*REFRIGERATOR MANUFACTURER*

# Turbo air

# ICE
# MERCHANDISER
# SERVICE MANUAL

**Model No.: TGIM-23***
**TGIM-49***

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<ICE MERCHANDISER>

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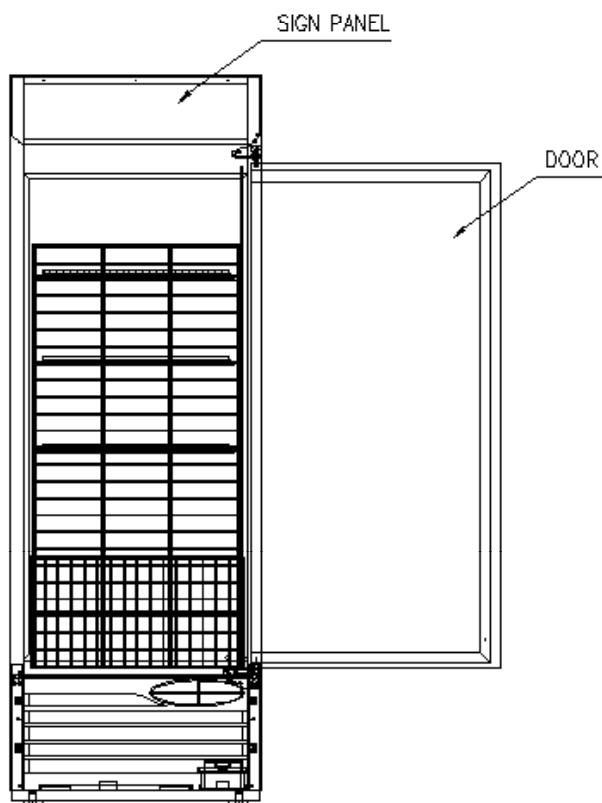
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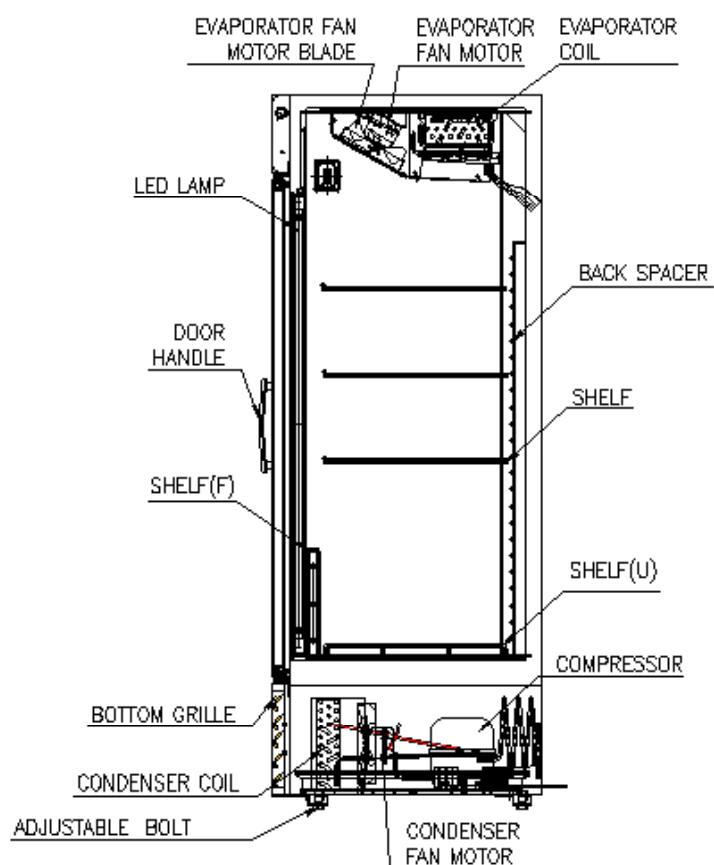7. REPLACEMENT OF MAIN COMPONENTS
   1. TGIM-23*
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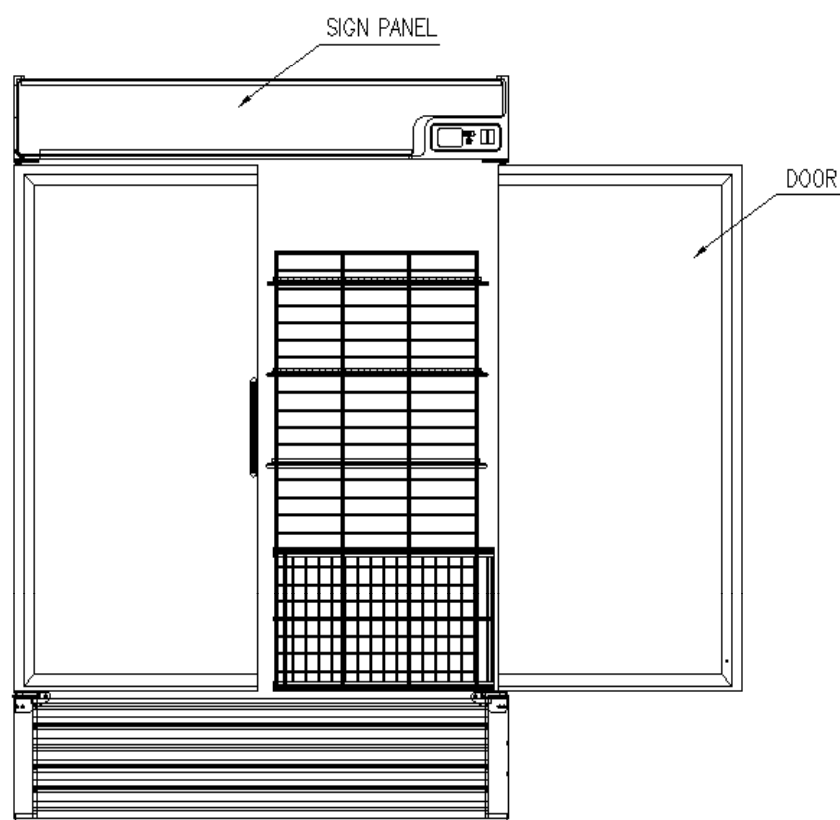# 1. FEATURE CHART

• **Model : TGIM-23***

SIGN PANEL

DOOR

**<FRONT>**

• **Model : TGIM-23***

EVAPORATOR FAN MOTOR BLADE

EVAPORATOR FAN MOTOR

EVAPORATOR COIL

LED LAMP

BACK SPACER

DOOR HANDLE

SHELF

SHELF(F)

SHELF(U)

COMPRESSOR

BOTTOM GRILLE

CONDENSER COIL

ADJUSTABLE BOLT

CONDENSER FAN MOTOR

**<SIDE>**

# FEATURE CHART

• Model : TGIM-49*

SIGN PANEL

DOOR

<FRONT>

• Model : TGIM-49*

EVAPORATOR FAN MOTOR BLADE

EVAPORATOR FAN MOTOR

EVAPORATOR COIL

LED LAMP

BACK SPACER

DOOR HANDLE

SHELF

SHELF(F)

SHELF(U)

