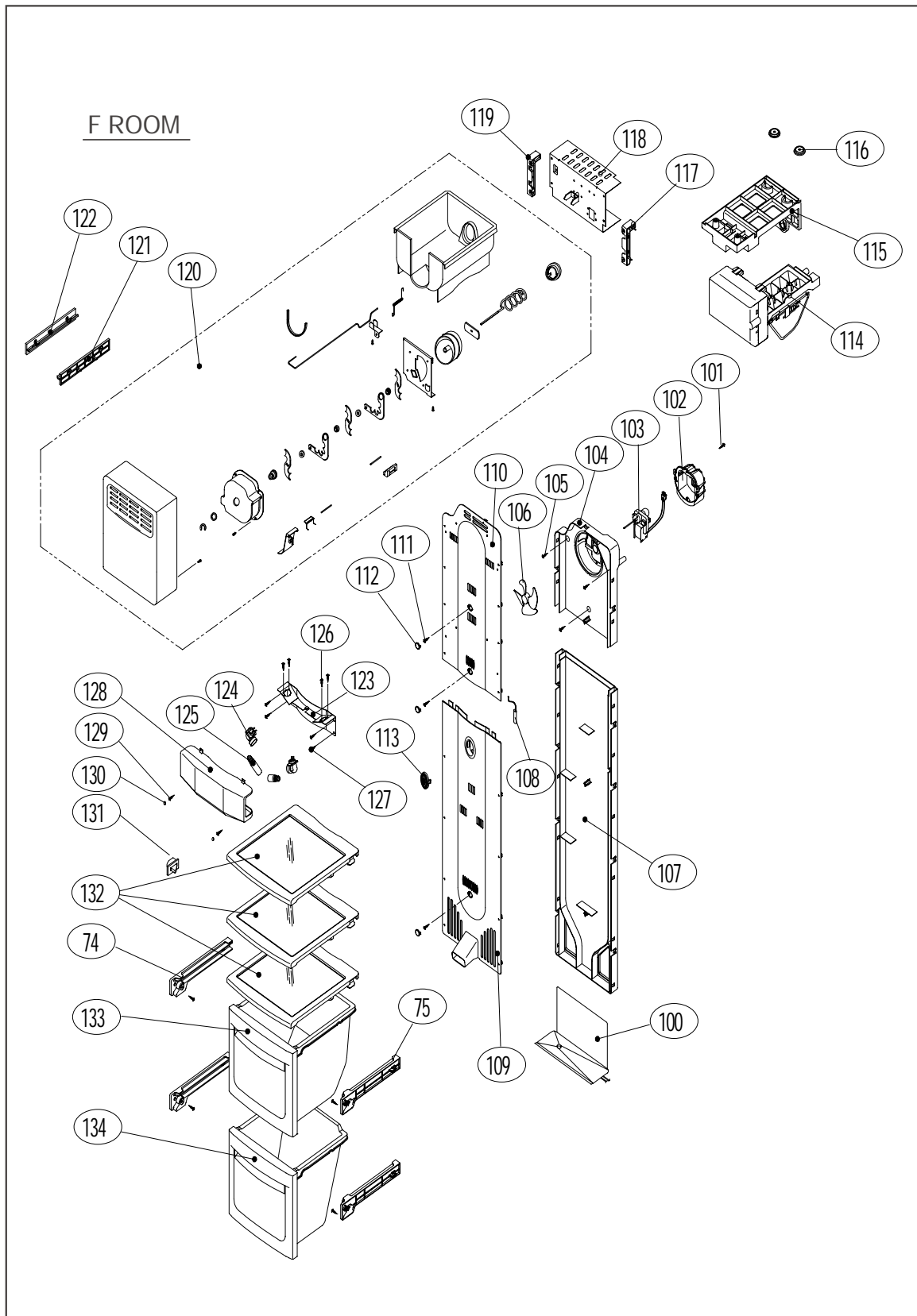
## MECH ROOM



FRS-2031

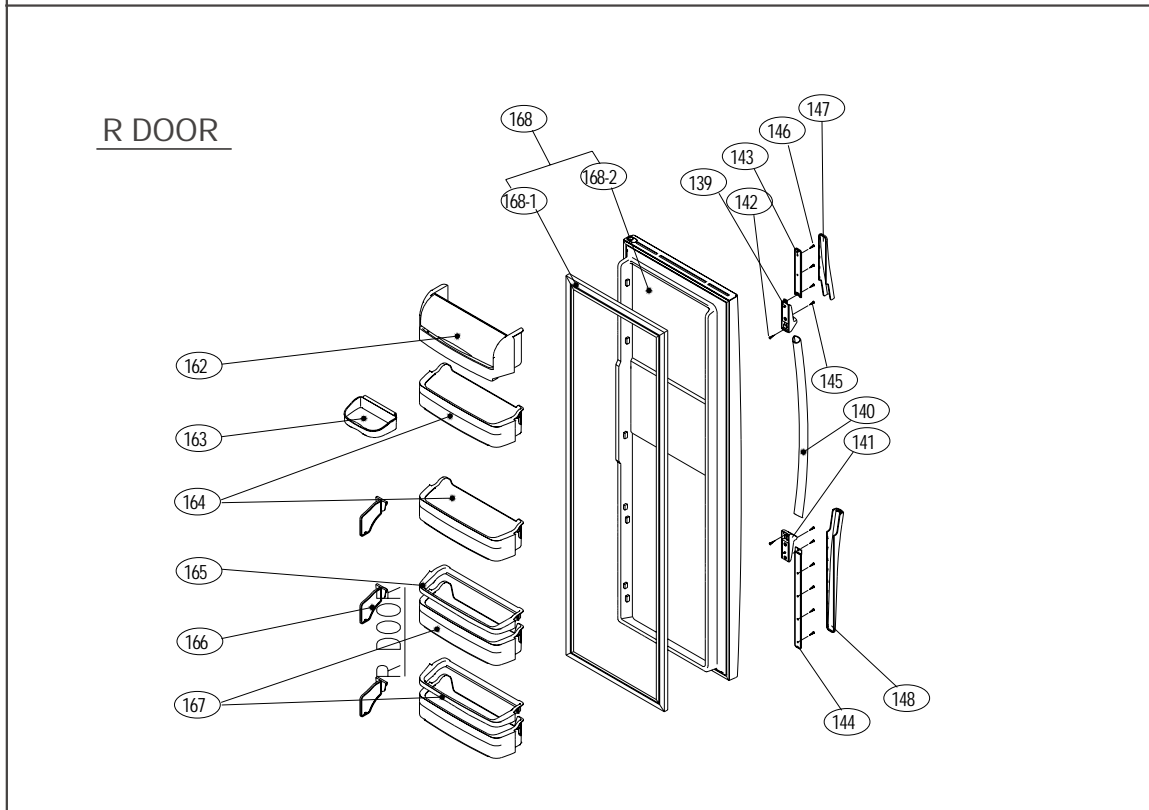
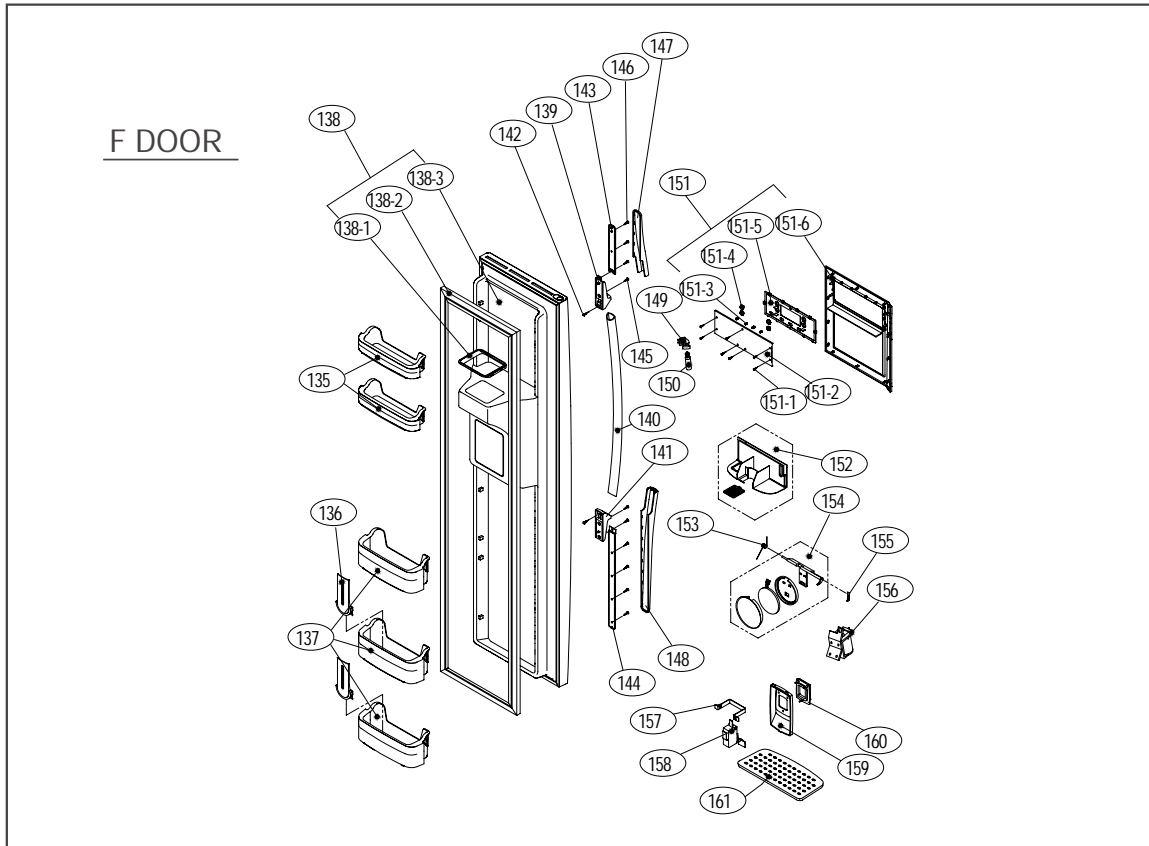
R ROOM







■ FRS-2031



## EXPLODED VIEW AND PARTS LIST

### Total Parts List FRS-2011

CAUTION : In this Service Manual, some parts can be changed for improving their performance without notice in the parts list. So, if you need the latest parts information, please refer to PPL(Parts Price List)in Service information Center(<http://svc.dwe.co.kr>)

