

# Service Manual

Model: FR-4506K  
FR-4506N



## ✓ 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>).

## 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 repair, you might be hurt 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 gloves if you fix it up around the evaporator.

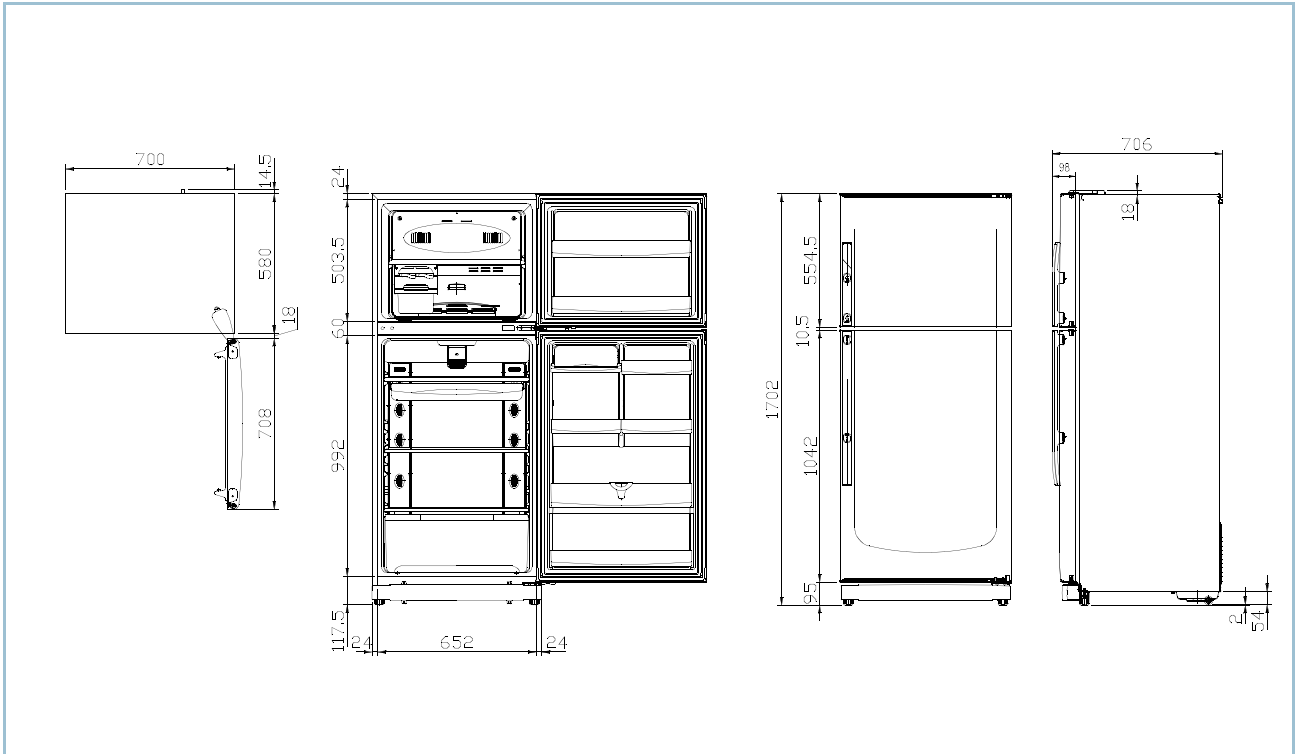
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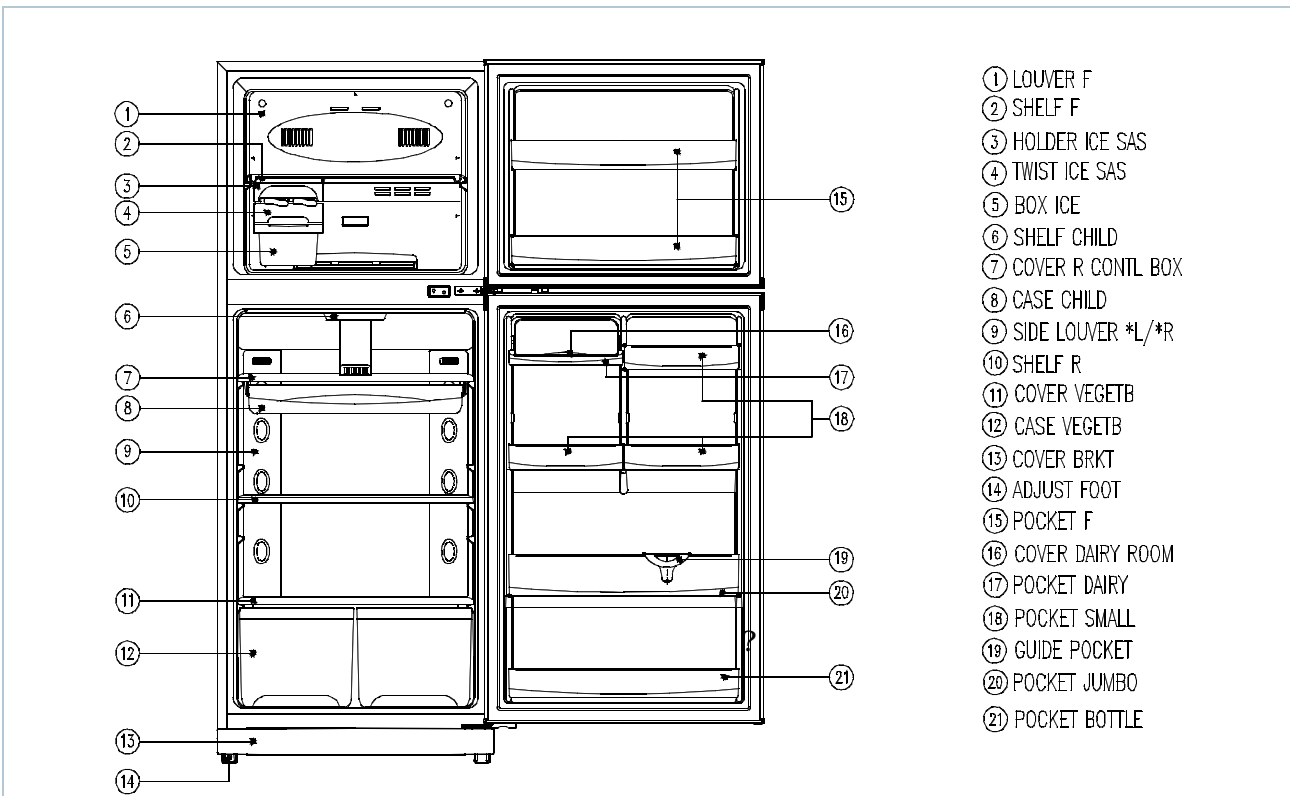
# EXTERNAL VIEW

## 1. FR-4506K

### 1) EXTERNAL SIZE



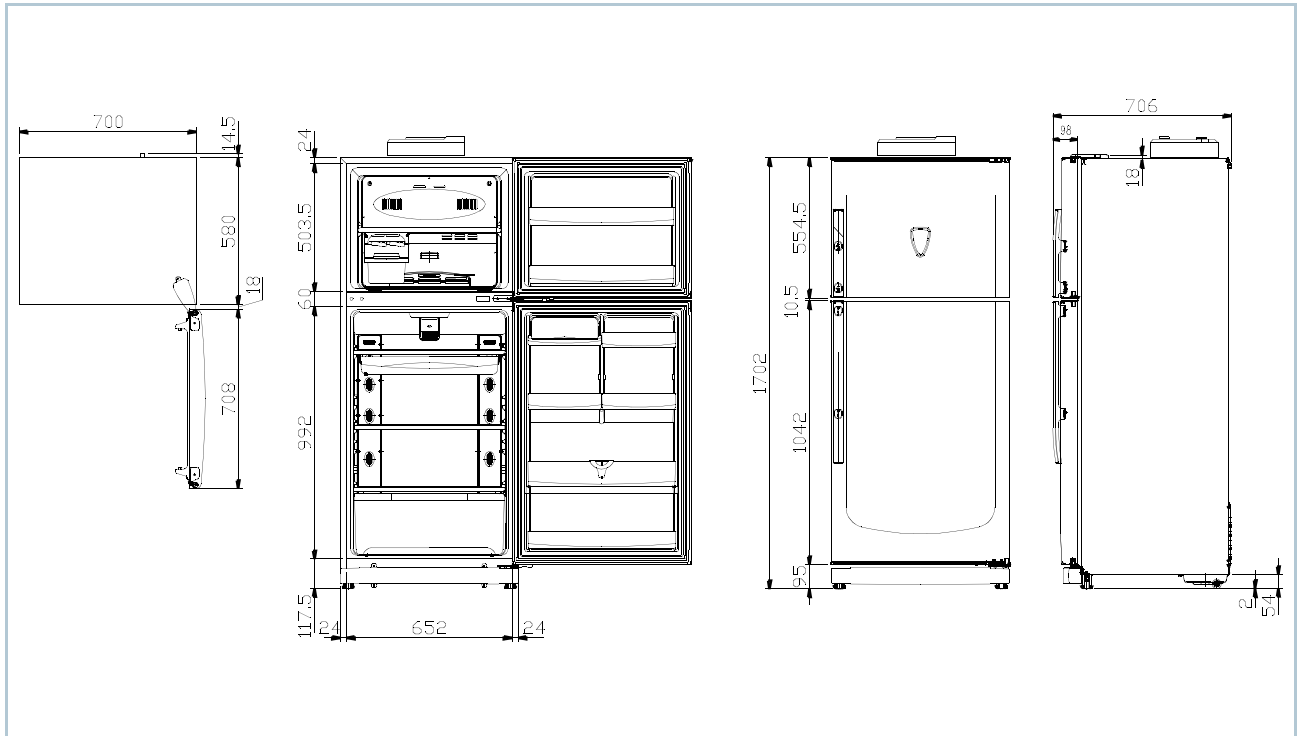
### 2) NAME OF PARTS



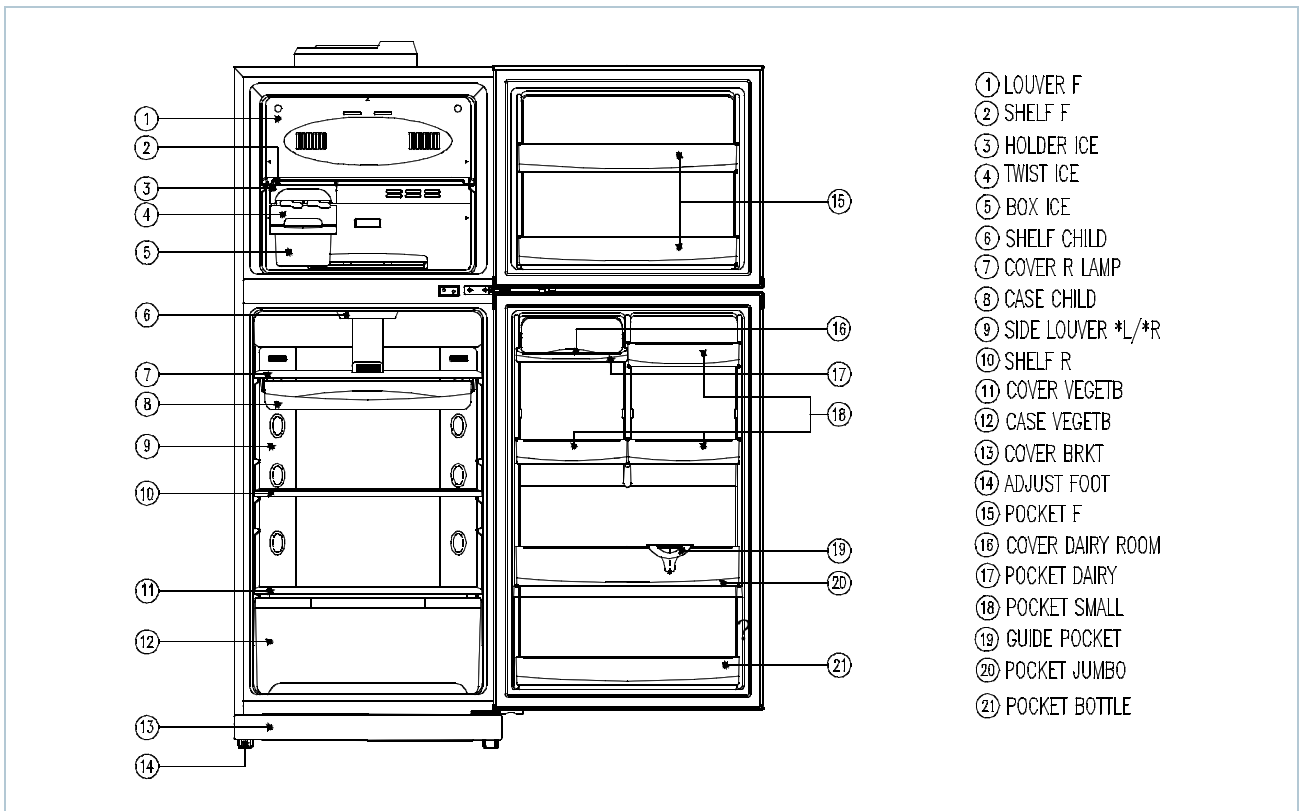
## EXTERNAL VIEW

### 2. FR-4506N

#### 1) EXTERNAL SIZE



#### 2) NAME OF PARTS



# SPECIFICATION

## 1. OUTLINE

| DIVISION                    |                 | CONTENTS               |
|-----------------------------|-----------------|------------------------|
| MODEL NAME                  |                 | FR4506K/N              |
| USABLE CAPACITY( <i>l</i> ) | FREEZER         | 101                    |
|                             | REFRIGERATOR    | 273                    |
|                             | TOTAL           | 374                    |
| EXTERNAL DIMENSION          | WIDTH           | 708mm                  |
|                             | DEPTH           | 706mm                  |
|                             | HEIGHT          | 1715/1759mm            |
| REFRIGERANT                 | R134a           | 90g                    |
| COOLING & CONTROL SYSTEM    | COOLING SYSTEM  | Fan Cooling System     |
|                             | DEFROST SYSTEM  | Fin Evaporator Forced  |
|                             | DEFROST CONTROL | Automatic Start & Stop |
| NET WEIGHT(Kg)              |                 | 69kg                   |