COMPRESSOR

BOTTOM GRILLE

CONDENSER COIL

ADJUSTABLE BOLT

CONDENSER FAN MOTOR

<SIDE>

# 2. PART DETAILS

## DOOR PARTS : TGIM-23*, TGIM-49*
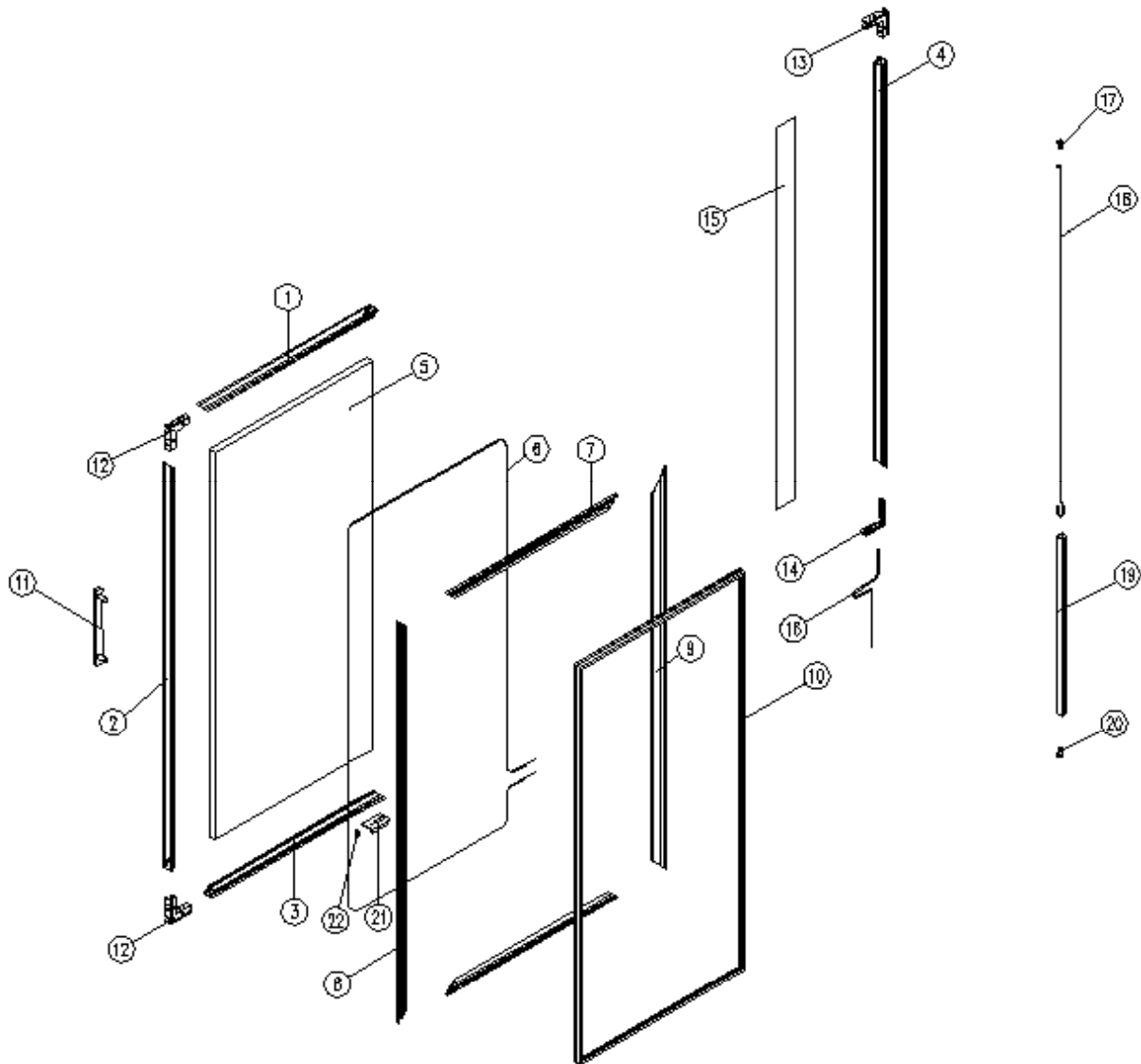


| | | | | | | |
|---|---|---|---|---|---|---|
| 01 | DOOR FRAME *TOP | 09 | AUXILIARY DOOR FRAME *A | 17 | DOOR BUSHING *TOP |
| 02 | DOOR FRAME *LEFT | 10 | DOOR GASKET | 18 | BAR SPRING |
| 03 | DOOR FRAME *BOTTOM | 11 | DOOR HANDLE | 19 | BAR SPRING FIXTURE |
| 04 | DOOR FRAME *RIGHT | 12 | DOOR FRAME FIXTURE- A | 20 | DOOR BUSHING *BOTTOM |
| 05 | DOOR GLASS | 13 | DOOR FRAME FIXTURE- B | 21 | DOOR STOPPER-A |
| 06 | DOOR FRAME HEATER | 14 | DOOR FRAME FIXTURE- D | 22 | CORD BUSHING |
| 07 | AUXILIARY DOOR FRAME *TOP *BOTTOM | 15 | DOOR SIGN PANEL | | |
| 08 | AUXILIARY DOOR FRAME *LEFT *RIGHT | 16 | DOOR HEATER HARNESS | | |

# PART DETAILS

▶ DUCT(TGIM-23*)

EVAPORATOR
FAN GRILLE GUARD

EVAPORATOR
FRONT COVER

EVAPORATOR
BOTTOM COVER
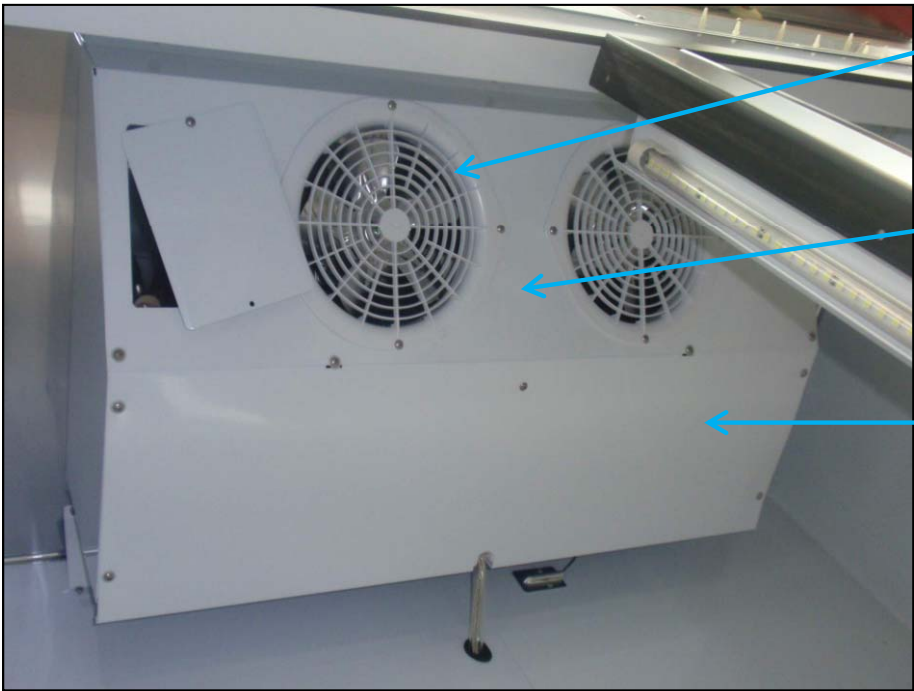
▶ EVAPORATOR, FAN MOTOR,  DEFROST HEATER, SENSORS(TGIM-23*)

EVAPORATOR
FAN MOTOR & BLADE

EVAPORATOR COIL

THERMAL
PROTECTOR

DEFROST HEATER

DEFROST SENSOR

F-SENSOR

(TEMPERATURE CONTROL)

# PART DETAILS

▶ DUCT(TGIM-49*)

| EVAPORATOR FAN GRILLE GUARD |
| --- |

| EVAPORATOR FRONT COVER |
| --- |

| EVAPORATOR BOTTOM COVER |
| --- |

▶ EVAPORATOR, FAN MOTOR,  DEFROST HEATER, SENSORS(TGIM-49*)

| EVAPORATOR FAN MOTOR & BLADE |
| --- |

| THERMAL PROTECTOR |
| --- |

| EVAPORATOR COIL |
| --- |

| DEFROST HEATER |
| --- |

| DEFROST SENSOR |
| --- |

| F-SENSOR (TEMPERATURE CONTROL) |
| --- |

# PART DETAILS

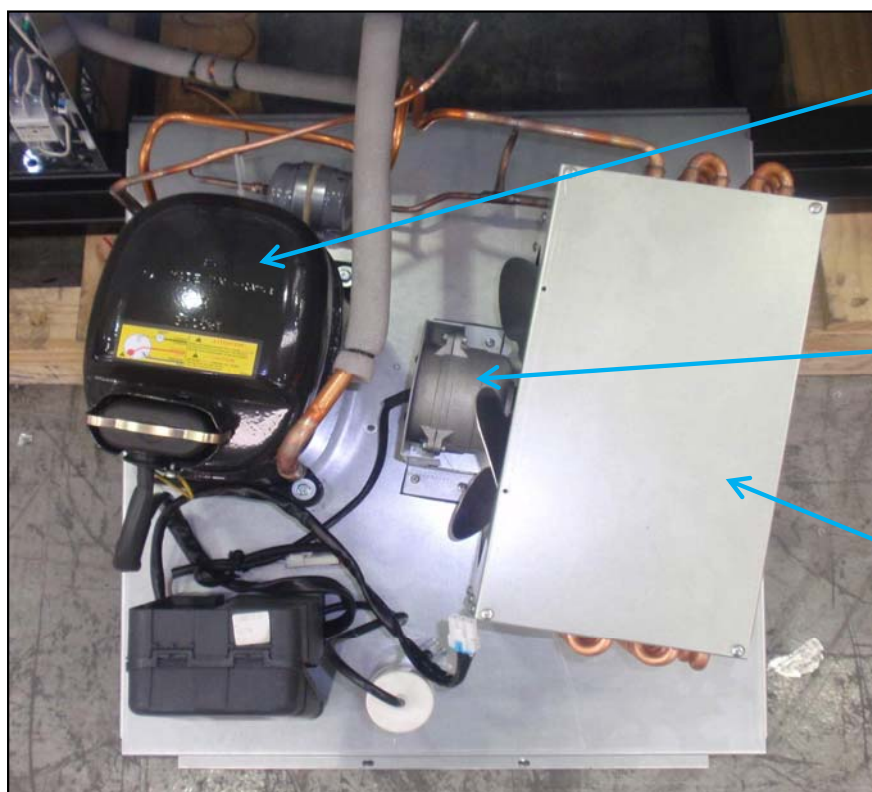▶ COMPRESSOR & FAN MOTOR(TGIM-23*)