| NO | PART CODE   | PART NAME                | Q' TY | REMARK             |
|----|-------------|--------------------------|-------|--------------------|
| 1  | 3000003620  | ASSY CAB URT             | 1     |                    |
| 2  | 3012917600  | HINGE *T *R AS           | 1     | PO T3.0            |
| 3  | 3012918500  | HINGE *T *L AS           | 1     | PO T3.0            |
| 4  | 3016031400  | SCREW SPECIAL            | 2     |                    |
| 6  | 7051401065  | SCREW MACHINE            | 1     | PAN 4 x 10 SW BSNI |
| 7  | 3011472400  | COVER HI *T *R           | 1     | PP                 |
| 8  | 3011472300  | COVER HI *T *L           | 1     | PP                 |
| 9  | 7112401211  | SCREW TAPPING            | 2     | T1 TRS 4 x 12 MFZN |
| 10 | 3012601301  | HANDLE CAB COVR *R       | 1     | PP                 |
| 11 | 3012601201  | HANDLE CAB COVR *L       | 1     | PP                 |
| 12 | 7112401211  | SCREW TAPPING            | 1     | T1 TRS 4 x 12 MFZN |
| 13 | 301 0533400 | BOX MAIN PCB             | 1     | PP                 |
| 14 |             | CAPACITOR RUN            | 1     |                    |
| 15 |             | PCB MAIN AS              | 1     |                    |
| 16 | 30114726 10 | COVER MAIN PCB BOX       | 1     | PP                 |
| 17 | 7112401211  | SCREW TAPPING            | 1     | T1 TRS 4 x 12 MFZN |
| 18 | 3013223400  | HOSE ICE MAKER TUBE AS   | 1     |                    |
| 19 | 3012519200  | G UIDE CAB W/TUBE A AS   | 1     |                    |
| 20 | 3011485600  | COVER GUIDE CAB W/TUBE A | 1     | HIPS               |
| 21 | 3011202000  | CLAMP WATER TUBE A       | 5     | PA -66             |
| 22 | 3012917800  | HINGE *U *R AS           | 1     | PO T3.0            |
| 23 | 3012917700  | HINGE *U *L AS           | 1     | PO T3.0            |
| 24 | 3012513300  | GUIDE *U HINGE *U        | 2     | POM                |
| 25 | 7002501611  | SCREW MACHINE            | 2     | TRS M5 x 16 MFZN   |
| 26 | 3016001240  | SPECIAL BOLT *T          | 8     | 6 x 22 SWCH22A(YL) |
| 27 | 3015306 700 | SUPPORTER *U HI AS       | 2     | PO T5.0            |
| 28 | 301210 4400 | FOOT ADJUST AS           | 2     |                    |
| 29 | 3016501200  | CASTER TURN AS           | 2     | TURN CASTER        |
| 30 | 3016001240  | SPECIAL BOLT *T          | 2     | 6 x 22 SWCH22A(YL) |
| 31 | 3012019500  | FIXTURE TUBE FIT B       | 2     | PP                 |
| 32 | 3013064200  | HOLDER TUBE A            | 1     | ACETAL             |
| 33 | 30114710 10 | COVER CAB BRKT           | 1     | PP                 |

## EXPLODED VIEW AND PARTS LIST

| NO    | PART CODE  | PART NAME            | Q'TY | REMARK                |
|-------|------------|----------------------|------|-----------------------|
| 34    | 7142401611 | SCREW TAPPING        | 3    | T2 TRS 4 x 16 MFZN    |
| 36    | 3010326700 | BASE COMP AS         | 1    | SBHG T1.2             |
| 37    | 3016003300 | SPECIAL BOLT         | 4    | T2 M6.5 x 20 4EA      |
| 38    |            | CORD POWER AS        | 1    |                       |
| 39    | 7112401211 | SCREW TAPPING        | 1    | T1 TRS 4 x 12 MFZN    |
| 40    | 7051401065 | SCREW MACHINE        | 1    | PAN 4 x 10 SW BSN1    |
| 41    |            | COMP                 | 1    |                       |
| 42    | 3016002500 | SPECIAL WASHER       | 4    | SK-5 T0.8             |
| 43    | 3010101600 | RUBBER ABSORBER COMP | 4    |                       |
| 44 -1 |            | SWITCH P RELAY AS    | 1    |                       |
| 44 -2 | 3811402100 | COVER RELAY          | 1    | DS3 - 3NORYL S/S      |
| 45    | 3011113500 | CASE VAPORI          | 1    | PP + CTALC            |
| 46    | 3013201700 | HOSE DRAIN B         | 1    | PE FRB -5350NT        |
| 47    | 3014413730 | PIPE WICON AS        | 1    |                       |
| 48    | 3010102100 | ABSORBER C MOTR      | 1    | NR FRB-5350NT         |
| 49    | 3012004400 | F IXTURE C MOTR      | 1    | SUS                   |
| 50    | 3015911500 | MOTOR C FAN AS       | 1    | DC12V 2.5W            |
| 51    | 3011802200 | FAN                  | 1    | ABS (O.D.)3.17 x D110 |
| 52    | 3011200500 | CLAMP FAN            | 1    | SUS 304               |
| 53    | 3016806900 | DRYER AS             | 1    | XH-9 15g              |
| 54    | 3011474700 | COVER MACH ROOM AS   | 1    | SBHG T 0.4            |
| 55    | 7112401211 | SCREW TAPPING        | 6    | T1 TRS 4 x 12 MFZN    |
| 56    | 3015403200 | VALVE WATER AS       | 1    |                       |
| 57    | 3012007800 | FIXTURE MOTOR A      | 1    | PP                    |
| 58    | 3015911400 | MOTER R FAN AS       | 1    |                       |
| 59    | 3012007900 | FIXTURE MOTOR B      | 1    | HIPS                  |
| 60    | 7122401211 | SCREW TAPPING        | 2    | T2S TRS 4 x 12 MFZN   |
| 61    | 3011802200 | FAN                  | 1    | ABS (O.D.)3.17 x D110 |
| 62    | 3013344200 | INSU DAMP B          | 1    | F -PS                 |
| 63    | 3013344100 | INSU DAMP A          | 1    | F -PS                 |
| 64    | 3011471200 | COVER DAMP           | 1    | HIPS                  |
| 65    | 3018701800 | DEO ANTI AS          | 1    |                       |
| 66    | 3011471300 | COVER DEO            | 1    | ABS                   |

