

S/M No. RGP4931700

Service Manual

TMF Refrigerator

Buyer Model : FN-723**, FN-67**3****

Factory Model : RGE(P)49/52**



✓ **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://webportal.dwe.co.kr/sic>)

April.2017

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WARNINGS AND PRECAUTIONS FOR SAFETY

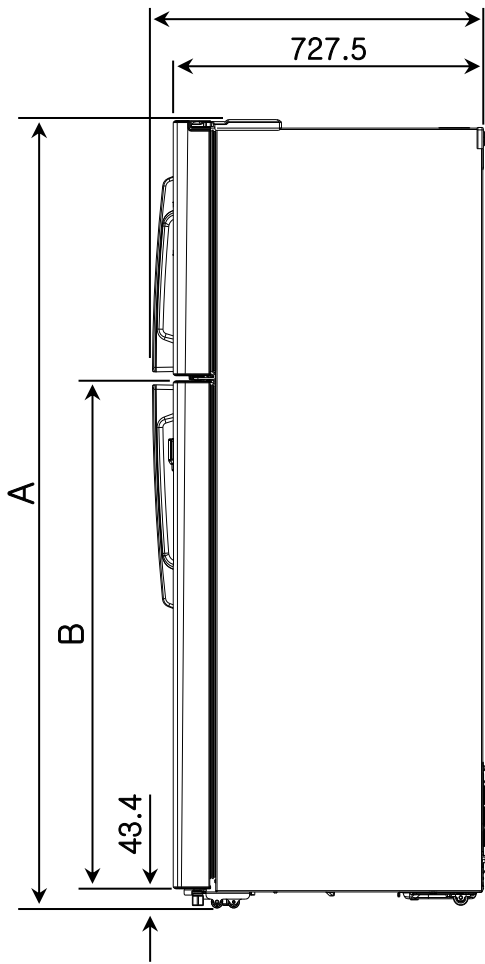
Please observe the following safety precautions in order to use safely and correctly the refrigerator and to prevent accident and danger during repair.

1. Be care of an electric shock. Disconnect power cord from wall outlet and wait for more than three minutes before replacing PCB parts.
Shut off the power whenever replacing and repairing electric components.
2. When connecting power cord, please wait for more than five minutes after power cord was disconnected from the wall outlet.
3. Please check if the power plug is pressed down by the refrigerator against the wall.
If the power plug was damaged, it may cause fire or electric shock.
4. If the wall outlet is over loaded, it may cause fire.
Please use its own individual electrical outlet for the refrigerator.
5. Please make sure the outlet is properly earthed, particularly in wet or damp area.
6. Use standard electrical components when replacing them.
7. Make sure the hook is correctly engaged.
Remove dust and foreign materials from the housing and connecting parts.
8. Do not fray, damage, machine, heavily bend, pull out or twist the power cord.
9. Please check the evidence of moisture intrusion in the electrical components.
Replace the parts or mask it with insulation tapes if moisture intrusion was confirmed.
10. Do not let the customers repair, disassemble and reconstruct the refrigerator for themselves.
It may cause accident, electric shock, or fire.
11. Do not store flammable materials such as ether, benzene, alcohol, chemicals, gas, or medicine in the refrigerator.
12. Do not put flower vase, cup, cosmetics, chemicals, etc., or container with full of water on the top of the refrigerator.
13. Do not put glass bottles with full of water into the freezer.
The contents shall freeze and break the glass bottles.
14. When you scrap the refrigerator, please disconnect the door gasket first and scrap it where children are not accessible.

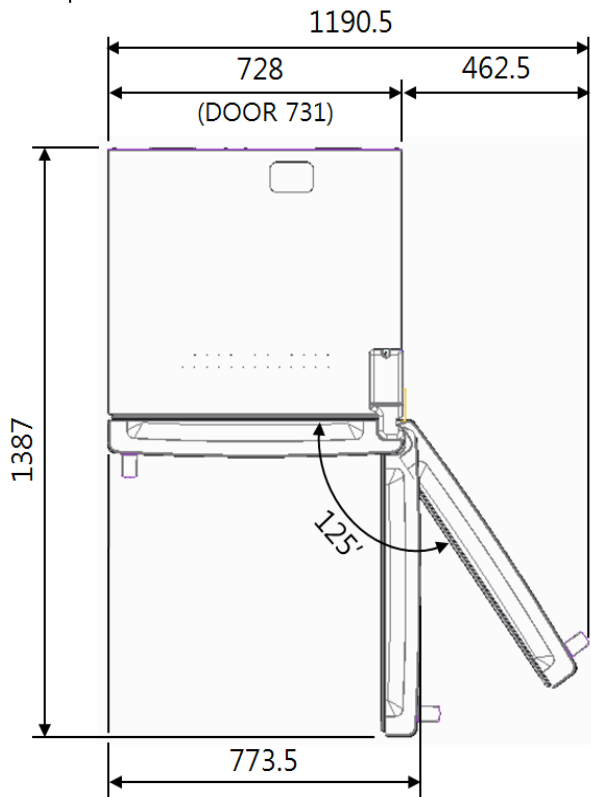
1. Specifications

Item		RGE49	RGE52
ISO Gross Volume (Li)	Total	507 Li	533 Li
	Freezer Compartment	144 Li	144 Li
	Fresh Food Compartment	363Li	389 Li
ISO Storage Volume (Li)	Total	483Li	509 Li
	Freezer	126Li	126 Li
	Refrigerator	357 Li	383 Li
Weight	NET	71Kg	72Kg
	PACKING	78Kg	79Kg
External Dimension (W x D x H)	NET	731 mm X 728 mm X 1764 mm	731 mm X 728 mm X 1834 mm
	PACKING	768 mm X 778 mm X 1820 mm	768 mm X 778 mm X 1890 mm