# SPECIFICATIONS

## 2. ELECTRIC PARTS

### 1) COMPRESSOR

| REFRIGERANT   | R-12   |            |            |            |            |        |        |
|---------------|--------|------------|------------|------------|------------|--------|--------|
| VOLTAGE(V/Hz) | 110/60 | 115,120/60 | 127/60     | 220/60     | 220/50     | 230/50 | 240/50 |
| COMP MODEL    | X      | X          | CL23YE-2   | PL21YE-4   | SL27YE-5   |        |        |
| PART CODE     | X      | X          | 3957123A20 | 3956121A40 | 3954127A50 |        |        |
| STARTING TYPE | X      | X          | CSIR       | RSCR       | RSIR       |        |        |

| REFRIGERANT   | R-134a     |            |            |        |            |        |        |
|---------------|------------|------------|------------|--------|------------|--------|--------|
| VOLTAGE(V/Hz) | 110/60     | 115,120/60 | 127/60     | 220/60 | 220/50     | 230/50 | 240/50 |
| COMP MODEL    | HEL18YH-1  | <          | HEL21YH-1  | X      | HPL23YH-5  | <      | <-     |
| PART CODE     | 3953118S10 | <-         | 3953121S10 | X      | 3956123S50 | <-     | <-     |
| STARTING TYPE | RSCR       | <-         | RSCR       | X      | RSCR       | <-     | <-     |

### 2) RELAY

| REFRIGERANT   |            | R-12   |            |             |             |             |        |        |
|---------------|------------|--------|------------|-------------|-------------|-------------|--------|--------|
| VOLTAGE(V/Hz) |            | 110/60 | 115,120/60 | 127/60      | 220/60      | 220/50      | 230/50 | 240/50 |
| ASSY          | TYPE NAME  | X      | X          | 414THBYY-52 | 197SHBYY-52 | 232THBYY-52 | <-     | <-     |
|               | PART CODE  | X      | X          | 3018120700  | 3018118130  | 3018119970  | <-     | <-     |
| PTC           | RESISTANCE | X      | X          | S068        | S330        | S220        | <-     | <-     |
| OVER LOAD     | PART NAME  | X      | X          | 414THB      | 197SHB      | 232THB      | <-     | <-     |

| REFRIGERANT   |            | R-134a      |            |             |        |             |        |        |
|---------------|------------|-------------|------------|-------------|--------|-------------|--------|--------|
| VOLTAGE(V/Hz) |            | 110/60      | 115,120/60 | 127/60      | 220/60 | 220/50      | 230/50 | 240/50 |
| ASSY          | TYPE NAME  | 308NHBYY-52 | <-         | 317NHBYY-52 | X      | 181SHBYY-52 | <-     | <-     |
|               | PART CODE  | 3018118110  | <-         | 3018119950  | X      | 3018116610  | <-     | <-     |
| PTC           | RESISTANCE | S068        | <-         | S068        | X      | S330        | <-     | <-     |
| OVER LOAD     | PART NAME  | 308NHB      | <-         | 317NHB      | X      | 181SHB      | <-     | <-     |

### 3) STARTING CAPACITOR

| REFRIGERANT       | R-12   |            |            |        |        |        |        |
|-------------------|--------|------------|------------|--------|--------|--------|--------|
| VOLTAGE(V/Hz)     | 110/60 | 115,120/60 | 127/60     | 220/60 | 220/50 | 230/50 | 240/50 |
| PART CODE         | X      | X          | 3016400100 | X      | X      | X      | X      |
| RATED VOLTAGE     | X      | X          | 200V       | X      | X      | X      | X      |
| RATED CAPACITANCE | X      | X          | 100µF      | X      | X      | X      | X      |

| REFRIGERANT       | R134a  |            |        |        |        |        |        |
|-------------------|--------|------------|--------|--------|--------|--------|--------|
| VOLTAGE(V/Hz)     | 110/60 | 115,120/60 | 127/60 | 220/60 | 220/50 | 230/50 | 240/50 |
| PART CODE         | X      | X          | X      | X      | X      | X      | X      |
| RATED VOLTAGE     | X      | X          | X      | X      | X      | X      | X      |
| RATED CAPACITANCE | X      | X          | X      | X      | X      | X      | X      |

## SPECIFICATIONS

### 4) RUNNING CAPACITOR

| REFRIGERANT       | R-12   |            |        |            |        |        |        |
|-------------------|--------|------------|--------|------------|--------|--------|--------|
| VOLTAGE(V/Hz)     | 110/60 | 115,120/60 | 127/60 | 220/60     | 220/50 | 230/50 | 240/50 |
| PART CODE         | X      | X          | X      | 400EL15110 | X      |        | <-     |
| RATED VOLTAGE     | X      | X          | X      | 350V       | X      | <-     | <-     |
| RATED CAPACITANCE | X      | X          | X      | 5 $\mu$ F  | X      | <-     | <-     |

| REFRIGERANT       | R134a      |            |            |        |            |        |        |
|-------------------|------------|------------|------------|--------|------------|--------|--------|
| VOLTAGE(V/Hz)     | 110/60     | 115,120/60 | 127/60     | 220/60 | 220/50     | 230/50 | 240/50 |
| PART CODE         | 3016801910 | <-         | 400EL15130 | X      | 3016401010 | <-     | <-     |
| RATED VOLTAGE     | 200V       | <-         | 230V       | X      | 350V       | <-     | <-     |
| RATED CAPACITANCE | 12 $\mu$ F | <-         | 10 $\mu$ F | X      | 5 $\mu$ F  | <-     | <-     |

### 5) F-FAN MOTOR

| REFRIGERANT   | R-12, R-134a |            |            |            |            |        |        |
|---------------|--------------|------------|------------|------------|------------|--------|--------|
| VOLTAGE(V/Hz) | 110/60       | 115,120/60 | 127/60     | 220/60     | 220/50     | 230/50 | 240/50 |
| TYPE NAME     | S6111EDF01   | <-         | S6111EDF01 | S6111EDF01 | S6111WDF01 | <-     | <-     |
| PART CODE     | 3015900741   | <-         | 3015900750 | 3015900701 | 3015900731 | <-     | <-     |
| REVOLUTION    | 2200 RPM     | <-         | <-         | <-         | <-         | <-     | <-     |

### 6) C-FAN MOTOR

| REFRIGERANT   | R-12, R-134a |            |            |            |            |        |        |
|---------------|--------------|------------|------------|------------|------------|--------|--------|
| VOLTAGE(V/Hz) | 110/60       | 115,120/60 | 127/60     | 220/60     | 220/50     | 230/50 | 240/50 |
| TYPE NAME     | RF111EAC03   | <-         |            |            | S6111CEC05 | <-     | <-     |
| PART CODE     | 3015903921   | <-         | 3015910100 | 3015910010 | 3015909800 | <-     | <-     |
| REVOLUTION    | 2100 RPM     | <-         | <-         | <-         | <-         | <-     | <-     |

### 7) DEFROST HEATER

| REFRIGERANT   | R-12, R-134a |            |        |            |        |        |        |
|---------------|--------------|------------|--------|------------|--------|--------|--------|
| VOLTAGE(V/Hz) | 110/60       | 115,120/60 | 127/60 | 220/60     | 220/50 | 230/50 | 240/50 |
| SPEC (W)      | 148W         | <-         | <-     | 148W       | <-     | <-     | <-     |
| PART CODE     | 3012807200   | <-         | <-     | 3012807100 | <-     | <-     | <-     |

### 8) LAMP ASSEMBLY

| REFRIGERANT   | R-12, R-134a |            |        |            |        |        |        |
|---------------|--------------|------------|--------|------------|--------|--------|--------|
| VOLTAGE(V/Hz) | 110/60       | 115,120/60 | 127/60 | 220/60     | 220/50 | 230/50 | 240/50 |
| SPEC (W)      | 15W          | <-         | <-     | 15W        | <-     | <-     | <-     |
| PART CODE     | 3013600050   | <-         | <-     | 3013600020 | <-     | <-     | <-     |

9) TEMPERATURE FUSE

| REFRIGERANT    | R-12, R-134a |            |        |        |        |        |        |
|----------------|--------------|------------|--------|--------|--------|--------|--------|
| VOLTAGE(V/Hz)  | 110/60       | 115,120/60 | 127/60 | 220/60 | 220/50 | 230/50 | 240/50 |
| OPERATING TEMP | 77 °C        | ←          | ←      | °      | ←      | ←      | ←      |
| PART CODE      | 3017201200   | ←          | ←      | ←      | °      | ←      | ←      |

10) DOOR S/W

| REFRIGERANT   | R-12, R-134a |            |        |        |        |        |        |
|---------------|--------------|------------|--------|--------|--------|--------|--------|
| VOLTAGE(V/Hz) | 110/60       | 115,120/60 | 127/60 | 220/60 | 220/50 | 230/50 | 240/50 |
| TYPE NAME     | DSD-5        | ←          | ←      | ←      | ←      | ←      | ←      |
| PART CODE     | 3018100050   | ←          | ←      | ←      | ←      | ←      | ←      |

11) DRYER

| REFRIGERANT   | R-12       |            |        |        |        |        |        |
|---------------|------------|------------|--------|--------|--------|--------|--------|
| VOLTAGE(V/Hz) | 110/60     | 115,120/60 | 127/60 | 220/60 | 220/50 | 230/50 | 240/50 |
| SPEC (gr)     | 10         | ←          | ←      | ←      | ←      | ←      | ←      |
| PART CODE     | 3016805600 | ←          | ←      | ←      | ←      | ←      | ←      |

| REFRIGERANT   | R-134a     |            |        |        |        |        |        |
|---------------|------------|------------|--------|--------|--------|--------|--------|
| VOLTAGE(V/Hz) | 110/60     | 115,120/60 | 127/60 | 220/60 | 220/50 | 230/50 | 240/50 |
| SPEC (gr)     | 15         | ←          | ←      | ←      | ←      | ←      | ←      |
| PART CODE     | 3016805500 | ←          | ←      | ←      | ←      | ←      | ←      |

12) THERMOSTAT

| REFRIGERANT   | R-12, R-134a |            |        |        |        |             |        |
|---------------|--------------|------------|--------|--------|--------|-------------|--------|
| VOLTAGE(V/Hz) | 110/60       | 115,120/60 | 127/60 | 220/60 | 220/50 | 230/50      | 240/50 |
| TYPE NAME     | BU276        | ←          | ←      | ←      | ←      | GNF-175D-03 | ←      |
| PART CODE     | 3018302100   | ←          | ←      | ←      | ←      | 3018302100  | ←      |

13) DEFROST TIMER

| REFRIGERANT   | R-12, R-134a |            |        |            |        |        |        |
|---------------|--------------|------------|--------|------------|--------|--------|--------|
| VOLTAGE(V/Hz) | 110/60       | 115,120/60 | 127/60 | 220/60     | 220/50 | 230/50 | 240/50 |
| TYPE NAME     | TMDEX09UD1   | ←          | ←      | TMDE807UF1 | ←      | ←      | ←      |
| PART CODE     | 3018120030   | ←          | ←      | 3018120020 | ←      | ←      | ←      |



## SPECIFICATIONS

### 14) BIMETAL THERMO

| REFRIGERANT   | R-12, R-134a |            |        |        |        |        |        |
|---------------|--------------|------------|--------|--------|--------|--------|--------|
| VOLTAGE(V/Hz) | 110/60       | 115,120/60 | 127/60 | 220/60 | 220/50 | 230/50 | 240/50 |
| TYPE NAME     | ST-3         | <-         | <-     | <-     | <-     | <-     | <-     |
| PART CODE     | 3018120300   | <-         | <-     | <-     | <-     | <-     | <-     |