COMPRESSOR

CONDENSER FAN MOTOR
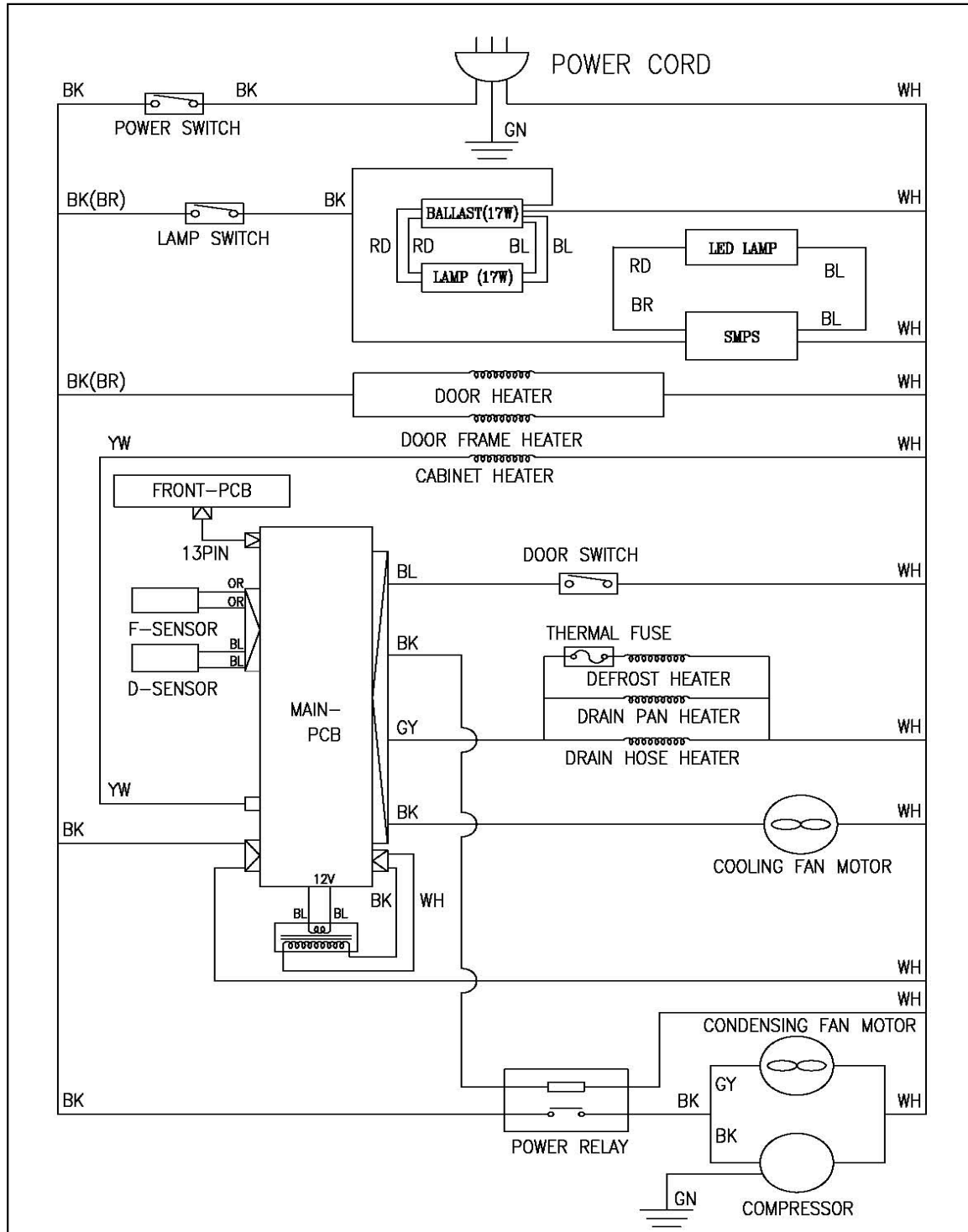
CONDENSER

▶ COMPRESSOR & FAN MOTOR(TGIM-49*)
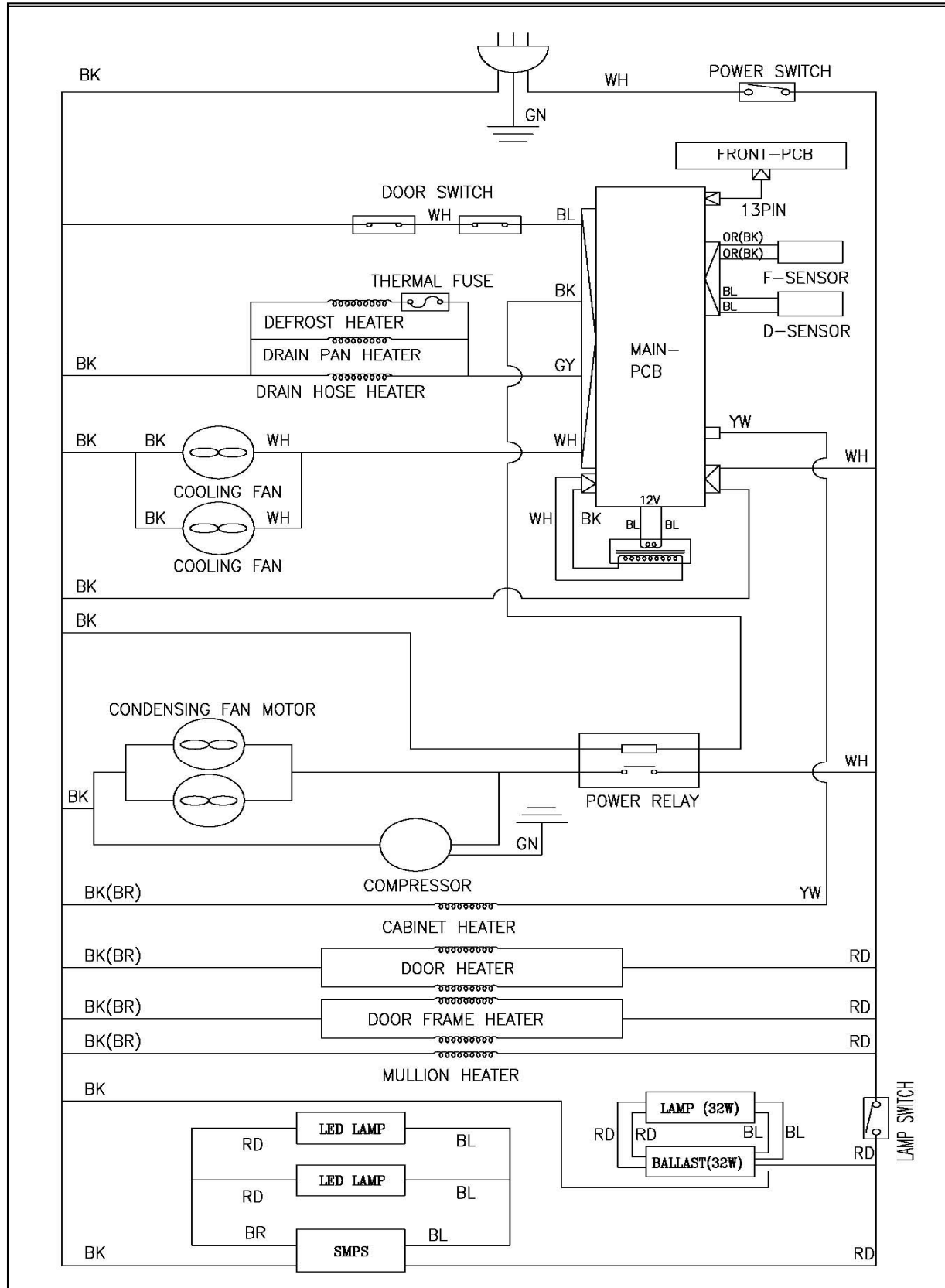


COMPRESSOR

CONDENSER FAN MOTOR

CONDENSER

# 3. WIRING DIAGRAM

• Model : TGIM-23*

# WIRING DIAGRAM

• Model : TGIM-49*

BK

WH   POWER SWITCH

GN

FRONT-PCB

13PIN

DOOR SWITCH

WH          BL

OR(BK)
OR(BK)      F-SENSOR

THERMAL FUSE          BK          BL
                                  BL
DEFROST HEATER                    D-SENSOR

DRAIN PAN HEATER          GY
BK
DRAIN HOSE HEATER                 MAIN-
                                  PCB
BK   BK        WH         WH              YW
                                                    WH
COOLING FAN

BK        WH        WH   BK   12V
COOLING FAN                  BL   BL

BK

BK

CONDENSING FAN MOTOR

POWER RELAY                  WH

BK

GN
COMPRESSOR               YW

CABINET HEATER
BK(BR)                                   RD
DOOR HEATER
BK(BR)                                   RD
DOOR FRAME HEATER
BK(BR)                                   RD
MULLION HEATER
BK

LAMP (32W)
RD   LED LAMP   BL        RD   RD        BL   BL
                              BALLAST(32W)        RD
RD   LED LAMP   BL

BR   SMPS   BL
BK                                       RD

LAMP SWITCH

# 4. SPECIFICATION OF MAIN COMPONENTS

## 1. COMPRESSOR

| MODEL | PART NAME | PART NO. | HORSE POWER | CAPACITY | TYPE OF MOTOR | Current (RLA) | MAKER |
|---|---|---|---|---|---|---|---|
| TGIM-23* | SK1A1C-L2W | 30200Q1200 | 1/3 HP | 1,203 BTU/h (303 Kcal/h) | LBP CSR | 3.85A | SAMSUNG |
| TGIM-49* | CAJ2432Z | 30200R1000 | 2/3 HP | 3,200 BTU/h (807 Kcal/h) | LBP CSR | 7.0A | TECUMSEH |

| MODEL | BASIC COMPRESSOR | | | EXCHANGEABLE COMPRESSOR | | |
|---|---|---|---|---|---|---|
| | PART NAME | MOTOR TYPE | MAKER | PART NAME | MOTOR TYPE | MAKER |
| TGIM-23* | SK1A1C-L2W | LBP(CSR) | SAMSUNG | AEA4440XA | HBP(CSIR) | USA TECUMSEH |
| TGIM-49* | CAJ2432Z | LBP(CSR) | FRENCH TECUMSEH | AJA2425ZXA | LBP(CSR) | USA TECUMSEH |

## 2. COMPRESSOR RELAY, OVERLOAD

| MODEL | RELAY | PART NO. | OVERLOAD | PART NO. | MAKER | NOTE |
|---|---|---|---|---|---|---|
| TGIM-23* | 22Ω-3PIN | | 4TM-795TFBZZ | | SAMSUNG | |
| TGIM-49* | 3ARR3*5** | - | GA3PJU00 | - | TECUMSEH | |

## 3. COMPRESSOR CAPACITOR

| MODEL | STARTING | PART NO. | RUNNING | PART NO. | MAKER | NOTE |
|---|---|---|---|---|---|---|
| TGIM-23* | 125V/125$\mu$F | 30264L0200 | 250V/12$\mu$F | 30264L0100 | SAMSUNG | |
| TGIM-49* | 160V/315$\mu$F | - | 400V/30$\mu$F | - | TECUMSEH | |