2. External View

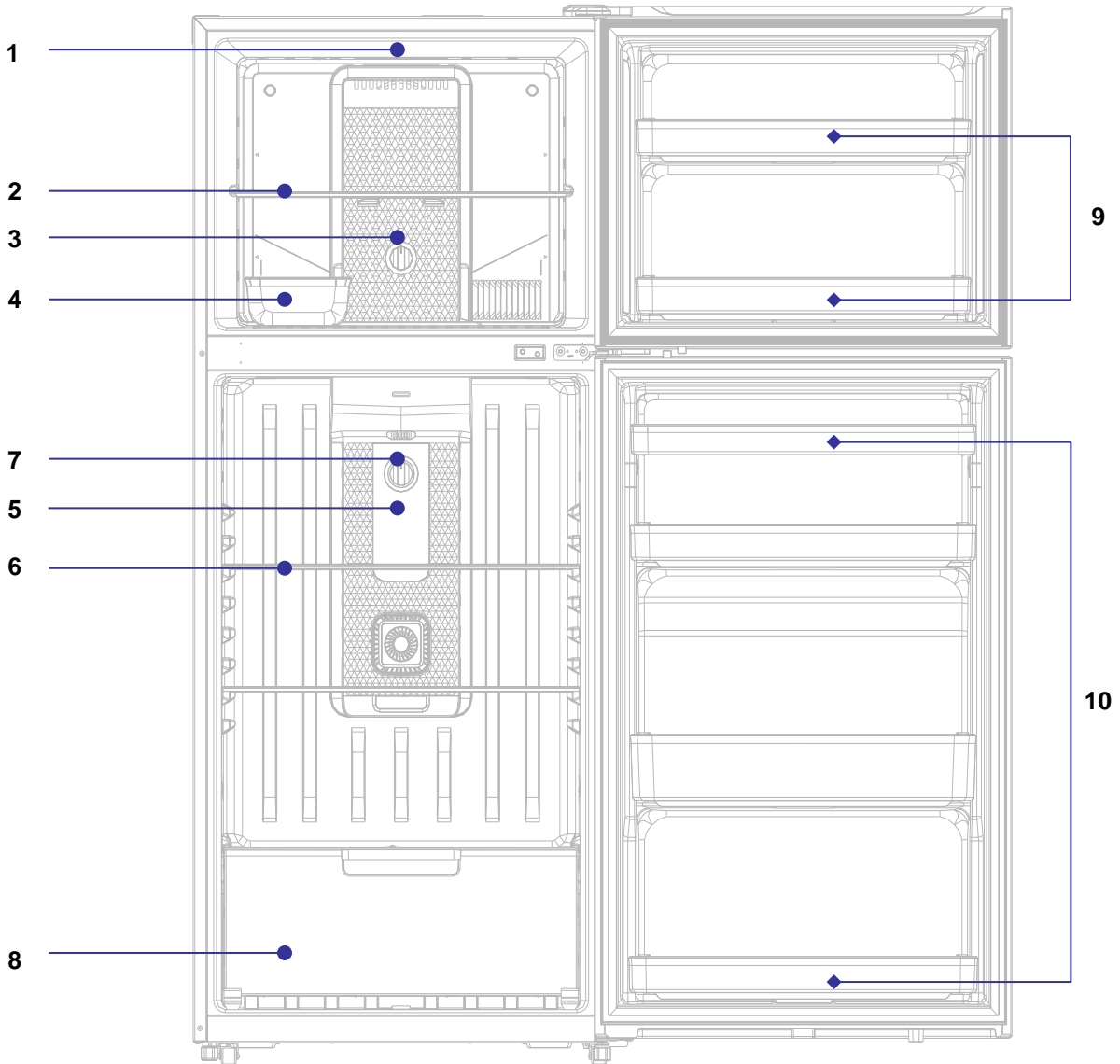


MODEL NAME		RGE48	RGE51
EXTERNAL DIMENSION	A(mm)	1764.5	1834.5
	B(mm)	1136.2	1206.2



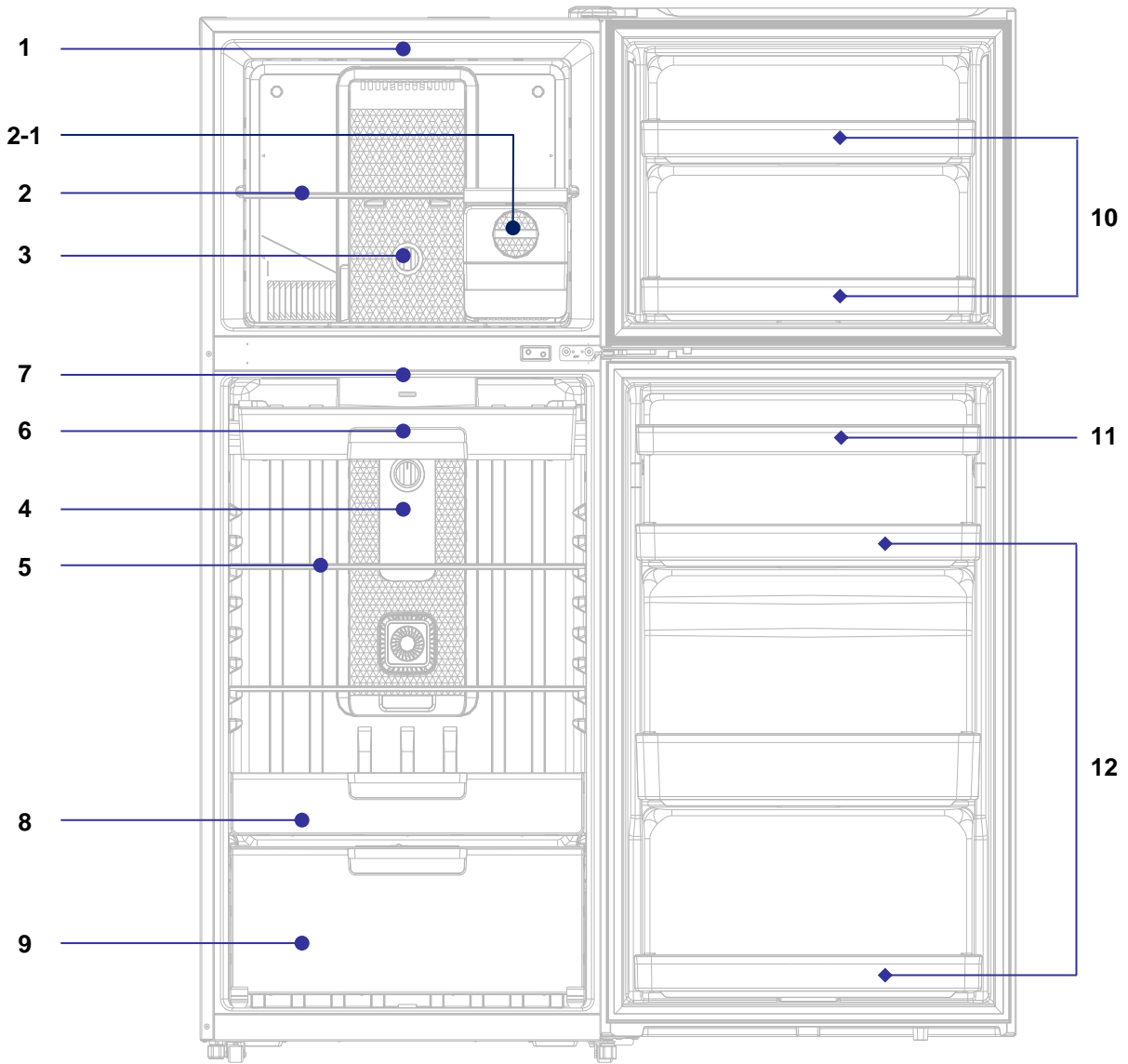
3. Name Of Each Part

Non Dispenser Model



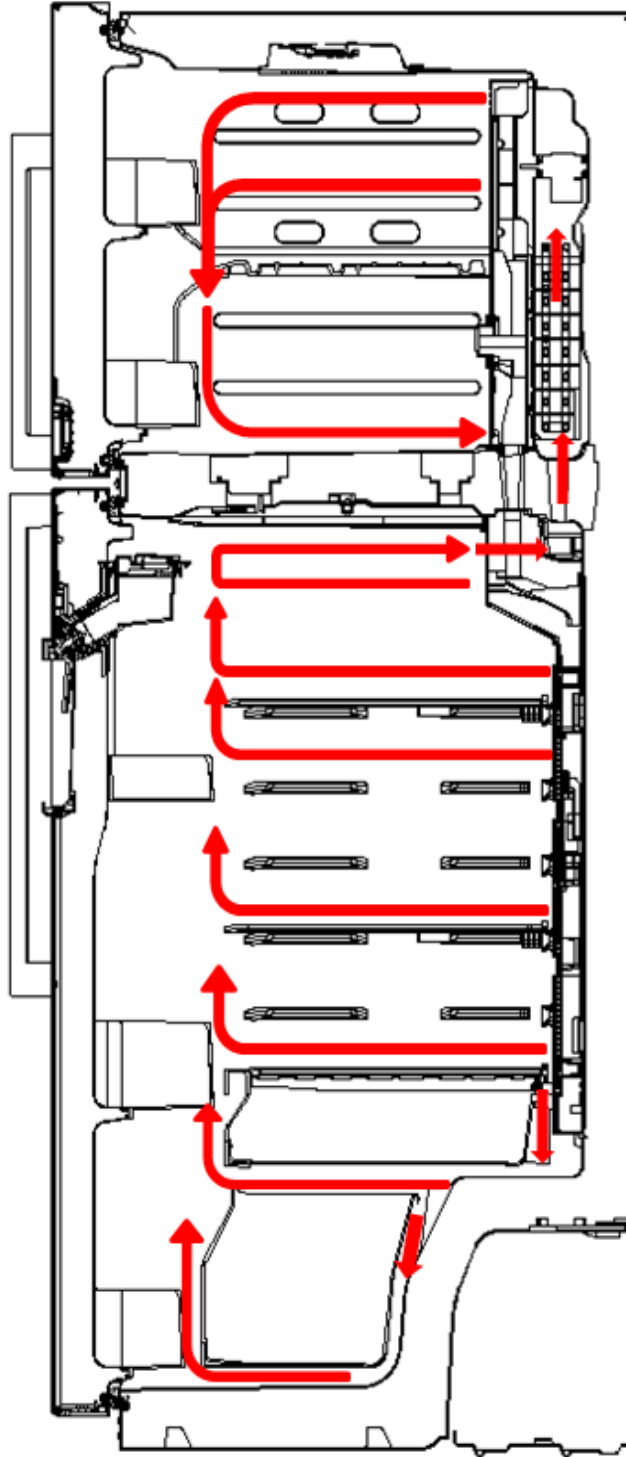
1. Freezer Compartment LED Lamp (Option)	6. Fresh Food Compartment Shelves
2. Freezer Compartment Shelf	7. Fresh Food Compartment Sensor
3. Freezer Compartment Temperature Controller	8. Vegetable Case
4. Case Icing (Option)	9. Freezer Compartment Pockets
5. Fresh Food Compartment LED Lamp	10. Fresh Food Compartment Pockets

Dispenser
Model



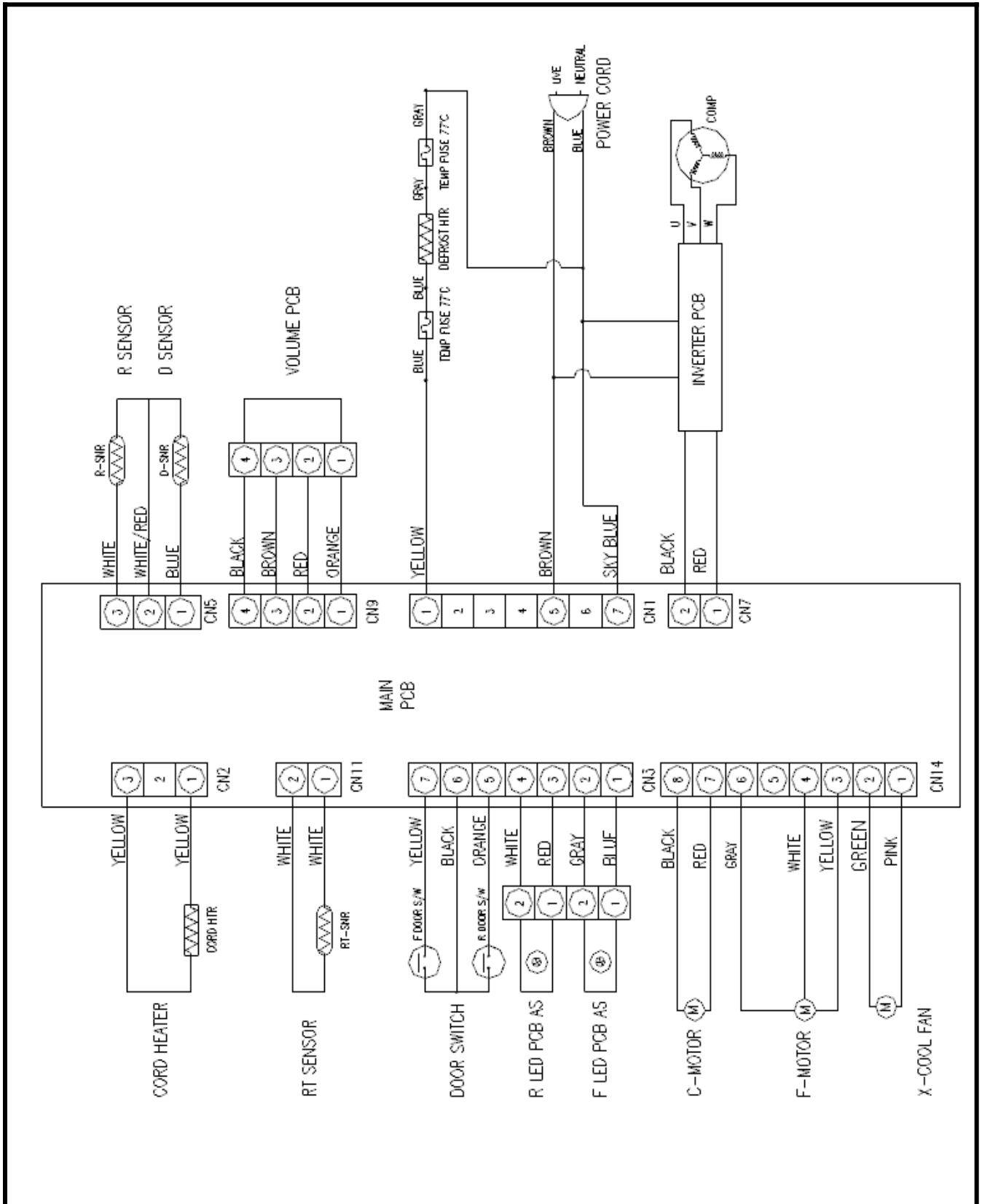
1. Freezer Compartment LED Lamp (Option)	7. Fresh Food Compartment Sensor
2. Freezer Compartment Shelf	8. Fresh Case(Optional)
2-1. Twist Ice Maker(Optional)	9. Vegetable Case
3. Freezer Compartment Temperature Controller	10. Freezer Compartment Pockets
4. Fresh Food Compartment Lamp	11. Water Tank (Option)
5. Fresh Food Compartment Shelves	12. Fresh Food Compartment Pockets
6. Utility Case(Optional)	

4. Cold Air Circulation

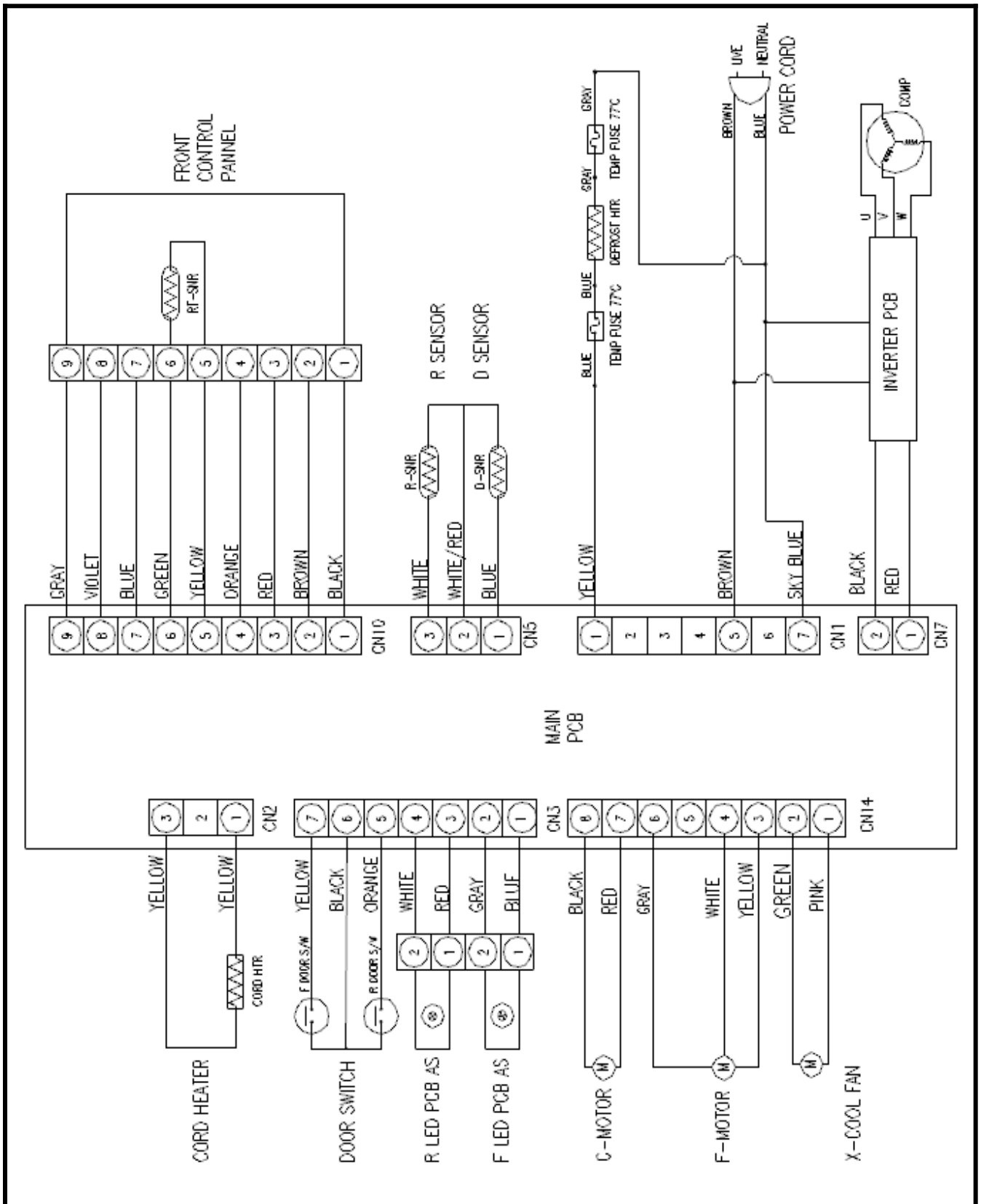


5. Wiring Diagram

■ Dial Inverter Type(RGE**)

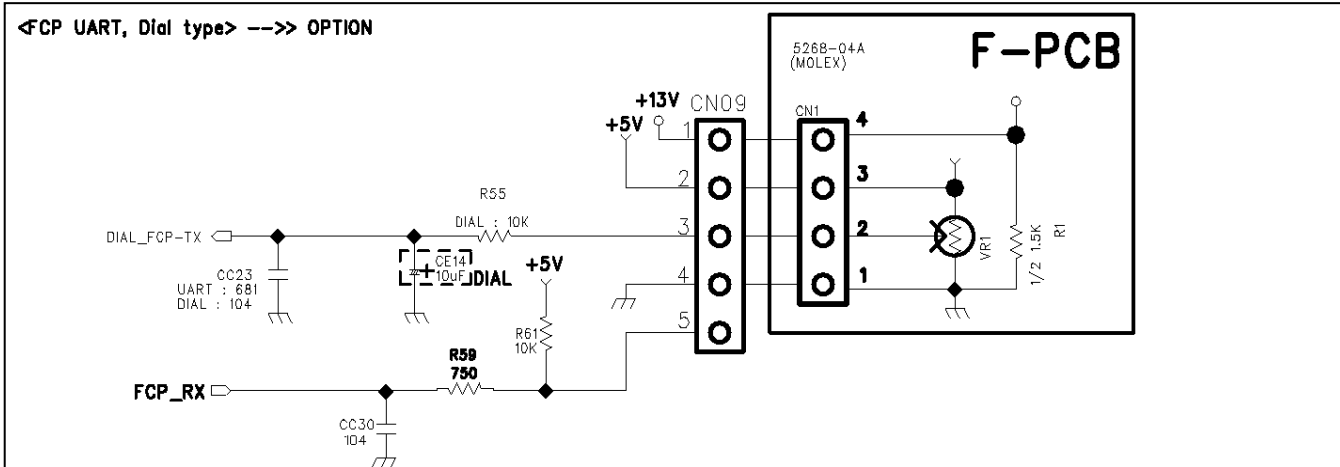
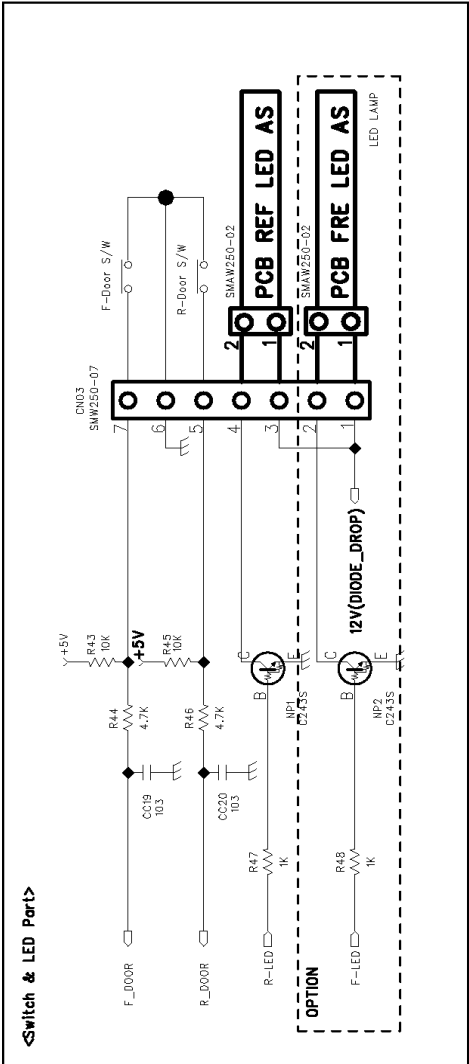
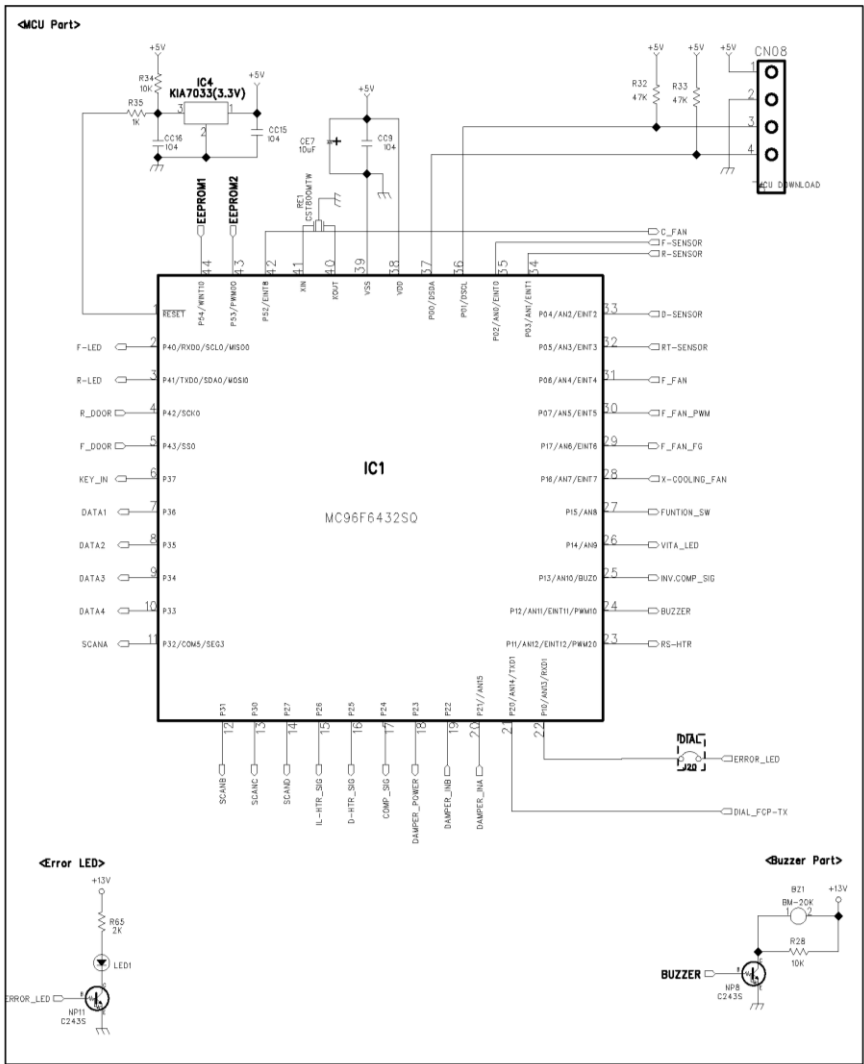