## EXPLODED VIEW AND PARTS LIST

| NO  | PART CODE  | PART NAME              | Q' TY | REMARK             |
|-----|------------|------------------------|-------|--------------------|
| 67  | 3017905300 | SOCKET R LAMP AS       | 2     |                    |
| 68  | 7121300811 | SCREW TAPPING          | 1     | T2S PAN 3 x 8      |
| 69  |            | LAMP R A               | 2     |                    |
| 70  | 3015507900 | WINDOW R LAMP A        | 1     | MIPS               |
| 71  | 3016002710 | SPECIAL SCREW          | 2     | 4 x 12             |
| 72  | 3010903200 | CAP SCREW              | 2     | PE                 |
| 73  | 3017827300 | SHELF R AS             | 4     | GLASS + HIPS       |
| 74  | 3012514500 | GUIDE CASE A *L AS     | 5     | ABS                |
| 75  | 3012514600 | GUIDE CASE A *R AS     | 5     | ABS                |
| 76  | 7142401611 | SCREW TAPPING          | 10    | T2 TRS 4 x 16 MFZN |
| 77  | 3011171200 | CASE CHILD AS          | 1     | GPPS + HIPS        |
|     |            |                        |       |                    |
| 79  | 3018701800 | DEO ANTI AS            | 1     |                    |
| 80  | 3011472900 | COVER RETURN DUCT      | 1     | HIPS               |
| 81  | 3011172000 | CASE VEGETB A AS       | 1     | GPPS + HIPS        |
| 82  | 3011485400 | COVER VEGETB CASE B    | 1     | GPPS               |
| 83  | 3011172100 | CASE VEGETABLE B AS    | 1     | GPPS + HIPS        |
| 84  | 3017827500 | SHELF WINE AS          | 1     | ABS                |
| 85  | 3016002710 | SPECIAL SCREW          | 2     | 4 x 12             |
| 86  | 3010903200 | CAP SCREW              | 2     | PE                 |
| 87  | 3018124000 | SWITCH LAMP            | 1     | SP201R -7DR        |
| 88  | 3017100500 | FLAP MULT DUCT         | 1     | PP                 |
| 89  | 3013345000 | INSU MULT DUCT AS      | 1     | F-PS               |
| 90  | 3011472700 | COVER MULT DUCT        | 1     | HIPS               |
| 91  | 3013408100 | KNOB MULT DUCT         | 1     | ABS                |
| 92  | 3017905310 | SOCKET R LAMP AS       | 1     | 250V 1A            |
| 93  |            | LAMP R B               | 1     |                    |
| 94  | 3015508000 | WINDOW R LAMP B        | 1     | MIPS               |
| 95  | 3011473000 | COVER SENS             | 1     | ABS                |
| 96  | 3014805400 | SENSOR R AS            | 1     | PBN-438            |
| 97  | 3011171300 | CASE EGG AS            | 1     | GPPS               |
| 98  | 3014002500 | PACKING W/TUBE GUIDE A | 2     | SILICON            |
| 99  | 3018200800 | WATER TANK AS          | 1     | HDPE               |
| 100 | 3012514200 | GUIDE DRN              | 1     | GA                 |

## EXPLODED VIEW AND PARTS LIST

| NO     | PART CODE  | PART NAME               | Q' TY | REMARK                |
|--------|------------|-------------------------|-------|-----------------------|
| 101    | 7112401211 | SCREW TAPPING           | 1     | T1 TRS 4 x 12 MFZN    |
| 102    | 3012007800 | FIXTURE MOTOR A         | 1     | PP                    |
| 103    | 3015911310 | MOTOR F FAN             | 1     | DL - 2213DWFA - 2     |
| 104    | 3018917200 | LOUVER F C              | 1     | PP                    |
| 105    | 7142401611 | SCREW TAPPING           | 3     | T2 TRS 4 x 16 MFZN    |
| 106    | 3011834500 | FAN                     | 1     | ABS (O.D.)3.17 x D130 |
| 107    | 3018914910 | LOUVER F D AS           | 1     | PP                    |
| 108    | 3014805300 | SENSOR F AS             | 1     | PT -38                |
| 109    | 3018914700 | LOUVER F B AS           | 1     | HIPS                  |
| 110    | 3018914600 | LOUVER F A AS           | 1     | HIPS                  |
| 111    | 7142401611 | SCREW TAPPING           | 3     | T2 TRS 4 x 16 MFZN    |
| 112    | 3010924600 | CAP F LUVR              | 3     | HIPS                  |
| 113    | 3011473000 | COVER SENSOR            | 1     | ABS                   |
| 114    | 3000025900 | ASSY ICE MAKER          | 1     |                       |
| 115 -1 | 3012205600 | FRAME ICE MAKER         | 1     | HIPS                  |
| 115 -2 | 3012521300 | GUIDE ICING FLOW        | 1     | PP                    |
| 116    | 3012013200 | FIXTURE C               | 2     | PP                    |
| 117    | 3012517900 | GUIDE G/MOTR BRACKET *R | 1     | ABS                   |
| 118    |            | BRACKET G/MOTR AS       | 1     |                       |
| 119    | 3012517800 | GUIDE G/MOTR BRACKET *L | 1     | ABS                   |
| 120    | 3011176200 | ICE CRUSHER AS          | 1     |                       |
| 121    | 3012517700 | GUIDE ICE CRUSHER *R    | 1     | ABS                   |
| 122    | 3012520500 | GUIDE ICE CRUSHER *L    | 1     | ABS                   |
| 123    | 3014559510 | PLATE LAMP F            | 1     | SBHG T0.8             |
| 124    | 3017905200 | SOCKET F LAMP AS        | 2     |                       |
| 125    |            | LAMP F                  | 2     |                       |
| 126    | 7121300811 | SCREW TAPPING           | 4     | T2S PAN 3X8 MFZN      |
| 127    | 7112401211 | SCREW TAPPING           | 4     | T1 TRS 4 x 12 MFZN    |
| 128    | 3015507710 | WINDOW F LAMP           | 1     | MIPS                  |
| 129    | 3016002710 | SPECIAL SCREW           | 2     | 4 x 12                |
| 130    | 3010903200 | CAP SCREW               | 2     | PE                    |
| 131    | 3018124000 | SWITCH LAMP             | 1     | SP201R -7DR           |
| 132    | 3017827100 | SHELF F AS              | 3     | GLASS + HIPS          |
| 133    | 3011171400 | CASE F A AS             | 1     | GPPS + HIPS           |