### 15) PCB TRANSFORMER

| REFRIGERANT   | R-12, R-134a |            |        |            |        |        |        |
|---------------|--------------|------------|--------|------------|--------|--------|--------|
| VOLTAGE(V/Hz) | 110/60       | 115,120/60 | 127/60 | 220/60     | 220/50 | 230/50 | 240/50 |
| TYPE NAME     | S-ETP        | <-         | <-     | S-ETP      | <-     | <-     | <-     |
| PART CODE     | 5EPK048091   | <-         | <-     | 5EPK048090 | <-     | <-     | <-     |

### 16) MAIN PCB ASSY

| REFRIGERANT   | R-12, R-134a |            |        |            |        |        |        |
|---------------|--------------|------------|--------|------------|--------|--------|--------|
| VOLTAGE(V/Hz) | 110/60       | 115,120/60 | 127/60 | 220/60     | 220/50 | 230/50 | 240/50 |
| TYPE NAME     | S-ETP        | <-         | <-     | S-ETP      | <-     | <-     | <-     |
| PART CODE     | 3014302060   | <-         | <-     | 3014301060 | <-     | <-     | <-     |

### 17) FUSE (PCB)

| REFRIGERANT   | R-12, R-134a |            |        |        |        |        |        |
|---------------|--------------|------------|--------|--------|--------|--------|--------|
| VOLTAGE(V/Hz) | 110/60       | 115,120/60 | 127/60 | 220/60 | 220/50 | 230/50 | 240/50 |
| RATED CURRENT | 1.6A         | <-         | <-     | <-     | <-     | <-     | <-     |
| PART CODE     | 5F3GB1682R   | <-         | <-     | <-     | <-     | <-     | <-     |

**2.1. DOOR COLOR**

**1) ASSEMBLY URETHAN FREEZER DOOR  
NON-KEY TYPE & KEY TYPE**

| Refrigerant |                         | R-12       |            |              |        | Remark |
|-------------|-------------------------|------------|------------|--------------|--------|--------|
|             |                         | White      | Light Gray | Bright Beige | Silver |        |
| COLOR TYPE  | Embo PCM                | 3010015100 | X          | 3010015100   | X      |        |
|             | High-glossy Laminasheet |            |            |              |        |        |
|             | Normal PCM              |            | X          |              | X      |        |

| Refrigerant |                         | R-134a     |            |              |            | Remark |
|-------------|-------------------------|------------|------------|--------------|------------|--------|
|             |                         | White      | Light Gray | Bright Beige | Silver     |        |
| COLOR TYPE  | Embo PCM                |            | X          |              | X          |        |
|             | High-glossy Laminasheet | 3010015100 | 3010015100 | 3010015100   | 3010015100 |        |
|             | Normal PCM              |            | X          |              | X          |        |

**2) ASSEMBLY URETHAN REFRIGERATOR DOOR**

**1. NON-KEY TYPE**

| Refrigerant |                         | R-12  |            |              |        | Remark |
|-------------|-------------------------|-------|------------|--------------|--------|--------|
|             |                         | White | Light Gray | Bright Beige | Silver |        |
| COLOR TYPE  | Embo PCM                |       | X          |              | X      |        |
|             | High-glossy Laminasheet |       |            |              |        |        |
|             | Normal PCM              |       | X          |              | X      |        |



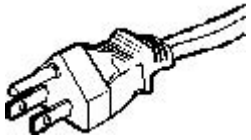
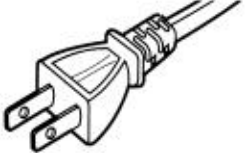

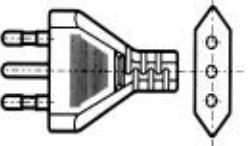
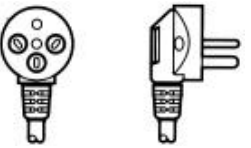
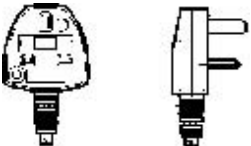

| Refrigerant |                         | R-134a |            |              |        | Remark |
|-------------|-------------------------|--------|------------|--------------|--------|--------|
|             |                         | White  | Light Gray | Bright Beige | Silver |        |
| COLOR TYPE  | Embo PCM                |        | X          |              | X      |        |
|             | High-glossy Laminasheet |        |            |              |        |        |
|             | Normal PCM              |        | X          |              | X      |        |

**2. KEY TYPE**

| Refrigerant |                         | R-12  |            |              |        | Remark |
|-------------|-------------------------|-------|------------|--------------|--------|--------|
|             |                         | White | Light Gray | Bright Beige | Silver |        |
| COLOR TYPE  | Embo PCM                |       | X          |              | X      |        |
|             | High-glossy Laminasheet |       |            |              |        |        |
|             | Normal PCM              |       | X          |              | X      |        |

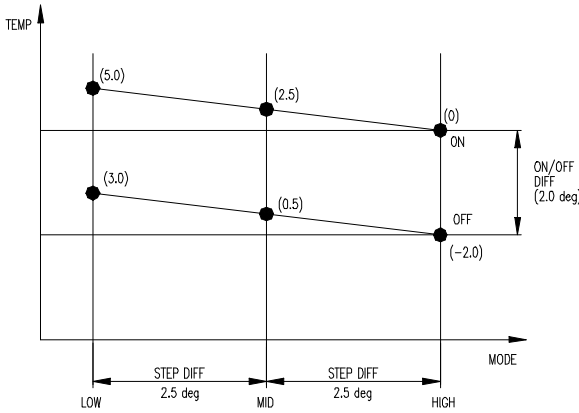
| Refrigerant |                         | R-134a |            |              |        | Remark |
|-------------|-------------------------|--------|------------|--------------|--------|--------|
|             |                         | White  | Light Gray | Bright Beige | Silver |        |
| COLOR TYPE  | Embo PCM                |        | X          |              | X      |        |
|             | High-glossy Laminasheet |        |            |              |        |        |
|             | Normal PCM              |        | X          |              | X      |        |

3. POWER CORD

| NO | SHAPE OF POWER CORD   | PART CODE  | DESCRIPTION | REMARK                                      |
|----|---|------------|-------------|---|
| 1  |    | 3011315000 | CP-2PIN     | For european country                        |
| 2  |    | 3010097000 | CP-2PIN     | For other country                           |
| 3  |    | 4006D17101 | KP-30       | For America & El Salvador                   |
| 4  |   | 3010096800 | 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 Singapore & Malaysia" |
| 9  |  | 3011301200 | KP-551/550  | For China & Australia                       |

# OPERATION AND FUNCTIONS

| NO | CONTROL FUNCTION | CONTROL OBJECTS | CONTENTS  | REMARK |
|----|------------------|-----------------|---|--------|
| 1  | Display          | LED             | <div data-bbox="683 568 1145 1323" data-label="Image"> </div> <p data-bbox="584 1413 759 1442">1. TEMP BUTTON</p> <ol data-bbox="600 1447 1187 1644" style="list-style-type: none"> <li>1) Temperature of Refrigerator can be controlled as changin control mode according to customer's desire.</li> <li>2) Initial mode is "Mid" and whenever pressing TEMP buton, control mode proceeds as follows.<br/> <b>Low -&gt; Mid -&gt; High -&gt; Quick -&gt; Low</b></li> <li>3) If TEMP.button is pressed, control mode is set in 3 Sec.</li> </ol> <p data-bbox="584 1682 746 1711">2. QUICK MODE</p> <ol data-bbox="600 1715 1214 1899" style="list-style-type: none"> <li>1) If QUICK mode is set by TEMP.button, QUICK LED is on.</li> <li>2) Maximum time of QUICK mode is 40 min.</li> <li>3) If Refrigerator sensor (R-S) is below -3.0°C in QUICK mode, QUICK mode can be finished immediately within 40min.</li> <li>4) If QUICK mode is finished, it returns to the dial mode before QUICK mode.</li> </ol> |        |

| NO       | CONTROL FUNCTION | CONTROL OBJECTS | CONTENTS   | REMARK         |        |     |      |       |        |         |     |     |   |  |  |          |     |     |      |                |  |  |
|----------|------------------|-----------------|--|----------------|--------|-----|------|-------|--------|---------|-----|-----|---|--|--|----------|-----|-----|------|----------------|--|--|
| 2        | Control of Temp  | COMP<br>F-FAN   | <p>1. How to control Temperature of Refrigerator</p> <p>1) Whenever TEMP.button is pressed, control mode is circulated as follows:<br/> <b>LOW -&gt; MID -&gt; HIGH -&gt; QUICK -&gt; LOW</b></p> <p>2) LEDs will indicate control mode according to TEMP.button.</p> <p>3) Comp and F-fan are controlled by R-Sensor.</p> <p>2. ON/OFF point of each control mode</p> <p>1) Comp and F-fan are controlled ON/OFF point of each control mode.<br/>         ( ON/OFF point of R-SENSOR )</p> <p>2) F-FAN is delayed for 1 min. after COMP is ON/OFF.</p> <p>3) ON/OFF DIFF. Of Refrigerator = 2.0 deg.</p> <p>4) STEP DIFF. Of Refrigerator = 2.5 deg.</p><br><table border="1" data-bbox="608 1243 1203 1350"> <thead> <tr> <th>CONTROL</th> <th>LOW</th> <th>MID</th> <th>HIGH</th> <th>QUICK</th> <th>REMARK</th> </tr> </thead> <tbody> <tr> <td>ON (°C)</td> <td>5.0</td> <td>2.5</td> <td>0</td> <td></td> <td></td> </tr> <tr> <td>OFF (°C)</td> <td>3.0</td> <td>0.5</td> <td>-2.0</td> <td>-3.0 / 40 min.</td> <td></td> </tr> </tbody> </table><br> | CONTROL        | LOW    | MID | HIGH | QUICK | REMARK | ON (°C) | 5.0 | 2.5 | 0 |  |  | OFF (°C) | 3.0 | 0.5 | -2.0 | -3.0 / 40 min. |  |  |
| CONTROL  | LOW              | MID             | HIGH   | QUICK          | REMARK |     |      |       |        |         |     |     |   |  |  |          |     |     |      |                |  |  |
| ON (°C)  | 5.0              | 2.5             | 0  |                |        |     |      |       |        |         |     |     |   |  |  |          |     |     |      |                |  |  |
| OFF (°C) | 3.0              | 0.5             | -2.0   | -3.0 / 40 min. |        |     |      |       |        |         |     |     |   |  |  |          |     |     |      |                |  |  |

**OPERATION AND FUNCTIONS**

| NO | CONTROL FUNCTION | CONTROL OBJECTS | CONTENTS  | REMARK |
|----|------------------|-----------------|---|--------|
| 3  | Defrost Period   | Defrost mode    | <p>1. Determination of Defrosting Period</p> <p>1) Total Run-tim of Comp : 10,11,12,13,14,15 hours</p> <p>2) Run-ratio of Comp : over 80%</p> <p>3) Total times of Door opening : over 3 times</p> <p>4) Total time (Comp On + Comp Off): 60 hours</p> <p>2. Explanation</p> <p>1) Derosting starts with the following conditions, in case total comp-run time passes 9 hours</p> <ul style="list-style-type: none"> <li>- when an Error occurs</li> <li>- when running-rate of Comp is more than 80%</li> <li>- when total Door-opening times is more than 3 times</li> </ul> <p>2) Defrosting starts unconditionally at each hour after total Comp-run time passes 9 hours if terms of 1) is occurred.</p> <p>3) Defrosting starts immediately when Total run-time is more than 15hours under the condition of 1),2) is not satisfied.</p> <p>4) Defrosting starts immediately when Total time is more than 15 hours under the condition of 1),2),3) is not satisfied.</p>  |        |
| 4  | Defrosting Mode  | Comp Fan Heater | <p>1. Normal Defrosting</p> <p>1) Starting by Defrosting Period</p> <p>2) How to proceed : using heater</p> <p>3) Defrosting mode and procedure</p> <div style="display: flex; align-items: center; margin-left: 40px;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;">PRE-COOL</div> <div style="text-align: center; margin-right: 10px;">↓</div> <div style="border: 1px solid black; padding: 5px;">HEATER Defrosting</div> </div> <p style="margin-left: 40px;">ç Proceeding time: 40min</p> <p style="margin-left: 40px;">ë Control Object: Comp On<br/>FAN ON,Heater Off</p> <p style="margin-left: 40px;">ẽ Terminating Condition:<br/>if R-sensor temp. is below -4°C even though it passes 40 min.</p> <p style="margin-left: 40px;">ē Limit Proceeding time</p> <ul style="list-style-type: none"> <li>- 30 min.: D1 ERROR<br/>D-Sensor disconnection/<br/>short-curcuit</li> <li>- 80 min.: F3 ERROR<br/>Normal Control state</li> </ul> <p style="margin-left: 40px;">ë Control Object: Comp Off,<br/>FAN OFF,Heater On</p> <p style="margin-left: 40px;">ï Terminating Condition:<br/>if D-sensor temp. is over 10°C</p> |        |