■ FCP Inverter Type(RGP**)

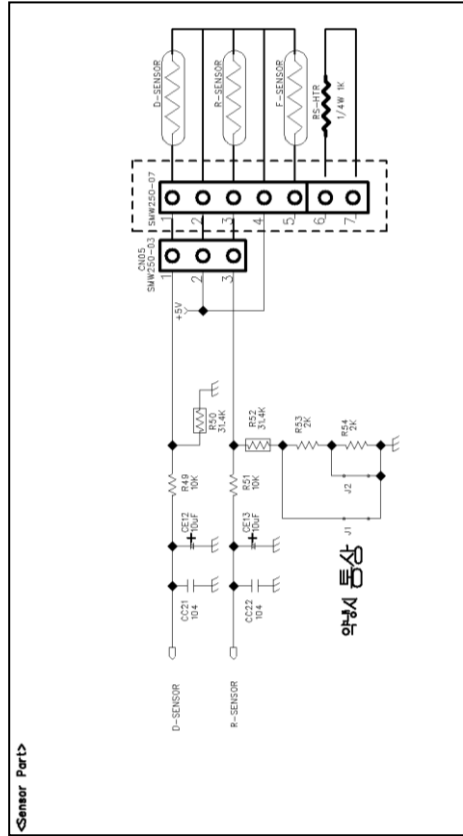
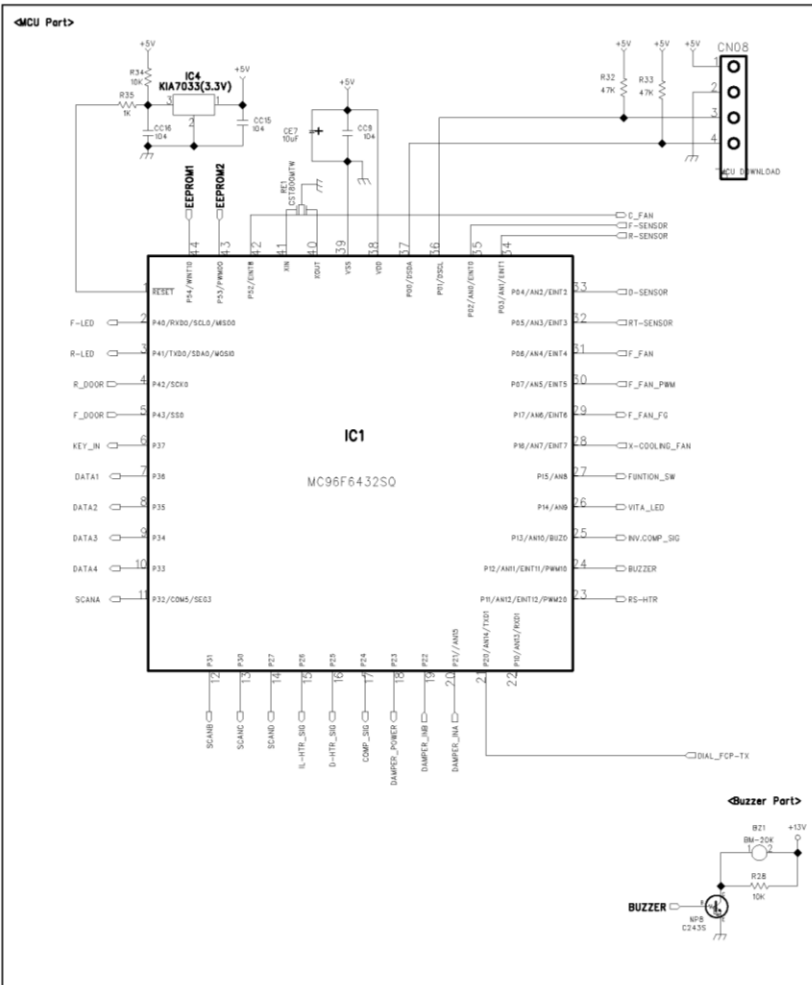
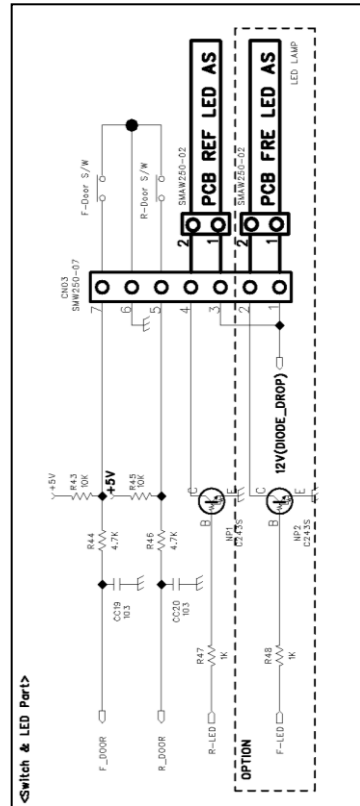
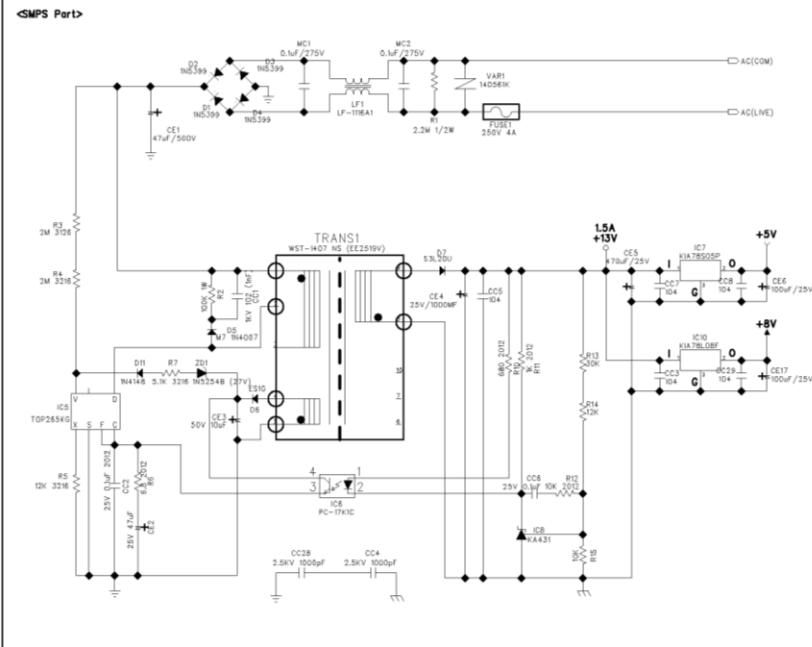


6. PCB Circuit Diagrams

Dial Inverter Type(RGE**)




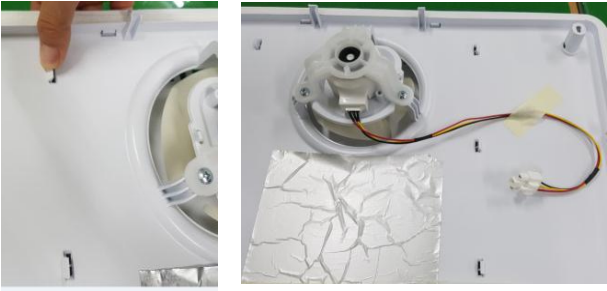


FCP Inverter Type(RGP**)

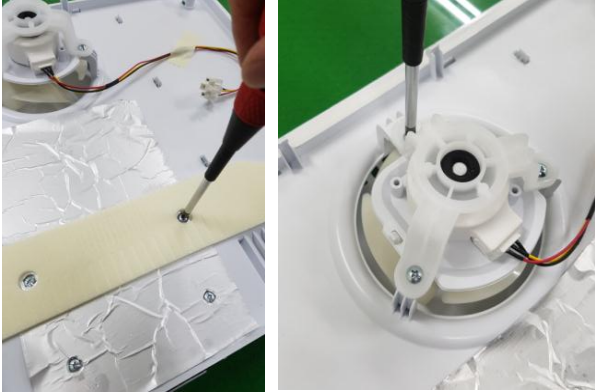

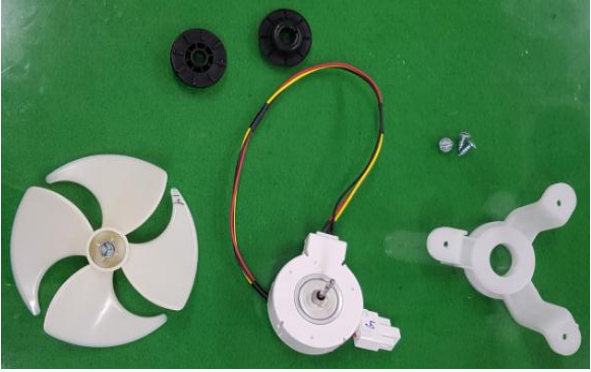


7. How To Replace The Parts



■ Freezer Louver Part

No	Photos	Description
1		<ul style="list-style-type: none">- Remove 'Freezer Shelf' at first.
2		<ul style="list-style-type: none">- Remove 2 Cap Screws.- Remove 2 screws on 'Freezer Louver'.
3		<ul style="list-style-type: none">- Pull forward the 'Freezer Louver'.- Then disconnect 'Freezer Motor'.
4		<ul style="list-style-type: none">- Disassemble the 'Cover Fan F AS'.- Be careful not to damage the hook.




Freezer Motor As

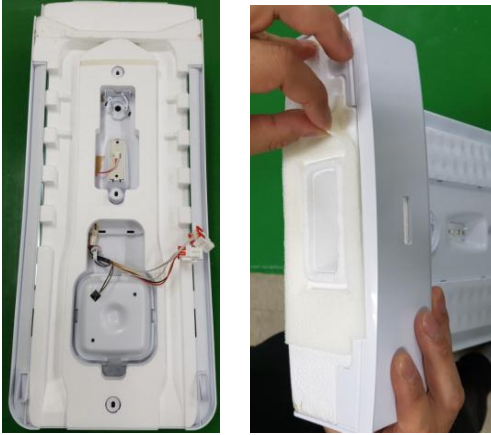

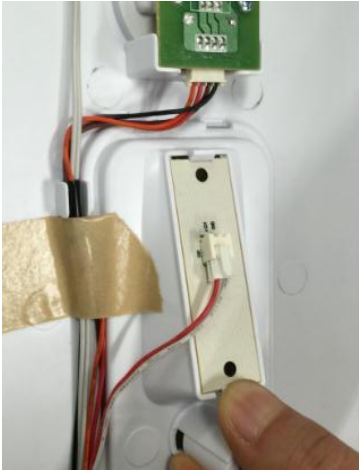
No	Photos	Description
1		<ul style="list-style-type: none"> - Remove 4 screws. - Remove the Cover motor 3 screw
2		<ul style="list-style-type: none"> - Remove Clamp Fan with pliers and then disassemble 'Fan' with (-) driver.
3		<ul style="list-style-type: none"> - Now disassemble the 'Freezer Motor'.



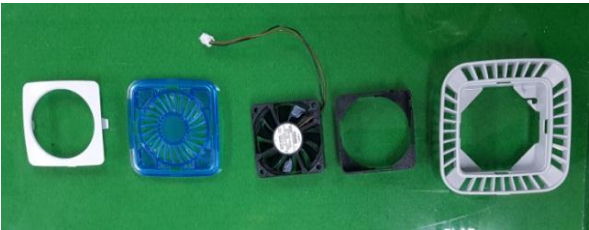
■ Evaporator

No	Photos	Description
1		<ul style="list-style-type: none">- The evaporator configured as shown in the picture.
2		<ul style="list-style-type: none">- Pull forward the evaporator and pipes.- Be careful not to bend the pipes.