## EXPLODED VIEW AND PARTS LIST

| NO     | PART CODE   | PART NAME              | Q' TY | REMARK                   |
|--------|-------------|------------------------|-------|--------------------------|
| 134    | 3011171500  | CASE F B AS            | 1     | GPPS + HIPS              |
| 135    | 3019019000  | POCKET F *T            | 2     | HIPS                     |
| 136    | 3012516000  | GUIDE F POCKET         | 2     | PP                       |
| 137    | 3019019100  | POCKET F *U            | 3     | HIPS                     |
| 138    | 30000 28000 | ASSY F DR              | 1     | FR -S660CWI              |
| 138 -1 | 3010957100  | CAP ICE PATH FRAME     | 1     | HIPS                     |
| 138 -2 | 3012314200  | GASKET F DR AS         | 1     | PVC                      |
| 138 -3 | 3000003700  | ASSY F DR URT          | 1     |                          |
| 139    | 3011623800  | DECO HNDL *T           | 1     | ABS                      |
| 140    | 3012628500  | HANDLE                 | 1     | AL                       |
| 141    | 3011613900  | DECO HNDL *U           | 1     | ABS                      |
| 142    | 3016031700  | SPECIAL SCREW          | 2     |                          |
| 143    | 3010326100  | BASE DECO COVER *T     | 1     | HIPS                     |
| 144    | 3010326200  | BASE DECO COVER *U     | 1     | HIPS                     |
| 145    | 3016002700  | SPECIAL SCREW          | 4     | WASR + TRS 5 x 16 MFZN   |
| 146    | 7112401211  | SCREW TA PPING         | 8     | T1 TRS 4 x 12 MFZN       |
| 147    | 3011472100  | COVER HNDL DECO *T     | 1     | ABS                      |
| 148    | 3011472200  | COVER HNDL DECO *U     | 1     | ABS                      |
| 149    | 3017905500  | SOCKET DISP BOX AS     | 1     | 250V 1A                  |
| 150    |             | LAMP DISP              | 1     |                          |
| 151    | 3011485800  | COVER DISPNS BOX AS    | 1     | FR -S660CWI              |
| 151-1  | 7173300811  | SCREW TAPPTITE         | 7     | T1 PAN 3 x 8 MFZN        |
| 151-2  | 30143C3110  | PCB FRONT AS           | 1     | FR -S660CW (SBS03 -HLCD) |
| 151-3  | 3016302600  | BUTTON CONTL B         | 4     | ABS                      |
| 151-4  | 3016303100  | BUTTON CONTL A         | 4     | ABS                      |
| 151-5  | 3015508700  | WINDOW F PCB           | 1     | ABS                      |
| 151-6  | 3011485500  | COVER DISPNS BOX       | 1     | ABS                      |
| 152    | 3010539100  | BOX DISPNS ICE SHUT AS | 1     | GPPS + ABS               |
| 153    | 3015102200  | SPRING ICE D/LEVER     | 1     | ∅ 0.8 SUS 304            |
| 154    | 3011485900  | COVER ICE FLAP AS      | 1     |                          |
| 155    | 3012019700  | FIXTURE ICE SHUT LVR   | 1     | T1 SUS304                |
| 156    |             | VALVE SOL DISP         | 1     |                          |
| 157    | 3012020000  | FIXTURE MICRO S/W      | 1     | T0.6 SUS304 -3/4H        |
| 158    | 3018126600  | MICRO S/W AS           | 1     | FR -S660CD               |

## EXPLODED VIEW AND PARTS LIST

| NO     | PART CODE  | PART NAME                | Q'TY | REMARK      |
|--------|------------|--------------------------|------|-------------|
| 159    | 3012518200 | GUIDE DISPENSER A        | 1    | ABS         |
| 160    | 3012518900 | GUIDE DISPENSER B        | 1    | SILICON     |
| 161    | 3012402100 | GRILLE DISPENSER         | 1    | ABS         |
| 162    | 3019019400 | POCKET DAIRY AS          | 1    | GPPS + HIPS |
| 163    | 3019019300 | POCKET R *S              | 1    | GPPS        |
| 164    | 3019019800 | POCKET R *M              | 2    | HIPS        |
| 165    | 3011474600 | COVER HOMEBAR AS         | 1    | GPPS        |
| 166    | 3019022100 | POCKET R *H              | 1    | HIPS        |
| 167    | 3012514100 | GUIDE R POKT             | 2    | HIPS        |
| 168    | 3012513400 | GUIDE BOTL               | 2    | PP          |
| 169    | 3019019200 | POCKET R                 | 2    | HIPS        |
| 170    | 3000025300 | ASSY R DR                | 1    | FR -S580CRI |
| 170-1  | 3012314500 | GASKET R DR AS           | 1    | PVC         |
| 170-2  | 3012314400 | GASKET HOMEBAR B AS      | 1    | PVC         |
| 170-3  | 3000003810 | ASSY R DR URT            | 1    |             |
| 170-4  | 3012314300 | GASKET HOMEBAR A AS      | 1    | PVC         |
| 170-5  | 3011471700 | COVER FRAME HOMEBAR      | 1    | ABS         |
| 170-6  | 3012918300 | HINGE HOMEBAR *R AS      | 1    | STS304      |
| 170-7  | 3012918200 | HINGE HOMEBAR *L AS      | 1    | STS304      |
| 170-8  | 3016030600 | SPECIAL SCREW C          | 8    | SUS M5      |
| 170-9  | 3010951500 | CAP H OMEBAR ARM PLT * L | 2    | ABS         |
| 170-10 | 3016030800 | SPECIAL SCREW A          | 2    | SUS M5      |
| 170-11 | 3016030600 | SPECIAL SCREW C          | 4    | SUS M5      |
| 170-12 | 3014560300 | PLATE HOMEBAR ARM *R AS  | 1    | STS 304     |
| 170-13 | 3011791900 | DOOR HOMEBAR URT AS      | 1    |             |
| 170-14 | 3014560200 | PLATE HOMEBAR ARM *L AS  | 1    | STS 304     |