| NO         | CONTROL FUNCTION   | CONTROL OBJECTS                                 | CONTENTS  | REMARK    |          |                   |       |           |        |      |    |     |     |    |  |       |    |     |     |     |  |     |     |     |     |     |  |            |         |   |        |        |  |  |
|------------|--------------------|---|---|-----------|----------|-------------------|-------|-----------|--------|------|----|-----|-----|----|--|-------|----|-----|-----|-----|--|-----|-----|-----|-----|-----|--|------------|---------|---|--------|--------|--|--|
|            |                    |   | <div style="display: flex; flex-direction: column; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">PAUSE</div> <div style="margin-bottom: 5px;">↓</div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;">Fan Delay</div> <div style="margin-bottom: 5px;">↓</div> <div style="border: 1px solid black; padding: 5px;">Normal Run</div> </div> <p>                     ħ Proceeding time: 4min<br/>                     ē Control Object: Comp Off, FAN Off, Heater Off                 </p> <p>                     ħ Proceeding time: 4min<br/>                     ē Control Object: Comp On, FAN Off, Heater Off                 </p> <p>4) Output Control and Limit Time of each Defrosting mode</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>MODE \</th> <th>PRE-COOL</th> <th>Heater Defrosting</th> <th>Pause</th> <th>Fan Delay</th> <th>REMARK</th> </tr> </thead> <tbody> <tr> <td>COMP</td> <td>ON</td> <td>OFF</td> <td>OFF</td> <td>ON</td> <td></td> </tr> <tr> <td>F-FAN</td> <td>ON</td> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td></td> </tr> <tr> <td>HTR</td> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td>OFF</td> <td></td> </tr> <tr> <td>Limit Time</td> <td>40 min.</td> <td>1) 30 SECONDS<br/>2) 30 MINUTES<br/>3) 80 MINUTES</td> <td>4 min.</td> <td>4 min.</td> <td></td> </tr> </tbody> </table> <p>2. Forced Defrosting</p> <ol style="list-style-type: none"> <li>1) Start: Defrosting starts by pressing Temp.control s/w five times in a row when door is open.</li> <li>2) End : No function</li> <li>3) Process: using Heater</li> <li>4) Defrosting mode and procedure: same as Normal Defrosting( Skip pre-cool mode )</li> <li>5) Heater is On during initial 30 seconds without concerning D-sensor Temp.</li> </ol> | MODE \    | PRE-COOL | Heater Defrosting | Pause | Fan Delay | REMARK | COMP | ON | OFF | OFF | ON |  | F-FAN | ON | OFF | OFF | OFF |  | HTR | OFF | OFF | OFF | OFF |  | Limit Time | 40 min. | 1) 30 SECONDS<br>2) 30 MINUTES<br>3) 80 MINUTES | 4 min. | 4 min. |  |  |
| MODE \     | PRE-COOL           | Heater Defrosting                               | Pause   | Fan Delay | REMARK   |                   |       |           |        |      |    |     |     |    |  |       |    |     |     |     |  |     |     |     |     |     |  |            |         |   |        |        |  |  |
| COMP       | ON                 | OFF   | OFF   | ON        |          |                   |       |           |        |      |    |     |     |    |  |       |    |     |     |     |  |     |     |     |     |     |  |            |         |   |        |        |  |  |
| F-FAN      | ON                 | OFF   | OFF   | OFF       |          |                   |       |           |        |      |    |     |     |    |  |       |    |     |     |     |  |     |     |     |     |     |  |            |         |   |        |        |  |  |
| HTR        | OFF                | OFF   | OFF   | OFF       |          |                   |       |           |        |      |    |     |     |    |  |       |    |     |     |     |  |     |     |     |     |     |  |            |         |   |        |        |  |  |
| Limit Time | 40 min.            | 1) 30 SECONDS<br>2) 30 MINUTES<br>3) 80 MINUTES | 4 min.  | 4 min.    |          |                   |       |           |        |      |    |     |     |    |  |       |    |     |     |     |  |     |     |     |     |     |  |            |         |   |        |        |  |  |
| 5          | Initial Defrosting | COMP<br>F-FAN HTR                               | <ol style="list-style-type: none"> <li>1. If D-sensor temp. <math>\leq 3.5^{\circ}\text{C}</math> in the initial power input, normal defrosting mode begins without concerning Comp run-time ( include Pre-cool mode )</li> <li>2. Defrosting begins after doing Comp restart prevention function with dealy for six min. in initial defrosting mode.</li> <li>3. Comp will be On immediately if D-sensor temp. <math>\geq 3.5^{\circ}\text{C}</math> in initial power input. ( No dealy for six min. )</li> </ol>  |           |          |                   |       |           |        |      |    |     |     |    |  |       |    |     |     |     |  |     |     |     |     |     |  |            |         |   |        |        |  |  |
| 6          | Prevention of Comp | COMP<br>F-FAN                                   | <ol style="list-style-type: none"> <li>1. In order to protect Comp after Comp ioff, it won't re-start for six min. though R-sensor becomes On.</li> </ol>   |           |          |                   |       |           |        |      |    |     |     |    |  |       |    |     |     |     |  |     |     |     |     |     |  |            |         |   |        |        |  |  |

## OPERATION AND FUNCTIONS

| NO | CONTROL FUNCTION               | CONTROL OBJECTS | CONTENTS  | REMARK |
|----|--------------------------------|-----------------|---|--------|
| 7  | Error Display                  | LED             | <p>1. ERROR DISPLAY</p> <p>1) How to start: Push Temp. control s/w for five secs. In Continuous -run mode.</p> <p>2) How to end: It returns automatically after 20 secs in Error mode without concerning Error.</p> <p>2. DISPLAY AND HOW TO CONTROL</p> <p>1) D1 ERROR</p> <ul style="list-style-type: none"> <li>- Starting Condition: D-Sensor Disconnection/Shortcircuit</li> <li>- Display: Flickering "LOW" LED</li> <li>- How to control: return to limit time (30min.)</li> </ul> <p>2) R1 ERROR- Starting Condition: R-Sensor Disconnection/Shortcircuit</p> <ul style="list-style-type: none"> <li>- Display: Flickering "MID" LED</li> <li>- How to control: control continuously Comp,F-fan to be On(30min.) and Off(30min.)</li> </ul> <p>3) F3 ERROR - Starting Condition: Heater 80min. ends</p> <ul style="list-style-type: none"> <li>- Display: Flickering "HIGH" LED</li> <li>- How to control: impossible to control in case of Heater Defrosting,Temp.Fuse problem,HTR Disconnection</li> </ul> <p>4) C1 ERROR- Starting Condition: Even if Comp has run for 120min. continuously,when D-sensor is <math>\uparrow</math> <math>-5^{\circ}\text{C}</math></p> <ul style="list-style-type: none"> <li>- Display: Flickering "QUICK" LED</li> <li>- How to control: impossible to control in case of Cycle error</li> </ul> <p>5) If there's no error when it enters Error mode, All LEDs will be OFF. HTR disconnection.</p> |        |
| 8  | Time Delay of Electric Devices |                 | <p>1. F-FAN time delay in Comp On/Off</p> <p>1) During normal running: F-fan will be On/Off 1 min. after Comp On/Off</p> <p>2) When initial power input: F-Fan will be ON 4 mins. After Comp On</p> <p>2. F-FAN TIME DELAY BY DOOR S/W</p> <p>1) After 6 mins.of initial power input<br/>OPEN DR S/W -&gt; CLOSE : F-fan work delay for 20 secs.</p> <p>2) Before 6 mins.of initial power input<br/>OPEN DR S/W -&gt; CLOSE : F-fan work for 20 secs. immediately.</p> <p>3) when it has nothing to do with Initial power input.<br/>OPEN DR S/W -&gt;CLOSE: F-fan changes into be Off. immediately.</p>  |        |

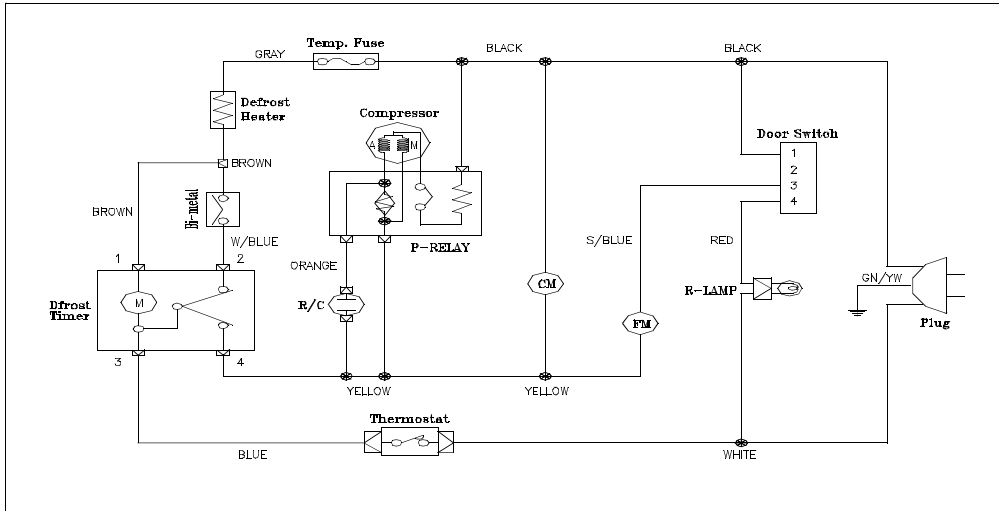


| NO | CONTROL FUNCTION                                   | CONTROL OBJECTS   | CONTENTS  | REMARK |                     |        |                          |                     |        |                 |                  |   |       |       |   |     |  |   |       |       |           |       |  |   |       |       |               |     |  |  |
|----|--|-------------------|---|--------|---------------------|--------|--------------------------|---------------------|--------|-----------------|------------------|---|-------|-------|---|-----|--|---|-------|-------|-----------|-------|--|---|-------|-------|---------------|-----|--|--|
| 9  | Option Circuit 1(Weak Refrigeration)               |                   | <p>1. Option for Weak Refrigeration, Service Reference</p> <p>1) When Weak Refrigeration occur, it's easy to find solution by this.</p> <p>2) Regulation of R-Sensor Off point ( -1.5 deg Down)</p> <p>2. In case of Weak Refrigeration, take action as followings.</p> <p>1) Resistance(R31) :Standard Resistance of R-Sensor middle-off point in case of Normal Run<br/>(31.4kΩ = -10°C) (25.2kΩ = 4.0°C)<br/>When change resistance 31.4kΩ into 25.2kΩ R-sensor middle-off point will be 5.0 deg</p> <p>2) Resistance (R32): Standard resistance to make R-Sensor Off Point in case of Weak Refrigeration.<br/>- R32 2.15kΩ : R-Sensor Off Point will be down by 1.5deg<br/>- R32 6.19kΩ : R-Sensor Off Point will be down by 4.0deg</p> <p>3) SW 1: If SW1 is off in Service, R Sensor Off Point will be down by 1.5deg.<br/>R31 + SW 1 ON: Middle Off Point: 0.5°C ( In Normal Run )<br/>R31 + SW 1 OFF: Middle Off Point:-1.0°C ( In Weak Refrigeration )</p> |        |                     |        |                          |                     |        |                 |                  |   |       |       |   |     |  |   |       |       |           |       |  |   |       |       |               |     |  |  |
| 10 | Option Circuit 2 (Prevention Strong Refrigeration) |                   | <p>1. Prevention of Strong Refrigeration Option (change Middle - off point)</p> <table border="1" data-bbox="715 1608 1120 1729"> <thead> <tr> <th rowspan="2">NO</th> <th colspan="2">CONTROL</th> <th rowspan="2">Application ( MAIN PCB )</th> <th rowspan="2">MICOM Input Voltage</th> <th rowspan="2">REMARK</th> </tr> <tr> <th>Middle-On Point</th> <th>Middle-Off Point</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>2.5°C</td> <td>0.5°C</td> <td>—</td> <td>0 V</td> <td></td> </tr> <tr> <td>2</td> <td>4.0°C</td> <td>2.0°C</td> <td>Remove J1</td> <td>2.5 V</td> <td></td> </tr> <tr> <td>3</td> <td>5.5°C</td> <td>3.5°C</td> <td>Remove J1,R36</td> <td>5 V</td> <td></td> </tr> </tbody> </table>   | NO     | CONTROL             |        | Application ( MAIN PCB ) | MICOM Input Voltage | REMARK | Middle-On Point | Middle-Off Point | 1 | 2.5°C | 0.5°C | — | 0 V |  | 2 | 4.0°C | 2.0°C | Remove J1 | 2.5 V |  | 3 | 5.5°C | 3.5°C | Remove J1,R36 | 5 V |  |  |
| NO | CONTROL  |                   | Application ( MAIN PCB )  |        | MICOM Input Voltage | REMARK |                          |                     |        |                 |                  |   |       |       |   |     |  |   |       |       |           |       |  |   |       |       |               |     |  |  |
|    | Middle-On Point                                    | Middle-Off Point  |   |        |                     |        |                          |                     |        |                 |                  |   |       |       |   |     |  |   |       |       |           |       |  |   |       |       |               |     |  |  |
| 1  | 2.5°C  | 0.5°C             | —   | 0 V    |                     |        |                          |                     |        |                 |                  |   |       |       |   |     |  |   |       |       |           |       |  |   |       |       |               |     |  |  |
| 2  | 4.0°C  | 2.0°C             | Remove J1   | 2.5 V  |                     |        |                          |                     |        |                 |                  |   |       |       |   |     |  |   |       |       |           |       |  |   |       |       |               |     |  |  |
| 3  | 5.5°C  | 3.5°C             | Remove J1,R36   | 5 V    |                     |        |                          |                     |        |                 |                  |   |       |       |   |     |  |   |       |       |           |       |  |   |       |       |               |     |  |  |
| 11 | Continuous Run                                     | Comp F-FAN Heater | <p>1) How to start: If push the Temp. control s/w 30 times,it will start.</p> <p>2) How to add one more run: Push Temp. control s/w 30 times in Continuous-run mode.</p> <p>3) How to end: It will end automatically after 21 hours( Limit time: 21hour)<br/>If it is added one more run and you you'd like to finish it , push Temp. control s/w 30 times.</p> <p>4) Display : Let all the LEDs ON.</p> <p>5) How to control: Comp/F-fan/C-fan ON,HTR OFF</p>  |        |                     |        |                          |                     |        |                 |                  |   |       |       |   |     |  |   |       |       |           |       |  |   |       |       |               |     |  |  |