# MAIN COMPONENTS

## 4. CONDENSER FAN MOTOR

| MODEL | PART NAME | PART NO. | POLE | Quantity | BLADE | SIZE | MAKER |
|---|---|---|---|---|---|---|---|
| TGIM-23* | IS-4420DWSG-1 | 39633220410 | 4P | 1EA | AL 4 | 250mm | SUNG-SHIN |
| TGIM-49* | | | | | | | |

## 5. EVAPORATOR FAN MOTOR

| MODEL | PART NAME | PART NO. | POLE | Quantity | BLADE | SIZE | MAKER |
|---|---|---|---|---|---|---|---|
| TGIM-23* | IS-4420DWSN-2A | 3963328120 | 4P | 1EA | AL 5 | 175mm | SUNG-SHIN |
| TGIM-49* | | | | 2EA | | | |

## 6. EVAPORATOR DEFROST HEATER

| MODEL | PART NAME | PART NO. | SPEC | MAKER |
|---|---|---|---|---|
| TGIM-23* | SHEATH HEATER | 30228L0803 | 445W | SANG-DO |
| TGIM-49* | | 30228L00701 | 600W | |

## 7. BALLAST & SMPS

| MODEL | PART NAME | SPEC | PART NO. | QTY | MAKER |
|---|---|---|---|---|---|
| TGIM-23* | BALLAST | B232IUNVHP-B | 30285R1220 | 1 | UNIVERSAL |
| | SMPS | LPV-20-12(12V) | 30236R2200 | 1 | MEAN WELL |
| TGIM-49* | BALLAST | B232IUNVHP-B | 30285R1220 | 1 | UNIVERSAL |
| | SMPS | LPV-60-12(12V) | 30284R0700 | 1 | MEAN WELL |

## 8. FLUORESCENT LAMP & LED

| MODEL | PART NAME | PART NAME | PART NO. | QTY | WATT | LENGTH | BULB |
|---|---|---|---|---|---|---|---|
| TGIM-23* | Fluorescent lamp | F17T8/SP41/ECO | 30236H0510 | 1 | 17W | 24" | T8 |
| | LED | 19W-12V | 30236R2200 | 1 | 19W | 48" | - |
| TGIM-49* | Fluorescent lamp | TLD32W/865 | 30236D0511 | 1 | 32W | 48" | T8 |
| | LED | 19W-12V | 30236R2200 | 2 | 19W | 48" | - |

# MAIN COMPONENTS

## 9. SWITCH

| MODEL | TYPE | RATING | PART NO. | MAKER |
|---|---|---|---|---|
| TGIM-23* | LAMP SWITCH (GREEN) | 125V/20A | 30281R0101 | SIGNAL LUX |
| TGIM-49* | POWER SWITCH (RED) | 125V/20A | 30281R0201 | |

## 10. TRANSFORMER & MAIN PCB

| MODEL | PART NAME | SPEC | PART NO. | MAKER |
|---|---|---|---|---|
| TGIM-23* | TRANSFORMER | DWS-1310U | 30284L0120 | NAM-SUNG |
| TGIM-49* | MAIN PCB | NIF1151 | 30243R1000 | NEUROSYS |

# 5. *MAIN PCB PROGRAMING*

## 1. HOW TO USE THE DISPLAY PANEL

- The default temperature setting is 16°F.
- The operating temperature is between 27°F and 5°F, which can be adjusted by using the arrow key.

LAMP SWITCH

POWER SWITCH

**TGIM-23\***
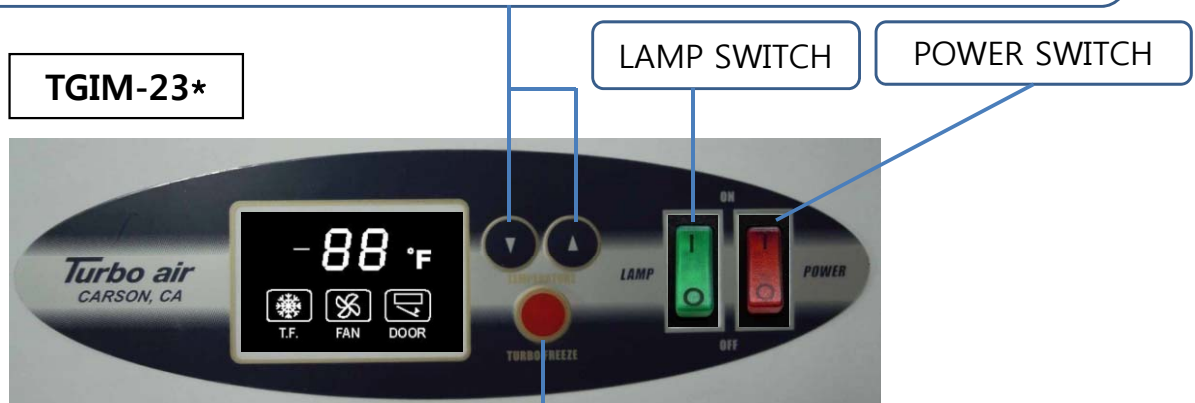
-. The compressor continuously operates for 120 minutes under 'TURBO FREEZE' mode.
-. Press 'TURBO FREEZE' button again to deactivate 'TURBO FREEZE' mode.

**TGIM-49\***
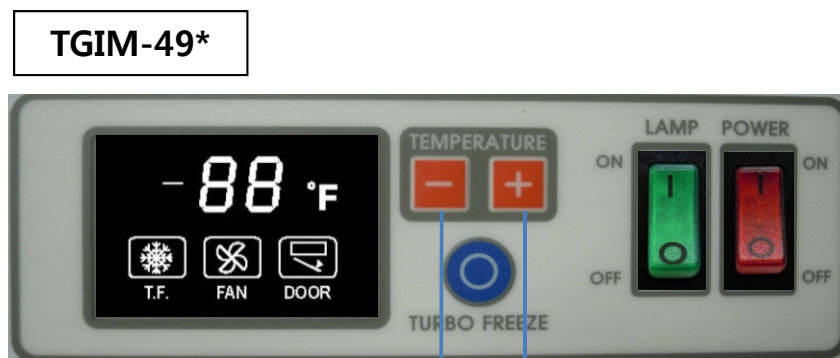
-. Adjust to desired temperature setting between 27°F to 5°F with (+) and (–) buttons on the display.

## 2. FUNCTION TABLE

| No | Control Fucntion | Control Objects | Description |
|----|------------------|-----------------|-------------|
| 1 | Initial Operation | Buzzer<br>Fan<br>Lamp<br>88 LED | 1. Buzzer will be sound within 2 seconds after the power is turned on.<br>2. 88 LED displays the temperature value inside the appliance.<br>3. Compressor will run if evaporator's temperature is higher than 38.3℉(3.5℃). Once powered, compressor will not run for 3 minutes.<br>4. If the temperature in a cooler is lower than -40℉ or higher tha 99℉, 88 LED displays 'LO' or 'HI' respectively. |
| 2 | Temperature Control | Compressor<br>Evap. Fan Motor<br>Cond. Fan Motor<br>88 LED | 1. You can set the desired temperature from 27℉ to 5℉ by using the up or down arrow keys (the + or - keys).<br>2. 7-segment LED will display a setting temperature when you push the up or down arrow keys (the + or - keys).<br>3. 88 LED will indicate real temperature after setting the value.<br>4. Buzzer will sound once whenever each button is pressed.<br>5. Compressor will automatically adjust to on or off cycle, relative to the return air detection of F-sensor .<br>6. Compressor will not run for 5 minutes after the off cycle even though F-sensor is in its operatinal range.<br>7. Evaporator Fan Motor will run continuously except when the door is opened and the freezer is on defrost mode.<br>8. Evaporator Fan Motor will run within 3 seconds after the doors are closed.<br>9. Compressor On/Off Temperature(℉) |

| Setting Value(℉) | 27 | 26 | 25 | 24 | 23 |
|---|---|---|---|---|---|
| Comp On(℉) | 30.5 | 29.5 | 28.5 | 27.5 | 26.5 |
| Comp Off(℉) | 23.5 | 22.5 | 21.5 | 20.5 | 19.5 |
| Setting Value(℉) | 23 | 22 | 21 | 20 | 19 |
| Comp On(℉) | 26.5 | 25.5 | 24.5 | 23.5 | 22.5 |
| Comp Off(℉) | 19.5 | 18.5 | 17.5 | 16.5 | 15.5 |
| Setting Value(℉) | 18 | 17 | 16 | 15 | 14 |
| Comp On(℉) | 21.5 | 20.5 | 19.5 | 18.5 | 17.5 |
| Comp Off(℉) | 14.5 | 13.5 | 12.5 | 11.5 | 10.5 |
| Setting Value(℉) | 13 | 12 | 11 | 10 | 9 |
| Comp On(℉) | 16.5 | 15.5 | 14.5 | 13.5 | 12.5 |
| Comp Off(℉) | 9.5 | 8.5 | 7.5 | 6.5 | 5.5 |
| Setting Value(℉) | 8 | 7 | 6 | 5 | |
| Comp On(℉) | 11.5 | 10.5 | 9.5 | 8.5 | |
| Comp Off(℉) | 4.5 | 3.5 | 2.5 | 1.5 | |

| No | Control Fucntion | Control Objects | Description |
|----|------------------|-----------------|-------------|
| 3 | Turbo Freeze | Compressor<br>Evap. Fan Motor<br>Cond. Fan Motor<br>88 LED | 1. If the 'Turbo Freeze' button is pressed, the 'Turbo Freeze' mode will start.<br>2. If the 'Turbo Freeze' button is pressed again during 'Turbo Freeze' mode, the turbo freeze mode will be cancelled.<br>3. 'TURBO FREEZE' mode activates uninterrupted decrease in temperature; the arrow keys will not be operational.<br>4. 88 LED will continuously flash 'T.F' during 'Turbo Freeze' mode.<br>5. The compressor & condenser fan motor will operate for 120 minutes. |