EXPLODED VIEW AND PARTS LIST

Total Parts List  
FRS-2031

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| NO | PART CODE   | PART NAME                | Q'TY | REMARK             |
|----|-------------|--------------------------|------|--------------------|
| 1  | 3000003620  | ASSY CAB URT             | 1    |                    |
| 2  | 3012917600  | HINGE *T *R AS           | 1    | PO T3.0            |
| 3  | 3012918500  | HINGE *T *L AS           | 1    | PO T3.0            |
| 4  | 3016031400  | SCREW SPECIAL            | 2    |                    |
| 6  | 7051401065  | SCREW MACHINE            | 1    | PAN 4 x 10 SW BSNI |
| 7  | 3011472400  | COVER HI *T *R           | 1    | PP                 |
| 8  | 3011472300  | COVER HI *T *L           | 1    | PP                 |
| 9  | 7112401211  | SCREW TAPPING            | 2    | T1 TRS 4 x 12 MFZN |
| 10 | 3012601301  | HANDLE CAB COVR *R       | 1    | PP                 |
| 11 | 3012601201  | HANDLE CAB COVR *L       | 1    | PP                 |
| 12 | 7112401211  | SCREW TAPPING            | 1    | T1 TRS 4 x 12 MFZN |
| 13 | 3010533400  | BOX MAIN PCB             | 1    | PP                 |
| 14 |             | CAPACITOR RUN            | 1    |                    |
| 15 |             | PCB MAIN AS              | 1    |                    |
| 16 | 30114726 10 | COVER MAIN PCB BOX       | 1    | PP                 |
| 17 | 7112401211  | SCREW TAPPING            | 1    | T1 TRS 4 x 12 MFZN |
| 18 | 3013223400  | HOSE ICE MAKER TUBE AS   | 1    |                    |
| 19 | 3012519200  | GUIDE CAB W/TUBE A AS    | 1    |                    |
| 20 | 3011485600  | COVER GUIDE CAB W/TUBE A | 1    | HIPS               |
| 21 | 3011202000  | CLAMP WATER TUBE A       | 5    | PA -66             |
| 22 | 3012917800  | HINGE *U *R AS           | 1    | PO T3.0            |
| 23 | 3012917700  | HINGE *U *L AS           | 1    | PO T3.0            |
| 24 | 3012513300  | GUIDE *U HINGE *U        | 2    | POM                |
| 25 | 7002501611  | SCREW MACHINE            | 2    | TRS M5 x 16 MFZN   |
| 26 | 3016001240  | SPECIAL BOLT *T          | 8    | 6 x 22 SWCH22A(YL) |
| 27 | 3015306700  | SUPPORTER *U HI AS       | 2    | PO T5.0            |
| 28 | 301210 4400 | FOOT ADJUST AS           | 2    |                    |
| 29 | 3016501200  | CASTER TURN AS           | 2    | TURN CASTER        |
| 30 | 3016001240  | SPECIAL BOLT *T          | 2    | 6 x 22 SWCH22A(YL) |
| 31 | 3012019500  | FIXTURE TUBE FIT B       | 2    | PP                 |
| 32 | 3013064200  | HOLDER TUBE A            | 1    | ACETAL             |
| 33 | 30114710 10 | COVER CAB BRKT           | 1    | PP                 |



## EXPLODED VIEW AND PARTS LIST

| NO    | PART CODE  | PART NAME            | Q'TY | REMARK                |
|-------|------------|----------------------|------|-----------------------|
| 34    | 7142401611 | SCREW TAPPING        | 3    | T2 TRS 4 x 16 MFZN    |
| 36    | 3010326700 | BASE COMP AS         | 1    | SBHG T1.2             |
| 37    | 3016003300 | SPECIAL BOLT         | 4    | T2 M6.5 x 20 4EA      |
| 38    | 3011344200 | CORD POWER AS        | 1    | 250V 12A              |
| 39    | 7112401211 | SCREW TAPPING        | 1    | T1 TRS 4 x 12 MFZN    |
| 40    | 7051401065 | SCREW MACHINE        | 1    | PAN 4 x 10 SW BSNI    |
| 41    |            | COMP                 | 1    |                       |
| 42    | 3016002500 | SPECIAL WASHER       | 4    | SK -5 T0.8            |
| 43    | 3010101600 | RUBBER ABSORBER COMP | 4    | NBR                   |
| 44 -1 |            | SWITCH P RELAY AS    | 1    |                       |
| 44 -2 | 3811402100 | COVER RELAY          | 1    | DS3 -3NORYL S/S       |
| 45    | 3011113500 | CASE VAPORI          | 1    | PP + CTALC            |
| 46    | 3013201700 | HOSE DRAIN B         | 1    | PE FRB -5350NT        |
| 47    | 3014413730 | PIPE WICON AS        | 1    |                       |
| 48    | 3010102100 | ABSORBER C MOTR      | 1    | NR FRB -5350NT        |
| 49    | 3012004400 | FIXTURE C MOTR       | 1    | SUS                   |
| 50    | 3015911500 | MOTOR C FAN AS       | 1    | DC12V 2.5W            |
| 51    | 3011802200 | FAN                  | 1    | ABS (O.D.)3.17 x D110 |
| 52    | 3011200500 | CLAMP FAN            | 1    | SUS 304               |
| 53    | 3016806900 | DRYER AS             | 1    | XH-9 15g              |
| 54    | 3011474700 | COVER MACH ROOM AS   | 1    | SBHG T0.4             |
| 55    | 7112401211 | SCREW TAPPING        | 6    | T1 TRS 4 x 12 MFZN    |
| 56    | 3015403200 | VALVE WATER AS       | 1    |                       |
| 57    | 3012007800 | FIXTURE MOTOR A      | 1    | PP                    |
| 58    | 3015911400 | MOTER R FAN AS       | 1    |                       |
| 59    | 3012007900 | FIXTURE MOTOR B      | 1    | HIPS                  |
| 60    | 7122401211 | SCREW TAPPING        | 2    | T2S TRS 4 x 12 MFZN   |
| 61    | 3011802200 | FAN                  | 1    | ABS (O.D.)3.17 x D110 |
| 62    | 3013344200 | INSU DAMP B          | 1    | F-PS                  |
| 63    | 3013344100 | INSU DAMP A          | 1    | F-PS                  |
| 64    | 3011471200 | COVER DAMP           | 1    | HIPS                  |
| 65    | 3018701800 | DEO ANTI AS          | 1    |                       |
| 66    | 3011471300 | COVER DEO            | 1    | ABS                   |