■ M/Flow Duct



No	Photos	Description
1		<ul style="list-style-type: none"> - Remove 'SHELF R' - Remove 'CASE FRESH' - Remove 'Shelf fresh case as'
2		<ul style="list-style-type: none"> - Remove 'Window R Lamp ' with (-) driver. - Remove 'Cover DEO' with (-) driver.
3		<ul style="list-style-type: none"> - Pull forward the 'Cover M/Duct As' - Then disconnect ' R Lamp' and ' R Sensor'

No	Photos	Description
4		<ul style="list-style-type: none"> - Stripping the seal material attached as a photo
5		<ul style="list-style-type: none"> - Pull the Insu m/duct and remove the Cover m/duct as
6		<ul style="list-style-type: none"> - Remove the hook on the LED lamp. - Disconnect 'LED Lamp' lead wire. - Then disconnect ' R Lamp' and ' R Sensor'




No	Photos	Description
7		<p>- Remove 'Deodorant'</p>
8		<p>- Remove 'Cover X-Cooling'</p>
9		<p>- Now disassemble the 'X-Cooling Motor'.</p>

■ LED Lamps




Freezer compartment LED lamp

No	Photos	Description
1		<ul style="list-style-type: none">- Remove 'Freezer Lamp Window'.- Be careful not to damage the hook.
2		<ul style="list-style-type: none">- Remove the hook on the LED lamp.- Disconnect 'LED Lamp' lead wire.



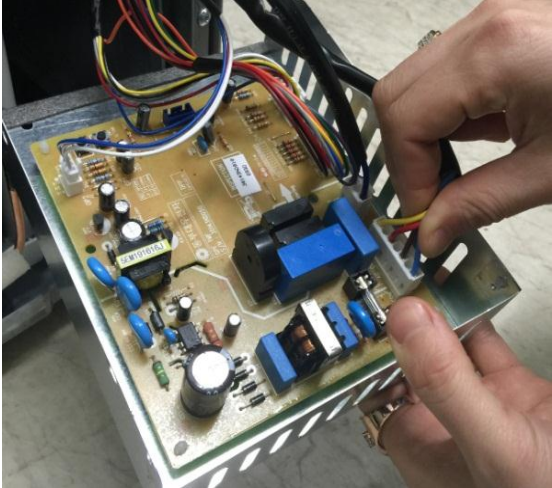
■ Handle Installation

No	Photos	Description
1		- Assemble the Handle to the Guide Hole.
2		- Fix the Handle by fasten two bolt. (32Kgf/cm ~ 35Kgf/cm)
3		- Assemble the Deco Handle from bottom to upper position.




■ Front PCB

No	Photos	Description
1		<p>- Fasten the screw with drill on the top corner of the „Front PCB” .</p>
2		<p>- Pull the screw with „Nipper” to disassemble the “Front PCB”.</p>
3		<p>- Disconnect the housing on the “Front PCB”.</p>

■ Main PCB

No	Photos	Description
1		<p>-Remove the screws and disassemble the 'Grille As'.</p>
2		<p>- Remove the screws and disassemble the 'Box Main PCB As'.</p>
3		<p>- Disconnect Housings on the 'Main PCB'.</p>

■ Water Dispenser

No	Photos	Description
1		<p>- Push the 'Stopper Water Tank', then pull and remove the 'Water Tank As'.</p>
2		<p>- Remove the screws on the bottom of 'Panel Dispenser As'.</p>
3		<p>- Disassemble the 'Panel Dispenser As'.</p>

8. PCB Control Function

■ Specifications

구분		R-Control				
		GPF II 48/510L Domestic		GPF II 48/510L Export		
Type		Dial Type	FCP Type	Dial Type	FCP Type	
F U N C T I O N	Super Cooling	-	O	-	O	
	Eco Mode	-	O	-	O	
	FCP Lock	-	-	-	-	
	Buzzer	-	O	-	O	
E L E C T R O N I C A L P A R T S	Comp		Inverter Comp.			
	Heater	Defrost	O	O	O	O
		IL	O	O	O	O
	Motor	F	DC	DC	DC	DC
		C	DC	DC	DC	DC
		X-Cooling	DC	DC	DC	DC
	Sensor	R	O	O	O	O
		D	O	O	O	O
		RT	O	O	O	O
	Door S/W	F	O	O	O	O
		R	O	O	O	O
	Lamp	F	O	O	O	O
		R	O	O	O	O
		Vita	-	-	-	-
	Etc.	PCB Location	Machine Room	Machine Room	Machine Room	Machine Room
RT-S Location		Dial Type - Hinge, FCP Type – Front PCB Board				

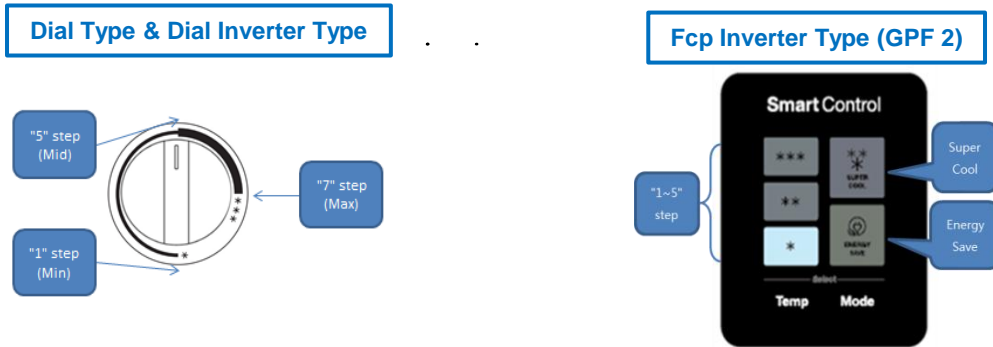
* AC fan motor is interlocked with comp, No PCB controls it.

<Dial Inverter Type PCB (GPF2)>

<FCP Inverter Type PCB (GPF2)>

Control Panel

A. Panel graphic



B. How to use Panel

Dial Type & Dial Inverter Type

1. Volume Dial : it controls temperature of refrigerator by step.

- ① How to set temperature : Turn round "Volume Dial Knob".
- ② Temperature setting sequence : 1step → 2step → 3step → 4step → 5step → 6step → 7step
(Min) (Mid) (Max)

Fcp Type & Fcp Inverter Type (GPF 2)

1. Temp Key : it controls temperature of refrigerator by step.

- ① Default : "3step"
- ② How to set temperature : Push "Temp." key
- ③ Temperature setting sequence :

2. Func(=Mode) Key : It controls Special Mode of refrigerator.

- ① Default : Mode Off
- ② How to change Mode : Push "Func." key (= "Mode" key)
- ③ Mode change sequence : Mode Off -> Super Mode -> Eco Mode (repeat)

■ Control Panel

C. Display

Fcp Inverter Type (GPF 2)

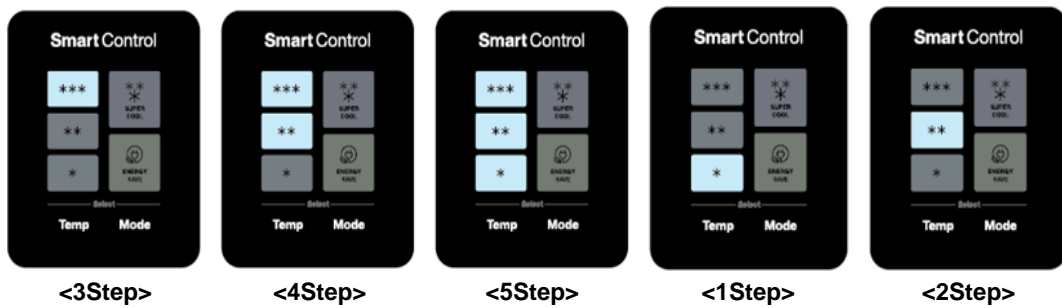
1. Operation

- ① At normal state, display led is on by 100% brightness.
- ② When it passes 20seconds without key operation or door operation, all led is off.
- ③ When there is operation for key or door at LED off condition, led display is back to the normal state.

2. Each MODE Display

1) Normal Mode Display

① Dial Display



② Special Mode Display



■ Special Mode Control

Input	Output
- "Func." Key	- Super Mode - Eco Mode

Fcp Type & FCP Inverter Type (GPF 2)

A. Special Mode

- 1) Super Mode : For quickly cooling the fridge
- 2) Eco Mode : For saving the power

B. Special Mode Operation

- 1) Super Mode

Operation time	40 minutes
COMP	Continuously On / On, Off control

- 2) Eco Mode

Operation time	Unlimited
COMP	On, Off control

C. Special Mode Release

- 1) Super Mode

- after 40 minutes .

- 2) Eco Mode

- Unlimited
- If open the door within 30 minutes, the Eco Mode is released

■ Comp Control

Input	Output
<ul style="list-style-type: none"> - R-Sensor - Short Circuit / Defrost Mode - Elapsed time after comp off 	<ul style="list-style-type: none"> - Comp On/Off Operation

A. General Control

1) if Defrost Mode

Precool	Comp On
Heater On	Comp Off
Pause	Comp Off
Fan_Delay	Comp On

* compressor details operation sees chapter "Defrost Control".

2) if Normal Mode

① R-Sensor Error

- Compressor is controlled of the time by RT-Sensor's range.

② No R-Sensor Error

- Compressor is controlled of the setting On/Off point

- R-Sensor \leq Comp Off point -> Comp Off

- R-Sensor $>$ Comp On point -> Comp On

B. Prevention of Compressor Restart

- Compressor doesn't work within 6minutes after Compressor turns off. (This is to protect comp)

ex) Compressor doesn't work after COMP turns off even though R-sensor is on condition

■ Fan Control

Input	Output
<ul style="list-style-type: none"> - Comp Operation State - F Door Switch - R Door Switch - Demo / Short Circuit / Defrost Mode 	<ul style="list-style-type: none"> - F-Fan, C-Fan On / Off Operation - X-Cooling Fan On/Off Operation

GPF 2, DC Fan Only

A. C FAN Control

- C-Fan is interlocked with Comp On/ Off Operation

B. F FAN Control

- 1) Short Circuit
 - Always maintain the On state during 30 hours.

- 2) Defrost Mode

Precool	F-Fan On
Heater On	F-Fan Off
Pause	F-Fan Off
Fan_Delay	F-Fan Off

* F Fan Motor details operation sees chapter "Defrost Control".

- 3) Normal Mode

- a) Compressor On
 - F-Fan is turned on after delay time about 1 minute.
 - b) Compressor Off
 - F-Fan is turned off after delay time about 1 minute.
 - c) F-Fan Control according to Door State
 - When F/R Door Opened or Closed (F-Fan is On state)
 - a. Door Open
 - F-Fan is turned off after delay time about 1 minute.
 - b. Door Close
 - F-Fan is turned on after delay time about 20 seconds.
- (After power On, Fan Delay Operation is not worked within 120 minutes.)

C. F FAN FG Control

- F-Fan is worked with Feedback Control using FG Signal.
- When FG Signal has fault, F-Fan is worked with retry function. (After 120 minutes from Power On)

D. X-Cooling Fan Control

- X-Cooling Fan is interlocked with Door Open/ Close.

1) Before 120 minutes from Power On.

- Door Open : X-Cooling Fan On - Door Close : X-Cooling Fan

2) After 120 minutes from Power On

Comp	Door	X-Cooling Fan
On	Open	- On
	Open -> Close	- Comp Off → X-Cooling Fan Motor Off - Comp On → X-Cooling Fan Motor On(limit time: 30minutes) (After 30min. : Door Open -> Close → Fan Off after 1min.) -Comp. Off → Limit time (=30 min.) is Reset.

Comp	Door	X-Cooling Fan
Off	Open	- On
	Open -> Close	- On(After 1min., X-Fan is turned off)

■ Defrost Control

* Defrost Flow

* General Defrost Flow

Defrost initial setting -> Precool -> Heater On -> Pause -> Fan_Delay -> Defrost end setting

I . Defrost initial setting

- Each check conditions are initialization.

II . Precool (Excepted to GPF2)

1) Inrush conditions : after 'Defrost initial setting' completion.

2) Operation: Comp is On.

III . Heater On

1) Inrush conditions : afr 'Precool' completion.

2) Operation : Defrost Heater On.

IV . Pause

1) Inrush conditions : after 'Heater On' completion

2) Operation : Comp, Defrost Heater Off

V . Fan_Delay

1) Inrush conditions : after 'Pause' completion.

2) Operation : Comp, C-Fan On

VI . Defrost end setting

- Each check conditions are initialization.

CONTENTS		Precool	HTR On	Pause	FAN Delay
Each stage Release conditions		Refer "Defrost Flow"			
Parts.	Comp, C Fan	On	off	Off	On
	F-Fan	On	off	Off	Off
	Defrost-HTR	Off	On	Off	Off

■ Buzzer Control

Input	Output
<ul style="list-style-type: none"> - Front key - Open the door more than 3 minute 	- Operate buzzer sound.

Fcp Inverter Type & Dial Inverter Type (GPF 2)

A. At power on

- After 2 seconds power's on, the buzzer rings.(sound : bbi~bi~ bbi~bi.bi bbi~~) → Start sound

B. Front Key

- Whenever "PCB Control Panel" button's pushed, the buzzer rings.
(Each of the Buttons will have a different tone.)

C. Test mode entry

- Operate mode changing sound

Mode	Buzzer sound	
As Forced Defrost Mode	Entry	3 short beeps (sound : bbi bbi bbi) → sound level is rising.
	Release	No sound
Demo Mode	Entry	6 beeps (sound : Start sound)
	Release	1 short beep (sound : bbibit!)
Jig Mode	Entry	3 short beep (sound : bbibibit)
	Release	6 beeps (sound : Start sound)
Fine Adjustment Mode	Entry	6 beeps (sound : Start sound)
	Release	1 short beep (sound : bbibit!)

D. Door Open Alarm

- When door opens for 3 minutes, the buzzer rings every 1 minute for 5 minutes.

■ Door Switch Control

Input	Output
- High / Low Signal	- Door Open / Closes State

A. F/R Door Switch

1) Door Open

- Door Open -> Door Switch On -> Micom Low (0V) signal Input.

2) Door Close

- Door Close -> Door Switch Off -> Micom High (5V) signal Input.

■ Lamp Control

Input	Output
- Door Open / Closes State - Lamp On Elapsed time	- Lamp On / Off Operation

A. F/R Lamp

1) Door Switch Error

- F/R Lamp is always off.

2) No Door Switch Error

① Door Open -> Lamp On, After 10 minutes, Lamp is forcibly off.