| No | Control Fucntion | Control Objects | Description |
|---|---|---|---|
| 3 | Turbo Freeze | Compressor Evap. Fan Motor Cond. Fan Motor 88 LED | 6. If the 'Turbo Freeze' button is pressed under defrost mode, 88 LED will flash 'T.F'; however, 'Turbo Freeze' mode will start after defrost mode is terminated.<br>7. If defrost mode occurs during 'Turbo Freeze' mode, the defrost mode will start after the turbo freeze mode is terminated. |
| 4 | Determination of Defrost | | 1. Defrost mode will initiate under the following condition:<br>2. Make sure 6 hours have passed since the last defrost mode was terminated.<br> - F sensor ERROR<br> - Defrost sensor ERROR<br> - Door sensor ERROR<br> - 14 hours have passed since last defrost mode was terminated.<br> - Doors have been open for more than 10 minutes.<br> - Compressor has been running for more than 85% of the time.<br>3. If defrost mode does not initiate under errors described above, it will also trigger if:<br> - Compressor has been operating for more than 6 hours.<br>4. where, the defrost period is 6 hours when the appliance is initially powered up. |
| 5 | Defrost Function | Heater Compressor Evap. Fan Motor Cond. Fan Motor | 1. Defrost Step |

|  | Pre-cool | Heater | Pause | Fan Delay |
|---|---|---|---|---|
| Comp | on | off | off | on |
| E-fan motor | on | off | off | off |
| C-fan motor | on | off | off | on |
| Heater | off | on | off | off |
| Max time | 15min | 30min | 5min | 5min |

A. Pre-cool step
  a. It prevents from excessive high temperature during defrost mode.
  b. Compressor, condenser fan motor and evaporator fan motor will run
    continuously during the pre-cool step.
  c. 88 LED shows the temperature inside the cabinet.
  d. If F-sensor temperature is lower than -16°F or maximum time of pre-cool
    step interval for 15 minutes, the pre-cool step will turn off.
  e. 'Turbo Freeze' mode is enabled just once during pre-cool step.
B. Heater defrost step
  a. To minimize the risk of icing up, the defrost heater will run periodically.
  b. 88 LED display 'dF' when the defrost heater is energized.
  c. The defrost heater will stop running if the temperature of D-sensor
    rises above 43°F(6°C) or exceeds a maximum running time, 30 minutes.
  d. If D-sensor temperature does not reach 43°F in 30 minutes, error code will
    be shown on LED display panel.

| No | Control Fucntion | Control Objects | Description |
|---|---|---|---|
| 5 | Defrost Function | Heater Compressor Evap. Fan Motor Cond. Fan Motor | C. Pause step<br>　a. To ensure that refrigeration system has the time to be stabilized,<br>　　please allow compressor and fan motors to have enough rest time after<br>　　 heater defrost mode is deactivated.<br>　b. Time = 5 min,　LED Display panel will be shown as 'dF'.<br>D. Fan delay step<br>　a. Max. Time = 5 min<br>　b. Only Comp. is ON.<br>　c. If D-sensor temperature goes down under 14°F in 5 minutes,<br>　　evaporator fan motor will turn on immediately. |
| 6 | Manual Defrost | Heater Compressor Evap. Fan Motor Cond. Fan Motor | A. 1. Press the both up/down (or +/-) keys for 5 seconds. 88 LED should display "SL".<br>　 2. Press the down(or -) button.  88 LED display "dS".<br>　 3. Press the down(or -) button. 88 LED display "dF" and defrost mode start.<br>B. On manual defrost mode<br>　1. The pre-cool step is omitted.<br>　2. Heater defrost step is run.<br>　3. The next procedure is the same as that of defrost mode. |
| 7 | Fuzzy Defrost | Heater Compressor Evap. Fan Motor Cond. Fan Motor | The defrost cycle will start during conditions as specified below.<br>A. The compressor has run for 30 minutes.<br>B. There is no door open for 30 minutes.<br>C. The temperature of D-sensor is lower than 5°F.<br>D. The temperature of F-sensor is higher than D-sensor's temperature by 32°F<br>　for 10 minutes. |
| 8 | Comp Restart Prevent | Compressor Cond. Fan Motor | A. Compressor will not run for 5 minutes after off cycle even if<br>　F-sensor is in its operatinal range. |
| 9 | Power Failure Back up Function | Compressor Evap. Fan Motor Cond. Fan Motor | A. Compressor will not be run for 5 minutes after power failure.<br>B. Only Evap. Fan Motor is ON. |
| 10 | Door Open Alarm Function | Buzzer 88 LED | A. The LED Display panel will read 'DOOR' icon and will not flash 'FAN' icon.<br>B. Before sounding the beeper:<br>　1. Door was open for more than 30 seconds, the buzzer will sound 3 times.<br>　2. Door was open for more than 60 seconds, the buzzer will sound 5 times.<br>　3. Door was open for more than 5 minutes, the buzzer will continuously sound. |
| 11 | Buzzer Function | Buzzer | A. Beep sound rings once after initial power up.<br>B. Beep sound rings whenever each button is pressed.<br>C. If the door stays open past a certain amount of time, beeping will occur.<br>　(see door open alarm function) |

## 3. FUNCTION MODE(Manual defrost, Error display, Model change. etc.)

### 3-1) Enter the Function mode

▶ Press the both up/down (or +/-) buttons at the same time for 5 seconds. 88 LED display "SL".



### 3-2) Manual Defrost Mode

▶ initiate the manual defrost function by pressing the down (-) button once while displaying SL on the display.  Then, the display will show 'dS'.

▶  if the down (-) button is pressed again while displaying 'dS', it will display 'dF' and it is in manual defrost mode.

▶ Repeat the procedure to terminate the manual defrost.



### 3-3) Error display Mode

▶ Press the down (-) button 4 times while displaying 'SL' on the display. If there is no error in the memory, display will show 'no'.

| Code | Content | Perception Method | Freezer Operation State |
|------|---------|-------------------|-------------------------|
| F1 | F-sensor Malfunction | -. Sensor shorted. | -. The compressor runs for 30 minutes and |
| F0 | | -. Sensor disconnected. | stops for 5 minutes repeatedly. |
| D1 | D-sensor Malfunction | -. Sensor shorted | -. Defrost heater may operate it. -. If F-sensor temperature is higher than 28.4℉, the heater goes off. |
| D0 | | -. Sensor disconnected | -. Defrost heater turns on for 20 minutes if F-sensor is in error mode too. |
| C1 | Cycle, Comp. Malfunction | -. The temperature of D-sensor is over 32℉ even though the compressor has been running for 30 minutes. | - . Normal operation (Compressor is automatically turned on and off by F-sensor.) |
| F3 | Defrost Malfunction | -. The temperature of D-sensor doesn't reach 43℉ within 30 minutes. | -. Defrost heater will be on every time for 30 minutes. -. If the D-sensor's temp. reaches 43℉ within 30 minutes, defrost heater will be turned off immediately. |

## 3-4) Change the Model

▶ Press the down (or -) keys five times during 88 LED displaying  "SL",

88 LED display  Present Model Number.  If the number is not "5" you have to

change the  model number. ( Next Five Model is controlled by the same PCB ASSY)

| MODEL | Top Mount Refrigerator | Top Mount Freezer | Bottom Mount Refrigerator | Bottom Mount Freezer | Glass Door Freezer | ICE Merchandiser |
|-------|------------------------|-------------------|----------------------------|----------------------|--------------------|------------------|
| | TRF-**** | TFF-**** | TSR-**** | TSF-**** | TGF-**** | TGIM-**** |
| Number | 0 | 1 | 2 | 3 | 4 | 5 |

# 6. PARTS LIST

| Part Name | Part Number | Description | Model TGIM 23 | TGIM 49 |
|---|---|---|---|---|
| **ADJUSTABLE FEET BOLT** | | | | |
| ADJUSTABLE FEET BOLT | 30206K0100 | 1/2" 28mm | 4 | 4 |
| | | | | |
| **Compressor** | | | | |
| Compressor | 30200Q1200 | SK1A1C-L2W(115V/60Hz) | 1 | |
| Compressor | 30200R1000 | CAJ2432Z | | 1 |
| Compressor Relay | - | J531Q34E22OM3503 | 1 | |
| Compressor Overload | - | 4TM 795TFBZZ-53 | 1 | |
| Compressor Run Capacitor | 30264L0100 | 250V/12$\mu$F | 1 | |
| Compressor Start Capacitor | 30264L0200 | 125V/125$\mu$F | 1 | |
| Power Relay | 30281H0350 | GMC-30P2 (110V) | 1 | 1 |
| Main Power Cord | 30213A1014 | KKP-30B(탈피) | 1 | 1 |
| | | | | |
| **Condenser** | | | | |
| Condenser Coil | 30200L4002 | CU+AL | 1 | |
| Condenser Coil | 30200L4305 | CU+AL | | 1 |
| Condenser Fan Motor | 3963320410 | IS-4420DWSG-1 | 1 | 1 |
| Condenser Fan Motor Blade | 30218A0300 | AL 5 (Φ250mm) | 1 | 1 |
| Dryer | 30268Q0300 | C-052-S | 1 | 1 |
| COVER MACH-RM | 30214Q5000 | Wire | 1 | |
| COVER MACH-RM | 30278Q0410 | Wire | | 1 |
| | | | | |
| **Evaporator** | | | | |
| Evaporator Coil | 30270R0500 | Cu + AL | 1 | |
| Evaporator Coil | 30270L0606 | Cu + AL | | 1 |