## EXPLODED VIEW AND PARTS LIST

| NO  | PART CODE  | PART NAME              | Q' TY | REMARK             |
|-----|------------|------------------------|-------|--------------------|
| 67  | 3017905300 | SOCKET R LAMP AS       | 2     |                    |
| 68  | 7121300811 | SCREW TAPPING          | 1     | T2S PAN 3 x 8      |
| 69  |            | LAMP R A               | 2     |                    |
| 70  | 3015507900 | WINDOW R LAMP A        | 1     | MIPS               |
| 71  | 3016002710 | SPECIAL SCREW          | 2     | 4 x 12             |
| 72  | 3010903200 | CAP SCREW              | 2     | PE                 |
| 73  | 3017827300 | SHELF R AS             | 4     | GLASS + HIPS       |
| 74  | 3012514500 | GUIDE CASE A *L AS     | 5     | ABS                |
| 75  | 3012514600 | GUIDE CASE A *R AS     | 5     | ABS                |
| 76  | 7142401611 | SCREW TAPPING          | 10    | T2 TRS 4 x 16 MFZN |
| 77  | 3011171200 | CASE CHILD AS          | 1     | GPPS + HIPS        |
|     |            |                        |       |                    |
| 79  | 3018701800 | DEO ANTI AS            | 1     |                    |
| 80  | 3011472900 | COVER RETURN DUCT      | 1     | HIPS               |
| 81  | 3011172000 | CASE VEGETB A AS       | 1     | GPPS + HIPS        |
| 82  | 3011485400 | COVER VEGETB CASE B    | 1     | GPPS               |
| 83  | 3011172100 | CASE VEGETABLE B AS    | 1     | GPPS + HIPS        |
| 84  | 3017827500 | SHELF WINE AS          | 1     | ABS                |
| 85  | 3016002710 | SPECIAL SCREW          | 2     | 4 x 12             |
| 86  | 3010903200 | CAP SCREW              | 2     | PE                 |
| 87  | 3018124000 | SWITCH LAMP            | 1     | SP201R-7DR         |
| 88  | 3017100500 | FLAP MULT DUCT         | 1     | PP                 |
| 89  | 3013345000 | INSU MULT DUCT AS      | 1     | F-PS               |
| 90  | 3011472700 | COVER MULT DUCT        | 1     | HIPS               |
| 91  | 3013408100 | KNOB MULT DUCT         | 1     | ABS                |
| 92  | 3017905310 | SOCKET R LAMP AS       | 1     | 250V 1A            |
| 93  |            | LAMP R B               | 1     |                    |
| 94  | 3015508000 | WINDOW R LAMP B        | 1     | MIPS               |
| 95  | 3011473000 | COVER SENS             | 1     | ABS                |
| 96  | 3014805400 | SENSOR R AS            | 1     | PBN -438           |
| 97  | 3011171300 | CASE EGG AS            | 1     | GPPS               |
| 98  | 3014002500 | PACKING W/TUBE GUIDE A | 2     | SILICON            |
| 99  | 3018200800 | WATER TANK AS          | 1     | HDPE               |
| 100 | 3012515000 | GUIDE DRN AS           | 1     | FR -S580CG         |

## EXPLODED VIEW AND PARTS LIST

| NO     | PART CODE  | PART NAME               | Q' TY | REMARK                |
|--------|------------|-------------------------|-------|-----------------------|
| 101    | 7112401211 | SCREW TAPPING           | 1     | T1 TRS 4 x 12 MFZN    |
| 102    | 3012007800 | FIXTURE MOTOR A         | 1     | PP                    |
| 103    | 3015911310 | MOTOR F FAN             | 1     | DL-2213DWFA-2         |
| 104    | 3018917200 | LOUVER F C              | 1     | PP                    |
| 105    | 7142401611 | SCREW TAPPING           | 3     | T2 TRS 4 x 16 MFZN    |
| 106    | 3011834500 | FAN                     | 1     | ABS (O.D.)3.17 x D130 |
| 107    | 3018914910 | LOUVER F D AS           | 1     | PP                    |
| 108    | 3014805300 | SENSOR F AS             | 1     | PT-38                 |
| 109    | 3018914700 | LOUVER F B AS           | 1     | HIPS                  |
| 110    | 3018914600 | LOUVER F A AS           | 1     | HIPS                  |
| 111    | 7142401611 | SCREW TAPPING           | 3     | T2 TRS 4 x 16 MFZN    |
| 112    | 3010924600 | CAP F LUVR              | 3     | HIPS                  |
| 113    | 3011473000 | COVER SENSOR            | 1     | ABS                   |
| 114    | 3000025900 | ASSY ICE MAKER          | 1     |                       |
| 115 -1 | 3012205600 | FRAME ICE MAKER         | 1     | HIPS                  |
| 115 -2 | 3012521300 | GUIDE ICING FLOW        | 1     | PP                    |
| 116    | 3012013200 | FIXTURE C               | 2     | PP                    |
| 117    | 3012517900 | GUIDE G/MOTR BRACKET *R | 1     | ABS                   |
| 118    |            | BRACKET G/MOTR AS       | 1     |                       |
| 119    | 3012517800 | GUIDE G/MOTR BRACKET *L | 1     | ABS                   |
| 120    | 3011176200 | ICE CRUSHER AS          | 1     |                       |
| 121    | 3012517700 | GUIDE ICE CRUSHER *R    | 1     | ABS                   |
| 122    | 3012520500 | GUIDE ICE CRUSHER *L    | 1     | ABS                   |
| 123    | 3014559510 | PLATE LAMP F            | 1     | SBHG T0.8             |
| 124    | 3017905200 | SOCKET F LAMP AS        | 2     |                       |
| 125    |            | LAMP F                  | 2     |                       |
| 126    | 7121300811 | SCREW TAPPING           | 4     | T2S PAN 3X8 MFZN      |
| 127    | 7112401211 | SCREW TAPPING           | 4     | T1 TRS 4 x 12 MFZN    |
| 128    | 3015507710 | WINDOW F LAMP           | 1     | MIPS                  |
| 129    | 3016002710 | SPECIAL SCREW           | 2     | 4 x 12                |
| 130    | 3010903200 | CAP SCREW               | 2     | PE                    |
| 131    | 3018124000 | SWITCH LAMP             | 1     | SP201R-7DR            |
| 132    | 3017827100 | SHELF F AS              | 3     | GLASS + HIPS          |
| 133    | 3011171400 | CASE F A AS             | 1     | GPPS + HIPS           |