② Door Close -> Lamp Off.

Dial Type & Dial Inverter Type

*Exception) Line Defrost test Display

- This feature operates only within 120 minutes after the power is turned on.

- When A/S Froced Defrost Mode is entered, R-Lamp operates as follows

① Sensor Error -> R-Lamp is blinks for 30 seconds.

② No Sensor Error -> R-Lamp is forcibly on.

■ Cord Heater Control

Input	Output
- RT-Mode	- IL-Heater On / Off Operation

A. Cord-Heater Operation

1) Defrost Mode

- Always maintain the Off state.

2) Else

① RT-Mode is Low-A

- It is controlled by setting time.



Model	On time	Off time
48/510L	25 minutes	5 minutes

② RT-Mode is Low-B

- It is controlled by setting time.



Model	On time	Off time
48/510L	15 minutes	15 minutes

③ The other RT-Mode and RT-Sensor Error

- Always maintain the Off state.

■ Function Switch Control (Main PCB Location)

Input	Output
- Test Switch - Time Switch	- Short Circuit / Power Saving / As Froced Defrost Mode selection. - Time Pass control

A. Test Switch

- Using Test Switch (Part No. SW2) in the Main PCB, short-circuit mode, the Power Saving mode, As forced defrost mode can be entered.

default	Test Switch 1 time	Test Switch 2 times	Test Switch 3 times
Short Circuit : Off	Short Circuit : On	Short Circuit : Off	Short Circuit : Off
Power Saving : Off	Power Saving : Off	Power Saving : On	Power Saving : Off
As forced defrost : Off	As forced defrost : Off	As forced defrost : Off	As forced defrost : On
Start Sound	Short beeps 1 time	Short beeps 2 time	Short beeps 3 time



* Pushing the Test Switch for 4 times, Test Mode is become default state.

B. Time Switch

- Using Test Switch (Part No. SW2) in the Main PCB, it can send forcedly the time.

① Short Click the Time Switch (within 1 second)

- 1 min : Click Time Switch one time on MAIN PCB.

② Push the Time Switch (more than 1 second)

- 30 min : If you press FAST KEY continuously, you can reduce 30 minutes on each 2.5 seconds with buzzer.

■ Mode Control

**Fcp Type can be entered the mode within 2 hours.
After 2 hours, The mode enterable environment is activated by pushing "TEMP + "FUNC"(="MODE") Key for 10 seconds.**

A. As Forced Defrost Mode

1) How to enter

① How to enter through Key Operation

* Dial Type & Dial Inverter Type

- by pressing "R-Door" switch for continuously and "Volume Dial" is rotated from 1 step to 7 step.

* Fcp Type & Fcp Inverter Type (GPF 2)

- by press "TEMP" button for continuously and "FUNC"(="MODE") button 5 times.

② How to enter through Main PCB Test Switch

- See part of the "Test Switch" in "Function Switch Control" Chapter.

2) Operation

- Process: same as General Defrost Mode except "PRE-COOL"

- Heater is on Initial 60 seconds even though the temp.

(for TEST)

CONTENTS		HTR On	Pause	Fan_Delay
Limited Time		60 minutes	10 minutes	48/51 : 5min.
Each stage Release conditions		1. Limited Time	Limited Time	Limited Time
		2. D-S > 13℃		
Parts.	Comp	Off	Off	On
	Defrost-HTR	On	Off	Off

3) Mode release : Auto closed after performing functions.

B. Short Circuit Test Mode

1) How to enter : See part of the "Test Switch" in "Function Switch Control" Chapter.

(It is available to restart the test and it'll be take 30 hours.)

2) Operation

- COMP & FAN will be on independent of the operating condition.

- There is no defrost mode on this test.

3) Mode release : after the limit test time 30 hours passes.

C. Error Display Mode

Dial Type & Dial Inverter Type



1) To confirm error happens or not, check LED on MAIN PCB

2) Operation

Priority	Error Code	Method to control
1	R1	Main PCB LED 1 time blink
2	RT	Main PCB LED 2 times blink
3	D1	Main PCB LED 3 times blink
4	dr	Main PCB LED 4 times blink
5	dF	Main PCB LED 5 times blink
6	F3	Main PCB LED 6 times blink
7	C1	Main PCB LED 7 times blink
8	FG	Main PCB LED 8 times blink (Only GPF II - DC Fan Model)

3) Mode release : Automatic reset become when all error codes return to normal condition.

Fcp Inverter Type (GPF 2)

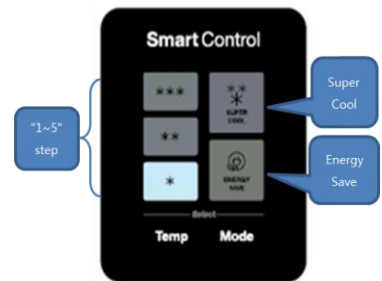
1) How to enter : by pressing "FUNC" button for continuously and "TEMP" button 5 times.

2) Operation

- To confirm error happens or not, check Display LED
- When No Error, Only Eco LED blink.
- If "Temp." button was pressed, the Display page is changed.

<Page 1> ----- → Super Cool LED Off

- | | | |
|--|----|-----------|
| ① R Sensor Open : Fridge Temperature Ba | * | LED On |
| R Sensor Short : Fridge Temperature Ba | * | LED Blink |
| ② RT Sensor Open : Fridge Temperature Ba | ** | LED On |
| RT Sensor Short : Fridge Temperature Ba | ** | LED Blink |
| ③ D Sensor Open : Fridge Temperature B | ** | LED On |
| D Sensor Short : Fridge Temperature Ba | * | LED Blink |



<Page 2> ----- → Super Cool LED On

- | | | |
|--|----|--------|
| ④ F Door Error : Fridge Temperature Ba | * | LED On |
| ⑤ R Door Error : Fridge Temperature Ba | ** | LED On |
| ⑥ Cycle Error : Fridge Temperature Ba | ** | LED On |

<Page 2> ----- → Super Cool LED Blink

- | | | |
|---|----|--------|
| ⑦ Return Defrost Error : Fridge Temperature B | * | LED On |
| ⑧ F-Fan FG Error : Fridge Temperature B | ** | LED On |

3) Mode release : Push "MODE" 1 time.

Fcp Inverter Type (GPF2)

D. Fine Adjustment Mode

1) How to enter : by pressing "TEMP" buttons for 10 seconds.

2) Operation

- When enter the mode, Only Super Cool LED blink
- "Temp" Button → fine adjustment value Increase // "MODE" Button → fine adjustment value decrease
- On / Off point is varied by fine adjustment value.

DISPLAY	Eco	Fridge Temperature Bar			fine adjustment value
		*	**	***	
LED ON/OFF		■	■	■	-3
		■	■	□	-2
		■	□	□	-1
		□	□	□	0
		□	■	□	1
		□	■	■	2
		□	■	■	3

■ : LED On
□ : LED OFF

3) Mode release : When it passes 5seconds without key operation, auto closed the mode.

E. Demo Mode

1) How to enter : by pressing "MODE" buttons for 10 seconds.

2) Operation

- All electronic compartments are off except "Display Panel".
- * -> ** -> *** -> Super -> Eco -> All Led Off
- When "DEMO" mode works, led lamps will be on as next steps.

3) Mode release : by pressing "MODE" buttons for 10 seconds

■ Control of R-sensor OFF Point

Input	Output
- J1, J2 On Main PCB	- Control Resistance of R sensor OFF Point

A. LOW COOLING OPTION

(1) Adjust R-Sensor off point (Max 3.0deg down)

(2) the following actions are recommended for service.

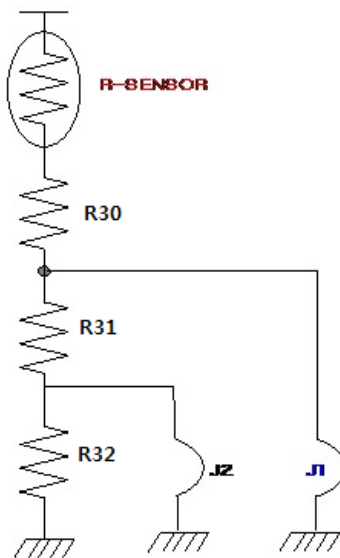
- ① Resistance (R52) : Default resistance (31.4Kohms)
- ② Resistance (R53) : Cut the "J1" off to reduce basic resistance by 1.5°C. (2KΩ up)
- ③ Resistance (R54) : Cut the "J2" off additionally to reduce basic resistance by 1.5°C. (total 4KΩ up)

ex) $R52 = \text{R-SENSOR OFF point}$

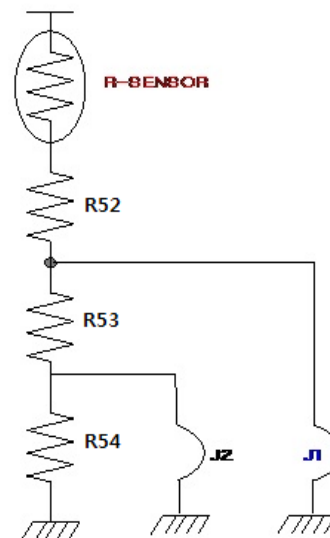
$R52 + R53 = \text{R-SENSOR OFF point} - 1.5^{\circ}\text{C}$

$R52 + R53 + R54 = \text{R-SENSOR OFF point} - 3^{\circ}\text{C}$

Dial Type



Fcp Type & Dial Inverter Type



■ Error Code

A. R-Sensor Error

- 1) Error Code : R1
- 2) Condition : ① R-Sensor Open : It happens when R-Sensor is sensing less than -45°C
② R-Sensor Short : It happens when R-Sensor is sensing more than 50°C
- 3) release : When R-Sensor is sensing from -45 to 50°C.

B. RT-Sensor Error

- 1) Error Code : Rt
- 2) Condition : ① RT-Sensor Open : It happens when RT-Sensor is sensing less than -45°C
② RT-Sensor Short : It happens when RT-Sensor is sensing more than 50°C
- 3) release : When RT-Sensor is sensing from -45 to 50°C.

C. D-Sensor Error

- 1) Error Code : D1
- 2) Condition : ① D-Sensor Open : It happens when D-Sensor is sensing less than -45°C
② D-Sensor Short : It happens when D-Sensor is sensing more than 50°C
- 3) release : When D-Sensor is sensing from -45 to 50°C

D. R-Door Error

- 1) Error Code : dr
- 2) Condition : It happens when the system senses R-Door opens more than 1 hour
- 3) release : If R-Door switch (close) is sensed, the error is terminated automatically

E. F-Door Error

- 1) Error Code : dF
- 2) Condition : It happens when the system senses F-Door opens more than 1 hour
- 3) release : If F-Door switch (close) is sensed, the error is terminated automatically

F. Cycle Error

- 1) Error Code : C1
- 2) Condition : When D-Sensor is more than -5°C, Comp operates over 3 hours
- 3) release : When Comp is off, D-Sensor is less than -5°C.

* When D-Sensor is normal operation, "C1" Error can be checked.

G. Return Defrost Error

- 1) Error Code : F3
- 2) Condition : Return to next limit defrost time.
- 3) release : Completion of defrost returned by D-Sensor.

* When D-Sensor is normal operation, "F3" Error can be checked.

H. Cycle Error

- 1) Error Code : C1
- 2) Condition : When D-Sensor is more than -5°C , Comp operates over 3 hours
- 3) release : When Comp is off, D-Sensor is less than -5°C .

I. F-Fan FG Error

- 1) Error Code : FG
- 2) Condition :When, FG signal is sensed under like 500rpm, F-Fan is trying to restart
if retry function is repeated 10 times, FG error output.
(During 120minutes after Power on → No Retry Function, FG Error output, immediately)
- 3) release : F-Fan FG Signal is sensed, the error is terminated automatically

■ Constraint

A. H/W Constraint

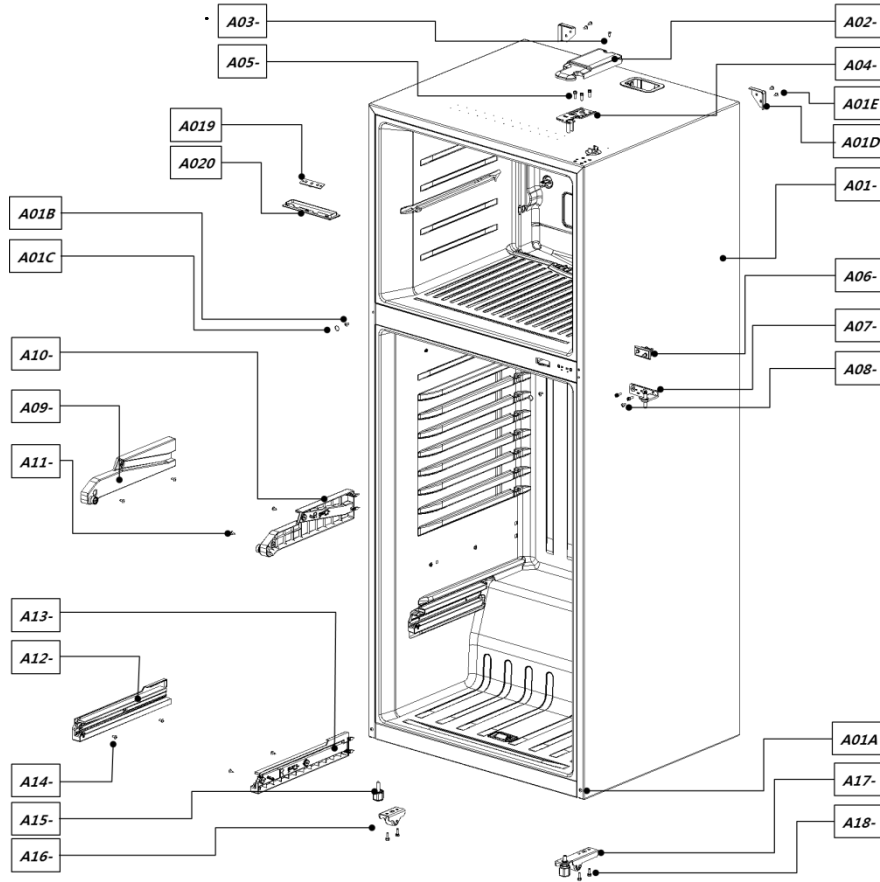
- According to the local environment and Miçom Spec, hardware function can be constrained.

B. S/W Constraint

- Depending on the amount of memory and CPU performance may be different from the S / W performance results
- When operating with other and different applications, it may be deteriorated.