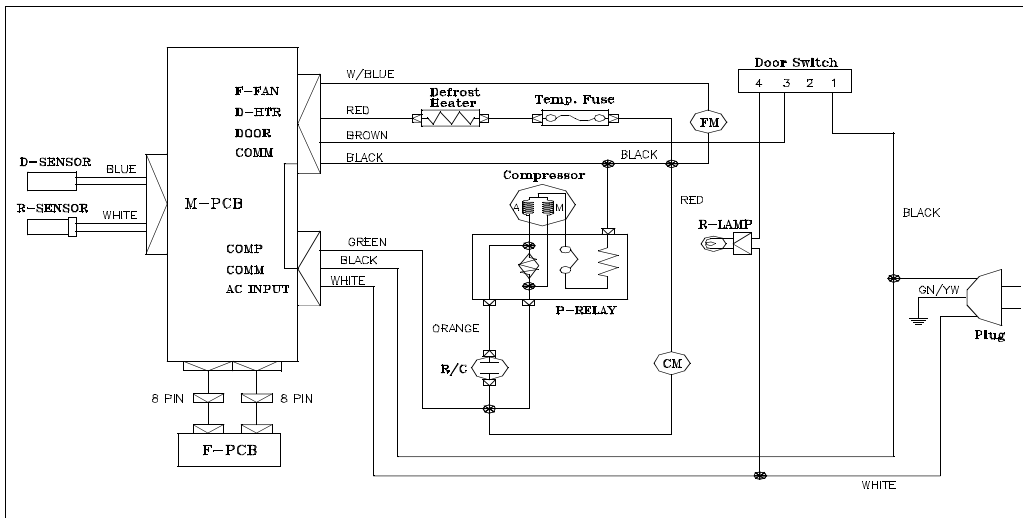
# DIAGRAM

## 1. WIRING DIAGRAM

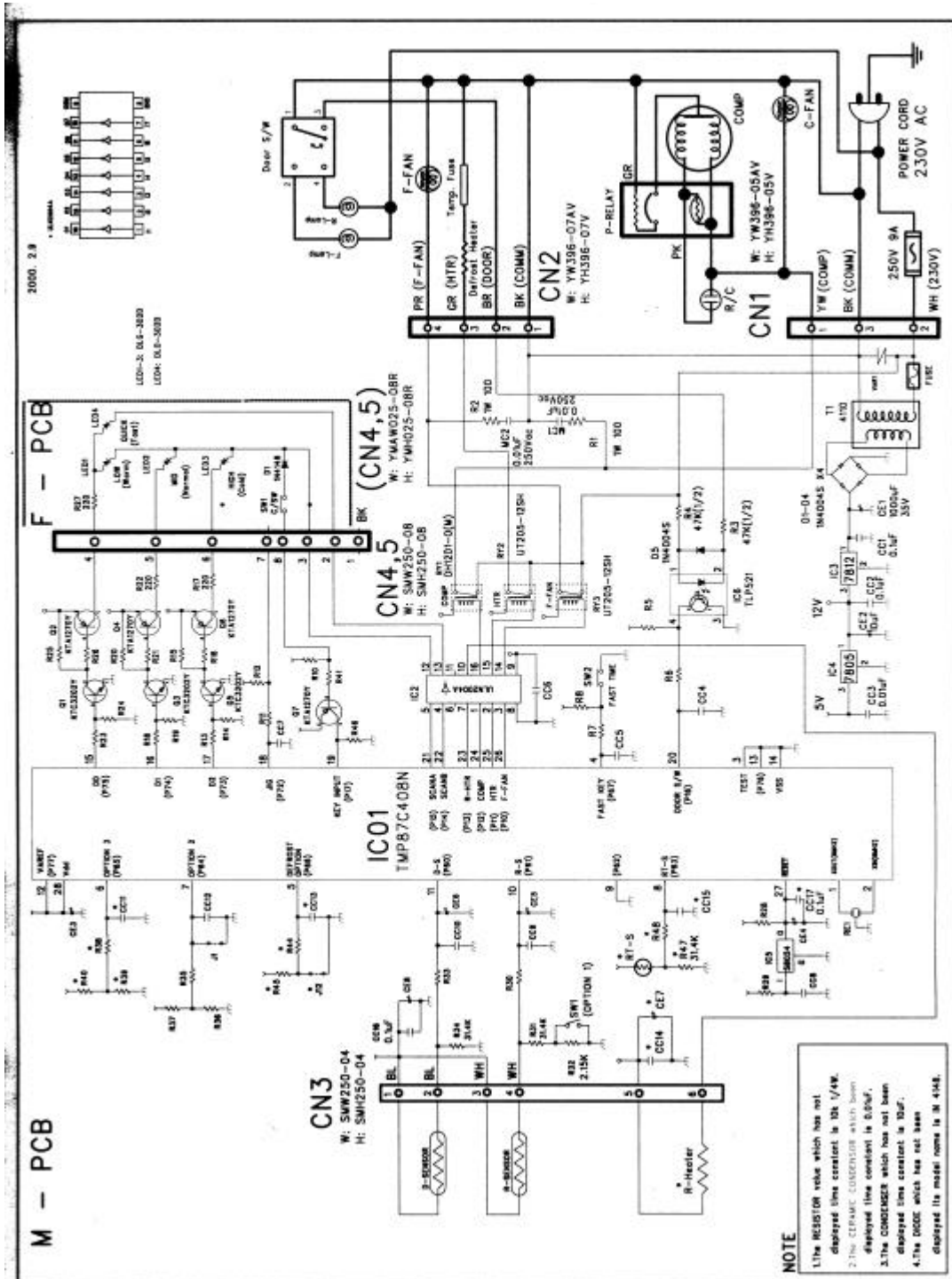
1) FR-4506K



2) FR-4506N



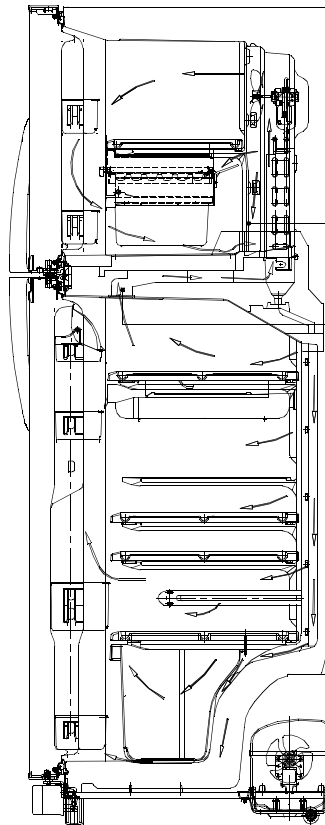
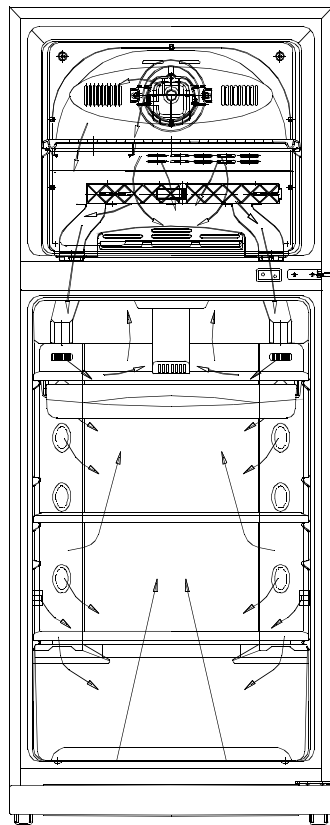
2. CIRCUIT WIRING DIAGRAM



### 3. AIR FLOW DIAGRAM

#### FREZER

Please don't put bottles  
such as beer beverage etc.  
It might be blown out because of freezing.



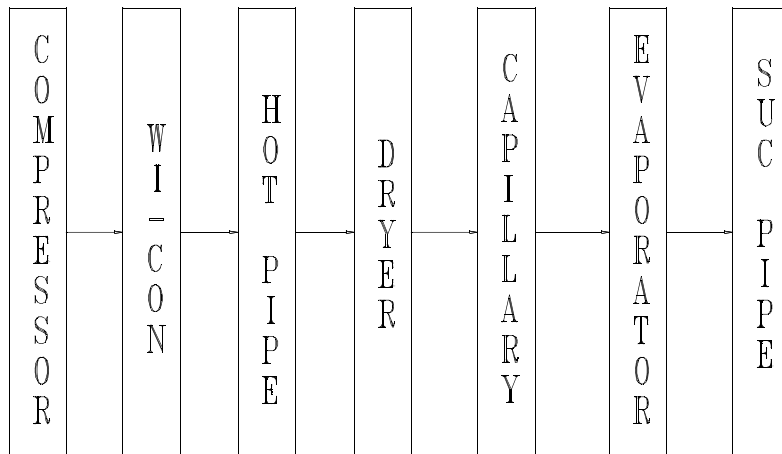
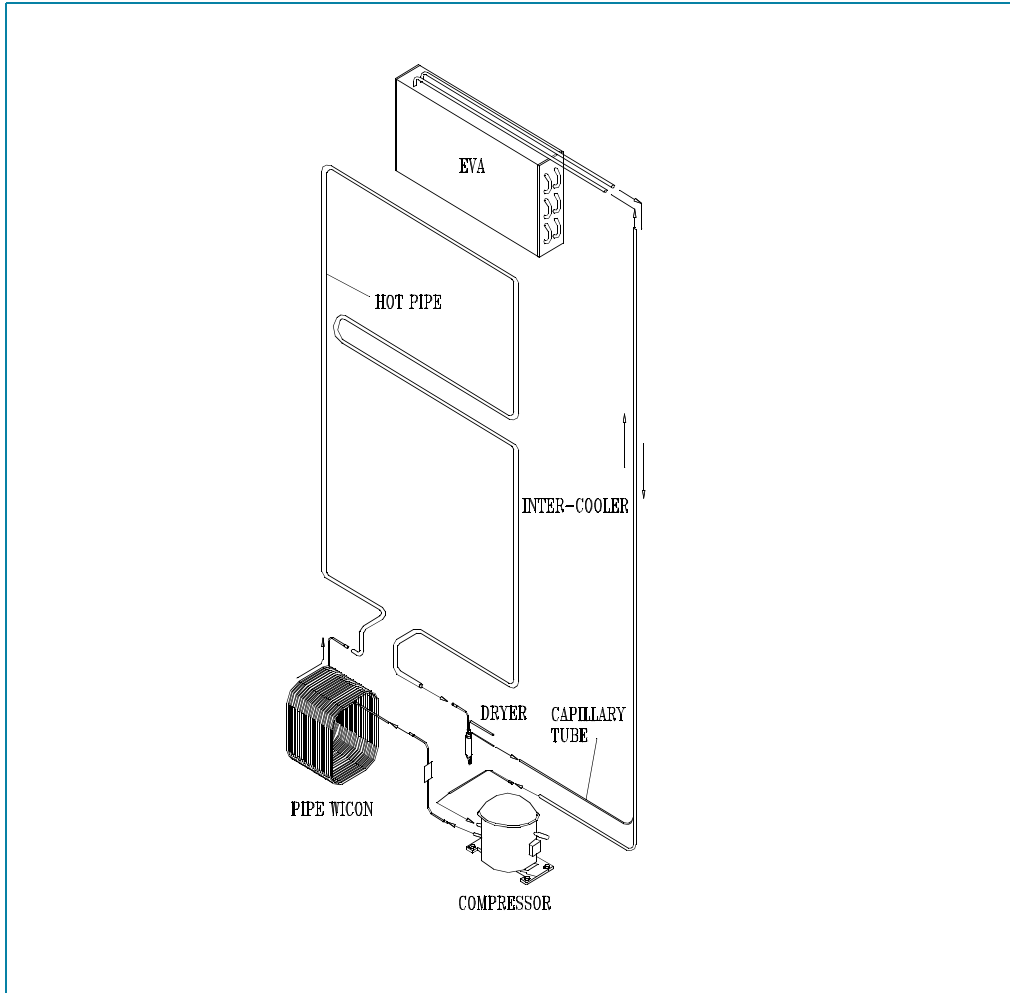
Inlet of cooling air

It should not be blocked with food etc.  
as it is the inlet where cooling air returns.