| Part Name | Part Number | Description | Model TGIM 23 | Model TGIM 49 |
|---|---|---|---|---|
| Evaporator Sensor | 30227Q1210 | F-D Sensor | 1 | 1 |
| Evaporator Thermal Fuse | 30272L0401 | PST-3(80℃/10℃) | 1 | 1 |
| Evaporator Defrost Heater | 30228L0803 | 445W(Sheath Heater) | 1 | |
| Evaporator Defrost Heater | 30228L0701 | 600W(Sheath Heater) | | 1 |
| Evaporator Drain Pan Heater | 30228L1400 | 90W | 1 | |
| Evaporator Drain Pan Heater | 30228L1500 | 90W | | 1 |
| Evaporator Drain Hose Heater | 30228L1380 | 10W | 1 | 1 |
| Evaporator Fan Motor Guard | 30214K0100 | HIPS | 1 | 2 |
| Evaporator Fan Motor Blade | 30218F0200 | AL Φ175 | 1 | 2 |
| Evaporator Fan Motor | 3963328122 | IS-4420DWSN-2A | 1 | 2 |
| | | | | |
| **Door** | | | | |
| Door Assembly | 30200R1500 | Heated Glass | 1 | |
| Door Assembly | 30200R3500 | Heated Glass Right | | 1 |
| Door Assembly | 30200R3600 | Heated Glass Left | | 1 |
| Door Glass | 30255R0200 | T24, Right | 1 | 1 |
| Door Glass | 30255R0300 | T24, Left | | 1 |
| Door Gasket | 30223R0201 | PVC-S, 1345×650 | 1 | 2 |
| Door Handle | 30226G0101 | Zn, Dycasting | 1 | 2 |
| | | | | |
| **Sign Panel** | | | | |
| Ballast | 30285R1220 | B232I120RH-A (17W or 32W) | 1 | 1 |
| Lamp | 30236D0511 | TLD32W/865 (32W) | | 1 |
| Lamp | 30236H0510 | F17T8/SP41/ECO (17W) | 1 | |
| Lamp Holder | 3183005000 | SK-10, OD28 | 1 | 1 |
| Lamp Socket | 30227R1001 | Including Harness | 1 | |
| Lamp Socket | 30227R2400 | Including Harness | | 1 |
| Lamp Switch | 30281R0301 | 125V/20A (Green) | 1 | 1 |
| Power Switch | 30281R0201 | 125V/20A (Red) | 1 | 1 |

## PARTS LIST

| Part Name | Part Number | Description | TGIM 23 | TGIM 49 |
|---|---|---|---|---|
| Sign Panel | P0145A1200 | PC | 1 | |
| Sign Panel | P0145A1300 | PC | | 1 |
| Sign Frame *Left | 30222A2400 | ABS | 1 | |
| Sign Frame *Right | 30222A2500 | ABS | 1 | |
| Sign Frame *Left | 30222R2200 | ABS | | 1 |
| Sign Frame *Right | 30222R2300 | ABS | | 1 |
| | | | | |
| **Bottom Grille** | | | | |
| Bottom Grill | 30224R0103 | ABS | 1 | |
| Bottom Grill | 30200R3400 | White Painting | | 1 |
| | | | | |
| **Thermostat & PCB** | | | | |
| Main PCB | 30243R0400 | NGF1151 | 1 | 1 |
| Display PCB | 30242R0100 | Display | 1 | 1 |
| Transformer | 30284L0100 | DWS-115U | 1 | 1 |
| BI-METAL THERMOSTAT | 30272L0401 | DWS-115U | 1 | 1 |
| | | | | |
| **Shelf** | | | | |
| Shelf(U) | 30278R0500 | Wire, White | 1 | |
| Shelf(U) | 30278Q0300 | Wire, White (Right) | | 2 |
| Shelf(F) | 30278R0400 | Wire, White (Left) | 1 | |
| Shelf(F) | 30278R0520 | Wire, White | | 2 |
| Shelf | 30278R0600 | Stainless Steel | 3 | |
| Shelf | 30278R0400 | PA-6 | | 6 |
| Shelf(B) | 30278R0700 | | 1 | 2 |
| | | | | |
| **LED & SMPS** | | | | |
| LED | 30236R2200 | LED LAMP 19W | 1 | 2 |
| SMPS | 30284R0500 | LPV-20-12 | 1 | |
| SMPS | 30284R0700 | LPV-60-12 | | 1 |
| COVER LAMP | 30214R1020 | EGI+WHITE PAINT | 1 | |
| LED BKT COVER *T | 30214Q3500 | EGI+WHITE PAINT | | 1 |
| LED BRACKET *L | 30206Q1010 | EGI+WHITE PAINT | | 1 |
| LED BRACKET *R | 30206Q1000 | EGI+WHITE PAINT | | 1 |

# 7. REPLACEMENT OF MAIN COMPONENTS

## 1. TGIM-23*

### 1-1.  BOTTOM GRILLE PARTS

- MAIN PCB, TRANSFORMER, POWER RELAY

- DISPLAY PCB

- LAMP SWITCH, POWER SWITCH

**A. Remove the 4 screws and detach the bottom grille**.
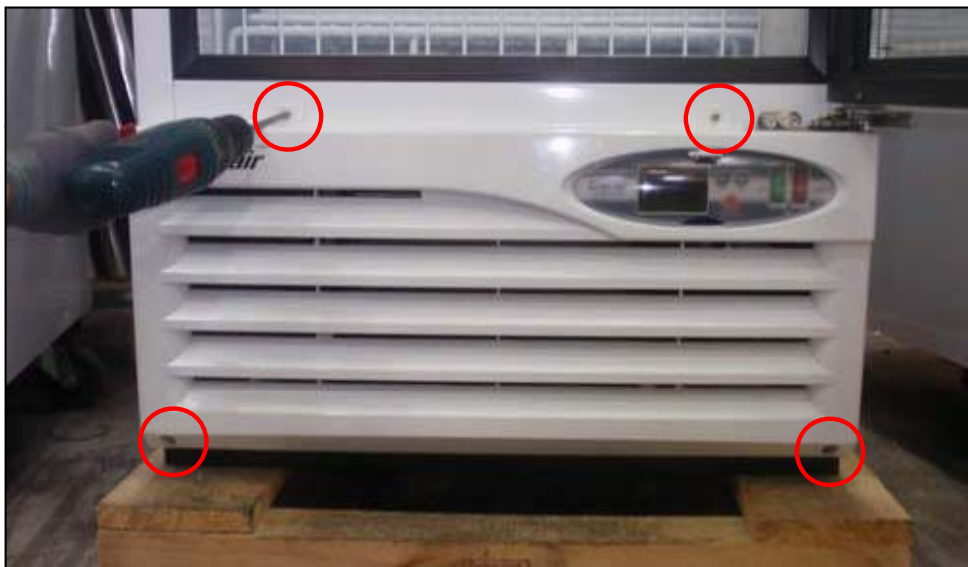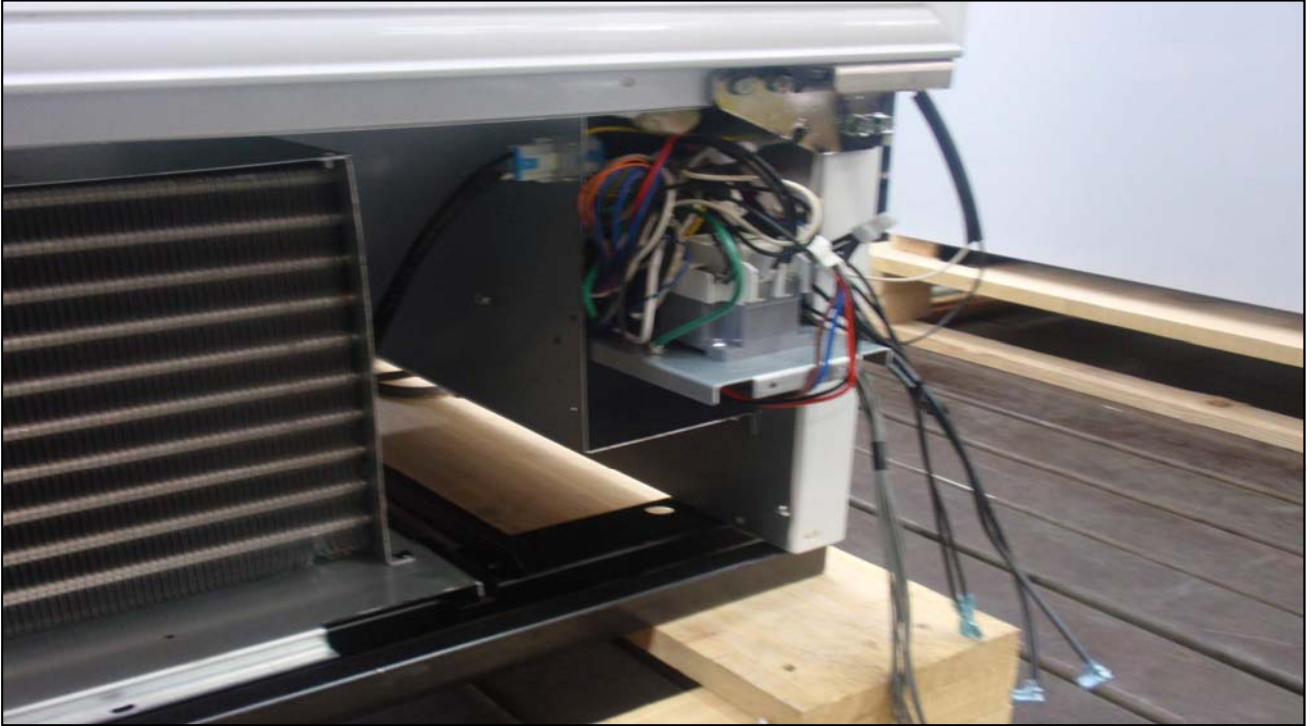