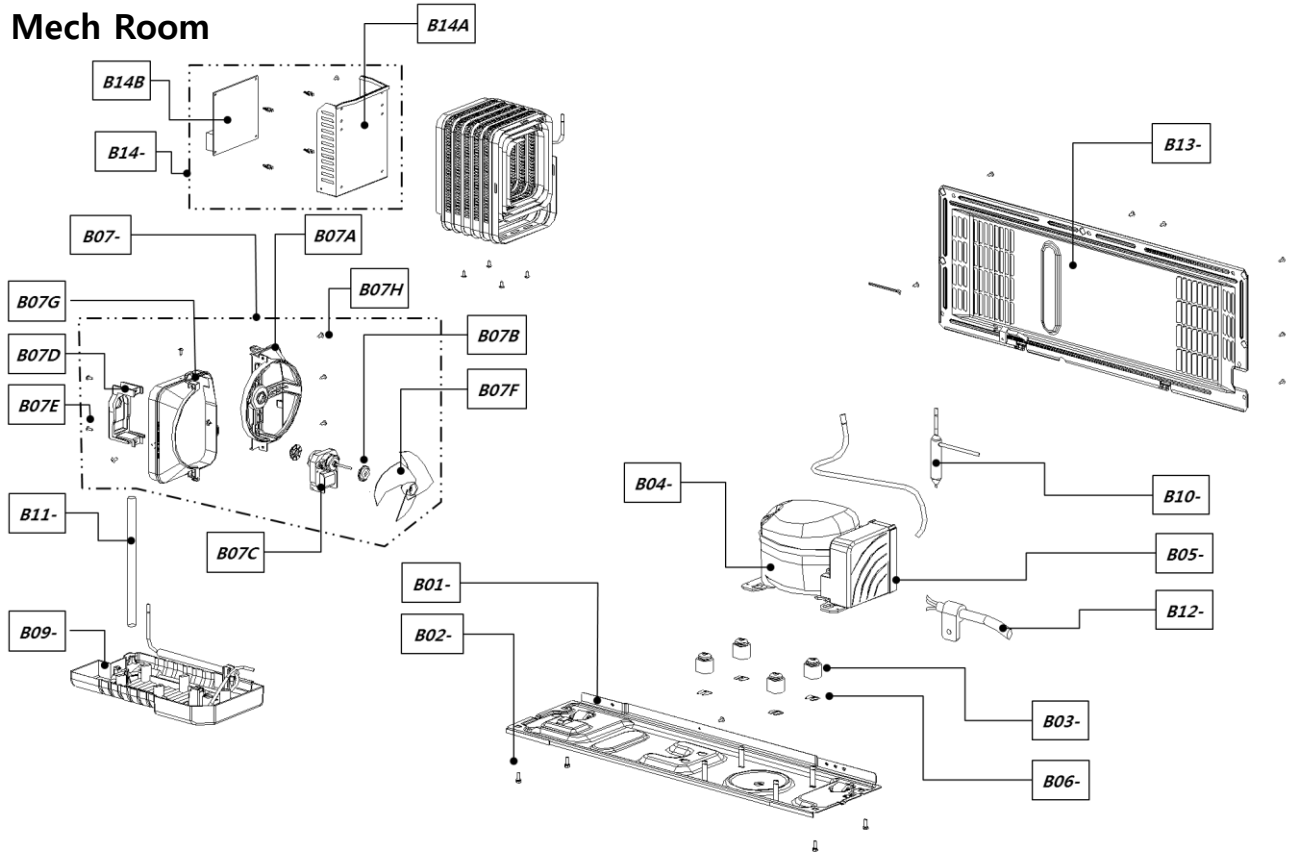
9. Explode View and Part list

■ Cabinet



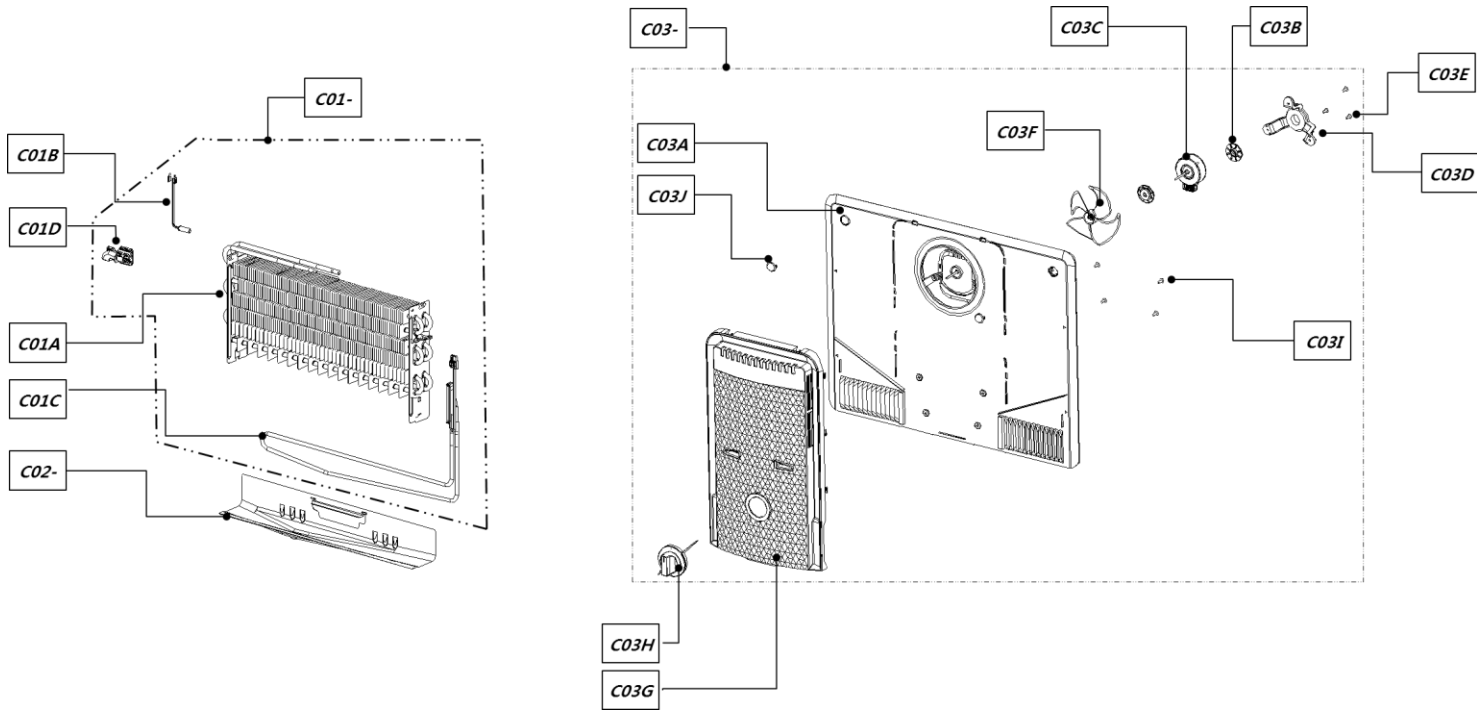
NO	PART-CODE	PART NAME	SPEC.	Q'ty				SVC Parts	Remark
				RGE 490	RGP 490	RGE 520	RGP 520		
A> CABINET									
A	0 1 -	ASSY CAB URT	RGP48	1	1	-	-	N	
			RGE51	-	-	1	1	N	
A	0 1 A	7122401211 SCREW TAPPING	T1 TRS 4*12 MFZN	3	3	3	3	Y	
A	0 1 B	4004Q75204 SPECIAL SCREW AS	SCREW AS	2	2	2	2	Y	
A	0 1 C	3010903200 CAP SCREW	PE-LD WH1304A	2	2	2	2	Y	
A	0 1 D	3010968400 CAP CAB COVR	PP	2	2	2	2	Y	
A	0 1 E	7122401211 SCREW TAPPING	TRS 4*12 MFZN	4	4	4	4	Y	
A	0 2 -	3001445400 COVER HI *T	PP J-370A,FRP-512	1	1	1	1	Y	
A	0 3 -	7122401211 SCREW TAPPING	T1 TRS 4*12 MFZN	1	1	1	1	Y	
A	0 4 -	3012935400 HINGE *T AS	SHP1 2.6T, FPR-512	1	1	1	1	Y	
A	0 5 -	3016001250 SPECIAL BOLT *M	M6*15 SWCH22A	3	3	3	3	Y	
A	0 6 -	3018100010 SWITCH DR	2 BUTTON/4P,DSD-5	1	1	1	1	Y	
A	0 7 -	3012941800 HINGE *M AS	HINGE *M AS RGE48	1	1	1	1	Y	
A	0 8 -	3016001250 SPECIAL BOLT *M	M6*15 SWCH22A	2	2	2	2	Y	
A	0 9 -	30125-0034000-00 GUIDE U/C *L AS	FRP-512, GUIDE+ROLLER	1	1	1	1	Y	option
A	1 0 -	30125-0034100-00 GUIDE U/C *R AS	FRP-512, GUIDE+ROLLER	1	1	1	1	Y	option
A	1 1 -	7122401611 SCREW TAPPING	T2S TRS 4X16 MFZN	4	4	4	4	Y	option
A	1 2 -	30125-0035100-00 GUIDE F/C *L AS	AS	1	1	1	1	Y	option
A	1 3 -	30125-0035200-00 GUIDE F/C *R AS	AS	1	1	1	1	Y	option
A	1 4 -	7122401611 SCREW TAPPING	T2S TRS 4X16 MFZN	4	4	4	4	Y	option
A	1 5 -	3012107000 FOOT ADJ AS	PP	1	1	1	1	Y	
A	1 6 -	30165-0002000-00 CASTER *F AS	RGE48	1	1	1	1	Y	
A	1 7 -	3012941900 HINGE *U AS	SPHC T3.0	1	1	1	1	Y	
A	1 8 -	3016003300 SPECIAL BOLT	M6.5*20	4	4	4	4	Y	
A	1 9 -	30136A1600 LAMP LED AS	3LED,66*20*1.6T,DC12V	1	1	1	1	Y	option
A	2 0 -	3015531000 WINDOW F LAMP	GPPS	1	1	1	1	Y	option

Mech Room



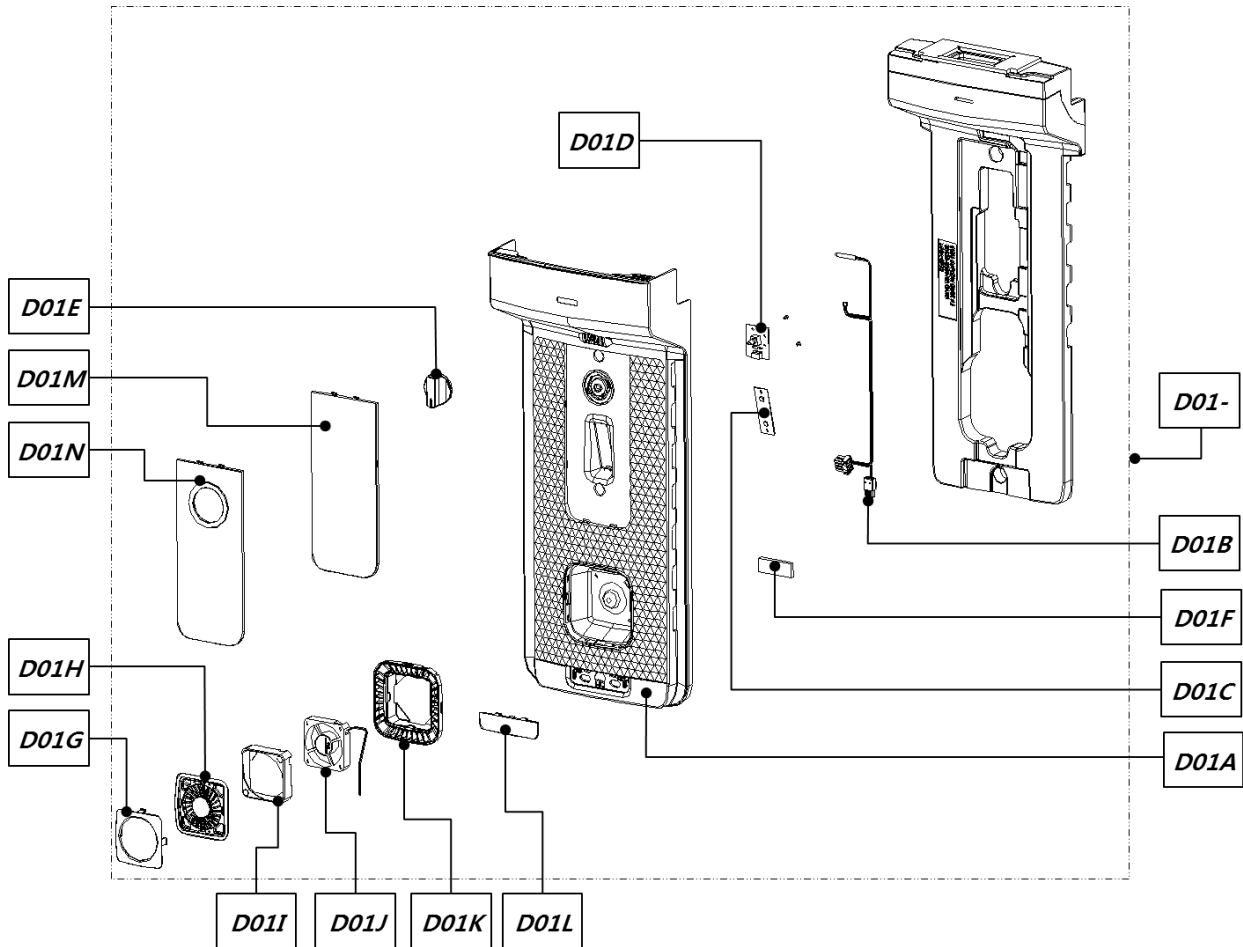
NO	PART-CODE	PART NAME	SPEC.	Q'ty				SVC Parts	Remark
				RGE 490	RGP 490	RGE 520	RGP 520		
B> MECH ROOM									
B 0 1	- 30103-0028700-02	BASE COMP AS	AS	1	1	1	1	Y	
B 0 2	- 3016003300	SPECIAL BOLT	T2 M6.5*20	4	4	4	4	Y	
B 0 3	- 3010101600	ABSORBER COMP	NBR	4	4	4	4	Y	R-134A
B 0 4	- 60110-0024500-00	COMPRESSOR	BMH089NHMV LG-China 220 50	1	1	1	1	Y	R-600A
B 0 5	- 30105-0043900-00	COMP BOX INVERTER AS	CEA2000J7D LG-China 230 50	1	1	1	1	Y	R-600A
B 0 6	- 3016002520	SPECIAL WASHER COMP	T0.8*W19*L19.5	4	4	4	4	Y	
B 0 7	- 30185-0002003-00	M/BELL AS	DC 12V	1	1	1	1	Y	
B 0 7 A	3018501600	M/BELL A1	PP	1	1	1	1	Y	
B 0 7 B	3010107100	ABSORBER F MOTOR	ABSORBER F MOTR NBR	2	2	2	2	Y	
B 0 7 C	60159-0010900-00	MOTOR C FAN	DC 12V	1	1	1	1	Y	
B 0 7 D	3012049100	FIXTURE MOTR	PP	1	1	1	1	Y	
B 0 7 E	7122401011	SCREW TAPPING	TRS 4*10 MFZN	2	2	2	2	Y	
B 0 7 F	3011834510	FAN AS	FAN OD130, ABS	1	1	1	1	Y	
B 0 7 G	3018501700	M/BELL A2	PP	1	1	1	1	Y	
B 0 7 H	7122401011	SCREW TAPPING	TRS 4*10 MFZN	2	2	2	2	Y	
B 0 8	- 60144-0025300-03	PIPE WICON AS	AS	1	1	1	1	Y	
B 0 9	- 3011192C00	CASE VAPORI	PP(SCRAP 100%)	1	1	1	1	Y	
B 1 0	- 60168-0001600-01	DRYER AS	10G, SINGLE TUBE	1	1	1	1	Y	
B 1 1	- 3012513950	HOSE DRN A2	PVC	1	1	1	1	Y	
B 1 2	60113-0006616-00	CORD POWER AS	영국형, LP-61L Ringcore 4Turn+BNF-18 2Turn	1	1	1	1	Y	
	60113-0006615-00		유형형, LP-33 Ringcore 4Turn+BNF-18 2Turn	1	1	1	1	Y	
	60113-0006614-00		내수형, LP-33 Ringcore 4Turn+BNF-18 2Turn	1	1	1	1	Y	
B 1 3	- 30114-0076900-00	COVER MACH RM AS	AS	1	1	1	1	Y	
B 1 4	30105-0030107-00	BOX M/PCB AS	DIAL+INVERTER+XCOOL 수출	1	-	1	-	Y	
	30105-0030108-00		FCP+INVERTER+XCOOL 수출	-	1	-	1	Y	
	30105-0030109-00		DIAL+INVERTER+XCOOL 내수	1	-	1	-	Y	
	30105-0030110-00		FCP+INVERTER+XCOOL 내수	-	1	-	1	Y	
B 1 4 A	3010591300	BOX M/PCB	SGCC 0.4T	1	1	1	1	Y	
B 1 4 B	40301-0099710-00	PCB MAIN ASSY	DIAL+INVERTER+XCOOL 수출	1	-	1	-	Y	
	40301-0099711-00		FCP+INVERTER+XCOOL 수출	-	1	-	1	Y	
	40301-0099716-00		DIAL+INVERTER+XCOOL 내수	1	-	1	-	Y	
	40301-0099712-00		FCP+INVERTER+XCOOL 내수	-	1	-	1	Y	