Multiple outlet of cooling air

Please don't put in vegetable etc.  
which contain moisture.  
It might be frozen because of low temperature.

4. REFERFIGERANT CYCLE DIAGRAM



# DISASSEMBLY AND ASSEMBLY

If there is COVER F LAMP on the ceiling, you must take off it first. In case there's NOT, you should follow how to remove LOUVER F section.

## 1) COVER F LAMP DISASSEMBLY

ç At first, take off WINDOW LAMP.



ē Turn the LAMP to the left and remove it.



ē Using (+) screw driver, unfasten the screw in the center of COVER F LAMP.



ē With force, pull the COVER downwards to remove it.



## 2) LOUVER F DISASSEMBLY

- ç Remove the hole cap on top left using your finger.



- ē Using (+) type screw driver, unfasten the screw in the hole.
- ē Do the same job at another hole cap, screw on top right.



- ē Remove the Louver F using screw driver as picture.



## 3) COVER R CONTL BOX DISASSEMBLY

- ç Remove WINDOW LAMP at first.



## DISASSEMBLY AND ASSEMBLY

ē Turn the LAMP to the left and remove it.



ē Using (+) screw driver, unfasten the screw in the center of COVER R CONTL BOX.



ē Using (+) screw driver, unfasten the screw in the back of LINER.



ē With force, take off COVER R CONTL BOX downwards.





## 4) COVER R LAMP DISASSEMBLY

ċ Remove WINDOW LAMP at first.



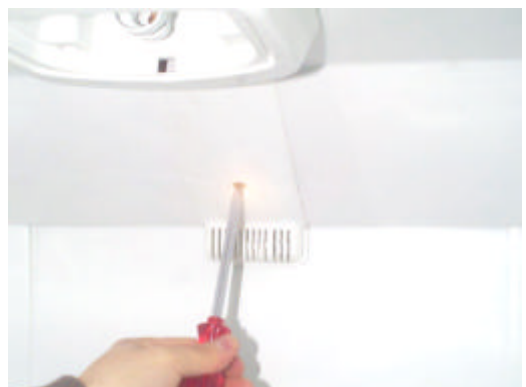
ē Turn the LAMP to the left and remove it.



ē Using (+) screw driver, unfasten the screw in the center of COVER R CONTL BOX.



ē Using (+) screw driver, unfasten the screw in the back of LINER



## DISASSEMBLY AND ASSEMBLY

- With force, take off COVER R LAMP downwards.



### 5) FRONT CONTROL PANEL DISASSEMBLY

- Place any sheet at bottom - left of panel to protect surface of it.
- Insert small sharp tool into the gap to lift paner windows up.
- Pull window out smoothly.



- Remove 2 screws.



- Lift up paner to remove



- i Remove connector.

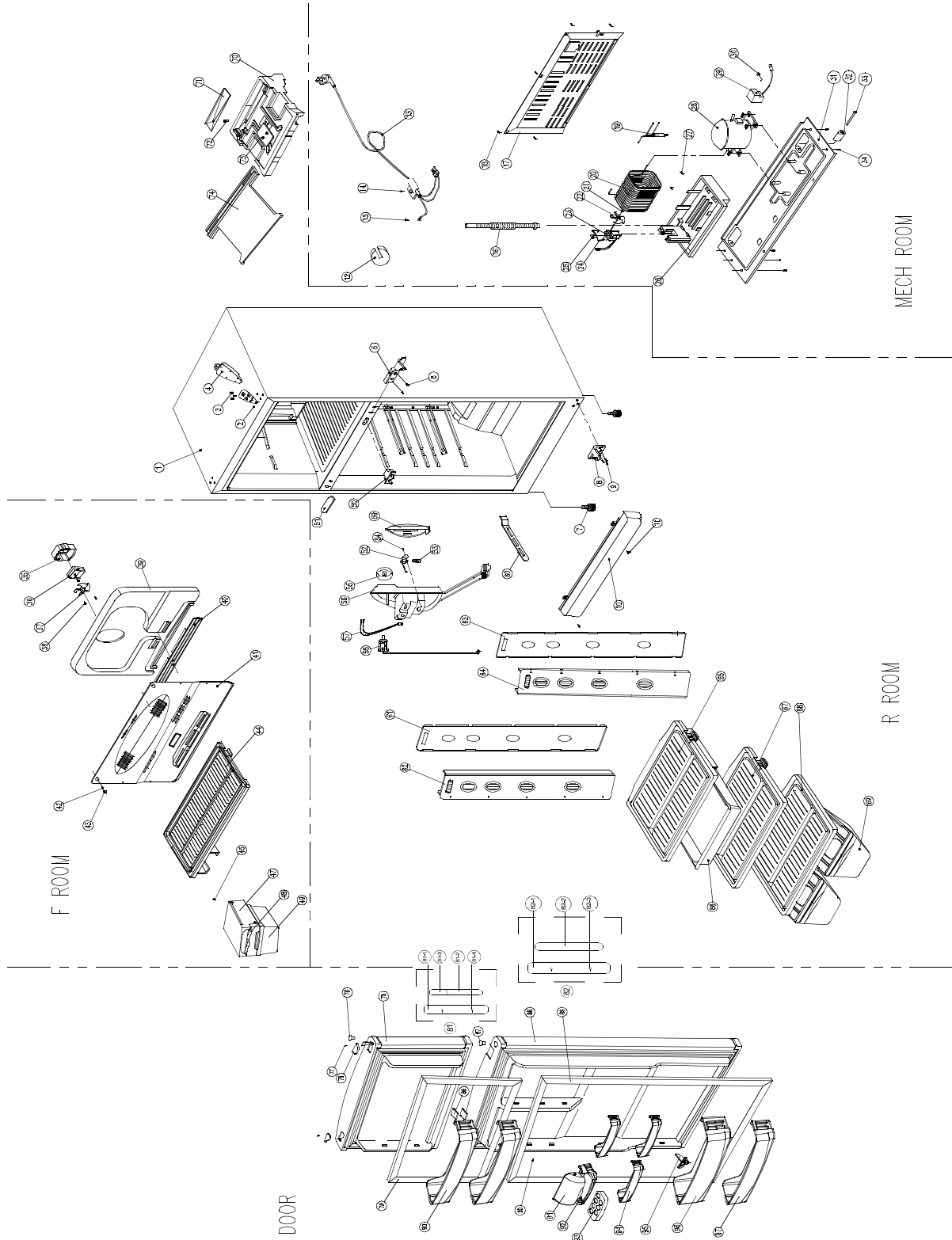


- ii Remove screws on the back of panel.



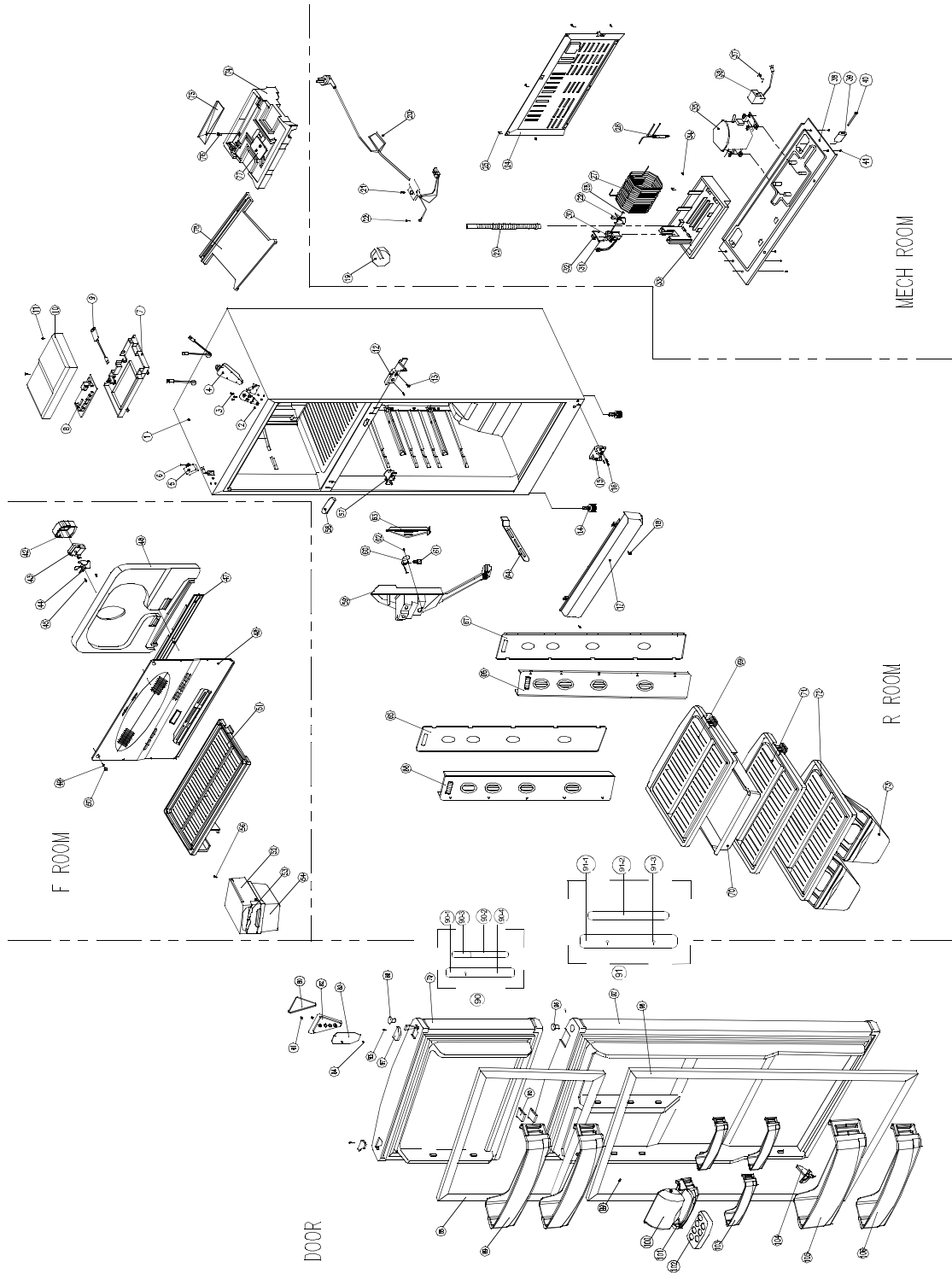
# EXPLODED VIEW AND PARTS LIST

## 1. FR-4506K



EXPLODED VIEW AND PARTS LIST

2. FR-4506N



EXPLODED VIEW AND PARTS LIST

✓ **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>)