EXPLODED VIEW AND PARTS LIST

| NO    | PART CODE   | PART NAME              | Q' TY | REMARK                   |
|-------|-------------|------------------------|-------|--------------------------|
| 134   | 30111171500 | CASE F B AS            | 1     | GPPS + HIPS              |
| 135   | 3019019000  | POCKET F *T            | 2     | HIPS                     |
| 136   | 3012516000  | GUIDE F POCKET         | 2     | PP                       |
| 137   | 3019019100  | POCKET F *U            | 3     | HIPS                     |
| 138   | 3000028000  | ASSY F DR              | 1     | FR -S660CWI              |
| 138-1 | 3010957100  | CAP ICE PATH FRAME     | 1     | HIPS                     |
| 138-2 | 3012314200  | GASKET F DR AS         | 1     | PVC                      |
| 138-3 | 3000003700  | ASSY F DR URT          | 1     |                          |
| 139   | 3011623800  | DECO HNDL *T           | 1     | AB S                     |
| 140   | 3012628500  | HANDLE                 | 1     | AL                       |
| 141   | 3011613900  | DECO HNDL *U           | 1     | ABS                      |
| 142   | 3016031700  | SPECIAL SCREW          | 2     |                          |
| 143   | 3010326100  | BASE DECO COVER *T     | 1     | HIPS                     |
| 144   | 3010326200  | BASE DECO COVER *U     | 1     | HIPS                     |
| 145   | 3016002700  | SPECIAL SCREW          | 4     | WASR + TRS 5 X 16 MFZN   |
| 146   | 7112401211  | SCREW TAPPING          | 6     | T1 TRS 4 x 12 MFZN       |
| 147   | 3011472100  | COVER HNDL DECO *T     | 1     | ABS                      |
| 148   | 3011472200  | COVER HNDL DECO *U     | 1     | ABS                      |
| 149   | 3017905500  | SOCKET DISP BOX AS     | 1     | 250V 1A                  |
| 150   |             | LAMP DISP              | 1     |                          |
| 151   | 3011485800  | COVER DISPNS BOX AS    | 1     | FR -S650CWI              |
| 151-1 | 7173300811  | SCREW TA PPTITE        | 7     | T1 PAN 3 x 8 MFZN        |
| 151-2 | 30143C3110  | PCB FRONT AS           | 1     | FR -S660CW (SBS03 -HLCD) |
| 151-3 | 3016302600  | BUTTON CONTL B         | 4     | ABS                      |
| 151-4 | 3016303100  | BUTTON CONTL A         | 4     | ABS                      |
| 151-5 | 3015508700  | W INDOW F PCB          | 1     | ABS                      |
| 151-6 | 3011485500  | COVER DISPNS BOX       | 1     | ABS                      |
| 152   | 3010539100  | BOX DISPNS ICE SHUT AS | 1     | GPPS + ABS               |
| 153   | 3015102200  | SPRING ICE D/LEVER     | 1     | ∅0.8 SUS 304             |
| 154   | 3011485900  | COVER ICE FLAP AS      | 1     |                          |
| 155   | 3012019700  | FIXTURE ICE SHUT LVR   | 1     | T1 SUS304                |
| 156   |             | VALVE SOL DISP         | 1     | DISP SN6                 |
| 157   | 3012020000  | FIXTURE MICRO S/W      | 1     | T0.6 SUS304-3/ 4H        |
| 158   | 3018126600  | MICRO S/W AS           | 1     | FR -S660CD               |

## EXPLODED VIEW AND PARTS LIST

| NO      | PART CODE  | PART NAME         | Q' TY | REMARK      |
|---------|------------|-------------------|-------|-------------|
| 159     | 3012518200 | GUIDE DISPENSER A | 1     | ABS         |
| 160     | 3012518900 | GUIDE DISPENSER B | 1     | SILICON     |
| 161     | 3012402100 | GRILLE DISPENSER  | 1     | ABS         |
| 162     | 3019019400 | POCKET DAIRY AS   | 1     | GPPS + HIPS |
| 163     | 3019019300 | POCKET R *S       | 1     | GPPS        |
| 164     | 3019019800 | POCKET R *M       | 2     | HIPS        |
| 165     | 3012514100 | GUIDE R POKT      | 2     | HIPS        |
| 166     | 3012513400 | GUIDE BOTL        | 2     | PP          |
| 167     | 3019019200 | POCKET R          | 2     | HIPS        |
| 168     | 3000018800 | ASSY R DR         | 1     | FR -S580CG  |
| 168 - 1 | 3012314500 | GASKET R DR AS    | 1     | PVC         |
| 168 - 2 | 3000003810 | ASSY R DR URT     | 1     |             |

**DAEWOO**

DAEWOO ELECTRONICS Corp.

686, AHYEON-DONG MAPO-GU  
SEOUL, KOREA

C.P.O. BOX 8003 SEOUL, KOREA