**B. Remove the Bracket of Display PCB**

## C . Remove the Electrical Box Cover.

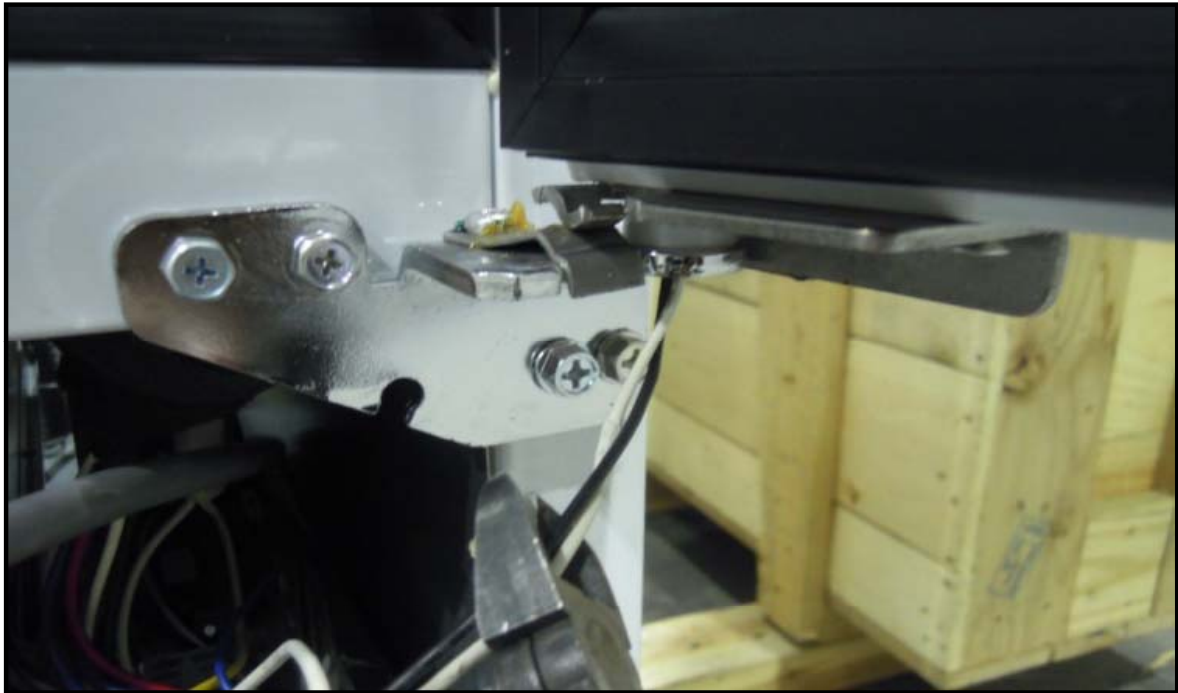**D. Replace the Main PCB, Transformer, and Magnetic contactor.**



**E. Replace the SMPS**

**-. LED ballast (SMPS) is located on the other side of the main PCB base.**

# REPLACEMENT OF MAIN COMPONENTS

## 1-2 REPLACE THE DOOR

**A. Disassemble bottom grille as described section 7-1, A,B,C,D**

**B. Disconnect the door heater and lamp wire.**



**C. Remove the Sign Frame(Left, Right) by unscrewing the four screws of each side.**

**D. Pull out sign panel to the Right side.**



**E. Remove the bottom sign panel frame.**

- Replace the Ballast (Sign Panel)

**F. Remove the harness of door switch.**

- Replace door Switch.



**G. Remove the top hinge.**

**H. Lift up the door and pull out the heater wire at the same time.**

## 2. TGIM-49*

### 2-1. BOTTOM GRILL PARTS

- Condensing Unit, Ballast. Power Relay

**A. Remove Bottom Grill by unscrewing the four screws.**



**B. Disconnect Connector to replace the condensing unit.**

**C. Remove two screws from the base of condensing unit.**

　　1. Pull out the Condensing Unit.

　　2. Replace the Parts.



**D. Slide out the Condensing Unit to replace the fan motor and the compressor.**

**E.** Remove one screw from each side and remove the wire junction box cover.

    * Replace the magnetic contactor.
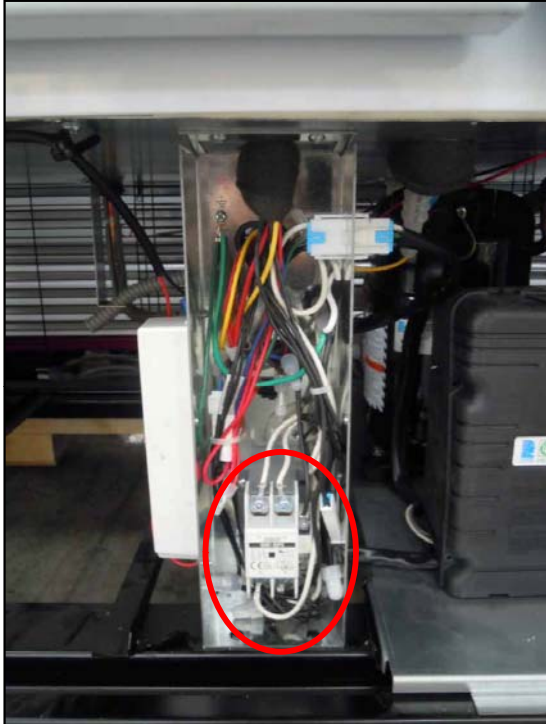


**F. Disconnect connector to replace the SMPS**
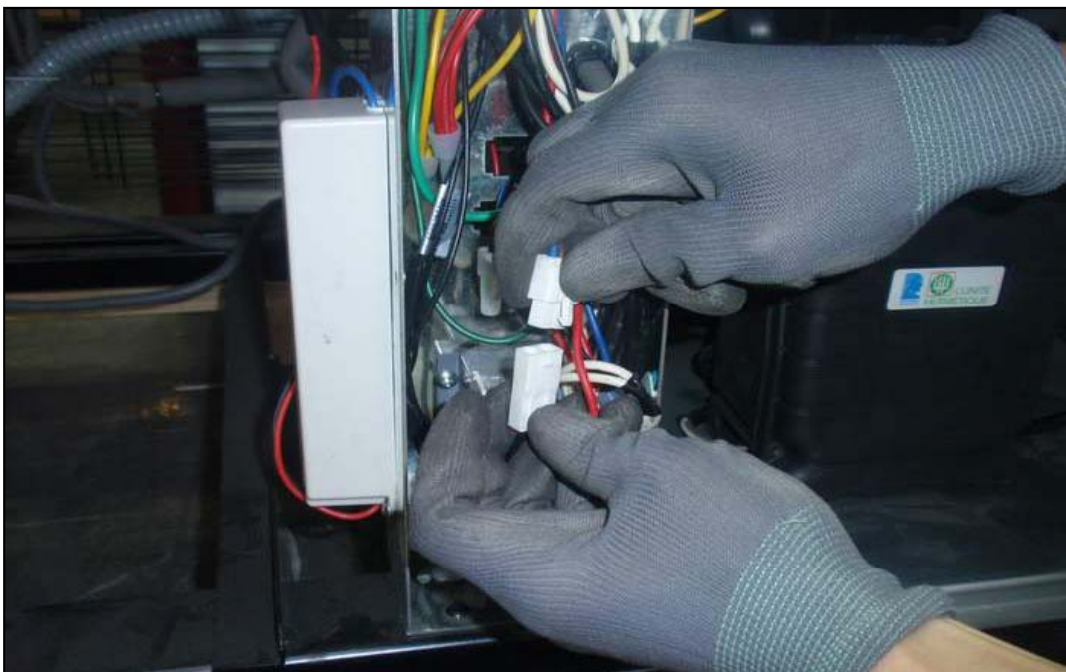
## G. Replace the SMPS

## 2-2. Parts inside the top sign panel

- PCB, TRANSFORMER. BALLAST, POWER SWITCH, LAMP SWITCH
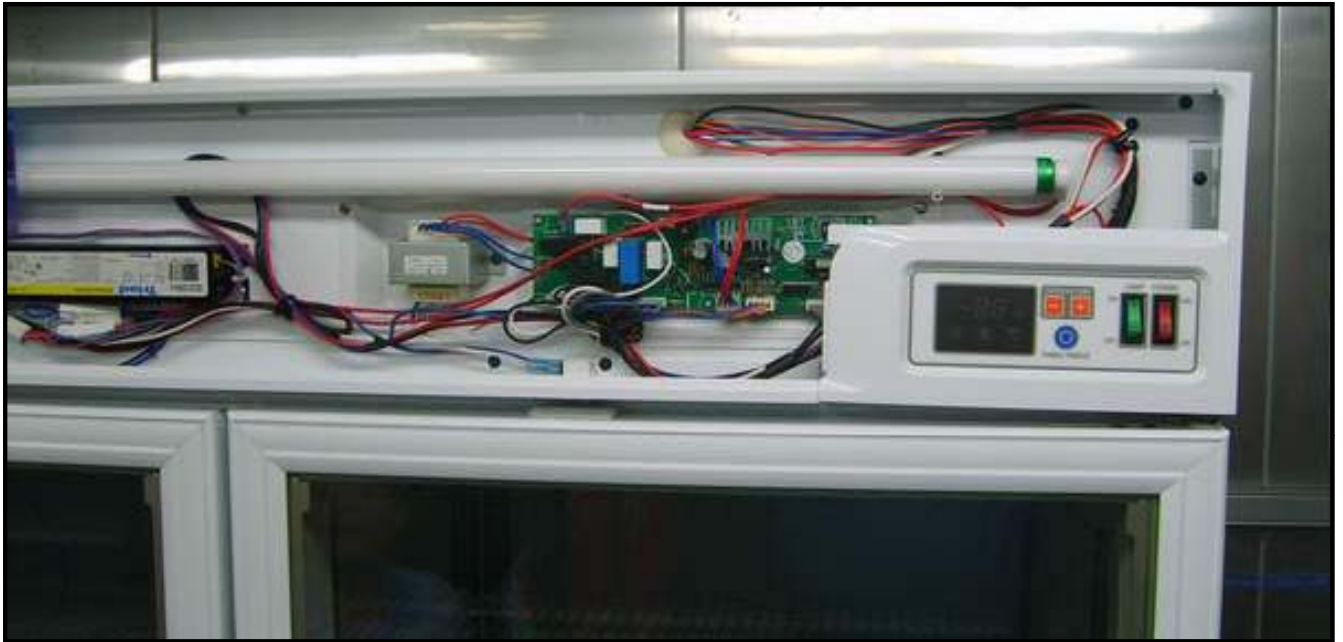
### A. Remove two screws from the side bracket.