1. FR-4506K

| NO | PART CODE  | PART NAME          | PART DESCRIPTION       | Q'TY | REMARK   |
|----|------------|--------------------|------------------------|------|----------|
| 1  | 3010031200 | ASSY CAB URT       | FRM(P)-371             | 1    |          |
| 2  | 3012911500 | HINGE *T           | SPCC T2                | 1    |          |
| 3  | 3012905400 | SPECIAL BOLT T/U   | 6X22 SWCH22A(WH)       | 3    |          |
| 4  | 3011449800 | COVER *T HI        | HIPS                   | 1    |          |
| 5  | 3012911400 | HINGE *M AS        | DC-2 ZN                | 1    |          |
| 6  | 3016001220 | SPECIAL BOLT M     | 6X20 SWCH22A(WH)       | 2    |          |
| 7  |            | FOOT ADJUST AS     |                        | 2    |          |
| 8  | 3012911300 | HINGE *U AS        | SPHC-H T4              | 1    |          |
| 9  | 3012905400 | SPECIAL BOLT T/U   | 6X22 SWCH22A(WH)       | 3    |          |
| 10 | 3011450200 | COVER CAB BRKT     | PP                     | 1    |          |
| 11 | 7112401211 | SCREW TAPPING      | T1TRS 4X12 MFZN        | 2    |          |
| 12 | 3010103700 | ABSORBER SUC P     | NR                     | 1    |          |
| 13 | 3011302012 | CORD POWER AS      |                        | 1    | 250V/16A |
| 14 | 7112401211 | SCREW TAPPING      | T1TRS 4X12 MFZN        | 1    |          |
| 15 | 7001400865 | SCREW MACHINE      | PAN 4X8 BSNI           | 1    |          |
| 16 | 3013202700 | HOSE DRN B         | PP                     | 1    |          |
| 17 | 3012405800 | GRILLE             | SBHG1                  | 1    |          |
| 18 | 7112401211 | SCREW TAPPING      | T1TRS 4X12 MFZN        | 5    |          |
| 19 | 3016805500 | DRYER AS           |                        | 1    |          |
| 20 | 3014433500 | PIPE WICON         | TSW OD4.76XT0.7XL14560 | 1    |          |
| 21 | 3011200400 | CLAMP FAN          | SUS304                 | 1    |          |
| 22 | 3011800400 | FAN                |                        | 1    |          |
| 23 |            | MOTOR C            |                        | 1    |          |
| 24 | 3012004400 | FIXTURE C MOTR     | SUS                    | 1    |          |
| 25 | 3010102100 | ABSORBER C MOTR    | NR,FRB-5350NT          | 1    |          |
| 26 | 3011161900 | CASE VAPORI        | PP                     | 1    |          |
| 27 | 7112401211 | SCREW TAPPING      | T1TRS 4X12 MFZN        | 2    |          |
| 28 |            | COMPRESSOR         |                        | 1    |          |
| 29 | 3018116610 | SWITCH P-RELAY AS  |                        | 1    |          |
| 30 | 3012610000 | CLAMP BRAND RELAY  | SK-5 T0.7              | 1    |          |
| 31 | 3010318400 | BASE COMP          | SBHG1                  | 1    |          |
| 32 | 3016500000 | CASTER *B          | PP OD36XL37            | 2    |          |
| 33 | 3014902900 | SHAFT CASTER *B    | "SPH, T1, OD6XL51"     | 2    |          |
| 34 | 3016003300 | SPECIAL BOLT       | T2 M6.5X20             | 4    |          |
| 35 | 3012007900 | FIXTURE MOTR B     | PP                     | 1    |          |
| 36 |            | MOTOR F            |                        | 1    |          |
| 37 | 3011802200 | FAN                | ABS(OD110)             | 1    |          |
| 38 | 7112401211 | SCREW TAPPING      | T1TRS 4X12 MFZN        | 2    |          |
| 39 | 3013336310 | INSU F LUVR        | EPS                    | 1    |          |
| 40 | 3013402600 | KNOB F CONTL       | PP                     | 1    |          |
| 41 | 3018910400 | LOUVER F           | HIPS                   | 1    |          |
| 42 | 7112401611 | SCREW TAPPING      | T1TRS 4X16 MFZN        | 2    |          |
| 43 | 3010924600 | CAP F-LUVR         | HIPS T2.3              | 2    |          |
| 44 | 3017821600 | SHELF F            | HIPS T3.0              | 1    |          |
| 45 | 7112401208 | SCREW TAPPING      | T1 TRS 4X10 SUS        | 1    |          |
| 47 | 3013001420 | HOLDER ICE AS      | HIPS                   | 1    |          |
| 48 | 3012201900 | FRAME ICE CASE SAS |                        | 1    |          |
| 49 | 3010518900 | BOX ICE            |                        | 1    |          |

**EXPLODED VIEW AND PARTS LIST**

| NO   | PART CODE  | PART NAME            | PART DESCRIPTION | Q'TY | REMARK |
|------|------------|----------------------|------------------|------|--------|
| 50   | 3018100050 | SWITCH DR            | DSD-5(220V)      | 1    |        |
| 51   | 3010936100 | CAP DV *M HI HOLE    | ABS              | 1    |        |
| 52   | 3017903610 | SOCKET R LAMP AS     |                  | 1    |        |
| 53   | 3013600080 | LAMP AS              | 240V/15W         | 1    |        |
| 54   | 7121300811 | SCREW TAPPING        | T2 PAN 3X8 MFZN  | 1    |        |
| 55   | 3013402500 | KNOB R CONTL         | ABS              | 1    |        |
| 56   | 3011449900 | COVER R CONTL BOX    | HIPS             | 1    |        |
| 57   | 3012733700 | HARNESS R-THERMO     |                  | 1    |        |
| 58   | 3018302100 | THERMOSTAT           | GNF-175D-03      | 1    |        |
| 59   | 3015505200 | WINDOW LAMP          | PP               | 1    |        |
| 60   | 3011439500 | COVER CUBIC          | HIPS             | 2    |        |
| 61   | 3017460900 | INSU R *S *L         | F-PS             | 1    |        |
| 62   | 3018910200 | LOUVER R *S *L       | PP               | 1    |        |
| 63   | 3017461000 | INSU R *S *R         | F-PS             | 1    |        |
| 64   | 3018910300 | LOUVER R *S *R       | PP               | 1    |        |
| 65   | 3017821800 | SHELF CHILD          | GPPS             | 1    |        |
| 66   | 3011162300 | CASE CHILD           | GPPS             | 1    |        |
| 67   | 3017822000 | SHELF R              | GPPS             | 1    |        |
| 68   | 3011451400 | COVER VEGETB         | GPPS             | 1    |        |
| 69   | 3011162500 | CASE VEGETB          | GPPS             | 2    |        |
| 70   | 3013336000 | INSULATOR F A        | EPS              | 1    |        |
| 71   | 3012509900 | GUIDE DRN            | AL 0.4T          | 1    |        |
| 72   | 3014433400 | PIPE DRN             | AL 1.0T          | 1    |        |
| 73   | 3012009400 | FIXTURE R CONTL COVR | PP               | 1    |        |
| 74   | 3013336100 | INSULATOR F B        | EPS              | 1    |        |
| 75   |            | ASSY F DR            |                  | 1    |        |
| 79   | 3012301420 | GASKET F DR AS       | PVC              | 1    |        |
| 80   | 3019013500 | POCKET F             | HIPS             | 2    |        |
| 81   |            |                      |                  |      |        |
| 81-1 | 3012624300 | HANDLE F             | ABS              | 1    |        |
| 81-2 | 3011611300 | DECORATOR F HANDLE A | ABS              | 1    |        |
| 81-3 | 3011611410 | DECORATOR F HANDLE B | ABS              | 1    |        |
| 81-4 | 7002501611 | SCREW MACHINE        | TRS 5X15 MFZN    | 2    |        |
| 82   |            | ASSY R HANDLE        | ABS              | 1    |        |
| 82-1 | 3012624400 | HANDLE R             | ABS              | 1    |        |
| 82-2 | 3011611500 | DECORATOR R HANDLE   | ABS              | 1    |        |
| 82-3 | 7002501611 | SCREW MACHINE        | TRS 5 X15 MFZN   |      |        |
| 88   |            | ASSY R DR            |                  | 1    |        |
| 89   | 3012301720 | GASKET R DR AS       | PVC              | 1    |        |
| 90   | 3010936600 | CAP DR SCREW HOLE    | PP               | 1    |        |
| 91   | 3011451300 | COVER DARIY ROOM     | GPPS             | 1    |        |
| 92   | 3019013000 | POCKET DAIRY         | HIPS             | 1    |        |
| 93   | 3011162100 | CASE EGG             | GPPS             | 1    |        |
| 94   | 3019013100 | POCKET SMALL         | HIPS             | 3    |        |
| 95   | 3012509600 | GUIDE POCKET         | HIPS             | 1    |        |
| 96   | 3019013300 | POCKET JUMBO         | HIPS             | 1    |        |
| 97   | 3019013400 | POCKET BOTTLE        | HIPS             | 1    |        |

## EXPLODED VIEW AND PARTS LIST

### 2. FR-4506N

✓ **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          | PART DESCRIPTION       | Q'TY | REMARK   |
|----|------------|--------------------|------------------------|------|----------|
| 1  | 3010031200 | ASSY CAB URT       | FRM(P)-371             | 1    |          |
| 2  | 3012911500 | HINGE*T            | SPCC T2                | 1    |          |
| 3  | 3012905400 | SPECIAL BOLT T/U   | 6X22 SWCH22A(WH)       | 3    |          |
| 4  | 3011449800 | COVER *T HI        | HIPS                   | 1    |          |
| 5  | 3011449500 | COVER GUIDE L/WIRE | PP                     | 1    |          |
| 6  | 7112401211 | SCREW TAPPING      | T1TRS 4X12 MFZN        | 1    |          |
| 7  | 3010519800 | BOX MAIN POWER     | PP                     | 1    |          |
| 8  |            | PCB MAIN AS        | PP                     | 1    |          |
| 9  |            | HARNESS RUN CON    |                        | 1    |          |
| 10 |            | COVER M-PCB BOX    | PP                     | 1    |          |
| 11 | 7112401211 | SCREW TAPPING      | T1TRS 4X12 MFZN        | 2    |          |
| 12 | 3012911400 | HINGE *M AS        | DC-2 ZN                | 1    |          |
| 13 | 3016001220 | SPECIAL BOLT M     | 6X20 SWCH22A(WH)       | 2    |          |
| 14 |            | FOOT ADJUST AS     |                        | 2    |          |
| 15 | 3012911300 | HINGE *U AS        | SPHC-H T4              | 1    |          |
| 16 | 3012905400 | SPECIAL BOLT T/U   | 6X22 SWCH22A(WH)       | 3    |          |
| 17 | 3011450200 | COVER CAB BRKT     | PP                     | 1    |          |
| 18 | 7112401211 | SCREW TAPPING      | T1TRS 4X12 MFZN        | 2    |          |
| 19 | 3010103700 | ABSORBER SUC P     | NR                     | 1    |          |
| 20 | 3011302012 | CORD POWER AS      |                        | 1    | 250V/16A |
| 21 | 7112401211 | SCREW TAPPING      | T1TRS 4X12 MFZN        | 1    |          |
| 22 | 7001400865 | SCREW MACHINE      | PAN 4X8 BSNI           | 1    |          |
| 23 | 3013202700 | HOSE DRN B         | PP                     | 1    |          |
| 24 | 3012405800 | GRILLE             | SBHG1                  | 1    |          |
| 25 | 7112401211 | SCREW TAPPING      | T1TRS 4X12 MFZN        | 5    |          |
| 26 | 3016805500 | DRYER AS           |                        | 1    |          |
| 27 | 3014433500 | PIPE WICON         | TSW OD4.76XT0.7XL14560 | 1    |          |
| 28 | 3011200400 | CLAMP FAN          | SUS304                 | 1    |          |
| 29 | 3011800400 | FAN                |                        | 1    |          |
| 30 |            | MOTOR C            |                        | 1    |          |
| 31 | 3012004400 | FIXTURE C MOTR     | SUS                    | 1    |          |
| 32 | 3010102100 | ABSORBER C MOTR    | NR,FRB-5350NT          | 1    |          |
| 33 | 3011161900 | CASE VAPORI        | PP                     | 1    |          |
| 34 | 7112401211 | SCREW TAPPING      | T1TRS 4X12 MFZN        | 2    |          |
| 35 |            | COMPRESSOR         |                        | 1    |          |
| 36 | 3018116610 | SWITCH P-RELAY AS  |                        | 1    |          |
| 37 | 3012610000 | CLAMP BRAND RELAY  | SK-5 T0.7              | 1    |          |
| 38 | 3010318400 | BASE COMP          | SBHG1                  | 1    |          |
| 39 | 3016500000 | CASTER *B          | PP OD36XL37            | 2    |          |
| 40 | 3014902900 | SHAFT CASTER *B    | "SPH, T1, OD6XL51"     | 2    |          |
| 41 | 3016003300 | SPECIAL BOLT       | T2 M6.5X20             | 4    |          |
| 42 | 3012007900 | FIXTURE MOTR B     | PP                     | 1    |          |
| 43 |            | MOTOR F            |                        | 1    |          |
| 44 | 3011802200 | FAN                | ABS(OD110)             | 1    |          |
| 45 | 7112401211 | SCREW TAPPING      | T1TRS 4X12 MFZN        | 2    |          |
| 46 | 3013336310 | INSU F LUVR        | EPS                    | 1    |          |
| 47 | 3013402600 | KNOB F CONTL       | PP                     | 1    |          |