EVAPORATOR AS / LOUVER F AS



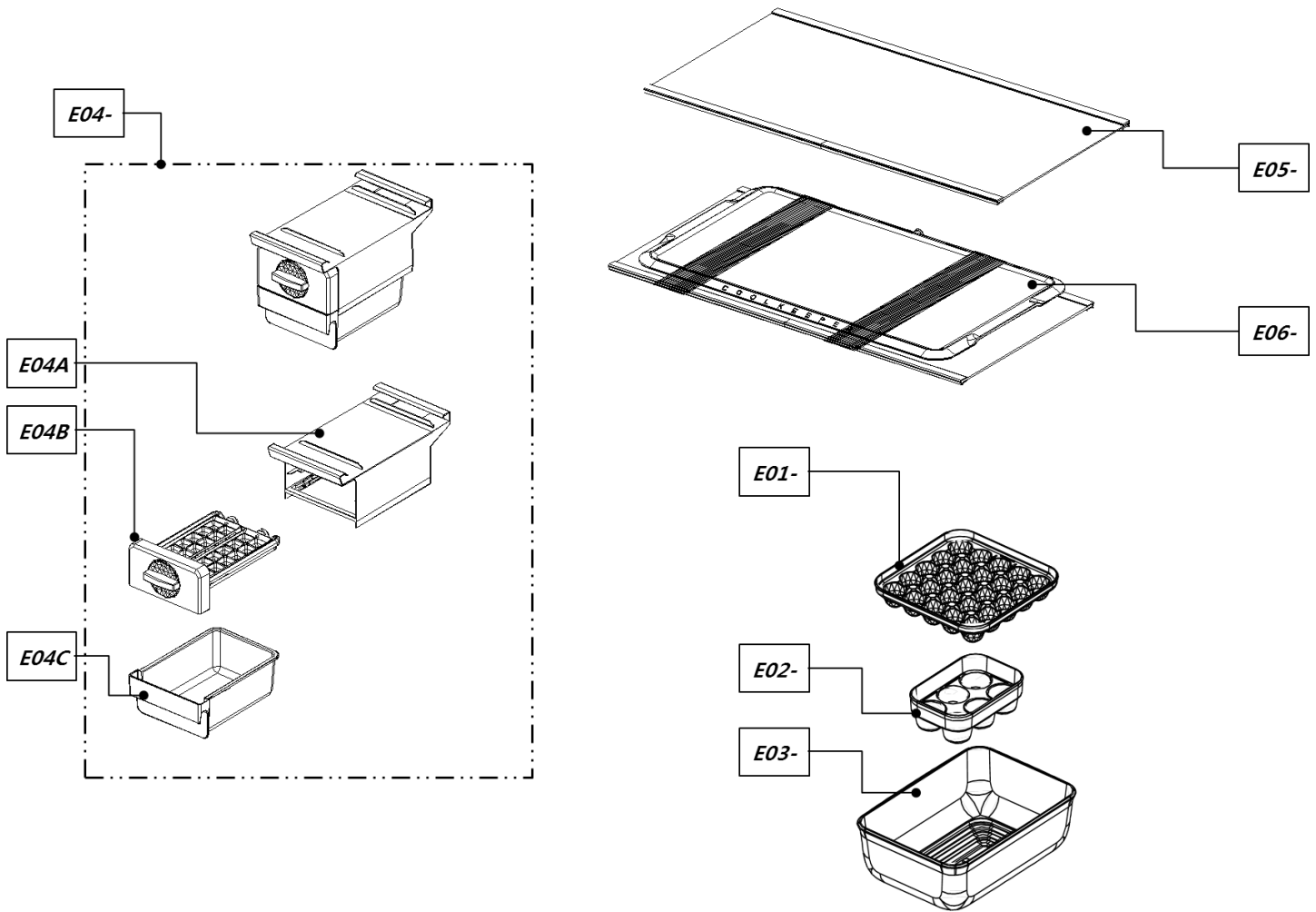
NO	PART-CODE	PART NAME	SPEC.	Q'ty				SVC Parts	Remark		
				RGE 490	RGP 490	RGE 520	RGP 520				
C> EVAPORATOR AS / LOUVER F AS											
C	0	1	60170-0008500-00	EVA AS	230V	1	1	1	1	Y	
			60170-0008501-00	EVA AS	110V	1	1	1	1	Y	
C	0	1	A 60170-0008600-03	EVA SAS	AS	1	1	1	1	N	
C	0	1	B 3014813800	SENSOR DEFR AS	SENSOR D AS R13E10B0FDNMX4	1	1	1	1	Y	
C	0	1	C 60128-0010900-00	HEATER SHEATH AS	230V 200W RGE48	1	1	1	1	Y	
			60128-0010901-00	HEATER SHEATH AS	110V 185W RGE48/51	1	1	1	1	Y	
C	0	1	D 3012050300	FIXTURE DEFR SENS	PP	1	1	1	1	Y	
C	0	2	- 3012559300	GUIDE DRN	GL T0.3X670X150	1	1	1	1	Y	
C	0	3	- 30189-0016100-00	LOUVER F AS	DC 12V 2100RPM	1	1	1	1	Y	
C	0	3	A 3018934900	LOUVER F	PP	1	1	1	1	Y	
C	0	3	B 3010142700	ABSORBER F MOTR	NBR	2	2	2	2	Y	
C	0	3	C 60159-0012500-00	MOTOR F FAN	DC12V Ø110 2100 rpm	1	1	1	1	Y	
C	0	3	D 30120-0030500-00	FIXTURE MOTR *B	PP, BJ750, GPF2	1	1	1	1	Y	
C	0	3	E 7112401011	SCREW TAPPING	T1 TRS 4*12 MFZN	3	3	3	3	Y	
C	0	3	F 3011802700	FAN AS	FAN(OD110)+CLAMP	1	1	1	1	Y	
C	0	3	G 30114-0076800-00	COVER F FAN PR	SILK PRINT	1	1	1	1	Y	
C	0	3	H 3013417800	KNOB F CONTL	HIPS	1	1	1	1	Y	
C	0	3	I 7112401211	SCREW TAPPING	T1 TRS 4*12	4	4	4	4	Y	
C	0	3	J 3010924600	CAP F LUVR	HIPS T2.3	2	2	2	2	Y	

■ Cover M/Flow Duct AS



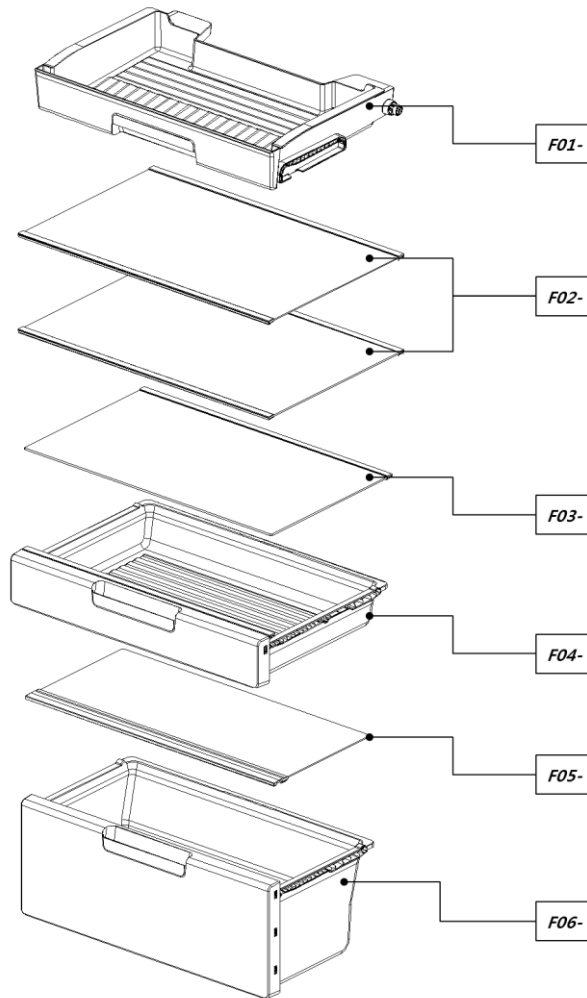
NO	PART-CODE	PART NAME	SPEC.	Q'ty				SVC Parts	Remark			
				RGE 490	RGP 490	RGE 520	RGP 520					
D> COVER M/F DUCT AS												
D	0	1	-	30114-0107500-00	COVER M/F DUCT AS	RGE49, 52, DAIL TYPE	1	-	1	-	Y	
				30114-0107501-00	COVER M/F DUCT AS	RGP49.52, FCP TYPE	-	1	-	1	Y	
D	0	1	A	30114-0104100-00	COVER M/F DUCT	PP	1	1	1	1	Y	
D	0	1	B	60127-0037802-00	HARNESS M/F DUCT AS	VOLUME+SENSOR+LED+XCOOL	1	-	1	-	Y	
				60127-0037803-00		SENSOR+LED+XCOOL	-	1	-	1	Y	
D	0	1	C	30136A1600	LAMP LED AS	LED-3, 66X20X1.6T, DC12V	1	1	1	1	Y	
D	0	1	D	30143KW260	PCB ASSY	BALLISTA VOLUME	1	-	1	-	Y	
D	0	1	E	3013417900	KNOB R CONTL	RGE48, 51, NO FCP TYPE	1	-	1	-	Y	
D	0	1	F	3018702000	DEO ANTI AS	활성탄+황규제+금속대, T5xW18xL49	1	1	1	1	Y	
D	0	1	G	30116-0041700-00	DECO FAN XCOOL	ABS	1	1	1	1	Y	
D	0	1	H	30114-0105100-00	COVER FAN XCOOL	ABS투명	1	1	1	1	Y	
D	0	1	I	60101-0007400-00	ABSORBER FAN	NBR	1	1	1	1	Y	
D	0	1	J	60159-0012100-00	MOTOR BOX FAN AS	NMB, DC12V, 0.6W, 2800rpm	1	1	1	1	Y	
D	0	1	K	30120-0029400-00	FIXTURE FAN XCOOL	ABS	1	1	1	1	Y	
D	0	1	L	30114-0109000-00	COVER DEO SAS	ABS+PRINT	1	1	1	1	Y	
D	0	1	M	30155-0029600-00	WINDOW R LAMP A1	GPSS+PRINT, DAIL TYPE	1	-	1	-	Y	
D	0	1	N	30155-0029500-00	WINDOW R LAMP A1	GPSS+PRINT, FCP TYPE	-	1	-	1	Y	