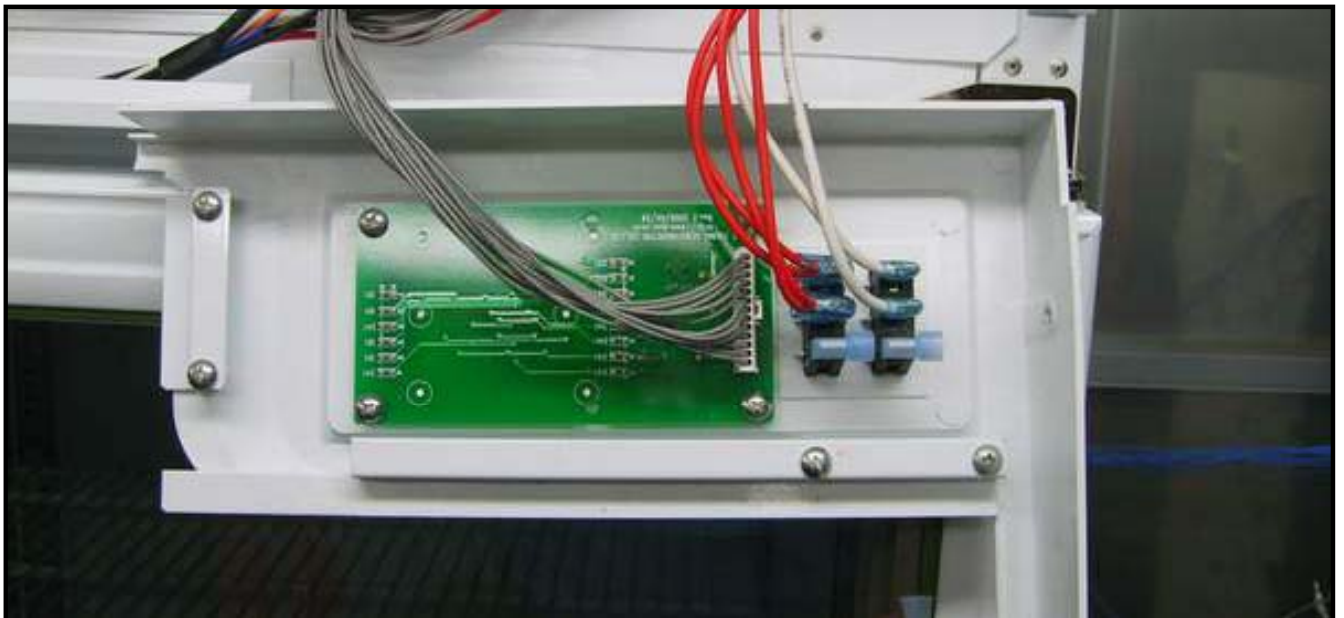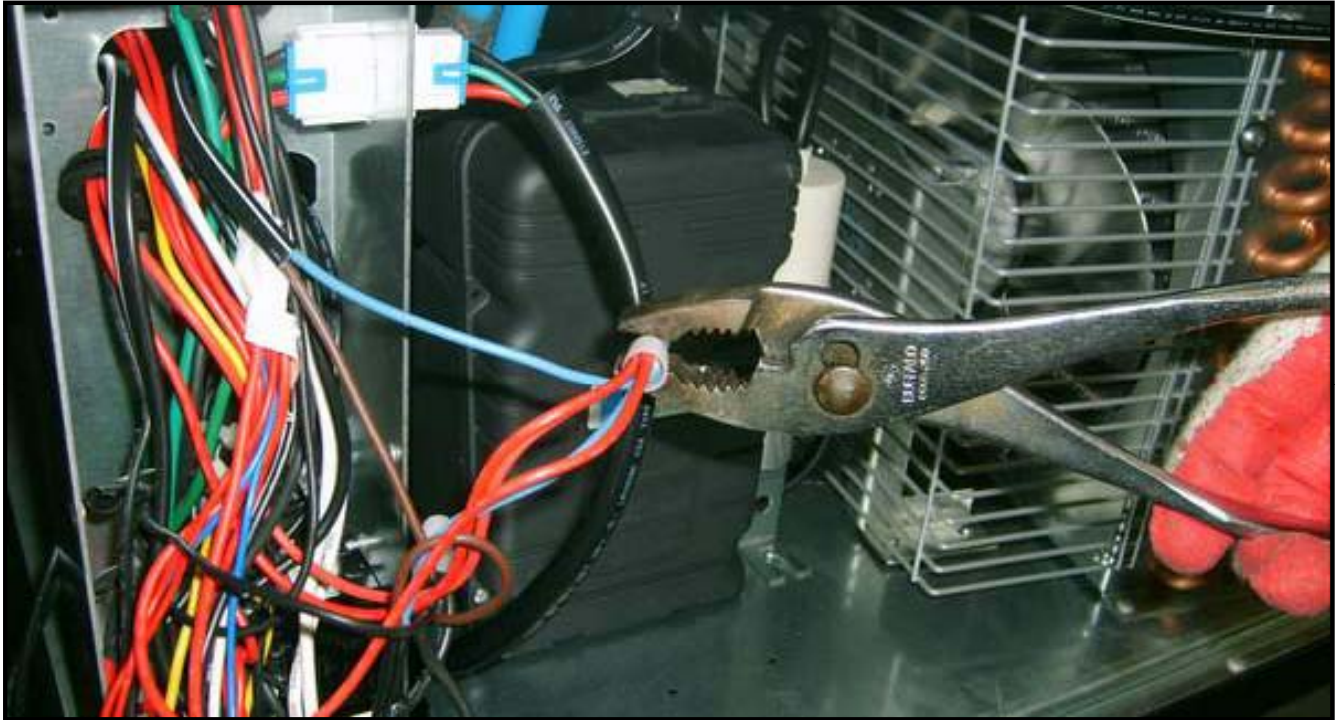### B. Slide out the sign panel.
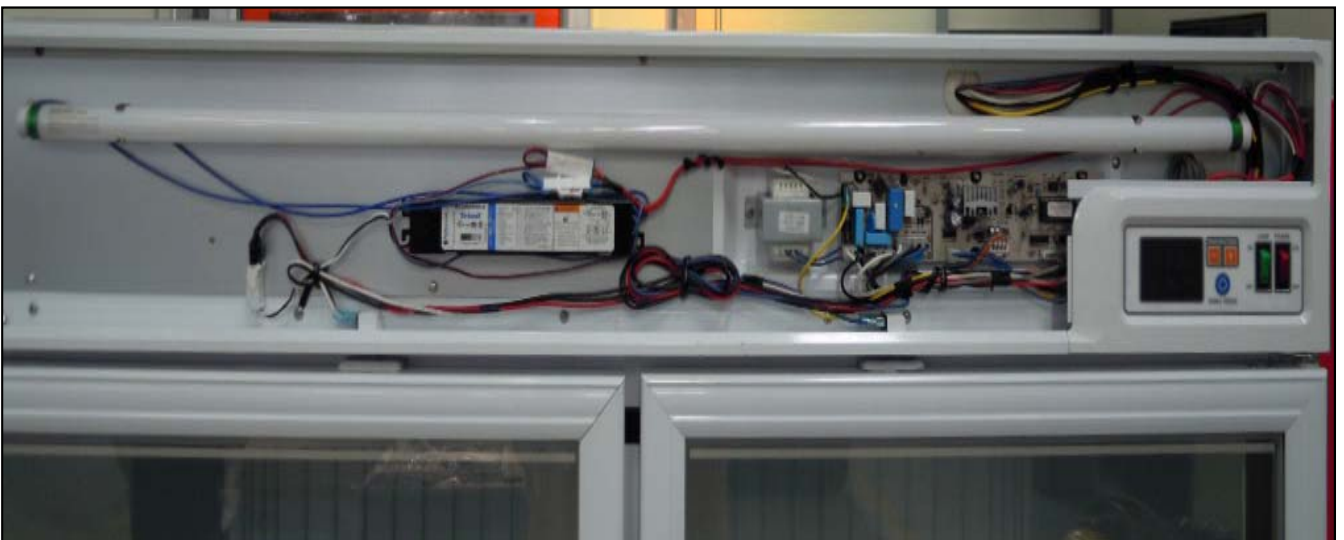
- **Replace the parts**

**C. Remove the display panel.**



**D. Replace parts as needed (Display board, Power switch, Lamp switch)**

## 2-3. Replace the Door

**A. Disconnect the door heater wire in the wire junction box.**



**B. Remove the top hinge.**

**C. Lift up the door and pull out the heater wire at the same time..**