## EXPLODED VIEW AND PARTS LIST

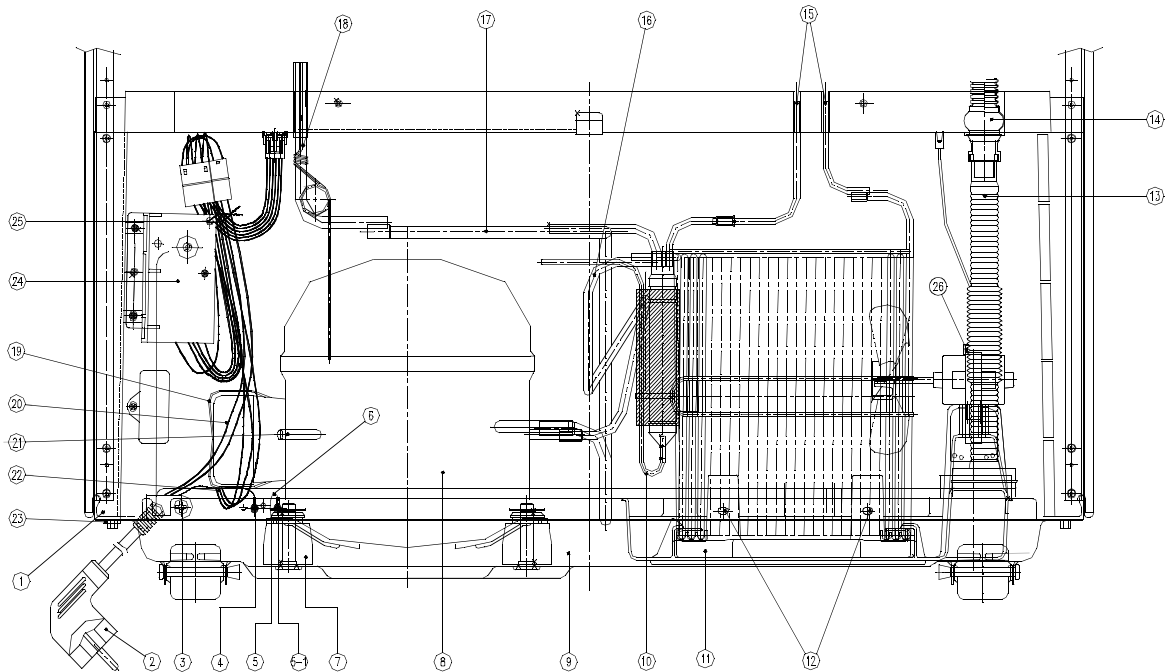
| NO   | PART CODE  | PART NAME            | PART DESCRIPTION | Q'TY | REMARK |
|------|------------|----------------------|------------------|------|--------|
| 48   | 3018910400 | LOUVER F             | HIPS             | 1    |        |
| 49   | 7112401611 | SCREW TAPPING        | T1TRS 4X16 MFZN  | 2    |        |
| 50   | 3010924600 | CAP F-LUVR           | HIPS T2.3        | 2    |        |
| 51   | 3017821600 | SHELF F              | HIPS T3.0        | 1    |        |
| 52   | 3013001420 | HOLDER ICE AS        | HIPS             | 1    |        |
| 53   | 3012201900 | FRAME ICE CASE SAS   |                  | 1    |        |
| 54   | 3010518900 | BOX ICE              |                  | 1    |        |
| 56   | 7112401208 | SCREW TAPPING        | T1 TRS 4X10 SUS  | 1    |        |
| 57   | 3018100050 | SWITCH DR            | DSD-5(220V)      | 1    |        |
| 58   | 3010936100 | CAP DV *M HI HOLE    | ABS              | 1    |        |
| 59   | 3011450100 | COVER R LAMP         | HIPS             | 1    |        |
| 60   | 3017903610 | SOCKET R LAMP AS     |                  | 1    |        |
| 61   | 3013600080 | LAMP AS              | 240V/15W         | 1    |        |
| 62   | 7121300811 | SCREW TAPPING        | T2 PAN 3X8 MFZN  | 1    |        |
| 63   | 3015505200 | WINDOW LAMP          | PP               | 1    |        |
| 64   | 3011439500 | COVER CUBIC          | HIPS             | 2    |        |
| 65   | 3017460900 | INSU R *S *L         | F-PS             | 1    |        |
| 66   | 3018910200 | LOUVER R *S *L       | PP               | 1    |        |
| 67   | 3017461000 | INSU R *S *R         | F-PS             | 1    |        |
| 68   | 3018910300 | LOUVER R *S *R       | PP               | 1    |        |
| 69   | 3017821800 | SHELF CHILD          | GPSS             | 1    |        |
| 70   | 3011162300 | CASE CHILD           | GPSS             | 1    |        |
| 71   | 3017822000 | SHELF R              | GPSS             | 1    |        |
| 72   | 3011451400 | COVER VEGETB         | GPSS             | 1    |        |
| 73   | 3011162500 | CASE VEGETB          | GPSS             | 2    |        |
| 74   | 3013336000 | INSULATOR F A        | EPS              | 1    |        |
| 75   | 3012509900 | GUIDE DRN            | AL 0.4T          | 1    |        |
| 76   | 3014433400 | PIPE DRN             | AL 1.0T          | 1    |        |
| 77   | 3012009400 | FIXTURE R CONTL COVR | PP               | 1    |        |
| 78   | 3013336100 | INSULATOR F B        | EPS              | 1    |        |
| 79   |            | ASSY F DR            |                  | 1    |        |
| 80   | 301550530  | WINDOW FCP           | GPSS             | 1    |        |
| 81   |            | SCREW TAPPING        |                  | 1    |        |
| 82   | 3014228600 | PANEL CONTROL F      | ABS              | 1    |        |
| 83   | 3014228600 | PCB FRONT AS         | T1.6             | 1    |        |
| 84   | 7121300811 | SCREW TAPPING        | T2 PAN 3X8 MFZN  | 1    |        |
| 88   | 3012301420 | GASKET F DR AS       | PVC              | 1    |        |
| 89   | 3019013500 | POCKET F             | HIPS             | 2    |        |
| 90   |            | ASSY F HANDLE        | ABS              | 1    |        |
| 90-1 | 3012624300 | HANDLE F             | ABS              | 1    |        |
| 90-2 | 3011611300 | DECORATOR F HANDLE A | ABS              | 1    |        |
| 90-3 | 3011611410 | DECORATOR F HANDLE B | ABS              | 1    |        |
| 90-4 | 7002501611 | SCREW MACHINE        | TRS 5X15 MFZN    | 2    |        |
| 91   |            | ASSY R HANDLE        | ABS              | 1    |        |
| 91-1 | 3012624400 | HANDLE R             | ABS              | 1    |        |
| 91-2 | 3011611500 | DECORATOR R HANDLE   | ABS              | 1    |        |
| 91-3 | 7002501611 | SCREW MACHINE        | TRS 5X15 MFZN    | 2    |        |

## EXPLODED VIEW AND PARTS LIST

| NO  | PART CODE  | PART NAME         | PART DESCRIPTION | Q'TY | REMARK |
|-----|------------|-------------------|------------------|------|--------|
| 97  |            | ASSY R DR         |                  | 1    |        |
| 98  | 3012301720 | GASKET R DR AS    | PVC              | 1    |        |
| 99  | 3010936600 | CAP DR SCREW HOLE | PP               | 1    |        |
| 100 | 3011451300 | COVER DARIY ROOM  | GPPS             | 1    |        |
| 101 | 3019013000 | POCKET DAIRY      | HIPS             | 1    |        |
| 102 | 3011162100 | CASE EGG          | GPPS             | 1    |        |
| 103 | 3019013100 | POCKET SMALL      | HIPS             | 3    |        |
| 104 | 3012509600 | GUIDE POCKET      | HIPS             | 1    |        |
| 105 | 3019013300 | POCKET JUMBO      | HIPS             | 1    |        |
| 106 | 3019013400 | POCKET BOTTLE     | HIPS             | 1    |        |

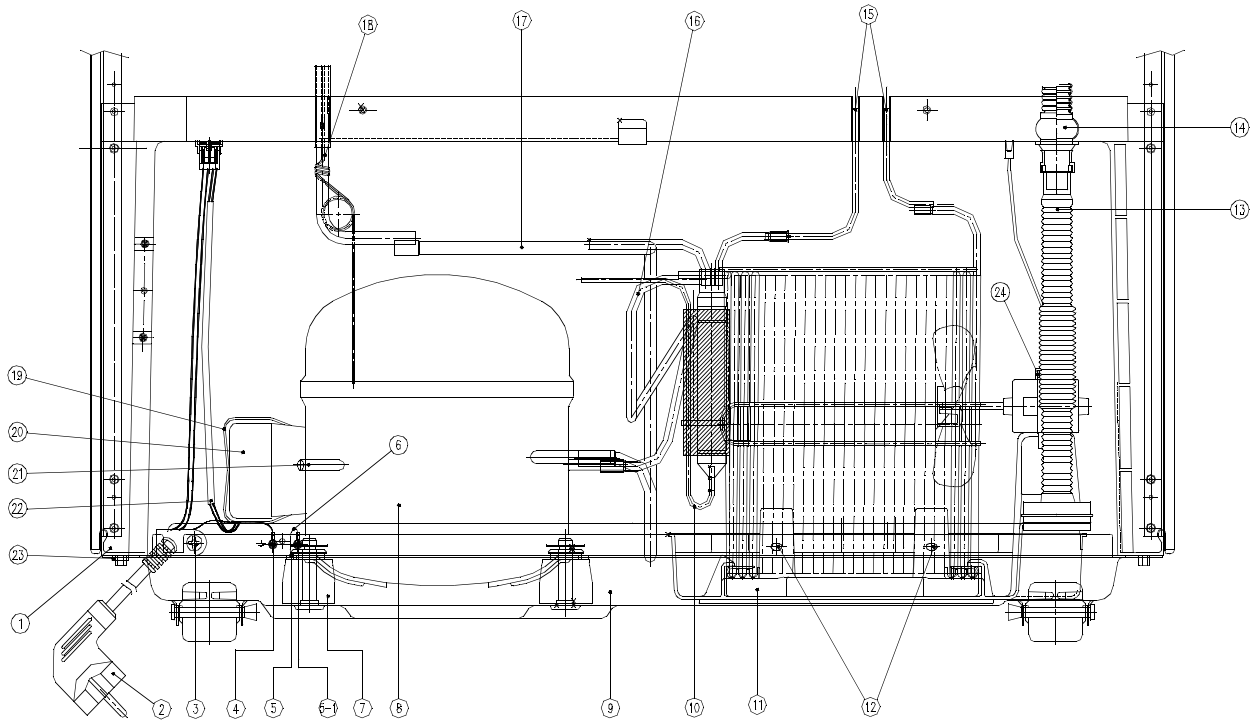
### 3. MACHINE ROOM EXPLODED VIEW AND PARTS LIST

1) FR-4506K



| NO  | PART NAME     | NO | PART NAME       | NO | PART NAME        |
|-----|---------------|----|-----------------|----|------------------|
| 1   | BASE CAB      | 10 | DRYER AS        | 20 | COVER RELAY      |
| 2   | CORD POWER    | 11 | CASE VAPORI AS  | 21 | PIPE SERVICE     |
| 3   | SCREW TAPPING | 12 | SCREW TAPPING   | 22 | SWITH P-RELAY AS |
| 4   | SCREW MACHINE | 13 | HOSE DRN A      | 23 | SCREW SPECIAL    |
| 5   | WASHER TOOTH  | 14 | HOSE DRN B      | 24 | BOX POWER AS     |
| 5-1 | SCREW MACHINE | 15 | PIPE HOT        | 25 | WIRE BIND BAND   |
| 6   | HARNESS EARTH | 16 | PIPE CONN A     | 26 | ABSORBER C MOTOR |
| 7   | ABSORBER COMP | 17 | PIPE SUC CONN   |    |                  |
| 8   | COMPRESSOR    | 18 | PIPE SUCTION AS |    |                  |
| 9   | BASE COMP     | 19 | BAND RELAY      |    |                  |

## 2) FR-4506N



| NO  | PART NAME     | NO | PART NAME       | NO | PART NAME        |
|-----|---------------|----|-----------------|----|------------------|
| 1   | BASE CAB      | 10 | DRYER AS        | 20 | COVER RELAY      |
| 2   | CORD POWER    | 11 | CASE VAPORI AS  | 21 | PIPE SERVICE     |
| 3   | SCREW TAPPING | 12 | SCREW TAPPING   | 22 | SWITH P-RELAY AS |
| 4   | SCREW MACHINE | 13 | HOSE DRN A      | 23 | ABSORBER C MOTOR |
| 5   | WASHER TOOTH  | 14 | HOSE DRN B      |    |                  |
| 5-1 | SCREW MACHINE | 15 | PIPE HOT        |    |                  |
| 6   | HARNES EARTH  | 16 | PIPE CONN A     |    |                  |
| 7   | ABSORBER COMP | 17 | PIPE SUC CONN   |    |                  |
| 8   | COMPRESSOR    | 18 | PIPE SUCTION AS |    |                  |
| 9   | BASE COMP     | 19 | BAND RELAY      |    |                  |