Freezer Compartment



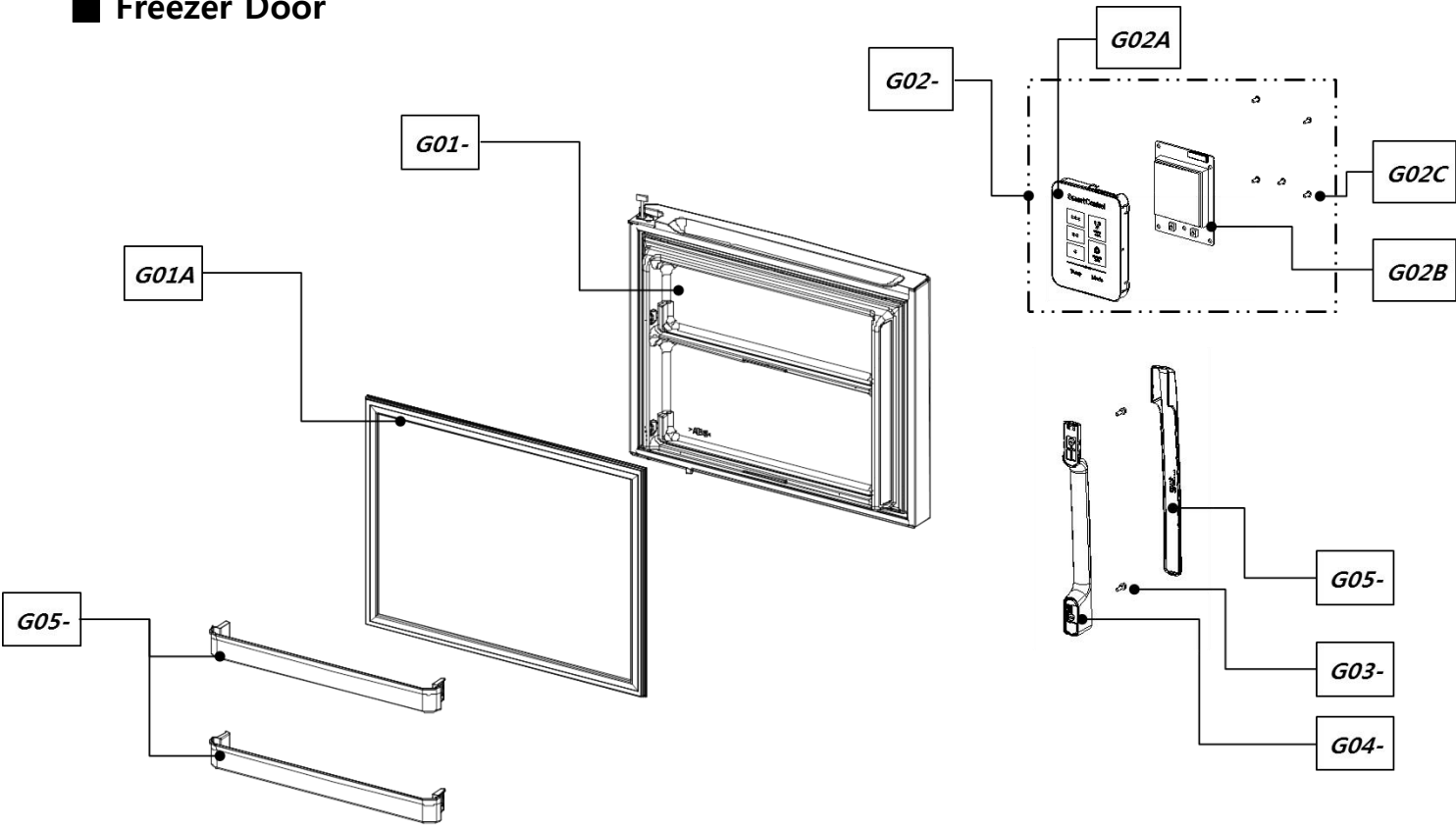
NO	PART-CODE	PART NAME	SPEC.	Q'ty				SVC Parts	Remark
				RGE 490	RGP 490	RGE 520	RGP 520		
E> Freezer Compartment									
E 0 1	- 301119ZJ00	CASE ICE	PP CASE ICING(TRAY)	1	1	1	1	Y	option
E 0 2	- 301119ZD00	CASE EGG	PP	1	1	1	1	Y	option
E 0 3	- 301119ZH00	CASE ICE	PP MULTI BOX	1	1	1	1	Y	option
E 0 4	- 30104-0003800-00	BODY I/MAKER AS	AS	1	1	1	1	Y	option
E 0 4	A 30104-0003600-00	BODY I/MAKER	HIPS	1	1	1	1	Y	option
E 0 4	B 3012258300	FRAME I/MAKER AS	AS	1	1	1	1	Y	option
E 0 4	C 3010591200	BOX ICE	GPPS	1	1	1	1	Y	option
E 0 5	- 30178-0025300-02	SHELF F GLAS AS	AS	1	1	1	1	Y	option
	- 30178-0025301-02		FILM	1	1	1	1	Y	option
E 0 6	- 30178-0027700-02	SHELF F I/PACK AS	SHELF(FILM),I/PACK	1	1	1	1	Y	option

Refrigerator Compartment



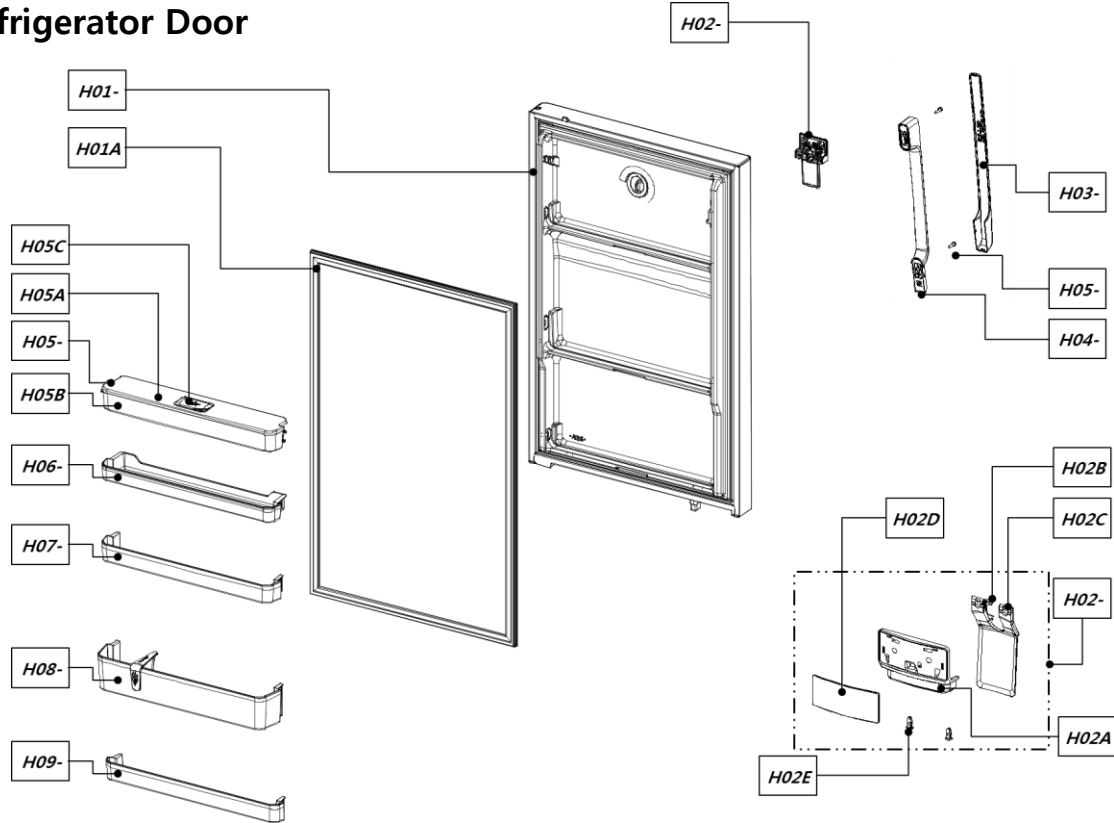
NO	PART-CODE	PART NAME	SPEC.	Q'ty				SVC Parts	Remark			
				RGE 490	RGP 490	RGE 520	RGP 520					
F> Refrigerator Compartment												
F	0	1	-	30111-0042100-00	CASE UTILITY AS	SILK PRINT	1	1	1	1	Y	option
				30111-0042101-00		SILK PRINT+HOTSTAMPING	1	1	1	1	Y	option
F	0	2	-	30178-0025100-01	SHELF R GLAS AS	AS	2	2	2	2	Y	option
				30178-0025101-01		FILM	2	2	2	2	Y	option
F	0	3	-	30178-0027600-01	SHELF FC GLASS AS	AS	1	1	1	1	Y	option
				30178-0027601-01		FILM	1	1	1	1	Y	option
F	0	4	-	30111-0043700-00	CASE FRESH AS	SILK PRINT	1	1	1	1	Y	option
				30111-0043701-00		SILK PRINT+HOTSTAMPING	1	1	1	1	Y	option
F	0	5	-	30178-0025200-01	SHELF V/CASE AS	AS	1	1	1	1	Y	option
				30178-0035400-00		HNMID	1	1	1	1	Y	option
F	0	6	-	30111-0042000-00	CASE VEGETB AS	SILK PRINT	1	1	1	1	Y	option
				30111-0042001-00		SILK PRINT+HOTSTAMPING	1	1	1	1	Y	option

Freezer Door



NO	PART-CODE	PART NAME	SPEC.	Q'ty				SVC Part s	Remark		
				RGE 490	RGP 490	RGE 520	RGP 520				
G> Freezer Door											
G	0	1	-	30100-0105400-01	DWG1C(WHITE), NO FCP	1	-	-	-	Y	option
				30100-0105409-00	SSG7E(SPACE SILNER), NO FCP	1	-	-	-	Y	
				30100-0105403-01	DWG1C(WHITE), FCP	-	1	-	-	Y	
				30100-0105410-00	SSG7E(SPACE SILNER), FCP	-	1	-	-	Y	
				30100-0109000-01	DWG1C(WHITE), NO FCP	-	-	1	-	Y	
				30100-0109011-00	SSG7E(SPACE SILNER), NO FCP	-	-	1	-	Y	
				30100-0109003-01	DWG1C(WHITE), FCP	-	-	-	1	Y	
				30100-0109012-00	SSG7E(SPACE SILNER), FCP	-	-	-	1	Y	
G	0	1	A	30123-0014200-02	GASKET F DR AS PVC-S, DOP FREE(LS-130S *L/G)	1	1	1	1	Y	
G	0	2	-	60142-0030000-00	PANEL CONTL *F AS ENGLISH	-	1	-	1	Y	
				60142-0030001-00	KOREA	-	1	-	1	Y	
G	0	2	A	60142-0029600-00	PANEL CONTL *F ABS, FILM	-	1	-	1	Y	
G	0	2	B	40301-0057901-00	PCB FRONT AS FR-4 81*196-1.6T	-	1	-	1	Y	
G	0	2	C	7121300811	SCREW TAPPING T25 PAN 3*8 MFZN	-	5	-	5	Y	
G	0	3		3016044300	SPECIAL BOLT HNDL SWCH10A	2	2	2	2	Y	
G	0	4	-	30126-0027400-00	HANDLE F ABS	1	1	1	1	Y	
				30116-0043200-00	DECO HANDLE F GY9702A, SPRAY	1	1	1	1	Y	
				30116-0041100-00	WH1802A	1	1	1	1	Y	
G	0	6		3019076000	POCKET F GPPS	2	2	2	2	Y	

Refrigerator Door



NO	PART-CODE	PART NAME	SPEC.	Q'ty				SVC Parts	Remark			
				RGE 490	RGP 490	RGE 520	RGP 520					
H> Refrigerator Door												
H	0	1	-	30100-0105600-00	DWG1C(WHITE), NO DISP	1	-	-	-	Y	option	
				30100-0105609-00	SSG7E(SPACE SILVER), NO DISP	1	-	-	-	Y		
				30100-0105603-00	DWG1C(WHITE), FCP	-	1	-	-	Y		
				30100-0105610-00	ASSY R DR	SSG7E(SPACE SILVER), DISP	-	1	-	-		Y
				30100-0109100-00	DWG1C(WHITE), NO FCP	-	-	1	-	Y		
				30100-0109111-00	SSG7E(SPACE SILVER), NO DISP	-	-	1	-	Y		
				30100-0109103-00	DWG1C(WHITE), FCP	-	-	-	1	Y		
				30100-0109112-00	SSG7E(SPACE SILVER), DISP	-	-	-	1	Y		
H	0	1	A	30123-0014601-01	GASKET R DR AS	PVC-S, DOP FREE(LS-130S *L/G)	1	1	-	-	Y	
				30123-0014500-02	GASKET R DR AS	PVC-S, DOP FREE(LS-130S *L/G)	-	-	1	1	Y	
H	0	2	-	60142-0031600-00	PANEL DISPNS AS	SILK PRINT+SPRAY	1	1	1	1	Y	
H	0	2	A	60142-0031500-00	PANEL DISPNS SAS	ABS+SPRAY	1	1	1	1	Y	
H	0	2	B	3015103600	SPRING DISPNS LEVR	STS304 0.8T*7	1	1	1	1	Y	option
H	0	2	C	3013706000	LEVER W/DISPNS	GPPS	1	1	1	1	Y	
H	0	2	D	30116-0043100-00	DECO W/DISPNS	ABS, SPRAY+PRINT	1	1	1	1	Y	
H	0	2	E	3012042100	FIXTURE A10	ABS, SGO760	2	2	2	2	Y	
H	0	3	-	3016044300	SPECIAL BOLT HNDL	SWCH10A	2	2	2	2	Y	
H	0	4	-	30126-0021600-00	HANDLE R	ABS	1	1	1	1	Y	
H	0	5	-	30116-0043300-00	DECO HANDLE R	GY9702A, SPRAY	1	1	1	1	Y	
				30116-0041200-00	DECO HANDLE R	WH1802A	1	1	1	1	Y	
H	0	6	-	30182-0003900-00	TANK WATER AS	AS	1	1	1	1	Y	
H	0	6	A	301149GD00	COVER W/TANK	LDPE	1	1	1	1	Y	
H	0	6	B	30182-0004000-00	TANK WATER SAS	SILK PRINT	1	1	1	1	Y	option
H	0	6	C	30109-0043100-00	CAP W/TANK COVR	SILICON	1	1	1	1	Y	
H	0	7	-	3019076100	POCKET R *T	GPPS	1	1	1	1	Y	
H	0	8	-	3019076200	POCKET R *M	GPPS	1	1	1	1	Y	option
				30190-0023800-00	POCKET R *M PR	GPPS, SILK PRINT	1	1	1	1	Y	option
H	0	9	-	30190-0023100-00	POCKET JUMBO PR	GPPS	1	1	1	1	Y	
H	1	0	-	3019076400	POCKET R *U	GPPS	1	1	1	1	Y	